

What's next for sustainable business?

 **SustainAbility**
Trends 2019



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Introduction

Issues, Stories and Sectors to Watch in 2019

Welcome to SustainAbility's annual trends report, in which we explore the key global trends impacting businesses as they transition towards a more sustainable economy.

In 2019 we expect to see continued political instability, more pronounced climate impacts and accelerating rates of biodiversity loss. While the scale and complexity of the sustainability challenges we face is daunting, there is also reason for optimism. We are witnessing unprecedented leadership and innovation driven by cities, regions and businesses, rising civic activism and advocacy by Generation Z, and rapidly growing awareness about issues such as plastic pollution. We expect this growing momentum to drive much-needed progress on critical social and environmental issues in 2019.

For the first time, we are also sharing deeper analysis of five sectors: food & agriculture, technology, pharmaceuticals & healthcare, energy & utilities and financial services. In our sector trends, we explore the key issues facing these rapidly changing industries and discuss emerging solutions. We hope you enjoy the report, and as always, we welcome your feedback.





Climate Crisis

Efforts remain insufficient to change our dangerous current course

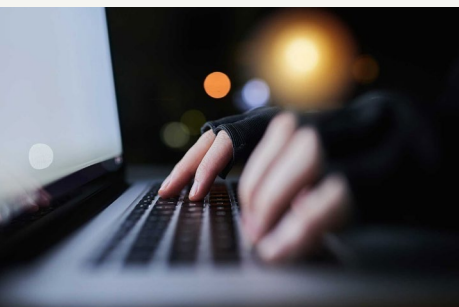
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Citizen Power

Citizens demand a more sustainable, equitable world from companies and institutions

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Trade wars, cybersecurity breaches and climate change threaten global security and economic stability

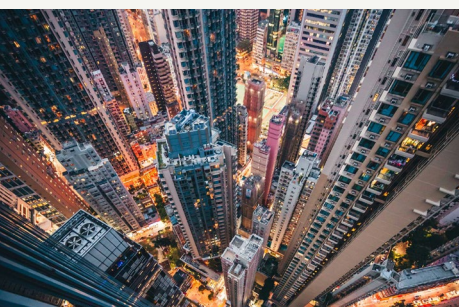
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New Leadership

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Climate Crisis

Efforts remain insufficient to change our dangerous current course



The opportunity to prevent global warming rising beyond 2C is diminishing – highlighting the urgent need for faster deployment of low carbon and climate adaptation solutions.

Current efforts remain insufficient to change our course towards dangerous climate change.

A rapidly warming climate and failure to adequately reduce greenhouse gas emissions underscore the urgent need for greater focus on resiliency measures. Rapid, large-scale investment in effective solutions is needed to prevent global warming from reaching potentially catastrophic levels.

Signals to Watch

Rising Global Emissions

Falling prices for both renewable energy and natural gas have resulted in modest emissions reductions amongst heavy emitters such as Europe and the United States. However, none of the four largest global polluters (China, the United States, the



European Union and India) are currently on track to do their part in global efforts to reach the Paris Agreement goals.

Experts [report](#) that global greenhouse gas emissions rose by an estimated 2.7 percent in 2018, reaching an all-time high. This represents the second year of notable increases after a brief period of relatively stable emissions due to slowed economic growth.

The latest [IPCC report](#) highlighted the severity of impacts we are already experiencing at 1C warming and stated that 2C of warming is now considered highly dangerous.

Countries have agreed to report on their emissions every two years starting in 2024, in accordance with the new Paris Agreement rulebook [agreed](#) at COP24 in December 2018 in Poland.

International media focus continues to remain on emissions from electricity generation, where the greatest progress is being made. But agriculture and transportation are also major contributors and only [limited](#) attention is being given to these sectors and other smaller emitters.

The European Union has struggled to maintain emissions reduction momentum, in large part due to Germany failing to transition away from coal. Meanwhile US carbon dioxide emissions [rose by 3.4 percent in 2018](#), the biggest increase in eight years.

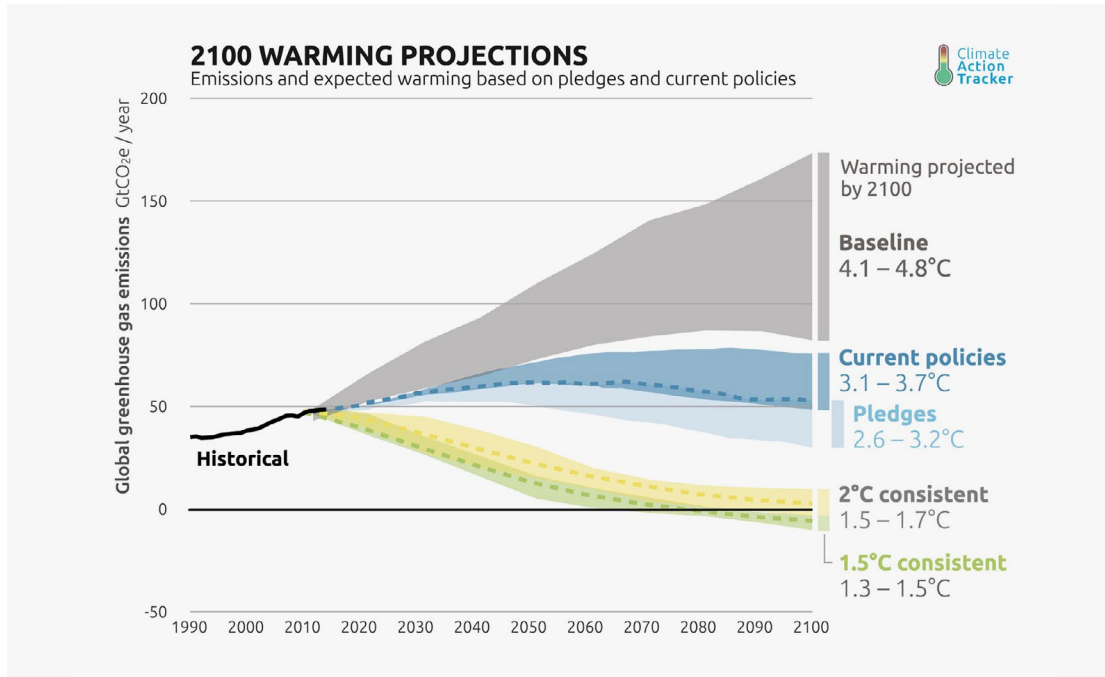
China continues to heavily invest in renewable energy, electric vehicles and energy storage, but its total emissions are predicted to continue climbing until [2030](#). India's emissions are anticipated to peak in 2033.

Air pollution related to consumption of fossil fuels remains a major global issue. More than [3 billion people](#) are breathing deadly smoke in their homes from using polluting stoves and fuels.



“To have a chance of limiting warming to 1.5C, greenhouse gas emissions must be cut in half by 2030 and be net zero by 2050.”

“ Diana Liverman, University of Arizona, lead author for the IPCC 1.5C report.



Source: [Climate Action Tracker](#)

Adaptation Investment is Urgent

The impacts of 1C warming are far more severe than predicted. Extreme weather is causing billions in damage annually, with flooding, storms & drought in Asia coupled with raging fires in the United States, Canada, Greece and Sweden. While some climate mitigation and adaptation projects are complimentary, in many cases they are competing for limited government funds.

Global impacts to urban environments are currently estimated at [\\$314 billion](#) each year and are predicted to increase to more than [\\$415 billion](#) annually by 2030.

Severe wildfires in California caused [billions](#) of dollars in direct damage and insurance payouts in 2018.



Heat waves hit Europe in 2018, impacting economic performance and reducing power generation from [wind turbines](#), highlighting the urgent need for more investment in climate resilient energy [infrastructure](#) and agriculture.

According to new estimates by FAO, droughts in Asia caused over [\\$48 billion](#) in lost crops and livestock between 2005 and 2015.

Adaptation Investment is Urgent

A dangerously warmed climate is leading to renewed discussion among experts about the pros and cons of geoengineering interventions. Geoengineering generally falls under two categories: the removal and storage of carbon from the atmosphere and solar radiation management, which is the reflection of the sun's rays back into space or blocking a small portion of sunlight before it reaches Earth. While there are many proponents of geoengineering solutions, the science is still largely based on theoretical models and has been criticized for being potentially dangerous and for presenting policymakers with the promise of a silver bullet that may slow attempts to reduce emissions.

The [New Carbon Economy Consortium](#) is an initiative of academic institutions, national laboratories, and NGOs looking to use emerging technologies to transform the economy by positively utilizing carbon.

The [United States](#) and [Norway](#) are at the forefront of the drive for carbon capture and storage (CCS), but so far the European Commission has been [lukewarm](#) about this technology.

Y Combinator, the tech incubator famous for kick-starting companies like AirBnB and DropBox, is now pouring millions of dollars into funding [geoengineering solutions](#).

Geoscientists, ecologists and urban planners are working to optimize soil to absorb higher amounts of carbon dioxide in both agriculture and [urban environments](#).

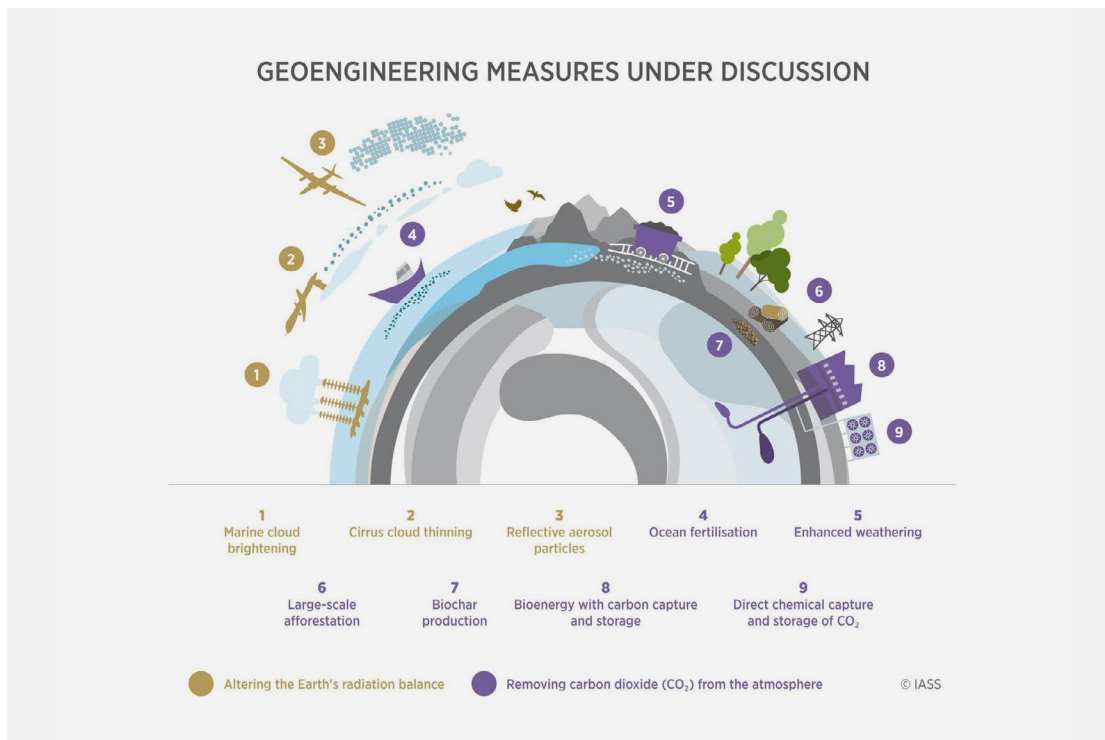


Other nascent technologies receiving funding include [genetically engineered phytoplankton](#), [direct air capture](#), [marine cloud brightening](#) and [electro-geochemistry](#).

