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Future of Food 2.0

**Capturing growth in
a transforming global
food ecosystem**





PwC

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EXECUTIVE SUMMARY

This “Future of Food 2.0” report maps and quantifies the 2035 potential of nine emerging growth areas across the food ecosystem. It builds on the recent [PwC](#) article “Reconfiguring the global food system”, which sets out a vision for a more resilient and future-proof model. The report draws on in-depth data analysis, and insights from our interviews with 30 senior executives worldwide at companies and co-operatives across the food ecosystem. Through these interviews, we explored executives’ perspectives on the major structural trends shaping the food ecosystem and examined how their organizations are unlocking the growth areas they see as most relevant (*see next page*).

A robotic arm with a blue and grey body is shown in a greenhouse, holding a large, green, netted melon. The background is filled with green leaves and other melons hanging from vines.

“

Our research identifies \$3.1 trillion in emerging growth areas by 2035, but capturing this value requires a fundamentally different approach to decision-making. Leaders must adopt scenario-based planning, use differentiated KPIs for early-stage ventures, and build partnerships that share risk while accessing capabilities that don’t exist in-house.”

Harald Dutzler
Partner at Strategy&

Key findings of this report for 2025 – 2035

1. Healthy eating, rapidly changing consumer expectations and climate and environmental change were identified by interviewees as the three most important trends impacting their business and the food system over the next decade, just ahead of AI and technology

2. We have identified 9 high growth areas: Health and Nutrition, Convenience, Shopper Experience, Advanced Food Processing, Alternative Ingredients and Proteins, Sustainable Packaging, Next-Gen Agricultural Inputs, Connected Growing Systems and Agri Infrastructure

3. Growth area revenues are expected to rise to \$3.1 trillion by 2035, expanding nearly 4x faster than the estimated \$9.9 trillion value of the entire food ecosystem in 2035

4. The largest growth areas are closer to the consumer, yet increasing pressure to innovate and build resilience demands transformative growth and significant investment in farming and food production

5. At \$800 billion, Health and Nutrition is the single largest growth area, with potential to reshape ingredient choices and ripple effects into more resource-efficient and sustainable production

6. Reducing financial and operational risks for farmers is key to driving adoption of innovations in How We Grow our food (\$400 billion) and creating a more resilient food ecosystem

7. Innovating How We Produce (\$680 billion) can ease pressure on land use and supply chains with automation, advanced processing, and alternative ingredients reshaping cost structures and what we eat

8. Most interviewees pointed to unclear business model economics as a critical brake on innovation beyond the core business, making it hard to secure and sustain investment long enough to scale new business models

9. There was broad consensus among interviewees that no single player can win alone when it comes to new growth areas. Ecosystem collaboration is seen as a key prerequisite to accessing the diverse capabilities needed for unlocking and scaling breakthrough growth opportunities

10. Capturing value in the food system requires companies to choose where to play, drawing on a deep understanding of long-term trends and scenario-based analysis, connect with others to share risk and close capability gaps, and maintain a steady course with decisive leadership to achieve scalable growth

SECTION 1

1. Why reinvention is now a business imperative

The global food system is entering one of the most consequential decades in its history. Climate volatility, geopolitical shocks, and resource constraints are disrupting production and supply chains, while demand continues to rise. Feeding a population that will exceed 9 billion mid-century will require annual production of crop calories to increase by more than 50% compared to 2010.¹ At the same time, climate change and land degradation are driving the loss of over 100 million hectares of productive land each year², while nearly 70% of the world's population will live in urban areas³. Meeting future demand will require more than just higher yields: land restoration and new food production methods will be essential to sustain future generations.

1 World Resources Institute (WRI), "Creating a Sustainable Food Future: A Menu of Solutions to Feed Nearly 10 Billion People by 2050", 2019, https://research.wri.org/sites/default/files/2019-07/creating-sustainable-food-future_2_5.pdf

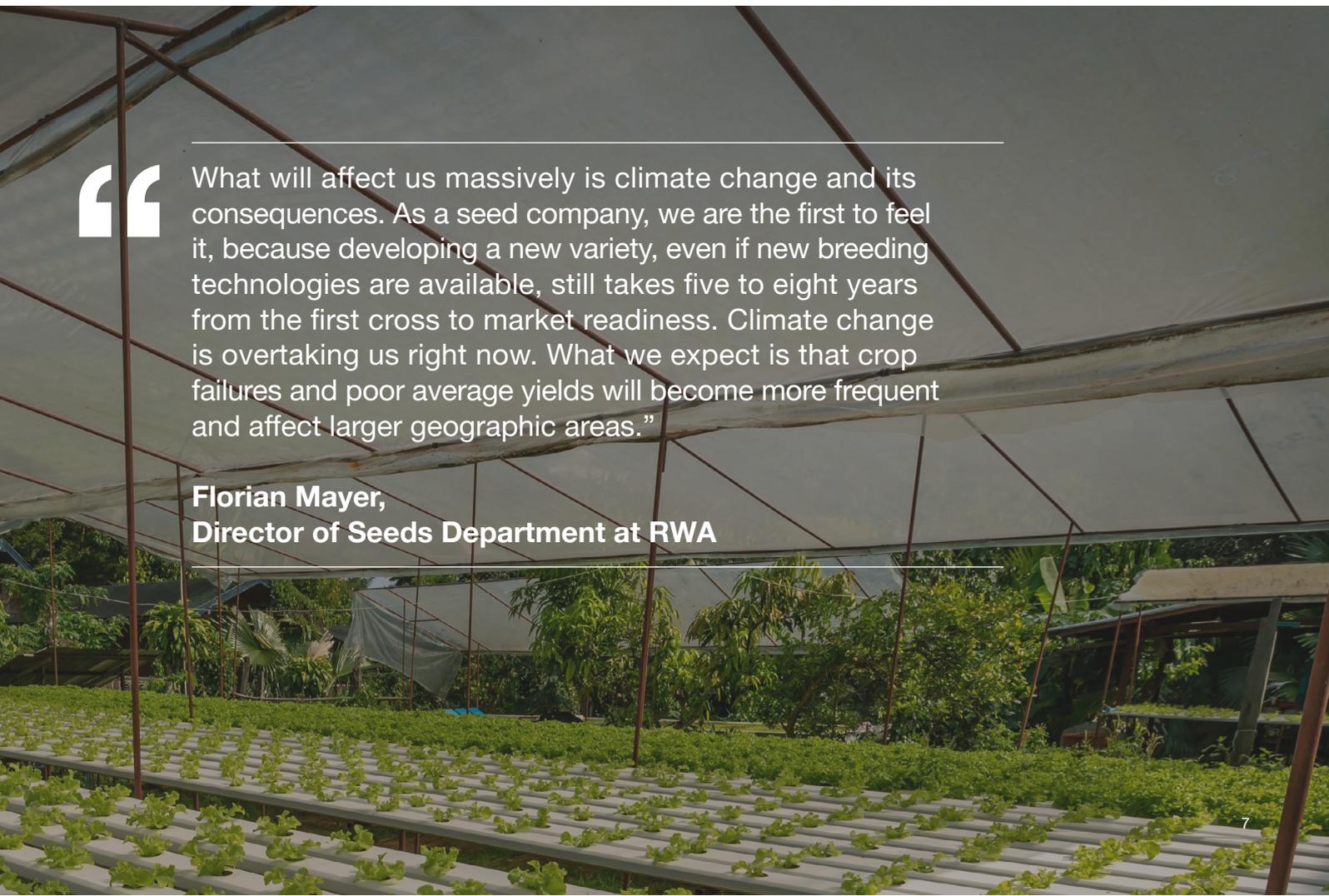
2 <https://www.unccd.int/news-stories/press-releases/least-100-million-hectares-healthy-land-now-lost-each-year>

