Missing link:
Harnessing the power of purchasing for a sustainable future

Written on behalf of 89 organizations representing US$2.7 trillion of procurement spend

Written by

Contents

CDP's supply chain member organizations

In 2016 the following 89 organizations engaged their suppliers through CDP. As CDP supply chain members they leveraged their US$2.7 trillion of procurement spend to request information from over 8,200 suppliers, on which the data in this report is based.

Lead members

- Bank of America
- Dell Inc.
- Goldman Sachs Group
- Imperial Brands
- Juniper Networks, Inc.
- JT International S/A
- L'Oréal
- Microsoft Corporation
- Northrop Grumman Corp
- PepsiCo, Inc.
- Philip Morris International
- Royal Philips
- The Coca-Cola Company
- The Lego Group
- Wal-Mart Stores, Inc.

Corporate members

- Abbott Laboratories
- Accenture
- Acer Inc.
- Alliance Data Systems
- Amdocs Ltd.
- Arcos Dourados
- AT&T Inc.
- Banco Bradesco S/A
- Barclays
- BMW Group
- Braskem S/A
- Bridgestone Corporation
- Bristol-Myers Squibb
- British American Tobacco
- BT Group
- Caesars Entertainment
- Caixa Econômica Federal
- California Department of General Services (DGS)
- CIA Ultragaz
- Cisco Systems, Inc.
- CNH Industrial NV
- Colgate Palmolive Company
- CSX Corporation
- Deutsche Telekom AG
- Diageo plc
- Eaton Corporation
- EcoRodovias
- Electronic Industry Citizenship Coalition
- Enagás
- Endesa
- Fiat Chrysler Automobiles NV
- Ford Motor Company
- Gas Natural Fenosa
- General Motors Company
- Hewlett Packard Enterprise
- ICL
- Intel Corporation
- Itaú Unibanco Holding S/A
- Jaguar Land Rover Ltd.
- Johnson & Johnson
- Johnson Controls
- KAO Corporation
- Kellogg Company
- KPMG UK
- Los Angeles County Metropolitan Transportation Authority
- MetLife, Inc.
- METRO AG
- National Grid
- Nestlé
- Nissan Motor Company
- Nitto Denko Corporation
- Nokia Group
- Pirelli
- PricewaterhouseCoopers LLP
- S.C. Johnson & Son, Inc.
- SABMiller
- Sky plc
- Stanley Black & Decker, Inc.
- Swisscom
- Taisei Corporation
- TD Bank Group
- Toyota Motor Corporation
- Unilever plc
- United States Department of the Navy
- U.S. General Services Administration (GSA)
- Vodafone Group
- Volkswagen Group
- W.W. Grainger, Inc.
- Wal Mart de Mexico
- World Resources Institute (WRI)

Santander Asset Management
Ourofino Saude Animal
SSE

- Climate change
- Water
- Action exchange

Foreword from Patricia Espinosa

Executive Secretary, United Nations Framework Convention on Climate Change

By raising awareness of the positive aspects of supply chain action, it is possible to deliver tangible, meaningful results for the bottom line and the planet.

Action on climate change has never been more necessary or more achievable. Year after year we see the hottest temperatures on record and the impact this has on the ecosystems that sustain us all. Against this backdrop, the Paris Agreement has entered into force. This decisive statement of intent, born of unprecedented global consensus, marks a truly meaningful step towards a low carbon future. The stage is set, the world is watching, now we must act.

Effectively addressing climate change requires action across the supply chain. Millions of businesses operate within the complex supply networks of the world's biggest purchasing organizations, and greenhouse gas emissions within the supply chain are often at least four times greater than those from direct operations. Amidst increasing climate policy, investor awareness and consumer engagement, competitive companies increasingly look to their supply chain to reduce negative environmental impacts from business activity and realize more sustainable practices.

Many innovations that reduce impacts are available. CDP supply chain data is testament to the resourcefulness of global suppliers to reduce their greenhouse gas emissions and water footprint while benefitting the business, customers and communities. Savings of USD $12.4 billion in 2016 were reported by suppliers, proving that action on climate change and water is not only the right thing to do, but the smart thing to do.

With the help and authority of the Supply Chain Member companies, CDP collected data from more than 4,300 suppliers around the world in 2016. Even though this is the largest data set ever gathered by the CDP supply chain program, many suppliers around the world still lack awareness of the risks and opportunities that climate and water issues pose to their business and customers. Only 22% of supplier organizations that responded to the 2016 CDP Supply Chain information request actively engage with their suppliers. It is not enough.

By raising awareness of the positive aspects of supply chain action, it is possible to deliver tangible, meaningful results for the bottom line and the planet.

I applaud the public and private sector purchasing organizations that are taking climate action to their supply chains. It is encouraging to see the power of addressing climate change in supply chains. I also congratulate the companies highlighted by CDP as leaders on climate action in the first-ever Supply Chain Engagement Rating.

By shining a light on leading company practices, this report provides insight into the evidence for action. It also highlights the tools and practices needed to deliver positive outcomes by taking greater action outside the direct operations of global companies.

Executive summary

4:1

average ratio of indirect supply chain emissions compared to direct operational emissions

The supply chain is the new frontier in environmental responsibility – an area rich with opportunity that remains mostly unexplored, where a number of pathfinders are starting to show others the value that can be found.

Large public and private sector organizations have enormous purchasing power, often engaging with thousands – or tens of thousands – of direct and indirect suppliers. By harnessing the power of their procurement decisions it is possible for them to cascade their own commitments throughout the supply chain.

Among these large organizations there is now a broad recognition that within their vast, complex and sometimes opaque supply chains there are a number of sustainability challenges, resource risks, and efficiency opportunities. But despite this awareness, most have not been taking sufficient action to address them.

However, this is starting to change. Today a growing number of leading organizations, such as CDP's supply chain members, are developing an emerging body of knowledge and best practice on how to increase visibility and have a positive impact on their supply chain. Sharing these effective strategies as widely as possible could be the missing link in creating a sustainable, low carbon economy.

Sustainability needs to move beyond organizational boundaries into the supply chain.

The science tells us that the world is facing very serious environmental challenges, which are already beginning to have a negative effect on human development and the economy. It also tells us that the collective sum of action today leaves us well off the necessary trajectory to mitigate the most dangerous impacts.

Suppliers increasingly recognize their climate risk exposure. Three-quarters of the 4,366 supplier companies that responded to the questionnaire sent by CDP on behalf of its supply chain members this year report significant climate risks, and 62% expect climate-related impacts on their business within the next six years.

The positive case for action is becoming increasingly compelling, especially when it works in parallel with improved operational efficiency. But despite the fact that 68% of respondents recognize positive opportunities from action on climate change, the overwhelming majority of businesses appear to be focusing their sustainability efforts exclusively on areas that are within their own direct control and not yet engaging with key suppliers, customers and other stakeholders.

Fewer than half of the suppliers in 2016 report cost savings from emissions reduction activities, but those who do are realizing substantial savings – and these investments will continue to pay back for years to come. These leading suppliers disclosed reductions equivalent to 434 million tonnes of carbon dioxide from reduction projects, an amount greater than the annual emissions of France.[1] This resulted in a reported US$12.4 billion in savings, more than double the figure from 2015. But it is likely that the full total including unreported savings significantly exceeds this sum. And this may only be the beginning.

However, supplier efforts are still insufficient to tackle the scale of the challenge of climate change. Indeed, only 34% of suppliers report an overall year-on-year decrease in their operational emissions, with a further 36% having insufficient data to track progress.

Unfortunately, only 22% of supplier respondents are in turn engaging with their own suppliers to reduce carbon emissions. And just 4% have put supply chain carbon emissions targets in place. This is a challenge because – although it varies significantly across sectors – on average an organization's supply chain emissions are four times greater than those from direct operations.

Supplier disclosed reductions equivalent to

434 million tonnes

of CO_2 with associated cost savings of

US$12.4 billion

1 UNFCC (2016). *GHG emission profiles for Annex I Parties and major groups.* United Nations Framework Convention on Climate Change, Bonn. Available at: http://di.unfccc.int/Annex1.aspx

Only

22%

of companies reporting to CDP's supply chain program are working with their own suppliers to reduce emissions

US$2.7 trillion

annual procurement spend of 89 CDP supply chain members

There also appears to be a general lack of understanding and maturity on how to address supply chain impacts, when compared to mitigating the impact of direct operations. Even among CDP's supply chain members, all of whom are making impressive efforts to act on supply chain sustainability, only 27% have put in place specific supply chain carbon emissions targets. This is an emerging area of opportunity, even for those companies that have traditionally been sustainability leaders.

When looking at water it appears that awareness of opportunities and risks, as well as levels of action, lag some way behind climate change. For example, while more than two-thirds of supplier respondents to the supply chain program saw climate change opportunities, only 36% of suppliers responding to CDP's water program identified water-related opportunities. And only 28% see any water risks to their business, which compares to three-quarters that see climate change risks.

The commitments made by large organizations on water are also not cascading through the supply chain. Of the 607 respondents to CDP's Investor-led water program in 2016, only 38% required their key suppliers to report on water use, risks and management. And when members cascaded the CDP request to their suppliers, only 16% of 1,260 responding businesses disclosed that they in turn ask their own suppliers to report on water use.

The overall picture that emerges is that the sustainability commitments and practices of leading organizations are not being replicated at scale downwards through the supply chain. And even among leading organizations, there is a comparative immaturity in strategies to address supply chain impacts when compared with their action on direct impacts.

This suggests that many may not yet fully grasp how they can benefit from efficiency and sustainability opportunities in their supply chain. Or they may lack the strategy, organizational resources or capability to take advantage of them at present. In many cases, companies have a multitude of relevant efforts underway, but they are not yet formalized into an integrated strategy.

Harnessing the power of procurement and effective interventions for change

Given the urgency of the world's environmental challenges, there is a real need to find systemic levers that can be used to deliver wide scale change at speed. One of the most promising routes for delivering this transformation is harnessing the purchasing power of big buyers, who can collectively have an enormous impact on the sustainability of their extensive supply chains.

CDP's 89 supply chain members collectively represent US$2.7 trillion in procurement spend, an amount that is broadly equivalent to the economy of the United Kingdom in 2016.[2]

Influence needs to go beyond setting a good example of how to measure and manage direct environmental impacts. While there are no universally effective approaches to taking action within the supply chain, there is now a growing awareness of the strategies and types of interventions that can be successful in promoting supply chain sustainability. However, these do need to be adapted within industries, to take into account various technical, practical and financial issues that can arise.

Examples of these potential interventions would include: supplier development and collaboration on sustainability programs; working with competitors and stakeholders to collectively set industry standards; and transforming product offerings or business models to engineer out downstream environmental impacts.

Building on previous years, this 2017 report goes beyond setting out the current state of action from supplier respondents and members of the CDP supply chain program. It sets out a framework for action within the supply chain, illustrated with case studies and examples of how organizations are taking action today.

This year also sees the launch of CDP's new Supplier Engagement Rating, recognizing the organizations that are demonstrating real leadership and best practice in working with their supply chains on climate change. While this year the ratings only include a relatively small number of companies that rate highly, in the near future all companies will be included to identify those that are not yet working on supply chain impacts.

2 IMF (2016). *World Economic Outlook Database.* International Monetary Fund, Washington DC. Available at: http://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx.

The Carbon Trust perspective

Chief Executive of The Carbon Trust, Tom Delay

Organizations are finding new and creative ways to express their sustainability ambitions, working on exciting projects that can only be achieved through collaboration, and discovering how to find real value by going outside of their boundaries and areas of comfort.

There is now common consensus that we face major environmental challenges. Our response today to issues such as climate change, water scarcity and deforestation will very much determine the future of the planet. If we get it wrong, then many will directly suffer serious consequences from the negative impacts. Indeed, some are already feeling the effects.

And we are responding. There are many reasons to be positive. There is a clear global framework of 17 interrelated Sustainable Development Goals. We have an international agreement on climate change. Businesses and governments are making individual and collective commitments to act boldly. They may not be perfect, but they come a lot closer to what we hoped would be possible than we feared might be the case.

It is good progress, but it is still not enough. We are moving in broadly the right direction at too slow a speed. The question is how can we accelerate action to the levels required?

We believe that large public and private sector organizations are a big part of the answer. They bring together the productive capabilities and access to capital that can change the world at scale and at speed. Most importantly, they also have the power to multiply their own impact many times over by engaging their supply chain.

With very few exceptions, the supply chain represents the biggest area of sustainability impact and opportunity for a business. But like many of the most rewarding large-scale opportunities, it is not easy to turn the principle into a reality. It requires an ability to understand complex systems, a clear strategy, good management of resources and relationships, and above all a willingness to invest and patience. But those organizations that master the art will find it can be a profitable pursuit.

This will require new techniques. Working in the supply chain is like wielding a paintbrush with an extremely long handle – the further away you try to make your mark the more difficult it is to do it in detail. So the strategies for engaging with the supply chain are necessarily quite different to ones that you might use to reduce the environmental impact of your own operations. They require broader brush strokes.

Today we are starting to see the art of working in the supply chain turn into a wider movement. Organizations are finding new and creative ways to express their sustainability ambitions, working on exciting projects that can only be achieved through collaboration, and discovering how to find real value by going outside of their boundaries and areas of comfort.

However, if we are to properly address the huge environmental challenges the planet is currently facing it will take more than a new movement. It will require a revolution. And that will require innovative leaders who inspire others to transform our currently unsustainable system.

Large organizations, such as the members of the CDP supply chain program, are one of our best hopes for creating the changes we will need. Through this report we hope that our framework for action, alongside real examples of their supply chain interventions being put into practice today, will inspire others to implement similar strategies and help accelerate our collective progress towards a sustainable, low carbon economy.

