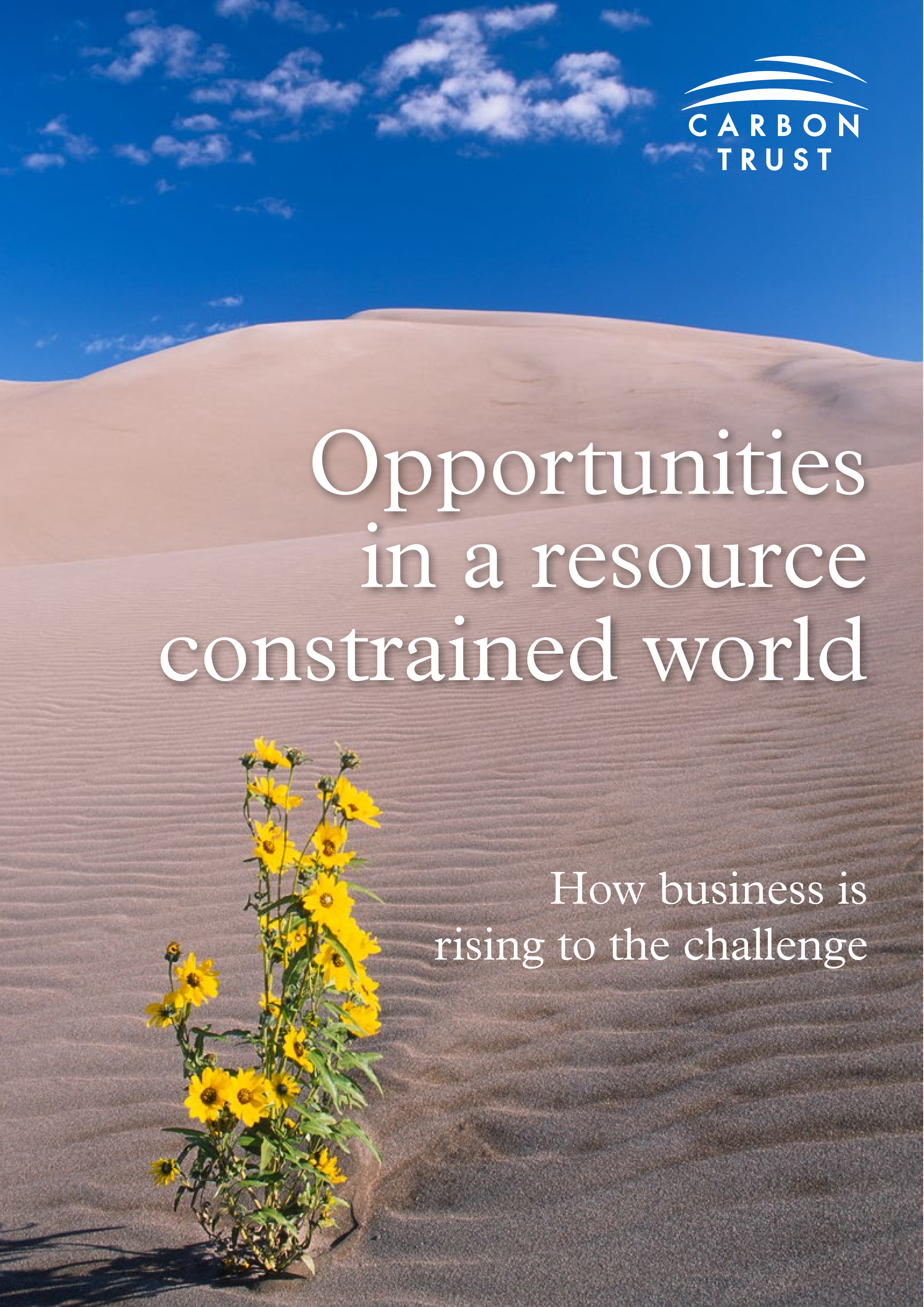


Opportunities in a resource constrained world

How business is rising to the challenge

CARBON TRUST

Foreword

The last five years have seen global attention fixed firmly on the financial crisis and economic recovery, but while this has been playing out a far more fundamental risk to our long term economic development has remained in the background: the rapidly expanding use of our scarce natural resources, combined with the planet's ability to cope with the multiple impacts of their use. In the year the financial crisis began, the world was already using resources at a rate 50% faster than it can renew. And as our growing population, expected to reach nine billion by 2050, consumes more, these strains on our natural capital will become even more acute.

The inevitable conclusion of this is a resource crunch. It means we urgently need to find new methods of production, address wasteful consumption and develop innovative business models that put sustainability at the heart of business operations. But a recent survey of global business leaders shows that while awareness of a pending resource crunch is high, most businesses see this as a risk to be managed rather than as a new commercial opportunity.

True leaders recognise this opportunity and take a deeper look at resource use to drive a far more fundamental business change. The organisations that have contributed towards our report are well on the way towards building sustainability into their very DNA; we believe that all organisations have potential for success in their own response to sustainability issues.

In this and our future work we hope to work together to help you make sense of and react to this complex and dynamic challenge.

Tom Delay
Chief Executive, The Carbon Trust

Executive summary

Resource constraints are looming beyond carbon.

Water, waste, land-use, and materials constraints – as well as carbon – are looming as resource challenges to business. For example there could be a 40% gap between available water supplies and water needs by 2030, and some critical materials could be in short supply as soon as 2016. The concept of sustainability in business is expanding accordingly.

Some businesses are acting now on sustainability.

We have profiled four Carbon Trust customers: Whitbread, BT, Stagecoach, and Bord Bia. These organisations are taking leading action on sustainability and we set out some of the steps they have taken.

All four organisations profiled have sought to better understand their exposures.

Footprinting can identify where impacts occur in a supply chain and within an organisation's operations and suggest areas to target for reductions.

Key drivers for action in the four case studies profiled include competitive differentiation; leadership; and cost, efficiency, and value creation.

While these drivers are not exhaustive they do start to provide insight into what motivates companies:

- **Competitive differentiation**: By setting themselves and their products apart on the basis of environmental credentials, companies can increase their competitiveness and strengthen their brand;
- **Leadership**: Some companies seek to characterise themselves as sustainability leaders as part of a strategy to enhance their reputation through action on sustainability and/or have strong leaders who want to prioritise sustainability;
- **Cost, efficiency, and value creation**: Being more resource efficient is most compelling for business when it can deliver savings or create new growth opportunities, such as creating new products that meet evolving consumer demands.

However, most businesses remain to be convinced of the business value in acting on sustainability.

Although we have profiled four companies that are taking action, the majority of businesses do not see sufficient value-at-risk or new business opportunities emerging from sustainability considerations to motivate real action. In the Carbon Trust's own research only 5% of companies surveyed saw their response to sustainability as that of a global pioneer. By contrast 40% of companies saw their response to sustainability as reactive.

In our future work we want to start an ongoing dialogue with business to help them understand their exposure to the growing list of sustainability issues, identify the best course of action, and to make a compelling case for change.

Section 1: The resource challenge

Business is faced with a series of looming resource challenges that threaten the viability of existing business models but also open up new value creation opportunities. Here we ask: what does sustainability mean for business; set out the resource constraints for energy, water, land, materials, and waste; and discuss the impact of these challenges on business.

