

SPENDING 71 DAYS ALONE AT SEA WITH NOTHING MORE THAN THE BARE ESSENTIALS made me understand something for the first time: the meaning of the word finite. My boat was my entire world and what was in it were the only things I had for my survival. I had to manage what I had down to the very last item. Stepping off the boat at the finish line, it hit me that all of us are living in a world dependent on finite resources. • Once I had made that connection, I couldn't put down the thought. I began asking questions; speaking to scientists, economists, academics, business leaders from many different industries all over the world to better understand the way our economy uses resources. One thing that I learned very fast was that the issue isn't just about our dependence on fossil fuels. It's also materials like tin, indium, copper, zinc and silver, which are also ultimately finite. And although no one knows exactly how much of each we have under the ground, it's predicted that some will last us less than a generation. • As I learned more, I began to

LOOKING AT EVERYTHING DIFFERENTLY

adapt my own behavior. I started to buy less, use less, do less, but that alone never sat right with me. Surely this wasn't the answer. Even if everyone on the planet started using fewer resources, that would still just be a way of buying ourselves more time, making the materials we have stretch a little further. I realized the system itself is fundamentally flawed and that we needed to rethink and reshape our entire economic model. We need to look at the whole thing differently. • In natural systems, materials flow in cycles. The nutrients from one species become food for another, organisms live and die, and eventually they are returned to the soil and the cycle starts again. But, as humans, we have created a different system. Our system is linear, extractive and wasteful. We take materials from the planet, make products from them, and throw them away. • What if we created a system that was regenerative and restorative by design—one that reuses resources, rather than using them up? What if the model were not linear, but circular? • From that four-year journey, continually asking questions about how our economy can work in the long term, the Foundation was launched. Our mission is to accelerate the transition to the circular economy. Since we began in 2010, the concept has generated huge momentum. Hundreds of companies are now working to incorporate it; analysts and researchers are

A portrait of Dame Ellen MacArthur, a woman with short brown hair, wearing a black turtleneck and a dark grey blazer. She is standing with her arms crossed against a bright yellow background. The text 'Dame Ellen MacArthur' is overlaid on the image.

Dame Ellen MacArthur

In 2005, Ellen MacArthur became the fastest solo sailor to circumnavigate the globe. Five years later, she set up the Ellen MacArthur Foundation to accelerate the transition to a circular economy.

applying it to design innovative solutions; governments are waking up to the opportunity. And the urgency to redesign our economic model to one that is fit for the future is becoming clearer to everyone.

That's why we're truly excited about the opportunity ahead of us. A circular economy model can be applied to finding new solutions to so many of the global challenges we face, from plastic waste to climate change to biodiversity loss. At the Foundation, we're changing gear because perhaps the greatest challenge of all is adoption at scale. We aim to spread this idea quickly and across the whole economy.

BUILDING a Circular Economy

SOMETIMES IT'S A HOBBY THAT CAN LEAD TO a major career change. In Andrew Morlet's case, it was yachting. Aged 18, as a competitive yachtsman, he once sailed from Western Australia to Cowes. A more conventional career followed in clinical epidemiology and HIV research in the 1980s, and then 30 years as a management consultant at Anderson Consulting and McKinsey.

As a yachtsman, it was impossible for him to be unaware of Ellen MacArthur, who in 2005 broke the world record for the fastest solo circumnavigation of the globe. Eight years later, Andrew had a chance to talk to her from his hotel room in Delaware, where he was on client business. The focus was not on yachting, but her idea of the circular economy. "She was looking for somebody to help engage businesses in what she was doing and take the idea large. I could just see the potential.

"It was a lightbulb moment," he recalls. He quit his job "pretty much the next day" to become CEO of the not-for-profit that bears her name, whose mission is: "to accelerate the transition to a circular economy."

The Foundation has spent the last decade popularizing the concept of the circular economy. It focused first on quantifying the business opportunity and applying the idea to fashion, plastics and food. It now employs 150 people, has forged partnerships with over 500 companies and gained real momentum. "I did a Google search when I started on the topic of the

ANDREW MORLET,
Ellen MacArthur
Foundation CEO,
talks to
Brunswick's
CAROLINE DANIEL
about rethinking
the global eco-
nomic system.



circular economy. There were 50 to 100 references," Mr. Morlet recalls. "Now there are 120 million."