Despite increasing interest in geoengineering solutions, a growing number of [experts](#) are warning about potential dangers associated with the technology, including unknown and potentially catastrophic side effects, high costs, and the fragmentation of international efforts on greenhouse gas reduction.

“Geoengineering is the brave-new-world of climate mitigation. While the scientific jury is still out on risk and effectiveness, what’s already becoming clear from our initial research is that any silver-bullet climate solution brings with it an additional “moral hazard” that it may desensitize the general public to climate risk and sap their motivation to support decisive mitigation.”

“ **Victoria Campbell-Árvai, a Research Scientist at the University of Michigan's School for Environment and Sustainability**



Source: [IASS](#)



What to Expect in 2019

We expect to see billions of dollars of additional damage and many more lives lost due to extreme weather events. Resilience, adaptation and liability regarding infrastructure that is ill prepared for increasingly extreme weather will be front and center for both governments and business. Companies will accelerate action to increase climate preparedness in both direct operations and their supply chains. Geoengineering technologies could see greater investment from the private sector and renewed discussion at the policy level.

What This Means for Business

- 1 Prioritize investment in climate resilience and adaptation**

Companies need to increase the resilience of their supply chains and direct operations. This will require investment in climate risk assessments and scenario planning.
- 2 Shape policy and lobby governments for more climate action**

Companies need to play a more active part in national and global efforts to implement the Paris Agreement and exert greater pressure on governments to limit global warming. This means advocating for actions like a price on carbon, aggressive deployment of renewables and electric vehicles, and climate smart agriculture solutions.
- 3 Increase Collaboration Efforts to Scale Low Carbon Economy Solutions**

Rapidly reducing greenhouse gas emissions and increasing the resilience of infrastructure will only be achieved through multi-sector collaboration. Companies need to work with corporate peers, governments, NGOs and others to leverage the diverse skills required to scale low carbon economy solutions in all industries.



Citizen Power

Citizens demand a more sustainable, equitable world from companies and institutions



Engaged citizens, joined by an increasing number of Gen Z teens, are taking to social media and the streets to demand action from governments and businesses on pressing social and environmental challenges.

Savvy companies are tapping into shifting consumer values and empowering people to act on important issues like climate change.

Signals to Watch

Power to the People

Around the world a small but growing number of citizens are rising up to challenge institutions, companies and governments to deliver a more equitable and sustainable society. They are increasingly using social media and other digital technologies to spread the message, elevate important issues and mobilize people.



“A majority of global consumers are concerned about climate change but only a handful of these feel empowered to take action in their own lives. Global companies, like IKEA, have an important role to play in inspiring and supporting more people to take action.”



Pia Heidenmark Cook, Chief Sustainability Officer, IKEA Group

Civil disobedience movement [Extinction Rebellion](#) – a UK-born action group that calls for mass economic disruption using non-violent direct action and civil disobedience to prevent catastrophic climate change – has now spread to more than 35 countries around the world.

Americans took to the streets in 2018. Millions protested against [gun violence](#), [gender inequity](#) and the [separation of children](#) from their migrant and asylum-seeking parents.

One in five Americans have [protested](#) in the streets or participated in political rallies over the last two years. Of those, [19 percent](#) said they had never before joined a protest march or a political gathering.

In one of the biggest movements for women’s rights in India, [5 million women](#) lined up across the length of the southern state of Kerala to demand an end to outdated social norms that prevent women of childbearing age from entering places of worship.

In France, [thousands](#) of working class protestors known as the gilets jaunes (yellow vests) have taken to the streets to protest the newly-introduced green tax on diesel – highlighting the need for a more just energy transition – and call for an increase in the minimum wage.

Employees at multinational firms are increasingly making their voices heard, with Amazon employees protesting the sale of [facial recognition software](#) to law enforcement and [unsafe work practices](#).



Meanwhile over a thousand Google employees signed letters protesting the company's involvement with [AI military development](#) for the Pentagon, as well as its decision to aid China's [online censorship](#).

“Empowering Action at Home”: A [study](#) of 30,000 people in 35 countries found that 62 percent of customers want companies to take a stand on issues such as sustainability, transparency and fair employment practices.”



📷 Photo by Roya Ann Miller on Unsplash

Gen Z Coming of Age

Born at the turn of the century, Gen Z are already entering the workforce and will overtake millennials to become the largest generation of consumers by 2020. While many are still too young to vote, Gen Z are already important influencers, engaging companies and governments on a range of social and environmental issues.

Youth turned out in force for COP24, the UN Climate Change Conference in Poland and sent a record-breaking [message](#) calling for global leaders to meet the 1.5C target in the form of 125,000 postcards laid out on Aletsch glacier in Switzerland.



In Australia, *thousands* of children from more than 20 cities left their classrooms to protest the Australian government's inaction on climate change as part of the Strike 4 Climate Action, inspired by 15-year-old Swedish student *Greta Thunberg*.

The student-led March for Our Lives saw more than a *million* Americans take to the streets advocating for stronger gun regulation.

As school shootings continue across the US, American high school *students* are putting pressure on investors such as Vanguard and *BlackRock* to drop gun manufacturers from their investment portfolios.

A recent *study* found that 68 percent of young people aged 14-18 in the UK have participated in volunteering or other forms of social action.

A nine year old girl contacted Warriors basketballer Steph Curry on Twitter to ask why his Under Armour shoes were only available for boys and Curry and Under Armour *remedied* the matter in less than 24 hours.



Photo by Vlad Tchompalov on Unsplash



Empowering Action at Home

People increasingly want companies to take meaningful action on environmental and social issues. Leading companies are finding ways to enable people to make easier, sustainable, cost-effective changes to their lives.

A [study](#) of 30,000 people in 35 countries found that 62 percent of customers want companies to take a stand on issues such as sustainability, transparency and fair employment practices.

[Research](#) by IKEA and GlobeScan found that a majority of consumers want to reduce their carbon emissions, but many are unwilling to choose less convenient or more expensive options.

Companies including [Patagonia](#) and [IKEA](#) are embedding sustainable innovation into their business models with the goal of [empowering](#) citizens to lead more sustainable lives.

Unilever subsidiary Ben & Jerry's is utilizing [blockchain](#) to empower customers to carbon offset every individual scoop of ice cream.

Global office-sharing company WeWork has gone meat-free at its 502 locations – with meat no longer served at staff events and WeWork employees not able to expense meat meals – in a bid to reduce carbon emissions.

What to Expect in 2019

Citizen-led activism will keep the pressure on governments and companies to address pressing social and environmental issues. Expectations for companies to address issues such as climate change, single use plastics and gender equity will also continue to grow. Customers, especially youth, will increasingly shift their loyalties to companies they perceive to be delivering social and environmental value to society.



What This Means for Business

- 1 Deliver value to society**

In 2019, companies need to reassess the environmental and social impact of their core products and services and shift their business models towards generating long term value for society if they are to keep up with shifting consumer expectations.
- 2 Increase transparency**

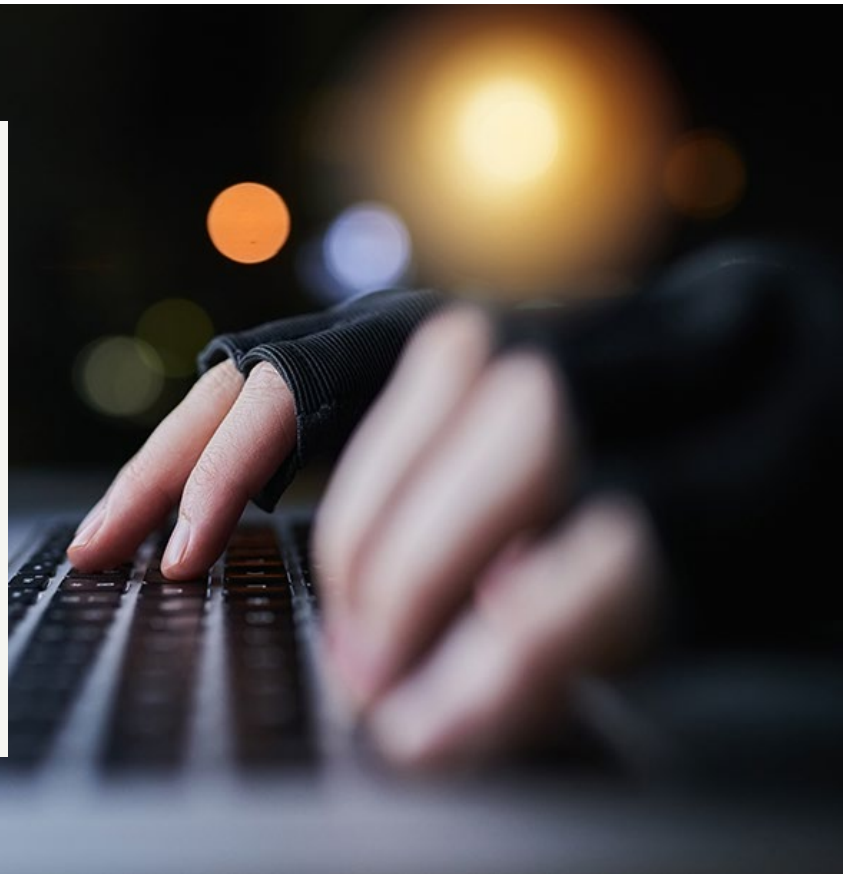
In order to build trust and loyalty in 2019, companies will need to embrace more radical forms of transparency. Blockchain and social media will be essential tools.
- 3 Empower consumers**

Leading companies should invest in building brand power by enabling consumers to make sustainable lifestyle changes that are both convenient and cost-competitive.



Security Threats

Trade wars, cybersecurity breaches and climate change threaten global security and economic stability



The global community is facing challenges on international trade, the impacts of climate change and the growing severity of cyber warfare, all of which are impacting progress on sustainable development.

Governments and global companies are increasingly vulnerable to cybersecurity breaches, weakening their organizations as well as citizen trust.

Trade tensions threaten a weakening global economy, while climate change and other factors escalate conflicts in the Middle East, Central America and Africa and displace millions.

Signals to Watch

The Cyber Battleground

From state-sponsored cyberattacks, to terrorist cells, and the growing sophistication of lone hackers, the threats of cyberwarfare are growing. Increased digitization



and automation, especially IoT and cloud computing, create more opportunity for cyberattacks. Hacking innovation continues to outpace the security built into existing technology. Government regulations lag ineffectively behind.

“Countries need to work together to tackle challenges that extend beyond their own borders. Countries should cooperate to reduce trade costs further and resolve disagreements without raising distortionary barriers. Cooperative efforts are also essential for enhancing cybersecurity, tackling corruption, and mitigating and coping with climate change.”



International Monetary Fund, [World Economic Outlook 2018](#)

The World Economic Forum’s [Global Risks Report 2018](#) identified cybersecurity breaches as one of the greatest risks to humanity. In its Top 10 risks cyber-attacks are ranked third in terms of Likelihood.

New [deepfake](#) technology allows the creation of digitally manipulated videos that can near-perfectly imitate anyone, from heads of state to military generals.