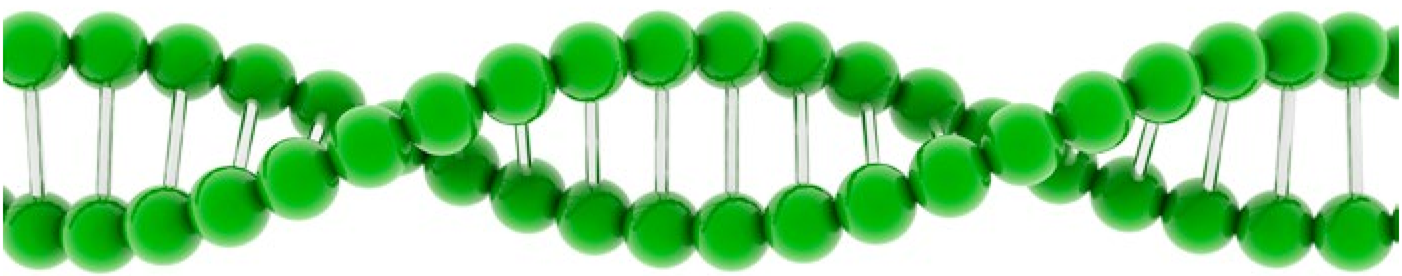
What does sustainability mean for business?

In recent years the business community has increasingly come to recognise that it needs to become more sustainable in its attitudes and practices. Regulation, price signals, scientific evidence, and public interest have all helped bring about this change; but the strength of these influences is not consistent across the spectrum of sustainability issues, and nor is the response. To protect our economy, our environment, and the resources available to future generations, we need today's businesses to recognise the severity of the threats and to take action accordingly.

A small number of leading organisations are expanding the scope of their sustainability action to address the growing list of sustainability issues. The Carbon Trust too has developed a range of services that reach beyond energy and carbon. In 2013 we launched the Carbon Trust Water Standard and the Carbon Trust Waste Standard, reflecting the growing interest and action in these areas.

However, we have found that the majority of companies have yet to understand what sustainability really means beyond carbon, why this is important, and what they can do to take action. Even fewer businesses seem to recognise that proactive engagement with sustainability has the potential to drive value rather than being an exercise in corporate reporting or risk mitigation.

Through this report and following work we aim to understand why this is the case, and explore how we can help to change this perspective. Our aim is to help organisations get to grips with the exposures they face and unlock the value-creating opportunities sustainability presents for them.



Looming resource constraints

There is a growing list of issues that pose sustainability challenges for today's global economy. Those most commonly discussed are energy use, water scarcity, land shortages, the depletion of materials and the management of waste[i].

Energy use	The current reliance on fossil fuels (80% of the global energy mix[ii]) is unsustainable - despite fossil fuel resources being expected to last for 53-109 years[1]. If we hope to keep global temperatures from rising more than 2°C, less than one third of these resources can be used before 2050 (without the widespread introduction of CCS[iii]) . The security of energy supplies and the efficiency with which energy is used are further challenges impacting the availability and cost of energy use.
Water scarcity	A 40% gap between global water needs and availability is possible by 2030 in a 'business as usual' scenario[iv]; 40% of the world's population are already living in areas of physical or economic water scarcity[2v]. With 40% of the world's water consumption already embedded in goods and services traded internationally in 2009[vi], the risks associated with scarcity are often obscured.
Land shortages	There is sufficient land to feed the earth's growing population but only if large efficiency gains are made[vii]. This would require prioritisation and optimisation of use, particularly in areas of dense population, so restrictions on land use are likely to tighten with resulting implications for global agriculture.
Material depletion	Reserves vary greatly across resources but crucial resources such as some rare earth metals could reach critical levels as soon as 2016[viii]. In addition to depletion, resource availability can be threatened by multiple factors, such as regulatory, geo-political, or interruptions from natural disasters.
Waste management	Regulation of waste is now widespread in much of the world and is likely to become more so, particularly in developing countries, as the problem is compounded by other sustainability issues such as land shortages and resource depletion.

1 Global reserves-to-production ratios for fossil fuels are: Oil 52.9 years, Natural Gas 55.7 years and Coal 109 years. *BP Statistical Review of World Energy 2013*, www.bp.com/statisticalreview

2 Water scarcity occurs when annual water supplies drop below 1,000m^3 per person per year; economic water scarcity occurs when the supplies are available but countries lack the necessary infrastructure to take water from rivers and aquifers, www.un.org/waterforlifedecade/scarcity.shtml

Each sustainability issue presents its own set of challenges for business to manage. Challenges common across several issues include disruptions to supply, the impact of regulation, and the behaviour of prices.

Supply issues

Unsustainable use of resources can disrupt the supply of goods and services to business. Supply disruptions can be caused by more materials, water, and land resources being demanded than can be supplied in a particular location. Disruptions can be driven by outright physical scarcity or could be the result of sources of supply being controlled strategically by companies or governments.

Impact of regulation

One way governments attempt to control resource use is through regulation. This can present itself as a quantity or production restriction on the way business can use a resource or as an explicit additional cost that must be managed. In different parts of the world regulation controls how land is used, limits fossil fuel energy generation, manages water allocations, or dis-incentivises landfill waste.

Pricing

Prices are the way markets allocate scarce resources. If demand for a resource increases, for a given supply, prices should also increase. Higher prices moderate demand and encourage supply, including from secondary sources such as waste streams, tending to equilibrate supply and demand. However, for some resources, such as water, prices do not reflect their costs of supply, distorting price signals.

Distorted prices may lead business to use some resources unsustainably. Even where price signals are properly reflective, sustainable decision-making can be challenging. Fast-moving consumer demand and long and complex supply chains can make it difficult for business to take account of the long-term sustainability of the resources they use.

Volatility

Scarcity, regulation, and strategic behaviour can all cause prices to be volatile. Price volatility makes it difficult for business to manage costs and properly price its goods and services. The supply of rare earth elements in 2011, almost solely from China, illustrates both highly volatile prices and also the inability of high prices alone to lead to more sustainable resource use.

Adapting to a resource constrained world

Some resource challenges left unaddressed threaten the viability of existing business models. Conversely more sustainable resource use presents business with opportunities to improve efficiency, strengthen long-term resilience, and create value.

In the next section we look at four companies that have recognised this potential, examining their motivations and the barriers they have overcome. In the last section we consider attitudes more widely across the business community, before reflecting on how we can help businesses recognise the scale of the opportunities and challenges they face and take action accordingly.

Section 2: Leading action from Carbon Trust customers

To examine how some of the most engaged organisations are approaching wider sustainability issues we've looked in detail at how four Carbon Trust customers with innovative visions are embracing the sustainability challenge to drive value creation.

Whitbread is the UK's largest hotel and restaurant group, including well-known brands such as Premier Inn, Costa, Brewers Fayre and Beefeater Grill. With a huge estate and multi-million pound energy bill, Whitbread recognises the need to be a force for good in the communities where they operate, addressing the challenges of resource efficiency.

