HULT PRIZE 2020

EARTH DAY NETWORK

United Nations
Office for Partnerships

2020 HULT PRIZE CHALLENGE

DRAFT 10/2/19

Bold Business
For A Better Planet

PHOTOS:

Climate Action Day 2019; burning forests in the Amazon seen from space; stranded ships on the Aral Sea.

In 2020, the Hult Prize challenges teams globally to build bold businesses that (1) have a positive net impact on the environment with every sale completed, dollar earned, and decision made and (2) reach no fewer than a million consumers within a decade.

2020 will mark the 50th anniversary of Earth Day and the 75th anniversary of the United Nations. As a consequence of Earth Day, the U.N. Sustainable Development Goals, and other related initiatives, environmental consciousness globally is arguably greater than it has ever been. However, the natural environment itself continues to be degraded at a massive scale by human economic activity.

At the Hult Prize we believe that the Earth doesn't just need better advocates, it needs more powerful allies—an entire generation of allies that is committed to deploying sustainable solutions to end environmental degradation. We believe that the time has come for the sort of militancy that arises not from protest, but from positive capitalism. The environmental movement has lacked the funding, solutions, and support it needs to achieve its goals. We believe the best hope for reversing environmental degradation is to harness the very forces that are causing it—capitalism.

To respond to the imperative of caring for our common home we need to do nothing less than reinvent the fundamentals of the economy and to create entirely new pathways of industrialization for emerging economies.

In 2020, our challenge to the vast and rapidly-growing Hult Prize community is to replace every industry and every product on the planet with a future, better version of itself. We will start by building bold businesses that improve the environment with every sale completed, dollar earned, and decision made.

To be clear: We're not looking for incremental improvements in efficiency or ways to make current businesses less environmentally damaging than they are today. We already know those pathways exist. We're looking for transformative models that change the very nature of supply chains; that introduce radically new business models; that cause us to rethink the most deeply-ingrained patterns in our behaviors; and to reimagine and replace the goods and services to which we are most accustomed, without a reduction of performance, quality, accessibility, or price.

It doesn't stop there. To amplify the power of this year's Challenge, we're partnering with the Earth Day Network to encourage all of you who participate in this year's Hult Prize to contribute the data that you gather to the Network's "Earth Challenge 2020."[1] Through the Earth Day-Hult Prize partnership, Earth Day in 2020 will become Earth Year. We will engage our digital community in over 100 countries to help you tell your stories not only of how you have built the world-changing companies of today, but also how you are advancing the U.N. Sustainable Development Goals and, in so doing, are inspiring the Earth allies of tomorrow. Success in this mission goes beyond the objective of building a world-changing company to win the Hult Prize, as peers of yours have done with amazing results every year for a decade. It involves capturing that positive energy and spreading it across the planet that you are working to heal.

The Hult Prize Challenge for 2020 is here: Bold Business for a Better Planet.

II. Embrace a **"Better Planet"** Mindset
(and then Measure Your Progress)

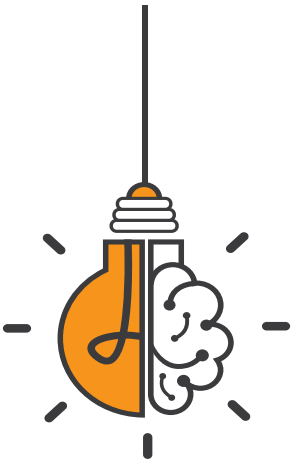
For nearly a century now, activists have framed the goals of environmental action in terms of "conservation" and "protection." These words have helped to forge a global consensus that we—humanity, collectively—are working against nature and squandering our natural wealth. However, these words have also ended up limiting our imagination—occasionally even discouraging the sort of radical solutions that we need to stop environmental degradation at its economic roots.

What is more, a steady drumbeat of bad news about the state of the planet has left many people believing that only governments, diplomats, and large corporations have the power to act at a minimum required scale, and that the rest of us can do little else than take to the streets.

At the Hult Prize, we see the world differently. We see the world from the standpoint of the individuals and small teams—the pioneers and visionaries of prior generations—who built the very institutions that activists are now seeking to change. Whatever they created we have the power to recreate on new foundations, and using new models. And that is exactly what this generation will do, one industry and one product at a time. It's as simple as that.

