Rohrbeck Heger Reports





The Future of Food

9 Trends to Watch Towards 2030





Rohrbeck Heger
strategic foresight + innovation

Welcome to 2030 – What's on the menu?

9 trends to track into the decade to come

The food sector will face numerous challenges in the coming decade. From the race to develop plant-based meat substitutes to the power of AI-enabled personalized nutrition, disruptive drivers of change are just around the corner, waiting to break through.

What will the future of food look like in 2030? From our research in the field, our Rohrbeck Heger foresight analyst team has picked its favorite **9 drivers of change** for the food sector to watch over the next 10 years. Whether they will all come to be remains to be seen, but quite a few of them will fundamentally change the way we eat and how food businesses operate. This report outlines nine trends in total, divided into 3 parts:

- Our **5 most surprising trends** to watch
- **3 "Question Marks"**- something's brewing, but it's unclear how these will play out
- **1 "Dark Horse"** - although less likely to break out in the next decade, this trend will have a tremendous impact once it does.



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#1

Animal product alternatives

New technologies and the quest for a more sustainable society are driving the adoption of meat alternatives. Will consumers try them all or will they stick to steak?

The discussion has been milked dry: animal products are bad for the environment, there's no denying this. As consumers respond more and more to this message, **businesses are leading the change towards a shift to plant-based and cultivated meat alternatives.** From steaks grown in labs to mimicking our animal friends' tastiest parts using fungi, meat alternatives are now filling supermarket shelves and restaurant menus. Businesses are still on a trial run, however: flavors, looks, and textures are often not quite what carnivores crave.



As **some businesses try to decipher the 'science of taste,'** aiming for algae alchemy that conjures plants into BigMacs, **other businesses have decided to embrace plant-based food** for its unique properties, creating veggie burgers without pretense. And as important as flavor, texture, and looks may be, nutritional value is increasingly on their agendas as well.

"The businesses that will come out on top will know how to make burgers that are as healthy and tasty as they are green."

There's no saying who will win over the stomachs of consumers, but market research indicates **customers are hungry for both options.** The bar is set high, but as incumbents and newcomers fight for shelf space, sustainability will be relegated to the background: **meat alternatives aren't necessarily more environmentally friendly.** The businesses that will come out on top will know how to make burgers that are as healthy and tasty as they are green.

https://www.foodnavigator.com/Article/2020/01/27/The-Meatless-Farm-R-D-chief-on-the-future-of-plant-based-innovation
https://www.newfoodmagazine.com/article/109745/leveraging-rd-to-perfect-plant-based/

#2 Carbon Pricing

With increasingly stricter climate policies worldwide, the price of carbon is bound to break all records. How will the rising price for emissions impact the food industry?

The production of our most basic necessities is also one of the biggest causes of Greenhouse Gas (GHG) emissions. **The entire food value chain is (by some accounts) responsible for one quarter of GHG emissions worldwide**, and it also impacts our environment in other ways, from land use to water withdrawals. As carbon pricing schemes—which effectively make emitters pay for emissions and damage to the environment—gain global traction, the food industry will pay a price.

Carbon pricing schemes exist in various forms. GHGs often form the basis, but increasingly damage to health, flooding, droughts, and other natural catastrophes are priced in as well. The schemes apply to high emission sectors, however, **it's challenging to factor agricultural emissions into these schemes accurately.** New research and technological advances, including Precision Farming, will make this easier to measure and account for. Expect that even before 2030, **the food value chain will be faced with a choice: either paying their dues or going clean and green.**

Investments in cleaner technologies are bound to pay off in the long-term: The price to emit one tonne of GHG in the EU Emission Trading System has increased by 515% since 2018.





With stricter and stricter climate policies, the price is expected to keep on flying high.

https://ember-climate.org/data/carbon-price-viewer/
https://www.sciencedirect.com/science/article/abs/pii/S0959652614013547

#3

Precision Farming

With more mouths to feed, less arable land, and unpredictable conditions, how will we secure the global food supply chain?