Let's start with a basic question: What is the circular economy?

The circular economy is best defined against the linear economy. We take materials out of the ground, make products that we use for increasingly short amounts of time and then they're landfilled. We take, make and waste at a phenomenal pace because everything is designed to be disposable—even high value, durable goods. Things aren't repairable and they're not made to last very long. We're seeing a tremendous flow of waste through the system. A circular economy takes a different view. Instead of everything being designed for redundancy and disposability, a circular economy designs things to be used for longer and kept in the system so we retain the energy, the materials. After use we can disassemble and repair products, remanufacture components and recycle materials. It's a shift in thinking from an economy that extracts value to one that creates it. It's restorative and regenerative by design. Crucially, the circular economy doesn't aim to reduce the negative effects of the linear economy; it's a fundamental, systemic shift to a new model.

So we're talking about more than recycling?

Recycling is part of it, but the circular economy is a much bigger concept. Recycling today is a process where we try to collect waste. We try to separate out some materials. And we're trying to recycle things that were never designed to be recycled. They're mixed up with other waste; different types of materials fused together. The yields we get from recycling today are incredibly low. So it's part of the circular economy, but the least valuable part. The real value lies in moving upstream in the process to design products from the start to be used many times and then eventually recycled, or composted so they go back to the soil; it's planned for. In fact, in a circular economy the very concept of waste is eliminated.

Why did you decide to use plastics to bring the problem to life?

In 2013 we looked at plastics as an interesting use case. There were high volumes everywhere, but no real data. Our research showed 78 million tons of plastic packaging is produced annually and only 14 percent is collected for recycling—even after 40 years of effort. Only 2 percent goes back into the value chain on a like-for-like basis. Almost a third escapes into the environment. Our report,



In her 2005 race to become the fastest sailor to circle the globe, Ellen MacArthur needed to survive with only what she brought on board. This made her reflect on the finite nature of resources, which set her off on another journey. In 2010, she launched the Foundation that today is mobilizing action across the world to create a circular economy where nothing is wasted.

published in 2016 with the World Economic Forum, showed that if we continue on this trajectory by 2050 there could be more plastic than fish in the ocean. It generated huge media coverage and raised awareness of the problem.

How did you arrive at a systems-wide approach?

We were talking to the CEOs of some of the world’s biggest consumer goods companies. They said, we’re the largest producers on the planet, with 1 to 2 percent of the volume of plastic on the market, but we can’t fix it. We need all the actors across the value chain working together. That meant we had to look at polymer manufacturers, packaging manufacturers, brands, retailers, cities, the collecting, sorting, recycling infrastructure: the whole system from end to end. The only way to address this challenge is to get collaboration across that system to agree on a common approach. What we’re looking to achieve is business-led global transformation of industrial systems—and that can only really be achieved in this way.

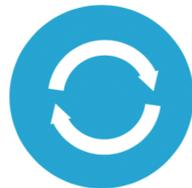
How did you get started on this?

Because no single company could address it, we got 45 companies across the value chain, with cities and governments, to explore how we create a system solution that could scale globally. You had multinationals designing products in Cincinnati and selling them in Delhi—so you need a global perspective on these

The THREE PRINCIPLES of a circular economy:



Design out waste



Keep materials and products in use



Regenerate natural systems

material flows. No mechanism existed to do that, so we created one. That was Project Mainstream.

To be quite honest, in the first year we didn’t know how to approach it. It was frustrating because everybody was trying to drive to a solution very quickly and promoting pilots and initiatives. We knew none of those ideas had any hope of scaling. We kept resisting it. They were the worst professional meetings I’d ever been in. I was sure we would never get to the next one. But we did get to the next one; everybody was there.

What was your role as a foundation in helping to bring people around the idea?