Stagecoach Group is a leading international public transport company with bus and rail operations in the UK and North America, with around three million customers making journeys each day. Stagecoach recognises it has an opportunity to make a difference by providing greener, smarter travel options and encouraging people to switch modes of transport.

BT is one of the world's leading communications services companies, delivering fixed-line, broadband, networked IT, mobile and TV products and services to businesses and consumers in the UK and more than 170 countries worldwide. BT's Net Good goal is to help customers reduce carbon emissions by at least three times the end-to-end carbon impact of BT's own business.

Bord Bia – the Irish Food Board – acts as a link between Irish food, drink and horticultural producers and customers throughout the world. In 2013 the food and drink sector accounted for 7% of Irish economic output with exports reaching €10bn. To continue this success, they are seeking to demonstrate and communicate that Ireland is a responsible and sustainable producer of food and drink products.

This small sample is by no means representative of all industries affected by sustainability considerations – nor even fully representative of the industries these organisations belong to. Our aim is not to use these case studies to paint a comprehensive picture of all possible approaches to sustainability. Instead these case studies are intended to illustrate some of the motivations for, and barriers to, engagement with wider sustainability issues, and to identify areas for further, more detailed exploration. Extracts from the case studies are included in this section, and all four can be found in full at the end of this document.

Understanding the challenge

Each individual company has its own particular motivations for action. However, all four companies we spoke to have taken steps to understand aspects of their exposures to help build a case for taking action on sustainability. Understanding exposures means mapping out where in their own operations and supply chain impacts occur and using that information to identify where to focus action.

Measuring impacts and identifying improvement opportunities

Once companies are motivated to act on sustainability they will often take steps to understand more precisely their use of resources, and to identify opportunities for improvement. Hundreds of companies around the world have worked in close partnership with the Carbon Trust to build a detailed picture of their energy and carbon footprints, either on an organisational or product basis.

Bord Bia
Irish Food Board

Using the carbon footprint models built with the Carbon Trust for the dairy, beef, poultry, pork, and lamb industries, Bord Bia has been able to demonstrate the relative resource competitiveness of Irish agriculture, with the Irish dairy industry being shown to have the joint lowest carbon footprint in Europe.

The footprint information allows further hotspots to be targeted to help maintain the industry's leading position.

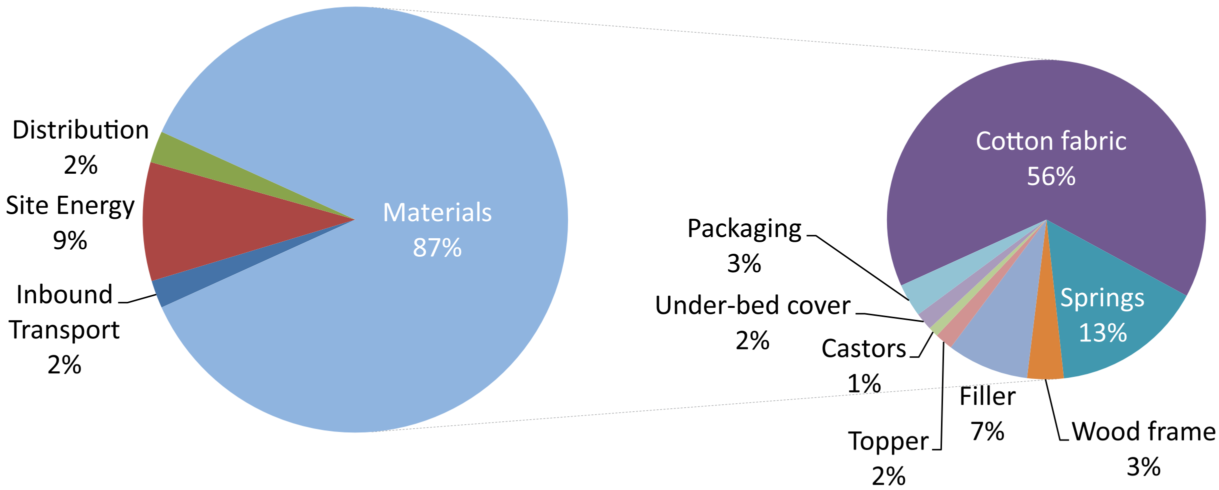
Bord Bia has gone on to carry out 50,000 farm assessments, providing bespoke feedback to help farmers identify actions that deliver financial and environmental improvements. Given the tight margins prevailing in the sector, any additional efficiencies are a welcome benefit to the bottom line.

Increasingly companies are now are turning to their water and waste footprints. Armed with footprint information, companies can build options for reducing their resource impacts while unlocking cost saving efficiency benefits, or highlighting resource competitiveness relative to rival products.

Whitbread has worked closely with the Carbon Trust since 2006 and has now achieved the Carbon, Water, and Waste Standards. Together we have identified new opportunities for sustainable growth in the business, giving Whitbread the confidence to invest £4m p.a. in energy and resource efficiency.

By calculating the carbon footprint of its signature Premier Inn bed, Whitbread has been able to better understand the impact of its choice of specifications and the relative impact of any changes to this. It has also been able to identify carbon hotspots such as the manufacture of cotton fabric and discuss potential solutions such as installing on-site renewable energy with suppliers.

Chart 1: Premier Inn bed carbon footprint breakdown (103kgCO_2e)



Source: The Carbon Trust

Modern company structures and supply chains can be highly complex, obscuring the degree and nature of an organisation's exposure to sustainability issues. Companies can use footprint information to target improvements in sustainability where they make most sense. This can be in the sustainability of a company's own operations and/or, by extending its influence, that of its supply chain where much of the impact might be occurring.

BT's Better Future Supplier Forum helps drive energy efficiency and carbon reduction in the supply chain. BT uses the Forum to work closely with strategic suppliers, supporting them and providing training to share best practice and develop new, more sustainable products. Suppliers aim to reduce their resource use in manufacture, consider the material types they use, and consider the ease of recycling materials at the end of their life. BT recognises good practice by awarding Bronze, Silver, and Gold status.

Creating sustainability targets

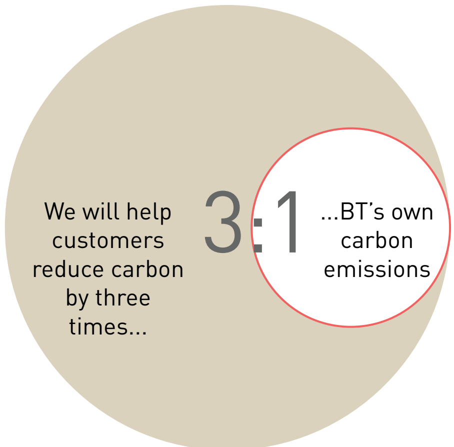
By better informing itself - through a mix of baseline footprinting, site surveys, and financial modelling - a company can set realistic yet ambitious reduction targets for carbon, water, waste and other environmental impacts – and work out the financial implications of achieving these targets.

Setting robust but realistic targets helps focus resources on the achievement of tangible results while communicating a clear message. Internally this can help to focus the efforts of staff, and externally targets can contribute to a positive image of corporate responsibility and enhance reputation.

In pursuing its carbon reduction targets Stagecoach decreased its carbon intensity by 30% for each pound of turnover in 2012/13, compared to a 2007/08 baseline.