A trifecta of megatrends will merge in the coming 20-30 years that will put the world's food chain security in jeopardy: **exploding population growth** (3 billion more people on Earth by 2050), **reduction in arable land** (due to climate change, deforestation, soil destruction, and continued urbanization), and **extreme weather** and increasing temperatures. In order to meet increasing demand for food despite dwindling resources and increased uncertainty, **farmers will need to do more with less.** But how?

A series of technological advances, collectively known as Precision Farming, is already disrupting traditional agriculture practice, ensuring increased optimization, accuracy, crop yields, and safety — as well as reducing environmental impacts — as **the 4th industrial revolution finally makes inroads in one of the world's oldest professions.**

Precision Farming describes the practice of using technology, including drones, sensors, robotics, and AI, to enable **data-driven decision making** as well as **extremely targeted resource optimization**, whether for purposes of irrigation, pest/disease control, or soil quality, to name just a few scenarios. These advancements will help farmers feed a changing world and keep the supply chain running.

https://medium.com/next-generation-iot-magazine/autonomous-tractors-and-plant-level-precision-farming-how-europes-farmers-can-leverage-the-power-4b3111e25e19



- RootAI's harvesting robot, Virgo, has been designed to be dexterous and harvest as a human would *(picture root-ai.com).*
- Crop X's rechargeable wireless sensor monitors soil moisture; real-time data automatically generates irrigation maps.

#4 Flash-in-the-Pan Fandom

#fetapasta took over TikTok and supermarkets worldwide ran out of the salty stuff. Is this tale of viral success a harbinger for the future of food marketing?

By mid-February 2021, Instacart, the grocery delivery service, noticed something odd. Blocks of feta cheese, usually more popular during the summer months, were suddenly trending as their number one search request. Not far behind were cherry tomatoes and basil. What was going on?

The surprising spike in sales (and scramble to keep up with increased demand) traced its origins to a 30-second video posted to TikTok at the end of January. #fetapasta and its multiple incarnations (at its basis, a block of feta, baked with tomatoes, olive oil, and seasonings, then mixed with pasta) has since racked up **more than 661.7 million views and counting.**

The age of the viral food craze is upon us. While customers may have balked at empty shelves, cheesemakers rejoiced: **the video and its aftermath sold upwards of 10 million dollars of feta cheese in the US alone.**



Despite best efforts to reverse engineer such a runaway success, going viral still proves elusive for most brands. Plus, these shooting stars burn brightly, but soon burn out into oblivion. Nevertheless, as an extremely digitally native generation matures and consumers continue to spend time on social platforms, **the power of a 30-second video to move product** should not be underestimated.

https://www.vogue.com/article/what-makes-a-food-go-viral-inside-the-explosive-popularity-of-tiktoks-feta-pasta
https://www.dairyfoods.com/articles/95000-market-disruptions-no-match-for-tiktok-feta-pasta

#5

Food and Your Mood

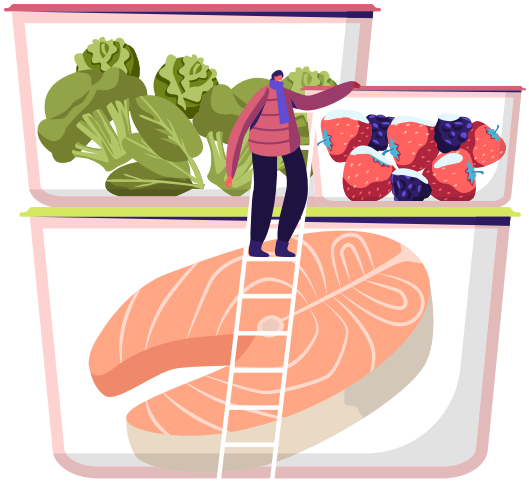
For decades, nutrition has focused on physical outcomes: health of muscles, bones, and organs. The emerging field of nutritional psychiatry is changing that.

