






Future of Protein
Preparing for success in
an uncertain environment
November 2019




 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts

Executive Summary

Preparing for an uncertain future

The protein industry is on the brink of radical transformation. Current protein production is taking a heavy toll on our planet, yet demand for it will only keep growing. An increasing world population, rising affluence, urbanisation and changing eating habits all contribute to the need for systemic change. It's clear that protein companies need to reconsider their strategy. But where to start and how to prepare for an uncertain future?

Deloitte is not afraid to address these difficult questions. What will your industry look like in 2040? And what high-impact initiatives can your company undertake today in order to pre-position yourself for success tomorrow? To help envision future scenarios and identify present-day high-impact opportunities, Deloitte has developed the zoom-out / zoom-in approach to strategy.

Meanwhile, new technologies and disruptive players are entering the protein market. Venture-backed start-ups and tech giants are exploring new products and approaches to food production. Established protein companies are increasingly teaming up with start-ups to speed up innovation. Moreover, new technologies such as biotechnology, artificial intelligence, data analytics and blockchain can act as drivers for sustainable change.


In this Point of View, we set out the challenges of, as well as the opportunities for, the future of protein. With our industry knowledge, extensive experience with strategy development, and advanced technology solutions, Deloitte helps protein companies to prepare for what's next.


Future of Protein

Preparing for success in an uncertain environment


 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts

The importance of protein

Current challenges and the need for systemic change

Protein is an essential part of a healthy diet. However, the current production of protein is creating alarming environmental, food security and economic challenges. To keep up with the increasing demand, systemic change is needed. That's why Deloitte helps protein companies to equip for the future.

Protein provides amino acids for growth and repairs and is an essential part of a healthy diet. Protein-rich foods can be animal-based (think of meat, dairy and eggs), plant-based (pulses, nuts, seeds and the like) or stem from alternative sources such as microalgae and lab-grown meat.

The current protein production takes a heavy toll on our planet. We're overfishing, driving up greenhouse gas emissions and global deforestation, and are wasting 25 billion tons of fertile soils each year through intensive agriculture. According to the EAT-Lancet Commission on Food, Planet, Health the global rate of food production and consumption in 2010 already placed the world at dangerous levels in 3 of 5 key environmental variables¹. In light of these developments, it's not surprising to learn that the protein industry is impacting 8 of the 17 United Nations Sustainable Development Goals.

United Nations Sustainable Development Goals



¹ EAT-Lancet summary report: Food in The Anthropocene: the EAT-Lancet Commission on Healthy Diets From Sustainable Food Systems. eatforum.org/eat-lancet-commission/

Future of Protein

Preparing for success in an uncertain environment



Executive Summary



The importance of protein



Thinking outside the box



What needs to happen today?



Incumbents & disruptors



Drivers for change



How Deloitte can help



Contacts



And yet the demand for protein will only keep growing. It's expected to rise by anywhere between 32 and 78 percent by 2050, caused by a growing world population, rising affluence, urbanisation and changing eating habits. Apart from environmental concerns, protein producers have to consider that consumers are becoming more aware of what they see as a healthy diet and matters of animal welfare.



What does this mean for protein companies?

The global transformation to healthy diets will require substantial dietary shifts. The consumption of fruits, vegetables, nuts and legumes will have to double, and consumption of foods such as red meat will have to be reduced by more than 50 percent.²

To make matters even more complicated, the protein system involves many varying resources and a large number of stakeholders. This makes it difficult to reach widely supported agreements on ways to make the production chain more sustainable.

2


EAT-Lancet summary report.




Preparing for an uncertain future

It's clear the protein industry is at a turning point. The limits of the current ways to produce protein have been reached. Even if the demand for protein were to remain the same, there still wouldn't be enough resources on the planet to feed everyone. To cope with the impact of increased demand on production and to reach the UN Sustainable Development Goals, a systemic change in the protein system is needed.

 Executive Summary


 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



Thinking outside the box

Zooming-out to determine long-term strategy

To prepare for an uncertain future, protein companies need to broaden their horizons. With Deloitte's zoom-out approach, companies are encouraged to think about where they'll be in 2040.

To help companies better understand and equip for an uncertain future, Deloitte has developed the zoom-out/zoom-in approach to strategy. It focuses on two timelines in parallel: a horizon that's 20 years out (zoom-out) and the next 6 to 12 coming months (zoom-in). This approach is particularly well-suited to set strategies for complex challenges such as the future of protein.