3 <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>



What will affect us massively is climate change and its consequences. As a seed company, we are the first to feel it, because developing a new variety, even if new breeding technologies are available, still takes five to eight years from the first cross to market readiness. Climate change is overtaking us right now. What we expect is that crop failures and poor average yields will become more frequent and affect larger geographic areas.”

Florian Mayer,
Director of Seeds Department at RWA



Yet the same forces that are straining the system are also creating new opportunities. Across interviews with 30 senior executives from leading companies worldwide, one message was clear: value is in motion, and companies that recognize and act on these dynamics early will play a disproportionate role in securing their own growth and supporting a more resilient food ecosystem. Executives pointed to the following trends that will shape the next decade:

- **Healthy eating**, moving from a niche concern to a mainstream demand driver,
- **Rapidly changing consumer expectations**, from “social-to-shelf” velocity to frictionless convenience at affordable prices,
- **Climate and environmental change**, which is transforming agriculture today and is increasingly translating into higher costs for consumers.

These trends are not abstract. For consumer-centric players, expectations are rising on two fronts at once. Consumers still want frictionless, “right here, right now” access to food, but increasingly they also expect that food to do more, by offering functional benefits and supporting their overall health and wellbeing. As demand grows, the boundary between food and pharma is blurring, with propositions anchored less in categories and more in health outcomes. For many incumbents, this puts industry convergence firmly on the agenda, forcing a rethink of portfolios, partnerships and the capabilities needed to compete in a health-led food ecosystem.

For farmer-centric companies such as seed and fertilizer producers or large agricultural enterprises, shifting weather patterns, soil degradation, and resource scarcity are already tangible business challenges.

The question, then, is how to create stronger links across the food ecosystem so that pressure points for farmers and growth opportunities for consumer-centric companies reinforce rather than undermine each other. This report is designed to help food ecosystem players navigate this turning point in two steps:

- **Section 2 maps where growth will occur**, identifying nine major growth areas across the entire ecosystem
- **Section 3 translates these opportunities into what companies must do**, drawing on our 30 executive interviews to outline the capabilities, partnerships, and leadership choices required to unlock growth in an increasingly uncertain environment

In short, this report is both a map of where the growth lies, and a guide to how companies can capture it.

SECTION 2

2. Mapping the food ecosystem's emerging growth areas

2.1 Key growth areas

To understand where the biggest opportunities will emerge over the next decade, we mapped the food ecosystem's most dynamic growth areas, where value is shifting fastest as companies respond to new technologies, changing consumer expectations and climate pressure. We identified nine growth areas across the food ecosystem, from input to recycling and including rapidly emerging sectors such as Health and Nutrition, and Alternative Ingredients and Proteins (see *Exhibit 1*).

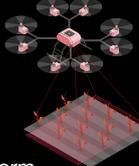
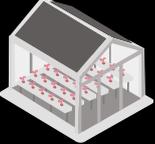
EXHIBIT 1

Key growth areas and sub-segments in the food ecosystem

These business opportunities will translate into emerging and shifting growth areas across the entire food value chain

Total estimated size by 2035:

\$3.1tn
(CAGR 7.7%)

<p>How We Consume Health and Nutrition</p>  <ul style="list-style-type: none"> • Functional foods and beverages • Supplements • Personalized nutrition and diagnostics 	<p>How We Consume Convenience</p>  <ul style="list-style-type: none"> • Food delivery • Quick commerce • Meal kits • Major smart kitchen appliances 	<p>How We Consume Shopper Experience</p>  <ul style="list-style-type: none"> • Retail media • Advanced automated checkouts • Agentic food commerce
<p>How We Produce Advanced Food Processing</p>  <ul style="list-style-type: none"> • Automated food processing systems • High-pressure processing (HPP) • 3D food printing 	<p>How We Produce Alternative Ingredients and Proteins</p>  <ul style="list-style-type: none"> • Plant-based proteins • Fermentation-based products • Cultivated (lab-grown) meat • Insect proteins 	<p>How We Produce Sustainable Packaging</p>  <ul style="list-style-type: none"> • Recyclable packaging • Biodegradable packaging • Compostable packaging
<p>How We Grow Next-Gen Agricultural Inputs</p>  <ul style="list-style-type: none"> • CRISPR-edited crops • Biological agriculture • Methane-reducing feed additives 	<p>How We Grow Connected Growing Systems</p>  <ul style="list-style-type: none"> • Precision equipment and automation • Digital sensing and data platform • Farm management software • Regenerative agriculture 	<p>How We Grow Agri Infrastructure</p>  <ul style="list-style-type: none"> • Agrivoltaics • Solar-powered cold storage • Controlled environment agriculture

Source: Strategy& analysis

Methodology

These growth areas are a curated selection based on insights from external market analysis, PwC's global expert network and 30 executive interviews. To assess their future potential, we projected the growth trajectory of each area over the next decade based on total forecast revenues. This analysis drew on external market estimates, including analyst reports, industry association data, and academic research, in addition to insights from the executive interviews and PwC's global expert network. Using consistent value-chain-based sizing logic, we projected revenues for each growth area in 2025, 2030, and 2035, to provide a comparable view of where growth is likely to materialize.