Introduction:
Engaging the supply chain is the key to unlocking a sustainable future

There is now overwhelming international agreement on the urgent need for action on the challenges of climate change, water scarcity and deforestation. The big questions are no longer about what is happening to the planet as a result of human activity nor why we should care. Instead the questions relate to how we can deliver change, and when we need to do this by to avoid unacceptably damaging or dangerous consequences.

2016 was by some distance the warmest year in modern history, with temperatures more than 1°C above the pre-industrial average. Concurrently, there has been a lot of positive progress on the climate over the past 12 months.

Momentum is building. The Paris Agreement on climate change was ratified, making it one of the fastest ever global deals to enter into force, supported by over 200 businesses that have now set their own science-based targets to align with a 2°C goal. There has recently been a major deal on issues that have previously resisted attempts at agreement, such as refrigerants and aviation emissions. The G20 has released a landmark report on climate-related financial disclosures, recognizing at the very highest levels the risks that climate change poses to the global financial system.

The sum of all current commitments leaves the world on a trajectory towards around 3.4°C of warming.[3] At the same time we are seeing indicators of major resource risks. Businesses reporting to CDP have disclosed US$14 billion of water-related financial impacts. And CDP's Global Forests Report highlights US$906 billion of revenue at risk from deforestation, particularly affecting key commodities such as palm oil, cattle, soy and timber.

However, better is still not good enough. The sum of all current commitments leaves the world on a trajectory towards around 3.4°C of warming.[3] At the same time we are seeing indicators of major resource risks. Businesses reporting to CDP have disclosed US$14 billion of water-related financial impacts. And CDP's Global Forests Report highlights US$906 billion of revenue at risk from deforestation, particularly affecting key commodities such as palm oil, cattle, soy and timber.

In most cases governments openly recognize the risks posed by these challenges, but are still not acting in a manner consistent with sufficiently addressing them. The general public and small businesses have their attention focused on the needs of today. But large organizations – both in the private and public sector – are a potential bright spot in the wider picture.

These organizations are large employers, creators of economic value, and providers of essential services. They have skills and resources, access to a wealth of information, and the ability to manage complexity and risk. They see genuine opportunity and competitive advantage in improving sustainability.

What is more, they have commercial relationships with thousands of businesses in the first tier of their supply chain, where there is typically a far greater potential for sustainability improvements than within their own operations (see **Figure 1**). Getting a critical mass of these large organizations to engage their suppliers on sustainability could be one of the best available solutions to the puzzle of creating a sustainable, low carbon economy.

The opportunity for influence is significant, but to do this, commitments need to cascade effectively upwards through the tiers of the supply chain. As customers increasingly demand transparency, accountability and extended responsibility well into supply chains, the reputational risks and opportunities have never been greater. The lack of progress to date can be explained by the fact that supply chains are global, occasionally opaque, and difficult to influence. A new toolbox is required, often using approaches that have only become available recently thanks to modern technology and big data.

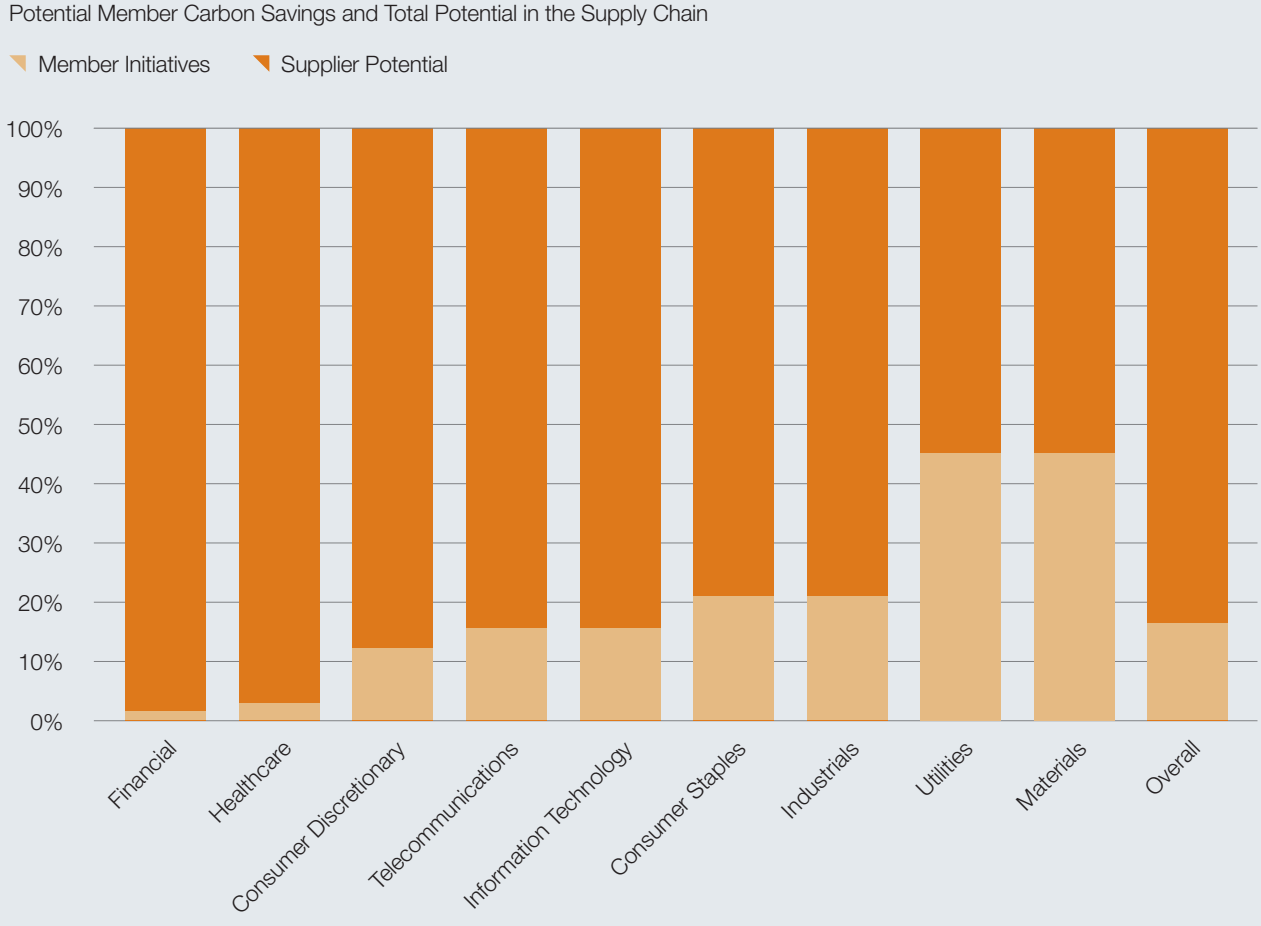
3 UNEP (2016). *The Emissions Gap Report 2016.* United Nations Environment Programme (UNEP), Nairobi.

Real practical examples and case studies are needed to show companies how they can find the value in pushing their own suppliers to reduce their impact, or changing external conditions so that there is a market pull towards providing more sustainable products and services. Leaders are deploying commercial incentives for sustainability, minimum procurement requirements, and fostering supplier collaboration.

The good news is that there are now a number of leaders showing the way forward. This emerging body of practice is being highlighted for the first time this year by CDP through recognizing large organizations that demonstrate leading performance on its Supplier Engagement Rating (see page 40). This is featured alongside the annual list of suppliers that have made it onto the CDP Climate and Water A List for their own performance (see page 42).

This report also sets out the current state of sustainability performance climate change and water for suppliers of CDP supply chain members, followed by a perspective on what the members themselves are doing. In addition, the latter section includes a framework developed by the Carbon Trust setting out a process for companies to follow in order to catalyze change within their supply chains. This is illustrated with initiatives currently being implemented by members of CDP's supply chain program, providing practical examples of implementation and lessons learned.

Figure 1. Proportion of total carbon emissions saving opportunities identified by CDP supply chain members and their suppliers by sector



About this report

The report uses CDP's supply chain program data submissions to evaluate the state of climate resilient supply chains, and to identify measures that purchasers can take to enhance supplier and supply chain resilience.

The CDP supply chain program, representing 89 member organizations with US$2.7 trillion in annual procurement spend, requested that suppliers report to members on their climate and water risks opportunities. Suppliers responded to standardized questionnaires: a full climate change questionnaire ("full questionnaire") or a shorter version ("SME questionnaire") for small and medium-sized enterprises (SMEs, or organizations with fewer than 250 employees and annual turnover of less than US$50 million or EUR50 million), as well as a water questionnaire.

The number of suppliers participating in CDP's climate supply chain program has once again grown significantly over the past year. Requests were distributed to 8,180 suppliers in 2016. The total number of supplier respondents increased by 11% from 3,932 in 2015 to 4,366 in 2016, of which 981 were SMEs. 36% of the respondents were from the US, 27% from Europe, 9% from Japan, 7% from Brazil, 6% from China, and 15% from other parts of the world. Similarly, the number of suppliers responding to the CDP supply chain water questionnaire has seen a steep 51% increase from 833 in 2015 to 1,260 in 2016.

Although the participation rate increased from 51% in 2015 to 53% in 2016, the gap in supplier disclosure on climate remains a critical issue. The number of suppliers reporting to CDP for three years or more increased by 17% in 2016, and the returning respondents increased 12% over 2015, highlighting the value they are seeing in ongoing reporting on climate. The program continues to welcome a large number of first-time reporters; the number of first year respondents increased from 1,258 in 2015 to 1,367 in 2016.

The Carbon Trust and BSR used the information provided to assess key measures of supplier resilience, summarized in the table below. Information gathered from CDP supply chain members and their suppliers was used to evaluate the activities of suppliers reporting to CDP as a group, and to identify actions that suppliers and purchasers can take to encourage greater supplier resilience.

Key CDP questionnaire data analyzed in the report

Characteristic	CDP data
Understanding climate- and water-related risks and opportunities	◥ Identification of regulatory, physical, or other risks ◥ Risk likelihood ◥ Risk magnitude ◥ Identification of regulatory, physical, or other opportunity
Managing climate- and water-related risks	◥ Highest level of direct responsibility for climate change (e.g. board level) (full questionnaires only) ◥ Incentives for management of climate change issues (full questionnaires only) ◥ Risk assessment and management procedures (full questionnaires only) ◥ Integration of climate change into business strategy ◥ Active emissions reduction targets ◥ Emissions reduction initiatives ◥ Emissions reduction savings and project payback period ◥ Engagement with suppliers, customers, and other partners
Reporting, GHG emissions measurement, and GHG reduction	◥ Reported to CDP ◥ Scope 1, 2 and 3 emissions measured and completeness of footprint ◥ Gross emissions increase/decrease (full questionnaires only) ◥ Emission reduction targets and initiatives to achieve reductions
Engagement with suppliers	◥ Supply chain engagement by suppliers in water and carbon ◥ Allocation of emissions by suppliers to customers and identification of reduction opportunities

Supplier CDP climate change participants, by number of years reporting

The CDP supply chain program continues to welcome new suppliers. Nearly a third of suppliers are participating for the first time, while about half of CDP supply chain participants have been reporting for three years or more.

- **31%** First year
- **19%** Second year
- **50%** Third year plus

Intel: working with CDP to formalize engagement with suppliers on environmental reporting

Intel recognized that partnering with suppliers is key to cascading action on sustainability through its supply chain. To engage its supply base more effectively on environmental reporting and performance, the company added a requirement to complete CDP's climate change questionnaire to its Program to Accelerate Supplier Sustainability.

It was important to the company that it use an existing global standard to maximize the reporting benefit to Intel and its suppliers, at the same time as minimizing the reporting burden placed on suppliers who are responding to multiple customers. Intel's engagement followed a three-step approach: (1) Building CDP reporting expectations into their supplier scorecards for its leading suppliers; (2) Making participation an eligibility requirement for Intel's prestigious and public Supplier Continuous Quality Improvement Awards; (3) Supporting suppliers through regular communications and webinar training.

In 2016 Intel achieved a 96% response rate to CDP's climate change questionnaire among its leading suppliers. This supported Intel in attaining a Leadership (A-) score for the inaugural Supplier Engagement Rating. Of these suppliers, 47% responded for the first time and 30% only had a request from Intel. This strong participation will help the company continuously improve its supply chain transparency and environmental performance. Next year the company will expand requirements to include the CDP water questionnaire and encourage public disclosure of both surveys.

The state of supplier climate action:
A stronger business case and a need for deeper buyer-supplier engagement

Over two-thirds of suppliers identify opportunities related to climate change, translating into aggregate savings among responding suppliers of US$12.4 billion realized from emissions reduction projects – double the savings reported in 2015. However, one quarter of suppliers remain unable to identify their climate risks, and two-thirds are not able to report quantifiable emissions reductions. Even in the context of regulatory uncertainty on climate, suppliers can drive further progress that benefits their businesses, their customers, and the climate.

Suppliers can play a key role in implementing the climate action agenda while also strengthening their businesses. The 2016 CDP supply chain program data show that suppliers have doubled the financial savings achieved through emissions reduction projects compared to 2015. However, a large number of suppliers continue to lack full awareness of the climate risks to their business or the capabilities to mitigate those risks. Redoubling efforts among supplier leaders, and driving action by supplier laggards will be critical to realizing the ambition of the Paris Agreement.

> ***Disclosure is a powerful way to drive investment in research and development, and to motivate finance and creative approaches.***
>
> Ali Zaidi, Associate Director, Natural Resources, Energy and Science Programs, White House Office of Management and Budget

Climate change opportunities are significant – but recognition of water opportunities lags behind

A large majority of suppliers participating in CDP's supply chain program acknowledge climate change opportunities. Of the 4,366 suppliers responding, 68% identify inherent physical, regulatory, and/or other climate change opportunities that have the potential to generate a substantive change in business operations, revenue or expenses. In many cases, suppliers are able to improve their competitive position and increase sales by developing technologies and services that help their stakeholders reduce their emissions. However, recognition of water opportunities among suppliers lags behind awareness of climate opportunities. Only about 450 suppliers (36% of suppliers responding to CDP's water program) identify opportunities related to water, such as cost savings, improved water efficiency, or increased brand value. Data from CDP's water program show that water efficiency can help reduce energy use and associated emissions while securing supply of this precious resource. Therefore, recognizing the value of water stewardship is also critical to enable supplier climate mitigation and resilience.

