



THE NEW SUSTAINABILITY:
REGENERATION

WELCOME

The future of sustainability will focus on regeneration, with pioneering brands at the heart of the effort.

2018 has seen record heatwaves on four continents, wildfires in the Arctic Circle and perilous water shortages in South Africa, Australia and India. Scientists now talk of a “sixth mass extinction” of wildlife, birds, insect and marine life. Living systems, they say, are in decline.

There’s no question that human activity is responsible. Despite 195 countries signing up to the Paris Agreement to reduce carbon emissions in 2015, our use of resources continues to exceed

planetary boundaries. Put simply, we are consuming more than we have. This year, Earth Overshoot Day, which marks the point at which we have used more from nature than the planet can renew, came earlier than ever before, on August 1. This is not just a threat to nature, but to human society too.

To borrow a phrase: time’s up.

Sustainability as we know it is dead. Doing less harm is no longer enough. The future of sustainability lies in

regeneration: seeking to restore and replenish what we have lost, to build economies and communities that thrive, and that allow the planet to thrive too.

For John Elkington, an authority on sustainable development who coined the term triple bottom line, the goal of sustainability will be to “regenerate economies, societies and the biosphere.” This is no small challenge. To tackle it, we’ll need to collaborate on a global scale to rethink

systems, to reimagine production, to re-evaluate the way we do business and to reconsider how we live.

Consumers are already operating from a sustainability mindset, even if they struggle to make it a lifestyle. They are increasing the pressure on brands to make it easier for them to do so, calling for greater transparency and pushing for more sustainable options. Witness this year’s grassroots plastics protests at supermarket checkouts the world over.

An aerial image of Theewaterskloof Dam taken in March 2018 when the dam was at 10.6% of its capacity. Theewaterskloof is the largest dam in the Western Cape, and one of the six main dams that supplies water to the city of Cape Town. © Jöel Redman as part of the Union of Concerned Photographers project launched by WeTransfer.

SU STAIN ABILITY

/səsteɪnə'bilɪti/ 

For our research, we adopted a commonly used definition of sustainability that centers on three interlinked pillars:

- **Environmental (Planet):** Living within the means of the planet's natural resources
- **Social (People):** Maintaining long-term wellbeing for people and communities
- **Economic (Profit):** Delivering a profit, but not at the expense of the other two pillars

Sustainability is a balancing act between these three pillars. The 1987 United Nations report "Our Common Future" defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 2015 the United Nations agreed a set of 17 Sustainable Development Goals to guide development action through to 2030. These recognize the importance of human rights, inclusivity and equality and peace to sustainability. We also recognize these elements in our research.

As governments struggle to keep the fragile Paris Agreement on track, businesses and brands have an opportunity to play a decisive role in the sustainable future, putting regeneration at the heart of strategy. In the words of the late Ray Anderson, former CEO of Interface, business "is the only institution that is large enough, and pervasive enough, and powerful enough, to really lead humankind out of this mess."

Yet what was perhaps once seen as a burden or a box-ticking exercise is now a major opportunity for innovation and even revenue.

According to conservative estimates, a new sustainable economy centered on the United Nations' Sustainable Development Goals could be worth \$12 trillion and create 380 million

jobs. It's potentially a win on many fronts for brands, which can drive efficiency and minimize exposure to risk while aligning with the values of stakeholders from employees to customers. And companies such as Unilever are showing that it's possible to make a profit too.

This report explores the future of sustainability. It's a complex, nebulous and often paradoxical concept. Even its definition seems vague and elusive. For the purposes of this report, we are using the triple pillar definition of sustainability which comprises economic and social elements as well as the environmental aspects most often associated with the topic (see box).

We examine consumer attitudes and behaviors across four global markets

(Australia, China, the United Kingdom and the United States), and what they mean for brands. We explore the imperatives for business and share advice from the more than 30 experts who shared their wisdom with us. And we diagnose the global emerging trends in the sustainability space as well as documenting the global innovation landscape.

We have designed the report so you can dip in and out as you wish, so enjoy at your leisure.

Marie Stafford
European Director,
The Innovation Group

ABOUT *this* REPORT



“The New Sustainability” is a macro trend report that focuses on the future of sustainability across three pillars: environmental, economic and social. Our research comprised several methodologies and covered the period February to September 2018.

In addition to extensive desk research, we conducted a quantitative survey using SONAR™, J. Walter Thompson’s

proprietary online tool. In June 2018, we surveyed 2,001 adults in the United Kingdom, the United States, Australia and China. We recontacted a subsection of this sample in August 2018 to gain further insight.

For the purposes of clarity, within the report all statistics, unless otherwise stated, are reported for a combined total population from all four countries.

We also conducted in-depth interviews with over 30 experts and thought leaders from around the world, across sectors including science and technology, fashion, food and drink, and brand strategy and marketing.

Please note that all data was correct and up to date at the time of writing in September 2018.

Notes on Country Differences

While the majority of the statistics in the report are focused on a total population from all four countries, we did want to highlight some differences between each.

UNITED KINGDOM

The United Kingdom has experienced a wave of concern over the impact of single-use plastics on the environment since the airing of the *Blue Planet II* documentary series, which provoked an immediate reaction on social media. British consumers consequently express deeper concern over plastic packaging, waste and single-use plastics in our data: 60% of British consumers strongly believe that there is far too much plastic packaging these days, versus an average of 51%.

UNITED STATES

The United States has the highest

proportion of unconcerned citizens: 20% feel that climate change is not an important issue (across the four countries the average is 13%), and 17% are unconcerned over single-use plastics (versus the all country average of 11%). Unsurprisingly, the United States is the nation most attached to cars, potentially due to a widespread lack of public transport options. Most drive petrol cars and 44% do not want to see them phased out. Less than half of Americans like the idea of a car-free city.

AUSTRALIA

Australians care about sustainability issues, but money is a key concern. Australians exhibit a greater sensitivity to the cost of living and are more likely than other nations to feel they are unable to afford a sustainable lifestyle: 85% say they should not have

to pay more for sustainable products and services, yet 90% agree that if a sustainable lifestyle could save them money, they would adopt one.

CHINA

The Chinese know more than most that protecting the environment matters, given that they experience the downsides of air pollution first hand. But while concerns may be high, it’s not always easy for citizens to act. There are no well-established recycling systems in place and buying sustainable products costs more. Among those who could be doing more to live a sustainable lifestyle, one third say they are not doing more because it’s too much effort. However, with frequent scares around product safety, brands which claim extra sustainability credentials are regarded as higher quality.



THE NEW **MINDFUL**
CONSUMER





THE NEW MINDFUL CONSUMER BY THE NUMBERS

Sustainability is now an imperative for brands, as values-driven consumers increasingly demand options that don't harm the planet and its people—even if they don't always live up to their own good intentions.





They care about the state of the planet...

89% care personally about protecting the planet

They are trying to be more sustainable...

92% claim to be trying to live more sustainably

They accept their duty of care for the next generation...

57% know it's important to preserve the planet for future generations

They want to choose sustainable products...

83% would always pick the brand which had a better record of sustainability

They are not opposed to paying more for sustainability...

70% would be willing to pay more for products and services if they protect the environment or don't infringe on human rights

They don't think sustainable equals luxury...

58% think sustainable products come across less as luxury and more "hippy"

They think that companies need to take responsibility...

90% feel that companies/brands have a responsibility to take care of the planet and its people

...and they feel responsible

79% are increasingly conscious of their personal impact on the planet

...but there is always room for improvement

54% think they could probably do more

...and think brands should too

86% think that companies/brands that continue to deplete finite resources are stealing from the future

...but they don't know which ones are actually sustainable

86% believe there's not enough information on products for consumers to assess how sustainable they are

...but they are not happy about it either

77% say they should not have to pay more for sustainable products and services

...but tides could be turning

31% equate sustainable with quality

...otherwise there should be consequences

91% think companies/brands that pollute the environment should be fined



A SUSTAINABILITY MINDSET

“Having sustainable things, it’s kind of a talking point now, whereas before, you might be a bit embarrassed to admit you got something second hand, for example.” So says Anna Carpenter, 34. By day she works in London in the media industry, but in her spare time she is director of the upcycled fashion line House of Lonali, which operates out of both Sri Lanka and the United Kingdom. “It’s nice to put your skills toward something that’s actually for the greater good,” says Carpenter, who has seen the growing consumer interest in sustainability first hand. “People are much more interested in it, it’s much more desirable.”

No longer an optional extra for brands, sustainable credentials are becoming an imperative. 92% of our respondents across all markets claim to be trying to live more sustainably and 38% say they are doing all they can, rising to 42% among the millennial generation. An overwhelming majority say they care personally about protecting the environment (89%) and that they find



themselves thinking more about what they can do personally towards a sustainable future (79%).

Behaviors which once seemed niche are now shifting inexorably toward the mainstream. Interest in vegetarian and vegan lifestyles is rising across the globe. There’s a palpable sense of unease around plastic packaging waste, prompting protests in supermarkets. Grassroots

movements focused on beach clean-ups and “plogging” (clearing litter while jogging) are spreading. Such habits aren’t just benefiting the planet, they can even make us view each other more favorably: 79% say caring for the environment is a quality they look for in a partner.

Inevitably, this behavior is evident in consumption habits, too. Shoppers crave more and better information:

they are open to helpful tips and suggestions, and 89% think brands should do more to educate consumers on how sustainable their products are. When it comes to their own habits, they claim to be adopting environmentally friendly and ethically sound behaviors in high numbers. Sustainable thinking now informs the consumer mindset and, they claim, their lifestyles.

FIGURE 1: Sustainable Habits

Percentage who always/often do any of the following, all countries	Always/often Total %
Use up leftovers	78%
Recycle at home	78%
Limit water use in the home	67%
Actively choose to buy seasonal produce	65%
Actively buy local rather than imported goods	61%
Aim to consume less in general	60%
Mend clothes/repair household items instead of replacing them	60%
Refuse a plastic bag when shopping	59%
Avoid single-use plastic items (straws, water bottles, plastic cutlery)	58%
Buy in bulk to minimize use of packaging	53%
Choose to holiday in their home country to avoid flying	51%
Choose Fairtrade products where possible	50%
Use a more sustainable form of transport instead of a car (electric vehicle, bicycle, public transport)	47%
Stop taking long-haul flights	43%
Compost waste	42%
Use green/renewable energy (solar or other)	40%
Follow a vegetarian diet	29%
Pay to offset carbon impact of flights	28%
Follow a vegan diet	23%



A new **VALUE SYSTEM**

The shift towards the sustainable-as-standard mindset is being driven by personal values. People are looking for greater meaning in how they work, live and consume.

We spoke to Los Angeles-based Afdhel Aziz, founder and chief purpose officer of Conspiracy of Love and co-author of *Good is the New Cool: Market Like You Give A Damn*, who explains, “There’s a new kind of value system taking place where meaning is replacing money, to some extent, as a measure of success. That is manifesting itself in what people want to buy, where they want to work, and, really, what legacy they want to leave behind. I feel it’s almost like a societal level of enlightenment that’s happening now.”

When it comes to sustainable living, JWT data suggests people are motivated by personal values around duty, doing the right thing and making a positive contribution, rather than extrinsic motivations associated with

the praise or judgement of others. Primarily, people say that a sense of responsibility towards future generations is what encourages them to live more sustainably in the here and now. This aligns with the most common understanding of the term sustainability among our panel: in the United Kingdom, United States and Australia, people associate sustainability with the word “responsible.” While this sense of duty

towards others is the number one focus for all demographics, women and older generations feel this even more strongly. Other drivers in our top three are also values-driven, like the need to do the right thing and the desire to have a positive impact in the world. Younger respondents, particularly those of generation Z (aged 18-23 in our data) are more motivated by the need to make a difference in the world.



Afdhel Aziz, Founder and Chief Purpose Officer of Conspiracy of Love and co-author of *Good is the New Cool: Market Like You Give A Damn*

FIGURE 2: Primary Motivations for Trying to Live Sustainably
Ranking, all countries

- #1 **“I KNOW it’s IMPORTANT TO PRESERVE THE PLANET for FUTURE GENERATIONS”**
- #2 **“IT’S the RIGHT THING TO DO”**
- #3 **“I WANT to be ABLE TO MAKE A DIFFERENCE”**

FIGURE 3: Word Associations with Sustainability
Ranking by country, all countries

Total	United Kingdom	United States	Australia	China
Responsible	Responsible	Responsible	Responsible	Quality
Effective	Survival	Survival	Survival	Effective
Resilient	Effective	Resilient	Effective	Resilient
Survival	Resilient	Effective	Innovative	Responsible
Adaptable	Adaptable	Adaptable	Resilient	Adaptable



THE BEHAVIOR GAP

While intentions are good, there's often a disparity between those intentions and reality. Among the 89% who say they ever recycle at home, only 52% always do so. Out of the 85% who avoid single-use plastics, just 20% do so on every occasion.

For most, sustainable living is often still an aspiration rather than a 24/7 lifestyle commitment. This attitude-behavior gap has long been evidenced in academic research that has found that while consumers may have

favorable opinions, they don't always choose to buy sustainable options.¹

Understanding why is not straightforward. Sustainability is multi-dimensional but much research in this space has been skewed towards the environmental aspects, while the economic aspects in particular are often ignored. Equally, most studies cannot measure behavior in every category in every context. Unpicking these many facets is a major challenge for brands.

Ed Dowding, UK-based social impact entrepreneur and CEO of Represent.me, a CivTech company, explains that it's likely we're overestimating our good behavior and downplaying the bad, persuading ourselves that we're doing a good job while turning a blind eye to our transgressions. "Just as we're not very good at assessing risk, we aren't very good at assessing impact," says Dowding. "We'll tumble dry that one shirt because we want it in a hurry and totally ignore that, whereas we'll congratulate ourselves



88%

SAY IF A SUSTAINABLE LIFESTYLE COULD SAVE THEM MONEY, THEY WOULD ADOPT ONE

for remembering to take a plastic bag to the shops. The impact of those two things is vastly disproportional, but we just aren't aware of it."

People are also conflicted. For instance, 64% say they like the idea of a car-free city—but 55% admit they love their car and they'll never stop driving. 86% of respondents agree that people buy too many clothes these days but 40% concede they often buy new clothes because it's important to keep up with trends in fashion. Some habits are harder to shake than others. Even when the resolve is there, it can be tough for consumers to stick to intentions because the right options are simply not easily available in the marketplace. Brands have a role to

play in making it easier for consumers to make the right choices.

Joe Ziegler, a student at the University College London, committed to live plastic-free for the month of February this year. He found the task almost impossible, struggling to find the time to track down better options. He commented that it is very difficult to go plastic-free "unless you have loads of time and dedication ... or unless you have loads of money. You have to trek out of your way to go to these places ... it's like you have to fundamentally change the way you shop, and therefore it's much more challenging."

Ziegler's assessment chimes strongly with our data on the barriers to adopting

sustainable behaviors. We asked those who say they could be doing more what is standing in their way. The main obstacles are perceived as cost and lack of ease and convenience, along with a need for more guidance.

Among those making no effort at all (just 8% of our sample) there's a clear need to build emotional engagement, too. They need to be convinced that it's worth their time and to understand why it should even matter to them. This data provides clear imperatives for brands. There is a clear, broad-based desire to adopt sustainable behaviors, but to help them become habits, brands should consider how well they deliver accessibility, affordability, convenience and ease of repeated use.

FIGURE 4: Barriers to Living Sustainably
Ranking, top five among those who "could do more" and those "making no effort", all countries

Could do more:

1. It's too expensive, I can't afford it
2. I'm not really in the habit, I just forget
3. It's not convenient
4. I don't really know how to
5. It's too much effort

Making no effort:

1. It's too expensive, I can't afford it
2. I don't believe it will change anything
3. It's just not important to me
4. I don't see any effect; how do I know it's making a difference?
5. I don't really know how to



**"CONVENIENCE IS
ABSOLUTELY KEY.
IF IT'S NOT CONVENIENT,
IT'S **VERY** DIFFICULT
TO GET PEOPLE TO
DO SOMETHING."**



The Vurger Co. UK



GOVERNMENTS SHOULD LEAD



People see the sustainability effort as a collective issue: 91% believe that companies, countries and individuals should all work together to tackle it. Despite this, they do expect governments to play a decisive role. Almost half (46%) of respondents say they should be leading the charge, rising to 70% in China.

The Paris Accord is perhaps the best evidence of the might of governments. In December 2015, 195 nations signed a pact to work together to limit carbon emissions. On an individual level, in Ecuador, nature's rights are enshrined in the constitution, while Wales is exploring the concept of personal carbon accounts. China's social credit system aims to track and rate residents on their social behavior, and it awards bonus points to citizens who sort and recycle their trash.³

Our respondents also see a role for governments in key areas such as

driving up public transport usage, encouraging the uptake of renewable energy or helping to subsidize businesses that are helping the sustainability effort.

Not every citizen will welcome change, particularly where there are tensions with local economies. A good example comes from Alberta, Canada, where it looks likely that voters will soon elect a provincial government that will oppose the national government's strict carbon emissions policies as they could harm the local oil and gas industry, a key employer.

Nevertheless, political parties should take note: in future voters may pay more attention to environmental and ethical policies than ever before. Across all four countries, an average of 69% say that, in an election, they would switch their vote to a candidate with the best sustainability policies. Almost a quarter say they definitely would, rising to 32% of generation Z.

This is the UAE's largest power and desalination plant that serves over two million people. Natural gas is burned to produce electricity and to desalinate seawater for drinking. Many believe that this plant will soon be powered by solar.
© Luca Locatelli as part of the Union of Concerned Photographers project launched by WeTransfer.



BUSINESS AT THE HEART

While the majority of respondents believe governments should shoulder most of the responsibility for ensuring a sustainable future, brands rank in second place among our global panel. People put companies and brands at the very center of the sustainability debate.

Companies are uniquely placed to drive change. Analysis from independent publisher The Conversation in 2018 found that of the top 100 economic entities in the world, 71 are corporations, not nation states.⁴

Today, major businesses possess unparalleled power and scale, and the potential to use their resources for good. But how should this be deployed?

We shared the United Nations' 17 Sustainable Development Goals with our panel and asked them to choose the ones they most associated with their own interpretation of sustainability. Top of the list was goal 12, "ensuring responsible consumption and production." The goal unites businesses and consumers in an effort to manage resources "doing more and better with less."

This is also where consumers believe companies should direct their efforts, too. In a further question, we asked which of the goals brands should support most. "Responsible consumption and production" again topped the list, followed by goal 9, which is concerned with better industry, infrastructure and innovation.

Environmental challenges also rank highly, while issues such as gender equality, inequality and better education provision clustered at the bottom of the ranking.

There's no indication that consumers are less concerned about the human issues. More than nine out of 10 people think fair and equal treatment of workers is important, while similar numbers believe businesses should have a positive impact on their local communities. More likely, people frame sustainability predominantly in the context of environmental issues. The concept of sustainability is nebulous and loosely defined. There's a role here for brands to help hone its meaning (see Rebranding Sustainability, p38).



UN SUSTAINABILITY DEVELOPMENT GOALS

FIGURE 5: Consumer ranking of which UN Sustainable Development Goals are most important for companies to work towards, all countries

Rank		UN goal
#1		Ensure responsible consumption and production (including recycling) 12
#2		Build resilient infrastructure, inclusive and sustainable industrialization and foster innovation 9
#3		Protect, restore and promote life on land (protecting plant and animal life/biodiversity) 15
#4		Good health and wellbeing (including air quality) 3
#5		Make cities and communities inclusive, safe, resilient and sustainable 11

Rank		UN goal
#6		Ensure availability of clean water and sanitation 6
#7		Combat climate change and its impact 13
#8		No poverty 1
#9		Ensure access to affordable and clean energy 7
#10		Promote decent work and economic growth 8



DEMANDS *on* BRANDS



Ecover, Belgium

While forgiving of their own lapses, people are exacting when it comes to brands. 92% of respondents say that sustainable practices should now be standard business practice. That goes for the entire supply chain, too: the same percentage says that brands should “keep a close eye on suppliers, as well as their own business, to ensure they are sustainable.”

For those companies that fail to step up to the challenge, consumers advocate harsh penalties. 91% of people think that companies and brands that pollute the environment should be fined. 86% say that companies that continue to deplete finite resources are stealing from the future.

“Every time you spend money,” says US-based author and sustainability advocate Anna Lappé, “you are casting a vote for the kind of world you want.”⁵ Voting with your wallet is a powerful consumer weapon. Almost half our panel claim to have refused to buy from a brand because they disagreed

with its business practices. In the past, there have been major scandals which seemed to have little long-term effect on brands, but times may be changing. This year saw the collapse of Cambridge Analytica’s business following revelations over improper data sharing, as well as the demise of Ivanka Trump’s fashion line following a major boycott by those opposed to her family’s politics. In July 2018, Thomas Cook announced it was dropping all trips featuring orca shows, in response to consumer concerns.

Taking a stance on sustainability issues will resonate positively with today’s consumer, according to our experts. “I think those brands that take a stance will be shown to be, if not on the right side of history, certainly on the right side of demographics,” says Ed Dowding.

Yet brands should not expect too many plaudits for something that consumers increasingly see as the baseline. Charlotte Snelgrove, brand manager at Ecover & Method–People

Against Dirty, tells us: “Brands and companies that aren’t investing in sustainability are going to fall behind the times and become irrelevant very quickly as consumers become more educated and look for this stuff more.”

UK-based bio-designer Natsai Audrey Chieza is even more definite, saying that if brands “don’t see the value in this, they’re not going to be the change-makers, and those are precisely the businesses that are too big to change, and so they will fail.”

FIGURE 6: Attitudes to Company & Brand Sustainability Behaviors
Percentage agree, and percentage strongly agree, all countries





WHAT DOES SUSTAINABLE LOOK LIKE?

We know people aspire to a more sustainable life, but what does that really mean? What are their expectations of sustainable products?

We asked our panel which attributes they would expect to find in products labeled as sustainable. Responsibly sourced materials or ingredients top the list, with 54% choosing this option. This chimes with other data in our study: 91% want brands to use sustainable ingredients or materials in products,

and indeed 64% tell us they always scrutinize the labels for sustainability credentials when they are shopping.

Beyond materials, people want to know what's going on behind the label. Respondents tell us they want reassurance that manufacturers are not polluting the planet, that they are reducing waste and by-products and that they have a close eye on their carbon footprint. A more thoughtful approach to packaging rounds out the top five.

In an age of radical transparency, it will become increasingly important for brands to supply detailed information on sustainability credentials. The need for common standards or schemes that can give consumers peace of mind on these issues feels evident.

There are already efforts to tackle the challenge. B Corporation certifications, which guarantee that a company balances profit with purpose, and for which companies supply detailed

performance metrics, now number over 2,600.⁶ We are also seeing the emergence of smart tags which can provide full traceability information on products from origin to the point of sale, all secured on the blockchain.

The appetite for such schemes is clear: 89% say they want brands to do more to educate them on how sustainable their products are.

FIGURE 7: Qualities of Products Labelled as Sustainable
Percentage who selected each option, all countries



64%

ALWAYS SCRUTINISE
THE LABELS FOR
SUSTAINABILITY
CREDENTIALS
WHEN SHOPPING





SUSTAINABILITY DRIVES CHOICE

The good news for brands is that many consumers claim that sustainability credentials are a positive choice driver. 83% of people in our survey say, all else being equal, they would always pick the brand with a better record on sustainability.

We assessed the impact of sustainability in more than 20

consumer categories. Across the board, a majority of consumers say it's important to them that brands in that category act in a sustainable way. More than half of consumers in every category also say that they would be more likely to buy from brands if they claimed to be sustainable, peaking at 67% in the home energy sector.

Our ranking shows that such claims will have most salience in those categories where the need for better environmental performance is already most evident—for example, where impacts are well understood. Along with energy, home appliances, fuel and automobiles top the list.



FIGURE 8: Impact of Sustainable Claims on Purchase Behavior by Category
Percentage of people who say they are more likely to buy if a company claims to be sustainable, all countries





Proving its power to differentiate, sustainability now even trumps quality across most categories. In all but two (airlines and healthcare), consumers say they would opt for a brand with better sustainability claims, even if the product or service was of slightly lower quality, rather than a product of higher quality that is less sustainable. In the general retail and home energy categories, the bias towards sustainability is greater than 25 percentage points.

It should be noted that in China there is an added dimension to sustainability. Here, it is seen as a mark of quality in itself. In fact, Chinese consumers are most likely to associate the word “quality” with sustainability, where respondents in other countries selected the word “responsible.”

This is driven by historic issues with product safety in the country, which has served to make the Chinese consumer something of a skeptic, according to Christina Dean, founder and CEO of the Asian fashion line R Collective and founder and chair of the Hong Kong-based NGO Redress.