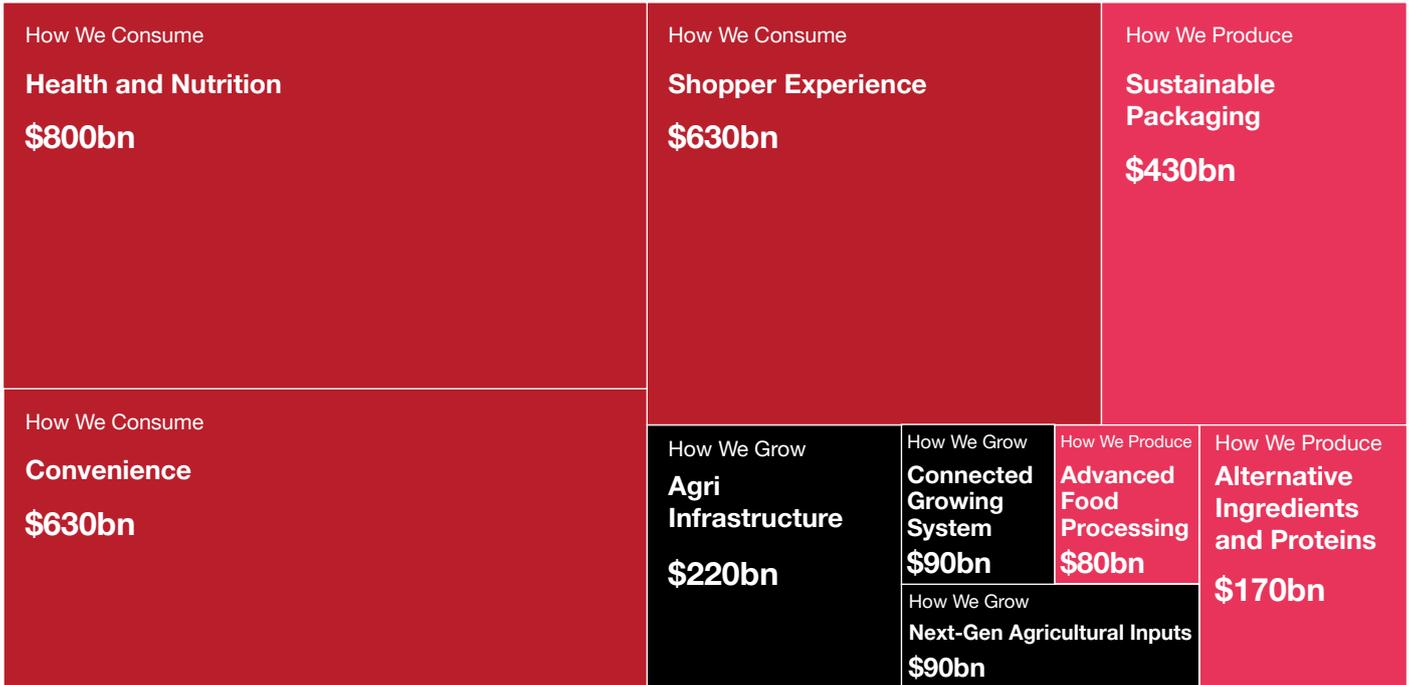
EXHIBIT 2

Projected market size of growth areas, 2025-2035 (in \$ billion)¹

The growth areas differ in their market size

Total estimated size by 2035:

\$3.1tn
(CAGR 7.7%)



1. For the Convenience growth area, our sizing, as an exception, captures only the value added by convenience (i.e., the margin between input costs such as ingredients or goods and consumer prices) rather than total revenues to ensure comparability and avoid double counting.
Source: Strategy& analysis

Our analysis suggests that, while the value of the overall food ecosystem is expected to grow yearly by 2.1% to \$9.9 trillion in 2035,⁴ the nine growth areas will expand much faster: rising from \$1.5 trillion in 2025 to \$3.1 trillion in 2035 (CAGR 7.7%, see Exhibit 2).

We group the growth areas into three broad clusters of the food ecosystem – How We Grow, How We Produce and How We Consume (see Exhibit 2). In sections 2.2 to 2.4, we discuss each cluster in turn and the three growth areas within it:

- How We Grow: \$150 billion (2025) – \$400 billion (2035)
- How We Produce: \$290 billion (2025) – \$680 billion (2035)
- How We Consume: \$1,060 billion (2025) – \$2,060 billion (2035)

4 <https://www.pwc.com/gx/en/issues/value-in-motion.html>

When viewed this way, the figures reflect the overall imbalance in the ecosystem: revenues are heavily weighted toward retail, even as increasing pressure to innovate and become more sustainable drive transformative growth closer to product and farm level. Around 90% of the projected value in 2035 reflects a shift from traditional to emerging sub-segments (for example, conventional to CRISPR-edited crops or animal-based to alternative proteins). The remaining 10% represents additive growth, generated by sub-segments that do not primarily replace existing products, including methane-reducing feed additives, dual land use for agriculture and solar energy (agrivoltaics), and personalized nutrition and diagnostics.

Two additional lenses which cannot be meaningfully quantified but are critical to understanding how quickly these growth areas will develop are system-wide catalysts that accelerate innovation, and regional differences in adoption.

- **System-wide catalysts**, such as digital technology and AI, financing, and supportive government policy, influence multiple parts of the ecosystem at once, accelerating innovation from real-time farm analytics to personalized nutrition. Other catalysts, such as efforts to strengthen food security, reduce food waste and increase circularity, drive adoption of solutions such as precision agriculture and solar-powered cold storage. Ecosystem-wide services such as carbon accounting, insurance, and digital traceability infrastructure reinforce these shifts by giving companies the tools to navigate compliance, unlock financing, and demonstrate impact. Together, these system-wide forces shape how quickly new solutions can scale and how effectively they translate into sustained impact. They also represent significant value in the food ecosystem, although this value has not been quantified in this study as part of the growth areas assessment.
- **Regional differences** influence where growth areas are developing. In the US, for instance, innovation is driven by breakthroughs in biotechnology, AI-enabled food systems, and the adoption of GLP-1 medications⁵, a key growth accelerator across the health and nutrition sector. In Europe, by contrast, innovation is often regulation-driven, with a strong focus on sustainable packaging, circularity, and traceability. In the Middle East and China, concerns about food security underlie major investments in controlled environment agriculture (e.g., greenhouses). Meanwhile, in many parts of Africa, diets are shifting to include more protein (e.g. poultry and fish), and Asia is emerging as a hub for digital convenience and rapid commerce. South America is one of the world's most important suppliers of food, fiber, and bioenergy, playing a strategic role in global food and energy security. At the same time, South America is emerging as a global testbed for large-scale agricultural innovation, from digital farming and precision agriculture to biological inputs and soil regeneration, aimed at boosting productivity while decoupling growth from environmental impact.

