

IT IS NOT JUST THE FOOD INDUSTRY WHICH IS UNDERGOING METAPHORICAL CHANGES

There are many disruptions in the socio-economic and demographic settings of our daily life. Seemingly the whole planet Earth is being disrupted right now. Brexit, Trump and Leicester City all in one sentence! Unbelievable but true.

People using their iPhones to monitor a heart irregularity or attack and subsequently confront their doctor specialist with the diagnosis. Obviously these and more medical "interpretations" cause great friction and an entire level of base-line care is eliminated.

The huge changes in behavioral attitudes of the millennial generation. Just to mention a few: marriage is optional, delayed childbirth, cooking is optional, social media sub-cultures.

The world population is adrift. Huge disruptions in cultural settings, including food choices. Take for example airline food: pork has completely disappeared from the inflight line-up.

By Henk Hoogenkamp

Disruptive Innovation for Disrupted Consumers

Fast growing world population, climate change, ecosystem degradation, energy- water- and land scarcity are making today's food production increasingly unsustainable. Disruptive innovation can be defined as the introduction of new technologies and products -such as generated by cellular biotechnology- that unexpectedly displace an established technology and often disrupts the status quo. Take a page from the Apple handbook: entrepreneurial startup food companies often tend to innovate faster than their customer's need evolve. These disruptive products, services and solutions are generally first available for sophisticated customers at the top of the market. In contrast, legacy food companies typically prefer to maintain the status quo and rely on small incremental change, also termed sustaining innovation. That is the main reason why the 25 largest US legacy food companies have seen their sales declining ever since 2012.

The world cannot sustain the number of animals it takes to feed the burgeoning population reaching 9.4 billion by 2050. However, there is light at the end of the tunnel and soon new systems such as cellular agriculture will become available to grow abundance of meat and milk protein -without the animals involved at all.



Entrepreneurial startups such as Perfect Day Foods, Memphis Meat and Mosa Meat will disrupt traditional animal agriculture methods and create a more sustainable food infra-structure.

The problem is that the developing world wants to eat like the developed and affluent world, and in particular drive the huge increases in consumption of animal

products such as meat and dairy that are so vastly inefficient. The conventional agriculture won't be able to keep up with demand with exacerbating the myriad of ecological problems, such as feed-to-meat conversion, water consumption, outgrowth waste, and methane release.

The clear answer is cellular agriculture which allows building an animal or plant protein



platform by taking the actual animal out of the supply chain equation. The primary goal is to safeguard food security and decrease the environmental consequences of traditional farming.

Recently the technology and investor community -including New Harvest, Peter Thiel (PayPal), Bill Gates (Microsoft) and Sergey Brin (Google) have become involved in supporting the drive to find more efficient ways to grow food. These entrepreneurial people together with capital venture companies also disrupt the traditional financing such

as Rabobank. "The author has repeatedly warned Rabobank Board about the fact that their business model is at risk if they do not open up and accept new food farming methods as future equivalents".

Besides the rapid progress of cultured meat and cow-free milk creation, there are more technological alternatives. Foods made from plant protein now allow animal-realistic meatfree products. Startup companies such as Impossible Foods (US), and Brecks Food (UK) are often using food science and genetic sequencing technology to simulate plant protein based equivalents to animal-derived products.

choices, including how and where it is processed, all-natural and not infiltrated by unwanted chemical fertilizers, hormones and antibiotics.

To paraphrase The Beatles lyric: The transformational journey from animal protein nutrition to plant protein nutrition is a "long and winding road". It has taken a long time to create a plant meat product and a cow-less milk for that matter that is (almost) indistinguishable from the classic food. The current Baby Boom generation (born 1946-1964) most likely will be the first and last generation that consumed meat every day.



There is a growing demand for plant protein formulated foods, especially driven by the rapidly increasing number of flexitarians in affluent countries like North America, the UK and Germany. But let's not cheer too soon. Still more technology improvement and socio-marketing is necessary to truly reproduce classic organoleptic meat attributes. The way research is making progress, at some point in the near future the plant meat foods will reach par (in blind testing) and may obviate the need for traditional intensive farm-raised animals. Impossible Foods is clearly ahead of the curve and there is little doubt that their Impossible Burger will become the golden reference standard.

Stretching our imagination, consumers are becoming more aware of their food

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