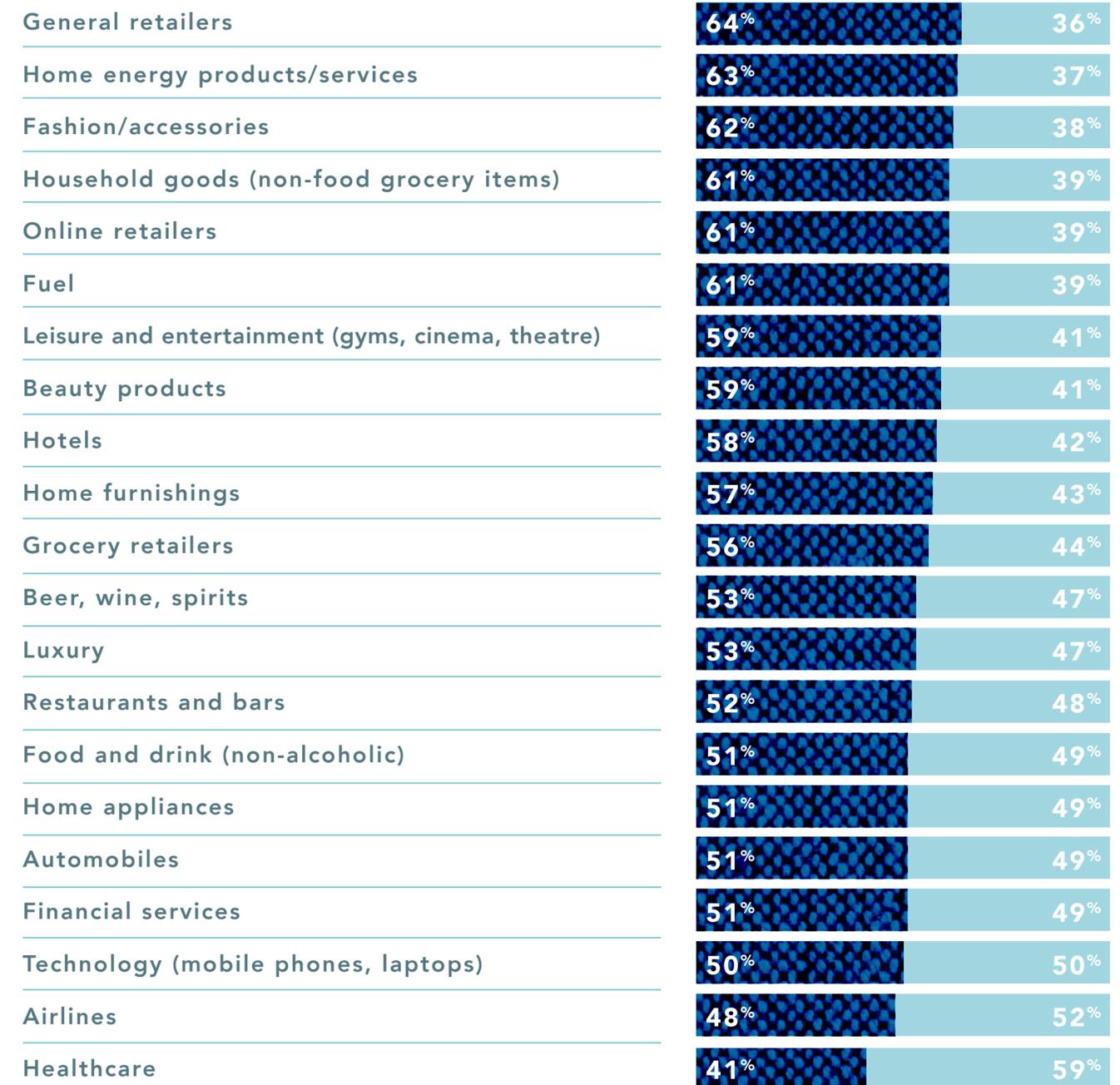
“One thing that’s quite different in China from the rest of the world,” says Dean, who is based in Hong Kong, “is that unfortunately, historically in the consumer market, they have had on their shelves, from food to fashion to consumer electronics, huge scares around product safety.”

Matilda Ho, founder and managing director of Shanghai-based food tech accelerator VC Bits x Bites agrees and points out that “food safety is a top-

of-mind issue for Chinese consumers and they are ready to pay a premium for safe food that comes from ethical producers or retailers that they trust. Many consumers still see finding safe food a difficult challenge in their daily lives.”

Sustainability claims can thus be a shortcut to higher manufacturing standards and processes, as Chinese consumers look to brands offering higher ethical standards as reassurance.

FIGURE 9: Impact of Quality vs Sustainability on Purchase Behavior, by Category
Percentage who selected either option, all countries





THE PRICE OF VICE

Should products that are kind to the planet and people cost more than those that are not? Or should it be the other way around? In fact, there are good arguments for both. Making more sustainable products requires significant investment by companies—in better materials, processes and infrastructure. Yet making harmful products cheaper provides the wrong long-term incentives to consumers, especially those on a tight budget.

Consumers are all for brands taking the hit. 86% say that companies should bear the cost of making products more sustainable, rather than passing them on to their customers. 77% say they should not have to pay more for sustainable products and services, rising to 85% in Australia.

Yet, as ever, there's another side to the story. Slightly fewer, yet still substantial numbers, say they are prepared to pay more for products which protect the environment (70%) or don't infringe on human rights (70%). In our trend on Climate-Positive Commerce (p. 72) we highlight a number of initiatives which allow consumers to make a financial contribution to climate change efforts. And while some consumers may overstate their willingness to pay over the odds, they are undoubtedly out there. "It's not just emotion. The numbers play it out," Natasha Lamb, a managing partner at the ethical investment company Arjuna Capital, told Bloomberg Businessweek in 2017.⁷

77%

BELIEVE THAT PRODUCTS WITH A NEGATIVE ENVIRONMENTAL IMPACT SHOULD COST MORE



There is also a third way. 76% think companies should get a government subsidy if they make sustainable products. In some sectors this is already happening. Farmers who participate in carbon farming benefit from subsidies and credits (as we highlight in our Carbonomics trend on p. 90) and businesses in the United Kingdom receive government grants towards making their businesses more energy efficient.

In the near term, we expect sustainability to come at a small premium in most cases, as companies look to cover their costs. Some countries, such as the United Kingdom, are on the brink of introducing tax reform to discourage the use of single-use plastics as well as plastics that are more difficult to recycle.

In the longer term, we're likely to see bolder tactics which flip these incentives, making harmful products

more expensive and thus driving down demand. There's already support for such an approach: 77% believe that products with a negative environmental impact should cost more, much like the Starbucks "latte levy" which adds a small charge to your coffee for a takeaway cup.

"The more we can start to measure this stuff," says Ed Dowding, "the more we can shift the incentives and the reward mechanisms to get more good behavior."



COMMUNICATING CHANGE

Back in the 1980s, environmentalist Jay Westerveld coined the term “greenwashing” to describe the trend for businesses to present glossy commercials vaunting their support for the environment, while concealing less than favorable practices behind the scenes.⁸ This misdirection, which continues to this day, is one which has deeply impacted consumer trust in green and ethical claims by brands.

JWT’s data finds that just 10% (rising to 16% for gen Z and millennials) of our global sample completely trust claims made by brands, while 60% trust them to a degree. Yet brands are caught in something of a dilemma, as 89% of our respondents say that companies should do more to communicate their efforts and 70% say that if brands don’t talk about their sustainability efforts, they assume they are not doing anything at all.

Greater transparency is one solution. Consumers are crying out for more information. To give just one example, in fashion 79% of shoppers want more information on sustainability and 77% want more detail on ethical credentials of the brands they buy from. Yet across the board, people don’t find it easy to get the information they need: eight out of 10 say they are struggling to distinguish which brands are sustainable and which are not. “Transparency, building up trust, is absolutely key, key, key,” says Christina Dean. “Because, at the end of the day, what do consumers have to go on?”

Kering, the parent company of high-end labels such as Gucci, Saint Laurent and Balenciaga, is mindful of the need to share more information with shoppers. In collaboration with Chinese messaging platform WeChat, which has more than 900 million

monthly active users, the luxury group launched a sustainability app named My EP&L in late 2017. Using EP&L (Environmental Profit & Loss) methodology, it enables customers, as well as designers and production managers, to calculate their environmental impact scores based on the production of goods, from raw material extraction to the sale.

But in the post-greenwash age, it’s also about honesty and acknowledging that maybe you don’t have all the answers just yet. Sustainability is not an overnight transformation, it’s a

journey. JWT Lisbon’s CEO Susana de Carvalho, a veteran of many sustainability projects, explains brands can start small: “We should aim high, but take the small steps. You don’t have to change everything. Think differently, test small things and move on from there.” Whatever the steps, they must be authentic, and they must be part of a consistent and coherent strategy. 88% of people say actions on sustainability mean nothing unless they are integrated throughout the organization.

Brands in sectors which have been historically associated with

environmental and ethical issues face a steeper challenge: 90% say they are skeptical of businesses that talk about sustainability while participating in industries that harm the environment. Yet Ed Dowding believes it’s important they face the challenge head on, acknowledging past missteps if necessary, and then clearly communicating the journey they are on. “I’ve often thought the truth and reconciliation model is a really good one,” he says. “It’s very hard to progress forward if no one confesses to the sins that they’ve committed.”



Saitex, the “world’s cleanest denim factory”, Everlane, Vietnam



SUS TAIN ABILITY

While the shift towards sustainability is clear, there are still many complexities and nuances that brands must navigate. As the intention-behavior gap suggests, consumer behavior in this space is sometimes paradoxical.

For instance, there may also be subconscious associations in play. A study published in the *Journal of Advertising Research* identified a consumer tendency to assume a zero-sum relationship between performance and environmental credentials.⁹

In an experiment, choice share and efficacy perceptions of a mainstream green offering declined versus a niche

green brand, when it visually cued environmental claims. In this case, the authors concluded that, for mainstream brands, it was better to introduce green variants with minimal fanfare.

In our study, while most express a preference for products with sustainability claims, at the same time almost half (48%) say they think recycled products aren't really as good as brand new ones and 58% say they think sustainable products are a bit less luxurious and a bit more "hippy." These findings suggest that where performance is key, green variants may need to compete on efficacy too.

PARADOXES

Much may depend on the category, competitive set and context when purchasing. Consumers are also juggling a multitude of choice criteria from price, performance, convenience and more. There are also multiple dimensions to sustainability—environmental, ethical, social but also economic. The interplay of these factors is intricate and difficult to unpick. Brands will require deep understanding of their consumers to pinpoint what motivates them across the customer experience.



THE REGENERATIVE BUSINESS



Corona and Parley for the Oceans have formed a global partnership to address marine plastic pollution and commit to protect 100 islands by 2020.



GOOD BUSINESS

Good business is an opportunity for brands to have a positive environmental and social impact, and drive profit in the process.



To build thriving economies within the boundaries and limits of planetary resources requires a collaborative effort from governments, individuals, NGOs and businesses alike. But the scale, reach and impact of businesses, combined with their financial clout and political influence, means their contribution will be decisive.

Short-term business cycles and pressures to drive shareholder value at all costs don't make it easy for companies to invest in tackling sustainability issues. Switching to sustainable resources, materials or processes may cost more, so it may not even make good financial sense in the short-term. Now, business leaders are showing that over the long-term, it's worth it.

What might once have been about "doing the right thing and aspirational hippie dreams" is now "a huge business opportunity," according

to Simon Caspersen, cofounder and communications director of innovation lab Space10. Building sustainable goals into business strategy is not just the right thing to do, it's an opportunity to innovate, to drive efficiency and productivity, to drive profit, to build loyal and lasting relationships with customers. Sustainability is now a business imperative.

Good business is now good business. Buying consciously is now a mainstream mindset. 87% of our panel would prefer to buy from brands which demonstrate a commitment to sustainability, while more than two thirds (70%) claim to be willing to pay more for products and services with these credentials. Through innovation, companies can help consumers turn their aspirations into habits, making the sustainable choice the obvious choice. As Caspersen says, "the solutions we come up with should be so good that it should just be an inherent thing."



As well as the products they sell, businesses can also profit by rethinking their processes and practices through the lens of sustainability. As brand purpose expert Afdhel Aziz explains: "If you make your offices energy efficient, you're going to save money. If you make ethical, sustainable products, you're not going to be tripped up with lawsuits. You're not going to have factory scandals. If you have equal pay for equal work, you're going to get the best talent. If you have diversity policies, you'll have the best talent, which will help your performance. If you look at every single element that is laddered up to doing good, they're all

profitable. They're all ways of making the company more money than the old way of doing things. That's a mindset shift that the smartest companies are waking up to." Belgian cleaning products company Ecover has been focused on sustainability for almost 40 years. From being a small voice on the sidelines, it now finds itself part of a growing movement. "There's a commercial momentum around companies that are on a real, clear mission and a positive mission," says Tom Domen, global head of long-term innovation at Ecover & Method—People Against Dirty.



Ecover, Belgium



UPS Modular, Light-Weight EVs with Zero Tailpipe Emissions, USA

Unilever is one such business on a mission and has translated a sustainable model into success.

In 2017, the company announced that its portfolio of 26 sustainable brands, including famous names such as Dove, Lipton, Knorr and Vaseline, grew 46% faster than the rest of the business and delivered 70% of its turnover growth. Since the launch of Unilever's Sustainable Living Plan in 2010, the business has delivered a 290% total

shareholder return, proving the potential for sustainable business models to deliver growth over the long term.¹⁰

On that note, institutional investors are starting to demand action on sustainability too. In his 2017 letter to CEOs, Larry Fink, chair of global investment giant BlackRock, urged them to ensure that a business benefits all of its stakeholders, asserting that "to prosper, a company must not only deliver financial performance, but

also show how it makes a positive contribution to society."

Stakeholder mindsets are shifting and sustainability is becoming an expectation. 92% of people say that sustainable business practices should be the standard. Failing to adapt could lead to irrelevance. So, what does good business look like? We spoke to more than 20 experts in the field. Here are some of the things we learned.



PRINCIPLES OF GOOD BUSINESS



Corona and Parley for the Oceans have formed a global partnership to address marine plastic pollution and commit to protect 100 islands by 2020.

1 BE REGENERATIVE

Sustainability is a vague, ill-used term which has allowed the unscrupulous to lay claim to it. A growing consensus suggests businesses should aim beyond sustainability, towards regeneration. Instead of merely maintaining, companies should be looking to restore and improve, leaving the planet and population better off for their existence, not just less harmed. Forward-thinking brands are working with nature and for society, not against. And they are seeking to connect with communities and improve lives.

Kate Raworth, University of Oxford professor and author of *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, which calls for a new economic model for the 21st century, describes this approach as being generative—one that actively aims for positive impact: “The very way we do business sequesters carbon, cleans the air, pays living wages, and builds community—we’re here to make good things happen for society and for the living world.”¹¹



The Spheres, Amazon, Seattle, USA

2 START on the INSIDE

Before taking any products to market or communicating to stakeholders, businesses need to clean house and start managing their own impact—environmental, ethical and economic. The level of scrutiny which brands are now subjected to means that any discrepancies in thought and actions will be hauled into the spotlight.

“The very first thing that consumers will do is turn around and go, ‘Well, what about you? What have you done? Before you involve yourselves in our lives, what have you done?’” says Afdhel Aziz. “You don’t have to be perfect, but you actually have to show that you’re moving in the right direction before you start going external.”



3 TAKE a SYSTEMIC APPROACH

Complex social and environmental challenges are too intricate and daunting for one company to solve alone. To truly make a difference, companies need to adopt a systemic approach to sustainability. Issues such as marine pollution, toxic manufacturing processes or exploitative working practices won't be tackled until multiple organizations, entities and stakeholders make changes together.

"The problems that we are dealing with are systemic in nature," says Daniel Ford, sustainability strategist at Forum for the Future in the United Kingdom. "If you are serious about sustainability, then you need to be working with others in the system."

Simon Caspersen agrees: "What we need to look at is the entire system. It's not the product that is the problem. It's the entire model we have. The most exciting creative challenge we face as humans today is how we transform our linear, consumption-oriented economic system into a circular, self-sustaining society, which, of course, requires new business models, new ways of sourcing materials and energy, producing and moving goods, as well as designing products that can re-enter the system safely—just like in nature."



Package Free Shop, New York, USA

4 THINK SYMBIOTICALLY

"How do we start to build the kinds of symbiotic ventures that recognize when there's an opportunity to leverage what already exists?" asks Natsai Audrey Chieza, biodesigner and founder of Faber Futures in London.

Companies often struggle to achieve efficiency in their use of materials and other resources, and collaborating with the right partners can unlock creative ways of turning waste into a new resource while also unlocking new business opportunities.

At Kalundborg in Denmark, nine businesses share a circular approach to production, using each other's waste products as a resource, while in California, breweries are sending their spent grain to be repurposed into feed for dairy herds.

5 TAKE INSPIRATION FROM NATURE

Designers and innovators are turning to nature, observing its systems and taking inspiration from its organisms to find ways to solve human problems.

Cleaning products company Ecover turned to biomimicry to identify a suitable structure to reinforce its new Ocean Plastic bottles that are recycled from marine pollution, while biodesign lab Faber Futures harnesses living bacteria to create graphic textile prints.

"When you talk about sustainability," says Danielle Trofe, principal and head designer of her eponymous New York studio, "nature is the only model, because it's the only thing that has sustained life for billions of years."



Tesla Powerpack, Samoa



6 START SMALL - IT'S a JOURNEY

"We're just trying to help people chip away at understanding sustainability and what it practically means to them," says Dan Botterill, CEO of Ditto Sustainability, a UK business using artificial intelligence for education and awareness. "Saying 'I'm going to be sustainable' is impossible to achieve off the bat."

Sustainability is a journey and even little changes will add up over time. The key is to start small, track and measure your efforts and build the business case for doing them. "Take the small steps and move from them," advises Susana de Carvalho, CEO of JWT Lisbon. "Make better products, better services. Measure, prove, and it will spread before you notice."



Ofo, China



7 THINK LONG TERM

One of the biggest challenges associated with implementing sustainability goals is that the business may not see a payback or demonstrate results for a long time. Jay Gould, CEO of the modular carpets business Interface (profiled below) says that planning for sustainability "needs a 20 or 30-year time horizon," so taking the long-term view is essential.¹² For organizations where C-suite longevity is considerably less than this, projects will need committed champions throughout the organization to see them through.

There will be tensions between balancing short-term investor expectations and investing in sustainability that some businesses may find challenging to navigate. Yet companies such as Interface and Unilever are demonstrating that sustainable business pays over the long term.

8 BRING the WHOLE BUSINESS A LONG

Working for a business that balances profit with purpose is a common aspiration these days. 87% of our respondents tell us they would rather work for a company with good sustainability policies and 71% say they would not work for a company that does not have a good record on sustainability.

Engaging employees and encouraging them to participate and contribute towards sustainability goals will help attract, motivate and retain talent. As younger employees progress to more senior roles, they are becoming the change-makers, as Ed Dowding explains: "Younger people who've grown up very, very aware of the importance of the situation are now in a position to shape and influence decisions within those businesses."



Case Study: Interface

“In the future, people like me will go to jail.” The late Ray Anderson, then CEO of US company Interface, the world’s largest carpet tile manufacturer, addressed these words to an awkward audience of business leaders at the US Embassy in London in 1999.¹³

While reading Paul Hawken’s book *The Ecology of Commerce*, Anderson had been struck by the revelation that his petroleum-intensive carpet business was a “plunderer of the earth,” depleting the planet’s resources. Committed to making a change, he announced Mission Zero in 1996, a bid to reinvent the business, promising to “grow without harming the planet” and eliminating waste, pollution and fossil fuels.

The mission has been a success, judging by its 2017 EcoMetrics data.¹⁴ Among the highlights: the carbon footprint of the average Interface carpet tile is down by an estimated 66% since 1996; greenhouse gas emissions at manufacturing facilities have been reduced by 96%, while energy efficiency is up 43%. The

company’s ReEntry™ program to divert carpet from landfill has now recycled 360 million pounds of materials. In the 2013 reissue of his influential book, Hawken notes that Interface made \$433 million in direct savings on the material side because of the Mission Zero program.¹⁵

In 2016, the business updated its pledge, announcing its Climate Take Back™ mission, which shifts the intent behind the strategy to a regenerative one, from doing no harm to actively

doing good by creating carbon-negative business models and products.

The company’s entire carpet range is now carbon neutral, an achievement made possible by an extensive carbon offsetting program. Last year Interface unveiled its Proof Positive carpet tile prototype, which can store carbon for a generation, along with CircuitBac Green, a carbon-negative backing material. Other initiatives include Net-Works™, which sources material for carpet tiles from discarded fishing nets.



**“IN the FUTURE
PEOPLE LIKE ME
WILL GO TO JAIL.”**

- Ray Anderson,
former CEO, Interface¹³

The company is also working with the consultancy Biomimicry 3.8 on the Factory as a Forest project, which aims to redesign manufacturing facilities so that they restore rather than damage their environment. Factories are measured on a whole new suite of metrics relating to how much carbon is sequestered, how much water is

filtered, how much biodiversity is hosted and so on.

At the Sustainable Brands 2018 conference, chief sustainability officer Erin Meezan explained: “This is about taking that next step towards positive and acting more like an ecosystem.”¹⁶

SUSTAINABLE CAPITALISM R I S I N G

Kraft Heinz's shock \$143 billion bid for Unilever in February 2017 was pitched by many as a clash of cultures. Kraft Heinz is backed by 3G Capital, a Brazilian private equity firm with a reputation for cost cutting and a clear eye for efficiency. Unilever practices a much more conscious form of capitalism, one where the needs of the many outweigh those of the few, to paraphrase its CEO Paul Polman.

Polman, who took the helm at the Anglo-Dutch consumer goods company in 2010, believes the reason "business should be around is to serve society," and has steered the business away from a short-term focus on delivering returns to shareholders, putting sustainability at the heart of strategy.¹⁷ Unilever's long-term goal is to decouple growth from environmental impact, while increasing positive social

impact. Thus far, results are positive, with the company's sustainable brand portfolio growing faster than the rest of the business, delivering 70% of turnover growth in 2017.

Unilever is not the only big company shifting away from shareholder primacy and short-term goals. Food and drink giant Danone is the first multinational company to pursue certification as a B Corporation, and its goal is to create value for all its stakeholders, benefiting everyone from consumers to employees, suppliers and owners.

Voices calling for a more sustainable form of capitalism have multiplied too. In her 2017 book, *Doughnut Economics*, Kate Raworth argues for an alternative form of economics, one which meets "the needs of all within the means of the planet" and

one where growth cannot be the only measure of success. L Hunter Lovins, a champion of sustainable development, will shortly publish *A Finer Future: Creating an Economy in Service to Life*, which calls for "a new narrative of a world that works for everyone" and offers a "blueprint for a regenerative economy."

Nevertheless, the appetite for quick financial returns means that cost-cutting models that prioritize short-term results are still very much part of the everyday. Can both models coexist, or will there be a victor in the battle between sustainability and efficiency?

The Kraft Heinz bid offers some interesting pointers. While it was ultimately unsuccessful, Polman admits that Unilever subsequently had to make some compromises, wooing



Naw Esther, one of The Social Outfit's sewing technicians, Australia

its shareholders with a share buyback. That said, the incident quickly revealed support for the Unilever model. According to the *Financial Times*, a YouGov petition against the bid gathered more than 100,000 signatures in less than 48 hours and Bono, the lead singer of rock band U2, was moved to offer to write a song.

Polman sees this as a battle between value transfer and value creation, telling *Harvard Business Review* that "it's the difference between working for a few billionaires or for the billions of people who need us. I still believe and sincerely hope that over the longer term the billions will prevail."

WHY IT MATTERS

The tension between short-term results and long-term sustainable growth is a key challenge for businesses, yet there are signs of growing support for models that distribute benefits more widely. In our study, nine out of 10 respondents tell us they believe companies have a responsibility to take care of the planet and its population.



BETTER COMMUNITIES

People now expect companies and brands to have both a positive impact on communities and behave in an ethical manner, ensuring respect for human rights. Companies must acknowledge their role in a wider system and ensure that their actions foster communities that can thrive.

The intricacy of modern supply chains can make it difficult for companies to keep on top of their impact, with industries such as fashion, in particular, frequently called out for poor treatment of factory workers. Oxfam Australia's "What She Makes" campaign reports that garment workers around the world are too often paid "poverty wages," as low as 39 Australian cents per hour in Bangladesh, 62 Australian cents in Indonesia and 64 Australian cents per hour in Vietnam.¹⁸

Fashion4Freedom is tackling poverty in Vietnam by creating a hyper-sustainable apparel supply chain in collaboration with local artisans. Merging ethical production with traditional Vietnamese artisanal craft, the business connects creators to sustainable manufacturers. Founder and managing director LanVy Nguyen's aim is to rethink traditional factory-style production and to "build a better, more cohesive and thoughtful alternative in the supply chain." Artisans are provided with their

own equipment, so they can choose to become entrepreneurs in their own right. "If we really put our energy into helping traditional makers have a path towards being small businesses, you can create a virtual supply chain, where those dollars in fashion actually help the community," she says.

CEO Sasibai Kimis founded her Malaysian social enterprise Earth Heir after seeing first-hand the impact on local artisans who could no longer make a good living from their trade.

The brand is an ethical intermediary that seeks to empower local artisans and create fair access to markets, ultimately enabling entrepreneurship. It is focused on fine Malaysian craftsmanship, rather than kitsch trinkets, and is deliberately pitched at the affordable luxury price point to enable artisans to have the best chance of making a living. "The dignity to choose how to spend our money and live our lives is the same dignity that they should have," says Kimis.





The brand is a pilot partner of the UNHCR’s Made51 project, which strikes a balance between sustainability and commercial success. While every piece in Earth Heir’s collections prides itself on the concept of Malaysian-specific craftsmanship, the Made51 collection includes work which also reflects the traditions of refugee artisans from Myanmar, Syria and Afghanistan.

There’s also much that can be achieved by companies building positive relationships with the communities on their doorstep, particularly in support of underprivileged or marginalized groups. Sydney-based social enterprise The Social Outfit has a mission of empowerment and inclusion, helping women from refugee and new migrant communities get started in the fashion

industry, and providing them with invaluable skills, experience and social connections. Australian designer Bianca Spender collaborated with The Social Outfit to design a capsule collection for department store David Jones in support of Fashion Revolution Week 2018, with proceeds from the collection reinvested in the project.