2.2 How We Grow

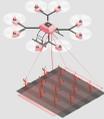
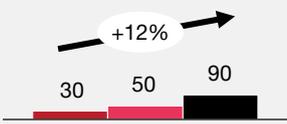
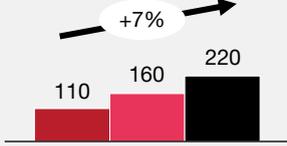
Reinventing How We Grow food starts on the farm. Growth areas in this part of the ecosystem will only scale if they solve the farmer's everyday challenges: creating better growing conditions, reducing input costs, and increasing efficiency and productivity. In our analysis, we focus on three growth areas that directly address these pain points and together underpin the **\$400 billion How We Grow** market size by 2035 (see *Exhibit 3, next page*):

- **Next-Gen Agricultural Inputs**
- **Connected Growing Systems**
- **Agri Infrastructure**

⁵ GLP-1 medications (e.g., Ozempic) are appetite-regulating drugs, initially developed for diabetes, that are now widely used for weight loss.

EXHIBIT 3

Growth areas in How We Grow

Growth areas	Next-Gen Agricultural Inputs 	Connected Farming Systems 	Agri Infrastructure 
Definition	Biotechnological and biological inputs transforming agriculture toward greater resilience and efficiency	Smart farming systems integrating automation, data, and regenerative practices to optimize productivity and sustainability	Renewable energy integration, efficient cold storage, and controlled growing environments
Sized sub-segments	<ul style="list-style-type: none"> • CRISPR-edited crops • Biological agriculture • Methane-reducing feed additives 	<ul style="list-style-type: none"> • Precision equipment and automation • Digital sensing and data platform • Farm management software • Regenerative agriculture 	<ul style="list-style-type: none"> • Controlled environment agriculture • Agrivoltaics • Solar-powered cold storage
Growth drivers	<ul style="list-style-type: none"> • Climate-driven production losses • Supportive policies • Consumer preference for sustainable food production • Advances in biotechnology 	<ul style="list-style-type: none"> • Need to improve yields and efficiency amid climate, cost, labor and food security pressures • Digitalization and cheaper IoT/AI • Policies and investors 	<ul style="list-style-type: none"> • Weather volatility and supply-chain disruptions • Advances in solar, automation, and cooling technologies • Energy demand and decarbonization goals
Challenges	<ul style="list-style-type: none"> • Regulatory uncertainty and lengthy approval processes • R&D costs and limited scalability of biological products • Farmer adoption barriers due to cost, awareness, and perceived risk 	<ul style="list-style-type: none"> • High upfront investment and unclear ROI limiting adoption • Raising awareness and technological adoption in rural areas • Lack of clear certification standards, offtake agreements and market recognition 	<ul style="list-style-type: none"> • High capital intensity and long payback periods • Dependence on specialized maintenance, reliable energy storage, and skilled labor • Land-use competition, regulatory hurdles, and grid integration constraints
Market size in billion USD and CAGR			

■ 2025 ■ 2030 ■ 2035

Source: Strategy& analysis

Next-Gen Agricultural Inputs and Connected Growing Systems

Farmers are increasingly adopting new practices such as **precision agriculture**, **regenerative agriculture** and **biological inputs** (e.g., bio stimulants), to improve yields while reducing reliance on synthetic fertilizers and pesticides – both major cost drivers and environmental liabilities. Precision agriculture technologies such as sensor-guided irrigation and AI-based crop analytics enable more targeted input use, lowering operating costs and increasing resilience to climate volatility. Regenerative agriculture is gaining traction to restore soil health and potentially unlock carbon revenue streams, although adoption still depends heavily on clear economic benefits and transition support.

Agri Infrastructure

Within How We Grow, **Controlled Environment Agriculture** (CEA) is by far the largest sub-segment, driven primarily by greenhouse horticulture, which we estimate will reach annual revenues of \$220 billion by 2035. **Greenhouses** are becoming an essential tool for climate resilience and food security. A Nature study based on satellite data revealed 1.3 million hectares of global greenhouse area in 2019, an area nearly the size of Northern Ireland or Connecticut, with China accounting for 60% of total coverage^{6,7}. Their appeal is rising as extreme weather, water scarcity, and supply instability increase the need for predictable, protected production systems, even though energy use and emissions remain a challenge in some greenhouse systems. At the same time, the sector is being reshaped as automation becomes essential amid severe labor shortages.⁸ By contrast, **indoor** and **vertical farms** remain small in scale due to higher energy and labor costs, reinforcing that greenhouses will remain the backbone of controlled-environment food production in the decade ahead. Although not sized in this study, aquaculture represents another fast-growing controlled production system, increasingly important for meeting global protein demand as terrestrial agriculture faces mounting climate and land constraints.

Another rapidly emerging opportunity is the expansion of cold-chain infrastructure, particularly through **solar-powered cold storage** in developing markets for perishable food. Across sub-Saharan Africa, the World Bank estimates that 7.4 million smallholder farmers lack access to adequate cold storage facilities.⁹ In Kenya less than 20% of perishable food is refrigerated, leading to post-harvest losses of up to 40%.¹⁰ In this context, companies like SokoFresh are pioneering off-grid “cold-storage-as-a-service” models, combining solar-powered cooling units with market-linkage solutions for smallholder farmers. Each installation generates commercial returns, reducing post-harvest food losses and increasing farmers’ incomes by up to 30%.¹¹

6 <https://earthobservatory.nasa.gov/images/152874/a-greenhouse-boom-in-china>

7 <https://www.nature.com/articles/s43016-024-00985-0>

8 <https://media.rabobank.com/m/4e9a7bf2ad664c72/original/Global-greenhouse-update-2025.pdf>

9 <https://documents1.worldbank.org/curated/en/099235110062231022/pdf/P175150063801e0860928f00e7131b132de.pdf>

10 <https://eepafrica.org/documents/Sector-Briefs/cold-chain-storage-market-assessment-2023.pdf>

11 https://set-alliance.org/set_resources/off-grid-cold-storage-as-a-service-for-farmers-in-kenya

Vertical integration as a growth model in African agribusiness

Our interviews with executives from **South African agribusinesses** show that some players aim to build vertically integrated business models that allow them to own and develop end-to-end supply chains – often starting from scratch due to limited legacy infrastructure. This approach is essential for controlling quality, reducing inefficiencies, and ensuring food security, especially as rising incomes shift consumer demand toward higher protein diets. However, constructing these supply chains is complex due to intense inter-country competition and regulatory uncertainty. Technology is a key enabler: companies are investing in mechanization and automation, leveraging affordable Chinese and Indian equipment to make mechanization accessible to smaller farmers.