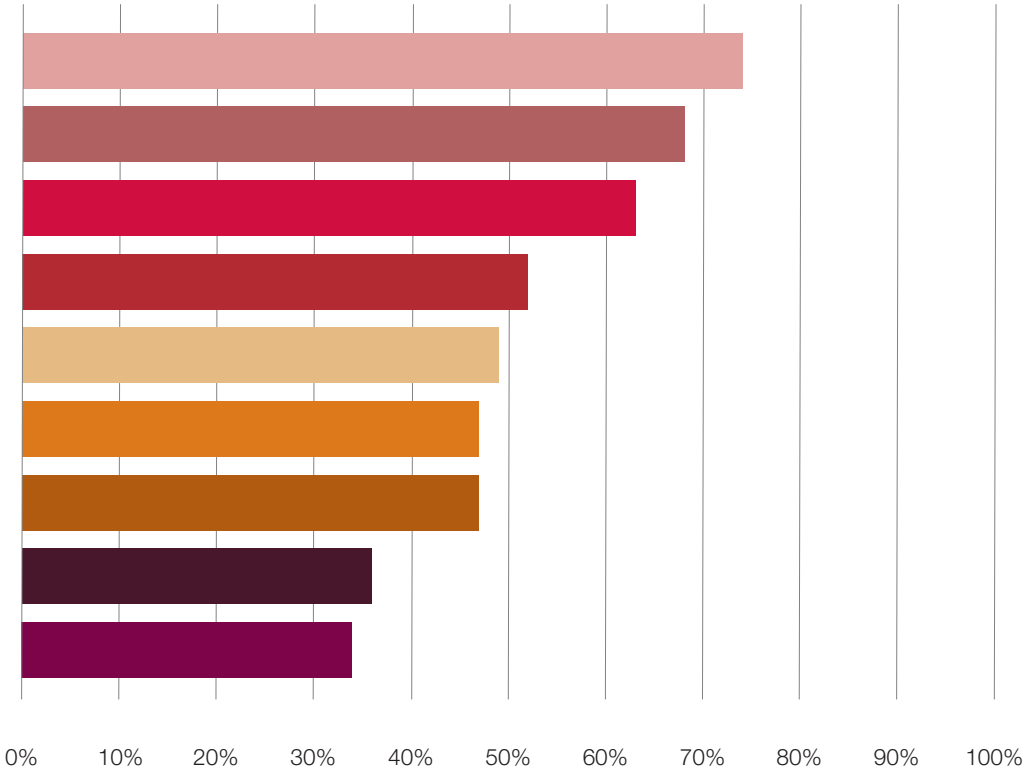
Understanding the landscape of climate and water opportunities identified by suppliers can help both buyers and suppliers to develop strategies that are most likely to result in meaningful actions. Of the suppliers identifying climate opportunities, most suppliers (87%) specifically call out opportunities linked to regulation – in particular product efficiency regulations and fuel and energy taxes. Despite recent changes to the political landscape in the U.S. and in other countries, the international policy landscape coupled with national regulation remains robust, and therefore regulation is likely to continue to influence supplier perceptions and action on climate change.

A smaller percentage of suppliers (55% of those reporting opportunities) also identify opportunities driven by changes in physical climate parameters, most commonly citing change in mean temperature, natural resource availability, and changes in precipitation – factors that may, for example, increase agricultural yields in some locations. The fact that more suppliers link climate opportunities to regulation than to physical changes may suggest that regulation is causing a more immediate business impact to suppliers, whereas physical changes are viewed as longer-term opportunities, or as more likely to contribute to business risks rather than opportunities.

Figure 2. Supplier climate action

% Suppliers taking action
(Total = 4366)

- **74%** Identify climate risks
- **68%** Identify climate opportunities
- **63%** Implement clear governance and oversight of climate issues
- **52%** Integrate climate into business strategy
- **49%** Report savings from emissions reduction projects
- **47%** Implement climate risk management processes
- **47%** Set climate targets
- **36%** Engage value chain partners on emissions reductions
- **34%** Report an overall decrease in emissions



A large number of suppliers continue to lack full awareness of the climate risks to their business or the capabilities to mitigate those risks.

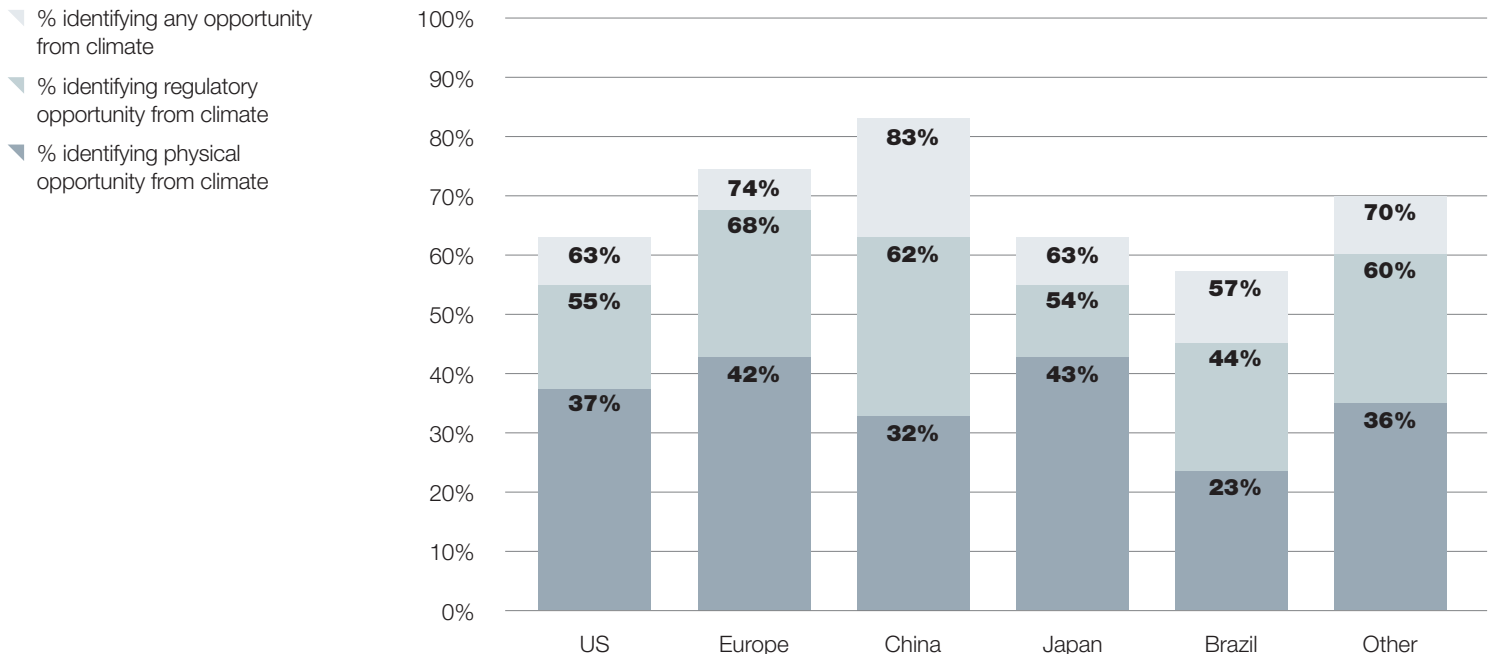
Notably, the majority of suppliers recognizing climate opportunities also cite drivers beyond regulation and physical changes. Suppliers noted nearly one thousand climate opportunities related to changing consumer behavior and corporate reputation. Specifically, consumer and business customer preferences for low carbon products are cited as opportunities to increase sales and create competitive advantage. Leading companies can seize the value in this shift by exploring the emerging opportunities to differentiate themselves in a carbon-constrained economy.

Many suppliers describe stakeholder expectations around climate change disclosure and action as an opportunity to derive business benefits, including positive impacts on corporate reputation, stock price, competitive positioning, and even the company's ability to attract and retain top talent.

These opportunity areas represent levers for large buyers to engage suppliers on the business case for climate action, with increasing demand for extended responsibility and transparency within the supply chain.

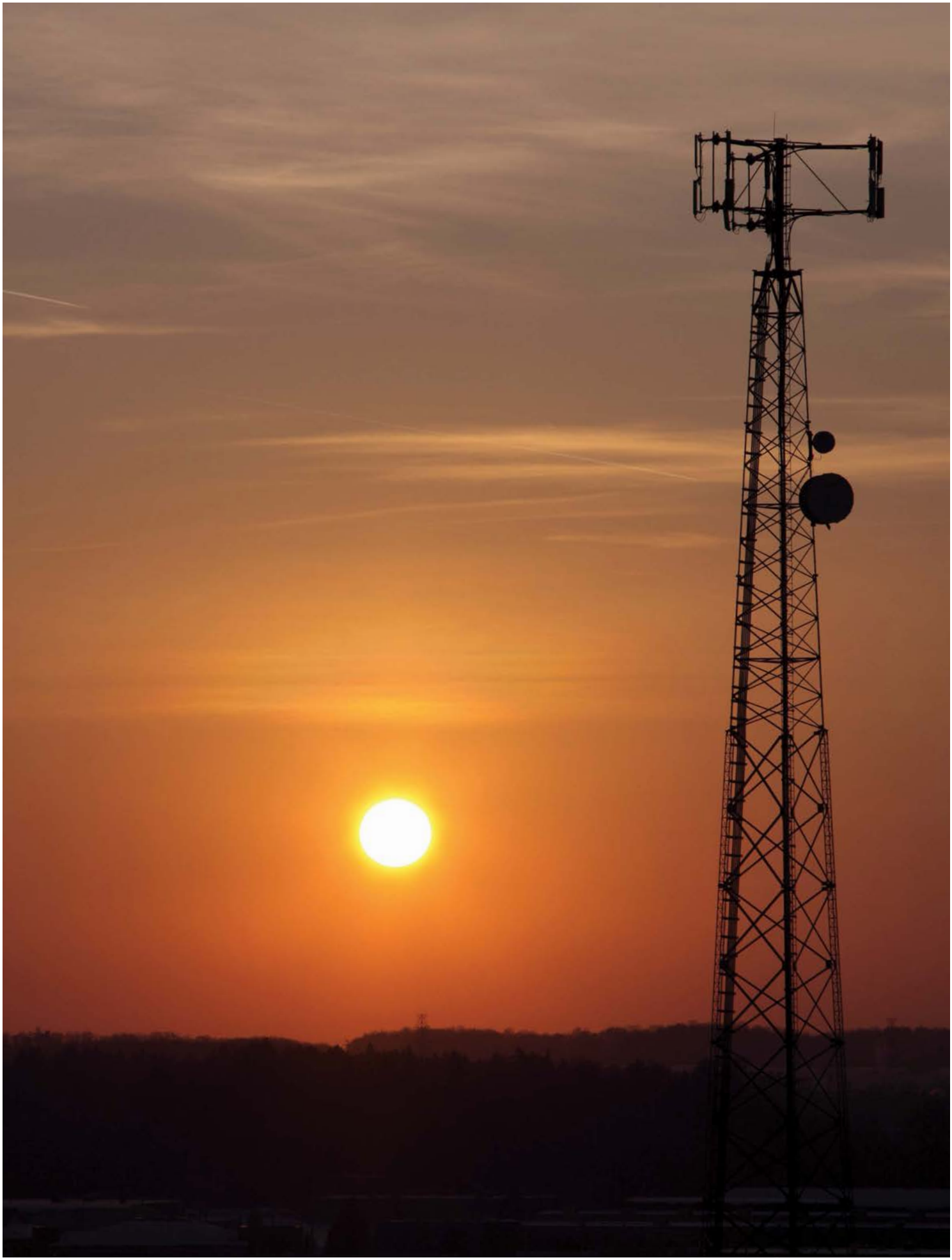
There are important geographic variations in the perception of climate opportunities among suppliers (see Figure 3). Suppliers in China are more likely to identify opportunities related to climate change, while Brazil, Japan, and U.S.-based suppliers are the least likely to recognize opportunities. China has established ambitious emissions reduction goals in its 13th five-year plan. China's commitment and ambitions create the conditions under which suppliers in China may be better able to identify – and benefit from – the opportunities afforded by the transition to a low carbon economy.

Figure 3. Difference in perception of climate opportunity, by geography



A higher percentage of respondents in China highlight opportunities related to climate change, while those based in Japan, Brazil, and the US are the least likely to recognize opportunities. Opportunities linked to regulation are most common among suppliers in Europe.

Note that suppliers can report more than one category of opportunity, so totals add up to more than 100%.



Royal Philips

Better disclosure enables us to identify risks and opportunities in our supply chain. Our data tell us that the more extensively we invite our suppliers to respond, the better the quality of their response and their strategy for action becomes. To support this process in 2016 we developed a tool, together with CDP, which facilitates our suppliers with less experience in disclosure to quantify their carbon emissions.

Paul van den Kerkhoff, Head of Supplier Quality, Sustainability and Development, Philips Lighting

Over one third of reported emissions reduction projects resulted in savings of at least

US$100,000

Suppliers reap substantial savings from emissions reduction projects, particularly through energy efficiency interventions

In 2016, 2,151 suppliers report combined savings of US$12.4 billion – double the savings reported in 2015 (US$6.6 billion). Notably, almost half of the top 100 projects by savings were related to energy efficiency, indicating that substantial savings opportunities exist for suppliers that initiate energy efficiency projects these projects. Furthermore, the majority of the projects (57%) had a payback period of 3 years or less, meaning that many emission reduction projects undertaken by suppliers have a favorable investment profile.

