



Impossible Foods ... on a mission to create a better world*

10 years ago, **Patrick Brown**, a 56 year old biochemistry professor at Stanford University walked out of his job, frustrated at the world's increasing inability to save itself.

He concluded that the best platform to **create a better world**, was not government or academia, but business. He recognised the uniquely powerful, inspiring **potential of brands**, to engage consumers through their everyday actions, to do good.

Brown decided that the **environmental threat** was the most profound challenge which he could personally add value to, and in particular, the use of animals to make food.

Beef farming has caused huge destruction to rainforests, and the animals themselves significantly add to the world's **carbon emissions** – more than the entire world's transportation systems. He organised a conference on "the role of animals in a sustainable global food system" and was frustrated by nice words but little action.

He established **Impossible Foods** with a mission "to completely replace animals in the food system by 2035." He calls it "the most important and urgent problem in the world." To visualise the challenge, he created an ad campaign (above) where an astronaut returns to Earth in the next decade, to find a planet starved of much of its natural habitat.

He resolved that the **best strategy** would be to create a product that **competed against** animal foods commercially. "Why does meat **smell, feel, cook and taste** like meat?" he challenged his small team of scientists.

They found their answer in **heme**, the iron-containing molecule in blood, a component of haemoglobin.

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Brown started exploring how he could source the molecule in alternative ways from nature. He found heme in abundance in the **roots of clover**, and later also in soybean.



5 years later, and with \$300 million funding, he launched the Impossible Burger, a burger that looked, **smelt, sizzled and tasted** just as good as a traditional beef version. Even better when you consider its wider impact on the world. 0% cows, 95% less land, 74% less water, 87% less emissions.

His decided **not to target vegetarians**, but to win over meat-eaters, by understanding what drives them to choose meat – taste, smell, texture - and

then offer those benefits in a better way. Indeed, he defines his non-animal burger as "meat" saying "animals are a food production technology, and plants are another" he says, and so seeks to frame his product not as alternative, but as better.

Impossible Foods is now focused on developing a much broader **portfolio of foods**, including plant-based pork, chicken and fish. While beef farming is the most damaging to the environment, fishing is a close second. The total population of **fish in oceans** and rivers is less than **half** of what it was 40 years ago because of

overfishing, and some species have declined in numbers by 90%.



In an interview with *Time* magazine, Brown reflected "Right now, the dominant relationship between **humans and animals** is exploitative. Replacing animals as a food production technology will absolutely change that. Hopefully, rather than looking at animals essentially as a technology for producing food, we'll appreciate them more for the role that they play in making this a beautiful planet to live on."

Our world on fire ... brands as best platforms for change

In the midst of today's global **health crisis**, the pandemic has brought the fragility of our world front of mind ... melting ice caps and **rampant wildfires**, rainforest destruction and **extinction of species**, racial discrimination and social inequality ... Now is the time to act.

Human CO₂ levels need to fall by 45% from their 2010 levels by 2030 if we are to avert a climate catastrophe (according to IPCC). 26 people now have more wealth than 3.8 billion people (Credit Suisse). We can't afford to wait for political attitudes to change, or governments to act. Instead we should use the power of business to change our world.

Business can be an incredibly **powerful, and inspiring, platform for change**. Think about its unique assets, resources and reach. Brands change hearts and minds, emotionally engaging with people's aspirations and passions. Products and services can be innovated in ways that they do good as well as meet needs. Consumers and employees engage with brands every day, and collectively they can engage with each other to multiply their impact.

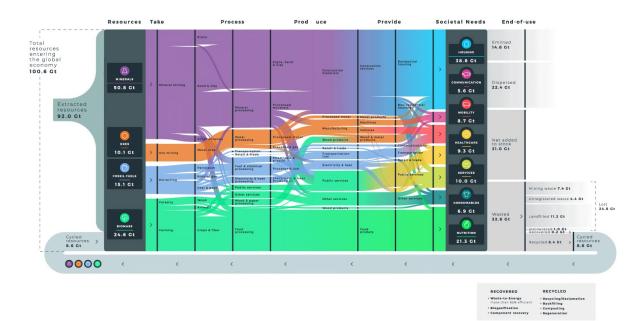
And as we see from Impossible foods, or the amazing synthetic "Spider Silk" spun into luxurious fashions by Bolt Threads, doing good can also be a fabulous driver of innovation

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and growth. Inspired by purpose beyond profit, **enlightened companies** reimagine solutions that are better in themselves, as well as for society and environment.