Farmer adoption is a key growth driver – and key challenge

Unlocking more than \$400 billion in future growth depends largely on the adoption decisions of the world's 608 million farmers – 84% of whom cultivate less than two hectares.¹² In practical terms, the speed at which farmers embrace change ultimately determines the trajectory of nearly every farming-related sub-segment, from **CRISPR-edited crops** to **precision agriculture** and **regenerative practices**. Yet farmer adoption remains difficult. Globally, 90% of farms are family-run¹³, with practices refined over years of experience. For many, adopting new technologies represents not just a financial risk but requires new skills, trust, affordable solutions with viable payback periods, and support systems. At the same time, farmers face mounting external pressures: volatile commodity prices, rising input costs, and increasingly extreme weather, while being asked to transition toward more sustainable and often more complex production systems.

In interviews, executives running cooperatives and farmers' associations identified five critical levers that accelerate farmer adoption (see *Exhibit 4*), ranging from economic incentives to increasing demand for sustainably-farmed products. The impact and effectiveness of these levers depend heavily on the local policy, farming and regulatory context. For example, greater use of gene-edited crops, which can increase pest or drought resistance and enable additional revenue streams for farmers through higher-value non-food applications of crops, relies as much on the local political climate as on the right agricultural conditions. In Europe, unlike in the US, adoption of the CRISPR/Cas9 gene editing system hinges on regulatory clarity and public acceptance, with the political debate on deregulation of new genome techniques still unresolved in late 2025.¹⁴

¹² <https://www.sciencedirect.com/science/article/pii/S0305750X2100067X?>

¹³ <https://www.sciencedirect.com/science/article/pii/S0305750X2100067X?>

¹⁴ <https://www.chemistryworld.com/news/gene-edited-crops-set-to-arrive-in-england-but-eu-remains-divided-on-them/4021687.article>

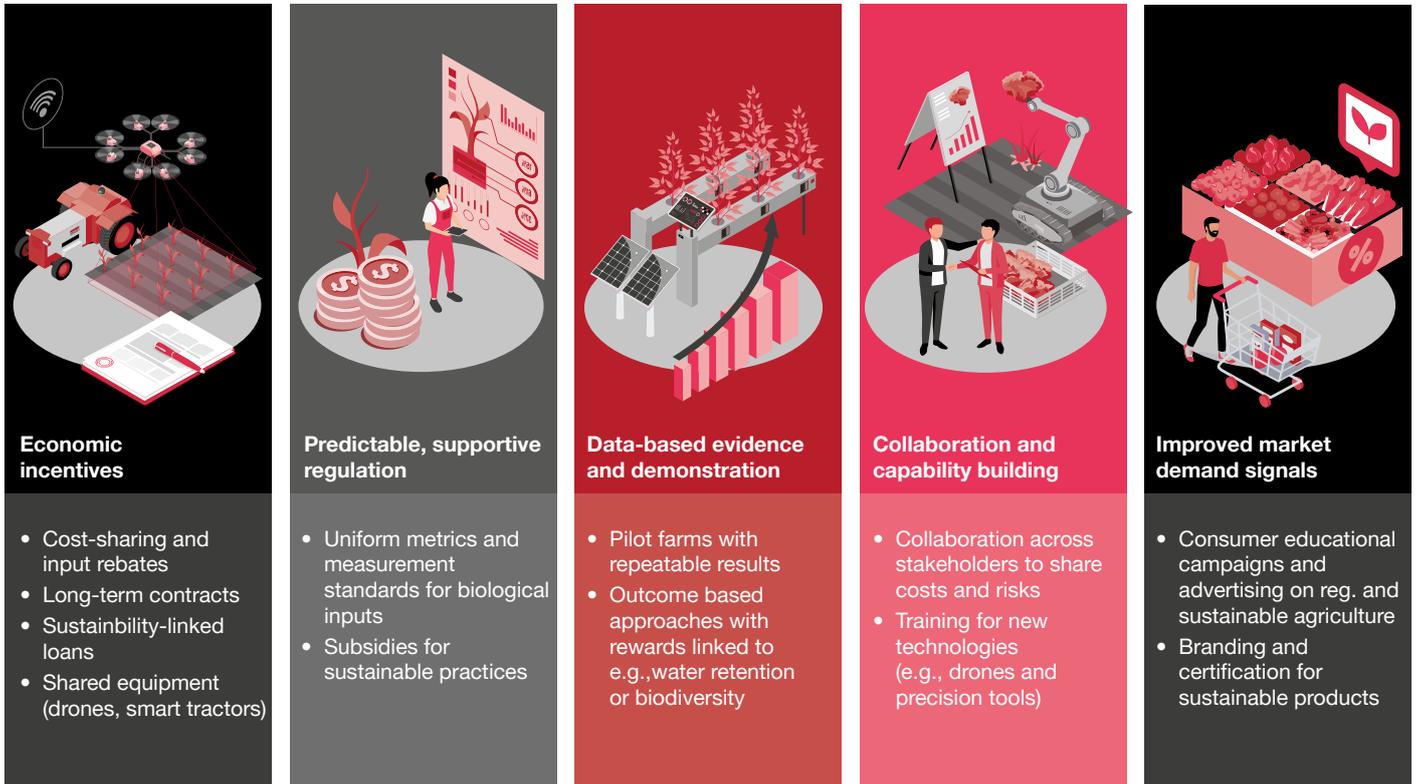


For farmers, every decision carries real financial risk and affects their livelihood – which is why showing clear results in the field is essential for adoption.”