The average savings per project is nearly US$2 million, but the range of savings reported by suppliers is wide, with few leading suppliers reporting project savings over US$100 million or more. Of the 4,818 projects that resulted in quantifiable savings, 36% resulted in savings of at least US$100,000, 12% of projects achieved savings of US$1 million or greater, and less than 1% of projects realized US$100 million or more in savings.

In addition to savings realized from emissions reduction projects, suppliers also report upstream benefits through engaging their supply chains, or downstream through innovation related to commercializing low carbon products or services. About 25% of respondents are realizing climate opportunities by enabling their own suppliers to reduce emissions, or are growing revenue through sales of low carbon products or services. Examples include offering energy-efficient products, using more sustainable materials for products and packaging, and implementing process innovations that minimize water use and carbon emissions.

To institutionalize a focus on environmental attributes of products, several suppliers have implemented internal assessment processes that apply environmental criteria to new product or design decisions. Some suppliers are also investing in R&D to accelerate eco-innovations, and expect these investments will translate into competitive advantage and ultimately increased sales. When suppliers demonstrate their own sustainability sophistication they can become collaborative partners in developing new products and services that benefit both companies.

While this increase in total supplier savings is a positive signal, there are still over 2,000 supplier respondents that disclose no active emissions reduction initiatives in 2016. Many suppliers in this group perceive their businesses have low to moderate emissions, or state that though projects are underway, quantitative emissions impacts and savings are not calculated. Some suppliers cite investment costs as a hurdle to implementing emissions reduction projects. Hopefully, these suppliers can learn from their high-performing peers and customers to identify cost-positive investment opportunities within their own boundaries, and then begin to engage their own suppliers.

Greater awareness of supplier climate risks still needed

In 2016, the number of suppliers that identify climate risks to their business increased slightly from 72% to 74% of respondents. While this trend is moving in the right direction, this still means that about a quarter of responding suppliers still remain blind to their climate risks. Similar to the perception of opportunities, suppliers in China are more likely to perceive climate risks to their business, and suppliers in Japan, Brazil, and the U.S. are most likely to ignore climate risks (see Figure 4). Even fewer suppliers identify water risks, with only about 350 suppliers (28% of respondents to CDP's water program) identifying any water risks to their business.

The most common reason why suppliers are unable to identify climate risks is that it is not a management priority. Many suppliers in this group state that climate change has not been deemed a material risk to their business, or that the company's size or business model (e.g. professional services companies) relegates climate to a lower priority issue. The second most frequent challenge raised by suppliers is insufficient resources to conduct a risk assessment. Suppliers describe a lack of relevant knowledge, tools, and personnel to develop a structured climate risk assessment process.

Of the climate risks facing suppliers, regulatory risks are the most prominent. The majority (65%) of suppliers specifically highlight regulatory risks, including fuel or energy taxes and regulations, carbon taxes, and emissions reporting requirements. Almost half of respondents (48%) cite physical risks of climate change to their business, such as changes in precipitation extremes, changes in temperature extremes and average temperature, and tropical cyclones.

Increasing supplier awareness of climate risk is an imperative, as suppliers and the value chains that depend on them face imminent risks: 44% of respondents expect a climate-related impact within three years and 62% within six years. The most common anticipated impact of both climate and water risks is increased operational costs. This represents a clear opportunity for buyers to engage suppliers on the potential for savings resulting from climate and water interventions, as demonstrated by the substantial savings reaped by suppliers implementing emissions reduction projects.

The average savings per supplier is nearly

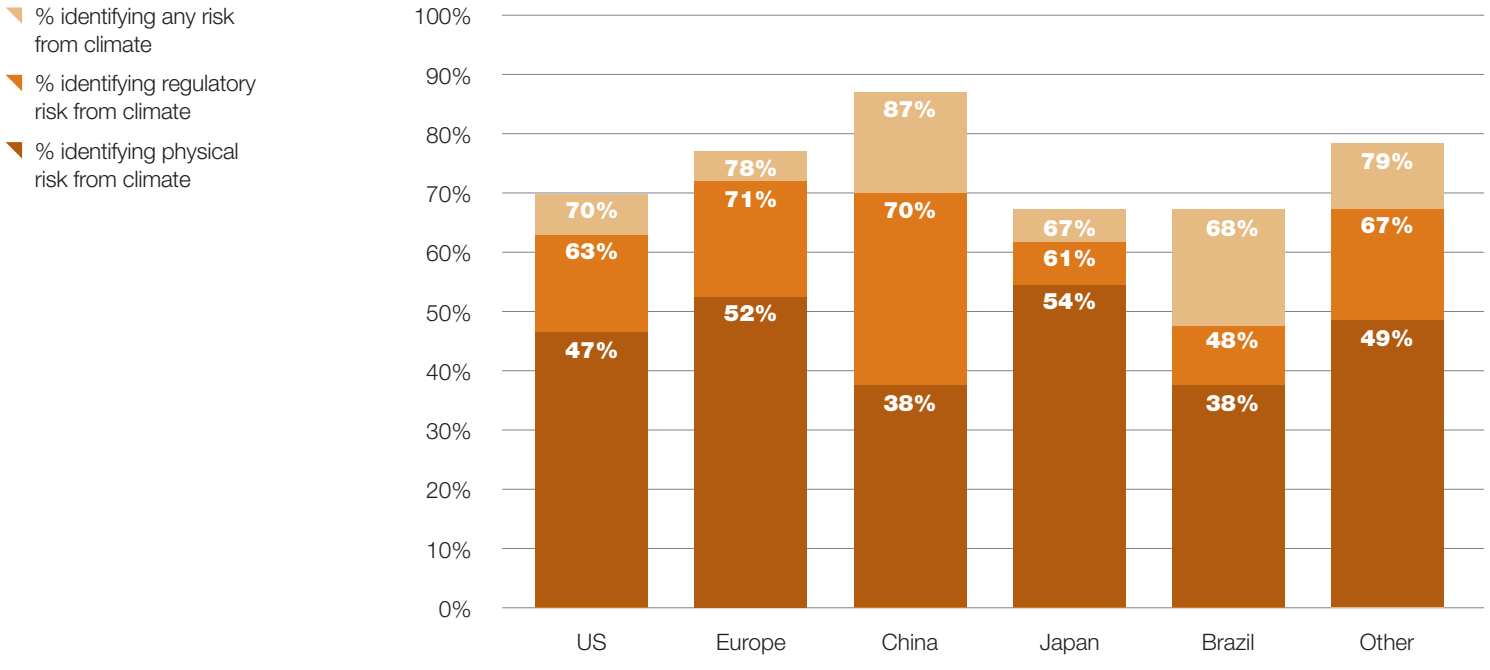
US$2 million

but the range of savings reported by suppliers is wide, with few leading suppliers reporting savings over

US$100 million

or more.

Figure 4. Percentage of suppliers perceiving climate risks, by geography

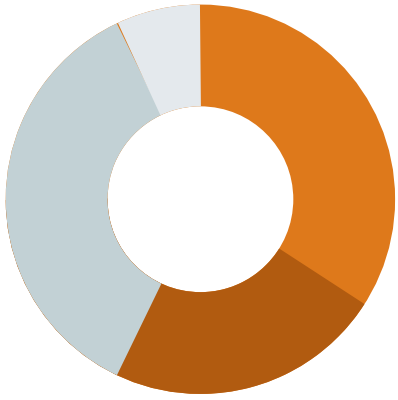


A higher percentage of suppliers in China identify climate risks relative to other geographies. Risk perception is lowest among suppliers in Japan, Brazil, and the U.S.

Most suppliers do not report emissions reductions in 2016; public supply chain engagement targets can help improve supplier performance

As in 2015, supplier scope 1 and scope 2 emissions reductions in 2016 remain far below what is needed to address their climate-related risks or to limit global temperature rise to a manageable increase well below 2°C. Only 34% of suppliers report an overall decrease in emissions in 2016 (see Figure 5). The large group of suppliers reporting an increase in emissions, or unable to respond, represent a significant need for capacity building, training, and resources. It also highlights the need for suppliers to implement a comprehensive emissions management strategy across the entire business, instead of just focusing on ad hoc or one-off projects.

Figure 5. Supplier year-over-year emissions direction



Many suppliers lack appropriate management and business integration of climate impacts, likely contributing to the fact that the majority of suppliers are not reporting decreasing emissions. Many suppliers reporting an increase in emissions in 2016 attribute the increase to sales or production growth, or to M&A activity.

Robust governance and management practices related to climate change could support suppliers to maintain a focus on decoupling emissions from financial growth through these business changes. Of the 3,355 suppliers who provide details on their management of climate issues, only 68% (up 5% from 2015) have integrated climate change into their business strategy, and so far 61% have risk management procedures in place, still leaving a significant percentage of suppliers lacking the processes to properly evaluate and act on climate risks. Even fewer suppliers – just 599, or 48%, of suppliers responding to CDP's water program – integrate water risk into business strategy.

Of respondents with climate management systems, the majority (82%) have clear governance and oversight of climate issues, with 56% (up 3% from 2015) at the Board level. 47% of suppliers (up 1% from 2015) have incentives for the management of climate change issues, including the attainment of targets. Although the percentage of suppliers reporting good practices with respect to climate governance and management has increased in 2016, there is a clear opportunity for further integration of a climate lens into business strategy and risk management processes.

We know that emissions reduction targets are critical to set direction for the transition to a low carbon economy. However, fewer than 50% of responding suppliers have set such targets. Some of the most common reasons offered by suppliers to explain this goals gap are: a lack of resources available to develop goals, a perception that services companies and SMEs do not produce meaningful emissions, and they have no mandate from management. Of the suppliers with targets, the most common is an intensity target (27%), followed by an absolute target (25%), and then a renewable energy consumption and/or production target (8%).

Science-based targets for carbon emissions drive supply chain engagement

To align with the Paris Agreement many companies are setting science-based targets for their operational emissions, which are based on what the best available science says will be required to limit global warming to below 2°C. There are even some organizations, such as BT Group, that are looking at how they can go further and aim for the more ambitious 1.5°C goal contained in the agreement. In recognition of this important opportunity, 462 suppliers indicated to CDP that they intend to set a science-based target in the next 2 years.

Globally, more than 200 businesses have signed up to the Science Based Targets Initiative (SBTi) – a partnership between CDP, UN Global Compact, WWF and the World Resources Institute – which commits businesses to set an ambitious emissions reduction target in line with climate science. For targets to be recognized by the SBTi it is necessary for companies with over 40% of their total scope 1, 2 and 3 emissions contributed by indirect scope 3 emissions (which will include vast majority of businesses across most sectors) to also establish an ambitious and measurable scope 3 target with a clear time frame. In turn this need to reduce scope 3 emissions will drive supply chain engagement, which can already be seen in the proactive approach taken by companies with approved targets such as Dell and Walmart. To learn more about setting a science-based target companies can visit: http://sciencebasedtargets.org/.

Engaging with the full value chain – including suppliers, customers, and partners – can be a highly effective way to raise awareness of climate and water risks and enhance performance. Unfortunately, only 36% of all respondents are engaging with either their suppliers, partners, or customers on climate, and most are engaging with suppliers representing less than 25% of their spend (see Figure 6). Furthermore, only 201 out of 1,259 suppliers, or 16%, are requesting their suppliers to report on water use.

European respondents demonstrate the highest level of engagement, with nearly half reporting some level of engagement with their value chains on climate (see Figure 7). Suppliers in the U.S. lag behind, with only a third engaging their value chains. Brazil has the highest percentage of non-engagement.

> ***We want our global suppliers to report their own scope 1 and 2 emissions, which helps align them with the science-based targets we have set ourselves. We drive reporting on these through our supplier and procurement evaluations. In 2016, 60% of our global spend submitted their CDP climate questionnaire. We explicitly made this a requirement through our supplier expectations, alongside participation in Sedex and signing our global supplier code of conduct. We also use these as part of our annual corporate supplier scorecard.***
>
> Diane Holdorf, Chief Sustainability Officer, Kellogg Co.

The suppliers that report no value chain engagement tend to be those who have only a few years of experience in calculating and managing their own emissions. These suppliers indicate that once they have made progress on their own emissions reductions, they may explore a focus on engaging the broader value chain.

Some suppliers describe other barriers to engagement, such as a perceived lack of leverage over business partners and costs associated with managing an engagement program. This group of suppliers also reports that without mandatory requirements from customers or regulation, engaging their value chains on climate is not a high priority.

Suppliers that do engage with their value chains take a variety of approaches. Customer engagement channels include organizing roadshows and exhibitions globally, and providing climate performance information to customers through Requests for Proposal (RFPs), catalogues, websites, and social media platforms.

Common supplier engagement approaches reported include applying a Code of Conduct, requesting suppliers to respond to sustainability questionnaires or to CDP, collaborating with suppliers on product design decisions, and facilitating access to virtual and in person training. Many suppliers describe collaboration with industry peers, through groups such as the Electronics Industry Citizenship Coalition (EICC) and Clean Cargo Working Group (CCWG), as useful platforms for engagement across the value chain.