To get going with this year's challenge, we first need to change our mindset. Our starting point in drafting this year's Hult Prize Challenge is the observation that the Earth itself—the only known life-creating, life-supporting system in our universe—speaks a dynamic, language of continuous evolution and change. We human beings are a part of that evolving planetary ecosystem, not apart from it. Like other species, we shape the evolution of the planet. Whether we like it or not, we are creating a new planet every day, by our actions as well as by our inaction. So the question is not, what sort of planet are we protecting or conserving. It is rather: What sort of planet are we creating?

By accepting the reality that we are creating a new planet every day by our very presence on this earth among other living beings, we overcome the fear, guilt, and helplessness that has come to accompany environmental awareness. As we do so, we accept the responsibility to create a better earth.



"Yesterday is gone.
Tomorrow has not yet come.
We have only today.
Let us begin"[2]

- Mother Teresa

Why **one million** consumers?

"Learning is any change in a system that produces a more or less permanent change in its capacity for adapting to its environment."[3]

- Herbert Simon

This year's Hult Prize is about changing every part of how we live—how we eat, sleep, work, play … everything. To alter the daily routines of no fewer than one million consumers with your "Earth-allied" product or service demonstrates that you can transform an entire industry - the ultimate aim of the challenge.

If you have one million direct customers for your product or service in the next decade, then you have reached no fewer than one million consumers. That, obviously, is one way to satisfy the base requirement for the 2020 Challenge.

However, it is not the only way.

Here's another way: If your company has just one direct customer for a disruptive innovation, but that customer is Carrefour, Alibaba, Mars, or Burger King (as in the case of Impossible™ Whopper®, which we discuss below) then you have reached no fewer than one million consumers indirectly. Having even one single direct customer but indirectly reaching one million consumers also satisfies the base requirement for the 2020 Challenge.

Put differently, you are free to take a business-to-consumer (B2C) or business-to-business (B2B) approach to addressing the 2020 Challenge. Both are equally valid, as long as they reach no fewer than one million consumers in the next decade (both directly and indirectly) and they lead to the same objective: replacing every industry and every product on the planet with a future, better version of itself.

We have intentionally made our definition of how you reach no fewer than one million consumers a flexible one. After all, it took us at the Hult Prize just under 10 years to reach one million consumers. How quickly will you do it, so that you can create the industries of the future at the pace that the Planet needs them?

III. Improve the Environment with **Every Transaction**

If there is one concept that encapsulates the Hult Prize theory of change, it is "unit economics."

The logic of unit economics is simple: Your business can generate impact only if it survives in the market. And your business will survive only if it earns a profit on every transaction. "Unit economics" refers to the way you make a profit on every transaction so that your company can survive to make an impact.

To be successful in the Hult Prize this year (like every year) you will need to design a business model that reliably generates positive unit economics from a financial perspective—a business that earns a profit.

The difference between this year's challenge and others in the past—and it is a big one—is that we're also going to ask you to describe and quantify the environmental unit economics of your business: how you create a net positive environmental impact with every sale completed, dollar earned, and decision made. The more clearly you are able to define both your financial and your environmental unit economics, and the more fundamentally transformative will be the business you create, and the more effectively your business will meet the challenge defined by this year's Hult Prize.

To make it more real, here are two categories of existing companies that look like answers to this year's challenge.

The first category is ridesharing platforms (for example Uber, Lyft, Careem, and Gojek). These platforms use existing physical infrastructure—cars already on the road—and deploy that infrastructure as a flexible transportation network. More shared vehicles means fewer vehicles overall for the same number of trips. Particularly when ridesharing platforms involve carpooling, they may reduce the total number of miles driven. At the same time, because of their low cost and convenience, they may induce some passengers to travel in a motorized vehicle who may otherwise have walked, taken a bicycle, or taken public transit.[4]

Now consider meat-replacement companies (for example, Impossible Foods). Every pound of a plant-based meat substitute removes one pound of animal-based meat from the economy. One audited study estimates that a pound of plant-based meat substitute uses 90% less greenhouse gas emissions, requires 46% less energy, has 99% less impact on water scarcity and 93% less impact on land use than a pound of U.S. beef. This means that the same plot of land required to produce one U.S. beef burger can produce fifteen meat-substitute burgers.[5]

The success to date of these two models in the marketplace suggests that the financial unit economics of each are positive. But here is an open-ended research question for you: Which of these two solutions has more powerfully positive environmental unit economics?