Alexander Tokarz,
Head of Group Strategy at Syngenta

EXHIBIT 4

Major levers to enable innovation in farming



Source: Strategy& analysis

2.3 How We Produce

Food production is undergoing one of the most profound technological shifts in decades. Advances in automation, biotechnology, and efforts to improve supply chain resilience (e.g., for cocoa) are reshaping how food is made and determining which players can grow profitably in an increasingly volatile environment. In this section, we examine the most dynamic growth areas which underpin the **\$680 billion How We Produce** market size by 2035 (see *Exhibit 5, next page*):

- **Advanced Food Processing**
- **Alternative Food Ingredients and Proteins**
- **Sustainable Packaging**

Key challenges across growth areas include strict and evolving regulations (e.g., for cultivated meat), high costs and technical hurdles in scaling production for technologies such as bioreactors, and limited consumer acceptance of alternative materials and food technologies.

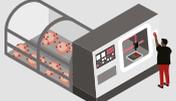
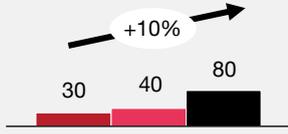
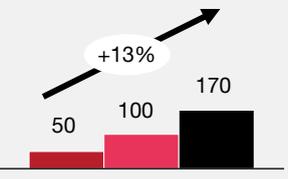
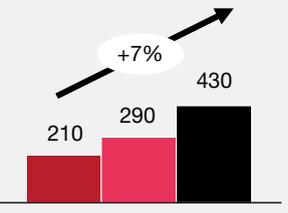


Early automation was about swapping people for robots. The real value came once we stopped thinking that way and focused on where technology could help people do their jobs better. That's where productivity – and capability – really took off.”

Tom Woodbridge,
CEO at Beak & Johnston

EXHIBIT 5

Growth areas in How We Produce

Growth areas	Advanced Food Processing 	Alternative Ingredients and Proteins 	Sustainable Packaging 
Definition	Cutting-edge technologies that improve precision, consistency, and innovation in food production	Proteins and functional ingredients from plants, fermentation, cultivated cells or by-streams that replicate conventional ingredients	Packaging that reduces environmental impact through improved material efficiency, recyclability, biodegradability, or compostability
Sized sub-segments	<ul style="list-style-type: none"> Automated food processing systems High-pressure processing (HPP) 3D food printing 	<ul style="list-style-type: none"> Plant-based proteins Fermentation-based products Cultivated (lab-grown) meat Insect proteins 	<ul style="list-style-type: none"> Recyclable packaging Biodegradable packaging Compostable packaging
Growth drivers	<ul style="list-style-type: none"> Automation needed due to labor gaps and rising safety/quality standards Advances in robotics and AI improving efficiency Demand for natural, preservative-free products 	<ul style="list-style-type: none"> Demand for sustainable and ethical protein Biotech and processing advances improving taste and texture Regulatory support, food security and investment momentum 	<ul style="list-style-type: none"> Regulatory pressure Advancements in materials science Rising consumer awareness
Challenges	<ul style="list-style-type: none"> High capital costs and complex integration for legacy plants Limited 3D printing scalability Regulatory and consumer barriers to novel technologies 	<ul style="list-style-type: none"> Sensory gaps vs. animal proteins High production costs and scale limits (especially cultivated/fermentation) Regulatory uncertainty and consumer scepticism 	<ul style="list-style-type: none"> High production costs and limited recycling infrastructure Performance trade-offs Inconsistent global standards
Market size in billion USD and CAGR			
<p>■ 2025 ■ 2030 ■ 2035</p>			

Source: Strategy& analysis

Advanced Food Processing

It is estimated that the **automation** market in food processing will more than double in size to around \$65 billion by 2035, as manufacturers continue to integrate robotics and IoT systems to optimize production lines. A 2025 survey of mostly US companies shows that 43% of food and beverage manufacturers currently invest between 26% and 50% of their total equipment budgets in digital and automation projects.¹⁵ Much of this investment is aimed at near-term gains – reducing labor, energy, and material costs – rather than radically reinventing production models. Tom Woodbridge, CEO of food manufacturer Beak & Johnston, highlighted a shift toward smaller, collaborative robots (“cobots”) that work alongside employees to improve manual handling, safety, and productivity. This evolution reflects a move toward human-machine collaboration instead of full automation, requiring a smaller but more skilled workforce.

Executives told us that their automation journeys are already underway. As technology matures and the economics of automation improve (facilitated by government incentives), factories in environments such as China and Thailand are delivering higher output with leaner staffing than those in higher-cost, more regulated regions. Beyond automation, emerging processing technologies such as high-pressure processing (a non-thermal method that extends shelf life) and 3D food printing are being explored, but most interviewees expect them to remain niche, focused on specific use cases rather than broad industry standards.

Sustainable Packaging

Globally, there is a shift toward **recyclable**, **biodegradable**, and **compostable packaging** solutions, which together are estimated to reach a market value of \$430 billion by 2035.¹⁶ Reaching this scale is not guaranteed: food safety requirements, high investment needs, and limited supply of next-generation materials remain real constraints that could slow adoption. Nevertheless, for commercial and legal reasons, food manufacturers must respond. In Europe, the EU Packaging and Packaging Waste Regulation (PPWR) requires all packaging to be recyclable by 2030.¹⁷

Interviewees consistently noted that reducing packaging has become a top agenda item, not only to meet regulatory requirements but also to manage rising materials costs. A Strategy& study on sustainable packaging estimates that companies can cut packaging costs by up to 30% through various means, including lightweighting and working with partners in their value chain to reduce secondary and tertiary packaging.¹⁸ A critical strategic question highlighted by several interviewed executives is how to redesign pack-price architecture – balancing consumer demand for convenient, on-the-go formats with the shift toward more sustainable materials.

Alternative Ingredients and Proteins

Manufacturers of plant-based, cell-cultured and fermentation-based meat, fish, egg and dairy products raised \$1.1 billion in 2024, with around 60% flowing into fermentation, 28% into plant-based, and 13% into cultivated solutions.¹⁹ We estimate conservatively that alternative proteins will represent around 5% of global protein revenues by 2035, up from around 2% today. While the early “alternative protein boom” has cooled, with the sector facing clear headwinds (see *Exhibit 5*), our interviews indicate that the underlying drivers – including health, sustainability, and rising food-security concerns – remain intact, particularly as countries such as China accelerate investment in precision fermentation.