Figure 6. Percentage of suppliers engaging their supply chains, by percentage of spend represented

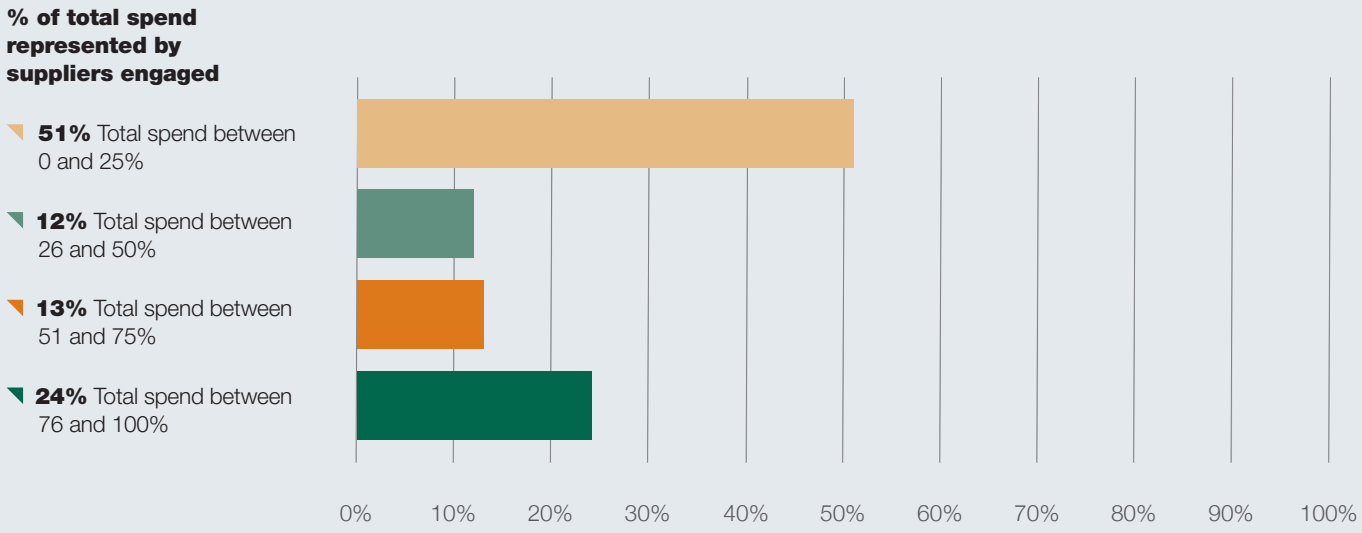
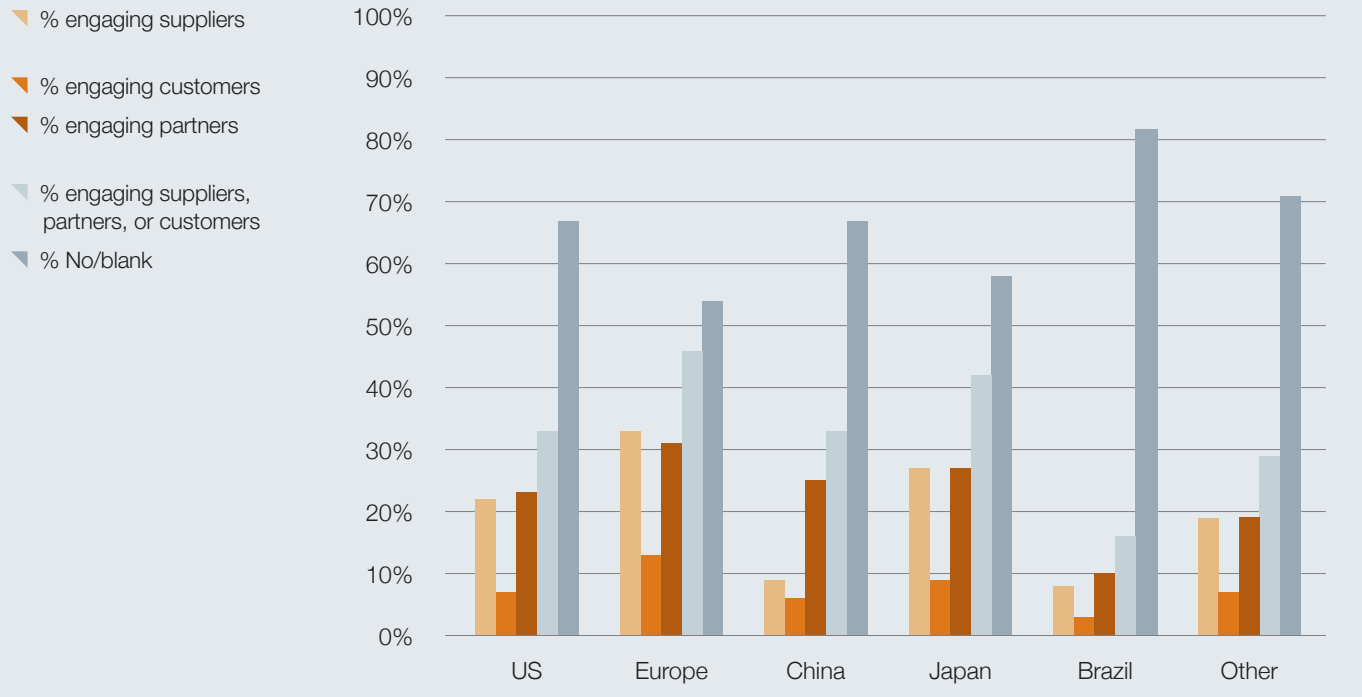


Figure 7. Percentage of suppliers engaging across the value chain, by geography



Focus on China

China is an industrial and manufacturing powerhouse and a key hub within the global supply chain. The country has the world's highest national greenhouse gas emissions, although around a quarter of these are accounted for by the production of export goods consumed in other countries.*

The Chinese government is currently showing high levels of commitment to combat climate change and other negative environmental impacts, such as air pollution, with strong measures being implemented at both national and provincial levels. Importantly, this year China is expected to introduce a national emissions trading scheme, following on from successful regional pilots.

The scale of China's emissions, alongside the rapidly shifting national context, means that there is a huge opportunity to reduce supply chain environmental impacts within the country. This year's disclosures reveal attractive paybacks for businesses that have focused on improved efficiency. Almost four in ten measures implemented to save energy were expected make a return on investment in less than one year, with three-quarters paying back in under three years.

This suggests that there will be significant potential environmental and financial savings for those large organizations that focus on working with their Chinese suppliers and a great opportunity for those critical suppliers to understand their emissions profile ahead of regulations.

Last year Walmart encouraged us to participate in CDP reporting and provided training and resources to support us in improving our energy efficiency. In our first year of CDP reporting we became more aware of areas where we had successfully reduced emissions, for example through investment in solar which now accounts for 5.9% of our energy use. Going forward we are eager to continue measuring, reducing, and reporting emissions through CDP, sharing a vision for sustainability with key clients such as Walmart.

Bestway (Hong Kong) International

Top rated Chinese suppliers 2017

- Bestway (Hong Kong) International
- BOE Technology Group Co. Ltd.
- Huawei Technologies Co. Ltd.
- Jiangxi Black Cat Carbon Black Co Ltd.
- Lenovo Group
- Rong Hua (Qing Yuan) Offset Printing
- Shya Hsin Packaging Industry (China) Co. Ltd.

* Liu, Zhu (2015). *China's Carbon Emissions Report 2015.* Harvard Kennedy School Belfer Center for Science and International Affairs. Cambridge MA.

CDP Supply Chain – Forests

Managing deforestation in the supply chain

It is estimated that 15% of global greenhouse gas emissions are due to forest loss and land degradation resulting from deforestation. 80% of deforestation is due to land use change for agriculture, mainly driven by four commodities – cattle products, palm oil, timber products and soy.

These four commodities constitute a very real source of risk for companies. 77% of companies disclosing to CDP's Forest Program in 2016 identified at least one operational, regulatory or reputational risk – related to producing, marketing or sourcing these commodities – that could cause substantive change to their business operations, revenue or expenditure. In fact, the total annual turnover at risk for publicly listed companies that disclosed to CDP in 2016 is estimated at up to US$906 billion.

Unsustainable forest commodities already pose a significant risk to companies should they enter the supply chain. However, with increasing demand from a burgeoning global population alongside the fungible nature of many forest commodities, the risk that unsustainable materials represent to companies looks set to grow.

The Paris Agreement will drive and influence governmental action on sustainability issues into the middle of this century. It explicitly references the essential role of curbing deforestation in climate change mitigation efforts and will likely engender more robust regulation regarding the supply of forest commodities.

Consumer and investor interest is increasing the necessity for companies to source sustainably. For example, in 2015 the world's largest sovereign wealth fund – Norwegian Government Pensions Fund Global – dropped 11 companies from their portfolio over deforestation concerns.

Against a backdrop of swelling customer and investor interest, strengthening regulation and growing demand, the sustainability of forest commodity supply will increasingly be a major concern for companies. Purchasing organization recognize this, and there's increasing traction amongst the world's largest companies to do more on halting deforestation. Not only are the numbers of companies committing to deforestation-free supply chains swiftly growing, but proactive businesses such as Restaurant Brands International (parent company of Burger King and Tim Hortons) have become founding members of CDP Supply Chain's expansion into Forests.

CDP is the only global partner helping leading organizations manage climate and water risks and opportunities in a standardized way across their supply chain. Now, for the first time, CDP is offering companies the opportunity to do the same for deforestation. Moreover, in this pilot year CDP's founding members will help to shape the program from day one, demonstrating leadership in driving the development of this new disclosure program.

US$906 billion

annual turnover of listed companies at risk from deforestation

Supply Chain – Forests affords members the opportunity to deepen engagement with key suppliers through the CDP information request. Suppliers respond to a standardized questionnaire once, annually. The results are shared with all requesting customers, enabling efficient reporting whilst maintaining confidentiality. The CDP disclosure process drives action though analysis, progress tracking, target setting, supplier education and collaboration all backed up by a global support system.

CDP's tried and tested disclosure process has been refined over the last decade to become the most credible sustainability rating in the world. Drawing on this pedigree, CDP Supply Chain's expansion into Forests will lead both purchasing organizations and suppliers on a journey towards more sustainable business practices through disclosure.

Cascading change throughout the supply chain:
Effective approaches towards sustainable and resilient suppliers

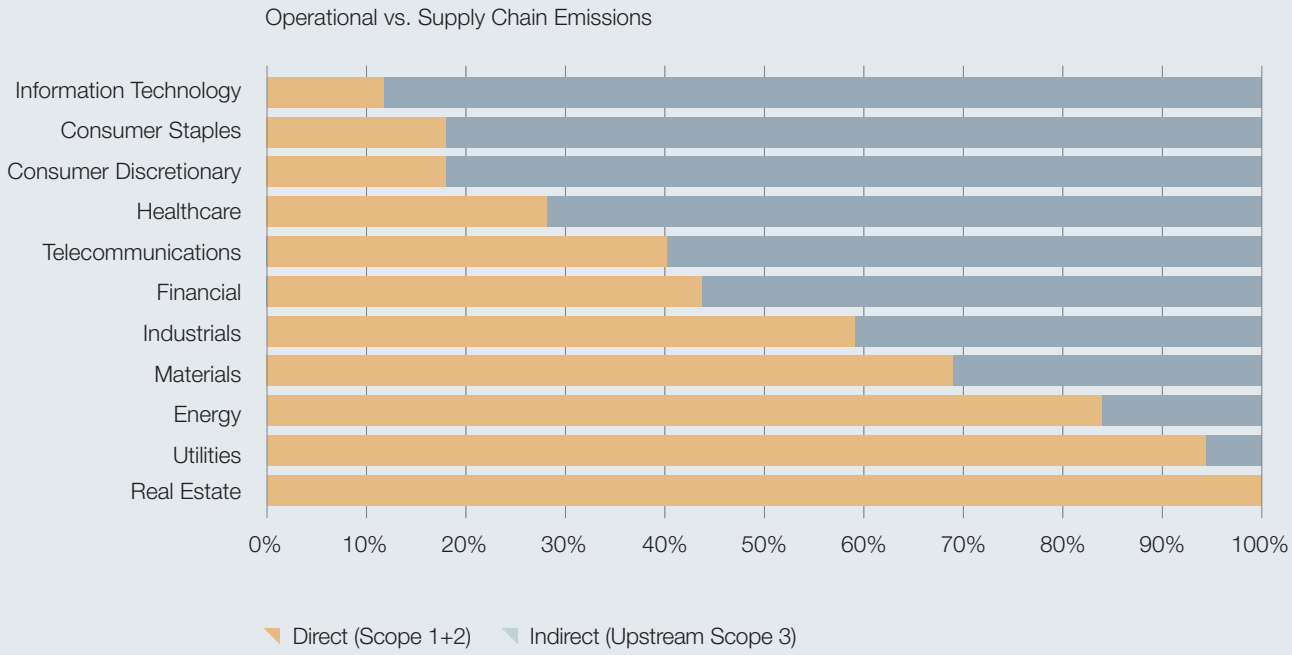
There is power in procurement – money talks. It is possible in principle for a critical mass of large purchasers to have a transformative impact on the sustainability of their supply chains. However, organizations are not currently engaging with environmental issues at the scale required to match the inherent risk.

In many cases approaches to understand and reduce the impact of supply chains are still comparatively immature or experimental. But there is now an emerging body of demonstrably effective strategies, which now need to be adopted more widely.

To date, most sustainability teams have focused their efforts on scopes 1 and 2, primarily investing in projects within their own boundaries. It is unsurprising this is the case, as it is far easier to deal with very real issues that exist within a company's operational control, and which relate to direct costs and regulatory burdens. Engaging procurement teams in sustainability is difficult as they have to factor in a huge range of competing priorities, such as price, availability, quality, and resilience. Although it is worth noting many of these factors have a direct link to longer-term sustainability concerns.

Indeed, until relatively recently there has only been limited demand from customers or requirements from governments to act on environmental impacts within the supply chain, rarely moving beyond requests for certain types of non-financial disclosures. But the supply chain is typically where the greatest impact and reduction opportunities exist (see Figure 8). Acting exclusively on improving direct operations not only ignores a significant opportunity, but also potentially increases an organization's exposure to hidden and unmanaged risks.