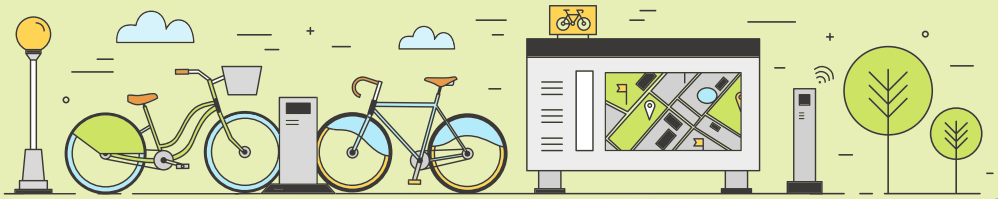
You don't need to answer this question in order to compete successfully in the 2020 Hult Prize. However, you will need to educate yourselves in the disciplines needed to come up with an answer: environmental science, ecology, conservation biology, and the analysis of complex systems, to name a few. And you will need to come up with a well-researched, carefully-considered explanation of why your solution has a positive net impact on the earth with every transaction that is comparable to that of the companies we describe in the challenge document.

Here's a simple formula to calculate the earth benefit created by your venture:

Earth Benefit =

(Net positive impact with every transaction)
X (Number of transactions)

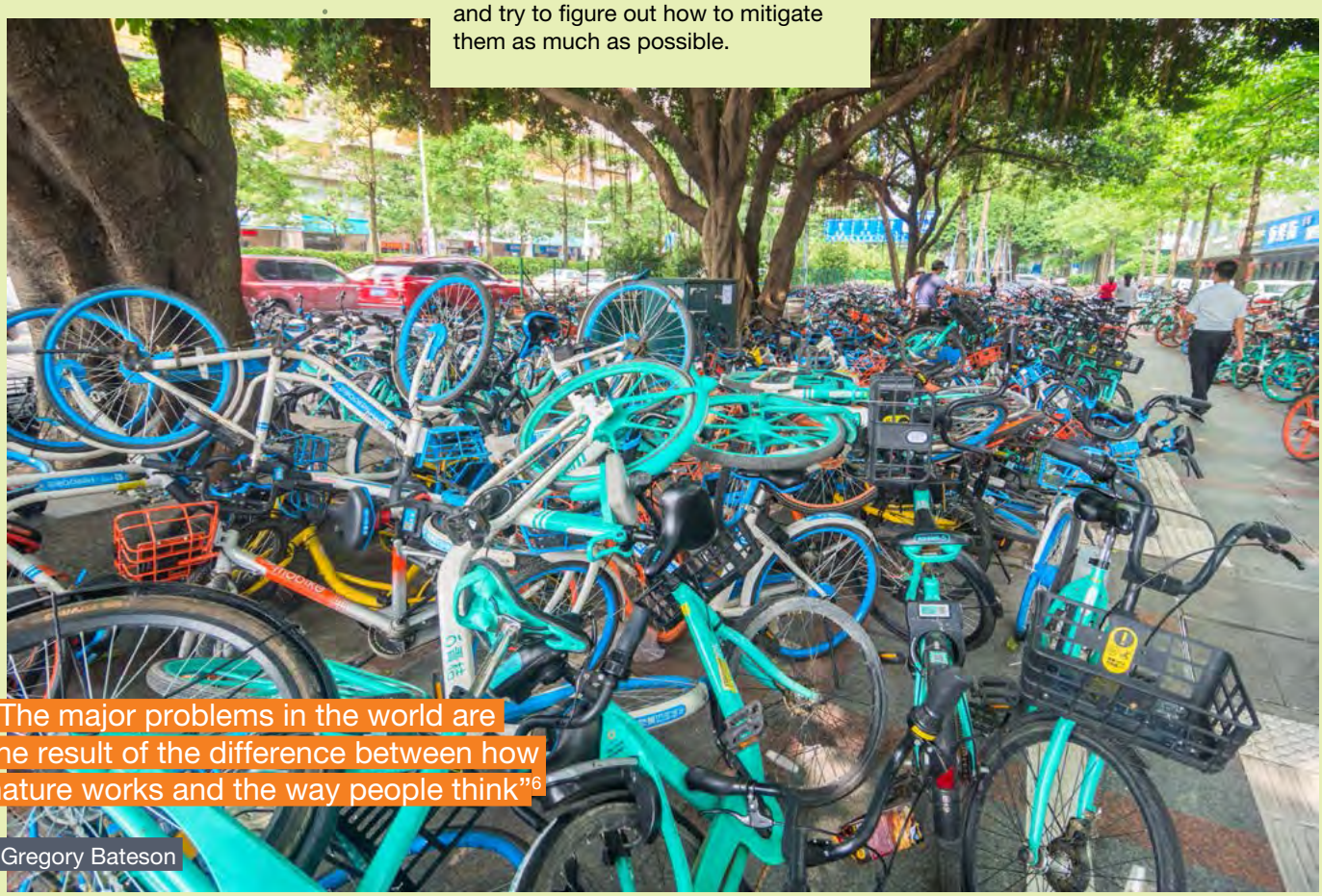
Note: "Environmental unit economics" and "earth benefit" are not Google-able terms, so don't try to look to the Internet for help with their definitions. Why not? Because they are breakthrough concepts the Hult Prize is unleashing with this year's challenge. They're not about sustainability. Instead, they're about disruption and large-scale impact. They're about putting into place the analytical foundation of bold businesses that have a positive net impact on the environment with every sale completed,