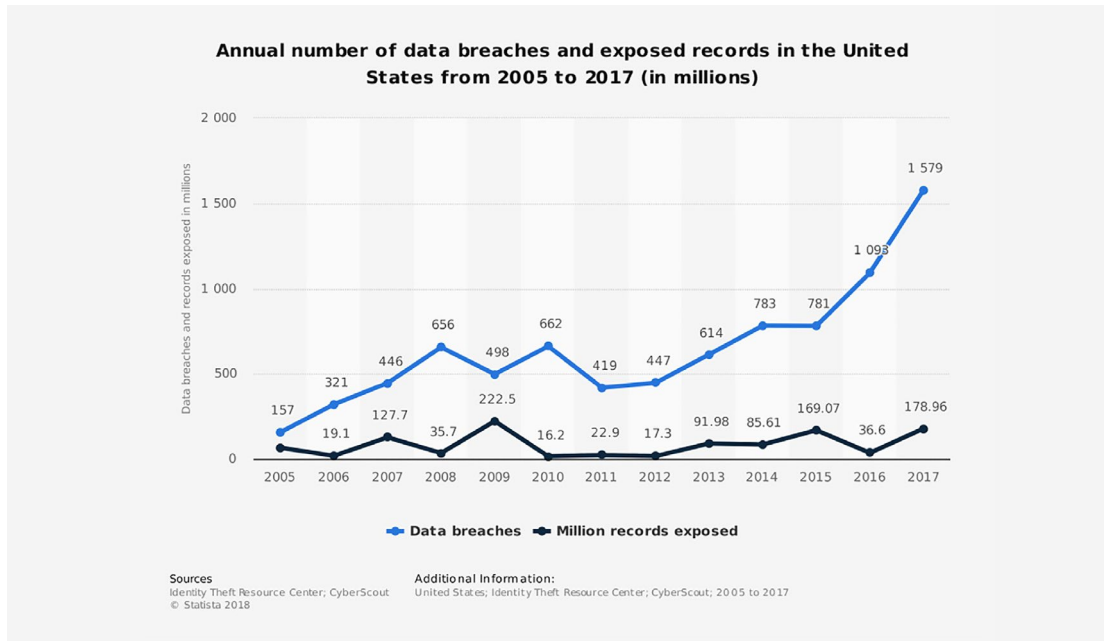
Malicious [chatbots](#) are becoming more widespread. Attacks now start with basic text-based bots, but could start to use human speech bots to entrap victims over the phone.

2018 saw a number of high-profile cyber-attacks hit large companies including [Facebook](#), [Google+](#), [British Airways](#), [Marriott](#) and [T Mobile](#).

WhatsApp, a popular subsidiary of Facebook, was used to spread [disinformation](#) by Russian hackers in the lead up to the 2018 Brazilian election and may have played a role in the election of Jair Bolsonaro.

Facing criticism over the misuse of its platforms during national elections in Brazil, the US, France and the UK, Facebook has announced plans to increase ad transparency and defend against foreign interference ahead of the [2019 Lok Sabha polls](#) in India.





📷 Source: Identity Theft Resource Center

Trade Tensions Threaten Global Economy

The Trump Administration is attempting to reduce imports from countries with which the US has a trade deficit, disrupting trade negotiations with the [European Union](#), [Canada and Mexico](#), [South Korea](#), [Japan](#) and, most importantly, China. Ongoing tension between the world's two largest economies over trade is increasing the likelihood of a global economic downturn by 2020.

The breakdown of bilateral trade talks and the [escalation of tariffs](#) and other protectionist barriers by the US and China is beginning to hurt both economies.

Trade tensions could [reduce international growth](#) by around 0.5 per cent by 2020, the IMF reports.

The CFO of Chinese telecoms company Huawei was [arrested](#) in Canada over potential [violations](#) of US sanctions on Iran, outraging China and [complicating](#) trade negotiations between the world's two largest economies.

As of writing, the US has agreed not to act on its recent threat to increase tariffs on \$200 billion worth of Chinese imports from 10 percent to 25 percent.





- 📷 From state-sponsored cyberattacks, to terrorist cells, and the growing sophistication of lone hackers, the threats of cyberwarfare are growing.

Climate Change Tops Global Security Threats

Climate change is increasingly recognized as the number one global security threat. Climate-related security threats include impacts to essential resources such as agricultural crops and drinking water, which can in turn exacerbate existing conflicts, as has occurred in Syria and Yemen. Further impacts include direct damage to infrastructure and communities from wildfires, storms and flooding, and effects on human health caused by greenhouse gases, associated pollutants, extreme weather and spreading diseases. All of these impacts can displace communities, increasing the number of global refugees and escalating geopolitical tensions.

Climate-related risks such as drought, crop failure, tropical storms and wildfires are significant contributors to conflict and displacement of large numbers of people in [Syria](#), [Yemen](#), Kenya and Sudan.

The latest National Climate Assessment conducted by the US government [concludes](#) that [climate change is “presenting growing challenges](#) to human health and safety, quality of life, and the rate of economic growth” and therefore poses significant national security risks.



Currently, over *65 million* people are displaced globally for many reasons including conflict, famine and natural disasters, which is the largest number ever recorded by the UN Refugee Agency. The World Bank predicts that over *140 million* people will be displaced by climate change alone by 2050.

What to Expect in 2019

The global community will see even greater convergence of geopolitical and sustainable development agendas, with worsening economic, physical and digital threats in 2019. Climate change impacts on global security will become more prominent. The increasing number of cybersecurity breaches and trade conflicts are likely to worsen geopolitical tensions and cost the global community billions of dollars. A potential global economic downturn may slow progress on sustainability if companies choose to respond by reducing their sustainability budgets.

What This Means for Business

- 1 Invest in cybersecurity**

Both governments and business are failing to keep up with hackers. All companies need to increase investment in cybersecurity, and tech companies in particular need to make a greater effort to work more closely with governments to help them enact regulation to better safeguard both companies and citizens.
- 2 Engage governments on trade**

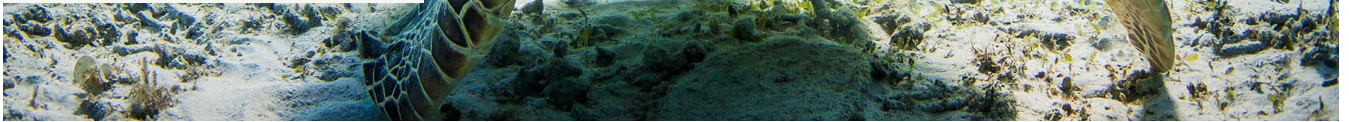
Large companies need to work together, and with trade associations, to use their influence with governments and multilateral organizations to attempt to stabilize the current volatile trade relations between the US and other large economies, most notably China.
- 3 Analyze geopolitical risks**

Companies that analyze geopolitical trends will be able to better anticipate, and be prepared, for disruption even if this comes in increasingly unconventional and complicated ways.



Saving Ecosystems

Momentum grows to tackle plastic waste as ecosystems are facing unprecedented threats



Our land and marine ecosystems are facing extraordinary threats.

Species are disappearing at alarming rates, land degradation is threatening the wellbeing of millions of people, worsening air pollution is costing millions of lives each year and plastic pollution in oceans and on land is reaching dangerous levels.

China's decision to ban plastic and e-waste imports has thrown waste and recycling markets into turmoil, exposing the magnitude of plastic pollution and escalating the urgency to reduce and recycle far more materials.

Signals to Watch

Biodiversity at Breaking Point

Assessments of the Earth's ecosystem present a very bleak picture. While awareness about biodiversity loss is growing, attention paid by companies and other organizations to the issue remains limited.



“Earth is losing biodiversity at a rate seen only during mass extinctions”

“ [Living Planet Report](#), WWF



📷 While awareness about biodiversity loss compared to other sustainable development issues has been low, a growing number of NGOs are working to change it.

According to the most comprehensive [assessment](#) of global ecosystem health in recent decades, biodiversity is declining at an alarming rate across most of the natural world. Species are disappearing 1,000 times faster than their natural rate of extinction.

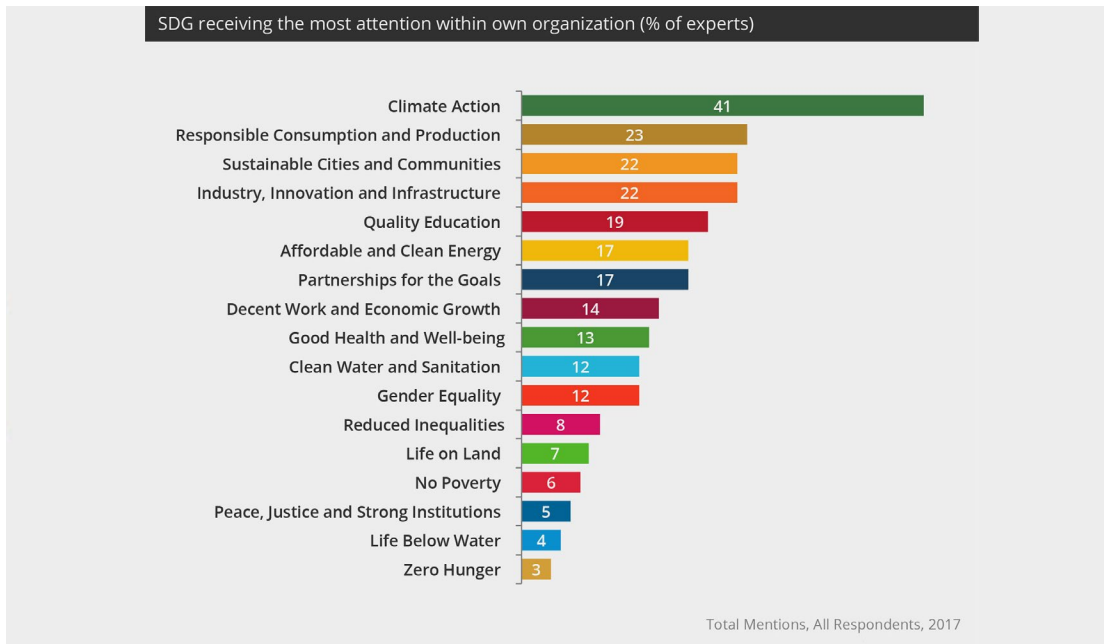
In its [Living Planet Report](#), WWF finds “exploding human consumption” was the main reason behind a massive drop in global wildlife population in recent decades. Between 1970 and 2014, losses in vertebrate species – mammals, fish, birds, amphibians and reptiles – averaged 60 percent.

Air pollution levels are reaching critical levels. WHO [estimates](#) that 9 out of 10 people breathe air containing high levels of pollutants and around 7 million people die every year from exposure to polluted air.



More than 75 percent of land areas are now substantially *degraded*, which negatively impacts the well-being of more than 3.2 billion people.

Sustainability experts believe that the global community has made very limited progress on SDG 14: Life Below Water and SDG 15: Life on Land. They are among the Sustainable Development Goals that receive the least *attention* from business and other organizations.



- SDG 14: Life Below Water and SDG 15: Life on Land are currently among Sustainable Development Goals that receive the least attention by businesses and other organizations. Source: [GlobeScan-SustainAbility Survey](#).

Waste and Plastic Hit Headlines

Global awareness about plastic pollution and its impact on our ecosystems continues to grow. Several major global coalitions have been announced to tackle the issue. Businesses are experiencing growing pressure from consumers to reduce plastic waste.

Before announcing a ban in January 2018, China *imported* more than two-thirds of the world's plastic waste.



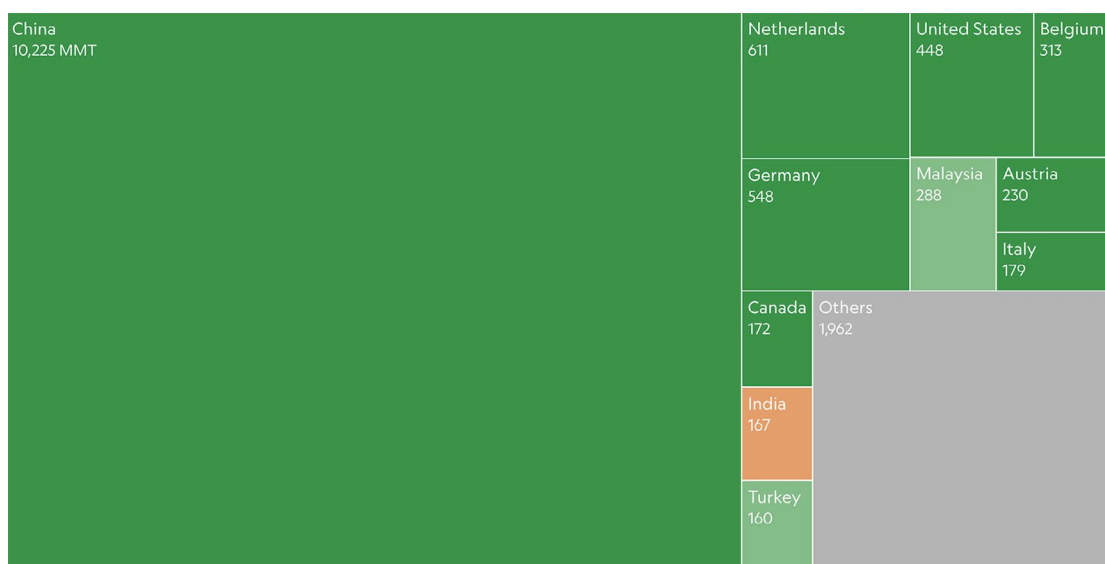
Nestlé is addressing the growing plastic waste problem by creating an [Institute of Packaging Sciences](#), which will focus on innovating recyclable, biodegradable and compostable packaging.