¹⁵ <https://foodindustryexecutive.com/2025/04/report-2025-state-of-food-manufacturing-digital-transformation/>

¹⁶ <https://www.gminsights.com/industry-analysis/eco-friendly-food-packaging-market>

¹⁷ https://environment.ec.europa.eu/topics/waste-and-recycling/package-waste_en

¹⁸ <https://www.strategyand.pwc.com/de/en/industries/consumer-markets/mastering-food-and-beverage-packaging.html>

¹⁹ Data compiled by the Good Food Institute (GFI), which promotes alternatives to meat: <https://gfi.org/investment/#market>

Our analysis of alternative proteins focuses on three sub-segments: **plant-based proteins**, **fermentation**, and **cultivated meat** (see *Exhibit 6*). Across our interviews, precision fermentation emerged as an area with a lot of potential, particularly in functional foods and the replacement of ingredients facing supply challenges (e.g., cocoa butter, saffron). While the sector is still early in commercialization, companies are rapidly scaling into mainstream categories like meat, egg, and dairy alternatives. Key challenges include high energy use along with regulatory approval, scaling industrial bioreactor capacity, cost reduction, and consumer acceptance.

Upcycled Ingredients and Ingredient Substitution are another huge opportunity

New technologies and processes are creating opportunities for companies to upcycle by-products previously discarded as waste into food- and non-food products such as biofuels. Upcycled ingredients can be obtained from plant-based sources such as fruits, vegetables and grains, as well as meat, fish, and dairy products.

For example, Seán Molloy, CEO of Tirlán and one of our interviewees, highlighted the shift in the role of whey. Once a low-value by-product of cheese and Greek yogurt production, it has become a high-demand ingredient driven by the rise of protein-rich diets. In many cases, whey now generates more economic value than the cheese or yogurt it originates from.

EXHIBIT 6

Sub-segments of alternative proteins

	 Plant-based proteins	 Fermentation	 Cultivated meat
Definition	Proteins derived from plants used to replace animal-based products in terms of taste and texture	Use of microorganisms to produce proteins and ingredients via three approaches: traditional (e.g., tempeh), biomass (e.g., mycoprotein/Quorn), or precision fermentation	Meat grown directly from animal cells in bioreactors, without raising animals
Technology maturity	Highly mature	Moderate to high maturity, depending on sub-type	Early stage
Key inputs	Soy, pea, wheat, seaweed	Bacteria, yeast, fungi	Cell lines
Current developments	<ul style="list-style-type: none"> Largest segment within alternative proteins with c. \$45 billion market size based on Euromonitor data Supported by government guidelines (e.g., EU Farm to Fork, UK Eatwell Guide) Major retailers such as Tesco expanding private-label ranges within plant-based products 	<ul style="list-style-type: none"> Total private funding of \$0.7 billion in 2024 Precision fermentation, the newest and most promising method, offering scalable protein production with up to 95% less land use and nearly no water consumption Enables production of fats, sweeteners, vitamins, enzymes, offering replacement of scarce ingredients (e.g., cocoa butter, saffron) within plant-based products 	<ul style="list-style-type: none"> Global investment reached \$3.1 billion in 2025 Advancing from concept to commercialization; products now sold by seven companies in Singapore, US, and Australia (regulatory approval granted)

1. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(25\)01201-2/abstract](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(25)01201-2/abstract)

2. <https://www.beuc.eu/farm-fork-strategy-consumer-view?> ; https://assets.publishing.service.gov.uk/media/5bbb790de5274a22415d7fee/Eatwell_guide_colour_edition.pdf

3. <https://gfiurope.org/precision-fermentation/>

4. <https://www.morganstanley.com/insights/articles/fermentation-technology-surpass-30-billion-2030>

5. <https://gfi.org/science/the-science-of-cultivated-meat/>

6. <https://gfi.org/resource/cultivated-meat-seafood-and-ingredients-state-of-the-industry/>

Source: The Lancet¹, BEUC², Morgan Stanley^{3,4}, GFI Europe^{5,6}

This shift is prompting companies across the food ecosystem to reassess the potential of by-products – from spent brewers’ grains to cocoa pod husks, to food waste repurposed as feedstock for precision fermentation.

Ingredient substitution is increasing as companies take action to address commodity price volatility and the impacts of weather volatility on supply. Cocoa and coffee are prominent examples. Price volatility has prompted manufacturers to use substitutes like carob, or to reformulate to use less cocoa and more sugar, often at the expense of nutritional quality. Cocoa, surged from around \$4,200 per ton to nearly \$12,000 in 2024, before easing back to roughly \$5,500 by late 2025^{20,21,22}. In coffee, substitutions range from chicory-based blends to alternative beverages such as energy drinks.²³ These shifts in ingredient use require companies to adapt sourcing practices, develop new suppliers and ingredient types, and in some cases reassess manufacturing equipment and production lines to handle different ingredient properties and pre-processing requirements.

2.4 How We Consume

Changing How We Consume food opens one of the most powerful opportunities in the global food ecosystem. As consumer expectations shift rapidly toward healthier choices, greater convenience, personalization, and seamless omni-channel experiences, companies that innovate fastest stand to capture disproportionate value. In our analysis, we focus on growth areas that capture these shifts and together shape the **\$2,060 billion How We Consume** market size by 2035 (see *Exhibit 7, next page*):

- **Health and Nutrition**
- **Convenience**
- **Shopper Experience**

20 <https://www.nasdaq.com/articles/cocoa-prices-surge-icco-cuts-global-cocoa-production-and-surplus-estimates>

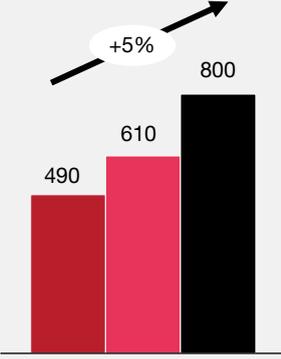
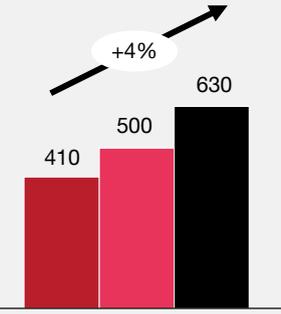
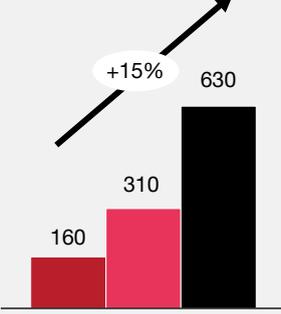
21 <https://www.cnbc.com/2025/11/28/chart-how-much-coffee-prices-have-risen-since-1985.html>

22 <https://www.icco.org/statistics/>

23 <https://www.whitehouse.gov/wp-content/uploads/2025/05/MAHA-Report-The-White-House.pdf>