Figure 8. Proportion of operational and supply chain greenhouse gas emissions by sector



Royal Philips

We recognize that supply chains flow in multiple directions. So there are commercial opportunities for us to provide products or services to help our own suppliers become more sustainable. For example, we can offer light-as-a-service, which helps them to upgrade to LED lighting and deliver energy and carbon savings without up-front investment costs.

Nicola Kimm, Head of Sustainability, Philips Lighting

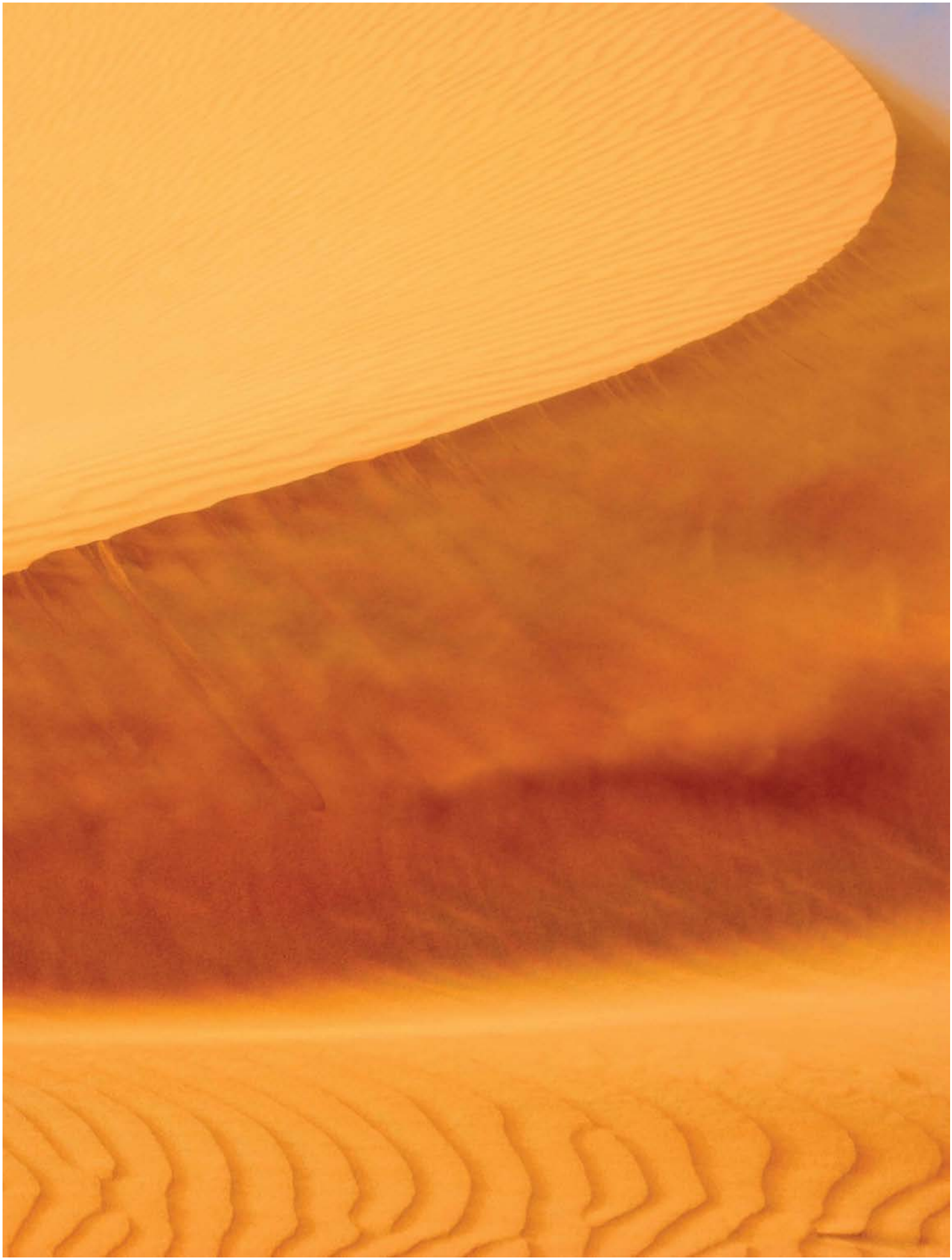
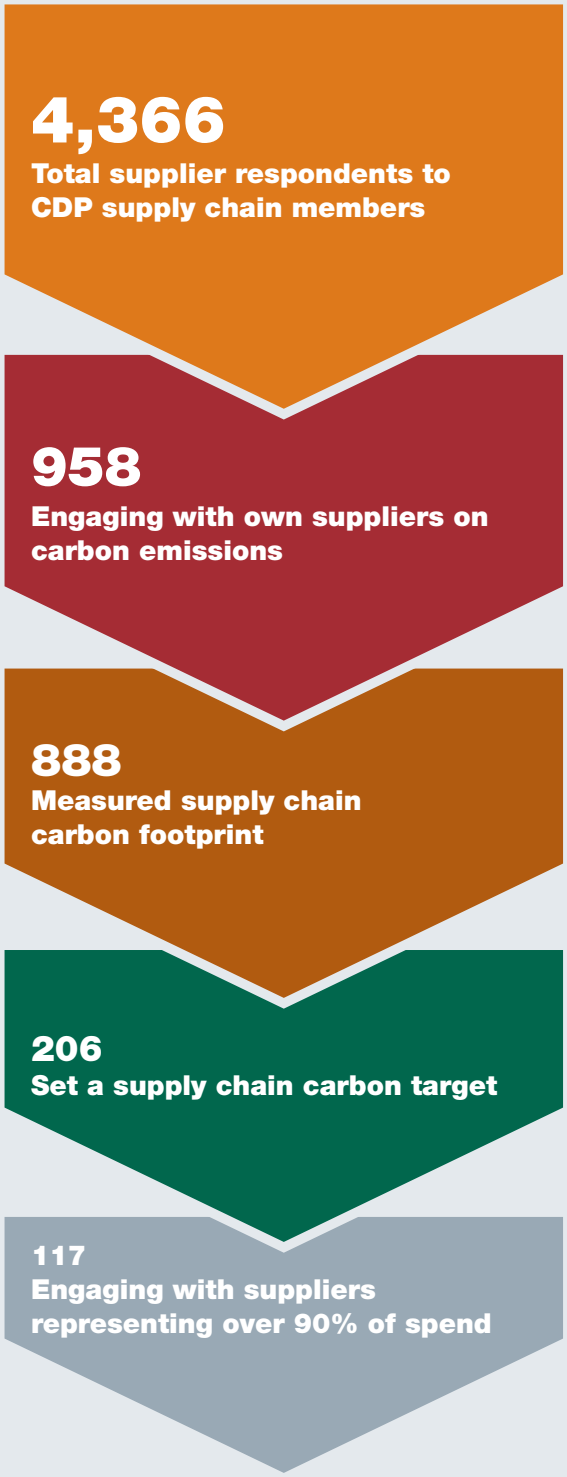


Figure 9. How is supply chain engagement on climate change cascading beyond the first tier?



Despite promising progress from a small number of leading organizations, taking action to reduce supply chain environmental impacts remains the exception rather than the norm. For example, amongst members of CDP's supply chain program 27% have supply chain carbon emissions targets in place. But just 4% of suppliers responding to the supply chain questionnaire have similar targets. This suggests that companies taking action themselves are not in turn engaging their own suppliers, so in the majority of instances commitments are not cascading beyond the first tier (see Figure 9). And the discrepancy here may be even starker, as many companies do not – or are unable to – report upstream scope 3 emissions at all.

By providing a clear framework for finding the value in supply chain engagement and real examples of best practice, it will be possible to scale up levels of action taken by organizations and promote engagement moving beyond the first tier.

Reputational risks are a driver for supply chain action

This year's supplier responses revealed that those that identify themselves as being reputationally-exposed on their sustainability performance are a lot more likely to be engaging with their own supply chain (59%) when compared with companies that don't identify exposure to reputational risks (33%).

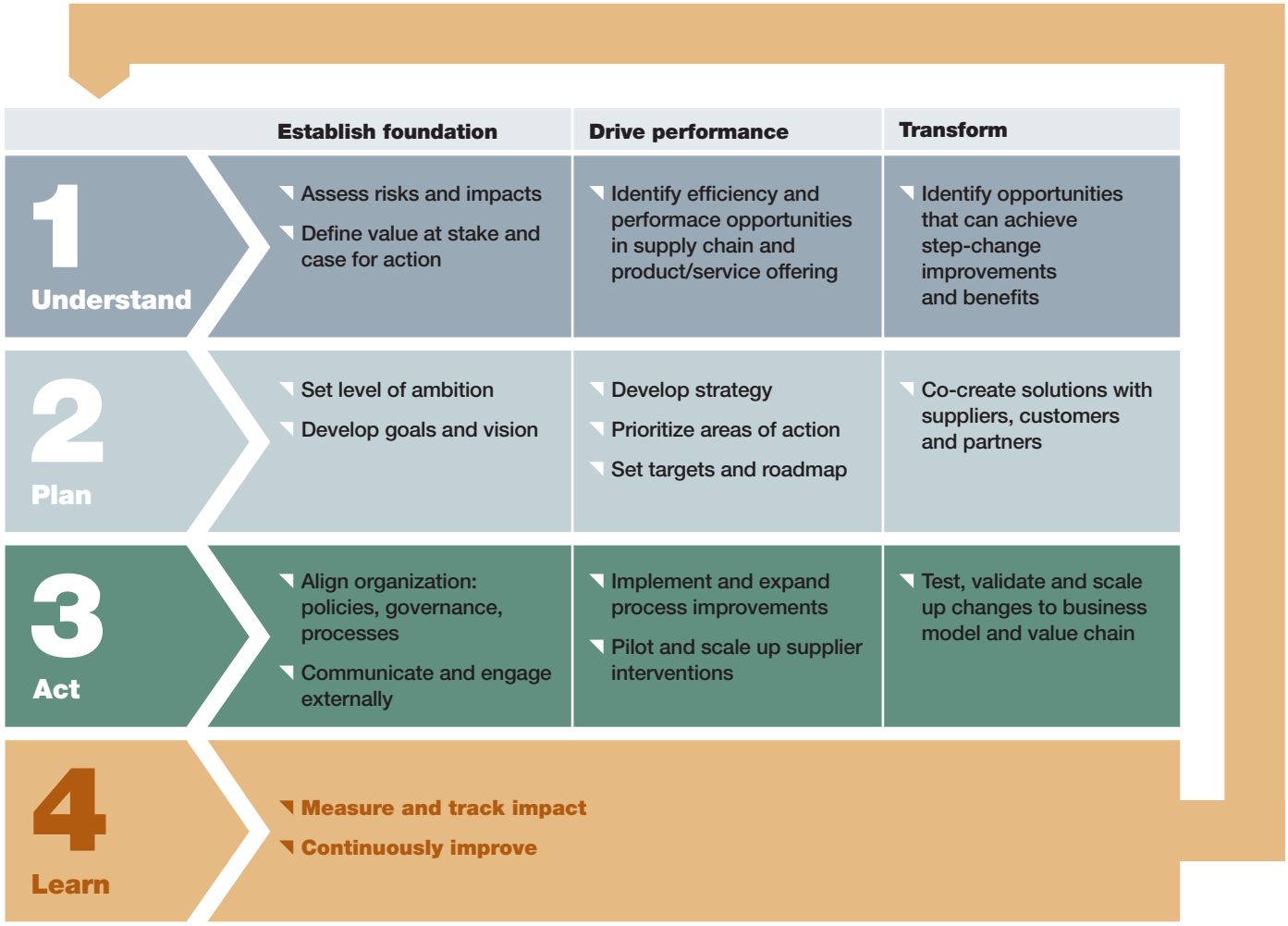
The importance of reputation as a driver for action highlights the potential significance of setting clear expectations for suppliers and tracking their progress, which can be given additional salience through CDP's global disclosure platforms.

A framework approach for reducing carbon emissions and water impacts in the supply chain

Managing supply chain risks, impacts, and capturing opportunities for sustainable value creation is complex. However, the fundamental steps are common across all organizations: understanding, planning and implementing. Learning from outcomes is essential in order to deepen and broaden the value of a supply chain program.

These four steps form the basis of the Carbon Trust's framework process for developing a supply chain sustainability program outlined in Figure 10. Responses from CDP supply chain members illustrate how leading organizations employ these approaches in various practical ways across sectors, tailoring them according to their needs and contexts, and levels of maturity.

Figure 10. Carbon Trust framework process for developing a sustainable supply chain program



Understand

Understanding and quantifying climate and resource impacts, risks, and opportunities is fundamental to developing a sustainable supply chain program. It is also important for protecting the resilience of operations, as disruptions and scarcity can prove to be costly.

Equally, understanding the supply chain provides insights into supplier challenges and capabilities, which can reveal opportunities for value creation and growth by unlocking innovation. This will vary depending on: the nature of the supply chain (e.g. agricultural, industrial, services); the relative capabilities of suppliers (e.g. size, technical abilities, access to capital); and the shape and complexity of the full supply chain, particularly where the most material impacts and opportunities exist beyond the first tier.

Understanding the supply chain provides insights into supplier challenges and capabilities, which can reveal opportunities for value creation and growth by unlocking innovation.

However, unlike with financial numbers, accounting for supply chain carbon emissions and resource consumption can be imprecise at best. Data quality issues arise in assessing impacts as calculations are very dependent on the quality of supplier data, which is often poor. Although where data is poor there are methods to get reasonable estimates of supply chain impact through using available procurement spend data broken down by the category of goods and services procured. This can help to highlight hotspots of emissions and areas for action.

Water challenges are considerably more complex to evaluate when compared with carbon emissions. While climate change has a global effect, water is very much a local issue. Risks can vary substantially between different regions, depending on scarcity and competing use – a purely volumetric and quantitative approach is insufficient to measure and understand impact.