The [New Plastics Economy Global Commitment](#) brings together businesses, government and civil society behind a vision for achieving a circular economy for plastic. The 290 organizations that have signed the commitment represent 20 percent of all plastic packaging produced globally.

[UNEP's Global Plastics Platform](#) aims to drive cross-border collaboration and learning between countries and cities.

Marine plastic issues are gaining increasing prominence in Asia. Circulate Capital and Ocean Conservancy [announced](#) at least \$150 million of investment capital for waste and recycling innovations that prevent plastic waste from entering the ocean from Asian countries.

WWF announced a 3-year, \$7.5 million [No More Plastics in our Ocean](#) initiative funded by Norwegian government to advance a global governance solution to marine plastic pollution.



- 📍 **Plastic waste imports, millions of metric tons, 2016.** For many years, China was the main importer of plastic waste, which changed in 2018 when it announced a ban. Source: [National Geographic](#)



What to Expect in 2019

Global awareness about waste and plastic pollution will continue to grow. A number of collaborations have already been announced but much greater effort will be required to tackle the issue. China's decision to ban waste imports will continue to put pressure on governments and businesses to look for systemic solutions on a global scale. While awareness about biodiversity loss compared to other sustainable development issues has been low, a growing number of NGOs are working to change it. Public and private organizations alike will face growing expectations to play a more active part in preserving land and marine ecosystems.

What This Means for Business

- 1 Address plastic waste across the entire value chain**

Companies across many industries – not only the ones directly responsible for most of plastic waste (food & agriculture, retail, etc.) but also those less associated with plastic pollution (technology, pharma, etc.) – will face growing pressure by governments, customers and other stakeholders to address plastic waste. Companies need to take a close look at their entire value chain to implement solutions that would reduce waste and plastic pollution.
- 2 Biodiversity as a material issue**

Few companies identify biodiversity as a material issue, but as awareness about land and marine ecosystems crises grows, businesses will be expected to take a closer look at their impact – and dependence – on biodiversity.
- 3 Invest in circular solutions**

Investing in circular solutions along the entire value chain provides one of the most effective pathways for companies to address waste issues and improve sustainability of their operations.



New Leadership

Cities, regions and business continue to ramp up leadership as trust in national governments flounders



Global governments are enduring an ongoing crisis of trust.

Non-state actors such as city and regional governments and the business community are stepping into the leadership void and taking action to create a more sustainable, equitable future.

Signals to Watch

Mistrusted Governments

Across major European powers, the US, Canada, Russia, Australia and Latin America, trust in governments remains low. This has been fueled by increasing political polarization and inadequate responses to issues such as inequality and climate change.



“With several governments dialing back from global commitments and reducing environmental protection, we need - and are seeing - the non state actors step up to the challenge. We need a New Deal for nature and people.”



Kavita Prakash-Mani, WWF

Trust in national governments in a [majority](#) of European countries remains low, including the UK, Germany, France, Spain, Italy and Russia.

Latin America also has low levels of trust in government with Brazil, Argentina and Colombia all scoring less than [50](#) percent.

The US Administration is enduring a huge crisis of trust — the first time that such a large decline in trust has occurred outside of an economic recession or national disaster according to [Edelman Trust Barometer](#).

In China, state-administered opinion polls indicate high trust in government, but this data has been called into question by [experts](#) who state that the government’s authoritarian control has resulted in increasing distrust and loss of social capital.

Experts [rated](#) national governments as having the poorest performance on addressing sustainable development out of any global institution.

Cities and Regions Lead

With global leaders failing to take adequate regulatory action on a range of issues – including climate mitigation and adaptation, ocean plastics, waste and health – cities and regional governments are taking on the role of sustainable development leaders.





- 📷 The US Administration is enduring a huge crisis of trust - the first time that such a large decline in trust has occurred outside of an economic recession or national disaster.

In the US, trust in local governments is at its *highest* since 2008.

California *leads* subnational efforts to curb climate change, with goals to shift to 100 percent carbon-free electricity by 2045 and to become carbon neutral by the same year.

Twenty seven global cities, including London, New York, Sydney and Rome, have already reached peak emissions and have successfully reduced their emissions for the last 5 years while maintaining robust economic growth.

San Francisco now diverts 80 percent of its waste from landfill. It also joins *New York, London, Dubai* and twenty other global cities in having a goal a zero waste goal.

Partnership for Healthy Cities is a new collaboration between a global network of cities, WHO and Bloomberg Philanthropies to save lives by preventing non-communicable diseases and injuries.

More than 20 global cities including London, Los Angeles, Paris, Mexico City, Seoul and Tokyo have [pledged](#) to ensure a major area of each city is zero emissions by 2030 and to purchase 100 percent zero-emission buses from 2025 onwards.

[Ukrainian](#) cities have established a goal of shifting to 100 percent renewable energy by 2050, in a bid to address climate change and increase energy independence.

Business Leadership Is Increasing

Business is increasingly stepping into the void left by global governments, setting ambitious new social and environmental goals, and engaging in radical transparency efforts that help to build trust and credibility with both consumers and employees.

More than 500 global companies are taking action on [science-based](#) climate targets.

Technology companies including Salesforce, Autodesk, Lyft and Arm have formed the [Step Up Coalition](#) with the goal of utilizing emerging technologies to reduce greenhouse gas emissions across all industry sectors.

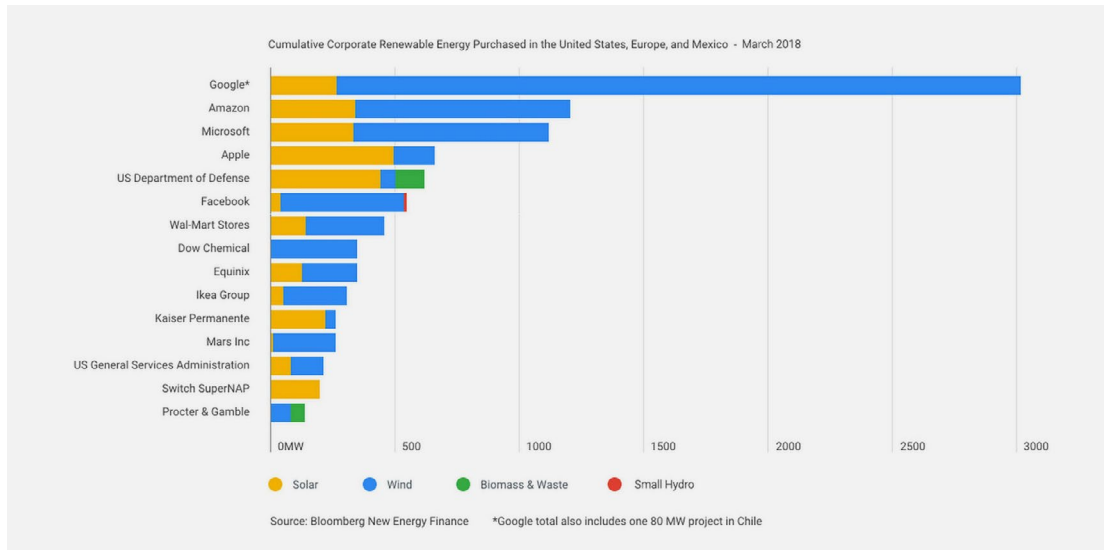
Leading Japanese insurance company [Sompo Japan Nipponkoa](#) has set SDG targets for every area of its business, including a target to develop products and services related to disaster prevention and mitigation.

150 companies have committed to 100 percent renewable energy through [RE100](#) and 23 multinationals have committed to zero emission vehicles through [EV100](#).

[Google](#) recently met its 100 percent renewable energy goal, joining Apple and Microsoft.

Royal Dutch Shell has [announced](#) that it will link executive remuneration to its carbon reduction goals.





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What to Expect in 2019

We expect to see continued low levels of trust in national governments and strengthening leadership and ambition of cities, regional governments and businesses. Continuing uncertainty in Europe due to Brexit and increasing polarization in the US is likely to further dampen trust in the political systems. Consumers will be increasingly looking to companies to act in accordance to their values and more actively advocate on social and environmental issues.

What This Means for Business

1

Set bold goals

Business should continue to ramp up leadership and ambition on delivering social and environmental benefits to society by setting and reporting on performance against bold sustainability goals.

2

Increase transparency

One of the most effective ways to increase trust is making data – on everything from diversity to executive pay and carbon emissions – open and accessible to the public.





Food & Agriculture

Nourishing Land and Lives

33



Technology

Standing at a Crossroad

40



Healthcare & Pharma

United in Health

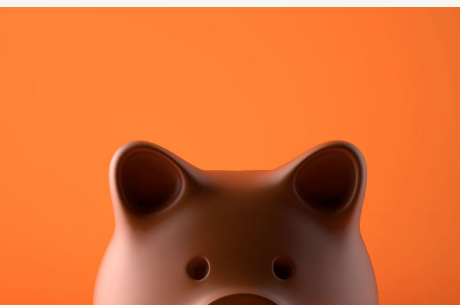
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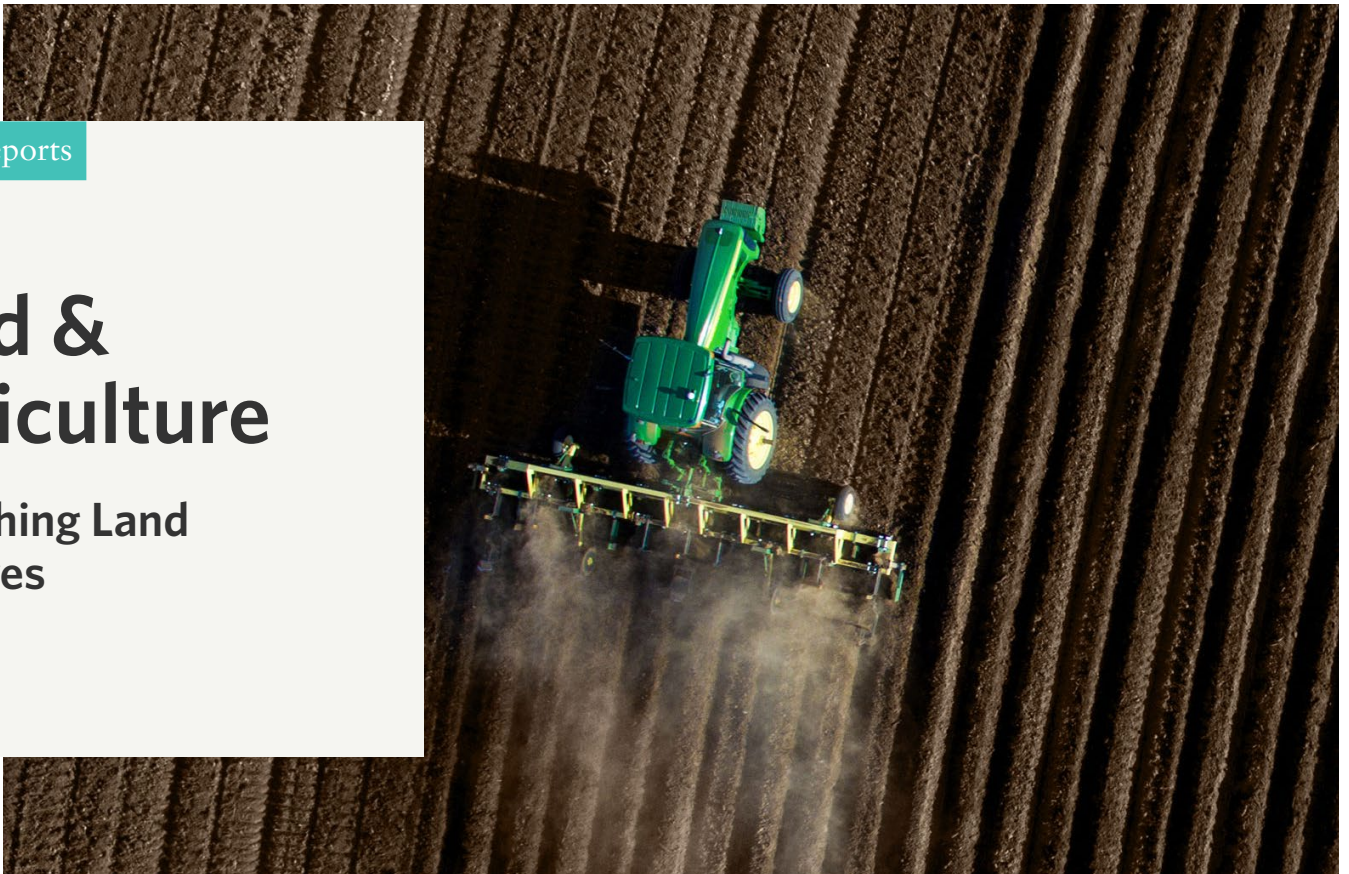
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Food & Agriculture