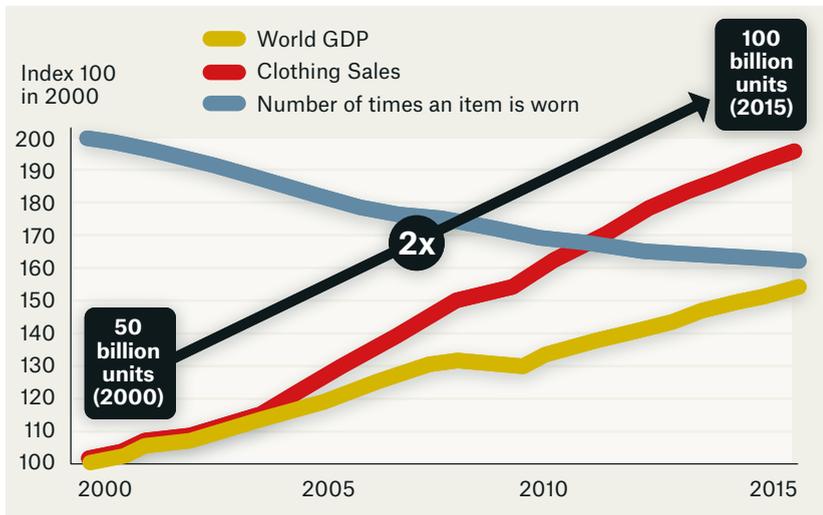
We built a team of ex-consultants who were deeply analytic, committed, unstructured problem solvers. What was unique was we weren’t engaged in a project. We had our mission and the luxury of being able to spend time on a problem in an open-ended way to find solutions that were comparable to the scale of the challenge. We resisted saying we’ll come back with a report in eight weeks and we’ll have an answer. We kept everybody in the room until we came up with something that made sense.

Given the essential need for systems change, what can any individual company do?

The very first thing is the recognition that the circular economy approach is not about incrementally

PHOTOGRAPH: MARCEL MOCHET/AFP VIA GETTY IMAGES

RETHINKING TEXTILES



GROWTH OF CLOTHING SALES AND DECLINE IN CLOTHING LIFESPANS SINCE 2000

The fashion industry is an illustrative model for the shortcomings of the linear economy. Textiles and clothing are a fundamental part of everyday life.

Globally, the \$1.3 trillion clothing industry employs more than 300 million people along its entire value chain, making it an important part of the world economy.

In the last 15 years, the industry has doubled

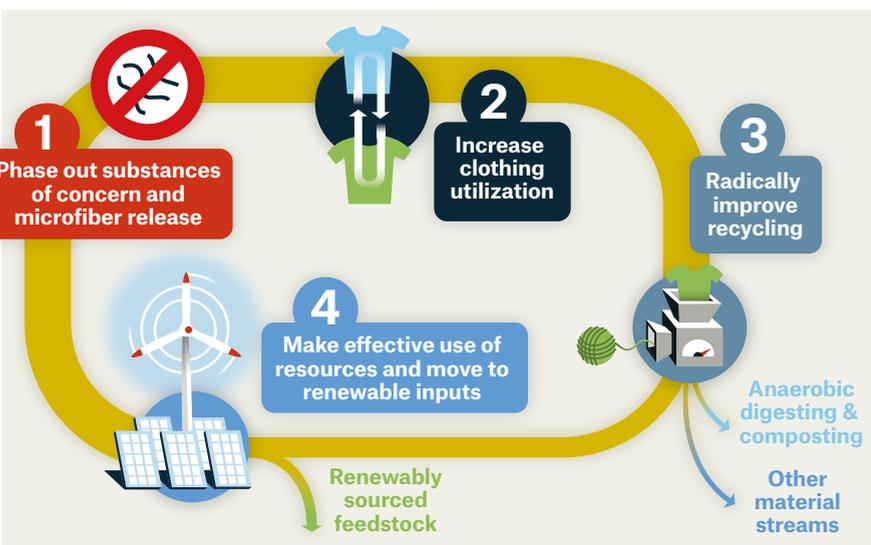
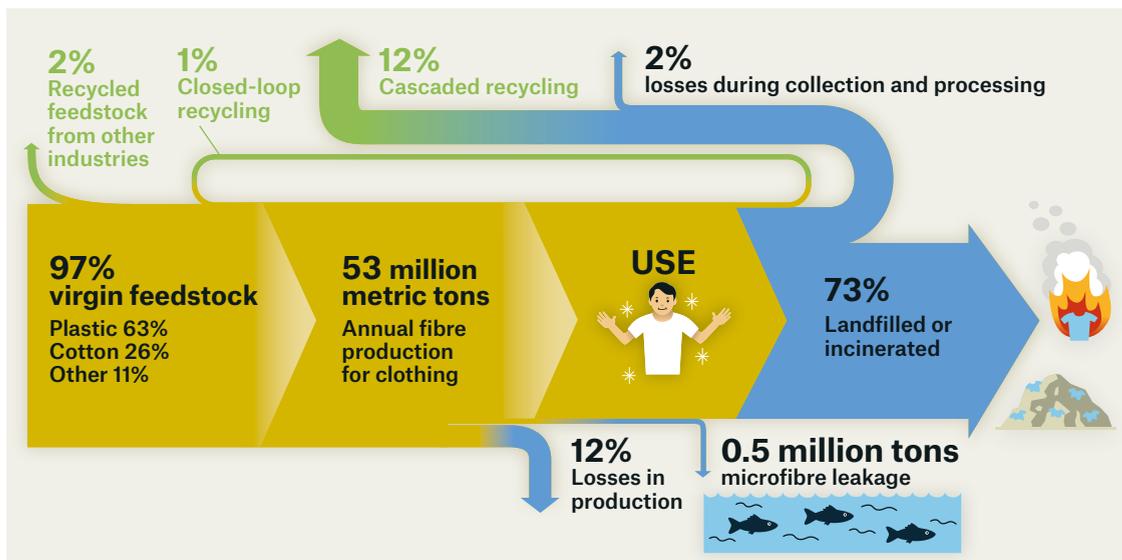
production, while the average lifespan of an article of clothing has fallen significantly.