BT's Net Good project aims to help customers reduce carbon emissions by at least three times the end-to-end impact of its business.

Examples include providing flexible working services that allow improved utilsation of office space, and audio and video conferencing facilities that reduce the need for air travel.



Driving action

In this section we look at some of the drivers for taking action amongst our case study companies. This is not an exhaustive list of drivers even for these companies – but they give a sense of the kind of motivations behind the actions these and other leading companies are taking on sustainability.

Competitive differentiation

Our case studies highlight that action on sustainability can give companies a competitive advantage and help differentiate them from others in their sector. Recent trends suggest consumer preferences for green products are growing: a Nielsen survey in 2013 suggested 25% of British shoppers were prepared to pay more to buy green products compared with 17% in 2011[ix].

By anticipating as well as reacting to consumer preferences and government intervention, companies can set themselves apart from competitors who sit back and wait for change to be forced upon them.

STAGECOACH GROUP greener smarter travel

Through its focus on sustainability and resource efficiency, Stagecoach differentiates itself both from the alternative of private car use and from its competitors. In Defra/DECC's GHG conversion factors for company reporting (2013), private car travel is noted as producing 198g of CO_2 per passenger kilometre (with one passenger in an average petrol car) compared with 112g for bus travel and 49g for national rail travel.

Bord Bia Irish Food Board

Bord Bia are helping the Irish food and drink sector set itself apart from international competitors by demonstrating and communicating that Ireland is a responsible and sustainable producer. Irish milk has the joint lowest carbon footprint in the EU at 1kg of CO_2e per kg of milk compared with the EU average of 1.4kg[x]. A key factor in this performance is the Irish grassland system of production and associated carbon sequestration.

Leadership

Leadership plays an important role in corporate sustainability. Companies with a strong public profile generally wish to be seen as taking a leadership position on important issues; and personal commitment to the sustainability agenda from the senior leadership team can be an important enabler and driver of action.

For companies already recognised as leaders within their sectors this position can be further strengthened and protected by adopting innovative approaches and staying ahead of the curve in responding to wider societal trends, such as the growing interest in sustainability. Even though mainstream consumers generally do not choose products and services principally because of their green credentials, they still expect leading global companies and brands to act responsibly.

> “As consumers become more discerning it’s not enough to do the bare minimum when it comes to sustainability. We see our sustainability strategy as an opportunity, not a compliance exercise, both in terms of future revenue growth and protecting existing value. The consumer of 2014 is as likely to identify water, waste and depleting resources as carbon when talking about sustainability.
>
> A comprehensive understanding of and engagement with all of these issues should therefore be a crucial part of any business’s core strategy and this is a prime reason why Whitbread has been motivated to work with the Carbon Trust to understand our impact, set meaningful targets and take action to become more sustainable. This has resulted in us being one of the first companies to achieve all three Carbon Trust Standards for carbon, water and waste reduction.”
>
> Chris George, Head of Energy and Environment, Whitbread

Where individual leaders within companies are strongly committed to certain topical issues they can set corporate strategy accordingly and create an enabling environment for company-wide action.

BT’s senior leadership from the Chair and Chief Executive down have been powerful advocates for driving forward their sustainability agenda.

> “Proud as we are of our own record, doing less environmental damage is no longer enough. At BT we are moving beyond simply making our own business more resource-efficient, to really showing how our communication technology products, services, and expertise can create a better future for our customers, suppliers, and our planet.”
>
> Gavin Patterson, Chief Executive Officer, BT Group

Sometimes a commitment to leading on sustainability requires senior leaders to approve investment opportunities with longer pay-back periods than would normally be considered, because they see that it is the right thing for the business in the longer term. In these situations companies need to make judgements on the actions that will position the company well on sustainability in the future relative to other corporate priorities.

Costs, efficiency, and value creation

Action on sustainability often involves improving efficiency, presenting opportunities for sectors with tight margins to make sustainability improvements which also deliver bottom line benefits. This benefit can be a powerful motivator in getting buy-in from decision makers and introducing transformative change across the supply chain.

There has been extensive analysis of the returns from energy efficiency, which provide a compelling business case for investment. Carbon Trust analysis of energy efficiency measures identified in over 2,000 organisations showed an average internal rate of return of over 40%[xi], which compares with 10-15% returns from 'typical' business investments.

Opportunities for energy efficiency investments exist right across sectors. Simple low or no cost monitoring of energy use, maintenance of equipment, and engagement with staff to optimise energy use can deliver emissions reductions of 5-10%. More complex projects such as investing in new motors, refrigeration, lighting and ventilation systems can still pay back within two years.

The challenge now is to turn some of the insights from energy and carbon to evaluating the business case for more efficient use and treatment of water, waste, and other resources. In some cases there will be a crossover with energy efficiency business cases for example when lower water use means lower electricity used to pump or heat water. In other cases, the water savings alone will be enough to deliver returns.

Bord Bia
Irish Food Board

Origin Green is a programme from Bord Bia that aims to save resources, win business, and build the reputation of the Irish food and drink sector by mapping a range of environmental impacts and then working across supply chains to identify and implement sustainability solutions.

By presenting farmers, processors and manufacturers with a sound business case for change that went beyond efficiencies and cost reduction, for example by showing the link between improving their sustainability and securing preferred supplier contracts, Bord Bia was able to secure their participation in the Origin Green programme.

Overcoming challenges

Making a business truly sustainable will almost inevitably require change that can be difficult to agree or implement. An organisation is therefore likely to need to overcome a whole range of challenges as part of this process, as was the case for our case study companies. Some particular obstacles they encountered and overcame are touched upon below.

Tensions with value for money for customers

Consumer commitment to sustainable purchases has been impacted by the recent recession. The importance of corporate "responsibility" as a key factor in consumer purchasing decisions has seen a decline of ten percentage points since 2008[xii].

Shifting consumer preferences to a more sustainable model of consumption may be more easily achieved through focusing consumers on the inherently better features of products rather than their sustainability credentials *per se*. The right approach will depend on the particular products in question as well as consumers' knowledge and understanding of global constraints, available alternatives, price, and how much the proposed changes compromise or enhance the core value they derive from a service.

Clash between commercial and sustainability objectives and timescales

Product development cycles vary greatly across goods and services but typically they will be measured in months and years, not decades as is the case for sustainability issues. This means that sustainability considerations need to be explicitly factored into product development; there is no guarantee sustainability will automatically be considered.

Short term priorities can not only distract attention from sustainability but may actively run counter to a more sustainable approach. The short term commercial realities of constantly changing, consumer-oriented sectors can be difficult to align with the long term requirements of sustainability and resource efficiency. For example the drive to produce lighter hand-held consumer electronics can lead to more energy intensive and scarce materials being used in their production.

STAGECOACH GROUP
greener smarter travel

Some sustainability solutions in public transport involve investing in more expensive technologies than traditional alternatives, even with Government support, for example hybrid electric buses versus diesel internal combustion engines.

However, Stagecoach has taken the strategic decision to be at the forefront of new sustainability technologies and initiatives as part of its competitive differentiation as a sustainability leader and, in partnership with the Department for Transport and Scottish Government, has now has purchased a fleet of 250 hybrid electric buses in the UK – the largest in the country.