The Detroit Food Academy (DFA) is a great example of how closer relationships between businesses and people can help revive disconnected communities. In a city where over 30% of adolescents are not in school or employment, the non-profit seeks to inspire young, underprivileged Detroiters between the ages of 13-24 by connecting them with local chefs and business owners in the

food industry.¹⁹ Through cook-ups, workshops and conversations with business mentors, students gain the confidence to build a career and develop leadership skills while also forging stronger ties to the city. Three graduates have already successfully launched their own product lines, which are stocked in grocery stores across the American Midwest.

Jen Rusciano, cofounder and executive director of the DFA, says that, through the project, “our young people now have a seat at the table. We’re seeing young people showing up all over the city and being involved in businesses and city government, and starting their own projects.”



WHY IT MATTERS

Brands have a responsibility to foster thriving communities wherever they do business—directly or indirectly. Addressing inequality drives prosperity, building stronger economies and consumer bases.

93%

SAY IT IS IMPORTANT THAT BUSINESSES HAVE A POSITIVE IMPACT ON LOCAL COMMUNITIES



"THE REAL CAPITAL
IS *HUMAN* CAPITAL.
IT IS EACH OTHER.
WE ARE THE CAPITAL
of THIS EARTH."



Detroit Food Academy, USA



RE STORING NATURE

Nature is resilient, with an astonishing capacity to adapt and regenerate—but that’s not something we should cross our fingers and hope for. Forward-thinking brands are helping to proactively support the regeneration of habitats and species.

Scientists report that we have already entered the sixth mass extinction of wildlife in earth’s history, resulting in dwindling populations and species collapse.²⁰ The reason? Humans. We are destroying habitats, overhunting and overfishing, polluting the natural environment and driving climate change—all contributing to the loss of biodiversity.

“Nature needs champions more than ever,” according to Nature Needs Half, an international community of thought leaders and scientists that is

committed to protecting 50% of life on earth by 2050.²¹ Stuart Dainton, head of innovation at the Woodland Trust in the United Kingdom, agrees. “We really have got to start to take ownership,” he says. “If we don’t want to see the biodiversity loss that we’ve had over the last 40 or 50 years, we really are going to have to have a completely different approach to the way that we change things for the future.”

One way to address biodiversity loss is through the development of green

spaces which can foster new habitats. The Wild West End is an initiative in London which brings together some of the district’s biggest property owners. The project, supported by a coalition of partners including the Crown Estate and Arup, is focusing on connecting London’s green spaces through infrastructure such as green roofs, living walls, planters, street trees, flower boxes and pop-up spaces, to benefit wildlife and attract birds, bees and bats back to the UK capital.



Meanwhile, energy-efficiency solutions company Anesco is collaborating with Europe’s largest nature conservation charity, the RSPB, to enhance the biodiversity at solar farms. The project was designed to create natural habitats for some of the United Kingdom’s most at-risk species and started with the

wildlife groups deemed to be under the most serious threat. The project is already showing evidence of success, with a variety of grasses, flowers, pollinators and birds spotted at the Warren Farm site, including a sighting of a red kite, once almost extinct in the United Kingdom.²²

Also turning its attention skyward is Romanian energy company Enel, which has collaborated with the Romanian Ornithological Society (SOR) on an app to track and protect nesting white storks at risk from electric shock. The Uite Barza—Here’s the Stork—app, which won three awards at the Cannes Lions, allows users to notify Enel of the GPS location of stork nests on electricity poles so the company can take measures to protect the birds.

Other brands are helping to restore marine habitats. Volvo recently partnered with the Sydney Institute of Marine Science, Reef Design Lab and WhiteGrey, its agency, to create a living seawall. The project involved putting tiles reinforced with recycled plastic onto a seawall in Sydney harbor, which was designed to mimic the root structure of mangrove trees.

This structure facilitates and encourages the growth and colonization of organisms, creating sustainable marine habitats.

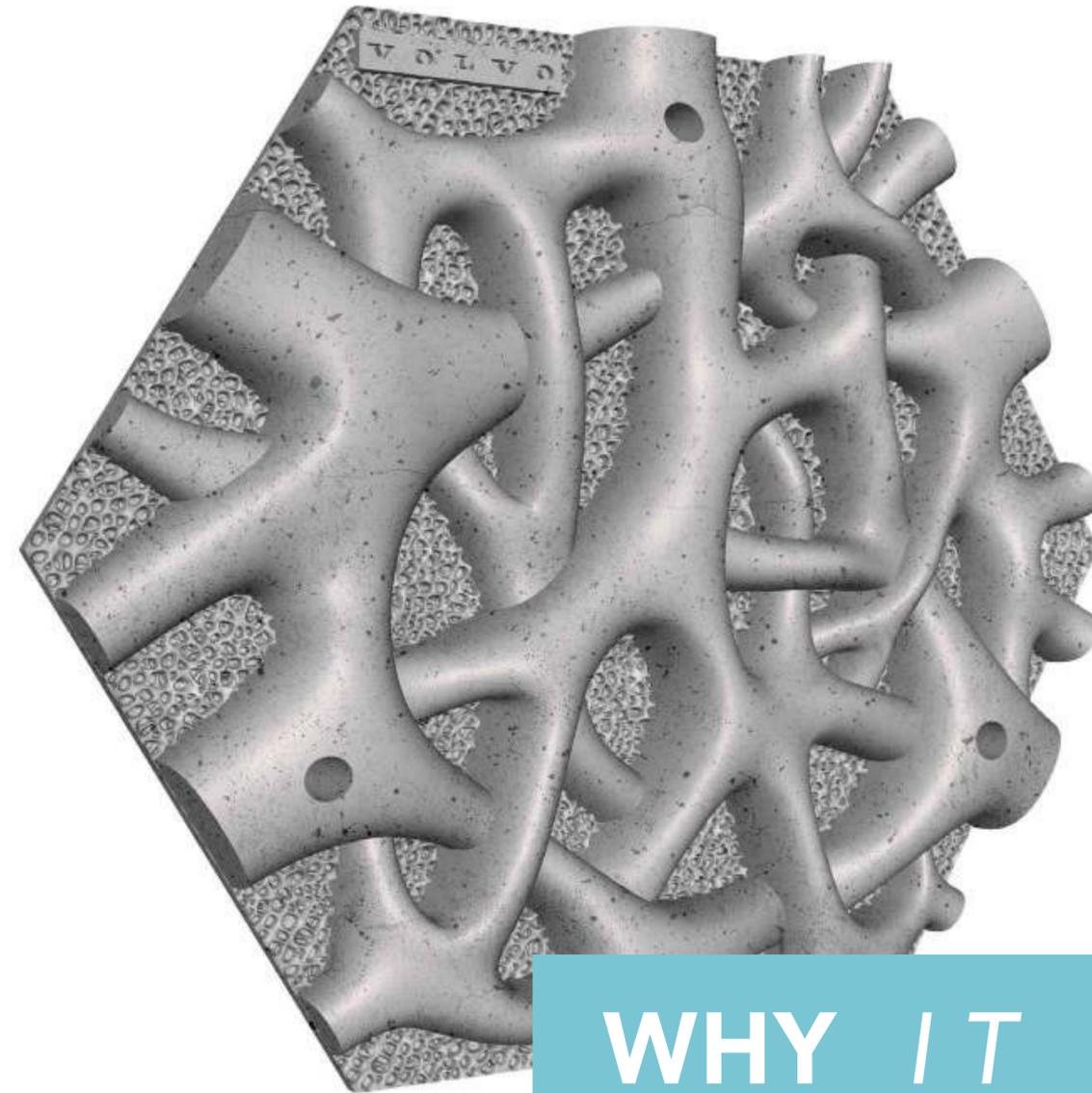
Perhaps the most radical efforts to protect and restore nature are those that wield the power of the law.

Outdoor retailer Patagonia announced that it would sue President Trump for his decision to rescind 85% of Bears Ears National Monument and nearly half of the Grand Staircase-Escalante National Monument. The rescindment threatens to put millions of acres of land at risk of destruction, affecting both the natural environment and the lives of local Native American tribes, who are filing the lawsuit alongside Patagonia. Rose Marcario, CEO of Patagonia, defiantly told *Time* magazine, “We won’t let President

Trump tear down our heritage and sell it to the highest bidder. We’re proud to keep fighting with everything we’ve got.”²³

In the United Kingdom, the Woodland Trust has successfully won a decades-long campaign to give ancient woodland the same protection rights as built heritage. England’s National Planning Policy Framework now protects irreplaceable trees and habitats from unnecessary development.

And in Ecuador, Nature Represented, a network of lawyers and legal representatives, is working to grant constitutional rights to nature. So far over 200,000 pro bono hours have been donated, helping 533 elements at risk from commercial interests, including birds, mountains, rivers and forests.²⁴



WHY IT MATTERS

There are innumerable opportunities for brands to help drive the restoration of nature, recreating ecosystems where biodiversity can thrive while ensuring that the business has a net positive impact on nature.



ENERGY EFFICIENCY

Companies are increasingly seeking to improve their energy efficiency, not only to meet sustainability goals but also because it makes good business sense.



Khi Solar, One Solar Tower Plant, South Africa

Energy needs throughout the world are rising fast and are forecasted to increase by 30% by 2040.²⁵ According to the International Energy Agency, renewables alone will not meet this demand, which is why some countries—such as China, with its New Policies Scenario—are already working on increasing their usage efficiencies.

Now interest from corporates is growing too, as business leaders face a triple imperative to manage energy costs and energy security, and meet environmental targets. Dan Botterill says that once businesses understand the impact of resource efficiency on the bottom line, getting buy-in is easier. As a result, he says, “we are

starting to see a lot of businesses and business leaders coming out and saying, ‘This is good for business. It’s not bad to be more resource efficient.’”

UK-based Sustainable Development Capital LLP (SDCL) invests in energy-efficiency projects and has also seen an upsurge of interest in recent months. A typical investment might involve retrofitting or overhauling buildings’ infrastructures. The appeal for clients is that they can meet their green targets while realizing improvements in infrastructure and financial performance. Even better, there are no upfront costs, as the projects are paid for over time from the savings accrued.



Dan Botterill, CEO,
Ditto Sustainability

**“WE ARE STARTING TO SEE
A LOT of BUSINESSES
and BUSINESS LEADERS COMING
OUT AND SAYING, ‘THIS IS
GOOD FOR BUSINESS...”**



WHY IT MATTERS

Energy efficiency projects can work alongside the switch to renewables, helping towards environmental targets while delivering cost savings and even productivity improvements.

SDCL CEO Jonathan Maxwell firmly believes that commercial upside is fundamental. “If it’s not commercial,” he says, “it’s not sustainable.” For Maxwell, energy efficiency is moving the sustainability conversation along, reducing the overall demand for energy, rather than just shifting it to renewables. “Sustainability, for us, isn’t about sacrifice or returns or lifestyle. It’s about doing a lot more with less.”

Carlsberg is one business exploring energy efficiency in support of its mission to achieve carbon-neutral status at its breweries by 2030. The

brewer currently sources around 45% of its electricity onsite from renewable sources such as solar panels and extracted biogas from the brewing process’s waste water.²⁶ Decentralized solutions like these avoid the losses which occur when energy travels from a centralized power plant, which can be as high as 65%.²⁷

Proving the business case for energy efficiency, Shahi Exports, a garment manufacturing company in India with more than 50 factories, switched out its fluorescent lighting for LEDs and not only decreased its energy costs

but also increased productivity on the factory floor. A study conducted by Anant Nyshadham, a professor at Boston College, Achyuta Adhvaryu of the University of Michigan, and Namrata Kala of MIT Sloan School of Management, found that productivity decreases as temperatures on the factory floors increase, as overheated workers slow down and take more breaks. When Shahi Exports switched out the lightbulbs, however, the temperature in the factories was lowered by 4 degrees Fahrenheit and increases in productivity meant the project paid for itself in just eight months.²⁸

In the future, Maxwell believes that cooling solutions will rise up the energy efficiency agenda. Air conditioning is a significant contributor to greenhouse gas emissions, but startups are already at work on more sustainable solutions. SkyCool Systems, founded by researchers at Stanford, has devised an innovative optical material for roof panels that can cool water flowing beneath to a temperature lower than the surrounding air, all without using electricity. The system, which can be retrofitted to existing buildings, could cut the cooling energy requirement by up to 70% in ideal conditions.



RE BRANDING SUSTAINABILITY

Sustainability is shaking off its former hippy associations as a wave of brands deliver a revamp for the 21st century. It might still be the responsible choice, but now sustainability comes with a side order of relevance.

What does sustainability mean to you? JWT's research finds that, in the United States, United Kingdom and Australia, the term most commonly associated with it is "responsible." In China, it stands for "quality." It's solid, but hardly emotionally engaging.

To address many of the sustainability challenges facing us, we need collective action on a mass scale. We need sustainable behavior to go mainstream. While intentions are good, actions don't necessarily follow. Incentives can make a big difference. Brands can make it easier for people to buy into sustainable choices by making them covetable too. That might



Adidas UltraBOOST X Parley

mean adding a layer of design and aesthetics. It might mean delivering some reassurance on efficacy and performance. It could be about saving money. Or it could be about the emotional returns that consumers associate with doing the right thing. Either way, it's about spelling out the benefits and making the choice so compelling, so worthwhile, it's a no brainer.

It's a challenge that the WWF and the UN want marketers to tackle. In 2018 they joined Wild Studios to launch Project Extraordinary, a contest that enlisted creatives to develop video concepts and storyboards that can accelerate a shift in perceptions, making sustainability into something consumers demand. At the time of writing, winners had not been

announced, but some brands are already succeeding in selling sustainability at scale.

Take Adidas and its collaboration with Parley for the Oceans. The 2015 collaboration on a pair of trainers made from 11 recycled plastic bottles translated into sales of a million pairs in 2017. A further five million will go on the market this year, at a price point of over \$200 per pair. People aren't just snapping them up because they are good for the planet. As Aziz tells us, "If those shoes looked like crap, no one would buy them." It's a strategy he calls "Lead with the Cool" and it's this combination of good and cool that is compelling for younger audiences. In fact, our research finds that generation Z are by far the most likely to associate sustainability with cool.



ONLY
17%
ASSOCIATE
THE WORD
SUSTAINABILITY
WITH COOL

Speaking to this generation is new urban streetwear brand CHNGE, which was created to help consumers make a positive impact with every purchase. "We want to be sleek and sophisticated, but we also want to be edgy and a bit loud," says founder Jacob Castaldi. "We want to make sustainability cool for the youth, while also creating timeless pieces anyone can wear. Stylistically we want to build a bridge between the Palaces and Everlanes of the world."²⁹ As well as carving out a space for sustainable streetwear, the brand champions inclusivity by using its platform to talk about acne, albinism, disability and sexuality through its use of models.

Ovo Energy's "Power Your Life Differently" launch campaign, created by Uncommon, seeks to engage emotions in a powerful call to arms against climate change denial.

Featuring the furious Get Mad speech from the 1979 film *Network* and soundtracked by Slayer, the film dispenses with any notions of tree-hugging. The spot was backed by a host of outdoor, digital and social activations, showing climate deniers facing off against renewable energy sources. In one image a figure resembling Donald Trump appears to face off against the sun.



WHY IT MATTERS

Brands can help sell sustainability to consumers by articulating its benefits and building in reassurance where needed, taking it from hippy and hemp to innovative, modern, and desirable.

Ovo Energy, "Power your Life Differently" Campaign, Uncommon, UK



AMP LIFYING the MESSAGE

Brands have a role to play in amplifying sustainability messages, thanks to their unique scale, reach and resources, and their power as communicators.

“Our ambition was to connect people to life beneath the waves. Once you meet those characters and come to understand their world then, of course, you begin to care,” says James Honeyborne, executive producer of *Blue Planet II*, of the impact the documentary series had on its viewers.

The Blue Planet effect shows that once people can connect with an issue, a grassroots demand for change can gather momentum. The documentary drove an outpouring of concern over marine pollution on social media and prompted many to call for a ban on single-use plastics. Our data echoes this: for instance, nine out of 10

people say they would be more likely to adopt sustainable behaviors if they could see the impact of climate change themselves.

Brands have an immediate opportunity to leverage their unique scale and reach to amplify sustainability messages, driving momentum towards bigger change. The UN’s Sustainable Development Goals provide the perfect starting point to identify missions aligned with brand goals as well as initiatives to support (see figure 5 on p. 15). Sustainability campaigns have the potential to drive goodwill for brands too. 85% say they think it’s good for brands to use their

money and power to raise awareness of important issues.

Tiger Beer, part of the Heineken family, has a social mission to support initiatives driving positive change in communities. As part of that mission, the brand has partnered with Graviky Labs, an Indian startup that captures vehicle emissions and turns them into ink. The ink was supplied to artists who created unique artworks in city streets, from Singapore to Berlin, New York and London, making the problem of air pollution tangible. To date, Tiger Beer says almost 21 million people have engaged with the campaign.³⁰



Corona Beer, an Anheuser-Busch InBev brand, has joined Parley for the Oceans to raise awareness of marine plastic pollution, using beach litter to create the Wave of Waste billboard sculpture at London's Old Street. The project will now tour Santiago, Lima, Melbourne, Bogota, and Santo Domingo, creating new sculptures in each location. The initiative has an educational component too. Using the hashtag #100islandsprotected, the campaign supports Corona and Parley's long-term project to protect shorelines by increasing knowledge around responsible use of plastic in 100 island communities by 2020. 82% of our respondents tell us they want more practical information from brands

on sustainable living, demonstrating the appetite for campaigns like this. Also tackling marine pollution is British youth publisher LadBible. The brand wants to shame world leaders into action on trash patches in our oceans, one of which covers a geographical area the size of France. Partnering with the Plastic Oceans Foundation, it submitted an application to the UN on World Ocean Day 2017 to declare one of these trash patches a new country, enlisting their supporters to register as "citizens" and even choosing Dame Judi Dench as a monarch, to meet eligibility criteria. The population of the Trash Isles, which boasts its own currency and passports, is now more

than 200,000—close to that of Iceland. The campaign, which cleverly adopts a relatable approach to engage its millennial audience, has reached half a billion people.³¹ By hitching their reach and scale to the sustainability conversation, brands can play a vital role in driving positive change, particularly for issues that may not enjoy top-of-mind awareness. Our research finds that sustainability goals associated with achieving gender equality and reducing economic inequality between countries are typically considered less important by consumers and would benefit from a brand-supported boost.

WHY IT MATTERS

Brands can leverage their enviable platforms to amplify and scale sustainability issues. This approach is a win-win—good for the planet and good for brands too.





THE SUSTAINABLE HOME

Drawing on the latest technological and design innovations, we take a glimpse into the households of the future and consider concepts that could transform our understanding of the word “home” altogether.

How will we power the home of the future? Forget relying on centralized, expensive power from big energy companies—you can now generate and store your own energy. Although not particularly new, solar panels will become more widespread as consumers become more energy efficient. In the United Kingdom alone, experts predict that over a third of all households will be using solar power by 2020.³²

Tesla has solved the issue of storing solar energy within the home by creating the Powerwall 2, a battery which stores excess energy and makes it available on demand. The company recently announced plans to install solar displays and Powerwalls on 50,000 homes in South Australia, which would create the biggest virtual power plant in the world. Tesla installed the first 100 Powerwalls this summer and claimed to have cut one

homeowner’s quarterly bill by 325 Australian dollars.³³

In the future, when we want to update our interiors, a new chair or table will be a few clicks away. We’ll simply download designs and 3D print new items of furniture or accessories. Debuting at the 2018 Milan Design Week, Spanish brand Nagami showed four 3D-printed chairs from designers Zaha Hadid Architects, Daniel Widrig and Ross Lovegrove.



The Urban Cabins Mini Living, Built by All, Mini and Studiomama



Alternatively, we might also grow our furnishings. The Mush-Lume table lamp by Danielle Trofe Design is grown using mushroom mycelium and agricultural by-products. The mycelium binds with the by-products in custom molds to create a fully biodegradable lamp shade. For Trofe, this is about encouraging people to be more thoughtful about what we bring into our homes. "I think we can form deeper connections with the things in our lives that share our living spaces," she says.

Home accessories will do more than just look good, offering useful functionality, such as air purification. Former artist in residence at the Victoria and Albert Museum Julian Melchiorri has created Exhale, a large bionic chandelier made from green microalgae, which can absorb carbon dioxide from the air and release oxygen. Houseplants, traditionally considered air purifiers, may also perform lighting duties: scientists at MIT have embedded specialized nanoparticles into the leaves of watercress, creating plants that glow.

In the years to come we may need to rethink the way we live too. As urban

areas become more densely populated, space will be at a premium. Mini Living, the research arm of car manufacturer Mini, has designed five living spaces with a footprint of a mere 15 square meters. The Urban Cabins, located in Los Angeles, Beijing, Tokyo, New York and London, demonstrate how a small space can be used efficiently. Co-living will grow in popularity, making the most efficient use of space and solving issues around affordable housing. The Collective, a UK co-living concept in West London, is already at 100% occupancy, with two additional sites planned in Stratford and Canary Wharf at the end of 2019. There are already plans to open three sites in the United States and three in Germany.

In the future, your neighborhood and even your city may be on a path to self-sufficiency, as you become a producer, growing your own food and making everything you need locally. That's the vision of the Fab City Global Initiative, which is aiming to transition cities to a circular model by 2054. Amsterdam, Boston and Shenzhen are among the locations that have already committed to the concept. Designers are already exploring ways for cities to meet their own needs.



WHY IT MATTERS

Our homes have become an extension of ourselves and, as such, reflect our values. As consumers increasingly incorporate sustainability into their daily habits, so too will their homes and neighborhoods.



Exhale Bionic Chandelier, Julian Melchiorri, V&A London, UK



*“A lamp isn’t going to save the world, but it’s just this **idea** of, how can we start looking at all the different products in our house or not and questioning whether they can be made more sustainably?”*



Exhale Bionic Chandelier, Julian Melchiorri, V&A London, UK



Mush-Lume Cascade Chandy, Danielle Trofe Design, USA

- Danielle Trofe,
principal and head designer,
Danielle Trofe Design



NATURAL WELLBEING

The benefits of being in nature for our physical, emotional and mental wellbeing are increasingly being recognized. Can reconnecting with nature help us all live a healthier and happier life?

A growing body of scientific research suggests that time in nature can minimize stress and enhance a sense of emotional wellbeing. Researchers at King's College London found that seeing trees and the sky, as well as hearing birdsong, could result in higher levels of mental wellbeing, particularly among those susceptible to mental health issues.³⁴ Ironic then, that we are an indoor generation, spending 90% of our time cooped up.³⁵

Woodland and horticultural therapies are encouraging people to spend more time outdoors in a bid to combat stress and even physical illness. Japanese forest bathing, also known as shinrin-yoku, aims to let nature enter the body through all five senses and

often involves hiking, tasting natural ingredients such as root teas, and smelling plants. The practice has been scientifically proven to lower heart rate and blood pressure, and even boost immune system function.³⁶ By 2024, the Japanese government aims to have 100 designated Forest Therapy sites.

Other countries are following suit and implementing forest bathing as an alternative wellness therapy. In the United States, forest bathing is recommended by physicians as a method of selfcare to help people manage the stress of conditions such as chronic pain, depression, and cancer. The Northside Hospital Cancer Institute in Atlanta already offers the practice as part of its wellness services.

Horticultural therapy is also gaining traction as a positive, mindful activity, with research showing that gardening projects can help participants relax, develop nurturing skills and boost mindfulness.³⁷ Gardening can even increase serotonin and dopamine levels, making people feel happier.

With 87% of our respondents agreeing that sustainability promotes better wellbeing, it comes as no surprise that designers are looking to incorporate elements of it into urban design. As detailed in our "Well Economy" report, biophilic design is rapidly gaining popularity as organizations seek to make spaces that contribute to better wellness for users.³⁸

At its headquarters in Seattle, Amazon has built three biodomes complete with a botanical garden and 40,000 plants to help employees de-stress. China's e-commerce giant Alibaba has ensured that staff at its Hangzhou campus are less than one minute from an outdoor green space. At Sydney's One Central Park, the facades of the two residential towers are alive with indigenous and exotic plants. In 2020, work will begin on Liuzhou Forest City in China. Designed by Stefano Boeri Architetti, the urban development of residential and commercial spaces, plus schools and a hospital, will be carpeted by millions of plants and trees.

Engaging in physical activity in natural spaces has been shown to lift your mood, give you a healthy dose of vitamin D, and even help you to push yourself further.³⁹ Biofit, the world's first biophilic gym, recently launched with a pop-up in London, showcasing the benefits of working out in an environment with natural vegetation, colors, materials, scents and sounds. The gym concept used exercise equipment made from recycled materials and hosted workouts that avoided repetitive activity, focusing instead on promoting mindful movements.

For those who want to give something back to nature, plogging might be the answer. It involves picking up litter while jogging, combining exercising in nature with doing something worthwhile. "It all began as a movement here in Sweden, wanting to change our surroundings and habits," says Erik Ahlström, founder of plogging movement Plogga. "Now we are making a positive difference globally." Studies have shown that



beach cleans not only benefit the environment but also have a positive impact on wellbeing, proving both enjoyable and meaningful.⁴⁰

As awareness grows around the wellbeing benefits of spending time in nature, it's a concern that children are spending less time outside than ever—a 2016 study showed that one third of children spent less than 30 minutes outside each day.⁴¹ Projects are now emerging that seek to tackle the issue.

To combat "Nature Deficit Disorder" in children, the National Trust in the United Kingdom set up Project Wild Thing. As part of the campaign, children were asked to take the Wild Time pledge, swapping at least 30 minutes of screen time for "wild time" every day.

Aldi is similarly supporting a campaign to encourage children to venture outdoors, with its Connecting Children with Nature partnership with the RSPB. The project has so far seen

over 240,000 children participate in 90-minute nature-experience sessions, hosted by RSPB-trained staff and volunteers across more than 1,000 schools, amounting to over 360,000 hours spent outside.⁴² A survey found that 86% of pupils learned something new about nature and 85% of those who took part wanted to spend more time outdoors.