Nourishing Land and Lives



There is an urgent need to make our food system far more sustainable.

Growing population and associated food consumption is fuelling biodiversity loss on an unprecedented scale, with 40 percent of the world’s once-forested land now cleared for human agriculture and settlements.

Ecosystems on land and in the ocean are being devastated by plastic packaging – a large percentage of which comes from food and beverage products. Actors in the food value chain, from growers to retailers, are paying increasing attention to both food and plastic waste – exploring ways packaging can be reduced without compromising product shelf life or food safety.

“Demand for food poses one of the biggest dangers to our planet. It’s the leading cause of deforestation, destroying countless habitats and threatening wildlife to the point of extinction.”

“ *Tanya Steele, WWF UK Chief Executive*

Signals to Watch

Balancing Packaging and Food Waste

Plastic food packaging is increasingly in the media spotlight, with consumers demanding action from companies on single-use plastics. Food producers and manufacturers are feeling the pressure to reduce both plastic packaging, as well as food waste. Research shows that smart and sustainable packaging can help reduce food waste, and a growing number of companies are investing in new technology solutions.

“An issue of packaging is an issue of food waste, and an issue of food waste is an issue of hunger and food availability — we need to find and focus on the balance.”

 **Jackie Suggitt, Director of Business Initiatives, ReFED**

The global cost of food waste is estimated to be *almost \$1 trillion a year*, with up to 25 percent of residential waste arising from inadequate packaging.

While some believe single-use plastic packaging has led to an increase in the amount of food waste, many argue that without plastic packaging the cost of food waste could *rise*.

There are a growing number of companies investing in sustainable packaging. *Kroger* has partnered with Apeel Sciences that makes a protective film from agricultural by-products and waste, and Florida-based SaltWater Brewery is *using* a biodegradable and compostable six-pack ring design made from wheat and barley.

UK retailers, *Tesco and Waitrose*, have launched new sustainable packaging to extend the shelf life of avocados and *Morrisons* is due to trial a film packaging solution which can extend shelf life by up to two to four days.

Start-ups in the US tackling the challenge of food waste *received* over \$125 million in venture capital and private equity investment in 2018.



Picking on the Kids

The rate of obesity in children and adolescents has *risen tenfold* globally in the past 40 years, with food marketing being one of the most recognised contributors. Children in developed countries continue to be brought up in an obesity-promoting environment, surrounded by inexpensive and persuasively marketed high-calorie food. Children are exposed to twice as many low-nutrient food as healthy food ads, with *research* demonstrating that such exposure has negative impacts on children's diets.



📷 Food producers and manufacturers are feeling the pressure to reduce both plastic packaging, as well as food waste.

WHO has found that existing policies and regulations aimed at food marketing to children in most countries are “markedly insufficient,” with children still exposed to harmful commercial messages promoting foods high in fats, salt and sugar.

Obesity experts are considering litigation against the food industry in the light of emerging research suggesting that a rise in junk food neuromarketing that could *hijack a child's brain*.

Of the estimated *£296.6 million* spent on food marketing in the UK each year, only 5 percent is allocated to fruit and vegetables.



The Peas Please initiative is proposing a new [Veg Ad Fund](#) to ensure vegetables receive similar levels of marketing investment as branded chocolates, fast food outlets and soft-drinks. The campaign will launch in 2019 and has support from major supermarket chains.

[McDonald's](#) recently announced intentions to comply with stricter nutritional guidelines and responsible marketing, leveraging innovative marketing to help serve more fruit, vegetables, whole grains, lean protein and water in Happy Meals.

Dietary Diversity

Biodiversity is essential to ensuring healthy ecosystems, food security and nutrition, but food systems are a key driver of biodiversity loss worldwide. Despite some 7,000 crops being edible, the majority of the world's global energy intake comes from just three: rice, wheat and maize. The resulting monoculture, coupled with increased pressure on agricultural land for livestock farming, is fuelling biodiversity loss on an unprecedented scale.

[Living Planet Report by WWF](#) identified human consumption to be behind an extraordinary loss of vertebrate species.

Between 2010 and 2050 the environmental effects of the food system could [increase](#) by 50-90 percent, reaching beyond planetary boundaries if no action is taken.

Consumers are increasingly aware of the impact of diet on biodiversity. [One in eight](#) Britons is now vegetarian or vegan and a further 21 percent claim to be flexitarian.

India has long been a global leader, with approximately [20 percent](#) of the population being vegetarian, but progress is also being made in China, where vegetarian restaurants are beginning to [proliferate](#) in major cities, and meat sales are beginning to decline.

Retailers are encouraging consumers to adopt more sustainable diet. [Tesco](#) is partnering with WWF to encourage shoppers to buy affordable sustainable food.

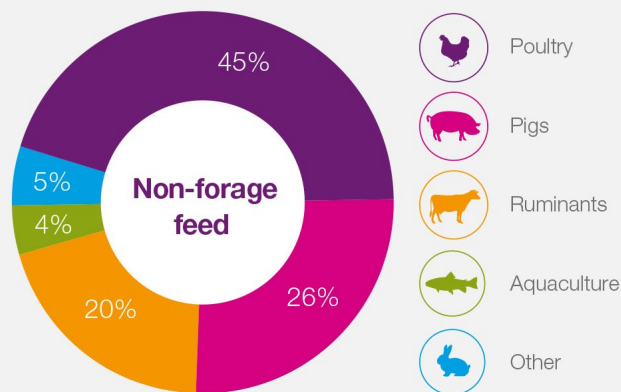


[Walmart and Unilever](#) are collaborating with local governments to halt loss of biodiversity in their sourcing regions.

Feed Behind Our Food

Animal feed is a vital, yet unseen, input to the food industry that has significant implications for environmental health and food security. Agriculture is [responsible](#) for 14.5 percent of all greenhouse gas emissions, with feed production accounting for 45 percent of this total. In many countries livestock production is accelerating deforestation, biodiversity loss and water scarcity.

Manufactured feed market as a percentage by species¹⁴



📷 Globally, poultry consumes the greatest amount of manufactured feed.
Source: [International Feed Industry Federation](#)

While the use of most food waste in feed is illegal in the EU, it is promoted in other parts of the world. In Japan and South Korea around [40 percent](#) of food waste is recycled as animal feed.

Pressure from advocacy groups and even [pig farmers](#) to relegalise heat-treated swill in the EU is increasing, with [research](#) suggesting that this would significantly reduce land consumption.



Companies such as Calysta, Protix, Ynsect and Evonik are *investing* millions in innovative traceable feed ingredients. This includes insect-based protein, oil from natural marine algae, feed additives like amino acids, and protein derived from methane-eating bacteria.

Pet food represents as much as *30 percent* of all meat consumption in the US, and there is growing need for sustainable alternatives. *Wild Earth* is currently the biggest player, making dog and cat treats from fungus and lab-grown mouse meat.

What to Expect in 2019

Issues related to waste and packaging will continue to attract scrutiny in the coming years putting pressure on companies and other key stakeholders to look for systemic solutions. Poor industry standards regarding marketing of low nutrition, high calorie foods and beverages to children will also generate more intensive debates – with an increasing number of companies taking voluntary action to raise industry standards. Protecting biodiversity, wellness and plant-based diets will also be a larger focus for advocates, business and consumers.

What This Means for Business

1

Implement circular solutions

Growers to retailers need to embrace circular thinking to address current systemic limitations. This approach looks beyond setting ambitious recycling targets for packaging and takes into consideration efforts to upcycle food waste into new products – where waste products from one part of the system become inputs to another.

2

Improve visibility of hidden issues

The food security debate has largely focused on the farm sector and on trade, with other segments including agri-inputs, processing, logistics and wholesale relatively hidden. Within these areas, sustainability issues such as biodiversity loss, water scarcity and human rights breaches can often go unnoticed. With consumers demanding ethically sourced and high-quality products, food



companies must tackle the complex challenge of supply chain visibility and should look to the ways that advanced technology, such as blockchain, can enable this.

3**Advocate for smart policy**

Food and beverage companies have an important role to play in working with policymakers to catalyse change. For example: advocating for stricter regulations regarding advertising to children; influencing the structure of deposit return schemes for plastic collection; and making sure new policies (such as the US Farm Bill) incorporate action regarding the pressing need to improve soil health.



Technology

Standing at a Crossroad

The tech sector needs to embrace transparency and civic responsibility to fulfil its potential.

Societal trust in the technology sector is declining – driven by major data privacy breaches, tax avoidance, the use of technology platforms by rogue players to undermine democratic processes and a lack of adequate government regulation and oversight.

Yet against this backdrop of distrust, tech companies have continued to push forward with innovations that drive economic growth and help humanity tackle pressing social and environmental challenges. The sector stands at a pivotal moment where changes will be necessary to rebuild trust and realize the sector’s full potential to shift society toward a more sustainable future.

“In 2019, there will be increasing focus on opportunities to apply technology to help a range of industries drive smarter decisions and resource efficiency, develop circular economy solutions, and drive improvements in supply chain responsibility practices.”

“ *Suzanne Fallender, Director, Corporate Responsibility Office, Intel Corporation*



Signals to Watch

Moral Code Under Fire

For long the most trusted sector, trust in technology companies and their services (especially big Internet companies) has been declining, presenting reputational and commercial risks for the sector. Technology companies are increasingly challenged by consumers and other stakeholders to demonstrate the positive social impacts of their products and services on the communities in which they operate. Emerging technologies such as autonomous vehicles, blockchain and AI remain the most poorly understood and least trusted by the public.



- 📷 Emerging technologies such as autonomous vehicles, blockchain and AI remain the most poorly understood and least trusted by the public.

Trust in search engines and social media platforms has [*decreased in many countries*](#), with the steepest decline in the US.

Tech companies' [*security practices*](#), particularly Apple, Google and Amazon have been the main cause of declining trust. A survey conducted by Fortune magazine found Facebook to be the least trusted of major tech companies when it comes to safeguarding user data.