Fashion and apparel are also a leading industry for greenhouse gas emissions.

In 2017, The Ellen MacArthur Foundation published a report outlining how the fashion industry could deliver better economic, societal and environmental outcomes.

FASHION TODAY: GLOBAL MATERIAL FLOWS IN 2015

Less than 1 percent of material used to produce clothing is used to make new clothing. Along with under-utilization of clothes, this represents a loss of more than \$500 billion a year. In 2015, emissions from textiles production totalled 1.2 billion tons of CO₂, more than those of all international flights and maritime shipping combined.



AMBITIONS FOR A NEW TEXTILES ECONOMY

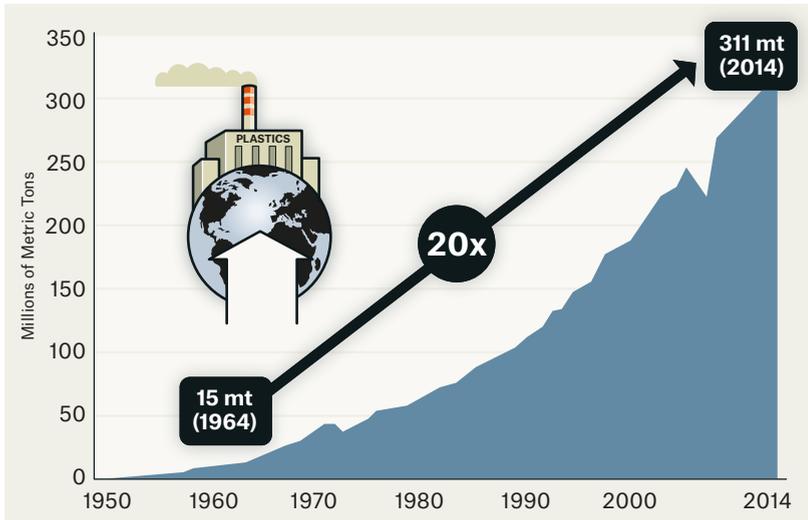
“The time has come to transition to a textile system that delivers better economic, societal and environmental outcomes,” The Ellen MacArthur Foundation wrote in 2017.

In its drive to “make fashion circular,” the Foundation has outlined **FOUR AMBITIONS** for businesses and governments to work toward:

- Phase out substances of concern and micro-fiber release;
- Transform the way clothes are designed, sold and used to break free of their increasingly disposable nature;
- Radically improve recycling by transforming clothing design, collection and reprocessing;
- Make effective use of resources and move to renewable inputs.