Measuring Progress
Toward a Better World

As you measure the net positive environmental impacts you should also carefully consider your venture may transfer environmental damage from one domain to the other, or create other unintended environmental consequences. For example, think about how bike sharing services have created an unintended consequence of junked bicycles piling up (sometimes literally) in cities. Such transfers and unintended consequences may be unavoidable. Just keep track of them and try to figure out how to mitigate them as much as possible.

One more tip: Avoid business models that are fundamentally about recycling and upcycling. We're not looking to do better things with the destructive byproducts and waste that are generated by 20th-century models of production. We're looking for 21st-century models of production that don't create destructive byproducts and waste to begin with. That's not easy, we know. But that's the goal.



"The major problems in the world are the result of the difference between how nature works and the way people think"[6]

- Gregory Bateson

"Legal economic **sabotage!**"

In 2008, Impossible Foods Founder Pat Brown had lunch with Michael Eisen, a geneticist and a computational scientist.

Over rice bowls, Brown asked, "What's the biggest problem we could work on?"

"Climate change," Eisen said. Duh.

"And what's the biggest thing we could do to affect it?" Brown said, a glint in his eye. Eisen threw out a few trendy notions: biofuels, a carbon tax. "Unh-unh," Brown said. "It's cows!"

When the world's one and a half billion beef and dairy cows ruminate, the microbes in their bathtub-size stomachs generate methane as a by-product.

Because methane is a powerful greenhouse gas, some twenty-five times more heat-trapping than carbon dioxide, cattle are responsible for two-thirds of the livestock sector's G.H.G. emissions. Every four pounds of beef you eat contributes to as much global warming as flying from New York to London—and the average American eats that much each month.

"So how do we do it?" Eisen asked.

"Legal economic sabotage!" Brown said. He understood that the facts didn't compel people as strongly as their craving for meat, and that shame was counterproductive. So he'd use the power of the free market to disseminate a better, cheaper replacement. And, because sixty percent of America's beef gets ground up, he'd start with burgers.

The New Yorker, "Can a Burger Help Solve Climate Change?" September 9, 2019

https://www.newyorker.com/magazine/2019/09/30/can-a-burger-help-solve-climate-change

IV. Focus on the **Revolutionary** over the **Evolutionary**

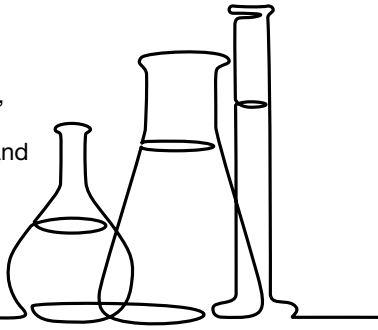
When we say that the goal of the 2020 Hult Prize Challenge is to replace every industry and every product on the planet with a future, better version of itself, that is exactly what we mean.

To get you going, here are companies in six specific industries that can serve as examples to you:

- Packaging
- Food and Agriculture
- Transportation
- Energy
- Construction and the Built Environment
- Cooling and Refrigeration

As always with the Hult Prize Challenge document, you should approach these examples as inspirations for your work, not models. We are looking for your game-changing innovation that doesn't exist yet, not simple adaptations of any of these models that are already in the market.