Building connections with nature from childhood has another benefit. It can help children value the natural environment so that when they grow up, they have a stake in safeguarding it, as Stuart Dainton, head of innovation at the Woodland Trust, explains: "We've got to be able to enable children to get those opportunities, so they can feel connected with nature—so that later on, when we need them to be thinking about how we value, support and keep our woods and trees, and the natural environment, they feel as though they've got a connection with it and want to value it, to keep it."



Karolinska Institutet Gym by biofit, Stockholm, Sweden

WHY IT MATTERS

There's strong evidence to show that nature is an important driver of our physical and mental wellbeing. Facilitate opportunities for children to build a lifelong relationship with nature and provide spaces where your customers and staff can engage with it. Closer relationships with nature are mutually beneficial.



VEGAN EVANGELISM

Veganism is fast gaining widespread appeal, transitioning from niche to mainstream. Are we on the brink of a vegan revolution?

Veganism is sweeping the world. In the United States alone, the numbers of people following diets free from animal products and by-products grew by 600% in the three years to 2014; 6% of Americans now claim to be vegan, equating to almost 15 million people.⁴³ In Brazil, schools in four cities are pledging to go vegan by 2019. The latest Euromonitor research finds that, alongside the UAE and Australia, China is one of the fastest growing vegan markets, with 17% growth expected in the five years to 2020.⁴⁴ Alongside animal welfare and health concerns, environmental considerations are a key driver. In fact, JWT's research finds that almost a quarter of respondents have followed a vegan diet in the past year for sustainability reasons.

Awareness of the impact of a meat-based diet is growing. In June 2018, a paper published in the journal *Science* reported that avoiding meat and dairy produce was the single best way to reduce food's environmental impact.⁴⁵ The study, which drew upon data from almost 40,000 farms worldwide, found that while meat and dairy contributes just 18% of the calories in our global diet, it uses up 83% of farmland. Loss of habitats to agriculture is one of the key contributors in the decline of wildlife.

"It is, in its own way, a social bitcoin. It's having a moment and everyone's like, 'I want to be attached to it. Do I understand what it fully is? No, but I want a piece of it,'" says Jay Brave, entrepreneur and vegan ambassador, and the creative mind behind the

"Vegan Shut Up" video that went viral in 2017. Brave is part of a growing community demanding higher quality vegan products and educating people about the benefits of the lifestyle. Veganism was recommended to him by his personal trainer and he has followed the diet for almost two years, describing it as "an amazing journey of discovery."

Since becoming vegan, Brave has found it has led to a deeper questioning of his lifestyle. "Before, it was all about consumption," he explains. "When you go on holidays, it's about what taxi, what hotel, is it full board? It's all about more stuff. As I started to look at stripping back, I was thinking, 'Who am I underneath all of these products and ideas and things that I'd bought?'"

Brave sees the democratization of media and information as one reason people are turning to a vegan lifestyle: “There would have been a time that there would have been no way of seeing films like *Okja*, *Land of Hope and Glory*, *Cowspiracy* or *What the Health*. The beauty of this era and age is that autonomy is in the hands of the individual. You can choose to find out this information.”

With Tel Aviv often referred to as the vegan capital of the world, Israel illustrates some of the opportunities opening up to brands that can cater to adoptees of this rapidly growing lifestyle.⁴⁶ It’s estimated that 5% of the population identify as vegan and it was here that Domino’s Pizza chose to launch its vegan pizza topped with non-dairy cheese.⁴⁷ The Israeli army reportedly offers vegan meals

at its bases and provides leatherless boots and wool-free berets. Veganism is even saving people money, with Israeli company Clal Insurance offering discounts on health and life insurance plans to those that follow a vegan diet.

Veganism is not just for humans. Several pet food brands cater for owners who want to reduce the ecological footprint of their beloved pups. US startup Wild Earth recently launched a vegan dog treat made from an Asian fungi.⁴⁸

Mainstream brands are also upping their vegan offerings. Asda became the first UK supermarket to use the Vegan Society trademark on its products and German supermarket chain Aldi recently released its Earth Grown range of vegan and vegetarian products in the United States. Even Guinness announced that after 256 years it would stop using fish bladders in its Irish stout recipe, making it 100% vegan.

Despite this, there is still work to do, says Jay Brave. He believes brands

need to think big: “With vegan products we need to sell experiences, not products. There’s no point in selling people vegan cheese if afterwards they’re going to have Häagen-Dazs ice cream. We can’t sell isolated products; we have to sell bigger ideas.”

Even virtuous vegans can’t rest entirely easy though. Importing vegan staples, such as avocados and quinoa, across the world has its own environmental impact, and products that appear to be guilt-free, including almond milk, can be resource-intensive. Some also argue that non-intensive animal farming can be beneficial, with the rooting and grazing of livestock helping to restore soils and biodiversity.⁴⁹



Wicked Kitchen by Tesco, UK



Guinness, Ireland

WHY IT MATTERS

Vegan lifestyles offer opportunities in food, drink and lifestyle as they go mainstream. There is an opportunity for brands to create momentum around the vegan and “reducetarian” movements of those cutting down on animal products in their diet.



The END OF MEAT?

As awareness of the impact of meat production grows alongside recognition of the health benefits of eating less meat, diets are shifting towards plant-based protein as well as some novel alternatives.



The Western world will need to decrease consumption of animal products by half before 2050 to stay within the planet's resources, according to Greenpeace.⁵⁰ Not only does livestock contribute an estimated 14.5% of total greenhouse gases, 40% of plant protein that's grown is used as feed.⁵¹ It's not just meat—industrial fishing practices are also rapidly depleting stocks in our oceans. Nonetheless, protein is vital for a healthy diet.

Consumers are open-minded about alternative proteins: over half of our respondents claim to be willing to switch to more sustainable options. Some nations are even making it official: China has pledged to halve its meat consumption by 2050. The global

market for meat substitutes is forecast for robust growth, predicted to be worth \$7.5 billion by 2025, up from \$3.7 billion in 2016, according to Allied Market Research.⁵²

Currently, the most popular alternative to meat is plant-based protein, often derived from ingredients such as soy, peas, chickpeas, chia, and quinoa, and it's rapidly going mainstream as more people adopt vegetarian, vegan or flexitarian diets. In a sign of how far plant-based proteins have come, Air New Zealand recently provoked the ire of the nation's meat lobby by serving Impossible Foods' plant-based Impossible Burger on its in-flight menu.

The market is even attracting investment from the meat industry.

Tyson Foods, known for its chicken products, has a stake in Los Angeles-based Beyond Meat, a producer of plant-based burger patties, sausages and chicken strips. This beef alternative mimics the texture, color, juiciness, and even the heat-retention qualities of real meat. The brand will make its UK retail debut later in 2018, launching in Tesco, crucially in the meat aisle.

New Zealand's Sunfed Meats debuted its Chicken Free Chicken in 2017 and hopes to be able to scale up to export to Australia, the United Kingdom and the United States. The chunks are made from pea protein and boast twice the protein of real chicken. Cow Free Beef and Pig Free Bacon are set to hit shelves this year.



Meanwhile, entrepreneur David Yeung, founder of the Green Common vegetarian grocery chain, is hoping to disrupt China’s pork industry with “omnipork.” The plant-based pork substitute has already featured on the menu at selected restaurants in Hong Kong. Yeung hopes to launch in mainland China by the end of 2018.

Insects are also a nutritious source of protein. There are almost 2,000 edible insect species and their farming requires little land or water, and produces minimal greenhouse gas emissions. While common in Asia and South America, insect-derived products will need to overcome the “yuck factor” in territories where they are less familiar. Nonetheless, the market for edible insects is set to triple, becoming a billion-dollar global industry by 2023, according to Meticulous Research.⁵³

The first mainstream insect-based products are now hitting shelves in European markets. German retailer REWE has begun stocking a mealworm burger, produced by startup Bugfoundation, following the initial success of the product in the Netherlands and Belgium. Crucially, say the producers, the burger delivers on visual appeal: the mealworms are not visible.

Products which incorporate ground insect powders or flours are an easier sell. Chirps, for instance, makes nacho-style chips using cricket flour, targeting parents by emphasizing the nutritional benefits of this protein. Seek, an American granola and high-protein snack company, appeals to a millennial audience looking for healthy yet sophisticated snacks. Seek’s graceful

botanical-inspired packaging design showcases the high levels of protein in each serving.

Massimo Reverberi, founder of Bugsolutely, which makes pasta from cricket flour, says insects are set to become a staple. He told Bloomberg that “some people say it will be like sushi in 20 years. I am really optimistic that it may be a lot faster.”⁵⁴

Going one step further, companies such as Memphis Meats and Future Meat Technologies, an Israeli-based company also backed by Tyson Foods, are aiming to engineer lab-grown meat as a more sustainable and cruelty-free alternative. For more details on how science is tackling the agricultural problems we face, see our Hacking the Planet Trend on p. 85.

WHY IT MATTERS

Is this the end for carnivores? As people become more aware of the effects that meat and fish consumption are having on the planet, the demand for alternative proteins will rise. There are opportunities for brands and retailers to create snacks, ready meals and simple ingredients that will ease consumer dependence on meat.



Seek Granola, LA, USA



B E A U T Y TAKES a STAND

Beauty brands wrote the book on activism: Anita Roddick's Body Shop pioneered ethical and eco-friendly beauty as early as the 1970s. Modern beauty brands are taking up the baton, making a stand on ethical and human rights issues.

When Anita Roddick founded the Body Shop in 1976, she made the company's ethical values clear, using her platform to champion equal rights and support a range of social and environmental campaigns. Taking a strong stance on issues resonates even more clearly and strongly today with the modern value-driven consumer: 85% of our respondents say it's good when brands use their money and power to raise awareness of important issues. And now beauty brands are stepping up again, taking bold stances on diverse

issues from female empowerment to transgender rights.

Scottish perfumer Reek recently used its digital platforms to show solidarity with protesters looking to repeal the eighth amendment in Ireland which criminalized abortion. The company is an advocate for gender equality and has produced a range of free stickers promoting social causes, with slogans including "We repeal the eighth," "Pussy grabs back," and "My hour is worth the same as his." Consumers

are encouraged to post photos of the stickers on social media, with the best receiving a free mini bottle of perfume.

Japanese beauty giant Shiseido also champions gender equality and this year became the first Japanese company to work with UN Women on the issue. Shiseido promotes the UN's HeForShe initiative, which focuses on moving towards a gender-equal society. The program is now featured on Shiseido's website and endorsed within the organization.



At this year's Women's March in Los Angeles, Soap & Glory launched "More than Lips," a campaign about what it means to be a woman today. The campaign featured a group of diverse women, sharing their honest, uplifting stories, and encouraged others to come forward with their own experiences on social media. The company also promised donations to She Should Run, an organization that works to increase the number of women running for political office. For every Instagram post featuring the hashtag #MoreThanLips, the brand made a \$5 donation.

Cosmetics retailer Lush is championing transgender rights with "Trans Rights Are Human Rights," a 14-day campaign

in partnership with the National Center for Transgender Equality and the Canadian Centre for Gender & Sexual Diversity. For the campaign, Lush storefronts in North America were stripped of products and filled with screens featuring quotes from their own transgender and non-binary staff.

Beauty is also calling out negative behavior. Max Factor Arabia and Mac Cosmetics recently cut ties with social media influencer Sondoss Alqattan after she released a video criticizing new provisions to protect Filipino domestic workers, while Illamasqua banned supporters of Donald Trump from buying their products after being "horrified" by his actions in his presidential campaign.⁵⁵

WHY IT MATTERS

Staying silent on social and political issues is not going to fly with consumers, who have come to expect brands to take a stand. Using your platform to champion causes may sometimes be polarizing, but it is a bold move that will endear your brand to those who feel the same way.



87%

WOULD PREFER TO BUY FROM COMPANIES AND BRANDS THAT DEMONSTRATE A COMMITMENT TO SUSTAINABILITY



Damn Rebel Bitches perfume, Reek, UK

"Sometimes it *isn't* even about your skin tone. It's about *'What are you into? Do you buy into the brand? Is it the brand's messaging that you like?'* and you'll find something in there that *isn't* about a makeup **shade.**"



Bitches Unite sticker, Reek, UK



GENERATION Z RISES

Influential kids and teens are instigating direct action to save the planet, taking lawmakers, governments, and businesses to task. This generation could just be the one that changes the world.



Melati and Isabel Wijsen, founders of Bye Bye Plastic Bags, meeting with Secretary General of the United Nations Ban Ki Moon in 2014.



Hebh Jamal, Teen activist, USA

Among *Time* magazine's listing of the 100 most influential people for 2018 were five teenagers. They are the survivors of the Parkland school shootings in Florida who, since the tragedy, have advocated passionately for changes to the country's gun laws. "This time," wrote Barack Obama in his tribute to the group, "our children are calling us to account."⁵⁶

Youth has long been at the forefront of social movements. But our ongoing program of generation Z research finds this generation particularly vocal. As we said back in 2015, "they're the generation that thinks they can change the world, and they might just do it."⁵⁷ According to our latest research, 48% of older gen Zers live a more sustainable lifestyle because they want to make a difference and 82% find

themselves thinking a lot more about what they can do personally towards a more sustainable future.

JWT spoke to teen activist Hebh Jamal, an 18-year-old high-school senior from the Bronx, New York. A first-generation Palestinian-American, Jamal is a passionate advocate for equality and speaks out on injustice against Muslim women. "I think as a culture we are just consuming and consuming and consuming," she says. "We don't realize the impact of our narcissism."

Young adults are mobilizing and leveraging their social networks and digital platforms to add their voices to the sustainability debate. This is no act of teenage rebellion—this cohort is getting heard at the highest level.

Colorado-based Earth Guardians is a global movement of influential and sophisticated activists campaigning on environmental issues in their local communities. Spearheading the group is 18-year-old Xiuhtezcatl Martinez, who has been speaking out on climate change since the age of six. He has attained influencer status, speaking at the Rio+20 United Nations Summit and the General Assembly at the United Nations in New York City. Martinez believes technology has been a key driver for his generation's ability to push for change, telling *Teen Vogue*, "We can communicate more easily than past generations, which gives us an opportunity to turn every issue into a public showing or celebration."⁵⁸ Youth-powered environmental

movements abound. Bye Bye Plastic Bags, as the name suggests, aims to eradicate single-use plastic bags and has 17 teams in place around the world. Dutch-Indonesian teen sisters Isabel and Melati Wijzen from Bali founded the group in 2013. Both have been campaigning since adolescence to tackle plastic waste on their island and beyond, even gracing the TedGlobal stage in 2015. The Indonesian government has since pledged to invest \$1 billion in reducing marine waste by 70% by 2025, as part of the UN's Clean Seas global program.⁵⁹ This trend looks set to continue, with this generation's youngest members already taking their first steps in protesting. Britons Amy and Ella Meek

founded Kids Against Plastic when they were just 13 and 11 years old. They aim to educate people about the harmful effects of plastic waste. The pair recognizes the fearless potential of a child's voice and their website states that they "believe that young people will make huge differences to the world they are going to inherit, and we want to help as many other children as we can find their voices."⁶⁰ Across the world, these young influencers are a bellwether, not only for their peers, but also for consumers more widely: 61% of those with children say their kids influence their behavior when it comes to sustainability.

WHY IT MATTERS

Gen Z are committed and passionate advocates of sustainability, ethics, equality and more. They will look for brands that honor their values authentically. A no-BS approach is imperative—this generation can spot fake woke a mile off. Their influence, already making itself felt in family consumption, will only grow.



Amy and Ella Meek, founders of Kids Against Plastic



THE ETHICS of PARENTHOOD

To lessen their environmental impact, some people are making drastic choices, choosing to limit the size of their family or even to not have children at all.

“Overpopulation is the elephant in the room when it comes to environmental issues,” says Harriet Spark, an Australian designer and founder of environmental design agency Grumpy Turtle Design. “It’s such a hard topic to talk about, let alone act on but, nonetheless, it’s one we should be talking about.”

It appears we are doing just that. In recent months, there has been unprecedented coverage in the global media about family size and

overpopulation, with features in the *Guardian*,⁶¹ the *Washington Post*,⁶² Quartz⁶³ and the *New York Times*⁶⁴ addressing a topic that has previously been taboo in some countries. British fitness vlogger Zanna van Dijk recently shared with her 63,540 subscribers her disinclination to have children for environmental reasons. Meanwhile Population Matters, a UK-based charity concerned with overpopulation, has seen a 60% uptick in Twitter followers since 2016 and reported four million hits on a Facebook post that discussed



17%

STRONGLY AGREE THAT THEY WOULD NOT HAVE CHILDREN AT ALL IF IT WAS PROVEN THAT THIS WAS MORE SUSTAINABLE AND BENEFICIAL FOR THE PLANET



Harriet Spark, founder and designer of Grumpy Turtle Design, Australia

being child-free.⁶⁵ In a *New York Times* poll, a third of young American adults cited worries about climate change as a reason for having fewer children.⁶⁶

Last year, Population Matters released “Small Families, Small Planet,” a YouTube video highlighting the environmental benefits of having a smaller family. The release was supported by research from scientific journal *Environmental Research Letters*, which estimated that if each family has one fewer child, it could save 58.6 metric tons of carbon a year, compared to giving up a car which would save 2.4 metric tons per year.⁶⁷

According to our research, having fewer children for the sake of the planet is not out of the question. 62% of our respondents in all countries said that they would have a smaller family if it was proven to be beneficial for the planet.

Yet even those who have chosen this path don't necessarily advocate their choice. “Deciding to procreate is a deeply personal choice and not one I would prescribe to another person as a way of behaving ethically,” says Spark, who decided against having any children at all after working in environmental advocacy.

WHY IT MATTERS

It is estimated that by 2050 we will need the resources of three earths to sustain us if population growth continues on its current trajectory.⁶⁸ With conversations around procreation and its impact on the environment at an all-time high, is it time we reconsidered the ethics of parenthood?



RE STOR ATIVE
EXPERIENCES



The "world's first energy positive hotel:" Svart from Snøhetta/Plompmozes, Svartisen glacier, Norway



THE CLEAN CITY

As the world grows ever more urban, we need to rethink cities to ensure that they are livable for all.

In early 2018, Jeffrey Sachs, the head of Columbia University's Earth Institute, declared New Delhi "not livable" due to its "catastrophic" air quality.⁶⁹ According to the World Health Organization (WHO), air pollution either directly or indirectly causes the deaths of seven million people every year.⁷⁰ As populations urbanize, the way we plan and manage our cities will have critical consequences for our health.

URBAN MOBILITY

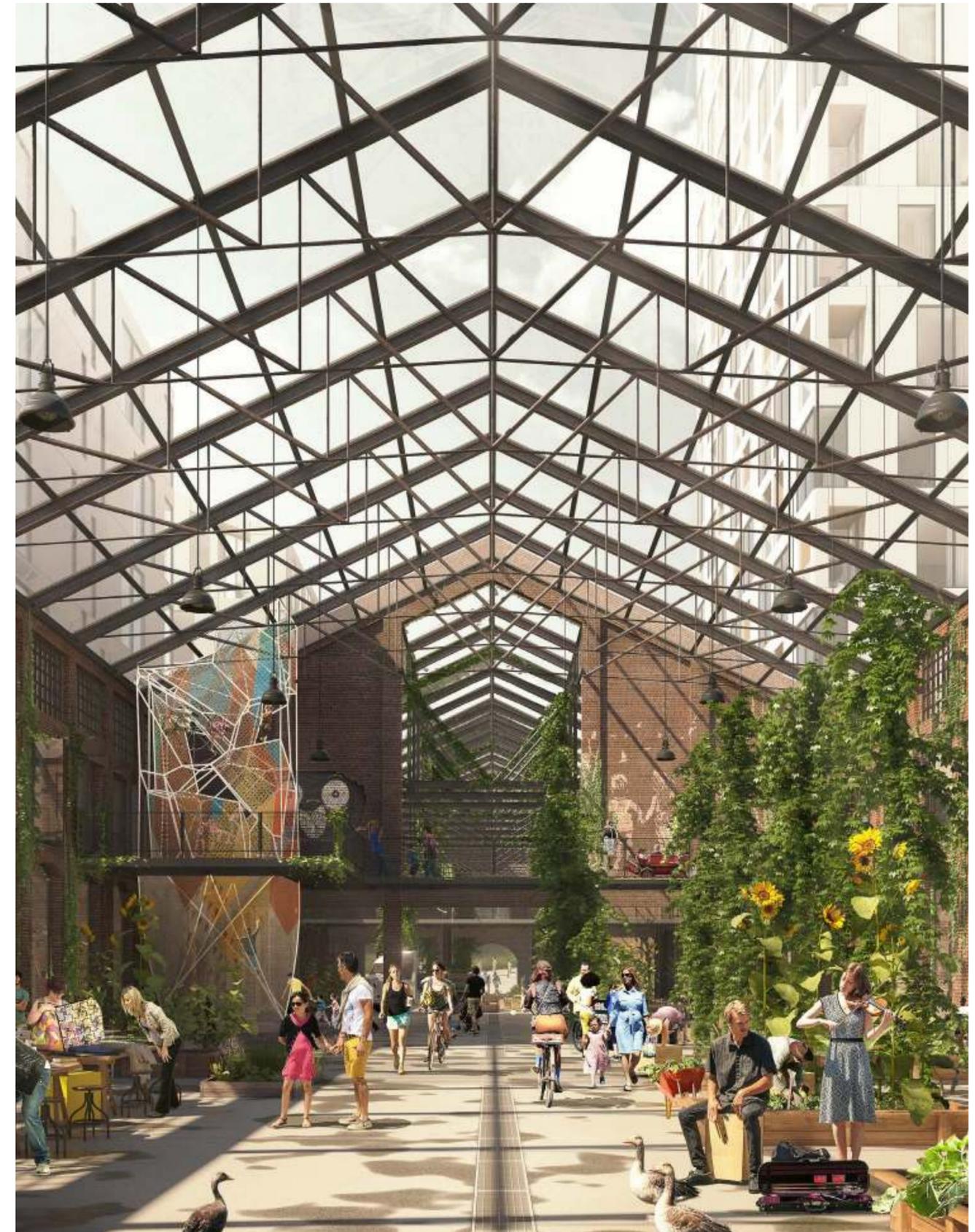
Mobility will play a critical role in greening the city, with early innovation focused on alternatives to the car. While 64% of our panel say they are in favor of car-free cities, far fewer are

keen to let go of their own, with just 15% saying they are definitely willing to forego their vehicle for the good of the planet. Better transportation options, along with better facilities for electric cars, may provide a solution.

While bike-sharing programs have proliferated across the world, other options are now being added to the mix. The fastest-growing "last mile" solution now comes in the form of dockless electric scooters from companies such as Lime-S and Bird. Bird has just announced its first expansion outside the United States, in Paris and Tel Aviv, while Lime-S is present in six European cities as well as dozens of US cities.

For longer journeys, many cities are looking to electrification, especially for public transport. European cities including London, Berlin, Paris and Madrid are working to convert buses to electric power. Meanwhile, in China, Shenzhen has already completed the switchover for its 16,000-strong fleet.⁷¹

Logistics companies UPS and DHL are also investing in electric as a future solution for delivery vehicles. In February 2018, UPS announced plans to deploy 50 electric trucks through a collaboration with Workhorse Group Inc. Crucially, the electric trucks will cost no more than gasoline or diesel vehicles, paving the way for large-scale adoption.



Scott Phillippi, UPS senior director for automotive maintenance and engineering for international operations, explained that the company's very scale is motivating its transition to cleaner vehicles. "We do take our roles as stewards of the industry and stewards of the environment and communities seriously," he says. "Because UPS has such a large bandwidth, we recognize our leadership in sustainability has the potential to bring about significant positive change."

Electric vehicles mean cleaner air but also require a dedicated infrastructure. As electric charging stations pop up on highways around the world, other initiatives are making recharging even more seamless. In 2018, Sweden opened the world's first electrified road that recharges vehicles as they drive via a moveable electrified arm connected to the underside of the car. In Jinan in eastern China, a 1,080-meter stretch of road has been embedded with solar panels that will power highway lights, under-road heating elements and sensors. In the future, it too will recharge batteries on the go as well as deliver traffic and mapping updates to vehicles, both manned and autonomous.



With China accounting for half of all electric vehicles on roads worldwide, solutions like these will be crucial.⁷²

SMARTER ARCHITECTURE

Another weapon in the fight for cleaner cities will come in the shape of smarter buildings made with more sustainable materials.

In an era of concrete and glass, it might seem quaint to consider timber a modern construction material. Yet, it has been dubbed "the new concrete" for its strength and versatility, and has superior sustainability properties—timber actually extracts carbon from the air.

In Norway, the I Love Nydalen development was shortlisted in 2017 for the World Architecture Festival's Building of the Year. A collaboration between SAAHA, Lala Tøyen, Degree of Freedom and Gether, the project will use engineered timber to create three towers, the tallest of which will be 16 stories. Plans for wooden skyscrapers are underway in Vienna, Stockholm, Minneapolis and Tokyo, where a 70-story building is proposed and slated for completion in 2041.

Concrete itself is being given a sustainability upgrade. Carbon XPrize finalist Carbon Upcycling UCLA has developed Co2ncrete™, a building material which absorbs and sequesters CO2 emissions during production and can be used in place of traditional concrete.

In the future, buildings themselves will help combat air pollution. The facade of luxury condo 570 Broome in New York City features Pureti's eponymous titanium dioxide nanoparticle treatment, which reacts to ultraviolet rays from the sun, converting air pollution and grime into non-toxic minerals and water vapor. It's said to be the pollution-busting equivalent of taking 625 cars off the road.