In some cases shareholders may exert a positive influence in pushing for action on sustainability, but in many situations they are likely to have other priorities, such as securing higher short-term returns, making it difficult for management to justify the time, attention and funding required to engage seriously with these issues.

Information and co-ordination

As touched upon in the previous section, company structures and the supply chains they work with are increasingly complex, making understanding of exposures difficult to achieve and use as motivation for driving effective change. This complexity also makes co-ordinated engagement challenging.

WHITBREAD In 2009, Whitbread realised that it needed to do more to reduce the business's environmental impact beyond energy and carbon. The creation of the Good Together programme has embedded sustainability thinking into Whitbread's core strategy, coordinating efforts across the organisation and supply chain.

Resource efficiency targets are now set in the same way as targets across other operational areas. Good Together's business-as-usual commitment to sustainability and resource efficiency has driven a 23% reduction in carbon emissions, a 22% reduction in water consumption, and 93% diversion of waste from landfill for all UK hotels and restaurants.

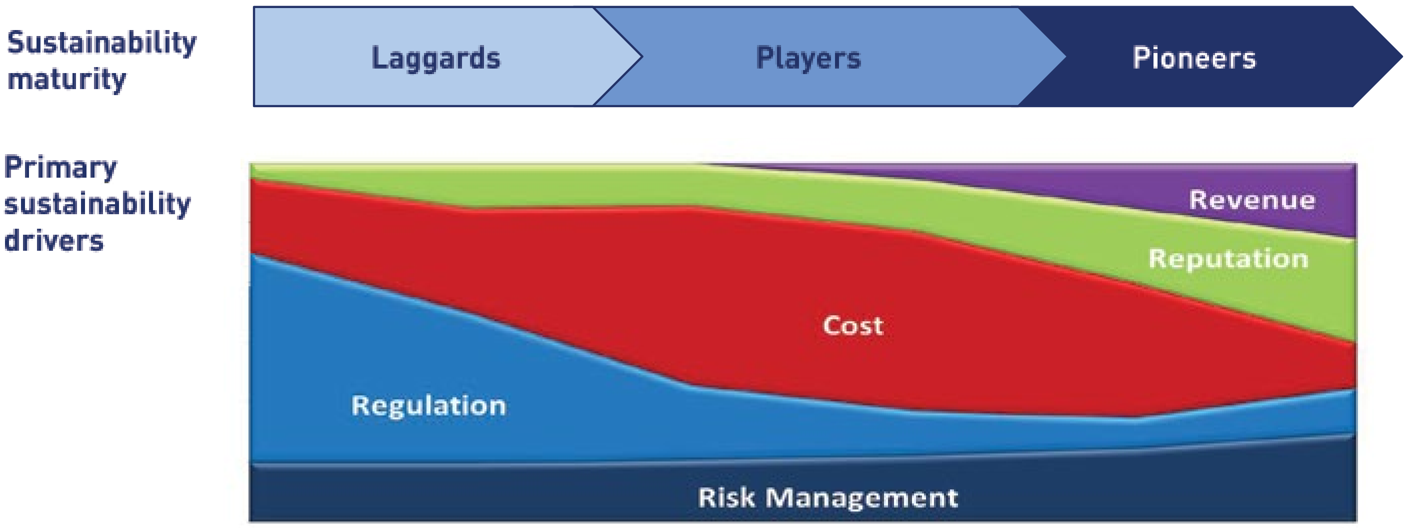
Section 3: Making the case for sustainability

In this section we look at the current attitudes of companies and consumers towards sustainability and consider what businesses need to do to identify sustainability actions that make good business sense.

The four companies profiled in this report have demonstrated that business value can be created by taking leading action on sustainability. However, our view is that the majority of businesses are not similarly motivated and that only a small proportion of companies see sustainability as a value creation lever.

Figure 1 shows an illustrative view of how the importance of different sustainability drivers varies depending on companies' level of 'sustainability maturity'. This is a tried and tested Carbon Trust framework. Our hypothesis is that few companies' actions on sustainability are driven by revenue or reputation considerations as opposed to cost or regulation – and where these are absent, little action is taken.

Figure 1: Sustainability maturity framework



Many companies remain to be convinced of the business merits of responding to resource challenges

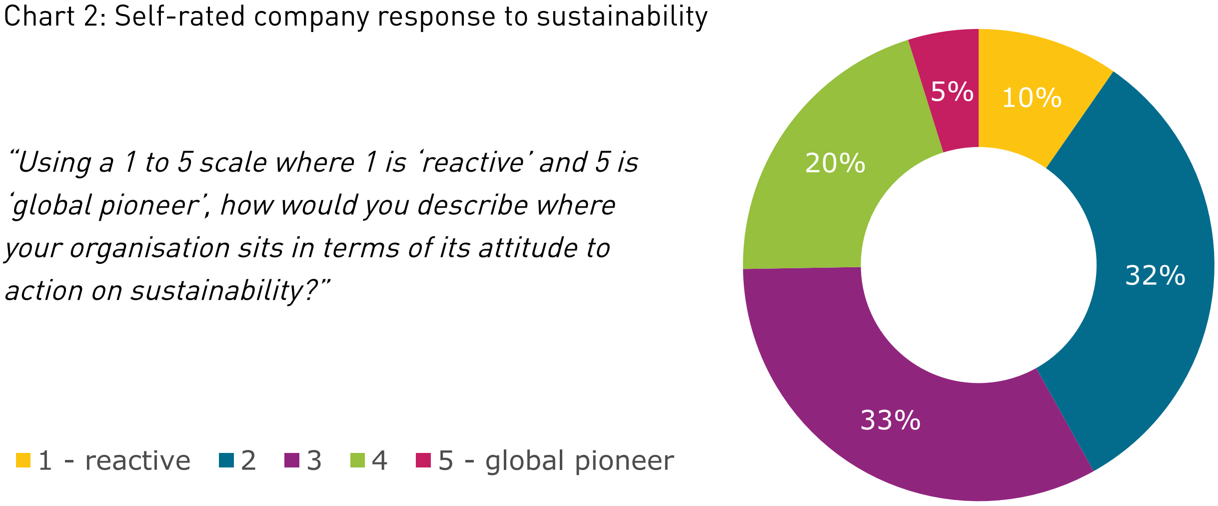
The challenge to motivating business to act on sustainability is underlined by the UN Global Compact/ Accenture CEO Study on Sustainability 2013. This study shows that the proportion of companies citing the lack of a link between sustainability and business value as a key barrier to further action on sustainability has risen to 37% in 2013; up from 30% in 2010 and 18% in 2007[xiii].

The UN Global Compact/Accenture CEO Study is based on a sample of 1,000 executives worldwide that are signatories to the UN Global Compact and thus already inclined to addressing sustainability. The fact that even among this group companies cannot consistently see how sustainability creates business value suggests that it will be hard to engage the majority of businesses that have yet to engage with sustainability at all.

The Carbon Trust's own major survey of 475 business leaders across five countries in October 2012 showed variation in business attitudes to sustainability. Although 69% of companies surveyed reported having some kind of sustainability programme in place there are clear sustainability leaders and laggards. Over 40% of companies rated their response to sustainability at the reactive end (1-2) of a five point reactive-pioneer scale while only 5% saw themselves as global pioneers.