What effect does diet have on mental health? This is the question at the heart of Nutritional Psychiatry, a practice that explores **the link between what we eat and how we feel.** And as rates of mental illness rise and more and more individuals seek to take ownership of their health outcomes, the practice of **eating mindfully for peace of mind**—avoiding those foods known to exacerbate conditions such as anxiety and depression, while favoring those shown to improve your mood—is moving into the mainstream.

Much of the science underpinning this new field is thanks to a deepening understanding of **the gut-brain axis,** that is to say, the connection between the health of our gut microbiome and our brain. In fact, 90% of serotonin, an essential neuro-transmitter that regulates mood, is made in the gut. Clinical studies have shown a link between some mental health disorders and the composition of gut bacteria, as well as dietary habits.

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In December of 2020, the US Census Bureau reported that 42% of people surveyed described an increase in symptoms of anxiety and depression, a jump of 11% from the year previous. **Emerging from the stress of the last year and a half+**, the COVID-19 pandemic will have left its mark on many, especially in regard to deteriorated mental health. Seeking solutions, will people adjust their diets with the goal of relieving depression and anxiety?

https://www.nature.com/articles/d41586-021-00175-z
https://www.nytimes.com/2019/03/28/well/eat/food-mood-depression-anxiety-nutrition-psychiatry.html

#1 Blockchain?

Its origin in finance belies blockchain's possibilities for applications in other sectors. How might this technology transform the food supply chain and win customers' trust?

The Internet of Things (IoT) continues to connect the physical and digital worlds, collecting data on just about everything, including nutrient levels at harvesting, allergen contact during manufacturing, or temperature changes during product shipment. Blockchain technology enables companies to **store and access said data on a secure and immutable platform**. By introducing a combination of both IoT and blockchain technology, food companies reap multiple benefits, including (but not limited to) **improving inefficiencies, mitigating risk, and increasing transparency and traceability** across the entire supply chain, from suppliers to customers.



By scanning the product label, customers can effortlessly follow the fish-to-market journey of Bumble Bee Foods' Natural Blue® by Anova® yellowfin tuna. Details describe everything from the size of the catch to the fishing community of origin, as well as data verifying its authenticity, freshness, safety, and fair trade certification.

From an operational perspective, blockchain provides **better data for making sustainable business decisions**, whether by meeting fluctuating market demand, enabling smarter inventory management, or contributing to a reduction in food waste, not to mention ensuring a higher quality of food. In addition, this technology helps to meet **increasing consumer demand for transparency.** With the scan of a QR code on a product label, customers can view data that proves label claims, empowering consumers to not only make informed decisions, but also earning their increased trust and building brand credibility.

https://101blockchains.com/blockchain-in-food/
https://www.newfoodmagazine.com/article/110116/blockchain/
https://news.sap.com/2019/03/bumble-bee-blockchain-trace-fish/

#2

The Obesity Pandemic?

There's no sign that obesity rates are going down, and leaders worldwide are faced with a continued health crisis. Will the future bring more food regulation or could other solutions arise?

Consider this: most people on the planet live in countries where overweight and obesity kill more people than underweight. With **an estimated 39% of adults worldwide defined as overweight and 13% obese**, rates of excess weight gain have nearly tripled over the last 40+ years.

Expanding waistlines mean a higher risk for preventable diseases such as heart disease, osteoarthritis, stroke, type 2 diabetes, and some cancers. And in the name of public health, governments are responding by following the WHO's recommendation to stem the rising tide of so-called "lifestyle" diseases: by **implementing new regulations and taxation on foods high in fat, sugar, and salt (HFSS)**. The UK has recently introduced a new policy that restricts the marketing and promotion of HFSS foods—**no more special offers on sweets and strategically-placed snacks at checkout counters**. Does this legislation portend a growing willingness on the part of governments to reign in HFSS foods? What should food companies prepare for?