PRINTING THE CITY

3D printing might well revolutionize the construction industry, enhancing efficiency, minimizing waste, and offering a solution to global housing shortages.

At SXSW 2018, Texan startup Icon demonstrated its method for 3D printing a single-story home from cement in less than 24 hours for a mere \$10,000. The home produces almost zero waste and is energy efficient to run.





In Eindhoven, Project Milestone, led by Dutch construction firm Van Wijnen, will go one step further, building the world's first 3D-printed village of five habitable homes. The houses, which will be completed and put on the market for rental by 2019, will cut costs and environmental impact by reducing the amount of concrete used in construction.

The Netherlands has some pedigree in 3D construction. Technology startup MX3D and design studio Joris Laarman Lab have 3D printed a steel bridge using multi-axis robots. The technique minimizes waste and allows the use of sustainable materials. The bridge will be installed at Oudezijds Achterburgwal, in the red-light district of Amsterdam, in 2019.



WHY IT MATTERS

As cities become more crowded, innovative businesses are harnessing technology and advances in science to boost livability, reduce pollution, and build more sustainably.



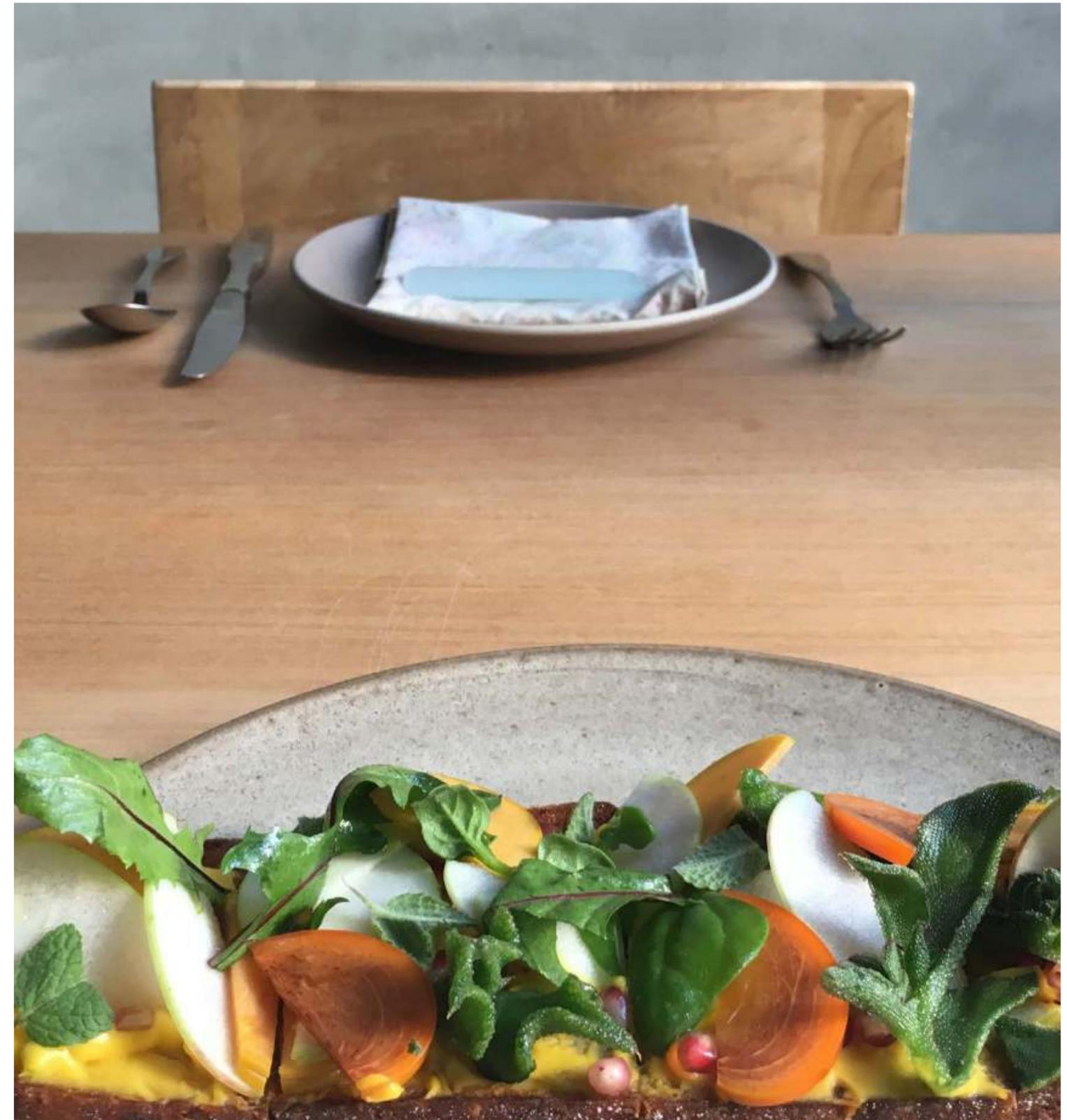
COOKING UP CHANGE

Can chefs change the world? They're giving it their best shot. Going beyond local sourcing and zero waste, these new power influencers are embracing bigger concepts in sustainability, tackling issues that go beyond the food on your plate.

Spanish-American chef José Andrés is a firm believer in the power of food for change. He's the founder of World Central Kitchen, a humanitarian not-for-profit which, in September 2017, provided more than three million meals to Puerto Ricans in the aftermath of Hurricane Maria.⁷³ The operation, which the chef describes as "the world's biggest restaurant," was powered by volunteers and funded initially by Andrés's credit card alone, and no other charity or government body has fed as many people. Andrés, also a powerful advocate for plant-based proteins, is just one example of the growing trend for high-profile chefs to go beyond the restaurant and lead the conversation on sustainability.

Earlier this year, chef Dominique Crenn explained to CNN just why chefs have become so prominent in this space. "When you have food, you have people. When you have people, you have to think about the planet. Food defines your society, how humanity is going to be," she said.⁷⁴ A woman of her word, Crenn sources directly from Central American producers and launched the Root Project in 2017, an initiative that seeks to support farmers and drive sustainable agriculture in Haiti. This year, she collaborated with table-booking app Resy to launch the Women of Food series of pop-ups, showcasing the talents of female chefs at her Petit Crenn restaurant in San Francisco.

Anthony Myint, cofounder of the Perennial in San Francisco, is another chef with lofty goals. He is bidding to "establish sustainability as a culinary virtue" through his Zero Foodprint non-profit.⁷⁵ The organization aims to help fellow chefs and restaurateurs achieve carbon-neutral operations. His view is that it's a simpler concept for diners to grasp than quibbling over ingredients or food choices and can thus have a bigger impact. This year, 178 restaurants joined his initiative and went carbon-neutral for Earth Day.⁷⁶





80%

THINK IT'S IMPORTANT THAT RESTAURANTS AND BARS BEHAVE IN A SUSTAINABLE WAY



Three big names—Joan Roca, Gaggan Armand and Eneko Atxa—have become founder members of “Chefs for Change,” a movement that aims to forge a link between haute cuisine and international development. The chefs will act as ambassadors, reporting back on projects to tackle issues such as poverty, gender equality and poor nutrition in rural agricultural communities in Africa, Asia and Latin America.



Atxa is also doing his bit to preserve local heritage ingredients at his three Michelin-starred restaurant Azurmendi, voted the world’s most sustainable restaurant in 2018.⁷⁷ On site is the largest seed bank in the Basque Country, boasting 400 varieties, and the restaurant is supporting research to bring back vegetables threatened by extinction, such as the local Gernika tomato.



WHY IT MATTERS

Food, so central to global culture and identity, can play a role in shaping lives for the better. Chefs are applying their unique skills to solve problems that go beyond the plate.



CONSCIOUS TRAVEL

Sensitive to the impact their individual choices make, travelers want vacation options that reduce environmental impact while making positive social change.

More travelers are considering the environmental and social impact of their holidays. Our research shows that 80% of total travellers are interested in holidays promising to be sustainable or eco-friendly. Companies are responding, offering restorative, sustainable choices in travel and accommodation as well as destinations and journeys that are mutually rewarding.

The United Nations World Tourism Organization defines sustainable tourism as that which “takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities.”⁷⁸ One example is Global Himalayan Expedition (GHE), an organization that orchestrates yearly “impact initiatives” for do-good tourists who help to

electrify remote Himalayan villages by building solar microgrids. GHE invites visitors to help tackle serious yet small-scale problems much in the same way as the “Palau Pledge.” This Cannes 2018 award-winning campaign highlights the Pacific island nation of Palau’s enactment of a new immigration policy, requiring tourists to pledge to protect the island before gaining entry.

Yet the needs of the host regions are not always ecological. In many cases they are socioeconomic. In Central America, the Cayuga Collection of five-star hotels employs a 95% local workforce, channeling much-needed income back into largely impoverished areas. This makes good business sense too: 86% of total travellers prefer to stay in hotels that employ people from the local community. Similarly, the Meaningful



Palau Pledge, Host/Havas Australia

Travel Map of Jordan from the Jordan Tourism Board and Tourism Cares highlights 12 social enterprises offering authentic experiences for tourists, thus channeling their money away from the tourist traps to benefit disadvantaged local populations instead.

Luxury hotel operator Six Senses is considered a pioneer in sustainable tourism. Each of its resorts and spas around the world boasts its own Sustainability Fund to support social causes, such as providing clean water, which benefits the local community. Its properties are also eco-friendly. The newest is solar-powered, having built the largest microgrid in Fiji using Tesla batteries. The “energy-positive” hotel produces more power than it consumes, channeling all excess energy to a desalination plant.

The solar-powered Svart Hotel, from Oslo-based architectural company Snøhetta, will be the first venue above the Arctic Circle to meet the Powerhouse standard, which means it will produce more energy than it consumes. The hotel, slated to open in 2021, will have a 360-degree view of the Svartisen glacier and be designed according to local coastal building traditions. Other design-forward, sustainable hotel operators include wind-powered 1 Hotel Brooklyn Bridge in New York, which boasts organic mattresses, responsibly sourced textiles, and mushroom mycelium lampshades grown by local designer Danielle Trofe. Details like this matter to the 88% of total travellers who like it when their hotel uses local artisans, suppliers and produce.



Another player providing an energy-positive solution is Byron Bay Railroad Company in Australia. The 1940s restored train, a popular tourist attraction, relies on bespoke solar panels and an energy-conserving braking system to ensure it produces more power than it needs.

The key to sustainable tourism is that it expects businesses to not only protect but also enhance ecological and social efforts. Successful ventures, such as Six Senses' energy-positive hotel or the Cayuga Collection's local employment initiative, prove that investing in eco-friendly travel benefits not only the bottom line but also the greater good.

WHY IT MATTERS

A restorative approach is attractive to an ever-growing number of consumers who want a better, more socially responsible choice when traveling.





CULTURAL CAPITAL

Sustainability is now a cultural phenomenon. The plight of the planet is driving the global conversation, forming part of our daily media diet and infiltrating fashion, art and celebrity culture.

In August 2018, a petition signed by 300,000 people was presented to British chip company Walkers (part of the PepsiCo family), calling on the manufacturer to stop using plastic packaging for the 11 million packets of chips it produces daily. “Plastics attacks,” where shoppers unwrap grocery items and ditch single-use plastics in store, have been reported across Europe, the United States, Canada, Hong Kong, South Korea, Peru and Colombia. Plastic is now just one of the hot-button issues in sustainability which is driving global activism, all thanks to the power of culture.

“I’ve spent decades trying to persuade people that they have a responsibility to the planet—and falling on deaf ears,” says Sir David Attenborough, naturalist and host of the BBC’s popular *Blue Planet* television series that focuses on life in our oceans. “I’m beginning to think that the tide of change of opinion has come in.”⁷⁹ The *Blue Planet* effect, named for the show’s galvanizing effect on viewers, particularly in Britain, is driving a grassroots demand for action on plastic polluting the oceans. James Honeyborne, executive producer of *Blue Planet II*, describes a “strong,

instant reaction from the public. By the fourth episode, where we showed the issue with marine plastic, there was just a real sense from the audience, straight away, that this was something of concern. It was an issue they felt compelled by.”

The series, which reached an audience of 37.6 million in the United Kingdom and was sold to 200 territories worldwide, has been credited for growth in web searches for conservation charities, a notable rise in eco-tourism and even a change of governmental policy. Shortly after



Douglas Coupland, Vortex, Vancouver Aquarium, 2018 - photo credit: Ocean Wise, Canada

the show’s finale, the UK government pledged to commit £61 million to tackling plastic pollution after the public outcry. “Our ambition was to connect people to life beneath the waves,” says Honeyborne. “I think what we’ve seen is a very real, human, emotional response to the issue, which kept the conversation going.” To maintain that conversation, the BBC has announced *Plastics Watch*, a slew of TV and digital content that will continue the focus on the issue.





The plastics cause is getting a further boost through sport. At this year's Tour de France, watched by a global audience spanning 190 countries, Team Sky riders wore jerseys hashtagged #PassOnPlastic as part of their broadcaster sponsor Sky's Ocean Rescue campaign. Soccer, with an even bigger audience, is playing its part too. This season, both Juventus and Real Madrid will launch kits made from recycled marine plastic.

Celebrity connections can also drive issues into the spotlight as well as raise the profile of the organizations hoping to solve them. Surfers against Sewage, a small UK charity fighting marine plastic pollution, was chosen as one of seven charities to receive a wedding gift donation from the Duke and Duchess of Sussex. The association led to a four-fold increase in donations, a considerable rise in website traffic, and gave the charity a voice in global marine conservation.

Art with an environmental message is nothing new, but rising concern is forging a new wave of installations and pieces with an activist edge which seek to drive debate and engage emotions.

Internationally renowned writer and artist Douglas Coupland has unveiled Vortex, a major art exhibition at the Vancouver Aquarium highlighting marine plastic pollution. The exhibition is designed to show how plastic is "choking" the world and is constructed from plastic items that have washed up on the beaches of British Columbia. It features a small Japanese fishing boat that washed ashore in the Canadian archipelago Haida Gwaii in 2017, a consequence of the 2011 tsunami.

Vortex is just one of a host of artworks featuring plastic waste that were shown this year. Daniel Webb's Everyday Plastic mural, made from a year's supply of plastic waste, was unveiled at Margate; The Plastic Bridge, an exact replica of the Brooklyn Bridge, was made from almost 5,000 single-use plastic bottles; and the four-story-high Skyscraper installation in Bruges featured a breaching whale made from over five tons of marine plastic waste pulled from the Pacific Ocean, New York waterways and the city's canals, as part of the annual Bruges Triennial.

As well as raising awareness, three Taiwanese students hope to provoke

revulsion. Hong Yi-chen, Guo Yi-hui, and Zheng Yu-ti from the National Taiwan University of Arts collaborated to create their Polluted Water Popsicles piece. As the name suggests, these ice pops are made with contaminated water, complete with cigarette butts, oil and oozing trash, in a bid to draw attention to water pollution in Taiwan.



Ivory Art, Precious Plastic, Netherlands

WHY IT MATTERS

Man's impact on the planet has captured the zeitgeist. The momentum on plastics demonstrates the power of culture to effect change. Brands should join this global cultural conversation.

POSITIVE RE TAIL





N U D E F O O D

Retailers are facing a backlash from shoppers against plastic packaging. Are zero-packaging stores the answer?

An estimated 6.3 billion tons of plastic waste had been generated globally by 2015, with almost 80% of it going to landfills or the natural environment.⁸⁰

The backlash against plastic is gaining traction, particularly in the retail sector, with anti-plastic protests reported at checkouts from Hong Kong to Peru. 88% of respondents believe there is far too much plastic packaging these days.

While many retailers investigate more sustainable alternatives or trial plastic-free aisles, others are implementing a more radical solution: no packaging at all.

New World, the New Zealand-based retailer, has announced its Food in the Nude project, which uses a refrigeration

shelving system to display fruit and vegetables, and keep them cool. This not only limits plastic use but keeps the produce fresher for longer.

Meanwhile, stores across the world are now adopting a zero-waste approach. UnPackt is Singapore's first zero-waste packaging-free grocery store, where customers are asked to bring their own containers for their food items. Similar initiatives include Live Zero in Hong Kong and the Refill station in Bangkok. In the United Kingdom, Birmingham's Clean Kilo recently joined the likes of Preserve in Bristol and Hetu in London to offer packaging-free supplies. These stores are already reporting that business is booming, with East London's Bulk Market having outgrown its premises and moved to a larger base.

While most stores joining the packaging-free movement are small independents, larger groups are beginning to show interest. Planet Organic now offers its Unpackaged service at four of its supermarkets in London.

As these store concepts become more widespread, they may drive changes in behavior, encouraging shoppers to bring their own reusable packaging with them, for example. Making the process effortless is key to broader adoption.

JWT spoke to Tamara Lim, founder of The Wally Shop, a 100% packaging-free grocery concept launching soon in New York that aims to do just that. "I wanted to make sustainability the

THINK SUPERMARKETS AND FOOD MANUFACTURERS SHOULD DO MORE TO LOWER THEIR IMPACT ON THE ENVIRONMENT

89%

norm, so I knew that you had to make it convenient," says Lim. Wally Shop purchases are delivered in reusable containers, which are collected by couriers at the next delivery and recycled.

There is certainly interest in such concepts: 79% of our respondents would be willing to shop at a zero-packaging supermarket if there was one nearby. Many national chains argue that plastic packaging is essential for keeping items fresh and intact during distribution, and that, paradoxically, it helps to minimize food waste. But with antipathy to plastic on an upward trajectory, companies may be pressured into exploring ways of giving consumers the option to go packaging free.



WHY IT MATTERS

Plastic is fast becoming public enemy number one. Grocery stores worldwide will need to address the use of plastic, even in small steps, aiming for biodegradable alternatives or allowing customers to buy "nude" where possible.



Sheep from the Fibershed Project at Bare Ranch which produced the Climate Beneficial™ wool for The North Face's Cali Wool Beanie, photo credit: Paige Green, USA

CLIMATE-POSITIVE COMMERCE

Retailers are offering convenient ways for conscious consumers to combat climate change.

Unquestionably, making the right choices matters to consumers. 79% of our panel say they are increasingly conscious of their personal impact on the planet. But the path from intention to action is not always smooth. “Convenience is often the enemy of sustainability,” environmentalist Harriet Spark tells us. Now retailers are coming up with products and schemes that make it easy to do the right thing.

It could be something as simple as buying a burger. Max is Sweden’s most popular hamburger restaurant, with a pedigree in caring for the environment—in 2008 it was the first restaurant chain to introduce carbon labeling on its menu. In June 2018, it launched the “world’s first climate-positive burger.”

The company will offset 100% of its carbon emissions by planting trees through a certified offsetting program. CEO Richard Bergfors explains that, “just going carbon-neutral is not enough anymore. We know that we are part of the problem and, together with our guests, we can now be part of the solution.”⁸¹

Offsetting programs like this provide an immediate way for consumers and brands to tackle emissions together. And according to Antoine Diemert, program director of the International Carbon Reduction and Offset Alliance (ICROA), “offsetting directly provides a lot of climate finance to projects that would not happen without that money, and they’re reducing emissions.”



Outdoor retailer North Face is also providing climate-positive options for shoppers. Its Cali Wool beanie claims a net-negative carbon impact. The brand's Climate Beneficial™ wool was sourced from Bare Ranch, which uses regenerative agricultural methods to sequester more carbon dioxide than is emitted. The hat, priced at a premium at \$45, became the label's top-selling beanie and sold out.

Looking to rapidly scale this idea is Poseidon, a non-profit which uses blockchain to bring carbon credit trading to the high street, and ultimately allows any purchase to become climate positive. In May 2018, Poseidon conducted a pilot with Unilever's Ben & Jerry's store in London's Soho. Shoppers were invited to add a penny to their purchase, which will fund forestry conservation in Peru. By tracking the microtransactions on the blockchain, consumers can trace

the impact of their contribution. The trial was a success, with many shoppers contributing far more than the requested penny and one person tacking on a further £30 (approximately \$38).

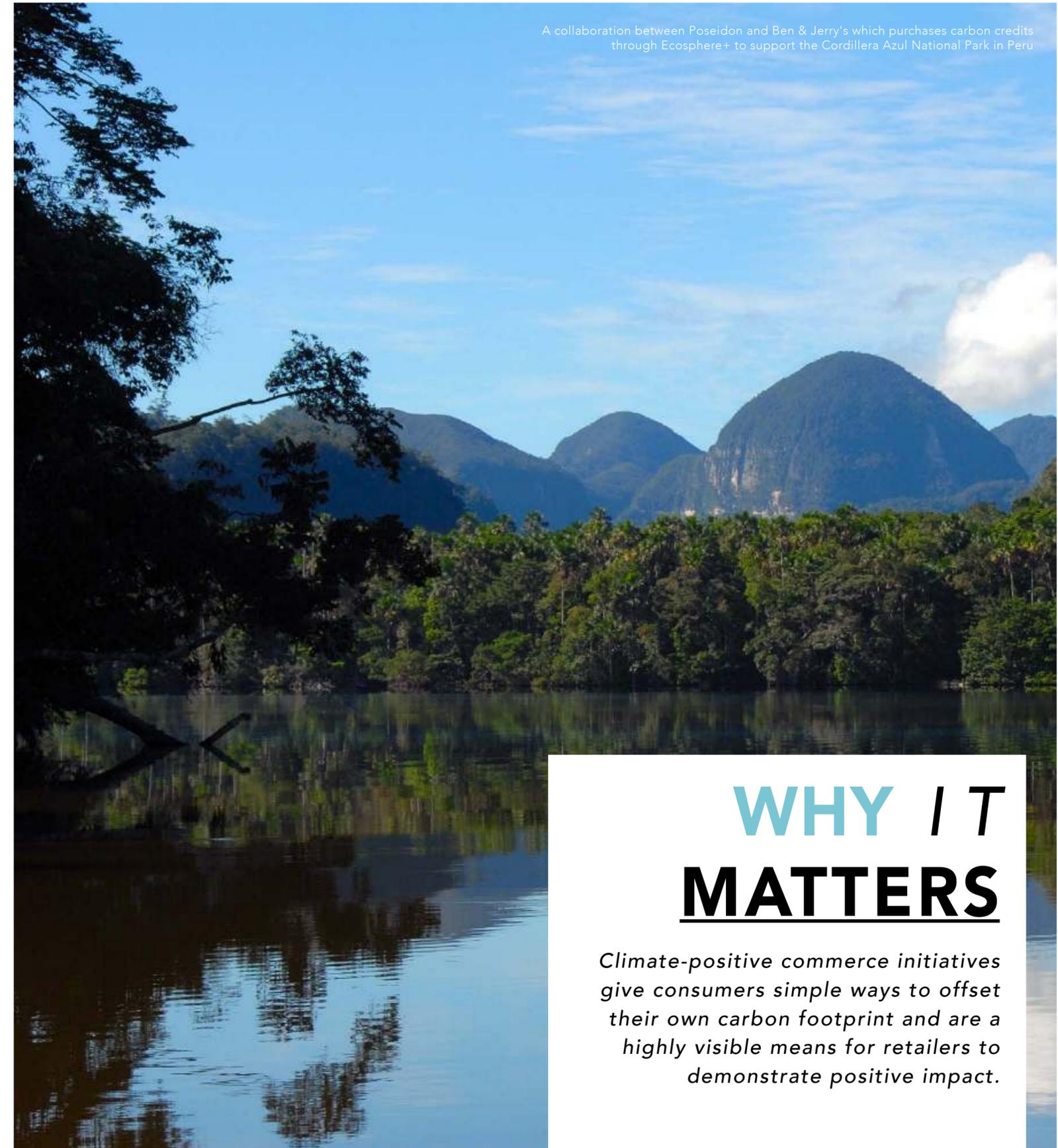
Poseidon founder and CEO Laszlo Giricz told us that feedback is key in driving behavior change. "Giving consumers instant gratification, an instant positive feedback loop to their contribution is essential to create behavioral change," he says. "You can go into a shop and make a donation that is so tiny that it really doesn't matter to you. But then the critical point is that you then get instant positive feedback for what you've just done. Wow! Then you're hooked. Then it becomes addictive."

By focusing on the retail environment, Poseidon aims to maximize its impact. "We're looking at the retail space and at consumers for a very simple reason,"

says Giricz. "That is the space that can really scale very, very fast." He believes the simplicity of the solution is what will drive participation, adding that "the beauty of the integration in the retail sector is that it's seamless. So, for a consumer the shopping experience doesn't change at all. You still go into the shop, you still select the product you want, you still go to the point of sale, and you still pay for it—and that's it."

The success of Poseidon's pilot chimes with data from our survey which finds that 56% of respondents would be interested in paying a small amount on each transaction to fund sustainable initiatives.

A collaboration between Poseidon and Ben & Jerry's which purchases carbon credits through Ecosphere+ to support the Cordillera Azul National Park in Peru



WHY IT MATTERS

Climate-positive commerce initiatives give consumers simple ways to offset their own carbon footprint and are a highly visible means for retailers to demonstrate positive impact.



CLEAN MONEY

Financial services brands are helping customers let their money do the talking, by facilitating spending and investment with a positive impact.

While people want to support brands with a positive impact, they don't always have time to scrutinize every individual purchase. Now, financial services brands are stepping in, with payment tracking, analysis and investment tools that help people better manage their sustainability impact. There's a clear appetite for this, as evidenced by JWT's data: 62% say they would be interested in a bank that monitored their purchases and gave advice on a sustainable lifestyle, and 56% would be interested in a credit card that could track their personal carbon footprint.

"Match your dollars with your values," is the ethos behind Aspiration Impact Measurement (AIM), an in-app feature from online bank Aspiration. The app gives customers a Sustainability Score that relates to the impact they're having on the planet and its people, based on their spending. The app taps into the consumer motivation to vote with their money and to reward businesses that share their values.