However we still have a long way to go ... Today, **the global economy is only 8.6%** "circular" (even less than two years ago, when it was 9.1%).

The global "circularity gap" is widening, according to a new report, *The Global Circularity Gap 2020*, published by the Dutch organisation, Circle Economy. The negative trend can be explained by three related, underlying trends: high rates of extraction, ongoing stock buildup, and low levels of end-of-use processing and cycling.



The report finds that **total resources** entering the global economy have increased by 8.4% in just two years from 92.8 billion tonnes in 2015 to 100.6 billion tonnes in 2017, the latest year for which data is available.



In that period total extracted resources have increased by 9%, from 84.4 to 92 billion tonnes. But the **total of materials that are reused** has grown by just 3%, from 8.4 to 8.7 billion tonnes, and fallen as a proportion of overall material use.

Despite all of the facts, most companies are still locked into the "take-make-waste" tradition of the linear economy.

Traditional levers such as **regulation and taxation** could force change, but a far

better approach is to create desirable, positive change. This is where we come back to business, aligning consumer needs and aspirations, with better ways to solve them.

Brands like **Toms** trailblazed this new mindset. **Blake Mycoskie's** "one for one" program, giving a free pair of shoes to children in poverty for every pair bought, created a powerful, desirable brand. Many brands now put sustainability at the core of their proposition (not just a supporting "CSR" initiative), creating better products, while also doing good:

• Adidas has just launched its latest "Futurecraft" sports shoes, spun from recycled threads that eliminate most waste, creating even lighter, better fitting shoes.

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- **Eileen Fisher**, the American women's fashion brand, "**upcycles**" consumers' old worn-out clothes, turning them into beautiful, individual collectors' items.
- **Icon**, has created a 3D printing process for house building, able to construct a new home for \$4000 in **24 hours**, in particular for refugees or disaster relief.
- **LanzaTech**, a Canadian renewable energy company created by Sean Simpson, captures carbon from the atmosphere, then converts it into **clean energy**.
- **Selina,** a Panama-based travel company for **digital nomads**, has created 47 beautiful vacation locations around the world, combining voluntary work with travel.

In today's world, business can aim for a net-zero impact through a more circular economic model, but they also have the potential to **do more** - to create a **net-positive impact**.

Reimagining "spider silk" ... how Bolt Threads imitated nature

Stella McCartney, the British fashion designer, is constantly searching for better fabrics, to create ever more beautiful clothes.

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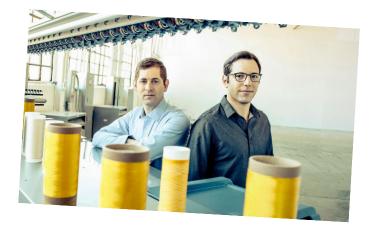
In fact there are only 31 different fibres that exist today, the last new fibre was created almost 80 years ago – 60% of the world's clothes are now made from carbon-based, non-biodegradable **polyester**.

McCartney is passionate about protecting our planet, yet fashion is the **second most polluting industry** after oil, responsible for 10% of all carbon emissions. It takes 7500 litres of water to make a pair of jeans, and 85% of all clothes end up in landfill.

However in Emeryville, California, she found the future. **Bolt Threads** is a biotech company

inspired by nature. Founded in 2009, **Dan Widmaier** and his team have become **obsessed with spiders**, or rather the silk fibres which they produce – incredibly **soft and as strong as steel**.

Bolt Threads set about understanding how to imitate the process, and synthesised a protein from which they were able to artificially grow beautiful silk threads – strong, soft and biodegradable - trademarked as **Microsilk**, and grown to order, in any size and colour.



Attracting \$230 million investment, they scaled up production, with McCartney as one of their first customers, and in 2019 creating a Microsilk-based collection for Adidas.

Widmaier is also exploring other materials, including a synthetic leather material called **Mylo**, grown from mycelium, the root structure of **mushrooms**. Mycellium can be harvested fast and naturally, and has all the durability of leather, but stretches too. Earlier this year, leading brands including Adidas, **Kering** and Lululemon joined together to scale-up Mylo.

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Hingrishers and geckos ... slug slime and humpback whales*

"Biomimicry" is the imitation of animals and plants, the models and systems of nature, to inspire new ways to solve complex human problems.