Looking ahead to challenge your views

To prepare for large-scale industry changes, it's not enough to set a strategy for the next three to five years. Instead, zooming-out and thinking about where the company will be in 20 years challenges views and triggers thinking outside the box.

Zooming-out focuses on the future state of the protein industry and the requirements to be successful in that market. The first step is about envisioning the future. It's about triggering creativity, learning about the cutting-edge science in the field, and getting inspired. This can be done by a trip to Silicon Valley or by simply getting out of the building to a more creative setting and learning more about new technologies and innovative ideas from other industries.

The next step is to focus and ask what is relevant for your specific industry and customers. To help companies find this focus, Deloitte encourages scenario-thinking: a method for creating flexible long-term plans.

Future of Protein

Preparing for success in an uncertain environment

Executive Summary

The importance of protein

Thinking outside the box

What needs to happen today?

Incumbents & disruptors

Drivers for change

How Deloitte can help

Contacts

Scenario-thinking

In close collaboration with the World Economic Forum, Deloitte interviewed stakeholders across the protein ecosystem to get a better understanding of what is happening today and what is likely to happen in the future. The expected and combined impact of changes in demand and market connectivity have been translated into four 'future of protein' scenarios towards 2040:

The combined impact of changes in demand and market connectivity have been translated into four future of protein scenarios

Unchecked consumption

Today's world accelerated into 2030: High growth, but with consequences

- Consumers are king; **trade accelerates** and protein demand surges
- Technology spurs **efficiencies** in production and distribution, but yield is priority #1
- Mainly **animal based protein** demand sources driven by the preference for Western diets
- The **"foodprint" expands**; the impact of production on the earth becomes irreversible

Survival of the richest

Broad **distrust in globalization** results in slow economic growth and volatile markets

- Access to food in Least Developed Countries is a challenge resulting in **accelerating poverty and hunger, conflict and migration**
- Greater volumes of **less nutritious** proteins are eaten; production is **not sustainable**
- Income gaps widen; resource needs prompt **"Colonialization 2.0"** by large players and countries to secure arable land
- Climate change continues unabated
- **Technology** access and adoption is **fragmented** caused by a crisis mindset - only a few benefit

Open-source sustainability

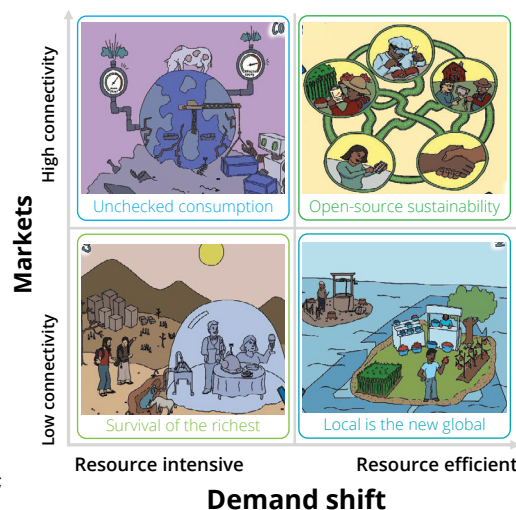
Rise of a **"mutual benefit" philosophy** and move towards other (more sustainable) sources of protein

- Consumers know the **real cost of food**; markets and policies enable **"sustainable" choices**
- A **proliferation** of protein **sources** reduces over-reliance and preference for animal based proteins
- **Open platforms** improve technology accessibility, but there is no incentive for long-term R&D
- A rural transformation attracts youth to **data-driven agriculture**; older farmers struggle

Local is the new global

In a **disconnected global market**, nations turn **inward** and comparative advantages are lost

- Focus is on **traditional diets** and **local production**
- Progressive policies **reduced** the **price** point for **healthier diets** and more diverse protein sources
- Shorter supply chains and **increased plant-based diets** reduce environmental strain
- Import-dependent nations suffer; **hunger** hotspots proliferate
- **Country-specific innovation** flourishes but diverse standards hamper scale



Source: Deloitte in preparation for the Annual Meeting of the World Economic Forum 2018

Future of Protein

Preparing for success in an uncertain environment



Executive Summary



The importance of protein



Thinking outside the box



What needs to happen today?



Incumbents & disruptors



Drivers for change



How Deloitte can help



Contacts





Core capabilities and extras

Companies can plot themselves into each of the scenarios. How will they do, are they set up for success and which part of the companies are at risk? It may mean that, in order to survive in these scenarios, they'll need to make big changes to the core business model or even pivot to a new one.