Chart 2: Self-rated company response to sustainability

"Using a 1 to 5 scale where 1 is 'reactive' and 5 is 'global pioneer', how would you describe where your organisation sits in terms of its attitude to action on sustainability?"



Consumer preferences for sustainability may be muted by current economic conditions

It is also striking to note how lowly companies currently rate environmental concerns as a driver of change in consumer preferences. In an Economist Intelligence Unit survey of 275 business executives in August 2013 just 2% of respondents rated environmental concern as the single most important driver of changes in their customers' preferences. It was ranked much lower than technology (37%), economic factors (27%), and demand for greater convenience (25%)[xiv].

Similarly, an Ipsos/MORI study from 2013 indicates that the proportion of consumers rating 'responsibility' as very important to their purchasing decisions stood at 31% in 2013. While this is up from the 2009 low of 26%, this is still some way off the 43% recorded in 2008, perhaps indicating the impact more pressing economic concerns have had on purchasing decisions[xv].

It seems that despite mounting evidence about the importance of making business sustainable, the business case for change is still not strong enough to enable transformative action.

Businesses need a clear path firstly to understanding how big a deal sustainability is to their current business model. Why should the company consider doing anything differently? If a clear case for action can be established, businesses then need to understand what solutions are available to them and how they should put their sustainability responses into action.

Themes and questions emerging from case studies

Our case study companies, inspired by a range of drivers, were all able to create business value opportunities through their proactive engagement with sustainability. Working with the Carbon Trust to develop an understanding of their own practices and how these interact with a range of wider sustainability issues, they have been able to set themselves apart from their competitors.

Some of the benefits of their actions are being felt immediately, bringing bottom line improvements through efficiency gains. Others may only just be beginning to manifest themselves, but are expected to have long term advantages far outweighing the more immediate costs.

Further competitive advantages from acting sustainably should become apparent as sustainability concerns become more mainstream amongst consumers. This transition amongst consumers should benefit early movers who have already positioned themselves as responsible, sustainable organisations.

We believe that far more companies should be taking actions like the companies profiled in this report because we believe it is in their best interests to do so. Whatever sector companies are in, there are sustainability actions that make good business sense. But most businesses need help in working out their exposure, what opportunities they have, and how to make a strong business case for change.

To help businesses progress along their sustainability journey, important questions need to be answered:

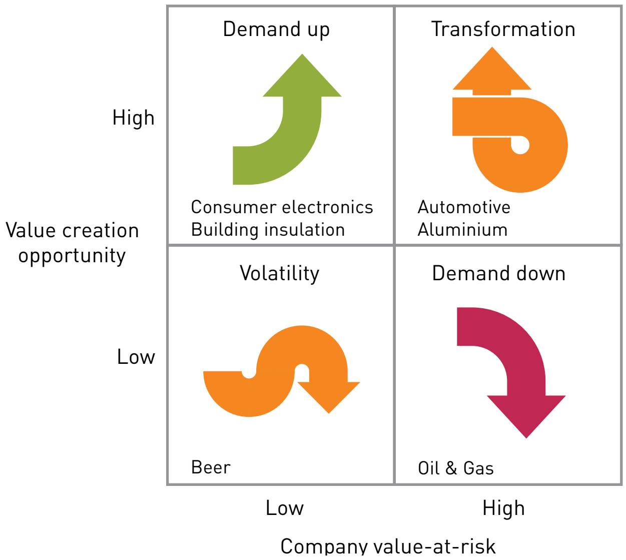
- **What does 'sustainability' mean for an individual organisation?**
  - What issues are most relevant to them – water, energy, waste, land, materials?
  - Do any of these issues have the potential to threaten core business activity?
  - What are the short and long term constraints for an organisation's resource use?
  - How could these issues impact their wider supply chain?
- **What are the benefits and costs of taking action?**
  - What are the opportunities for improvement?
  - Will they improve competitiveness or resilience, drive value or reduce costs?
  - What impact will they have on reputation?
  - What will it cost to take action?
  - How certain are the returns?

- **How and when should businesses actually make these changes?**
  - What barriers need to be overcome?
  - What evidence is needed to convince decision makers?
  - When is the best time to take action?

Outline of the Carbon Trust's future work

In previous work we explored how a move to a low carbon economy would affect company value, by quantifying the level of opportunity and risk for companies in six different sectors, depending on their situation, the degree of change expected (e.g. through consumer behaviour, technology innovation, or regulation), and their level of preparedness[xvi]. The study found that tackling climate change would impact the different sectors in very different ways: by increasing or decreasing demand; transforming business models or products; or by increasing volatility in the sector. The findings are summarised in Figure 2 below.

Figure 2: How climate change could create and destroy company value



Source: The Carbon Trust

We now aim to take this understanding beyond energy and carbon, and to identify where the opportunities and risks lie for business when considering a wider range of sustainability factors.

This report signals our new, ongoing commitment to unlocking these issues in order to help companies recognise their exposures and identify what the nature and level of their own engagement should be. As we found with carbon, we expect that for some companies this will need to be part of core strategy, for others it will be less critical but there will still be opportunities to exploit and risks to manage.

We invite you to enter into a dialogue with us as we further develop our understanding of this area as part of our long-term mission to accelerate the move to a sustainable, low carbon economy.

Case studies

Bord Bia – the Irish Food Board – acts as a link between Irish food, drink and horticultural producers and customers throughout the world. The food and drink sector accounts for 7% of Ireland's economic output, 11% of Ireland's exports and in 2013, exports increased by an estimated 9% to approach €10bn for the first time, with some 42% going to the UK.

Given the lack of traditional industrial activity in Ireland the sector accounts for 29% of overall GHG emissions. In order to continue the growth of Irish food and drink exports, the sector is seeking to optimise their supply chain position by demonstrating and communicating that Ireland is a responsible and sustainable producer of food and drink products.

This ambition led Bord Bia to launch the Origin Green sustainability programme in 2012 to demonstrate internationally the commitment of Irish food and drink producers to operating sustainably – in terms of greenhouse gas emissions, energy conservation, water management, waste reduction, biodiversity, raw material sourcing, community initiatives, and health and nutrition.

Collaboration with the Carbon Trust has allowed Bord Bia and Teagasc (The National Agricultural Research & Farm Advisory Body) to understand and model the complicated carbon emissions associated with agriculture through activities such as:

- Building carbon footprint models for the dairy, beef, poultry, pork, and lamb industries to better understand the relative resource competitiveness of Irish agriculture
- Publishing guidance to dairy and beef industries on how to calculate and reduce carbon emissions with the aim of helping farmers and processors identify carbon hotspots where efficiency improvements are possible
- Conducting sustainability audits for more than 38,000 Irish beef farms that are members of its Quality Assurance Scheme, collecting data from up to 500 farms per week
- Over 50,000 farm assessments have provided bespoke feedback to help farmers identify improvements that deliver financial and environmental improvements
- Extending its assurance scheme from carbon measurement to develop a framework that captures farm performance in relation to other sustainability measures including water, waste, biodiversity, and community engagement

Examining the processing and packaging stages of the supply chain and integrating this insight with farm-level data to build a complete picture of the agricultural supply chain. The Origin Green programme has attracted significant buy-in at industry and farm level. By end 2013, 297 food and drink companies had registered their interest in becoming members and already 60% of food and drink exports are supplied by companies who are verified members of Origin Green. The target is to increase this to 75% by end 2014.