One more thing: You'll notice that a number of companies are creating impact by combining science - or engineering-based innovations with a viable business model. This is isn't a requirement of the challenge, but it is one possible strategy. If you're in a business school or arts and sciences, take a trip across campus to find out what some of your peers in science and engineering are working on!



Revolutionary over Evolutionary

Packaging

Full Cycle Bioplastics[7]

Full Cycle's Polyhydroxyalkanoate (PHA) bioplastic is produced naturally by bacteria using mixed organic waste as raw material. It can replace a wide range of synthetic plastics, yet it is compostable and marine degradable once its useful life is over. It is also cost-competitive with fossil-fuel based alternatives, creating the potential for widespread adoption and scale in both developed and emerging markets.

The Loop[8]

Loop is a delivery service reducing packaging and providing reusable containers for many common food and household goods. Loop's cleaning technology hygienically cleans the empty packages that are sent back so that they are ready for reuse—a 20th Century "milkman"-type model updated and generalized for the 21st Century.

Cambridge Crops[9]

Cambridge Crops is developing biomaterial coatings that can be applied to produce, ready-to-eat foods, meats, and seafood to slow the decomposition (and thus, spoilage) process—resulting in less food wasted. The coating technology is based on a patented water-based solution made of silk fibroin. It is biocompatible, hypoallergenic, technological (tunable release profile), and it is processed in only water at low temperatures. The coating is natural, biodegradable, odorless, and edible.

Food and Agriculture

Aspire Food Group[10]

Aspire Food Group is the global industry leader in the edible insect movement. In the United States, Aspire raises food-grade crickets on a commercial scale, and are actively working to normalize the consumption of insects in the western world as an abundant, low-cost protein substitute.

In Ghana Aspire commercially farms palm weevil larvae and run a program which empowers peri-rural farmers to raise palm weevils locally. Aspire was the winner of the 2013 Hult Prize.

Novonutrients[11]

Novonutrients takes untreated industrial emissions of CO2 and turns them into protein—initially for animal feed and starting in fish farming. Made from specialty microbes that grow on CO2, Novomeal's a natural, non-GMO, complete protein with all the amino acids and without mercury or other contaminants that are found in ground up little fish.

They will be able to enhance the base model with enzymes, with carotenoids, with omega threes, and with an array of other options.

Revolutionary over Evolutionary

Energy Consumption

M-KOPA[12]

M-KOPA Solar, headquartered in Nairobi, Kenya, is the market leader of "pay-as-you- go" energy for off-grid customers with almost half a million connected homes worldwide
Founded by former executives behind M- PESA, M-KOPA (“M” for mobile and “KOPA,” which means “borrow” in Swahili) combines mobile payments with GSM sensors to enable consumer financing of solar power systems. The company was established on the belief that mobile technology will revolutionize energy services in emerging markets the same way it has already changed communications and banking.

BYD[13]

Founded in 1995 as a pioneer in battery technology, BYD’s mission is to change the world by creating a complete, clean-energy ecosystem that reduces the world’s reliance on petroleum. BYD’s innovative products are leaders in multiple sectors, including battery-electric automobiles, buses, medium- and heavy-duty trucks and forklifts; the SkyRail monorail system; solar power generation and energy storage systems; and consumer electronics.

Inyenyeri[14]

Inyenyeri is a for-profit renewable energy company providing a clean and affordable cooking solution to rural and urban households in East Africa, starting in Rwanda. They supply high-quality cookstoves to customers on a lease basis and produce clean-cooking fuel pellets locally. By creating a system that incorporates both the fuel and the stove, they are able to create demand for their revenue-generating product while maximizing the health, environmental and social impacts of clean cooking. The company was founded in 2012 by Eric Reynolds, outdoor outfitter Marmot's co-founder and former chairman and CEO.

Transportation

FACC[15]

FACC is an Austrian company on the frontier of the coming revolution in drone taxis. By enabling individual urban transport to occur in the air, drone taxis hold the prospect of liberating streets from large vehicles and converting them to greenspaces optimized for human-scale transport.

Roshni Rides

Roshni Rides is a commuting platform built for women and children that provides transportation solutions for businesses, schools, and individuals. Currently operating in Pakistan, Roshni Rides is reducing emissions and making mobility easier at scale by enabling carpooling. Roshni Rides was the winner of the 2017 Hult Prize.

