1-2021

Creating value in sustainability

Singapore Management University

Creating value in sustainability

29 Jan 2021

*You can create value when you deliver what the market demands or if you can identify and remove costs from the system. But it does not take away 'Oh sh*t!' moments*

In the 'Science' section of Impossible Foods' website is a page with the giant headline: HEME + THE SCIENCE BEHIND IMPOSSIBLE™. The page explains thus:

> *"Heme is what makes meat taste like meat. It's an essential molecule found in every living plant and animal -- most abundantly in animals -- and something we've been eating and craving since the dawn of humanity."*

"Our hypothesis was that heme was important in making meat so delicious, or taste like meat," explains **Nick Halla**, Impossible's SVP International. "We started doing research but we had to get something to prove this. There was just enough heme in the root system of the soy crop but it was in these little root nodules on the root systems of the soy beans.

"I set up farms in Argentina and Texas, building equipment trying to harvest this stuff. We had spent a week ploughing through the field, picking up this stuff, extracting the heme protein, and we got just about enough for a handful of burgers. And we thought, 'This is not working!'"

He adds: "We start looking at the models and went, 'Under certain assumptions, it can work,' and I try to convince myself it can work. After about a year of this, I went, 'I don't know if this is going to be possible to do it this way.'

THE 'OH SH*T!' MOMENT

This was an early 'Oh sh*t!' moment Halla shared with the virtual audience at a webinar panel discussion titled "Changemakers Conversations: Urban Sustainability", organised by the SMU Institute of Innovation and Entrepreneurship (IIE) as part of the 10th Lee Kuan Yew Global Business Plan Competition (LKYGBPC). Scientists at Impossible then "pivoted to a fermentation technology, using yeast fermentation at scale and that has worked extremely well," Halla relates.

Impossible's very first employee was responding to the question from panel moderator **Paul Santos**, Managing Partner at venture capital firm Wavemaker Partners, about moments during the sustainability entrepreneurial journey that sparked 'Oh Sh*t!' moments of both despair and delight.

For another panel speaker, ecoSPIRITS Chief Executive Officer **Paul Gabie**, that moment came when he realised the company's ecoTOTE system which transformed the packaging and transport of premium spirits was only a fraction of the ultimate solution: the elimination of single-use glass in transporting spirits.

"We're a circular economy company, and circular is important to a sustainable future in an urban world," Gabie explains. "Circular is 360 degrees but ecoTOTE solved, in hindsight, only about 30 degrees of the 360 degrees that you need to solve in order to scale this.

"We had the breakthrough in 2016 when we came across the idea of the last-mile solution. We thought we have developed this simple but game-changing technology for our industry, but we've since developed six other major equipment and hardware technologies in order to complete the system.

“Don’t underestimate the challenges that successful innovation in sustainability requires. In circular, you have to solve every aspect of the 360 degree loop. If you don’t, it breaks down and it’s not scalable, it’s not profitable. Our ‘Oh sh*t!’ moment was realising that our bright idea was only one link in a much longer chain.”

SUSTAINING SUSTAINABILITY

Gabie and Halla both have childhood roots in sustainability. Gabie grew up in 1980s Vancouver when the Pacific Northwest became a hotbed for environmental protection, while Halla’s family operated a dairy farm in Owatonna, Minnesota, some 100 kilometres from Minneapolis.

While the unsustainable nature of animal agriculture – “It accounts for 45 percent of the world’s land use, more than 25 percent of freshwater, and produces more greenhouse gases than transportation,” states Halla – is well-documented, stories of the world running out of sand receive less attention. But sand is critical in building the urban environment, being part of the asphalt that makes roads and the cement that fill out skyscrapers, as well as the glass that adorn them.

It is the same sand that is used to produce the 40 billion glass spirit bottles in 2020.

“It’s extraordinarily expensive to produce, move, handle, warehouse, and deliver that single-use glass,” Gabie observes, pointing out that even small independent players in the spirits industry had to move hundreds of thousands of bottles of spirits around Asia-Pacific ranging from a good tequila from Mexico and dry gin from London. “We ended up moving a lot of glass as part of our business value chain.”

As explained on the ecoSPIRITS website, each single-use bottle eliminated from the equation accounts for at least 550 grams of carbon emissions that come from its transport and warehousing, and it ultimately leads to 30 grams of emissions saved on each cocktail or spirits pour at the bar or restaurant.

He adds: “I didn’t plan on sustainability as a career. We first came to the idea through the challenge that the lack of sustainability was imposing on the industry. The single-use glass bottle is more valuable than the spirit it contains when you break it down.

“You have this system that is driven by a packaging solution that was developed in the 1880s when we could begin to mass manufacture glass, and this system makes no sense. There’s no way humanity can scale and flourish and keep the planet alive by producing single-use waste on the scale that we do.”

CREATING VALUE

Gabie shares that ecoSPIRITS has been profitable since inception, a claim verified by Santos, who reveals in the spirit of full disclosure that ecoSPIRITS is part of Wavemaker Partners’ portfolio. “Value is created if you can identify ways to remove cost within circular”, Gabie says, which was what ecoSPIRITS has done.”

“Of the total costs of the goods we deal with, 75 percent of the costs are either in the single-use packaging or in the handling and impact or knock-on effects of that single-use packaging; with circular packaging, we remove 85 percent of that 75 percent,” he elaborates.

“We take that savings, that immediate unit cost savings that circular generates, and we re-divided it amongst the stakeholders – the producers of spirits, the distributors, the end venues where the spirits are consumed. And of course we retain some of that savings for ecoSPIRITS’ innovation providers.”

For Halla and Impossible, value involves looking at the market to see what consumers are willing to pay for traditional meat products and trying to scale the company’s system to match that price point. He asserts that, nutrition- and sustainability-wise, it would be better for everyone involved when that happens.

But there is one major consideration about the value of Impossible’s products: the taste.

“When we made our first prototypes a couple of years into the company, they were bad!” Halla recalls, sparking much mirth. “That Impossible now counts Burger King as its biggest U.S. food service partner starring the popular Impossible Whopper suggests we are closer than ever to a plant-based meat replacement future. But there is much work left to be done,” Halla cautions.

“We’ve done over 20 fundamentally different versions [of Impossible meat], while for incremental changes we’re likely in the tens of thousands, maybe hundreds of thousands,” he says. “There are different experiments for prototypes every day, be they addressing flavour, texture, experience, cost, scalability, different formats etc.”

“Having been in Hong Kong the last nine months I missed being in the lab where you can do the tasting on a day-to-day basis. Scientists would go, ‘Hey! We have something new! You wanna come over?’ ‘Yes!!’ That’s the fun part about creation.”

If you are interested to watch the full Changemakers Conversations: Urban Sustainability, visit: https://www.smu.edu.sg/lky/changemakers-conversations-urban-sustainability

The final 2 Changemakers Conversations will be held on 18 March 2021 on the topics of Digital Transformation and Growth in Asia respectively. For more information, please visit https://www.smu.edu.sg/lky/public-events

Organised by SMU Institute of Innovation and Entrepreneurship, the 10th LKYGBPC is Asia’s leading university startup competition with the finals week, BLAZE happening on 18 – 19 March 2021 in Singapore. Join over 1,000 of the world’s brightest minds in innovation to learn, collaborate and connect.

Follow us on Twitter (@sgsmuperspectiv) or like us on Facebook (https://www.facebook.com/PerspectivesAtSMU)