In engaging with farmers, processors and manufacturers, Bord Bia discovered that demonstrating a sound business case was fundamental to getting participation. However, this business case frequently goes beyond efficiencies and cost reduction to include a perceived market return – whether it be a preferred supplier contract, a new customer or increased business with an existing customer.

All this has led Bord Bia to recognise that the proper management of resources today matters and a better understanding of resource use will further enhance the Irish agri-food sector's green reputation, save resources, reduce costs and building a healthier bottom line for the sector both at farm and food manufacturing level.

BT is one of the world's leading communications services companies, delivering fixed-line, broadband, networked IT, mobile and TV products and services to businesses and consumers in the UK and more than 170 countries worldwide.

From systems that manage the energy use in buildings to video conferencing that helps reduce the need for air travel, communication technology can be used to reduce the pressure on resources and cut carbon emissions.

BT's Net Good programme, launched in June 2013, demonstrates its sustainability leadership and shows the company's pioneering commitment to carbon abatement. Through its Net Good project, BT aims to use its products and people to help society live within the limits of the planet's resources – with the 2020 goal of helping customers reduce carbon emissions by at least three times the end-to-end carbon impact of its own operations. At the same time, BT is targeting an 80% reduction in the carbon intensity of its global business per unit turnover by continuing to work on improving the sustainability of its own operations and extending the influence to its supply chain.

Working in partnership with the Carbon Trust, BT has:

> Measured the full life cycle carbon emissions of three flagship consumer products: BT Home Hub, BT DECT Digital cordless phone and BT Vision set-top box

> Undertaken an extensive supplier engagement programme involving a number of workshops

> Developed a climate change procurement standard that applies to all of BT's suppliers, encouraging suppliers to use energy efficiently and reduce carbon during the production, delivery, use and disposal of products and services

> Collaborated with the Greenhouse Gas (GHG) Protocol ICT sector guidance initiative to forge global agreement on a consistent approach to assessing the lifecycle GHG impacts of ICT products and services, and used this approach to understand the full life cycle footprint of the communication services for the London 2012 Olympic and Paralympic Games

BT is one of only a handful of companies globally to have measured and reported its full GHG Protocol Scope 3 emissions against all 15 categories that detail emissions both upstream (e.g. from purchased inputs) and downstream (e.g. distribution to the point of sale).Measuring full life cycle carbon emissions in three of its flagship consumer products has informed BT and helped the company reduce impacts in successive models. For example, the BT Home Hub 5 has VDSL capability integrated into the unit avoiding the need for a separate modem, dual wireless technology improving short range transmission, and intelligent power management technology including a power save mode when not in use. Altogether these changes are expected to reduce power consumption by 30%, saving 13,000tCO_2/year.

BT has also:

- Created Designing Our Tomorrow, a framework of sustainable design principles to bring the benefits of responsible and sustainable business practice into commercial and customer experience processes; and
- Launched the Better Future Supplier Forum to drive energy efficiency and carbon reduction in the supply chain

BT's focus on being a responsible and sustainable business leader has seen a 44% reduction in operational emissions and a 15% reduction in supply chain emissions, along with a 40% reduction in waste to landfill since 2011. At the same time, BT has decreased operating costs by 14% and boosted EBITDA by 6% - building a strong investment in the company's future and that of the UK's telecommunications infrastructure.

www.bt.com/betterfuture

> “Proud as we are of our own record, doing less environmental damage is no longer enough. At BT we are moving beyond simply making our own business more resource-efficient, to really showing how our communication technology products, services, and expertise can create a better future for our customers, suppliers, and our planet.”
>
> Gavin Patterson, Chief Executive Officer, BT Group

Stagecoach Group is a leading international public transport company with bus and rail operations in the UK and North America. Its business includes major regional bus operations across the UK, as well as a substantial presence in London's rail and bus markets. The company also operates bus and coach services in the United States and Canada. Stagecoach Group employs around 36,000 people and runs around 13,000 buses and trains, with some three million people making journeys with the company each day.

Stagecoach recognises the huge opportunity to make a difference by providing greener, smarter travel options and encouraging people to switch to more carbon efficient modes of transport. As a business, sustainability and resource efficiency provides them with the opportunity to differentiate themselves from not only the private car but also their competitors. Both of these strategic and commercial drivers are fundamental to the future of their business.

The Group's Sustainability Strategy applies to all of its global operations and supports the delivery of greener, smarter travel to customers. Specific initiatives are focused on fuel efficiency, alternative fuels, buildings, waste management and recycling, water consumption and conservation, promoting greener lifestyles, and green travel incentives.

As a result of its commitment, Stagecoach has achieved the Carbon Trust Carbon Standard for all of its global operations – demonstrating best practice in carbon measurement, management, and reduction – becoming the first public transport operator to have its operations certified outside of Europe.

Central to Stagecoach's approach has been encouraging its devolved management teams and frontline employees to work collaboratively at local level. In addition to a focus on resource efficiency and the traditional business case for investing in improvements, Stagecoach Group's culture and values are based on 'doing the right thing' and striving to achieve a commercial advantage through innovation.

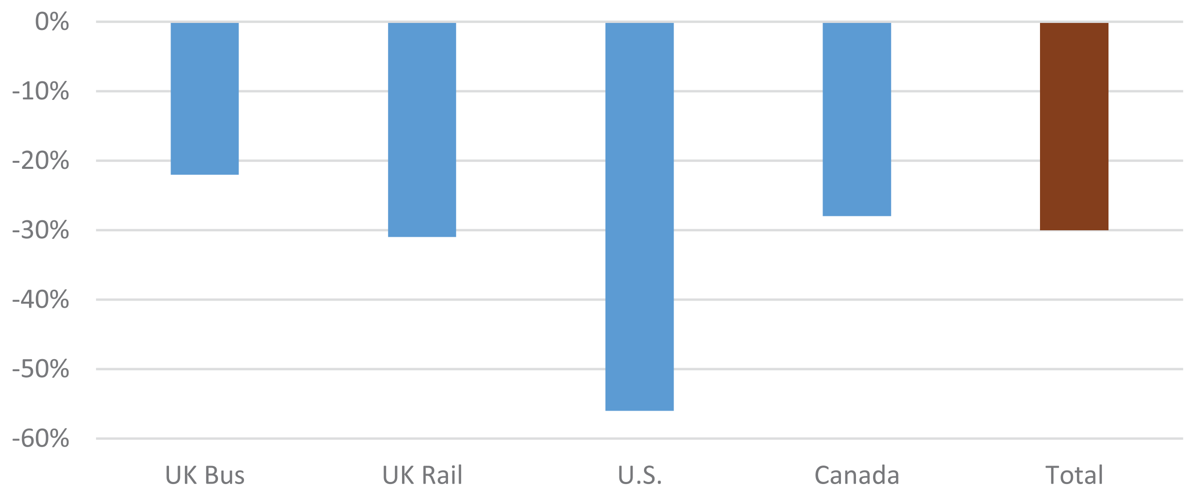
This commitment to continuous improvement in sustainability and resource efficiency has already driven a carbon intensity reduction of 30% since 2007-08 across its global operations.