BuuPass

Buupass is the dominant online marketplace in Kenya for booking long-distance bus rides, flights, and trains. The mission of BuuPass to transform inefficient transport systems into catalysts for growth and impact. BuuPass (previously known as Magic Bus Ticketing) was the winner of the 2016 Hult Prize.

Revolutionary over Evolutionary

Construction and the Built Environment

Carbon Cure[16]

CarbonCure is the world leader in CO2 utilization technologies for the cement and concrete sector. Its retrofit technology chemically mineralizes waste carbon dioxide during the concrete manufacturing process to make greener and stronger concrete. The CarbonCure Technology is being used by concrete producers across North America and Southeast Asia to reduce concrete's carbon footprint, create new production cost savings and gain a competitive sales advantage. Concrete plants are retrofitted in a single day and require no CAPEX or changes to their materials and production practices.

Apis Cor[17]

Apis Cor, a Russian company, has developed a mobile construction 3D printer with the capacity of printing whole buildings completely on site within a matter of days. Total resource use and end-cost to consumers are substantially lower than conventional construction methods, while the speed of In February of 2019 Apis Cor won first place in Phase 3: Level 3 of NASA's 3D-Printed Habitat Challenge.

Delos Living[18]

Delos is amplifying the impact of environmentally-focused building standards (for example, LEED[19]) by expanding them to include human wellness in the built environment.

By pioneering wellness building standards, Delos is redefining the boundary between the built environment and the natural world, opening the door to a coherent approach to design, building, and living that strengthens the planet at the same time that it nurtures people.

Cooling and Refrigeration

Cold Hubs[20]

ColdHubs, is a "plug and play" modular, solar-powered walk-in cold room, for 24/7 off-grid storage and preservation of perishable foods. It adequately addresses the problem of post- harvest losses in fruits, vegetables and other perishable food.

ColdHubs, is installed in major food production and consumption centers (in markets and farms), farmers place their produce in clean plastic crates, these plastic crates are stacked inside the cold room. This extends the freshness of fruits, vegetables and other perishable food from two days to about 21 days.

The solar powered walk-in cold room is made of 120mm insulating cold room panels to retain cold. Energy from solar panels mounted on the roof-top of the cold room are stored in high capacity batteries, these batteries feeds an inverter which in turn feeds the refrigerating unit.

EcoZen Solutions[21]

Ecozen Solutions is an energy-focussed company that provides renewable energy based products.

Ecofrost is a portable, solar powered cold room with a storage capacity of 5 metric tons that does works with an efficient thermal energy storage to provide backup of over 30 hours. It is meant to be used for on-farm cooling and storage of produce right after harvest. The product primarily designed for energy starved areas, as it does not depend on grid electricity.

InspiraFarms[22]

InspiraFarms produces energy-efficient pre-cooling and cold rooms, packhouses and automated ripening chambers that allow agribusinesses to leapfrog barriers to emerging technology and finance and grow sustainably.

They provide agribusinesses and food distributors with sustainable growth solutions that significantly cut energy costs, reduce food losses and come ready to meet the major international food safety certifications, and allow for remote performance monitoring on or off-grid.

Make the Most of Proven Business Models

Subtraction:

Removing a step from the supply chain

Example: DocuSign

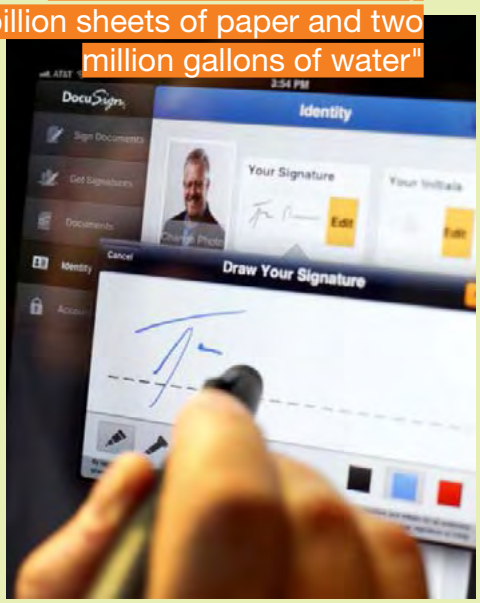
Since it was founded in 2003, DocuSign has been focused on a simple but powerful service: secure and verifiable electronic signatures.