Edelman's 2018 Trust in Technology report found that emerging technologies are the least trusted by the general public with blockchain trusted by slightly under [50 percent](#), self-driving vehicles at [50 percent](#) and artificial intelligence at [56 percent](#).

Around half of US adults would like technology companies to be more heavily regulated, according to a survey by [Pew Research Center](#).

Americans are [deleting or changing](#) the way they use Facebook, and some brands ([P&G](#) and [Mars](#)) are cutting digital ad spend due to data safety concerns.

AI for Good

Artificial Intelligence (AI) and [machine learning](#) are set to transform industries across every sector and have the potential to accelerate efforts to tackle the world's biggest societal and environmental challenges. Critical obstacles remain in their development and deployment, and the debate continues on how AI will impact employment. Innovators grapple with the challenges associated with building applications which incorporate security safeguards, avoid racial and gender biases and respect human rights. The challenge for tech companies will be to ensure research and development builds systems which have equity, security and ethics at their core.

[Accenture](#) estimates that AI could double economic growth rates in 2035 by changing the nature of work and could increase labour productivity by up to 40 percent.

Studies [estimate](#) that anywhere from 14 to 54 percent of US workers have a high probability of seeing their jobs automated over the next 20 years.

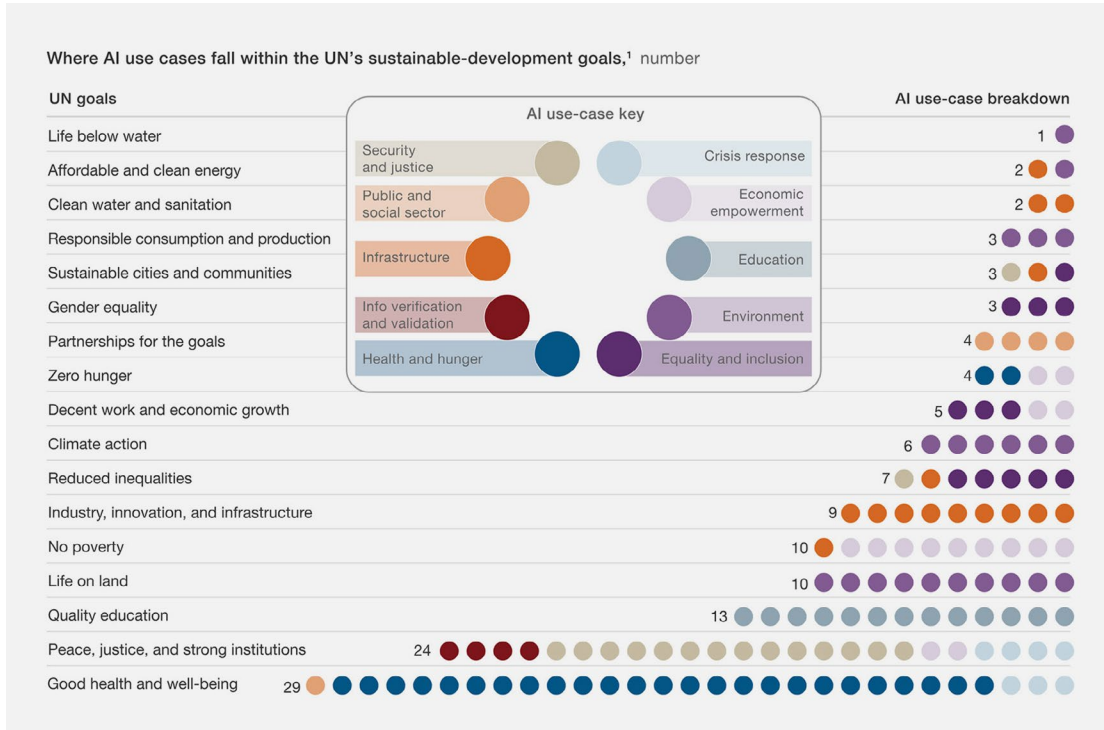
Worldwide spending on cognitive and artificial intelligence systems is expected to [reach](#) \$57.6 billion in 2021.

The annual value of AI is expected to be highest in the electronics, consumer packaged goods and retail sectors, according to [McKinsey](#) analysis.

Companies are taking actions to prove that AI technologies can be used for good – such as [Microsoft](#) AI for Earth which aims to create AI-based solutions across agriculture, water, biodiversity and climate change.



Studies have highlighted how AI can reinforce [race](#) and [gender](#) biases due to technology being developed by teams dominated by white men.



📷 AI has broad potential to advance the Sustainable Development Goals. McKinsey analyzed a set of AI use cases and mapped them against the SDGs. Source: [McKinsey Global Institute](#)

Fighting Waste with Reuse

Before it banned e-waste imports, China was taking in 70 percent of the world's electronic waste. Since the ban, Thailand, Laos and Cambodia have become top destinations for e-waste from North America and the EU. As a result, these Asian countries are now facing critical levels of [environmental pollution](#) from e-waste recycling. Faced with growing concern about waste and supply chain impacts, a growing number of technology companies are adopting innovative circular economy solutions in order to reduce reliance on finite materials, recover valuable minerals and reach new customers and markets.

Apple has unveiled its new MacBooks made with 100 percent recycled [aluminium](#). The company recently announced an ambitious goal of moving to a closed-loop supply chain where products are built using only renewable resources or recycled materials.



Dell has been an industry leader on recycling and has recently helped found the [NextWave Plastics coalition](#), which aims to create a global network of supply chains designed for collecting and reusing plastics.

A recent [report](#) found that many consumer products made from recycled electronic waste contain toxic chemicals and calls on the EU to define e-waste as hazardous.

Technology companies are facing growing backlash for [planned obsolescence](#) of their products, and [Right to Repair](#) bills are being prepared for 2019 across many US states as momentum grows to slow the amount of new hardware on the market.

What to Expect in 2019

2019 will likely be another volatile year for the tech sector. We will see technology companies face greater distrust and scrutiny from governments, employees and broader society. An increasing number of companies will follow in the footsteps of Amazon, who recently launched its Sustainability Data Initiative, as they seek to secure their identities as good corporate citizens. Established tech companies will work to strengthen corporate messaging regarding the social and environmental value of products and services, but this approach will likely fall flat with informed stakeholders unless it is backed by meaningful action and increased transparency.

What This Means for Business

1

Embrace transparency

Lack of transparency is one of the greatest barriers to trust currently facing the tech sector. From sharing ethical frameworks governing the development and deployment of new technologies, to accepting taxation in the countries in which they operate, tech companies need to embrace transparency and a sense of civic responsibility.



2

Embrace transparency

Tech companies have a role to play in developing the capabilities of innovations but achieving the potential of technology cannot be accomplished by this sector alone. Businesses in other sectors play a crucial role in connecting technological expertise with critical human needs. Only through this collaboration can the benefits of technology be distributed as widely and as evenly as possible.

3

Understand your lifecycle impacts

The full lifecycle of many technology applications and products is yet to be understood. Companies must invest to understand the effects of technologies - from development through to application. Only by doing so can these impacts start to be addressed.



Healthcare & Pharma

United in Health



From air pollution, to antimicrobial resistance, the health of humans, animals and the biosphere are inextricably linked.

The healthcare sector faces convergent challenges and opportunities - from the risks of antimicrobial resistance and climate enabled pandemics, to the ongoing consumer-driven shift to wellness and holistic illness prevention.

More than ever, food producers, retailers, pharmaceutical companies and policy makers are being forced to work together to find solutions to interconnected global health challenges.

“Society can spend only so much money on healthcare, so we have to spend it wisely. It’s important that we spend it on things that are actually creating value and having an impact.”

“ **Kenneth Frazier, CEO, Merck & Co.**



Signals to Watch

Uneven Access

While socio-economic and technological advances are helping to expand healthcare, it is spreading at an uneven rate around the world. Pharmaceutical and healthcare services companies have the opportunity to support healthcare expansion through collaborations, innovation, advocacy and the integration of technology into their existing business models to support universal health coverage (UHC). But the industry also faces risks of tighter regulations, challenged innovation, and has to find its way in a world realising the power of prevention and more holistic care.

China has extended basic health coverage to more than [90 percent](#) of the population.

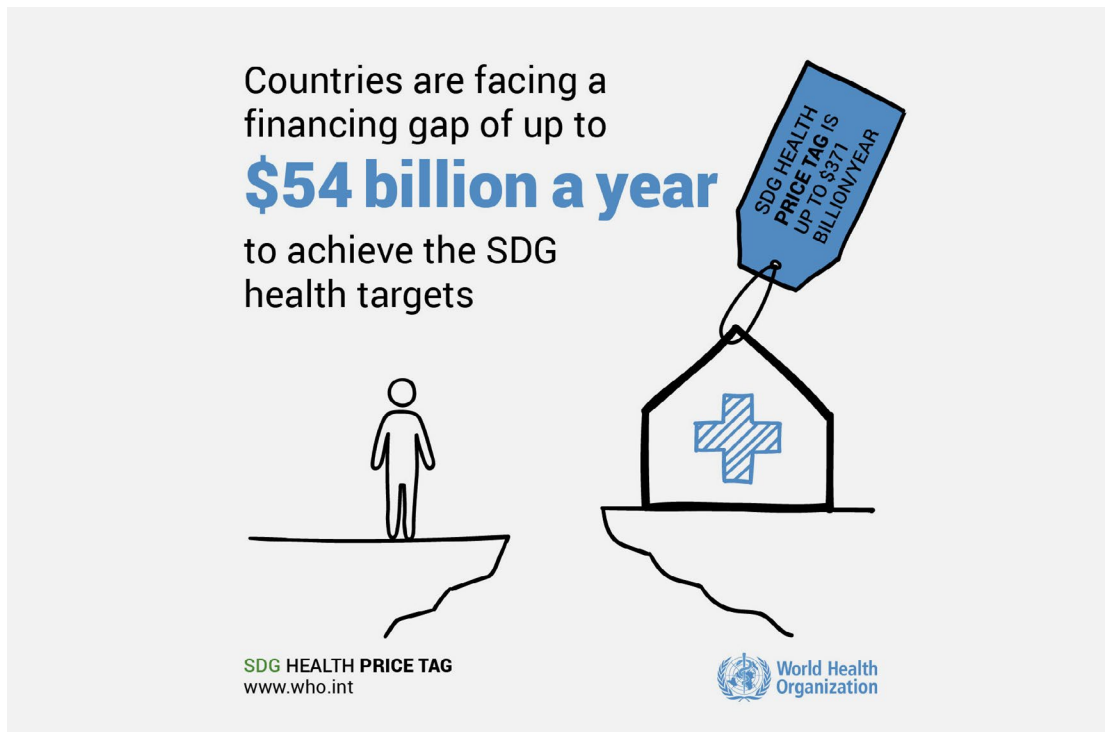
The number of people able to obtain key health services including immunization, family planning and bed nets has [increased](#) in the 21st century. Yet [over half](#) of the world's population still cannot obtain essential healthcare, often pushed into poverty as a result of paying for healthcare costs.

The biopharmaceutical industry is engaging in more [multi-sectoral partnerships](#) to support the growth of UHC around the world. For instance, smartphones and video streaming services are already being used for [remote doctor consultations](#) and prescriptions.

The healthcare sector is seen as the sector with the [potential highest overall impact](#) on the success of the Sustainable Development Goals.

The rise of chronic illnesses and an aging population will continue to shift healthcare companies and governments towards greater investment in [preventive medicine](#), wellness and a whole-health approach.