An early example was the study of birds to enable human flight. Although never successful in creating a "flying machine", **Leonardo da Vinci**, who trained as an anatomist was fascinated by the flight of birds, inspiring his designs for mechanical flight. Centuries later, the **Wright Brothers** succeeded in human flight, apparently inspired by racing pigeons.

Otto Schmitt developed the concept of "biomimetics" in the 1950s, studying the nerves in squid to engineer a device that replicated the biological system of nerve

propagation. A decade later, Jack Steele coined the term "bionics" as "the science of systems which have some function copied from nature".

Examples of innovations in today's world inspired by nature include

- Bullet trains inspired by the kingfisher: the world's fastest train is enabled by a nose cone that imitates the bird's long beak, reducing noise and increasing speed.
- Climbing shoes inspired by geckos mimic the tiny hairs on a geckos toes which allows it to climb up vertical surface, creating an adhesive force.



- **Wind turbines** have become quieter and more efficient, producing 20% more output, by imitating the bumpy edges on the flippers of humpback whales. Scientists assumed smooth edges would be better, but nature showed differently.
- Surgical glue inspired by slug slime is nontoxic and super-sticky, enabling surgeons to repair heart values, patch-up holes, and repair cartilage.
- Bionic leaf creates hydrogen fuel from sunlight while removing carbon dioxide, through artificial photosynthesis inspired by the common leaf



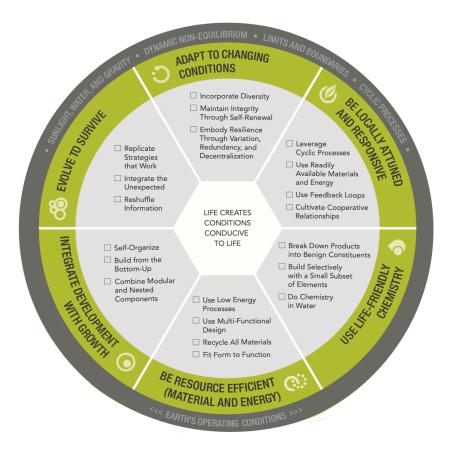
"When we look at what is truly sustainable, the only real model that has worked over long periods of time is the natural world" says **James Cameron**, the producer of the epic sci-fi movie *Avatar* in which humans and technology fuse with the natural environment.

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Biomimicry Design Lens ... solving our big problems, better

Scientist **Janine Benyus** is a leading authority on biomimicry as a way for innovators to be inspired by the ways in which the natural world has evolved over **3.8 billion years**, in particular pointing to its interconnected systems, which we can learn much from.

Benyus' organisation **Biomimicry 3.8**, based in Montana USA, has created a fabulous set of tools to support nature-inspired innovation. This includes the **Design Lens** (below) which sets out a framework for exploring how to design better solutions, in ways that might create better products for consumers, and also solve some of our biggest global challenges.



Chobani's Hamdi Ulukaya ... the billionaire Hurdish refugee*

The Turkish-born **Greek-style yogurt maker** prioritises people over profits, believes in growth through gratitude, and has donated most of his wealth to refugees.

Ulukaya grew up in a **Kurdish dairy-farming family** in Turkey near to the Euphrates river, where they made cheese and yogurt. They led a semi-nomadic existence, herding their sheep. Ulukaya was actually born on one of the family's long mountain treks. He left to study political science in Ankara and then **emigrated to the USA in 1994**, settling in upstate New York, an area which reminded him of eastern Turkey.

He studied English, and then business, while continuing to make **traditional feta cheese** in his kitchen, to earn some money. With a loan from the US Small Business Administration, he bought an old yogurt plant in 2005 and developed a recipe inspired by his Kurdish heritage. Two years later he started selling yogurt, under his brand name **Chobani**, derived from the Turkish word *çoban* meaning shepherd.

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Within 5 years, Chobani was a billion-dollar business, riding on a wave of interest in protein-rich, low-fat yogurt. At the same time Greek-type yogurt grew from 1 to 50% share of the US yogurt sector. EY recognised him as their Entrepreneur of the Year in 2013, his personal fortune grew rapidly to over \$2 billion, and Chobani is now the top selling strained yogurt brand in America.