Today, DocuSign has over 500,000 customers and hundreds of millions of users in over 180 countries around the world—all signing business and other agreements electronically rather than using paper.

DocuSign didn't just make the practice of signing and sending paper documents more efficient—it eliminated that practice altogether. The resulting environmental impact has been huge.

To date, the use of DocuSign's services has saved twenty billion sheets of paper and two million gallons of water (needed to make that much paper), and has avoided the production of 1.6 million pounds of CO_2 emissions.

"To date, the use of DocuSign's services has saved twenty billion sheets of paper and two million gallons of water"



Substitution:

Creating a radically new product or service to replace an existing one

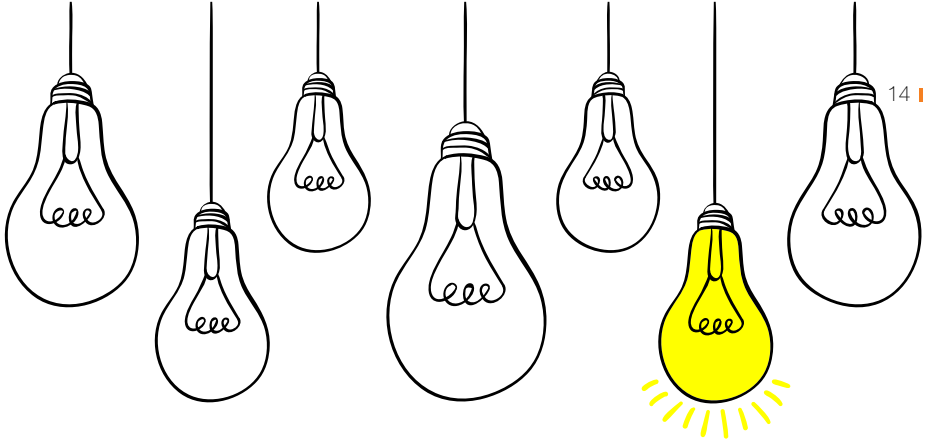
Example: Impossible Foods

Impossible Foods Inc. is a company that develops plant-based substitutes for meat and dairy products.

Founded in 2011, and headquartered in Redwood City, California, Impossible Foods aims to give people the taste and nutritional benefits of meat and dairy without the negative health and environmental impacts associated with livestock products. The company researches animal products at the molecular level, then selects specific proteins and nutrients from plants to recreate the experience of specific meat and dairy products.

On April 1, 2019, the fast food restaurant chain Burger King announced that they would sell an Impossible Foods-based burger—the Impossible™ Whopper®—in more 7,000 locations.

"The company researches animal products at the molecular level, then selects specific proteins and nutrients from plants to recreate the experience of specific meat and dairy products."



Radical New Efficiencies:

Orders-of-Magnitude Reductions in Resource Consumption

Example: AeroFarms[23]

AeroFarms is an urban agricultural company that has developed a modular, stackable, aeroponic growing system with the capacity to produce fruits and vegetables in any location, with neither soil nor sun as inputs.

The AeroFarms growing method is as much as 130 times more productive than a field farm, uses 95 percent less water, and requires 40 percent less fertilizer, with no use of pesticides. Crops that usually take 30 to 45 days to grow—like the leafy gourmet greens that make up most of the company's output—take as few as 12.

This allows the food production system to become more sustainable and safe by creating the potential for commercial-scale farming in urban centers.

The AeroFarms growing method is as much as 130 times more productive than a field farm

Biomimicry and nature-based solutions:

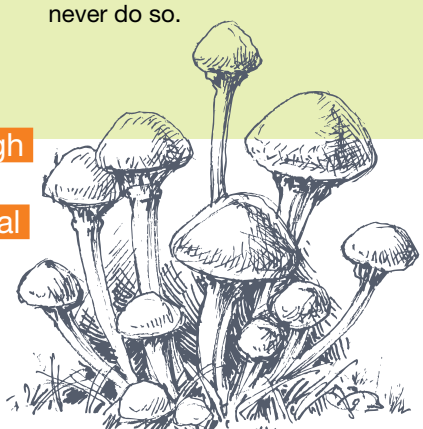
Using nature's own principles to redesign existing goods and services

Example: Ecovative Design LLC[24]

Ecovative Design LLC is a biomaterials company headquartered in Green Island, New York that uses a mushroom-inspired technology to create biodegradable packaging materials, animal-free leather, alternative meat products, and other market-changing products.