- 📌 The healthcare industry has an enormous potential to have a positive impact on the Sustainable Development Goals. Mobilizing capital will be one of the key success factors. Source: WHO

Healthy Biosphere, Healthy Humans

From biodiversity to air pollution and climate change to disease transmission and the growth of antimicrobial resistance, our physical environment, shared with animals, is inextricably linked to human health and vice versa. Biodiversity loss and ecosystem damage – by both humans and a changing climate – plays an important role in the spread of infectious diseases and pandemics. In recent years outbreaks of SARS, Ebola, influenza and malaria have been attributed to human impacts on biodiversity, wildlife trade or unsustainable land use. The preservation of *biodiversity* is also vitally linked to molecular diversity and successful drug development. The mass extinction of plant and animal species will have untold negative impacts on human health.

The *One Health* concept recognizes that the health of people is connected to the health of animals and the environment and has been increasingly growing in prominence among policymakers, industry and other stakeholders.

The monetary value of goods and services, including direct health benefits, provided by ecosystems is estimated at *\$33 trillion* per year.



WHO estimates that globally more than 91 percent of the world's population are exposed to air quality levels that exceed safe limits.

Due to increasing use of antibiotics for humans and animals and irresponsible practices, *antibiotic resistance* is becoming an increasingly urgent problem. Levels of drug-resistant infections are predicted to cost the world *\$100 trillion* in lost output between now and 2050, which is more than the current global economy.

The *majority* of all antibiotics produced are given to livestock – nearly half of all antibiotics in the UK, two-thirds in the EU, and 70 percent in the US.

The US Food and Drug Administration has approved only nine antibiotics in the last decade, and pharmaceutical companies including Novartis and Sanofi have steadily *divested* from their antibiotics research to prioritise the development of more profitable treatments for chronic illnesses.



- 📷 Uncertainty about when and where epidemics will emerge means there is little financial incentive for pharmaceutical companies to bring much-needed vaccines to market.

Pandemic: Vigilance or Preparedness?

The global community is not doing *enough* to prepare for the next pandemic – with countries more vulnerable than ever as a result of changing population demographics, globalisation, antibiotic resistance and climate change. One hundred years on from the deadliest pandemic in history, the Spanish flu, estimates have shown that if a similar event was to occur today, the death toll could be as high as *147 million* people worldwide.

The international pharmaceutical market is worth an estimated \$1 trillion but vaccines represent only *3 percent*. Uncertainty about when and where epidemics will emerge means there is little financial incentive for pharmaceutical companies to bring much-needed vaccines to market.

The world currently devotes little to *pandemic preparedness*, with Bill Gates warning it is the one area where the world is not making enough progress.

The US Centre for Disease Control and Prevention has announced it will *downsize its epidemic prevention activities*.

The UK recently announced its first *Vaccine Manufacturing Innovation Centre* to enable the rapid development of medicines in the event of a UK or global epidemic.

Disease *surveillance* remains one of the most powerful tools to help predict, observe and minimise the harm caused by outbreaks and increases knowledge about what leads to pandemic outbreaks.

What to Expect in 2019

Biopharmaceutical companies will continue to focus on health promotion and prevention through innovations in product and service technologies which enable more personalized, holistic care. One Health will gain further prominence, with multiple sectors, industries and stakeholders communicating and working together to achieve better public health outcomes. System-wide approaches to tackle antibiotic resistance will also grow in reach and importance in 2019, with greater collaboration between livestock farmers, food producers, food retailers, pharmaceutical companies and policy makers at local, regional, national and global levels.



What This Means for Business

1

Support Universal Health Coverage efforts

Research and development for future treatments will remain crucial for biopharmaceutical companies and remain the largest contribution they can make to UHC – not only through new medicines but vaccines and other prevention-related services. All companies can make sure the benefits to their employees and throughout their value chains get us closer to UHC.

2

Act as One Health

The Interagency Coordination Group on AMR convened by the UN will share recommendations in 2019, which will guide governments and industry on the myriad issues related to antimicrobial resistance (AMR), including tools like regulation. In advance of that, life sciences companies should consider joining the [AMR Industry Alliance](#).

3

Advocate for pandemic preparedness

Governments are central to preparing for the next pandemic, but business can also contribute solutions including by advocating for greater incentives needed for investment in vaccines and connecting patients and care providers with public health workers via mobile telecommunications to detect and act against infection outbreaks.



Energy & Utilities

Technology Enables and Disrupts



The energy sector has reached a point of transformation.

Electrification is gaining momentum: from decentralized renewable energy, to electric vehicles, the revolution has begun.

The lines between oil & gas companies and electric utilities are beginning to blur as traditional fossil fuel companies invest in the low-carbon transition. Cities are on the frontline of change – leading on smart grids, energy storage, electric vehicle infrastructure and digitized energy and carbon transactions. Challenges regarding issues like infrastructure funding and equitable access to affordable clean energy remain central.

Signals to Watch

Urban Energy Revolution

Cities are at the leading edge of low-carbon innovations and efforts to avert global warming. Big data and IoT continue to offer energy efficiency gains for buildings and transportation. Electric and autonomous vehicle technology is leading to advances in



grid storage and reduction in emissions. Energy transformation is being modeled in cities, with lessons for regions and nations. Energy companies will partner at the city level to advance smarter, cleaner energy.

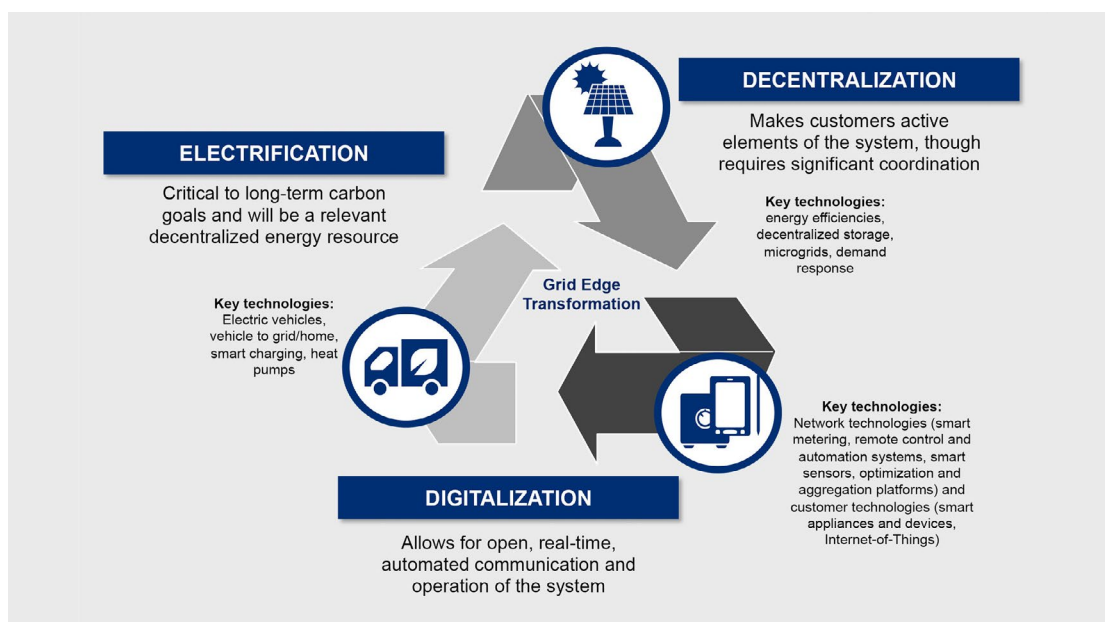
Global spending on smart cities technology is expected to almost *double* from \$80 billion a year in 2018 to \$158 billion in 2021.

Mayors *have pledged* that new buildings in 19 cities, including London, Los Angeles, New York City, Tokyo, Paris and Sydney, will have zero emissions by 2030, with existing buildings becoming zero by 2050.

Smart grid technologies could help cut greenhouse gas emissions by *3.9 percent* by 2030.

Companies including California utilities *Pacific Gas and Electric* (PG&E) and *Southern California Edison* are beginning to address a “just transition” – the equitable transition to renewable energy and electric vehicles.

EV ownership is expected to reach *125 million* by 2030, spurred by policies that encourage drivers, fleets and municipalities to purchase zero emissions vehicles.



📷 Electrification, decentralization and digitalization are the driving forces behind the transformation of energy systems and act in a virtuous cycle. Source: [World Economic Forum](#)



Electrification Changes Business Models

Electrification won't happen quickly, but its ascent now seems inevitable. Emerging technologies are forcing oil and gas companies to transform their business models to remain competitive. Utilities will continue to shift away from coal to renewables. These transformations will require ongoing and deep engagement with external stakeholders such as investors, government and local communities.

[Statoil](#) (now Equinor) and [DONG Energy](#) (now Orsted) have both undergone recent name changes that reflect their shifts away from fossil fuels and deepening investment in renewable energy.

Shell has been rapidly investing in the electricity and EV space, with numerous [acquisitions](#) over the last two years. The company has committed to [spending](#) \$1-2 billion per year until 2020 on low carbon solutions.

French energy giant Total is preparing to become a competitive gas and electric provider in Europe with its [takeover](#) of electricity retailer Direct Energie and heavy investment in renewable energy and natural gas.

Major investors, such as [BlackRock](#) and State Street are beginning to put public pressure on companies to assess climate risks.

For electric utilities to remain competitive, regulatory innovation and reform, such as [rate reform](#) and [Performance-based Regulation](#) (which provide a framework to connect goals, targets, and measures to utility performance or executive compensation) will be essential.

Digitized and Decentralized Energy Trading

Tech startups, utilities and governments are experimenting with blockchain technology to revolutionize smart grid management and facilitate peer-to-peer energy trading. Blockchain can enable small producers of energy to issue Renewable Energy Credits (RECs) that can then be tracked and sold to businesses looking to reduce their carbon footprint. Blockchain enabled trading pilots are currently underway in Thailand, Singapore, South Korea, Europe, the United States, Canada and Australia. The technology will continue to be applied as our energy systems shift to a more distributed model.



“A race is on to roll-out peer-to-peer energy trading platforms that will allow prosumers to sell energy directly to one another, reducing transaction costs and allowing small-scale renewable energy producers to compete with large traditional energy suppliers.”



Dr Thomas Morstyn, Department of Engineering Science, Oxford University

A growing number of battery companies, including Californian battery start-ups [Sunverge](#) and [Stem](#), [Panasonic](#), and German energy company [sonnen group](#) are using blockchain to enable virtual peer-to-peer energy sharing networks that utilize home batteries and EVs to stabilize grid energy usage.

Japan's TAKE Energy Corporation is offering customers a solar and storage package which will allow [peer-to-peer](#) power sales through blockchain. The country's second largest energy company, Kepco, is following suit.

SP Group, the power grid operator in Singapore, is allowing small-scale solar and wind operations to issue blockchain generated [RECs](#).

In the UK, a [consortium](#) of energy companies is supporting the development of a blockchain enabled flexible trading platform for energy distribution.

[Ben & Jerry's](#) is using blockchain technology to break carbon credits – that offset GHG emissions of a company's operations – into micro-transactions that enable consumers to buy a carbon credit for each scoop of ice cream purchased.

What to Expect in 2019

We expect to see continued merger between oil and gas companies, electric utilities and third-party renewable energy companies. An increasing number of energy companies will invest in renewable energy and EV charging infrastructure. Blockchain technology will continue to spur adoption of innovations such as peer-to-peer energy trading, empowering consumers and increasing disruption for electric utilities.



What This Means for Business

1

Prioritize investment in blockchain

Business model transformation, electrification and decentralized renewable energy will be essential to the long-term success of energy companies. Blockchain will play an increasingly integral role in decentralized energy and carbon transactions and companies that invest early in this technology will have an advantage.

2

Collaborate on innovation

To remain competitive energy companies will need to form partnerships and collaborate with an increasing variety of companies, including energy storage, automakers, blockchain start-ups, renewable energy and traditional oil and gas companies. The scale of technology innovation and infrastructure roll-out that is needed over the next 10 years means that few companies will achieve their goals in isolation.