Although every organization ought to minimize water use wherever possible and avoid pollution or contamination, users in high risk areas bear additional responsibility. This includes engaging with governments, communities and other stakeholders to play a role in promoting basin-level sustainability and better approaches to water management.

Johnson & Johnson: supplier development and collaboration

As a business founded with the belief that a healthier planet offers benefits to human health, Johnson & Johnson has been setting environmental goals for nearly 30 years, and broader *Citizenship & Sustainability* goals since 2010. These include specific ambitions to tackle impacts outside their direct control. And with more than 78,000 suppliers around the world, Johnson & Johnson recognizes that the business can drive enormous positive impact through their supply chain sustainability initiatives.

A key practice highlighted in Johnson & Johnson's five-year *Citizenship & Sustainability 2020* goals is collaboration with suppliers to accelerate environmental and social improvements across the value chain – accomplished through their Sustainable Procurement Program. The Program has evolved over time, building on progress and insights gained as the Company worked towards their prior Healthy Future 2015 goals. Johnson & Johnson has raised their expectations as they look towards 2020, with an aspiration for world-class supplier sustainability efforts.

To achieve that goal, they are expanding the reach of the Sustainable Procurement Program to include suppliers covering 80% of their total spend. The program maintains a flexible approach, focusing on issues that are relevant and important to both Johnson & Johnson and their individual suppliers.

Working with each supplier on initiatives that can drive the greatest value and impact in that supplier's industry has led to collaborative problem-solving across the full product lifecycle. Importantly, the elements of the Sustainable Procurement Program are embedded in the supplier management process, from supplier selection through score-carding and awards and recognition. In fact, this year Johnson & Johnson incorporated CDP disclosure scores into its Supplier Sustainability Awards, recognizing two suppliers in the category of *CDP Improvement.*

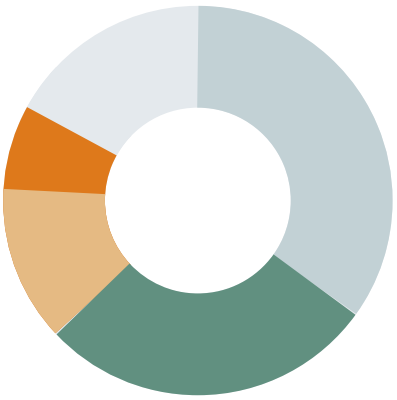
Plan

With increasing understanding of supply chain risks, impacts, and opportunities, organizations can prioritize and plan approaches to address these. This begins with setting a vision and level of ambition, and then translating insights into a strategy, roadmap, and detailed plan of action, in line with the wider organizational objectives. As a result, creating a positive business case for action is often simplified by targeting areas where cost savings can be achieved, such as through reducing energy and resource use.

This year the greatest areas of identified opportunity – both in terms of monetary savings and carbon emissions reduction – are found in changing product design and recovering waste (see Figure 11). However, such obvious financial rewards are not always available, or it may be difficult to access or quantify the expected benefits, for example through reducing reputational risk as a result of better water stewardship.

An outcome of planning is the development of medium and long-term targets which organizations use to provide concrete signals of their intentions externally to the market and suppliers, as well as internally to business units. For example, Acer has asked key suppliers to achieve the intensity reduction target of between 1 to 5% per unit every year since 2011. And L'Oréal through its Sharing Beauty With All commitment, has asked key suppliers to commit to reducing their water consumption by 60% between 2005 and 2020.

Figure 11. Annual identified financial savings by supply chain engagement initiative type



> ***As the world's largest tire and rubber company, we cooperate with our suppliers and business partners to reduce greenhouse gas emissions through the entire product life cycle. This approach is based on our group's mid-term target for the year 2020.***
>
> Bridgestone Corporation

Act

Once targets are set, implementation begins by establishing appropriate internal structures and processes, so that organizations are able to effectively execute and follow through with specific interventions. This includes policies, governance, processes and capacity building across relevant functions, especially within their procurement teams.

Most organizations tackle sustainability risks and opportunities by directly engaging with and influencing suppliers. For example, Walmart has empowered buyers, responsible for thousands of items, to manage the sustainability performance of their product portfolio. Buyers are using sustainability scorecards to evaluate life cycle performance to evaluate products and rank suppliers against their peers. These are used in buying trips, line reviews and annual business planning, and projects have been launched across the business to work with suppliers on driving improvements.

An increasing number are also addressing sustainability risks by addressing their product and service offering – effectively designing out negative impacts (for example by selecting sustainable materials, ingredients, and service providers) and designing in features that both improve sustainability and add value to customers. Yet, engaging suppliers and addressing product offering often go hand-in-hand, and done together are mutually reinforcing. Organizations can put in place a range of interventions to address areas of priority, as illustrated in Figure 12. These are discussed in further detail below.

Braskem: a vertical approach to supplier engagement

To address climate change Braskem adopted a comprehensive and integrated strategy across both its own operations and its value chain. Recognizing the role that suppliers have to play in mitigating and managing climate risks and opportunities, the company decided to take a vertical approach to engaging them.

Braskem begins by assessing levels of engagement and awareness amongst its suppliers. They are then supported through targeted workshops, which are differentiated depending on the level of supplier engagement. These workshops improve suppliers' awareness and provide them with training and dissemination of best practices, as well as technical support on identifying opportunities to reduce emissions and costs.

Braskem has achieved a voluntary and steady improvement of supplier performance in key areas such as setting up greenhouse gas emissions inventories, defining reduction targets, and identifying opportunities and risks associated with their business. As a result, nearly 44% of the Braskem's scope 3 emissions are now reported.

All suppliers receive feedback on an annual basis, allowing them to identify actions for further progress. Additionally, Braskem has been able to begin an analysis of all the opportunities and risks communicated to the company by suppliers, which will inform the future engagement strategy.

In light of this success, the company has subsequently launched the same engagement process targeting critical suppliers operating in areas exposed to potential water stress and supporting them in their water resources management strategies.

For Acer, supply chain partners are the most critical stakeholders for pursuing sustainability. Through the CDP supply chain program, we work with suppliers like Quanta to enable emissions reductions and generate new business opportunities. We would love to see more and more cases like the Acer & Quanta collaboration happen within our supply chain, not just for our long-term partnership, but also for the good of our planet and future generations.

Richard Lai, Corporate Sustainability Officer, Acer

Learn

Effective supply chain sustainability programs develop and adapt as organizations learn from the outcomes of their interventions. Introducing a continuous learning loop is therefore important so that actions remain relevant and have the desired impact.

Opportunities to engage suppliers will to some extent depend on organizational capabilities and similarity to suppliers. For example, large manufacturing companies may be able to provide quite specific vertical advice and guidance to manufacturing suppliers. A retailer would be less well suited to provide vertical advice but could horizontally convene multiple similar companies to share best practice.

In 2016, Quanta achieved significant emissions reductions. Collaborating with our customer, Acer, through the CDP supply chain program was key in this endeavor. Quanta will continue working with Acer and devote its efforts to reducing the impacts from climate change.

David Wang, Director of Corporate Responsibility, Quanta

BMW Group's strategic supplier engagement

BMW Group works with around 13,000 suppliers across 70 countries. This vast, global supplier network therefore represents a major source for value creation, quality and innovation for the group, but also inherent risks if left unaddressed.

In order to better manage its supplier network and to capitalize on opportunities, BMW Group has integrated its supply chain approach into a group-wide corporate sustainability strategy, as well as its functional purchasing strategy. This integration at a corporate level is supported by a two-pronged approach; (1) annual, internal target-setting; (2) supplier engagement based on CDP KPIs including transparency and CO_2 emissions reporting criteria.

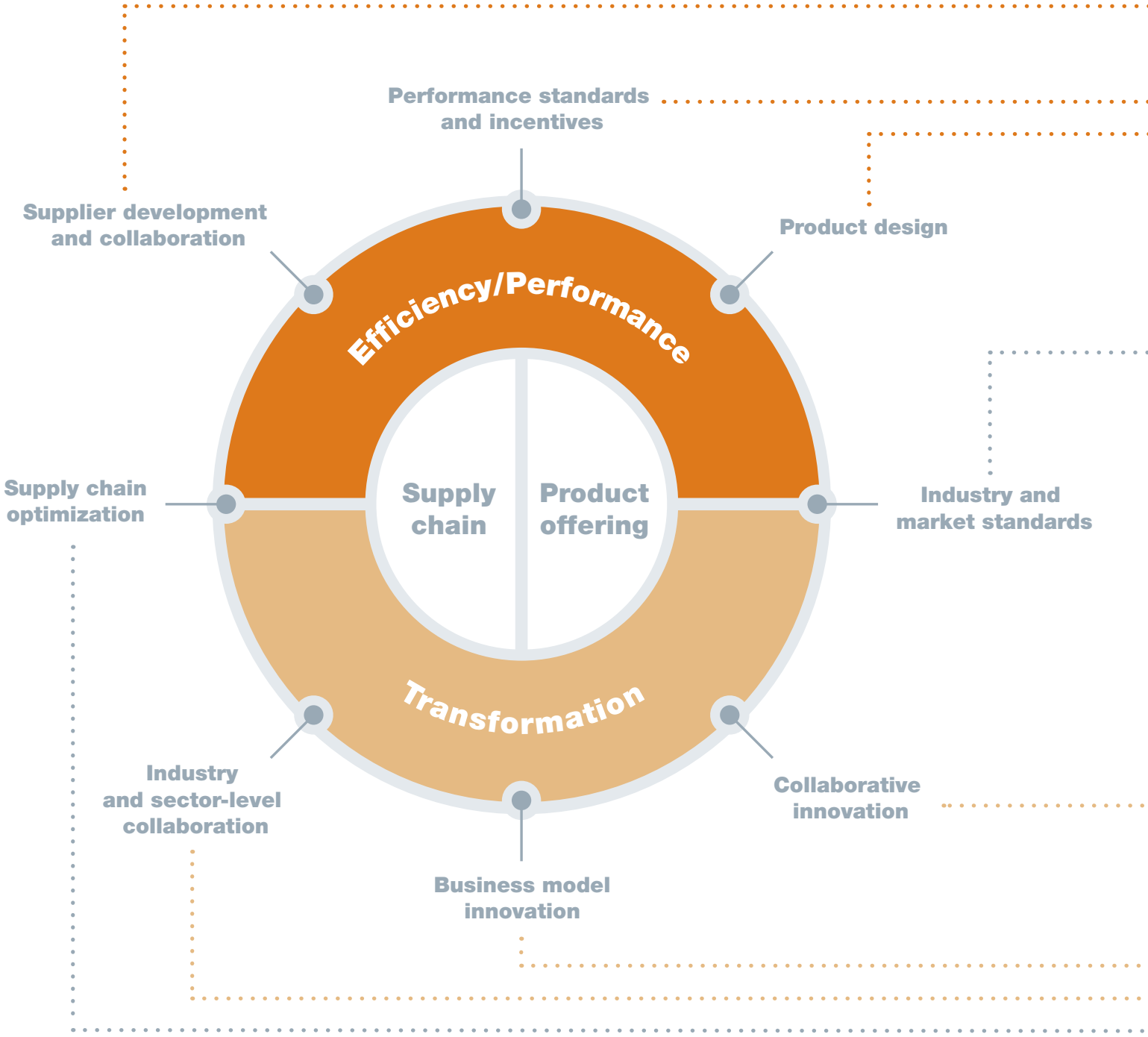
As part of this strategy, BMW Group has integrated CDP into its annual Supplier Performance Reviews (SPR) for its top-100 suppliers assessing them against key indicators, such as emission targets, reduction initiatives, and changes in absolute emissions. This allows the company to track year-on-year performance, develop competitive benchmarks, and inform BMW Group's future supplier engagement strategy. The company also engages suppliers which do not directly participate in annual performance reviews on a bilateral basis through its Commodity Supply Chain Strategy.

As a result of its targeted supplier engagement strategy, BMW Group has initiated pilot projects for emission reductions in 2016 in collaboration with key suppliers, while setting bilateral targets for its highest CO_2-emitting suppliers. Since joining the Supply Chain Program in 2014, BMW has systematically invited its suppliers to disclose to CDP, representing 69% of BMW Group's annual global spend.

Figure 12. Carbon Trust framework: Interventions for improving supply chain sustainability

Organizations that take a strategic approach to supply chain sustainability consider the nature and scale of the impact they are trying to achieve, designing interventions and initiatives that will move them towards their objectives and targets.

On the spectrum of change lie interventions that achieve incremental efficiency and performance improvements (such as driving energy and resource efficiency practices with suppliers), alongside transformational initiatives that fundamentally shift part or all of an organization's business model.



Supplier development and collaboration

In collaboration with Walmart, PepsiCo's Sustainable Farming Initiative provides a range of programs and technologies enabling agricultural suppliers to reduce water usage, switch away from synthetic fertilizer, and improve farming yields.

Performance standards and incentives

A number of businesses have introduced prestigious supplier awards, which include categories recognizing top performers on sustainability.

Product design

BT Group has implemented a design checklist to enable product managers and suppliers to integrate sustainability into the design of products and services, alongside commercial and customer experience considerations.

Industry and market standards

The Roundtable on Sustainable Palm Oil brings together multiple stakeholders around a common definition of sustainability for a key commodity, with certification system to provide assurance that this standard has been met.

Supply chain optimization

KAO Corporation works closely with retailers on the joint development of ordering management to reduce the number of deliveries and transportation load, as well as introducing lower carbon products.

Collaborative innovation

The LEGO Group is tapping into the innovation capabilities of suppliers to identify and implement high-impact, scalable carbon reductions in their materials, logistics, and packaging.

Business model innovation

Business model innovation and the circular economy offer a number of opportunities for value creation. For example, some automotive companies are working with suppliers to remanufacture high-value components such as motors and gearboxes.