RETHINKING PLASTICS

GROWTH IN GLOBAL PLASTICS PRODUCTION 1950-2014



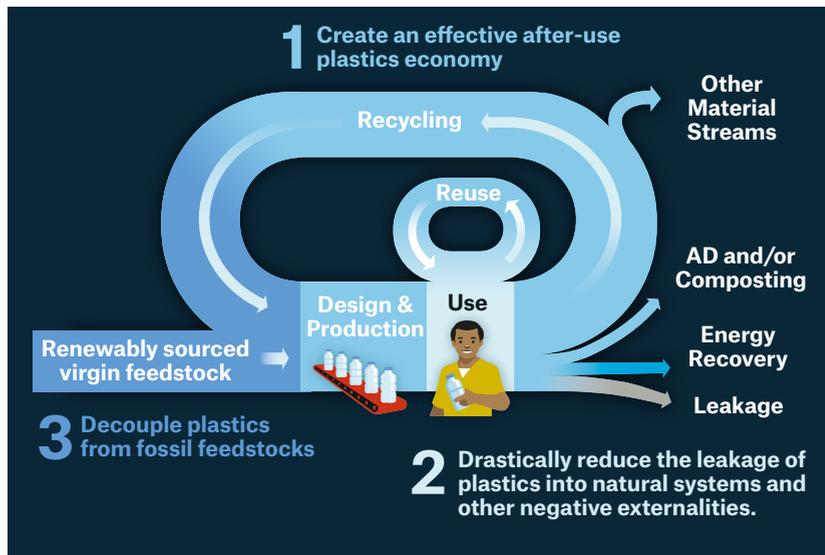
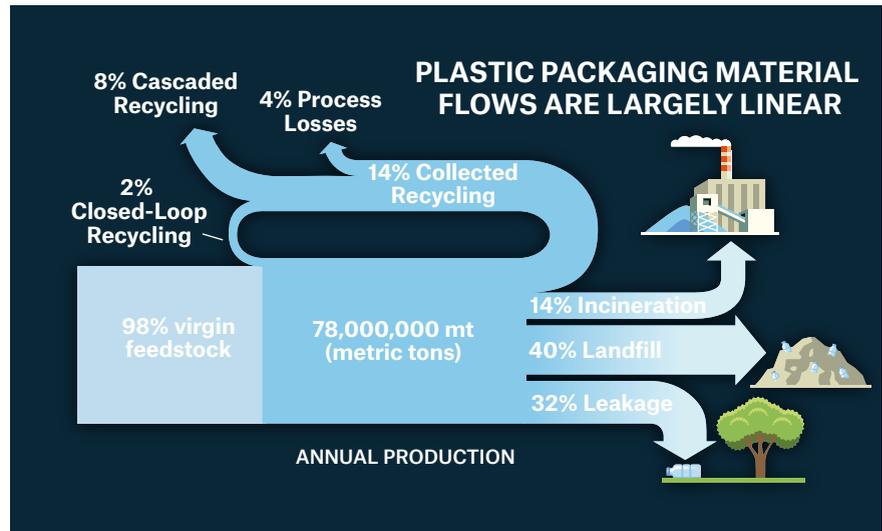
In an oft-repeated line from the 1967 film, "The Graduate," a young college student hears career advice from a middle-aged businessman: "I have one word for you, Ben: plastics." From a profit perspective, Ben might have done well to heed the advice. Since the mid-'60s, the industry has grown enormously, and is estimated in 2020

to be worth over \$650 billion. Yet while plastics are, in theory, one of the easiest materials to recycle, the variations in its makeup and use, coupled with laissez faire attitudes toward waste of all types, has created an overwhelming problem: Plastics in the environment have skyrocketed from 15 metric tons in 1950 to 311 metric tons in 2014.

PLASTICS TODAY

After a short first-use cycle, 95 percent of plastic packaging material value, or \$80 billion to \$120 billion annually, is lost to the economy. Only 14 percent is collected and only 2 percent becomes packaging again.

The Ellen MacArthur Foundation realized that the problem required more than a remedial plan to deal with waste; what was needed was a fresh approach to the system of product design, manufacture and distribution.



A NEW SYSTEM WHERE PLASTIC NEVER BECOMES WASTE

In 2016, the Ellen MacArthur Foundation launched its New Plastics Economy initiative, looking to rally businesses and governments to apply the principles of a circular economy to plastic use and production.