A gap analysis of the current versus desired operating model helps companies to understand which attributes are most affected per scenario. A company can choose to focus on building core capabilities that are unmissable for each of the scenarios. And they can invest in 'extras': partnerships or investments that would come in handy if certain trends or occurrences on the protein market arise.


 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts

What needs to happen today?

Zooming-in on high-impact initiatives

In order to help protein companies become future-proof, Deloitte has developed the zoom-out/zoom-in approach to strategy. After envisioning the future, it's time to talk about what companies can do today. What is needed in the short term to succeed in the long run?

After zooming-out by having companies think boldly about the possibilities and developments in the coming 20 years, Deloitte encourages them to zoom-in. Zooming-in is about identifying and agreeing upon a set of near-term initiatives that help to create a winning strategic agenda.



Playing at the edge to get an edge

Identifying initiatives that take possible future scenarios into account will help companies to preposition themselves for each of the scenarios. These initiatives can be centred around investments, but also around developing specific resources or capabilities. Another option is to set up strategic partnerships. See, for example, the [Global Roundtable for Sustainable Beef](#), a global, multi-stakeholder initiative with founding partners such as Cargill and A&W.

A high-impact initiative could be to invest in funds or resources that prepare the company for a possible pivot. For example, based on the scenarios plotted in the zoom-out approach, a dairy company could decide to invest heavily in R&D on plant-based foods. It may sound counter-intuitive, but they would be investing in the flexibility to be able to operate in a future scenario without dairy. Investing in such initiatives is not about a guaranteed return on investment, it's about building in options. It could mean the difference between thriving or going out of business.

This is what Deloitte calls scaling at the edge: focusing on low investment, high-growth-potential opportunities – 'edges' – with fundamentally different business practices that can ultimately transform the core of the organisation.³ If one of the scaling edges suddenly ramps up and seamlessly connects to the future scenario, the business model could change so fundamentally that the company decides to go for a complete scale.

3

For Scaling Edges methodology, see: deloitte.com/us/en/pages/center-for-the-edge/articles/scaling-edges-methodology-to-create-growth.html

Future of Protein

Preparing for success in an uncertain environment



Executive Summary



The importance of protein



Thinking outside the box



What needs to happen today?



Incumbents & disruptors



Drivers for change



How Deloitte can help



Contacts





Pragmatic and adaptable


To stay on top of developments, Deloitte recommends a pragmatic and flexible attitude. Part of the zoom-in approach is that the identified high-impact initiatives should be put into actionable plans for the next 6 to 12 months. By setting up KPIs or drivers for the initiatives and by reporting on them quarterly, companies make sure they stay in touch with the market.



 Executive Summary


 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



Incumbents & disruptors

The shifting playing field of protein companies

By now, all players in the protein industry are aware that change is needed. This results in a shifting playing field, in which both incumbents and new, disruptive players are trying to seize this opportunity.

Incumbents tend to innovate by optimising existing processes, like limiting waste and creating a more efficient supply chain. Because of the scale of these companies, incremental changes can have an enormous impact. However, large companies risk being outpaced by more agile and innovative start-ups.

Start-ups, on the other hand, typically challenge the protein industry with more radical innovations. They create new products, such as plant-based alternatives, cultured meat, meal replacements and food supplements. They think of new approaches to food production and distribution, like precision agriculture or blockchain-based solutions. Start-ups tend to be fast and flexible, but it can be a challenge for them to scale and turn their innovations into a profitable business.



Partnerships between large protein companies and start-ups

To prepare for the future, protein start-ups and established protein companies are increasingly teaming up. Acquisitions, for instance, allow incumbents to profit from the innovative power of start-ups, whereas incumbents can enable start-ups to scale by helping them with funding, connections and access to distribution networks. A recent example is the acquisition of the Dutch brand of meat substitutes [The Vegetarian Butcher](#) by Unilever.


Large protein companies can also create their own incubator and accelerator programmes to bring entrepreneurs into their company. Examples include [the incubator programmes](#) of the global leader in meat production Tyson Foods and the [Dairy Accelerator](#) of the American agricultural cooperative Land O'Lakes.


Last but not least, a growing number of food companies have created their own venture funds for investments in start-ups, including [Kraft Heinz](#) and [General Mills](#). These funds can be structured in various ways, but all aim to have a stake in innovative brands.