3

Develop innovative finance

A key challenge for energy companies will be the scale of investment needed to invest in smart grid, renewable energy and EV technology, whilst also adapting existing infrastructure to withstand the onslaught of climate change impacts. Energy companies will need to embrace alternative financing such as green bonds.



Financial Services

Sustainable Investing Comes of Age



The financial services sector is finally taking ESG seriously and not looking back.

Increasing awareness of environmental, social and governance (ESG) issues, combined with the finance sector's growing understanding of the impact of ESG on corporate performance, is driving banks, asset managers and investors to integrate sustainability data into decision making at unprecedented levels.

ESG data has matured to the point where it has been embraced by the finance sector as a key way to identify the companies positioned to succeed, and those that may underperform or fail. A majority of ESG indexes outperformed their non-ESG counterparts in 2018. Sustainable, responsible and impact investing assets under management also rose to \$12 trillion in the US in 2018, up 38 percent from \$8.7 trillion in 2016. In 2019, increasing collaboration across the finance sector will continue driving action on topics like inclusive capitalism, climate change, gun violence and diversity.



“CEOs will see in the tone of our questions that we are geared towards long-term performance – both from a shareholder perspective, but also from the perspectives of their stakeholder needs and their organisational resilience.”



Matt Christensen, Global Head of Responsible Investment at AXA IM

Signals to Watch

New tools, metrics, coalitions

From increased investment in Sustainable Development Goal-aligned initiatives, to new alliances and coalitions, financial services companies are waking up to the opportunities presented by a more sustainable economy. This year will likely see greater scrutiny regarding impact measurement of ESG and SDG focused finance products.

High-Level Expert Group on Sustainable Finance [established](#) by the EU has published its recommendations for a financial system that supports sustainable investments. Based on these recommendations, the Commission is now finalizing a multi-year strategy on sustainable finance in the EU.

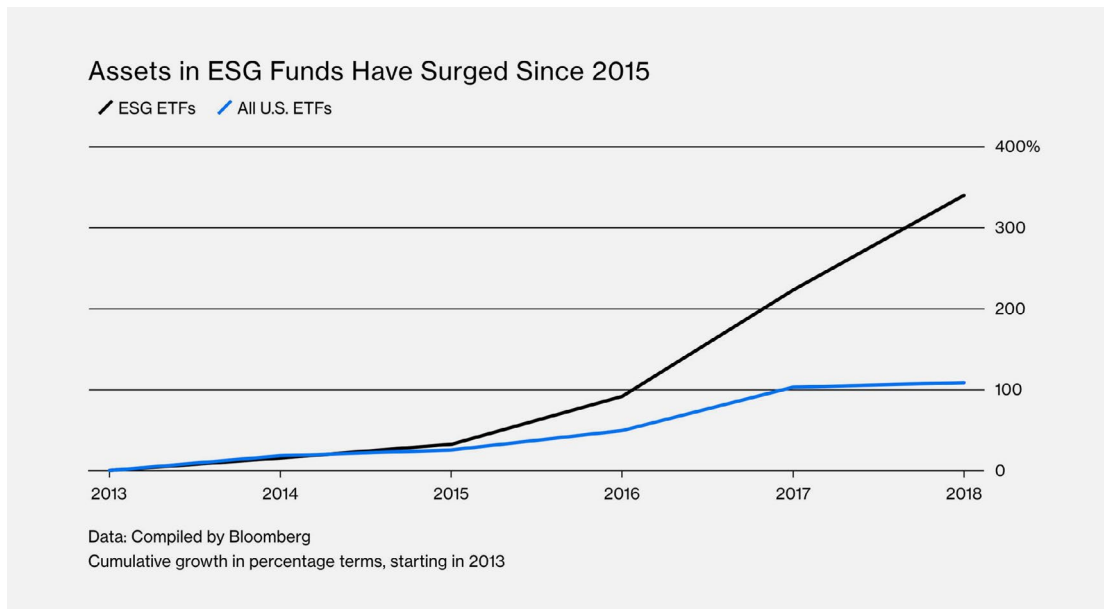
The [Embankment Project for Inclusive Capitalism](#) has brought together CEOs from over 30 companies, asset managers (like BlackRock, Fidelity, Vanguard and State Street) and asset owners to identify and create new metrics to measure and demonstrate long-term value to financial markets.

[UNEP FI and 28 banks](#) launched the [Principles for Responsible Banking](#) to define the banking industry's role and responsibilities in shaping a sustainable future.

A majority of ESG indexes outperformed their non-ESG counterparts in 2018 according to [data from MSCI](#). [Experts](#) predict that ESG indexes will continue to outperform a majority of non-ESG during the global economic downturn forecast for 2019-2020.

New products and tools abound from [Just Capital and Goldman Sach's ETF](#) and [Blackrock's ESG ETFs](#) to the [World Benchmarking Alliance](#) SDG benchmarking; but the impact of new investment products in particular [remains to be seen](#).





📷 Climate risk and disclosure. Source: [Bloomberg](#)

Climate risk and disclosure

Leading banks and investors are increasingly integrating climate risk in their operations and are transitioning from measurement to management. Banks and investors are increasingly collaborating to develop metrics, engage with companies and demand greater government action on climate.

UNEP Finance Initiative and 16 of the world's leading banks came together to [pilot implementation of recommendations by the Taskforce on Climate Related Disclosures \(TCFD\) and develop](#) scenarios, models and metrics to enable assessment and disclosure of climate-related risks and opportunities.

A recent [report](#) on companies' preparedness for TCFD recommendations found that in the US, only 64 percent of financial firms have board-level oversight of climate change, compared to all firms in the UK and 82 percent in Canada. Only 50 percent of companies' climate change risk management strategies extend further than six years out.



415 investors with a combined \$32 trillion in assets have [demanded governments increase action to tackle climate change](#), signing a statement that asks governments to strengthen their Nationally Determined Contributions to meet the goals of the Paris Agreement.

The [five-year Climate Action 100+](#) initiative, now backed by 310 investors with more than \$32bn in assets under management, drives signatories to engage with systemically important greenhouse gas emitters and companies calling on them to improve governance on climate change, curb emissions and strengthen climate-related financial disclosures.

[Portfolio decarbonization](#) is picking up speed as more and more institutional investors pursue strategies to eliminate stocks with high carbon risk.

Rising Shareholder Activism for Sustainability

Driven by greater awareness of ESG risks and opportunities, as well rising expectations from society and a younger generation of investors, asset managers and banks are feeling the heat and taking greater action on ESG issues. High profile topics like gun violence, diversity, climate change and opioids are seeing the most action amongst banks and investment firms, driven by shareholder activism and more sophisticated ESG risk analysis. Asset managers are now working together to encourage better practices amongst portfolio companies on issues like gender diversity.

Goldman Sachs [research](#) found that Twitter posts on ESG finance topics have risen 19x since 2010. Mainly driven by discussions related to climate change, investment-related terms (ESG, sustainable investing, impact investing, etc.) have risen even more – 33x in 2017 from 2010 levels.

Florida Parkland high school shooting activist David Hogg made a widely publicized [call to boycott BlackRock and Vanguard](#) earlier in 2018 due to each company's investments in gun manufacturers and retailers. While the boycott was unsuccessful, BlackRock and State Street both promised to [engage gun manufacturers](#) in conversations on increasing gun safety. BlackRock also launched two [new gun-free ETF indexes](#) and [supported](#) activist shareholder proposals requiring gun safety disclosure.



As You Sow and CODEPINK released [Weapon Free Funds](#), a new tool from to help investors review their index and mutual fund investments for holdings in military contractors and gun manufacturers and retailers.

Further responding to rampant gun violence in the US in 2018, the CEO of investment firm [Calvert Research and Management](#), John Streuer, successfully pressured Kroger to stop selling firearms.

Twenty seven companies (£10.5 trillion assets under management) have now signed a [statement](#) of intent, coordinated by the 30 percent Club, to promote more women to the senior management and boards of the British companies in which they invest. [BlackRock](#), [State Street](#) and [Vanguard](#) are upping pressure on companies to increase diversity and are beginning to systemically vote against male-only boards.

Barclays set a new public [policy](#) stating it will not fund projects in World Heritage sites or Ramsar Wetlands.

What to Expect in 2019

This year will bring action, engagement and results from strong coalitions – such as EPIC, the Principles for Responsible Banking, and the US Alliance for Sustainable Finance – that formed in 2018. Financial services companies that are not part of these alliances are likely to be under greater pressure to join these partnerships. Banks will gradually start implementing TCFD as they learn how to assess and disclose climate risk, while asset managers, investors and banks will continue to engage portfolio companies on priority topics like climate and gender. We also expect a further influx of ESG products and greater scrutiny regarding the impacts of those products.



What This Means for Business

1

Work with peers

It is critical for financial services to work and stand together to send a united signal to governments that ESG issues are critical to long term profitability and financial success. Investors and portfolio managers must start asking strategic ESG questions during company earnings calls and roadshows.

2

Know where you stand

With growing scrutiny on corporate actions, banks, asset managers and investors must be clear on their values and the actions they are taking to authentically embody their values.

3

Invest in ESG analysis

From human capital to AI and big data, having the expertise and ability to analyze and evaluate ESG impacts, including climate risk and opportunity, will become a competitive advantage for banks and asset managers.



Intelligence and Trends

Our aim is to help companies understand emerging issues with potential to disrupt business models and sectors. By keeping up-to-date, you will be able to get ahead of trends that could impact your success.

Why trends?

- ▶ The way that markets operate constantly changes due to diverse and shifting pressures from society, the environment and the economy. Businesses like yours face ever-changing demands for improved sustainability performance.
- ▶ Understanding how emerging issues may impact your business is critical to decision-making. Insightful, timely and relevant analysis is hard to come by and invaluable when you have it.

What are the benefits?

We help you track and predict trends.
This helps your company:

- ▶ Identify and address emerging risks and opportunities.
- ▶ Develop early warning systems that give you peace of mind.
- ▶ Reinforce the advantages of leading by using the intelligence we provide to let you anticipate shifts in the business landscape.
- ▶ Gain a synthesized view of your peers, improving your competitiveness.

Our approach and scope of services

We are informed by three decades of experience helping companies like yours stay ahead in the world of corporate sustainability. We offer:

- ▶ Access to a wide-range of sources.
- ▶ Sophisticated qualitative and quantitative analysis.
- ▶ Guidance from our expert networks.
- ▶ Tailored recommendations for implementation by your business.

Our approach is customized to your needs and may include:

Regular intelligence briefings

Developing briefings acts as a filter, letting us sift through the ever-growing number of developments in the sustainability space relevant to you. We show you how to focus on issues that have the greatest impact on your company and detail their possible impacts.

Sector and industry benchmarks

As well as providing extensive review of your peer landscape, we examine other corporate sustainability strategies, messages, priorities and approaches to stakeholder engagement to find relevant best practices for you.

Issue-specific reports and workshops

We examine specific issues and stakeholder views, then analyze and present our custom interpretation and commentary on how your company could be impacted in report or workshop form as appropriate. Our workshops are outcome- and action-oriented.

Annual trends workshops and webinars

Led by SustainAbility's senior team, annual trends workshops and webinars explore broader, multi-year trends and issues that will shape the future corporate sustainability agenda.

Our experience

Making the future the cause of our present.

We inspire and enable businesses like yours to lead the transition to a more sustainable economy.

Since 1987, we have worked tirelessly to catalyze innovation and provide solutions to make businesses and markets more sustainable. We are at the forefront of the sustainability agenda.

Our long history, diverse experience, vast network and global perspective mean we are uniquely able to aid companies in tracking, analyzing and acting on trends. We open up your business to the opportunities.

Some of our trends clients...



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About SustainAbility

SustainAbility is a think tank and strategic advisory firm working to inspire and enable business to lead the way to a sustainable economy.

Established in 1987, SustainAbility delivers illuminating foresight and actionable insight on sustainable development trends and issues.

Get in touch

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