Nearly

1 in 4

young adults in the United States are too heavy to serve in the military.

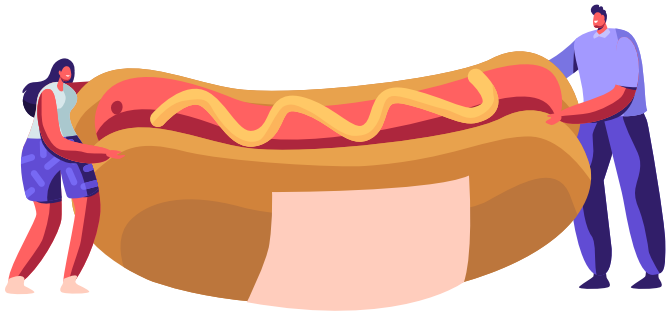
It's possible, however, that factors beyond regulatory initiatives can slow, or even reverse this global health crisis. Rates of obesity are shown to be correlated with education levels. **As more and more people earn advanced degrees, could we see societal-wide slimming down?** And although there is no cure for obesity (besides, of course, changes to diet and exercise), researchers are hard at work developing new therapies to treat the condition, including blocking Y1 receptors in tissue, **transforming fat that stores energy into that that burns it, instead.**

https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight ; https://www.cdc.gov/nccdphp/dnpao/docs/Obesity-Fact-Sheet-508.pdf ; https://www.nycfoodpolicy.org/food-policy-snapshot-uk-hfss-foods-promotion-restriction/ ; https://www.eatthis.com/news-obesity-cure-drug-study/

#3 3D Printing?

Printing food has been slow to start, but next generation food companies are leveraging this technology to meet meat demand.

While still a relatively immature technology, the use of 3D printing in food production could eventually break into widespread commercial use. At the moment, however, the use of these printers is generally **relegated to the worlds of fine dining**, as an add-on meant to up the ante for exquisite eating experiences. That being said, quite a few startups are popping up, especially in the space of **plant-based meat and fish alternatives, as well as in cultivated animal products.**



"While still a relatively immature technology, the use of 3D printing in food production could eventually break into widespread commercial use"

Vienna-based Revo Foods recently secured 1.5 million Euro in funding to expand their 3D-printed plant-based seafood line. Their products are already available for sale in select European supermarkets. And the race for the best plant-based steak is heating up with Barcelona-based NOVAMEAT and Israeli company Redefine Meat as just two examples of teams leveraging **3D-printing to create eco-friendly and nutritious alternative meats.** As for cultured meat production on an industrial scale, that's the mission of MeaTech, which claims their beef steaks and chicken cutlets can be produced **at a fraction of the time it takes through conventional farming.**

And there may even be a way for 3D printing to **merge both commercial capabilities and experiential dining**, as well. SuperMeat's The Chicken bills itself as the first test kitchen serving cultured chicken products, developed (and cooked) under its own roof. How soon could lab-grown cutlets appear on supermarket shelves? With the speed of technical advancement, it may be sooner than we think.

https://www.3dprintingmedia.network/3d-printed-salmon-startup-revo-foods-gets-e1-5-in-funding/
https://www.3dprintingmedia.network/the-chicken-restaurant-opens-in-israel-to-serve-lab-grown-meat/

AI for Food

From plant to plate, there may come a time when not one step in the food chain—including consumer decision-making—is untouched by the power of machine learning. What will this mean for the food industry?

AI enables smarter, more efficient, and quicker assessment of big data. For the food industry, the implications of this growing technology are many. Take the infinitely possible combination of ingredients: Together with IBM, American multinational food company McCormick & Company leveraged the power of AI to parse big data, **experiment with flavor, and ultimately develop new retail products—all in less time.**

From a nutritional perspective, scientific research is making strides to **better understand the nutritional value of plants at the molecular level**. These results could end up in a biologic database that would revolutionize nutritional medicine. This is exactly what AI-based startup Heali aims to do: they've created **powerful tools to offer personalized nutrition advice.** With the scan of a barcode or restaurant menu, Heali advises users what to buy and eat based on their nutritional needs and dietary preferences.