Industry and sector-level collaboration

Arcos Dorados works closely with suppliers on the issue of water scarcity, hosting several workshops addressing risk assessment and actions, sharing supplier lessons on water efficiency and reducing water withdrawal in operations.

Cisco leveraging big data to reduce supply chain emissions

Cisco launched an energy reduction pilot program to model the economic and environmental benefits of web-enabled connectivity in a factory setting. The pilot included the installation of thousands of sensors in a manufacturing partner's plant in Malaysia to monitor energy consumption.

The goal was to explore how big data can inform decision making and enable operational energy efficiency to reduce the carbon footprint associated with the production of Cisco products. The availability of this data enhances the management of manufacturing operations and enables more efficient and cost-effective use of resources. Conservative estimates indicate the pilot saved the manufacturing partner over US$1M a year in operational expenses.

With the success of this pilot, Cisco is looking to expand the program globally in 2017 by sharing best practices and establishing goals for technological adoption.

Global commentary

Supply chains: A missing link for sustainability[4]

By working closely with their suppliers, consumer companies can lessen their environmental and social impact and position themselves for strong growth.

Anne-Titia Bové is a practice manager in McKinsey's São Paulo office, and Steven Swartz is a partner in the Southern California office.

Approaches to improving sustainability in supply chains

In the eyes of shoppers and investors who are concerned about the sustainability of the goods they buy and the companies they own stakes in, consumer businesses are responsible for ensuring that their supply chains are managed well. As we explored in our article, Starting at the source: Sustainability in supply chains1, the worth of a company can be expressed as the sum of two values: the present value of the company's current cash flows extended into the future, and the present value of the expected growth in its cash flows. When we studied the enterprise value of the top 50 publicly traded consumer-packaged-goods (CPG) companies, we found that their expected cash-flow growth makes up roughly half of their current value. Because of this, factors that alter these companies' growth projections will also have a major effect on their total returns to shareholders. Data suggests that consumer companies will have to greatly reduce the natural and social costs of their products and services in order to capitalize on rising demand for them without taxing the environment or human welfare. Consumer businesses are likely to find that their supply chains hold the biggest opportunities for breakthroughs in sustainability performance.

A high-functioning supply chain – the entire hierarchy of organizations, including energy providers, involved in making and distributing goods – can allow companies to manage sustainability-related risks. These companies are also in a strong position to influence their suppliers.

We believe three approaches can help consumer companies make their supply chains more sustainable.

1) Locate critical issues across the whole supply chain

Adoption of digital technology to helps increase companies' ability to assist large numbers of suppliers in a programmatic fashion – including baseline data collection down to supplier facility level to allow for more granular and specific action recommendations.

To understand the impact of making consumer goods, companies must determine how natural and human resources are used at every step of the production process, whether in the supply chain or in direct operations.

2) Link supply chain sustainability goals to the global sustainability agenda

Once companies know where their supply chain issues are, they can set goals for lessening the resulting impact. Some suppliers have set sustainability targets of their own, ahead of receiving mandates from their customers and investors. Offering suppliers incentives and program assistance for improving sustainability performance will help to marry the suppliers' supply chain goals with those of the companies.

3) Assist suppliers with managing impact – and make sure they follow through

The purchasing power held by consumer companies and retailers gives them significant influence over their suppliers' business practices. Relatively few companies in the consumer and other sectors use that influence to get their suppliers to reduce sustainability impact, though that is changing through efforts like that of CDP's Supply Chain Action Exchange Program.

For years, most consumer companies paid relatively scant attention to whether their suppliers managed the social and environmental impact of their business activities. This is beginning to change, as consumer companies have come to appreciate the extent to which their supply chains contribute to global sustainability challenges, as well as the effects that poor sustainability management can have on their growth and profitability. A few leading consumer businesses, along with civil-society institutions, have created a widening array of practices and tools for working with their suppliers to lessen sustainability impact and have begun to realize the benefits of their efforts. Their experiences illustrate the possibilities for many more companies to initiate similar activities. Companies that manage their supply chain impact may well be best positioned to gain from the boom in consumer spending that is expected to take place over the next decade and beyond.

4 An excerpt from Starting at the source: Sustainability in supply chains. McKinsey on Sustainability & Resource Productivity, No. 4.
For more, see Starting at the source: Sustainability in supply chains. McKinsey on Sustainability & Resource Productivity, Number 4, November 2016.
a. http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/starting-at-the-source-sustainability-in-supply-chains

Supplier engagement leader board

This year, for the first time, CDP has evaluated the ability of organizations to engage with their suppliers on climate change. Purchasing organizations have the potential to incentivize significant environmental changes in their supply chain. However, in 2016, just 23% of companies responding to the CDP Supply Chain questionnaire reported that they engage with their own suppliers on GHG emissions and climate change strategies. By piloting a system to evaluate supplier engagement practices and recognize best practice, CDP aims to increase buyer engagement to accelerate global action on supply chain emissions.

Organizations that responded to climate change in the 2016 CDP questionnaire (excluding SMEs) were assessed on processes around integrating climate change into procurement. Specifically, their responses to questions surrounding governance, ambition, upstream emissions management (scope 3) and supplier engagement. Each organization was given a band separate from, but complementary to, their CDP climate change score.

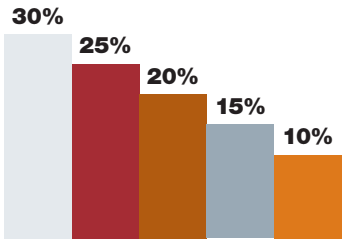
This rating enables companies to gain a better understanding of how they measure up to peers in terms of managing supply chain emissions. Through better understanding of their performance and position, organizations can learn from best practice and take more effective action on managing supply chain climate risk. This was our pilot year and we will be consulting with companies, industry experts, and other NGOs on refining and advancing the methodology for 2017. The ambition is to incentivize more supplier engagement, driving significant global emissions reductions that will help to prevent dangerous climate change.

The supplier engagement rating was made possible by the generous support of the ClimateWorks Foundation.

CDP questionnaire section

Weighting

- Supplier Engagement
- Governance
- Scope 3 Emissions Accounting
- Targets & Initiatives
- Overall CDP Climate Change Score



Company Name	Country
Consumer Discretionary	
Bridgestone Corporation	Japan
Fiat Chrysler Automobiles NV	Italy
General Motors Company	USA
Panasonic Corporation	Japan
Sky plc	United Kingdom
Sony Corporation	Japan
Yokohama Rubber Company, Limited	Japan
Consumer Staples	
Coca-Cola European Partners	United Kingdom
General Mills Inc.	USA
Nestlé	Switzerland
Financials	
Bank of America	USA
BNY Mellon	USA
KPMG UK	United Kingdom
Industrials	
3M Company	USA
Bic	France
Kawasaki Kisen Kaisha, Ltd.	Japan
Komatsu Ltd.	Japan
Mitsubishi Electric Corporation	Japan
Royal Philips	Netherlands
Toshiba Corporation	Japan
Information Technology	
EMC Corporation	USA
Hewlett-Packard	USA
Materials	
AkzoNobel	Netherlands
Braskem S/A	Brazil
Stora Enso Oyj	Finland
thyssenkrupp AG	Germany
Telecommunication Services	
BT Group	United Kingdom
Deutsche Telekom AG	Germany

The Supplier Climate & Water A-List

Each year, with our valued scoring partner Adec Innovations – formerly First Carbon Solutions – we analyze and score supplier responses to CDP's climate change information request against the CDP scoring methodology, assessing the companies' response on four levels: disclosure, awareness, management and leadership. The Supplier Climate A List recognizes companies that are leading in their actions to reduce emissions and mitigate climate change in the past CDP reporting year.

The aim is to highlight positive climate action as demonstrated by a company's CDP response. A high score signals that a company is measuring, verifying, and managing its carbon footprint – for example, by setting and meeting carbon reduction targets and by implementing programs to reduce emissions in both its direct operations and its supply chain. Equally, the Supplier Water A List highlights companies that have taken an active approach towards water stewardship. Many members use supplier scores in their assessments of suppliers. The CDP scoring methodology is the highest-rated sustainability rating system.

The following companies represent 2.5% of total climate change disclosures by suppliers in 2016.

Global supply chain scoring partner:

Company Name	Score	Country
Supplier Climate A-List		
Consumer Discretionary		
BMW AG	A	Germany
Daimler AG	A	Germany
Electrolux	A	Sweden
Fiat Chrysler Automobiles NV	A	Italy
General Motors Company	A	USA
Groupe PSA	A	France
Johnson Controls	A	USA
Lego Group	A	Denmark
LG Electronics	A	South Korea
Michelin	A	France
RELX Group Plc	A	United Kingdom
Renault	A	France
Sky plc	A	United Kingdom
Sony Corporation	A	Japan
Yokohama Rubber Company, Limited	A	Japan
Consumer Staples		
Coca-Cola European Partners	A	United Kingdom
Coca-Cola HBC AG	A	Switzerland
Colgate Palmolive Company	A	USA
Diageo Plc	A	United Kingdom
General Mills Inc.	A	USA
L'Oréal	A	France
Nestlé	A	Switzerland
SCA	A	Sweden
Tesco	A	United Kingdom
Unilever plc	A	United Kingdom

Company Name	Score	Country
Energy		
Compañía Española de Petróleos, S.A.U. CEPSA	A	Spain
Eni SpA	A	Italy
Financials		
BNY Mellon	A	USA
Dexus Property Group	A	Australia
Goldman Sachs Group Inc.	A	USA
HSBC Holdings plc	A	United Kingdom
KPMG UK	A	United Kingdom
MAPFRE	A	Spain
Healthcare		
AstraZeneca	A	United Kingdom
Bayer AG	A	Germany
GlaxoSmithKline	A	United Kingdom
Novo Nordisk A/S	A	Denmark
Roche Holding AG	A	Switzerland
Industrials		
Abengoa	A	Spain
Bic	A	France
Canadian National Railway Company	A	Canada
Ecorodovias Infraestrutura e Logística S.A	A	Brazil
FERROVIAL	A	Spain
Grupo Logista	A	Spain
Huber + Suhner AG	A	Switzerland
Kawasaki Kisen Kaisha, Ltd.	A	Japan
Komatsu Ltd.	A	Japan
Kone Oyj	A	Finland
Lockheed Martin Corporation	A	USA
Mitsubishi Electric Corporation	A	Japan
Nabtesco Corporation	A	Japan
Obrascon Huarte Lain (OHL)	A	Spain
Qantas Airways	A	Australia
Republic Services, Inc.	A	USA
Royal Philips	A	Netherlands
Schneider Electric	A	France
SGS SA	A	Switzerland
Skanska AB	A	Sweden
Stanley Black & Decker, Inc.	A	USA
Toshiba Corporation	A	Japan
Union Pacific Corporation	A	USA
Waste Management, Inc.	A	USA

Company Name	Score	Country
Information Technology		
Accenture	A	Ireland
Advanced Semiconductor Engineering	A	Taiwan
Alphabet, Inc.	A	USA
Apple Inc.	A	USA
Atos SE	A	France
Autodesk, Inc.	A	USA
Canon Inc.	A	Japan
Cisco Systems, Inc.	A	USA
EMC Corporation	A	USA
Hewlett-Packard	A	USA
Konica Minolta, Inc.	A	Japan
LG Display	A	South Korea
Microsoft Corporation	A	USA
Oracle Corporation	A	USA
Samsung Electronics	A	South Korea
Tech Mahindra	A	India
Wipro	A	India
Materials		
AkzoNobel	A	Netherlands
Braskem S/A	A	Brazil
FIRMENICH SA	A	Switzerland
International Flavors & Fragrances Inc.	A	USA
Koninklijke DSM	A	Netherlands
LG Chem Ltd	A	South Korea
Metsä Board	A	Finland
Mondi PLC	A	United Kingdom
Novozymes A/S	A	Denmark
Praxair, Inc.	A	USA
Sealed Air Corp.	A	USA
Stora Enso Oyj	A	Finland
Symrise AG	A	Germany
TETRA PAK	A	Sweden
thyssenkrupp AG	A	Germany
Telecommunication Services		
BT Group	A	United Kingdom
Deutsche Telekom AG	A	Germany
Proximus	A	Belgium
Swisscom	A	Switzerland
Telefonica	A	Spain

Company Name	Score	Country
Utilities		
ACCIONA S.A.	A	Spain
Centrica	A	United Kingdom
EDF	A	France
ENAGAS	A	Spain
ENGIE	A	France
Gas Natural SDG SA	A	Spain
Iberdrola SA	A	Spain
PG&E Corporation	A	USA
Red Electrica Corp	A	Spain
Suez	A	France
VEOLIA	A	France

SMEs Company Name	Score	Country
Consumer Staples		
Mario Camacho Foods, Llc	A-	USA

Supplier Water A-List		
The following companies represent 1.2% of total water disclosures in 2016.		
Consumer Discretionary		
Fiat Chrysler Automobiles NV	A	Italy
Sony Corporation	A	Japan
Consumer Staples		
Colgate Palmolive Company	A	USA
Diageo Plc	A	United Kingdom
L'Oréal	A	France
Nestlé	A	Switzerland
Unilever plc	A	United Kingdom
Healthcare		
Bayer AG	A	Germany
GlaxoSmithKline	A	United Kingdom
Industrials		
Mitsubishi Electric Corporation	A	Japan
Materials		
BASF SE	A	Germany
Metsä Board	A	Finland

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WHERE IMPACT MATTERS

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Coca-Cola

DELL

Goldman Sachs

IMPERIAL BRANDS

JTI

JUNIPER NETWORKS

L'ORÉAL

Microsoft

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PEPSICO

PHILIP MORRIS INTERNATIONAL

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Walmart

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CDP 2017
This report and all of the public responses from corporations are available for download from www.cdp.net

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