A pioneer in this space, Scandinavian bank Ålandsbanken offers the Åland Index, created in partnership with Mastercard and KPMG, which tracks the

environmental impact of each credit card transaction. Monthly statements come with a comprehensive overview of the user's carbon footprint, with statistical comparisons to the previous bill and suggestions on how to reduce future impact.

Along with their spending, people want to invest more wisely too. Cue a slew of apps that guide users to sustainable investments, such as Australia's Goodments, which exhorts the user to "put your money where your heart is." Goodments encourages sustainable investing by matching investors to shares



The Baltic Sea Card, Ålandsbanken, Finland

based on their values, thus incentivizing positive corporate behavior.

China's online payment giant Alipay is taking a gamification approach. The company has teamed up with Ant Financial Services Group to launch an environmental project named Ant Forest, which is accessed through the Alipay app. Users track their eco-friendly activities, such as paying bills online, to earn virtual "green energy" points and grow virtual trees. Once users earn enough points, Ant Financial plants a real tree. If current engagement rates continue, Ant Forest will plant 500 million trees in the next five years.

Services like these demonstrate the growing appetite for consumer-facing tools and services which make meaningful spending and investing less time-consuming and effortful.

WHY IT MATTERS

Banks and financial services brands are making sustainable choices easier for customers, helping them to spend and invest wisely, and incentivizing personal behavior change to boot.



MINDFUL SHOPPING

In a response to unchecked consumption, progressive brands are adopting the radical and, some might say, self-sabotaging approach of asking customers to think long term and buy less. In so doing, however, they promote a more thoughtful approach to shopping.

On November 11, 2017, Chinese shoppers spent more than \$25 billion in 24 hours.⁸² Singles Day, the annual binge promoted by online retailer Alibaba, is now the world's biggest shopping event, dwarfing the likes of Black Friday, Cyber Monday and Amazon Prime Day. Yet alongside bumper sales, it also generated 300,000 tonnes of packaging waste.⁸³

Human consumption has reached epic proportions, driving a threefold increase in our usage of natural resources over the past 40 years.⁸⁴ A 2017 Greenpeace survey of international buying habits described overconsumption as a "global virus," reporting that two-thirds

of Hong Kong residents own more clothes than they need, and the same is true for 60% of Chinese, and more than half of Italians and Germans.⁸⁵

Consumers are not oblivious. Almost two-thirds of our respondents even claim to be trying to consume less in general, at least some of the time. Joe Ziegler, a London student who attempted to live plastic-free for one month, points to more conscious consumption as the key takeaway from his endeavor. "The real lesson," says Ziegler, "is actually that it's not about swapping one thing for another. It's just about reducing and buying less stuff." Susana de Carvalho,

CEO of JWT Lisbon, thinks brands should be tapping into this consumer impulse. "People are looking for smart consumption. We should not be doing business as usual," she says.

As an antidote to fast fashion and disposable design, brands are creating products that are made to last. At the Maison&Objet design trade show this year, Danish furniture brand Handvark debuted Mantle, a chair designed to age gracefully and become a treasured hand-me-down. Cotopaxi, a US outdoor brand and a B Corporation, offers a 61-year guarantee on all its products, the average lifespan of a person living in the developing world. Tom Dixon's



86%

AGREE PEOPLE BUY TOO MANY CLOTHES THESE DAYS

Delaktig modular collection for Ikea is made from aluminum and features detachable upholstery and accessories, making it both durable and adaptable. "Don't chuck Delaktig away if you're finished with it," Dixon says. "Turn it into something else, something new. Or save it for the children so they can take it with them when they move out."⁸⁶

Meanwhile, a new generation that has grown up with renting is less fixated on owning stuff, driving the success of the sharing model in retail. Members of gen Z are more likely than average to be interested in using subscription services.



Recently JWT Intelligence reported on Harth, a platform allowing interiors lovers to connect with artists, designers and manufacturers to borrow statement pieces. British-owned Girl Meets Dress, one of the pioneers of the rental model, now stocks over 4,000 dresses on its website; Australian startup Glam Corner was on course to earn AUD\$50 million in clothing rental revenues by the end of 2017; and US-based Rent the Runway has just successfully raised \$200 million in venture capital,⁸⁷ underscoring the consumer appetite for this approach.

Another practice losing relevance is planned obsolescence; in technology and electronics, manufacturers have long engineered products to fail after a certain time to encourage replacement. Now, both Apple and Samsung are under investigation by the Italian consumer protection body AGCM for slowing down devices to encourage upgrades to new models. The Fairphone 2, launched in 2015, is one of the only brands built to be repaired with replaceable modules.



Harth, photo credit: Anders Gramer, London, UK

Extending the lifecycle of smartphone technology has become a hot topic, with law-makers in numerous US states proposing a Right to Repair bill—a measure that could force manufacturers to release repair manuals and tools to the public. The European Parliament has also called on member states to enforce greater repair rights.

At its most extreme, this trend could even prompt companies to really question whether their products are even needed in the market. New York-based designer Danielle Trofe recommends that designers think before they create and ask themselves, “What are we making? Is it needed in the world? What function does it perform?”



Harth, photo credit: Anders Gramer, London, UK

WHY IT MATTERS

Consumption for its own sake is seen by some as distasteful and brands that encourage it as irresponsible. Forward-thinking brands are promoting thoughtful ways to shop that won't harm the planet and its people.



"CONSUMERISM
is reaching a point
where it's such a
THROW- AWAY
CULTURE.
WE CAN'T CARRY
on the way we are. "

*- Tom Domen, global head of long-term innovation at
Ecover & Method—People Against Dirty.*



SU STAIN ABLE TECH





DIGITAL SUSTAINABILITY

Digital technology has brought innumerable improvements in our lives but is it sustainable? Connectivity is creating a massive drain on global energy supplies, which could drive a backlash.

76%

BELIEVE TECHNOLOGY HAS
A POSITIVE IMPACT
ON THE ENVIRONMENT

In his book *New Dark Age*, author James Bridle writes, "In response to vast increases in data storage and computational capacity in the last decade, the amount of energy used by data centers has doubled every four years and is expected to triple in the next 10 years."⁸⁸

With that, Bridle puts paid to the notion that a digital world is a more sustainable one. While 76% of people believe that technology has a positive impact on the environment, our digital world is actually swelling carbon emissions. "The situation is alarming," says Anders Andrae, a Swedish

researcher who works for Chinese communications technology firm Huawei. "We have a tsunami of data approaching. Everything which can be is being digitalized."⁸⁹

The internet and computing sector already accounts for 6% of global energy demand.⁹⁰ By 2030, power demand for digital services in Japan will exceed the nation's current whole generation capacity.⁹¹ As connectivity surges, the carbon footprint of data centers will exceed that of the aviation industry.

Data processing centers use increasingly vast amounts of electricity



Microsoft, Project Natick, UK

to not only power machines but also keep them cool. While Google,⁹² Apple⁹³ and Microsoft⁹⁴ have all made commitments to renewable energy for their data centers, 80% of the electricity powering them comes from fossil fuels, according to Greenpeace.⁹⁵

Earlier this year, Microsoft sank one of its data centers off the coast of Orkney in Scotland. The intention is that water around the data center will keep it cooler than on land, thus using less energy. Many data centers are being built in countries with low temperatures, such as Sweden, but if Microsoft's underwater center is

successful, this could prove a new, more cost-effective solution to lowering energy usage.

Another growing source of power-intensive demand is bitcoin mining. Digiconomist tracks energy usage by the cryptocurrency network and its latest figures show its consumption to be in line with that of the whole of Greece.⁹⁶

Chia Network is an eco-friendly alternative in the works that makes use of the space on everyday computers and aims to launch by the end of 2018. Stellar and Bitcoin Green are among other energy-efficient alternatives.



It's not only data centers which contribute to digital energy usage and emissions. Production accounts for 85-95% of a smartphone's carbon footprint, according to a study in the 2018 *Journal of Cleaner Production*.⁹⁷ In the future, manufacturers that encourage overly frequent smartphone upgrades will likely be seen as irresponsible. This could make room for service-oriented models that challenge the upgrade mentality and thus decrease environmental impact.



WHY IT MATTERS

The growing prominence of sustainability in the technology sector points to a future need for all businesses to consider and tackle their digital impact, while consumers will be prompted to rethink the frequency of their gadget upgrades.



GREEN AI

Machine learning, algorithms and artificial intelligence tools are accelerating humanity's efforts to tackle sustainability issues.

Artificial intelligence (AI) promises to be a major weapon for tackling big human challenges, and sustainability is no exception. Microsoft announced a \$50 million investment in its AI for Earth program at the One Planet climate change summit in Paris in December 2017. It's a grant-making initiative that helps projects in climate, water, biodiversity and agriculture harness Microsoft's Azure platform and AI technologies. One beneficiary is Wild Me, a project that helps conservationists combat species extinction. Wild Me crowdsources millions of images from scientists and members of the public to build Wildbook, a platform that identifies and helps to monitor species down to the individual animal.

Monitoring the world's species is a complex challenge, especially underwater. Scientists at MIT are

testing a new tool in the shape of SoFi, a robotic fish. It is essentially a small fish-shaped autonomous undersea vehicle which researchers hope will be able to gather valuable data on aquatic life.

Another green AI startup is tackling deforestation. 20tree.ai uses AI tools such as visual recognition to identify areas where deforestation is taking place, helping NGOs, governments and businesses take remedial action. Similarly, the Plastic Tide algorithm has been trained to distinguish plastic litter using images submitted by drone users. Initially the system will help identify locations for cleanups, but it could ultimately monitor litter in real-time.





AI solutions are also helping companies grapple with intricate ethical sustainability issues. SAP Ariba collaborated with Made in a Free World on an AI platform that filters millions of articles per day, looking to highlight areas at potential risk of slavery in the supply chain—a valuable tool for multinational businesses managing complex supply chain networks.

Another key challenge businesses face is gaining access to the latest knowledge and advice, which often requires hiring expensive consultants. Ditto Sustainability has secured £4 million of venture capital funding to leverage AI to simplify the task. Aiming to democratize information, the AI

platform boasts expert knowledge from sustainability leaders, technology developers, consultants and lawyers. Via intelligent learning, this information helps businesses learn more about how to improve their sustainability credentials, comply with government regulations, and manage their own data output, optimizing their sustainability practices.

CEO Dan Botterill says it's all about going back to basics, noting the importance of "getting information into an easily digestible format, demystifying and getting rid of all this jargon that surrounds sustainability, and just making it really simple and straightforward to do."



WHY IT MATTERS

Green AI has the potential to supercharge efforts to tackle sustainability challenges. Brands should consider how integrating AI technology might enhance their own initiatives.



DI GITAL NATURE

Technology can enable broader access to the benefits of nature as well as driving awareness and establishing relationships, particularly with children.

While the benefits of experiencing nature first-hand cannot be underestimated, not everyone has immediate access. Now technology is serving up the next best thing: digital nature.

Research is finding that digital versions of nature can have positive benefits for wellbeing. Amsterdam-based Sensiks Experience Lab has devised a Sensory Reality Pod which is being used to tackle workplace stress and mental health conditions such as PTSD. The reality pod offers a fully immersive virtual reality (VR) experience, combining natural scenes of rich woodland or tropical islands with variations in scent, temperature, air flow and light.

Meanwhile, the Woodland Trust has also experimented with VR to help those who struggle to get out in nature—like the elderly or hospitalized—to enjoy some of its benefits. “We’ve used virtual reality to do some short videos to take to people in care homes, just to give them an experience of how they can get outside through the medium of technology,” explains Stuart Dainton, head of innovation.

It seems that the restorative effects of virtual nature can even be applied to those who have been incarcerated. Last year, researchers at the Ecological Society of America found that inmates who watched nature videos felt calmer, less irritable and committed 26% less violent infractions.⁹⁸



Vibrations from Ford's new smart windows enable blind passengers to "Feel the View", Ford USA

There are also accessibility benefits. Ford has developed a smart window which allows blind passengers to experience the passing landscape. The Feel the View window takes imagery of surrounding scenery and translates it into vibrations on a touch-screen display. Ford has paired the smart window with a voice assistant, which explains and contextualizes the imagery.

Technology is also proving a valuable tool for getting kids more involved with nature.

Seek is a new app for iOS created by nature website iNaturalist that uses image recognition technology to help users identify plants and animals. The app awards badges when users upload an image, encouraging outdoor exploration for families in particular.

Augmented reality game Pokémon Go hosted litter pickups for Earth Day this year, rewarding users with in-game bonuses. The game's producer collaborated with conservation organization Mission Blue to organize 37 cleanup events around the world, with treble points available in areas where 3,000 players participated.

Meanwhile, Greenpeace successfully leveraged the power of Minecraft to save the Białowieża Forest in Poland, under threat from logging despite being a UNESCO World Heritage Site and the last lowland primeval forest in Europe. Its "To the Last Tree" campaign, created with Ogilvy & Mather, created a virtual replica of the forest and encouraged 170,000 players to sign a petition to save it.⁹⁹ The campaign resulted in the resignation of the country's environmental minister.



"TECHNOLOGY

is a REALLY IMPORTANT ENABLER.

we should be looking at

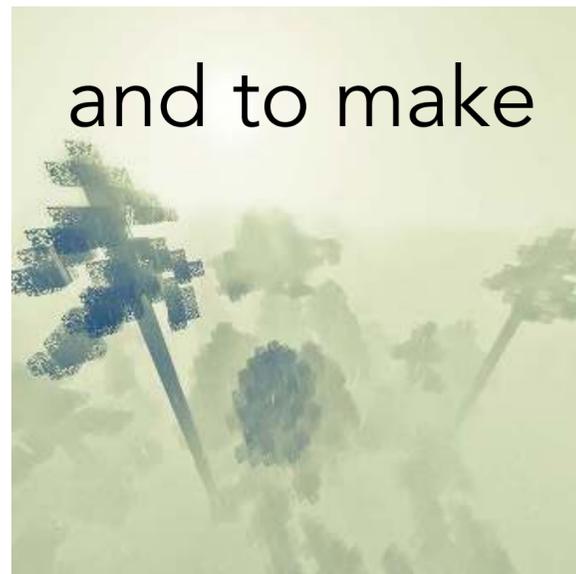
how we can use it, BOTH to

INSPIRE CHILDREN

to THINK about NATURE

and to make NATURE more

ACCESSIBLE."



- Stuart Dainton
Head of innovation, The Woodland Trust

WHY IT MATTERS

Technology can augment and supplement nature for those with limited access as well as encouraging people, particularly children, to build better relationships with the real thing. Virtual natural worlds can help environmental issues reach new audiences, creating the next generation of eco-activists.



HACKING THE PLANET

Humans have always altered nature, breeding new crops and species, and transforming landscapes. Now, gene-editing techniques provide us with powerful tools to manipulate the building blocks of nature: fine-tuning the makeup of crops, the genetic profiles of livestock, perhaps even bringing the extinct back to life.



Advances in gene editing are being driven by CRISPR, a technique that allows scientists to target specific bits of genetic code and tweak the DNA, adjusting, removing or adding desired traits. Good news for agriculture, an industry that rapidly needs to work out how to feed billions of people while adapting to climate change.

In March 2018, the US Department of Agriculture ruled that crops edited using

innovative techniques such as CRISPR would no longer be subject to regulation, as the process is considered akin to traditional breeding. This paves the way for gene-edited crops to go from the lab to the farm.

Many experiments are already underway. At the Cold Spring Harbor Laboratory in New York, scientists are exploring the possibility of all kinds of tomato edits, including a jointless variant that will be

much easier to harvest. In Japan, the National Agriculture and Food Research Organization is testing two new modified strains of rice to learn which of the crops has a higher yield and is more viable for wide-scale production. Meanwhile, in the United Kingdom, researchers at startup Tropic Biosciences are using CRISPR to create bananas with an extended shelf life that are disease resistant, a feature that has the added benefit of reducing the need for pesticides.



Big brands are also looking to CRISPR to protect valuable resources in their supply chain. Mars is just one confectionery business with a stake in modified cacao.

The cacao plant is susceptible to diseases such as witches' broom and the cacao swollen shoot virus, and losses caused by pests and disease can amount to 40% of crops.¹⁰⁰ Working with the Innovative Genomics Institute at UC Berkeley and UC San Francisco in California, Mars is developing cacao plants that are resistant to both viral and fungal infections.

Although it does not benefit from the same regulation-free environment, CRISPR gene editing is also being applied to issues in animal agriculture. Scientists in Scotland are working in collaboration with scientists from Ethiopia, Kenya, Nigeria, Tanzania and the United States to modify the genes of cows in the tropics to boost their milk and protein production by up to 50%. Virus-resistant pigs are also being developed, helping to lower the need for medicines and antibiotics. Australian geneticist Alison Van Eenennaam is producing bulls that will father only male offspring. Since male cows grow faster and bigger, this could prove beneficial to breeders aiming to meet demand, predicted to grow by 69% by 2050.¹⁰¹



I THINK WHAT'S SO POWERFUL about this potential to engineer life, to create these alternatives, is that maybe we can engineer at the **DNA LEVEL** a propensity for a crop not to need as much water or for a material not to need any processing after, because we've engineered its protein

to **BEHAVE IN A CERTAIN WAY RIGHT FROM THE BEGINNING.**



- Natsai Audrey Chieza
Founder, Faber Futures

Bigger and better animals aren't the only solution. Companies such as Just and Finless Foods are using cultured animal cells in the lab to grow meat and fish that could one day grace our dinner plates. From a tiny amount of source material, it's theoretically possible to produce unlimited meat. Even dairy is getting a tweak. Researchers working on Real Vegan Cheese are using CRISPR to modify baker's yeast, creating milk proteins which can then be made into cheese in the traditional way, while Clara Foods has created an egg white brewed from yeast.

The actual test, of course, is whether people will actually want to eat modified or cultured foods. Our research suggests that it's not out of the question. 31% of respondents are in favor of genetically engineered plant food sources and 29% are in favor of genetically engineered animal food sources. Higher numbers say it's a maybe.

While we wait for CRISPR-tweaked meals to hit the dinner table, looking further ahead we might even see the restoration of extinct species, and thus ecosystems that have been lost. London's Natural History Museum recently launched the

CryoArks Biobank, a storage facility for animal DNA.

Britt Wray, science journalist and author of *Rise of the Necrofauna*, explained the moral argument behind de-extinction efforts to CBC's *The Current*: "If we have the biotechnologies right now to do something beneficial about righting those wrongs that we've reaped, we ought to do it."¹⁰²

WHY IT MATTERS

Techniques such as CRISPR are helping science to adapt nature to the needs of the 21st century. Companies will need to engage consumers in decisions and conversations, responding sensitively to concerns around GM or engineered foods. As the applications of gene tech in food grows, transparency will be crucial.



RE THINKING *MATERIALS*



SOLVING P LASTIC

Instead of banning plastic, we need to rethink how and when we use it, and perhaps learn to value it more.



Saltwater Brewery, USA

There is enough plastic debris in the world to cover Argentina.¹⁰³ Since mass production began we have created over 8.3 billion tons of it, most of it now in landfill, or, worse, polluting the seas and the environment.¹⁰⁴ Its durability is its greatest asset and its greatest flaw. Just how do we solve a problem like plastic?

Despite plastic's reputational issue, it still plays a vital role in our lives. It keeps our cars and aeroplanes light and fuel-efficient, and ensures medical devices are affordable and safe. Even the much-maligned plastic straw is an essential for many disabled people. It's unlikely we'll rid the world of plastic, but we need to use it more thoughtfully.

The first step is to limit the flow of "unnecessary" plastic. More than 40 countries around the world have begun to ban or tax single-use plastic.¹⁰⁵ In Kenya, where the most stringent penalties apply, you can be imprisoned for producing, selling or just using single-use plastic bags. Culturally, single-use plastic is on the way to becoming unacceptable.

Companies are investing heavily in R&D to identify more sustainable alternatives for packaging. McDonald's and Starbucks have even teamed up to solve the takeaway cup issue. One success comes from SaltWater Brewery in Florida, which has come up with E6PR, a biodegradable alternative to plastic six-pack rings, often responsible for the deaths of turtles and fish. Made from wheat and barley waste from the brewing process, the ring degrades safely in water and can even be eaten by marine life.

Another designer solving a topical problem is Fatima Fazal, who devised an alternative to plastic takeaway cutlery. 74% of respondents say they find single-use cutlery off-putting when they order food delivery. Fazal's solution is Heart Parts, oxo-biodegradable, recyclable and reusable cutlery pieces that are small enough to snap together and fit in a pocket, and durable enough for the dishwasher. Solutions need to be practical.

There's no easy way to tackle plastic pollution but many companies are finding ways to reintegrate it into their

production. Following the principles of circular manufacturing, Dutch furniture company Vepa is working with Plastic Whale, the world's first plastic-fishing company, which retrieves redundant plastic from Amsterdam's canals and Rotterdam harbor. Vepa uses canal waste to make high-end office furniture, adding recycled steel and fabric from its own waste streams. Furniture can eventually be returned to Vepa to be broken down into raw materials for new items.

This year's London Design Fair championed plastic as a design resource. Founder and director Jimmy MacDonald tells us, "We felt plastic had to be our material of the year for 2018 as it's completely topical and we feel it is imperative that recycling single-use plastic is pushed further. We don't think designers are placing enough value on recycled plastic and are not treating it as a new, virgin material."



Jewelry, Precious Plastic, Netherlands

"PLASTIC

in many ways, is a **MIRACLE SUBSTANCE**. **PERHAPS WE NEED TO CHANGE OUR MINDSET ABOUT HOW PRECIOUS PLASTIC** is. We shouldn't just make it disposable and single-use. Rather, developing a more sustainable mindset, together with improved waste management and simpler recycling options, could make **A REAL and LASTING DIFFERENCE.** "

- James Honeyborne
Executive Producer, *Blue Planet II*

Other solutions aiming to deal with the plastic mountain are more scientific. Polyethylene terephthalate, or PET, is the clear plastic used for water bottles, among other applications. Researchers from the University of Portsmouth in the United Kingdom have modified an enzyme, PETase, to eat PET plastic waste just as microbes eat other types of biodegradable waste in landfills. The solution is currently still in the lab but the team hope it could one day tackle landfill waste, much of which is beyond recycling. Scientists in the United States have also discovered that other types of plastic such as polystyrene can be eaten by mealworms, which then produce biodegradable waste that is not harmful to the soil. By working with nature, scientists are thinking beyond recycling.

James Honeyborne, executive producer of *Blue Planet II*, saw the marine pollution issue up close while filming the documentary series. He believes we need to completely rethink our approach. "Plastic, in many ways, is a miracle substance," he explains. "Perhaps we need to change our mindset about how precious plastic is."

Dutch artist and designer Dave Hakkens is doing just that, with his Precious Plastic installation.

At de Bijenkorf, an upscale Amsterdam department store, Hakkens created two windows, one filled with household trash, the other with just one Anthropocenic gem: a plastic "diamond." Hakkens has also created plastic construction beams, a range of jewelry and even an "ivory" tusk made entirely of recycled plastic.

Milanese design gallerist Rossana Orlandi is of the same mind, launching her ongoing initiative Guiltless Plastic at this year's Milan Design Week. "I want to change the meaning of plastic," said Orlandi at

the launch. "I want to make plastic guiltless."¹⁰⁶

Rethinking how design can make use of plastic, can transform it from waste into a new raw material.

WHY IT MATTERS

Plastic is becoming a demon in the eyes of consumers. Where possible brands should avoid it, use recycled alternatives or at least explain to consumers why its use is necessary. Rethinking plastic as a precious resource, rather than as disposable, could help us use it more mindfully.



CAR_BONOMICS

Innovators are reframing carbon as a resource, and even a source of profit, rather than a problem. Welcome to the era of carbonomics.

In 2016, American architect and author William McDonough wrote a feature called “Carbon is Not the Enemy” in the journal *Nature*, asserting that climate change was a result of human-led design failure.¹⁰⁷ “In the right place,” wrote McDonough, “carbon is a resource, and a tool.” The theory is gathering momentum as pioneering businesses look to build a new economy based on carbon.

Agriculture is a key source of carbon emissions but regenerative farming approaches could be one solution. Carbon farming is an umbrella term for a raft of practices—including growing trees, no-till agriculture or restoring wetlands—that allow carbon to be pulled from the air and held in the soil, slowing its release and nourishing the

soil in the process. Now companies like Danone, Unilever and General Mills are exploring the potential of these techniques, with the latter introducing its own Regenerative Agriculture Scorecard to drive collective understanding of the benefits.

Scaling these solutions will require the right incentives for farmers since many of these techniques need investment. One such inducement could come via carbon offsetting. Nori, a carbon-removal marketplace underpinned by the blockchain, allows companies to buy verified carbon credits which are then passed on to farmers using land to sequester carbon. By using blockchain Nori can verify that each carbon credit is unique and give the full value back to the farmers.



Vulcanol production facility, Carbon Recycling International, Iceland



Other ideas for how we might rethink carbon as a resource are proliferating, helped in no small way by the \$20 million NRG Cosia Carbon XPrize, which challenges companies to convert CO₂ into valuable products. The 10 finalists selected are now entering a two-year pilot phase where they will test and measure the impact of their innovations, which include bioplastics, greener concrete and carbon nanotubes. For example, from India, finalist Breathe is deriving methanol from emissions, negating the need for fossil fuel extraction.