Future of Protein

Preparing for success in an uncertain environment


 Executive Summary


 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts




Venture capital firms and technology giants as new players


Venture capital firms and technology giants have emerged as new players on the protein market. They typically invest in start-ups with disruptive business models, from which they expect exponential growth. Following these investment deals can therefore give an idea of the future of protein.


Start-ups have a large chance to fail, and not all investments by venture capital firms or large technology companies will result in high returns or disruptive impact. But some venture-backed start-ups do succeed.



 Executive Summary


 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



Drivers for change

Creating a more sustainable future of protein with technology

Within the shifting landscape of the protein industry, technology plays a crucial factor. Biotechnology, artificial intelligence, data analytics and blockchain can function as an accelerator towards a more sustainable future.

Advanced technologies are rapidly changing and disrupting industries – including the protein industry. The following technologies could be relevant for the future of protein:

Biotechnology


Several high-tech companies are using biotechnology to create alternatives to animal-based protein. For instance, the US-based company [Impossible Foods](#) researches animal-based protein products at a molecular level, and selects specific proteins and nutrients from plants to mimic these products as closely as possible. According to [third party-validated report](#) by sustainability consultancy Quantis, Impossible Foods' signature product, the Impossible Burger, requires 87 percent less water, releases 89 percent less greenhouse gases and spares 99 percent more land compared to beef from cows.


Other start-ups aim to bring lab-grown meat into the mainstream, using cellular agriculture and tissue engineering to grow meat. One of them is the US-based company [JUST](#). Apart from cultured meat, JUST produces plant-based versions of products that traditionally contain eggs, such as mayonnaise, dressings, cookies and breakfast proteins.


Future of Protein

Preparing for success in an uncertain environment

 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



Data analytics & artificial intelligence

The increased means to collect, share and analyse data create exciting possibilities for protein companies. For instance, data analytics and artificial intelligence (AI) pave the way for precision agriculture, through which farmers can maximise their results.

Blockchain


Blockchain can create more transparency, security and efficiency across the supply chain of protein companies. While blockchain applications remain relatively nascent, adoption is increasing and it has the potential to be the value chain infrastructure of the future. A notable example of the use of blockchain in the protein industry is the [Arla Milkchain](#), created by the Danish dairy company Arla Foods. It provides customers with full traceability of its product Single Estate Organic Milk. Information from the milk production process up to processing at the creamery is stored on a blockchain.





Future of Protein

Preparing for success in an uncertain environment


 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



How Deloitte can help

Your partner in creating the future of protein

The shift towards a sustainable future of protein has profound strategic, financial and technological implications for companies. Deloitte has experience with a range of methodologies to help. Moreover, Deloitte has extensive industry knowledge and collaborates with strategic partners to drive towards a sustainable future of protein.

Methodology

Deloitte provides a range of methodologies to help companies design a strategy in an uncertain world. The zoom-out/zoom-in approach helps companies to envision long-term scenarios and short-term initiatives, and prioritise their actions accordingly. Deloitte's Greenhouse and Corporate Innovation Lab helps with further strategy development and alignment throughout the company.

As we have seen, technologies like biotechnology, data analytics, artificial intelligence (AI) and blockchain are important drivers for change in the protein industry. Deloitte has extensive experience in envisioning advanced technology solutions for clients, which align with their strategy – as well as developing and implementing them.


Industry knowledge


With project experience within the field of agriculture, livestock farming and food, Deloitte has a thorough understanding of the protein industry. Deloitte has an extensive client portfolio, containing both global industry leaders as well as small and medium-sized enterprises, and can draw upon a large set of relevant industry-specific best practices. With studies such as the [Fresh Analytics report](#) we keep the protein industry up-to-date about the latest developments.


Future of Protein

Preparing for success in an uncertain environment


 Executive Summary

 The importance of protein

 Thinking outside the box

 What needs to happen today?

 Incumbents & disruptors

 Drivers for change

 How Deloitte can help

 Contacts



Strategic partnerships

Strategic partnerships are essential to create a more sustainable future of protein. That's why Deloitte is a member of Consumer Goods Forum, a global industry network to encourage adoption of practices and standards that serve the industry. We are also part of UNLEASH, an initiative that aspires to become the world's leading platform for scalable solutions to the UN Sustainable Development Goals. As a long-time partner of World Economic Forum, we lead several Forum initiatives at the Annual Meeting at Davos.



Future of Protein

Preparing for success in an uncertain environment



Executive Summary



The importance of protein



Thinking outside the box



What needs to happen today?



Incumbents & disruptors



Drivers for change



How Deloitte can help



Contacts



Contacts



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