However Ulukaya calls himself **the "anti-CEO"** because he dislikes many aspects of capitalism, particularly the notion of maximising value for shareholders ("the dumbest idea I have ever heard"). He hasn't forgotten his humble roots, and has continually spoken about the **rising inequalities** in our world, blaming business for the suffering of the

poor. He argues that too many of his fellow leaders blindly follow a "broken playbook", calling for leaders to be more "noble", to make more personal and financial sacrifices.

In an interview, he said "business people should promote a **sense of purpose** in their corporate culture to create a climate of positive change in business and the world. He stated that companies should focus on humanity and not just on their bottom lines. "Business is still the **strongest, most effective way to change the world**."

Responsible leadership ... in a sustainable, equitable world

Navigating our way through the last 9 months – the shock and complexity, change and uncertainty – has tested most of the world's leaders, in every kind of organisation.

In particular we've admired many of the **world's female leaders** who appear to have **stepped up** far more effectively than their male counterparts.

Think of New Zealand's Jacinda Ardern (authenticity), Norway's Erna Solberg (inclusivity), Germany's Angela Merkel (honesty), Iceland's Katrín Jakobsdóttir (innovativeness), Taiwan's Tsai Ing-Wen (decisiveness) and Sudan's Amira El Fadil (inspiration).

A new report by the **World Economic Forum**, supported by Accenture, questioned 3000 leaders, plus 1800 young leaders who have increasingly strong views on future priorities. It explores the characteristics most critical for leaders to navigate shocks and uncertainties, but also to build a better – more **sustainable and equitable** - world.

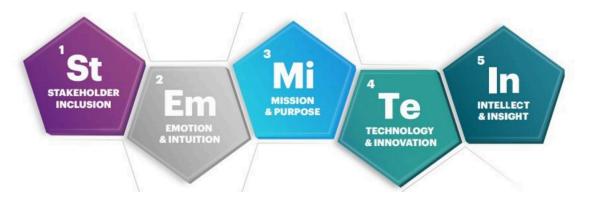
"Leading the world's organisations - businesses, governments, and non-profits - has never been as complex or as demanding as it is today" with **three priorities** for leaders:

- Leaders must be at their peak every day, delivering **high performance** in the short-term, simply as an **entry ticket** to look forwards.
- Leaders in a world of high-velocity change need to embrace continuous innovation in every aspect of their organisation, unlocking new value for the long-term.
- Leaders must earn and build **stakeholder trust** through **sustainable and responsible** approaches, delivering social and environmental progress.

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In particular, it identifies the need to find a new balance between short and **longer-term thinking**, if we are ever to address the biggest challenges in our world. It also highlights the trade-off between **trust and innovation**, to be more inclusive and achieve shared progress.

Companies that achieve all three priorities typically have distinctive **leadership**. Their top teams exhibit diverse and sometimes unfamiliar leadership qualities. These include **continuous learning** backed by data, a **stakeholder** mindset anchored in compassion, a technology vision reinforced by **creativity**, generous **humility**, and listening to **intuition**.



From these insights, the report proposes "The Five Elements of Responsible Leadership":

- **Stakeholder Inclusion**. Safeguarding trust and positive impact for all by standing in the shoes of diverse stakeholders when making decisions, and fostering an inclusive environment where diverse individuals have a voice and feel they belong.
- **Emotion and Intuition.** Unlocking commitment and creativity by being truly human, showing compassion, humility and openness.
- **Mission and Purpose**. Advancing common goals by inspiring a shared vision of sustainable prosperity for the organization and its stakeholders.
- **Technology and Innovation**. Creating new organizational and societal value by innovating responsibly with emerging technology.
- **Intellect and Insight**. Finding ever-improving paths to success by embracing continuous learning and knowledge exchange.

In leaders like Impossible Food's Patrick Brown, Bolt Thread's Dan Widmaier and Chobani's Hamdi Ulukaya, we can already see these five elements in action – leaders stepping up to find new ways forwards, good for business and good for the world.

As **Peter Drucker** said, "The greatest danger in times of turbulence **is not the turbulence** itself, but to act with yesterday's logic".

My new book *Business Recoded* is published in 6 weeks: now is the time to "recode" business and how we lead it, to survive but also thrive in these times of uncertain but significant change, and to find more **enlightened progress**.

Be safe. Be strong. Be smart.



*Extracts from my new book, *Business Recoded*, to be published on 1 December.

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