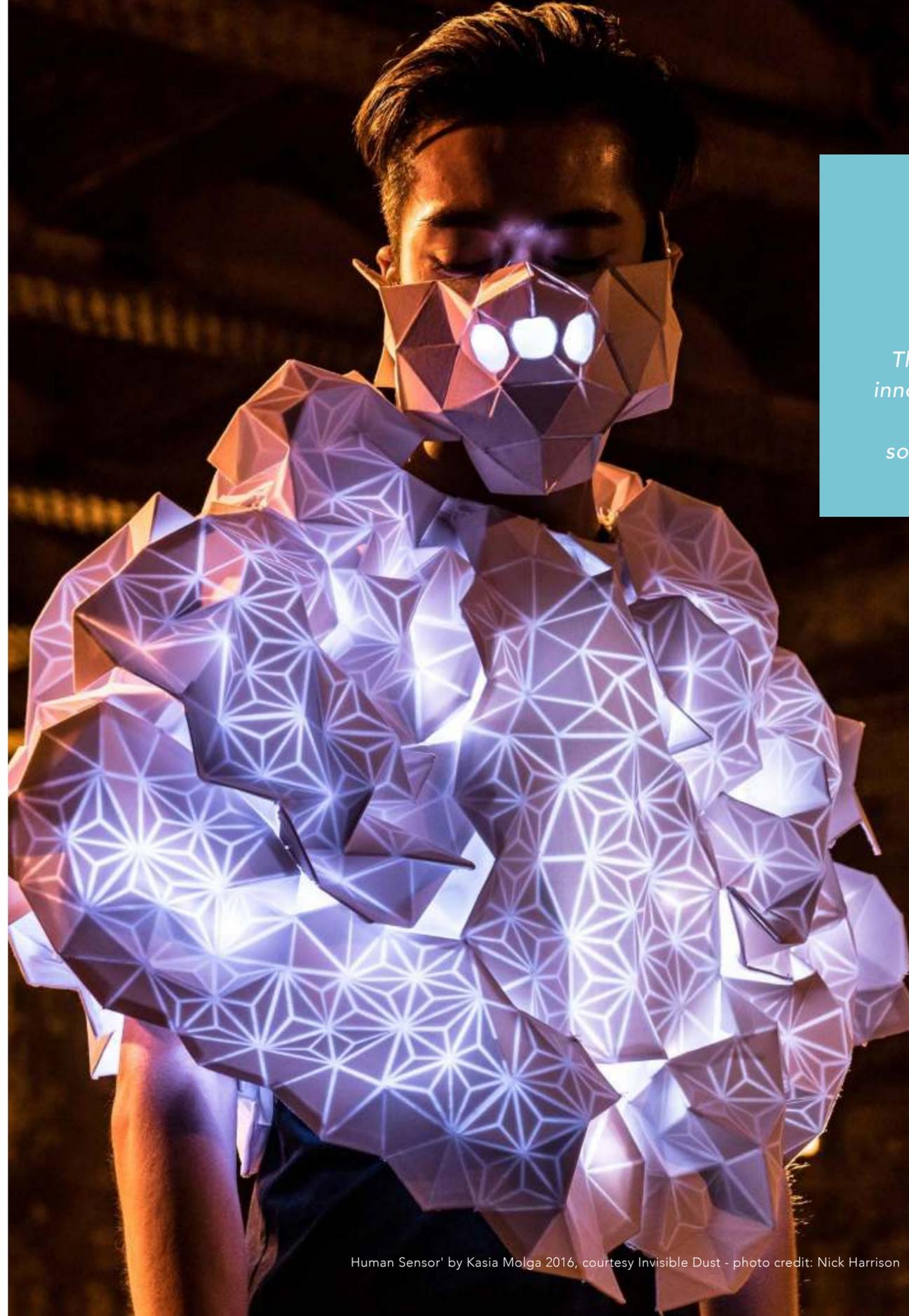
Alternative fuels derived from carbon are another innovation seeing some commercial uptake. New Zealand-based LanzaTech opened its first commercial facility with Chinese partner Shougang Group, a steel and iron producer based in Hebei Province. The facility will convert emissions from a steel plant into ethanol that can be used in household products, petrol and even jet fuel.

Iceland's Carbon Recycling International (CRI) has created a competing fuel named Vulcanol. The company has now signed a deal with Geely Automobile and Zixin Industrial Co to open 30 plants in China that convert carbon dioxide to methanol by 2030.

The diversity of potential solutions is driven by the need for collaborative action to tackle emissions. Sebastian Peter, team leader of XPrize finalist Breathe and associate professor at the Jawaharlal Nehru Centre for Advanced Scientific Research in India, tells us that a single team cannot solve the carbon problem. "It is a problem for all of humankind," he says. "If many teams can work together that will make it an easy process to get it done in a short amount of time."

WHY IT MATTERS

The emissions crisis is driving a wave of innovation that treats carbon as an asset, not a liability. Reframing carbon as a source of new products and profit could help us tackle the climate challenge.





WASTE(D) OPPORTUNITY

By treating waste as a resource, brands ask consumers to reflect on what trash is worth. Is it time to rethink rubbish?

A key principle of the circular economy is designing waste out of the production system. In our 2016 Future 100 report, we reported on By-product Brands, companies who use their waste to drive innovative and profitable sidelines.¹⁰⁸ Since then, waste has taken on a whole new meaning—it's now a precious new resource, a source of profit, and even a currency.

US fashion brand Everlane has taken by-product branding to new heights, managing to convert a toxic waste product into something practical. The company is noted for its sustainable Saitex factory, which currently recycles 98% of its water. The factory extracts the toxic sludge taken from denim

production and sends it to a nearby facility where it is mixed with concrete to create bricks that are used to build affordable housing.

Challenging concepts of luxury and value is perfume brand Etat Libre d'Orange, which uses perfume industry waste to create a scent called Les Fleurs du Déchet (literally translated, the flowers of rubbish, rendered in English as I Am Trash). The perfume was developed in collaboration with Ogilvy Paris.

Some companies are turning other people's waste into a business opportunity.

Austin-based startup GrubTubs repurposes food waste from restaurants

and grocery stores to create a nutrient-rich, affordable animal feed for local farms, and potentially reduce the 70% of US farm acreage that is devoted to growing food for livestock.¹⁰⁹

Swedish design studio Malmö Upcycling Service transforms industrial waste into an aspirational line of homeware. The Odds & Ends collection repurposes brick, glass, acrylic, stone and sheet metal waste to create 11 decorative items, including a mirror, coffee table and candleholders.

Underlining this notion that rubbish has value, some pioneering concepts are even turning it into a currency of sorts.

92%

WOULD THINK BETTER OF
A COMPANY/BRAND THAT
USES ITS BY-PRODUCTS TO
MAKE SOMETHING USEFUL,
RATHER THAN SENDING
THEM TO LANDFILL



Small vases made from the ends of laboratory glass and mirror cut-offs, Malmö Upcycling Service, Odds & Ends collection - photo credit: David Möller

In May 2018, the Ecover cleaning products brand hosted the Rubbish Café, a two-day pop-up in the heart of London. Visitors were encouraged to bring in recyclable plastics in exchange for dishes prepared by eco-chef Tom Hunt. “We wanted to show that as a society we treat rubbish as valueless, but we actually put it back into the packaging stream and created our 100% recycled washing-up liquid bottles,” Ecover’s Charlotte Snelgrove tells JWT. “To us, it’s not valueless.”

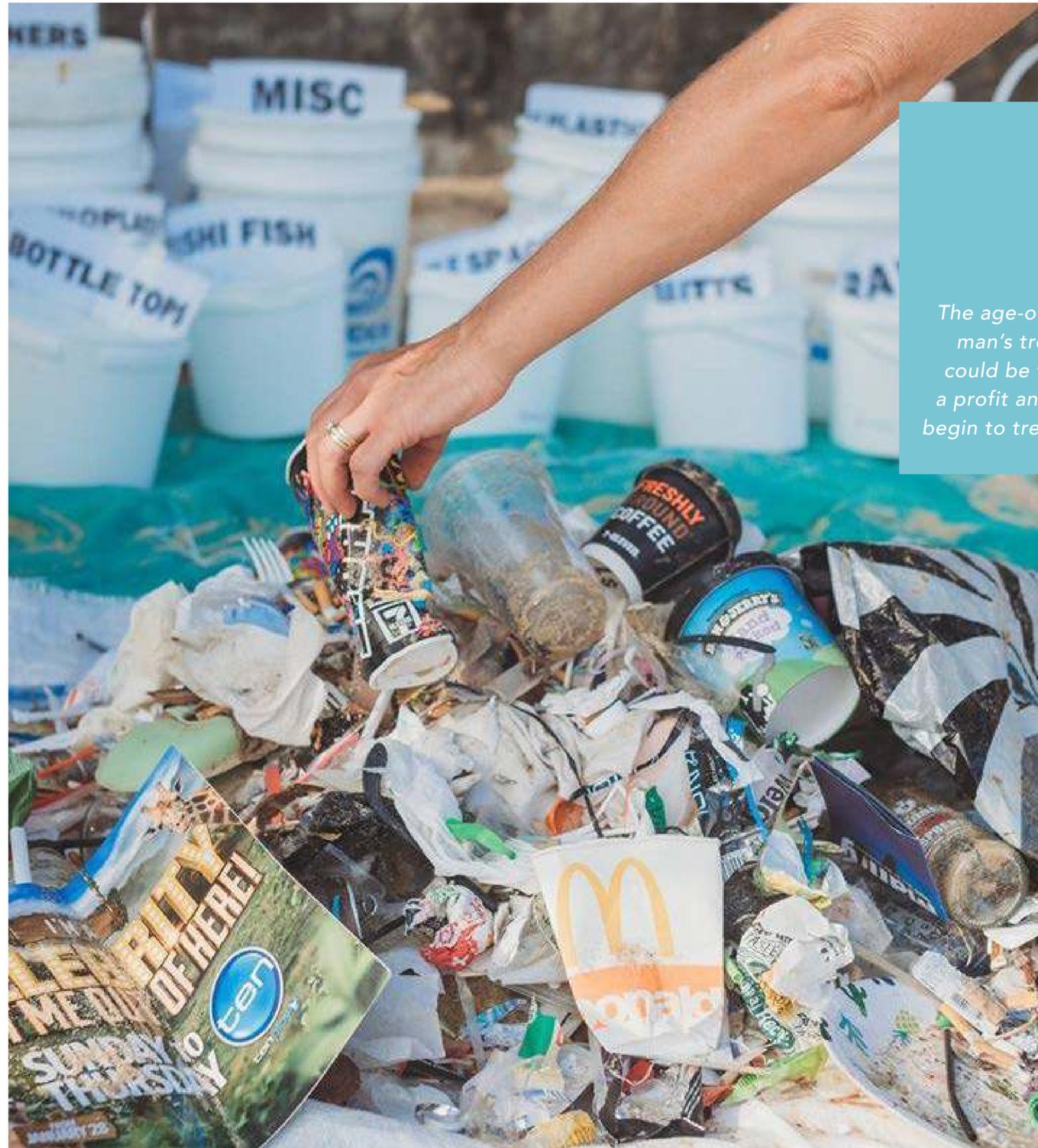
Others are following suit. More than 15 cafés in Sydney’s Northern Beaches area joined the Rubbish4Coffee initiative this year, offering a cup of coffee in exchange for a bucket of rubbish. Skincare brand Haeckels, based in Margate on the United Kingdom’s Kent coast, gives a free product to customers who bring in a bag of local beach trash.

Some initiatives go further than mere awareness, helping those in poverty to build better lives. The Plastic Bank monetizes waste, paying above market rate for plastic collection in Haiti, the Philippines and Brazil. The organization also supports convenience stores in which plastic waste can be used

as currency. Individuals who gather waste can trade it for money, items or services including school tuition. The plastic collected is recycled and sold back to brands at a premium as Social Plastic™.

The Plastic Bank is not the only initiative that is turning waste into a currency. At the Green School in Bali, students enrolled in the Kul Kul Connection English program can pay for their seat in class with 5kg of recyclable trash per semester. Over two tons of trash have already been collected through the program.

By imbuing trash with value, these brands are constructing incentives that should ensure that waste to landfill becomes a thing of the past.



WHY IT MATTERS

The age-old saying “One man’s trash is another man’s treasure” couldn’t be more apt. Brands could be throwing away opportunities to make a profit and have a positive impact if they don’t begin to treat their waste as a valuable resource.



ALGAE POWER

The marine wonder crop algae is being used to create everything from eco-friendly sun cream to a sustainable ink and 3D-printed biopolymers. Its applications are diverse and seemingly endless. Here's how algae are shaking up three industries: food, fuel and fashion.

ALGAE BITES

Feeding a growing population could mean radically rethinking our diet. Packed with protein, vitamin A and iron, and promising a host of health benefits, algae is shaping up as a potential solution to our future food needs. It grows 10 times faster than land plants and requires less than a tenth of the land to produce an equivalent amount of biomass.¹¹⁰ While algae have long been a staple of Asian diets, they are just taking off in many parts of the world.

Danish future-living lab Space10 put algae front and center on a "fast food of the future menu" devised early in 2018. The menu was conceived as a solution to the anticipated global food crisis and consisted of five dishes, including a hot dog made from algae and dried carrots.

Now algae are set to go mainstream on Western menus, as a crop of startups pioneer new products. Californian startup New Wave Foods has derived a shrimp alternative that combines algae with other natural ingredients while Nonfood, also from California, has developed the

Nonbar, a nutrition bar that claims to pack in more algae than any other ready-to-eat alternative on the market. Available in the United States, United Kingdom and Ireland, VeganEgg is made using algal flour and scrambles just like a real egg.

It's not just the human diet that can benefit. Lisbon biotechnology company Buggypower's experimental kitchen Alguimya is working on microalgae products for animals. Preliminary research from the University of California suggests that algae have the added benefit of cutting methane emissions in dairy herds.¹¹¹



FUTURE FUEL

Could algae also be a renewable energy solution? Venture capitalists and investors have been betting on its potential for years without much return, but researchers are finally making some headway.

Oil and gas giant Exxon Mobil has collaborated with Synthetic Genomics on a joint algae biofuel research program since 2009. In 2017, they announced a key breakthrough, identifying the genetic pathway by which algae makes lipids, and have managed to increase its oil content from 20% to 40%. The companies are targeting production of 10,000 barrels of algae fuel per day by 2025. "If our trajectory stays on track, there's no reason why we would not be able to scale up quickly," Synthetic Genomics CEO Oliver Fetzter told the *Financial Times*.¹¹²

In the United Kingdom, the SeaGas project is exploring the possibility of converting seaweed into biogas by anaerobic digestion. The technique shows great promise, provided the process of seaweed farming itself becomes more affordable and efficient.

Meanwhile a Japanese company is hoping to bring an algae-derived jet fuel to market as early as 2020. Tokyo-based Euglena is building a plant which will begin operating in 2019 and has already signed a deal to supply Oriental Air Bridge, a Japanese regional airline.

FASHIONED FROM ALGAE

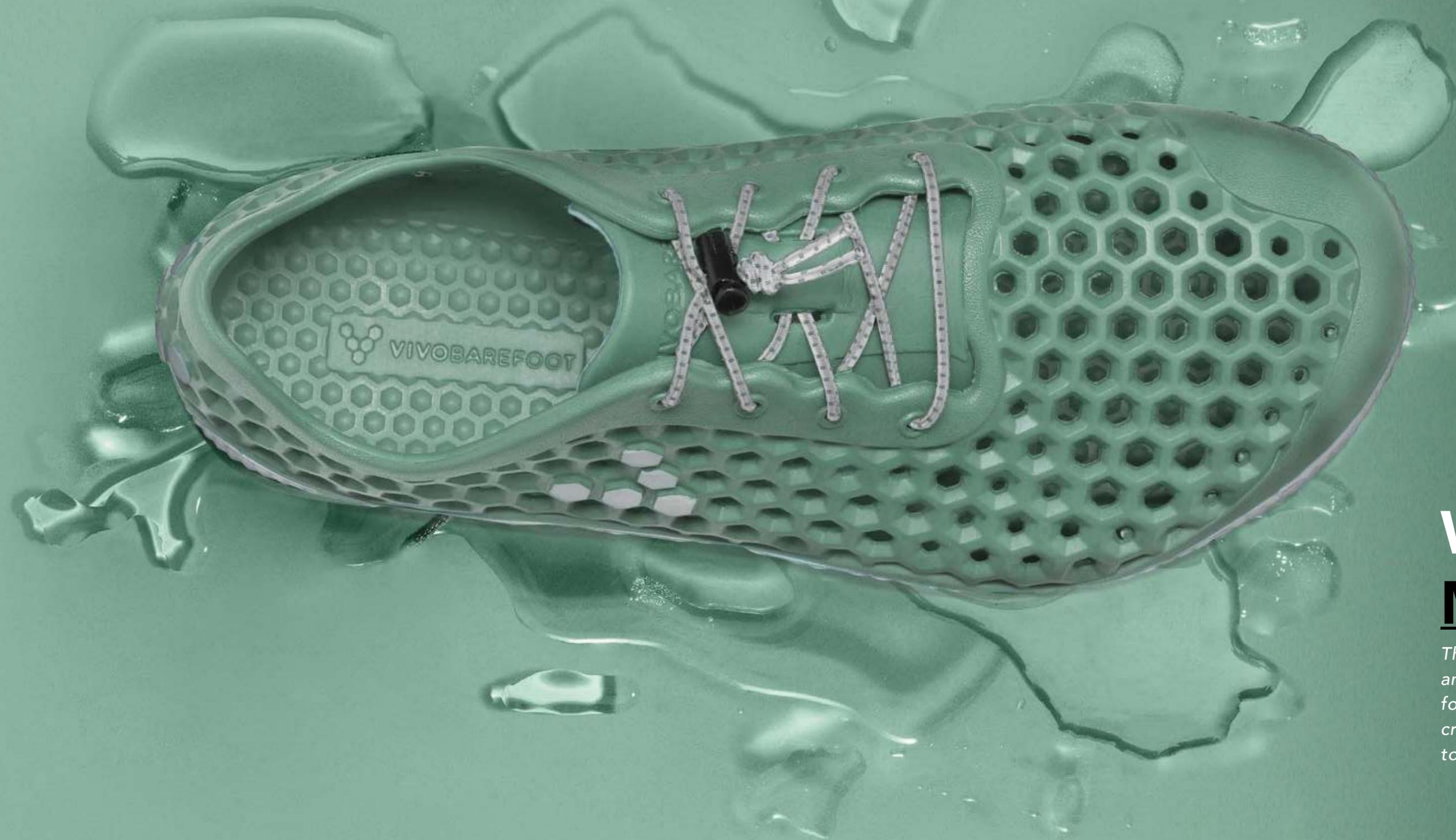
Biomaterials firm AlgiKnit is hoping to revolutionize the fashion industry with its biopolymer yarns, crafted from algae. The zero-waste fabric is suitable for clothing and footwear, and has already been used to create a prototype trainer. Studio Tjeerd Veenhoven's AlgaeFabrics project is likewise developing yarns for the textile and fashion industries.

In 2017, shoe company Vivobarefoot released the Ultra III Bloom trainers made from algae taken from high-risk algae bloom waterways. Algal blooms are vast accumulations of algae that release toxic chemicals which can be harmful to both humans and animals. Each pair of shoes prevents 40 balloons full of CO2 being released into the atmosphere and helps to keep waterways clear.



Material process, AlgiKnit, USA

ALGAE_POWER



WHY IT MATTERS

The world's growing food, fuel and material needs are driving a focus on algae, a versatile marine crop, as a host of industries look to capitalize on its properties.



FASHION CLEANS UP

As consumers increasingly demand the facts behind the label, the fashion industry is facing up to a number of environmental and ethical challenges.

The fashion industry is beset by a series of environmental issues relating to its heavy use of water, chemicals, plastics and synthetics. And even after the Rana Plaza disaster in 2013, the industry still allows poor working conditions. Despite this, there are signs that the industry is committed to positive and lasting change. *Elle* magazine devoted its September 2018 issue to sustainability, acknowledging the need for both reflection and action, while the Copenhagen Fashion Summit, the world's largest event on sustainability in fashion, expanded to two days for its 2018 edition and drew more than 1,000 attendees. A number of pioneering brands are leading the

cleanup and showing the way forward. Burberry's decision to incinerate unsold inventory worth in \$37 million in July 2018 provoked uproar on social media, yet the issue of waste in fashion is nothing new. "92 million tonnes of textile waste is created by the industry each year," says Christina Dean, founder and CEO of Hong Kong's The R Collective, adding, "It's literally putting environmental resources down the drain." Dean's business is addressing the problem by upcycling waste and offcuts into high-end sustainable pieces. The R Collective intercepts materials otherwise destined for landfill, including luxury offcuts and even used military uniforms from the

United States, Israel and China. House of Lonali similarly uses offcuts and unused lines from manufacturers to create unique and stylish garments. "If there's something wrong with it, if it's stitched wrong, if it's cut wrong, it ends up in landfill," says director Anna Carpenter. "There's so much wasted, and we're not always aware of the environmental impact." Working with skilled artisans in Sri Lanka, House of Lonali upcycles this unwanted fabric into shoes, clothing and even notebooks.

Another key challenge is presented by the toxic chemicals and processes used in fashion, allegedly the world's second biggest industrial polluter.



To tackle their impact, some brands are now turning to innovative processes.

In 2018 Dutch company G-Star Raw launched "the world's most sustainable jeans." The jeans, which featured in the V&A's Fashioned from Nature exhibition, are made using a washing technique where 98% of the water used in production can be recycled. Moreover, the innovative process cuts the use of chemicals by 70%. The company has made the process open-source so others can adopt it. Frouke Bruinsma, the company's corporate responsibility director, told *Wallpaper* that demand for more sustainable fashion is coming from the ground up: "When we launched our first organic cotton products, a decade ago, they didn't sell very well. Today, our customers are asking for it, and asking for total transparency in our supply chain as well, which is amazing."¹¹³

As Bruinsma suggests, transparency is fast becoming a must for fashion brands and retailers. 79% of our respondents confirm they would like more information on the sustainability credentials of the clothing brands they buy.

At the Copenhagen Fashion Summit in 2017, designer Martine Jarlgaard worked with Provenance, a blockchain company. Their pilot scheme tagged garments made from British alpaca with their full supply chain history; scanning a QR code on the label would even bring up a photo of the individual alpaca that was sheared for each item. Now Czech designer Martina Spetlova has become the first in her field to permanently adopt the blockchain solution, with her first tagged collection due to reach stores in October 2018. Spetlova acknowledges that blockchain is easier for small brands like hers to adopt, telling Forbes, “It’s quite hard for big businesses to apply it unless they make some massive changes.”¹¹⁴

Sustainability is a growing focus for fashion, yet many of these challenges, such as eliminating waste and recycling materials, are simply too big for companies to tackle alone, according to Global Fashion Agenda.¹¹⁵ The organization is among the voices calling for systemic change, involving collaboration with suppliers, consumers, NGOs and investors among others, to achieve material and process innovation, and lasting and meaningful process.

LanVy Nguyen, founder and managing director of Fashion4Freedom, agrees. “Human rights organizations and NGOs keep saying, ‘How can we force the fashion brands to change?’ The question is not, ‘How can we force?’, the question is, ‘How can we come together and create a different model for them to change the industry?’ The fashion industry is an ecosystem incorporating agriculture, manufacturing, logistics and storefronts, and for it to be truly sustainable each part must work together in a synergistic manner.”



Detox Catwalk, Greenpeace 2015, Indonesia, featured in the V&A's Fashioned From Nature exhibition, 2018

WHY IT MATTERS

Pioneering fashion brands are harnessing innovation to tackle major sustainability challenges. Labels and retailers that fail to take action will soon lose relevance, as shoppers demand greater transparency.



BACK to NATURE

The natural world is the ultimate model for sustainability, using resources efficiently and wasting nothing. Now innovators are emulating nature's circular model, creating products that feed rather than pollute the earth.

A wave of innovation in naturally biodegradable materials is tackling the issue of waste on another front: by turning it into something which nurtures our planet.

CuanTec, a small Scottish startup, is successfully using chitin, a natural biopolymer derived from langoustine shells, to create biodegradable, compostable and antimicrobial food packaging. The team now believe the same process can be used to create a compostable alternative to beer packaging and could even deliver the world's first compostable milk bottle.

Chitin is a versatile resource that is suitable for sustainable fabrics too. Swiss textile specialist Swicofil has blended its by-product chitosan with

viscose to create Crabylon™, which is being used in everything from athletic gear to bedding. The manufacturers liken its biodegrading capacity to that of fallen leaves, claiming it should decompose within two months of being buried.

Tea bags were traditionally the gardener's friend but, when green-fingered tea drinkers in the United Kingdom noticed their PG Tips tea bags weren't breaking down, it emerged that the bags contained a small amount of plastic. The Unilever-owned brand pledged that all tea bags would be compost-heap ready by the end of 2018, having already made the switch in Canada, Poland and Indonesia. Along with tea bags, we may also be finding lingerie in our compost heaps in future. Designed to biodegrade in your garden, the Very Good Bra,

Australia's first zero-waste bra, launched in May 2018 and is made from Tencel fiber and sustainable tree rubber elastic.

Plastic cutlery and straws have captured public imagination after images and videos emerged of their devastating impact on marine wildlife. One video of the plight of a turtle struggling with a plastic straw in its nose has been viewed more than 32 million times.¹¹⁶ 74% of our panel say they find disposable plastics off-putting, rising to 89% in China, where the Ele.me food delivery platform has now introduced edible chopsticks in wheat, green tea, and purple sweet potato flavors. The chopsticks break down within a week of being discarded.

Jin chair by designer Jin Kuramoto and produced by Offecct
www.offecct.com/product/jin-chair/, Sweden





While brands and retailers the world over line up to announce their bans on plastic straws, Loliware has introduced the world's first edible, hypercompostable and marine-degradable straws. The company also produces edible cups, made from seaweed, which are classified as organic, so can be tossed in with food waste. Loliware has already partnered with drinks giant Pernod Ricard, while Diageo has launched flavored edible straws with selected premix drinks.