Would there come a time when AI not only helps you reach your health goals and choose a restaurant meal, but also knows your favorite foods, medical data, and nutritional needs, **enabling algorithms to do the grocery shopping for you?** Would this be the end of food brands as we know them? Would we ever eat an unhealthy snack or go to an indulgent restaurant, again? Although some of these implications may seem unlikely today, the food industry should brace for disruption, should AI-based nutrition become mainstream.

https://heali.ai/
https://www.forbes.com/sites/ilkerkoksal/2020/03/07/how-ai-determines-the-diet-plans/
https://thespoon.tech/heali-launches-its-ai-based-nutrition-and-meal-planning-app/
https://www.mdpi.com/2072-6643/13/2/322

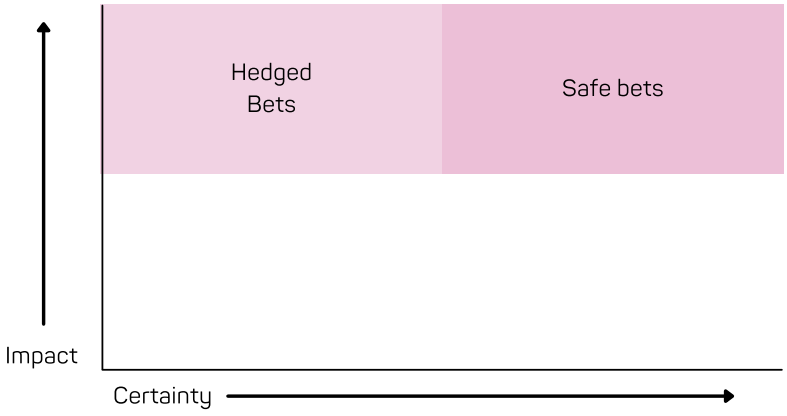
Managing Trends

The first step? Identify what really drives change.

The future-proof food multinationals that work with Rohrbeck Heger **scan widely** for trends and **strictly manage** them. To do so, they typically use a tool such as a **trends radar** to visualize, prioritize, and finally feed relevant trends into their strategy and innovation activities.

How do these teams evaluate a wide range of identified trends, in order to filter them? Information is everywhere, so it is especially crucial to make sense of "trend overload" and **distinguish between what's noise and what really matters.** One method we use is a straightforward mapping exercise where we evaluate trends based on two parameters: impact and uncertainty. By assessing a series of trends using the following questions, you can then map them onto the chart below.

- **Impact**: will this trend have a strong or negligible impact on your industry?
- **Certainty**: how certain are you about the evolution and/or trajectory of this trend towards reaching its impact?



As you can see, those trends that fall within the ranges of high impact/high certainty are considered "safe bets" and can be integrated directly into your strategy. Those that fall into the "high impact, low certainty" area in the grid, a.k.a. "hedged bets," require more research before committing to their development.

Making foresight work for you

Is it time for you to future-proof your business? Let us help.

The food industry is standing in front of a decade of major change. When trends like carbon pricing and/or AI break through, this could significantly disrupt the current business models of major players in the sector. Businesses that start preparing today therefore will benefit from it strongly in some years' time.

Those who systematically scan for change and identify opportunities and threats will be able to enter attractive markets early, and leave again to move on when competition catches up. **A combination of agile, creative, and systematic methods are needed to take you further in understanding the complex environments of the future.** Through working with major clients in the food industry and other sectors, Rohrbeck Heger has built a strong reputation in equipping innovation and strategy teams with a skillset and methodology to encourage a culture of collaboration and the adoption of a future-forward mindset for success.

"Success in innovation rarely comes overnight. Take the first step on your foresight journey and speak to one of our experts."



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