The graphic at left outlines the three core ambitions of that shift.

Each of the ambitions requires significant changes and

commitments. "Even with today's designs, technologies and systems, these ambitions can already be at least partially realized," the Foundation published in a report launching the initiative.

Their argument is that such steps deliver benefits both to the environment and the economy, as much of today's waste represents inefficiency.

reducing the harm of a linear product. This is not the typical understanding of sustainability: How do we lightweight something or reduce the negative impacts? This is re-thinking the way to deliver products or services. It requires a shift in business models.

As a company, that means the first thing is to think about what need are you meeting? How could you do that in a different way that aligns to the principles of the circular economy, keeping those products or materials in use and in the system longer?

Are there big companies that are doing this well?

At Philips, for example, they shifted their thinking from selling lightbulbs for business-to-business applications and they're now selling light as a service. You can buy 400 lumens of light at desk height on a subscription service. They own the lightbulbs that now last ages and the fittings, and you pay for the energy. It's become a new company call Signify and they're incentivized in an entirely different way.

Another is Caterpillar, which manufactures heavy equipment for mining industries. They now design the engines or entire truck to be efficiently upgradable and re-manufacturable. By design, it's become a piece of equipment that can stay in use for very long periods and they've built an information system to predict when it needs to be repaired.

Danone supports large scale, regenerative agricultural practices, which build soil health and increase biodiversity, and has pioneered the use of financial instruments to help farmers adopt such techniques. It is also using food design and innovation along the value chain to develop products that are not only healthy but also circular.

And what about small companies, can they play a role?

Certainly: The circular economy works equally for any type or scale of organization, companies large and small. In fact, small companies are becoming disruptors of the "disposability" approach: for example, offering digital subscription services for soaps or cleaning products, where you get one container and subscribe to refillable concentrates. There are fashion startups creating better-designed clothing or re-purposing older clothing. The RealReal is creating secondary markets for luxury goods and has now become a \$2 billion startup in just eight years.

With so many companies signing on to the idea, how do you hold them to account to act on it?

You're right. That is why we are building data underneath companies that partner with us. We recently

"We need to design for people in ways that enable them to participate constructively as part of the system. Not as consumers, but as people."

released the first report that underpins the Global Commitment where companies declare the amount of plastic they put on the market and the amount of recycled content in their plastics packaging. They have made a commitment that by 2025 100 percent will be recyclable, compostable or reusable against a standard set of definitions that we have built into this commitment. We can track that over time: it's open and public. Companies want to show they recognise they're part of the problem and can also be part of the solution. This issue of transparency is only going to get more attention. People will reward the companies that can prove they help.

Why are financial services your next focus?

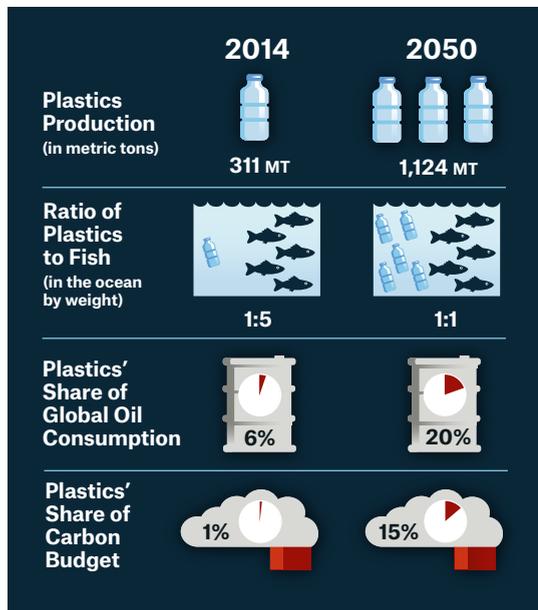
We began with plastics, fashion and food as demonstrators. We see finance as a propellant over the top of everything. We want to re-orient thinking toward stimulating and supporting companies transitioning in this way. How do we provide investment incentives for companies to do more of this activity? Our recent BlackRock partnership is important because it signals that the world's largest asset manager and institutional investor has recognized this is a topic. BlackRock has developed an investment product around keeping material flows in the economy.