Each business division has agreed a specific programme of actions and targets, complementing Group-wide initiatives to achieve reductions.

For example, the UK Bus division invested in an on-board computer system for its bus fleet to provide real-time feedback to drivers and encourage safer and more fuel-efficient driving.

It was supported by a £900,000 annual bonus scheme to reward good performance. The UK Rail division introduced regenerative breaking on trains on its South West Trains network to reduce energy consumption used in traction. Meanwhile, in the United States a key focus was on reducing bus idling, while in Canada a fuel additive already used successfully in the UK to deliver a cleaner burn in the engine, improved fuel efficiency and lowered emissions.

Chart 3: Change in Stagecoach carbon intensity per £ of turnover by business division 2012/13 v 2007/08



WHITBREAD

Whitbread is the UK's largest hotel and restaurant group, including well-known brands such as Premier Inn, Costa, Brewers Fayre, Beefeater Grill, Table Table, and Taybarns. The company employs over 43,000 people and serves over 22 million customers every month in 2,500 outlets across the UK. Worldwide, there are almost 1,000 Costa stores in 28 countries and an expanding international hotel portfolio.

With a huge estate and multi-million pound energy bill, Whitbread recognises the need to be a force for good in the communities where it operates, addressing the challenges of resource efficiency and the potential to reduce costs and increase profits.

Good Together

Whitbread is taking a lead in the hospitality sector by making bold but achievable commitments to promote sustainability across its hotels, restaurants and coffee shops.

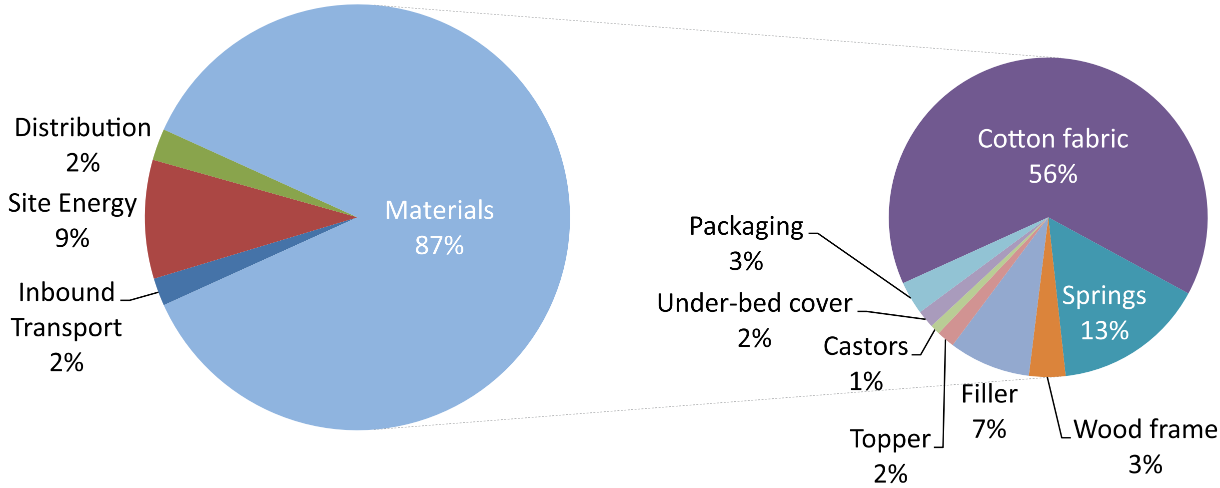
Good Together, Whitbread's corporate responsibility programme is designed to drive sustainable performance and embed corporate responsibility throughout its operations. The company has made significant environmental progress as it aims to help Whitbread's employees, customers and supply chain partners make important changes to how they work. From encouraging its staff to turn off lights, to using cutting-edge technology to cut emissions, the initiatives encouraged under Good Together make a significant difference to the company's carbon footprint and environmental performance.

As a result, Whitbread is on target to achieve its 2017 targets: 25% reductions in carbon emissions and water consumption, zero waste to landfill, and a 10% carbon reduction across their supply chain.

By working in a close partnership with the Carbon Trust since 2006, Whitbread has been able to build a detailed picture of its energy, carbon, water, and waste footprints and to identify new opportunities for sustainable growth in the business. Some notable actions include:

- Creation of a group-level environmental strategy and implementation programme to achieve their energy, carbon, and water targets
- Decisive action at board level to bring forward their original 2020 target of a 25% relative reduction in carbon intensity to 2017
- Confidence to include some £4m per year of operational spend specifically for energy and resource efficiency investments to their existing estate and retrofits
- Calculation of the carbon footprint of one of its most important assets - the signature Premier Inn bed - to better understand the impact of the choice of specifications, the relative impact of any changes, and how this diagnostic approach can be used to understand the supply chain implications of key purchasing decisions
- Achievement of the Carbon Trust Standards for carbon, water, and waste reduction – making Whitbread one of the first organisations to achieve all three leading sustainability certifications

Chart 4: Premier Inn bed carbon footprint breakdown (103kgCO_2e)



Source: The Carbon Trust

One area in which Whitbread has been notably successful is in reducing water use in relation to sales, achieving its targets significantly ahead of schedule. Actions in Whitbread's key hotels and restaurants division have included new builds and retrofitting of rainwater harvesting, urinal controls, leak management and quick response via leak detection surveys, and recycling grey water from showers and baths to use in flushing toilets, post-treatment.

In 2009, Whitbread realised that it needed to do more to reduce the business' environmental impact beyond energy and carbon. Good Together's business-as-usual commitment to sustainability and resource efficiency has driven a 23% reduction in carbon emissions, a 22% reduction in water consumption, and 93% diversion of waste from landfill for all UK hotels and restaurants from a set baseline. This has been achieved while growing the number of Premier Inn hotel rooms by 4,242, opening 10 new restaurants, and 324 new Costa Coffee outlets resulting in a 14% increase in revenues in 2012/13.

"As consumers become more discerning it's not enough to do the bare minimum when it comes to sustainability. We see our sustainability strategy as an opportunity, not a compliance exercise, both in terms of future revenue growth and protecting existing value. The consumer of 2014 is as likely to identify water, waste and depleting resources as carbon when talking about sustainability.

A comprehensive understanding of and engagement with all of these issues should therefore be a crucial part of any business's core strategy and this is a prime reason why Whitbread has been motivated to work with the Carbon Trust to understand our impact, set meaningful targets and take action to become more sustainable. This has resulted in us being one of the first companies to achieve all three Carbon Trust Standards for carbon, water and waste reduction."

Chris George, Head of Energy and Environment, Whitbread

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> We advise businesses, governments and the public sector on their opportunities in a sustainable low-carbon world

> We measure and certify the environmental footprint of organisations, supply chains and products

> We develop and deploy low-carbon technologies and solutions, from energy efficiency to renewable power

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