The back-to-nature trend also invites renewed appreciation for well-loved traditional materials that are naturally biodegradable. Japanese designer Jin Kuramoto won the best product in show at the Stockholm Furniture Fair for his 100% biodegradable Jin chair made from flax. Kuramoto designed the chair for Swedish furniture brand Offecct and, while flax is more commonly used as a soft material (for items such as clothing and tea bags), he used bioresin to solidify the structure, making the whole thing sturdy yet biodegradable.



Hembury Chair with Feist Forest Samara Table, Solidwool, UK

"When we look
at what is truly
SUSTAINABLE,
the only real model that
has worked over long
periods of time is the
Natural WORLD."

- Janine Benyus
Cofounder, Biomimicry Institute¹⁷



WHY IT MATTERS

Companies need to reconsider every element of their products and packaging, aiming to design out materials that are not biodegradable wherever possible. Ride the wave of innovation in biodegradable materials and experiment with new ways of manufacturing, as, in the future, consumers may expect biodegradability and marine degradability as standard.



THE bioFABRICATION REVO L U TION

The future will be grown. A new wave of designers are harnessing the power of living organisms to create revolutionary new sustainable materials.

Designers are exploring the intersection between technology, biology and design to grow sustainable materials and processes that won't harm the planet.

New York-based biodesigner Danielle Trofe has been exploring design with mycelium, derived from the root structure of mushrooms. Mycelium is the largest living organism on the planet—one fungus in Oregon was found to measure 2.4 miles across.¹¹⁸ Trofe blends it with upcycled waste materials to create a strong, growing material. Her Mush-Lume lighting collection is just one product grown from mycelium, alongside planters. Trofe describes her process as

“tapping into nature,” adding, “at the end of its life, the lampshade is fully biodegradable, safely returning to the Earth. So we're not trying to troubleshoot on how to deal with the end product and it won't end up as a pollutant in a landfill.”

She recently added a grow-your-own mushroom lamp to her collection, funded via a Kickstarter campaign in partnership with Ecovative. Her DIY products point to a future where we may be able to grow many of the items we need ourselves, eliminating packaging and shipping impacts. “It's even more sustainable if we can teach people how to grow this in their home,” says Trofe.





Faber Futures, UK

Another pioneer innovating with mycelium is biotech firm Bolt Threads, which has created Mylo, a material barely distinguishable from leather, made without animal hide. The company is renewing its collaboration with Stella McCartney and the material was used for the company's Falabella Prototype 1 bag. The two companies previously produced a dress made from artificial spider silk in 2017.

Zoa bioleather, created by US biofabrication company Modern Meadow, also aims to replace leather but here the company uses collagen produced by a gene-edited yeast. Andras Forgacs, the CEO and cofounder of Modern Meadow, said during Business of Fashion's Voices conference, "We don't want Zoa to be imitative. We want it to be innovative. We want it to take what is familiar and what we love about leather but to build on that—go beyond that."¹¹⁹ These new materials aren't meant to be approximations of old ones—they are better.

Natsai Audrey Chieza is eliminating harmful chemicals from the textiles dyeing process by using living bacteria to dye fabrics at Faber Futures, her newly launched biodesign lab. Led by the principle "learning from nature,

making with life," the lab aims to use the knowledge and processes of nature in a scalable way for future biomanufacturers. Chieza says her work is about reimagining systems to unlock a better future: "It's about rethinking an entire paradigm of how things are that helps to see what our blind-spots are, potentially to introduce transformative innovation."

Harnessing the living library of nature and its processes is revolutionizing the design process as well as delivering sustainability. "By growing objects, you can come to a different design language which is much more efficient, accomplish much more, and be much more beautiful as well," explains Tom Domen, global head of long-term innovation, Ecover & Method—People Against Dirty.

By tapping into nature's design we can harness the power of billions of years of evolution.



Mylo (Modern Organic Leather grown from Mycelium), Bolt Threads, USA

WHY IT MATTERS

Biodesign and biomaterials are a perfect illustration of the power of reimagining processes and systems to unlock dynamic innovation. Over the next decade, biodesign has the potential to transform the everyday materials we use.



WHAT *it* ALL MEANS

- 1. TIME TO STEP UP**—Business has a critical role to play in the sustainability effort. Doing nothing is not an option. Brands that don't implement positive change risk irrelevance to consumers.
- 2. WELCOME THE NEW MINDFUL CONSUMER**—Sustainability is now a mainstream mindset so help consumers make it a full-time lifestyle.
- 3. VALUES MATTER**—Consumers want to know about your brand's values and whether these chime with their own.
- 4. CONVENIENCE IS KEY**—Brands can play a part in encouraging sustainable behaviors by making them affordable, accessible, habit-forming and, above all, convenient.
- 5. BE TRANSPARENT**—Let people make educated choices by giving them the full picture. Could you explore the blockchain or even become a B Corporation?
- 6. SUSTAINABILITY SELLS**—In the right context, it positively differentiates and drives product and brand choice. For many, it now trumps quality. But consumers may not always be willing to pay more for it.
- 7. CONSISTENCY MATTERS**—Ensure that negative stories do not counter sustainability initiatives elsewhere in the business, or even the wider supply chain.
- 8. TAKE SMALL STEPS BUT THINK BIG**—Businesses won't be transformed overnight, but each small step is progress on the journey towards bigger goals
- 9. NAVIGATE THE SUSTAINABILITY PARADOX**—Sustainable consumer behavior is complex. It's important to recognize that it may not be appropriate for every brand, in every context, to communicate their credentials.
- 10. SHARE YOUR STORY**—People want to know what efforts you are making, so if it's appropriate, share the good news. If it's honest and authentic, it won't feel like greenwashing.





When I Am Laid In Earth

Mapping with a pyrograph, the melting away of the Lewis Glacier on Mt. Kenya.
Simon Norfolk, Photographer

“These fire lines I have drawn indicate where the front of the rapidly disappearing Lewis Glacier was at various times in the recent past; the years are given in the titles. In the distance, a harvest moon lights the doomed glacier remnant; the gap between the fire and the ice represents the relentless melting. Relying on old maps and modern GPS surveys I have rendered a stratified history of the glacier's retreat. Photographing time's thickness, trying to expose its 'layeredness,' is something I've been attempting in different settings and through different channels for the last dozen years.

It seems entirely appropriate to make these images here. Mount Kenya is the eroded stump of a long-dead, mega-volcano. Photographically, I hope to re-awaken its angry, magma heart. I used petroleum to make my fire lines because our use of hydrocarbons is to blame for the glacier's disappearance.

See it now before it's gone: get over there quick before Mount Kenya is just an unadorned rocky stump, robbed of its innocent, frozen crown. Unless of course you feel that flying around the world injecting tonnes of hot CO₂ into the troposphere in order to witness the melting of Africa's glaciers, is just a little too ironic.

This work was made in conjunction with Project Pressure. www.project-pressure.org”

“WE HAVE A CHOICE to
make during our *brief, brief* visit
to this **BEAUTIFUL BLUE**
and **GREEN LIVING PLANET:**
TO HURT IT or to **HELP IT.**
For you, **IT’S YOUR CALL.”**

- Ray Anderson
Former CEO, Interface, 1934-2011



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¹ Marylyn Carrigan and Ahmad Attalla, “The myth of the ethical consumer—Do ethics matter in purchase behavior?” *Journal of Consumer Marketing*, Vol 18, 2001, 560–577

² Sæbjørnsen, Hege. 2018. Unbound panel discussion.

³ “China’s Social Credit System puts its people under pressure to be model citizens,” *The Conversation*, January 23, 2018, <https://bit.ly/2EY17g6>

⁴ “Who is more powerful—states or corporations?” *The Conversation*, July 10, 2018, <https://bit.ly/2wk1H2d>

⁵ Anna Lappé, annalappe.com

⁶ Certified B Corporation, “A Global Community of Leaders,” accessed August 28, 2018, <https://bit.ly/2NqMlZH>

⁷ “If Unilever Can’t Make Feel-Good Capitalism Work, Who Can?” *Bloomberg Businessweek*, <https://bloom.bg/2vHxIUy>

⁸ “The troubling evolution of corporate greenwashing,” *The Guardian*, August 20, 2016, <https://bit.ly/2bbTeRk>

⁹ Stacy Wood, Stefanie Robinson, and Morgan Poor, “The efficacy of green package cues for mainstream versus niche brands: How mainstream green brands can suffer at the shelf,” *Journal of Advertising Research*, Vol 58, No 2, 2018

¹⁰ “Purpose After Polman: How the Poster Child for Purpose Paved the Way for Future Leadership,” *Sustainable Brands*, December 25, 2017, <https://bit.ly/2wHXmGi>

¹¹ “How to do business with doughnuts,” *World Economic Forum*, January 25, 2018, <https://bit.ly/2DFN0wo>

¹² “Interface CEO: We’re Going Green By Using Other People’s Waste,” *Fortune*, August 8, 2018, <https://for.tn/2PIPvqn>

¹³ “In the Future, People Like Me Will Go to Jail,” *CNN Money*, May 24, 1999, <https://cnnmon.ie/2wxYfk6>

¹⁴ “Interface Reports Annual Progress Toward Mission Zero,” *Interface*, July 19, 2018, <https://bit.ly/2NrpDY9>

¹⁵ Hawken, Paul. *The Ecology of Commerce, Revised Edition: A Declaration of Sustainability*. (New York: Harper Business, 2013)

¹⁶ “Interface Moving from Net Zero to Climate Positive by Rethinking Factories as Forests,” *Sustainable Brands*, June 13, 2018, <https://bit.ly/2MxtRkB>

¹⁷ “Paul Polman: how I fended off a hostile takeover bid,” *The Financial Times*, December 3, 2017, <https://on.ft.com/2wMYrNj>

¹⁸ “What She Makes,” *Oxfam Australia*, October 2017, <https://bit.ly/2KOvUQe>

¹⁹ “Why We Do It,” *Detroit Food Academy*, <https://bit.ly/2PM6HVI>

²⁰ “Earth’s sixth mass extinction event under way, scientists warn,” *The Guardian*, July 10, 2017, <https://bit.ly/2tAWr9H>

²¹ “When conservationists combine strengths to overcome difficulties, nature wins,” *Nature Needs Half*, <https://bit.ly/2PLUqjN>

²² “Eye-opening tour of Solar Farm near Romsey,” *Friends of the Earth*, June 14, 2017, <https://bit.ly/2MyLvEo>

²³ “Patagonia CEO: This Is Why We’re Suing President Trump,” *Time*, December 6, 2017, <https://ti.me/2AyJ8KB>

²⁴ *Nature Represented*, accessed August 28, 2018, <https://bit.ly/2LwXqNG>

²⁵ “World Energy Outlook 2017,” *International Energy Agency*, 2017, <https://bit.ly/2z1WrUh>

²⁶ “Carlsberg Aims To Produce Beer With Renewable Energy,” *Just Means*, September 9, 2017, <https://bit.ly/2MDgnUj>

²⁷ “Lost in Transmission,” *Inside Energy*, November 6, 2015, <https://bit.ly/1RIBkVT>

²⁸ “Why A Drop Of 4 Degrees Made A Big Difference For A Garment Maker’s Bottom Line,” *NPR*, July 23, 2018, <https://n.pr/2wlBxfp>

²⁹ “7 Ethical streetwear brands for the woke hypebeast,” *Fashionista*, June 27, 2018, <https://bit.ly/2NaMgR0>

³⁰ “Ink Made from Air Pollution,” *Tiger Beer*, <https://bit.ly/2BUToza>

³¹ “How Trash Isles’ creators founded a country of rubbish to tackle a global crisis,” *Campaign*, June 27, 2018, <https://bit.ly/2IE4i1q>

³² “How popular are solar panels in the UK?” *GreenMatch*, March 9, 2018, <https://bit.ly/2pkRr5D>

³³ “Tesla deploys first 100 Powerwalls with solar for new virtual power plant in Australia—already having an impact,” *Electrek*, July 16, 2018, <https://bit.ly/2JoV8z3>

³⁴ “Study suggests exposure to trees, the sky and birdsong in cities beneficial for mental wellbeing,” *King’s College London*, January 10, 2018, <https://bit.ly/2zYStfY>

³⁵ “Indoor Air Quality and Health,” *International Journal of Environmental Research and Public Health*, October 25, 2017, <https://bit.ly/2LuE63K>

³⁶ “The Japanese practice of ‘forest bathing’ is scientifically proven to improve your health,” *Quartz*, October 12, 2016, <https://bit.ly/2ITiAnc>

³⁷ “Petal power: why is gardening so good for our mental health?” *Psychology Today*, May 13, 2015, <https://bit.ly/2NBO191>

³⁸ “The Well Economy,” *JWTIntelligence*, April 11, 2017, <https://bit.ly/2ovUg56>

³⁹ “Why exercising outside is the key to fitness: plus best outdoor classes and activities,” *The Telegraph*, April 28, 2017, <https://bit.ly/2wQp4TN>

⁴⁰ “Can beach cleans do more than clean up litter?” *Phys.org*, June 17, 2016, <https://bit.ly/2MBWbSW>

⁴¹ “Free the kids,” *Dirt is Good*, 2016, <https://bit.ly/2mmttWF>

⁴² “Children want to spend more time outside in nature,” *RSPB*, September 27, 2017, <https://bit.ly/2wtwREH>

⁴³ “Why veganism in the US has grown by 600% in the past 3 years,” *Collective Evolution*, February 11, 2018, <https://bit.ly/2MCPkIE>

⁴⁴ “Inside Hong Kong’s growing appetite for veganism,” *South China Morning Post*, October 28, 2017, <https://bit.ly/2PNeUcf>

⁴⁵ “Reducing food’s environmental impacts through producers and consumers,” *Science*, June 1, 2018, <https://bit.ly/2PO2zV0>

⁴⁶ “How Tel Aviv became the vegan capital of the world,” *The Independent*, November 6, 2017, <https://ind.pn/2qgVqRj>

⁴⁷ “In the land of milk and honey, Israelis turn vegan,” *Reuters*, July 21, 2015, <https://reut.rs/2LwfIP3>

⁴⁸ “A big pawprint: the environmental impact of pet food,” *The Conversation*, March 16, 2017, <https://bit.ly/2NrlfqZ>

⁴⁹ “If you want to save the world, veganism isn’t the answer,” *The Guardian*, August 25, 2018, <https://bit.ly/2oc94EI>

⁵⁰ “Greenpeace calls for decrease in meat and dairy production and consumption for a healthier planet,” *Greenpeace*, March 5, 2018, <https://bit.ly/2HuHECB>

⁵¹ “The future of protein,” *Forum for the Future*, <https://bit.ly/2Pdr4tw>

⁵² “Meat substitute market,” *Allied Market Research*, June 2018, <https://bit.ly/1PV3NeF>

⁵³ “Bugs are coming soon to your dinner table,” *Bloomberg*, July 5, 2018, <https://bloom.bg/2KBe572>

⁵⁴ “Bugs are coming soon to your dinner table,” *Bloomberg*, July 5, 2018, <https://bloom.bg/2KBe572>

⁵⁵ “The Illamasqua anti-fascism pledge,” *Illamasqua*, 2016, <https://bit.ly/2wu5slb>

⁵⁶ “Cameron Kasky, Jaclyn Corin, David Hogg, Emma Gonzalez and Alex Wind,” *Time*, April 2018, <https://ti.me/2J51gwL>

⁵⁷ “Generation Z,” *JWTIntelligence*, May 15, 2018, <https://bit.ly/2MVLkme>

⁵⁸ “Xiuhtezcatl Martinez explains why he’s fighting climate change,” *Teen Vogue*, April 30, 2018, <https://bit.ly/2JEOCGH>

⁵⁹ “Indonesia pledges \$1bn a year to curb ocean waste,” *The Guardian*, March 2, 2017, <https://bit.ly/2mwCLBc>

⁶⁰ *Kids Against Plastic*, <https://bit.ly/2wVIRib>



- ⁶¹ “With 250 babies born each minute, how many people can the Earth sustain?” The Guardian, April 23, 2018, <https://bit.ly/2qTVszo>
- ⁶² “Talking about overpopulation is still taboo. That has to change,” The Washington Post, June 18, 2018, <https://wapo.st/2BTAqZW>
- ⁶³ “‘It is a pretty nasty world’: why more Indians choose not to have kids,” Quartz India, July 30, 2018, <https://bit.ly/2wjs742>
- ⁶⁴ “Overpopulated and underfed: countries near a breaking point,” The New York Times, June 15, 2017, <https://nyti.ms/2rGIYKn>
- ⁶⁵ “Would you give up having children to save the planet? Meet the couples who have,” The Guardian, June 20, 2018, <https://bit.ly/2Lxfmru>
- ⁶⁶ “Americans are having fewer babies. They told us why,” The New York Times, July 5, 2018, <https://nyti.ms/2KLoGvD>
- ⁶⁷ “The best way to reduce your carbon footprint is one the government isn’t telling you about,” Science, July 11, 2017 <https://bit.ly/2uR0GMU>
- ⁶⁸ “We need three planets to keep the human race alive, NASA scientist says,” Motherboard, March 20, 2014, <https://bit.ly/2PLPL1f>
- ⁶⁹ “Delhi is not liveable because of catastrophic pollution: Jeffrey Sachs,” Hindustan Times, February 16, 2018, <https://bit.ly/2GsquKq>
- ⁷⁰ “More than 90% of air pollution deaths occur in poorer countries,” The Independent, May 1, 2018, <https://ind.pn/2rFR39w>
- ⁷¹ “How did Shenzhen, China, build world’s largest electric bus fleet?” World Resources Institute, April 4, 2018, <https://bit.ly/2ly80Tu>
- ⁷² “China’s built a road so smart it will be able to charge your car,” Bloomberg, April 11, 2018, <https://bloom.bg/2qvh5p1>
- ⁷³ “José Andrés and team served 3 million meals in Puerto Rico,” Eater, November 27, 2017, <https://bit.ly/2hW0Zkf>
- ⁷⁴ “Not a great female chef. A great chef, period,” CNN, May 31, 2018, <https://cnn.it/2xv7Zzd>
- ⁷⁵ “Op-ed: Will chefs be part of the climate solution,” James Beard Foundation, August 9, 2017, <https://bit.ly/2vWUqqS>
- ⁷⁶ “2018 Earth Day participants,” Zero Foodprint, 2018, <https://bit.ly/2ohugZJ>
- ⁷⁷ “Sustainable Restaurant Award 2018,” The World’s 50 Best Restaurants, 2018, <https://bit.ly/2wrnW5N>
- ⁷⁸ “Sustainable Development of Tourism,” United Nations World Tourism Organization, <https://bit.ly/2scg1WR>
- ⁷⁹ “Sir David Attenborough almost brought to tears by dying Great Barrier Reef,” Mirror, October 23, 2017 <https://bit.ly/2QCPwGi>
- ⁸⁰ “What are supermarkets doing to fight plastic?” BBC, January 14, 2018, <https://bbc.in/2NpYPY5>

- ⁸¹ “The world’s first climate-positive burgers to be launched,” Max Burgers, June 6, 2018, <https://bit.ly/2PKhNKE>
- ⁸² Alibaba sells \$25B worth of stuff in 1 day,” CNET, November 12, 2017, <https://cnet.co/2yXQWpS>
- ⁸³ “Hundreds of thousands of tons of garbage left by ‘Singles Day’ ringing green alarm,” Xinhuanet.com, November 16, 2017, <https://bit.ly/2ojXbfW>
- ⁸⁴ “Interview: George Monbiot and the road to surfdom,” Surf Europe, July 13, 2018, <https://bit.ly/2uCOKzZ>
- ⁸⁵ “After the Binge, the Hangover,” Greenpeace, May 8, 2017, <https://bit.ly/2EXRGJG>
- ⁸⁶ “Tom Dixon’s DELAKTIG: made with the power of many,” IKEA, February 6, 2018, <https://bit.ly/2NTIRcd>
- ⁸⁷ “US fashion start-up receives \$200m cash injection,” Drapers Online, August 6, 2018, <https://bit.ly/2Mfjg90>
- ⁸⁸ Bridle, James. New Dark Age: Technology and the End of the Future. (New York: Verso, 2018), 63
- ⁸⁹ “‘Tsunami of data’ could consume one fifth of global electricity by 2025,” The Guardian, December 11, 2017, <https://bit.ly/2Ab2H8W>
- ⁹⁰ “‘Much work needed’ to make digital economy environmentally sustainable,” The Guardian, February 20, 2018, <https://bit.ly/2EE7r94>
- ⁹¹ “Our phones and gadgets are now endangering the planet,” The Guardian, July 17, 2018, <https://bit.ly/2LijKpc>
- ⁹² Google, <https://bit.ly/2hyffB6>
- ⁹³ Apple, <https://apple.co/2v04cbl>
- ⁹⁴ “Microsoft to power Singapore datacentre services with rooftop solar,” ZDNet, March 1, <https://zd.net/2wuSovJ>
- ⁹⁵ “‘Tsunami of data’ could consume one fifth of global electricity by 2025,” The Guardian, December 11, 2017, <https://bit.ly/2Ab2H8W>
- ⁹⁶ “Bitcoin Sustainability Report June 2018,” Digiconomist, July 6, 2018, <https://bit.ly/2MBzoGV>
- ⁹⁷ “How smartphones are heating up the planet,” The Conversation, March 25, 2018, <https://bit.ly/2I9wAtB>
- ⁹⁸ “Impacts of nature imagery on people in severely nature-deprived environments,” Frontiers in Ecology, 2017, <https://bit.ly/2MBk6BR>
- ⁹⁹ “Greenpeace: To the Last Tree Standing,” Ads of the World, July 31, 2018, <https://bit.ly/2POtZdc>
- ¹⁰⁰ “World-famous lab begins work on genetic project to save cocoa,” New Food, January 5, 2018, <https://bit.ly/2LAMEG6>
- ¹⁰¹ “Meat consumption, health, and the environment,” Science, July 20, 2018, <https://bit.ly/2wvuyjp>

- ¹⁰² “How scientists are bringing extinct animals back to life,” CBC, October 11, 2017, <https://bit.ly/2Nq4ZYd>
- ¹⁰³ “We’ve Created Enough Plastic to Cover Argentina – and the Result Is Devastating,” The Wire, July 23, 2017, <https://bit.ly/2MZZqmo>
- ¹⁰⁴ “More than 8.3 billion tons of plastics made: Most has now been discarded,” Science Daily, July 19, 2017, <https://bit.ly/2tiKMxX>
- ¹⁰⁵ “Kenya imposes world’s toughest law against plastic bags,” Reuters, August 28, 2017, <https://reut.rs/2NtHbmx>
- ¹⁰⁶ “Rossana Orlandi to launch initiative to create ‘guiltless plastic’,” Dezeen, April 19, 2018, <https://bit.ly/2HcHFKE>
- ¹⁰⁷ “Carbon is not the enemy,” Nature, November 14, 2016, <https://go.nature.com/2rZ9L3v>
- ¹⁰⁸ “The Future 100 – 2016,” JWTIntelligence, December 2015, <https://bit.ly/1TvO6Yw>
- ¹⁰⁹ “What We Do,” Grubtubs, <https://bit.ly/2okyG1S>
- ¹¹⁰ “See How Algae Could Change Our World,” Forbes, June 15, 2018, <https://bit.ly/2PML5lz>
- ¹¹¹ “Feeding cows seaweed cuts 99% of greenhouse gas emissions from their burps, research finds,” The Independent, May 25, 2018, <https://ind.pn/2GNAGAd>
- ¹¹² “Exxon-partnered biotech group confident of boom in algae fuel,” The Financial Times, March 13, 2018, <https://on.ft.com/2BTADfm>
- ¹¹³ “G-Star Raw launches its most sustainable denim,” Wallpaper, February 15, 2018, <https://bit.ly/2MzYxl2>
- ¹¹⁴ “Meet The First Fashion Designer To Adopt Provenance’s Blockchain Service,” Forbes, July 25, 2018, <https://bit.ly/2PLcJpj>
- ¹¹⁵ “Pulse of the Fashion Industry,” Global Fashion Agenda, 2018, <https://bit.ly/2Hx5RHu>
- ¹¹⁶ “Sea Turtle with Straw up its Nostril – ‘NO’ TO PLASTIC STRAWS,” Sea Turtle Biologist, August 10, 2015, <https://bit.ly/2LCEgpl>
- ¹¹⁷ Biomimicry Institute, <https://bit.ly/2kcMGHj>
- ¹¹⁸ “The largest living thing on Earth is a humongous fungus,” BBC, November 19, 2014, <https://bbc.in/2aKbRzH>
- ¹¹⁹ “Welcome to the Era of Biofabrication: Andras Forgacs,” Business of Fashion, April 23, 2018, <https://bit.ly/2PLdJK5>



ABOUT US

ABOUT THE INNOVATION GROUP

The Innovation Group is J. Walter Thompson's futurism, research and innovation unit. It charts emerging and future global trends, consumer change, and innovation patterns—translating these into insight for brands. It offers a suite of consultancy services, including bespoke research, presentations, co-branded reports and workshops. It is also active in innovation, partnering with brands to activate future trends within their framework and execute new products and concepts.

ABOUT J. WALTER THOMPSON INTELLIGENCE

The Innovation Group is part of J. Walter Thompson Intelligence, a platform for global research, innovation and data analytics at J. Walter Thompson Company, housing three key in-house practices: SONAR™, Analytics and the Innovation Group. SONAR™ is J. Walter Thompson's research unit that develops and exploits new quantitative and qualitative research techniques to understand cultures, brands and consumer motivation around the world. Analytics focuses on the innovative application of data and technology to inform and inspire new marketing solutions. It offers a suite of bespoke analytics tools.

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