Beyond business, how are governments helping this? Is any country leading?

When we started the Foundation in 2010, the only references we found for circular economy were from China; it had been part of the country's Five-Year Plans since 2006. We were asked to provide input and the EU picked up on the concept in 2012 and adopted an action plan in 2015. That led to several European countries developing their own national roadmaps, starting with Finland. The idea gained momentum and spread to Denmark, the Netherlands, Slovenia, France and several others. There's now momentum beyond Europe's borders as well, with Chile and New Zealand, to name but two, working toward circular economy national strategies.

How urgent is it that change needs to happen?

To give you an idea of the scale of the challenge, our linear global economy is set to quadruple by 2050: This has massive implications. Imagine the material consumption associated with that and the impact on finite materials. Research on plastics shows even if we model the most optimistic case for infrastructure, waste collection and re-use against that quadrupling, we're going to double the volume of plastics by 2040 and leakage will triple—which is scary.



MORE PLASTIC THAN FISH IN THE OCEANS BY 2050

At the 2016 World Economic Forum, the Ellen MacArthur Foundation shared a report with projections and statistics that still define the plastics discussion today. The most memorable figure was that, if nothing changes, by 2050 the amount of plastic in the ocean will outweigh the amount the fish. The figure was shared on social media with this graphic, and remains one of WEF's most shared pieces of content ever.

If you think of all materials in the periodic table, today we're attempting to recycle only about half a dozen; everything else we're burning through. In the process we're devastating and polluting natural systems, often with persistent toxins, globally. And, if the world is going to meet the climate targets set out in the Paris Agreement, we will need to fundamentally reshape how we design and use products like cars and buildings, and how we grow food and manage land. Our analysis shows that 45 percent of global greenhouse gas emissions stem from these areas, and that shifting to a circular economy model can play a big role in reducing them. Ultimately, circular economy is a framework for systemic solutions that address these existential global challenges.

How does innovation play into the challenge of managing that growth?

One of the most critical is the bio-material and renewable materials agenda. We urgently need plastics that are bio-sourced and biodegradable. They don't exist with the technical qualities needed to introduce them at scale. You can apply that to all sorts of materials in the economy. The materials backbone of society must become more renewable, and fourth industrial revolution technologies hold great potential for enabling this shift. This represents a real opportunity for directing future innovation in a way that could create the possibility for a more regenerative, bio-biased economic approach.

Who are you looking to work with now to help to scale this transition?

We're looking at the design community as a new scale

"This issue of transparency is only going to get more attention. People will reward the companies that can prove they help."

agenda for us. Everything we use is designed. We need to get the circular idea into the heads of designers. There are 160 million designers who have a role in shaping the world around us, the products that hit the market. We want to get to half of them in the next six years with the basic idea and engage 20 million designers with the tools to apply circular economy thinking into their daily work. We think this has the potential to scale our impact in a way that starts to match the nature of the challenges that we face.

You haven't mentioned the role of consumers—where do they fit in?

Personally, I do what I can. I try to use less plastics and re-use things. But like everybody else I'm massively challenged, because the systems don't work. I stand in my kitchen with plastics packaging I've no clue what to do with it—and I've been researching this stuff for years. I had a printer, two and a half years old, completely unrepairable. I took it to the tip and I'm heartbroken. I struggle with it.

At a broader level, firstly we need to stop calling people consumers—this is linear economic language—and get back to calling people, people. Everyone seeks products based on low price and convenience, and people act within systems they are given. That is why we need to design for people in ways that enable them to participate constructively as part of the system. Not as consumers, but as people. We need to help people get behind those companies who are doing this well.

How do we sum up the challenge from here?

We have the world's largest companies saying the circular economy isn't an if or a but; it's a when and a how. We have more leading businesses and governments getting behind this; it's on the G7 and G20 agendas. The challenge is to move—at pace and at scale—from understanding the concept to making the transition happen—shifting the economic model that we're locked into from a capital, process and business model perspective to one based on a whole new way of delivering products and services. We have to make this shift and do it with unprecedented urgency. The good news is we know this scale and pace of change can be done and has been done before—the technology enabling the global economy as we know it emerged over the past 20 years. The challenge now is to point it in the right direction and transform it to be regenerative. ♦

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