The environmental footprint of these "mushroom materials" is minimized through the use of agricultural waste as an input and the creation of home compostable final products as outputs—providing potential replacements for polystyrene and other petroleum-based products that either take many years to decompose, or never do so.

"The environmental footprint of these "mushroom materials" is minimized through the use of agricultural waste as an input and the creation of home compostable final products as outputs"



VII. Conclusion

From the dawn of human civilization, society has advanced by pushing back against natural barriers. In the past century in particular, the human family has overcome the natural world to advance the frontier of progress in previously unimaginable ways.

We have expanded the capacity of our minds with computers; increased the range of our bodies with automobiles and airplanes; and extended the span of our lives with dramatically improved practices of medicine, sanitation, and food production. We have grown our villages into massive urban centers that are home to more people than were alive on the entire planet only a hundred generations ago. We have travelled to the moon.

Yet such progress has come at a cost. We have shown callous disregard for the oceans, lakes, rivers, and underwater aquifers on which our lives ultimately depend. We have—sometimes deliberately and more often unknowingly—caused the end of thousands of species of life. We have pushed back virgin forests and undermined ecosystems. We have grown landfills and polluted the air. As a direct consequence of our centuries-old habit of hostility toward the natural world, we have caused fully a quarter of the human community to suffer from chronic illness and economic insecurity.

Humanity now stands at a crossroads, divided. Some insist that business and commerce themselves are to blame, and that the footprint of human activity must be curtailed. Others stress the immorality of slowing the pace of human progress before every member of the human community has experienced its benefits. As this crisis of conflicting compassion persists, the planet that is our common home continues to suffer, and the legacy we hold in trust for our children continues to shrink.

At the Hult Prize we believe that the business leaders of tomorrow will make a net positive contribution to the environment with every product/ service they sell. The more income these companies generate for themselves and their employees, the better the environmental outcomes.

The 2020 Hult Prize challenge is about building ventures that directly improve environmental outcomes as a result of their existence and growth.

What we ask you to do is nothing less than to redefine the frontier of human progress.

"As a direct consequence of our centuries-old habit of hostility toward the natural world, we have caused fully a quarter of the human community to suffer from chronic illness and economic insecurity."

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The Hult Prize transforms how young people envision their own possibilities as **leaders of change** in the world around them.

With a **US$1,000,000 global startup prize** as its anchor activity, the Hult Prize has brought impact-focused programs and events to over a million students globally, creating a pathway to youth everywhere to take action to build a better world.

Selected Sources and Reference Materials

1) https://www.earthday.org/campaigns/earthchallenge2020/
2) https://en.wikipedia.org/wiki/Mother_Teresa
3) https://en.wikipedia.org/wiki/Herbert_A._Simon
4) https://www.citylab.com/transportation/2017/10/the-ride-hailing-effect-more-cars-more-trips-more-miles/542592/ ; https://blog.ucsusa.org/don-anair/can-uber-and-lyft-be-a-climate-solution
5) http://css.umich.edu/publication/beyond-meats-beyond-burger-life-cycle-assessment-detailed-comparison-between-plant-based
6 https://en.wikipedia.org/wiki/Gregory_Bateson
7) http://fullcyclebioplastics.com/
8) https://loopstore.com/
9) https://www.cambridge-crops.com/
10) https://https://aspirefg.com
11) https://www.novonutrients.com/
12) http://www.m-kopa.com
13 https://en.byd.com/
14) https://www.inyenyeri.com; https://www.kiva.org/about/where-kiva-works/partners/528
15) https://www.vox.com/2019/6/13/18677355/air-taxi-drone-facc-ehang
16) https://www.carboncure.com/
17) https://www.apis-cor.com
18) https://delos.com
19) https://new.usgbc.org/leed
20) http://www.coldhubs.com/
21) https://ecozensolutions.com/
22) https://www.inspirafarms.com/
23) https://aerofarms.com; https://www.inc.com/kevin-j-ryan/aerofarms-disruptive-25-2017.html
24) https://ecovativedesign.com; https://en.wikipedia.org/wiki/Ecovative_Design; https://biomimicry.org/nature-business/