EXHIBIT 7

Growth areas in How We Consume

Growth areas	Health and Nutrition 	Convenience 	Shopper Experience 
Definition	Products, services and technologies improving well-being through enhanced dietary intake	Solutions that simplify cooking, shopping, and delivery via digital platforms, smart devices, and rapid logistics	Technologies that personalize and innovate digital and in-store shopping
Sized sub-segments	<ul style="list-style-type: none"> • Functional foods and beverages • Supplements • Personalized nutrition and diagnostics 	<ul style="list-style-type: none"> • Food delivery • Quick commerce • Meal kits • Major smart kitchen appliances 	<ul style="list-style-type: none"> • Retail media • Advanced automated checkouts • Agentic food commerce
Growth drivers	<ul style="list-style-type: none"> • Rising focus on preventative health and longevity • Growing prevalence of lifestyle-related health issues • Advances in data, genomics, and wearable-enabled personalization 	<ul style="list-style-type: none"> • Demand for time-saving solutions • Expansion of tech-enabled ecosystems • Urbanization driving demand for fast and flexible delivery models 	<ul style="list-style-type: none"> • Rapid digitalization of retail • Strong retailer and brand incentives to leverage first-party data • Advances in AI and automation
Challenges	<ul style="list-style-type: none"> • High development costs • Consumer skepticism and inconsistent efficacy data • Complex regulations for health claims 	<ul style="list-style-type: none"> • High acquisition and labor costs affect profitability • Product quality and freshness • Competition from traditional retail 	<ul style="list-style-type: none"> • High infrastructure and technology integration costs • Data privacy concerns • Unclear ROI for emerging autonomous models
Market size in billion USD and CAGR			
	<p>■ 2025 ■ 2030 ■ 2035</p>		

Source: Strategy& analysis

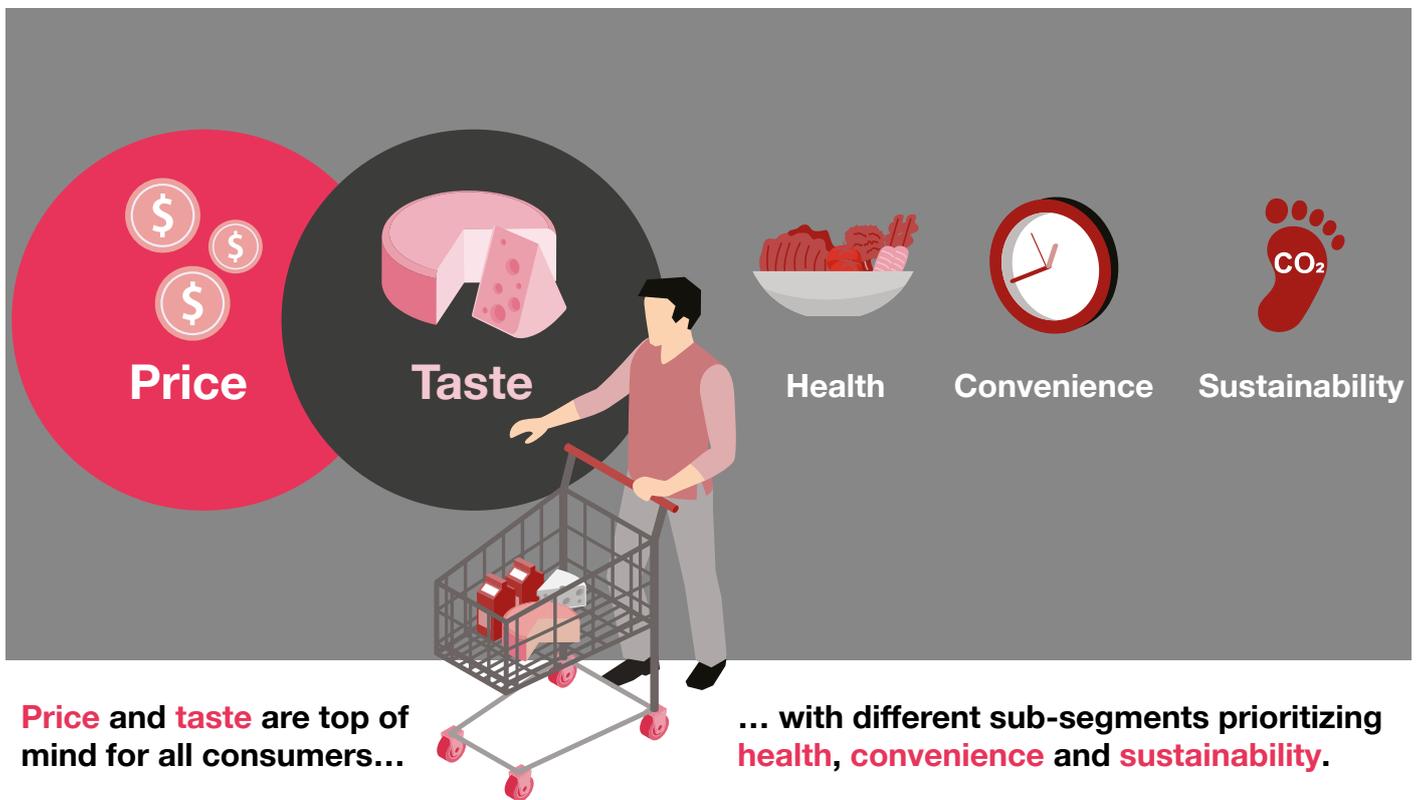
Consumers today expect food that is not only affordable and tasty, but also healthy, sustainable, and available whenever and however they want it – whether online, to-go, pre-cooked or in-store (see Exhibit 8). PwC’s *Voice of the Consumer 2025* study confirms this shift toward more fragmented, health-conscious and omnichannel shopping behaviors. In interviews, executives emphasized that this growing fragmentation raises complexity across assortments, supply chains, and go-to-market models, making personalization not just a growth lever but a core operational capability.

Health and Nutrition

The rapidly increasing number of health-conscious consumers, who expect food and drink to actively support specific wellness and health goals²⁴, is opening new horizons for food players. Across interviews, leaders highlighted that the health trend, after years of quiet momentum, is now gaining real traction and reshaping demand. We estimate that the three Health and Nutrition sub-segments in our analysis alone will grow to around \$800 billion by 2035 – and the broader opportunity could be significantly larger.

24 The Planetary Health Diet, proposed by the EAT–Lancet Commission, outlines dietary patterns that support human health while staying within planetary boundaries, emphasizing whole foods, plant-forward diets, and reduced environmental impact: <https://eatforum.org/eat-lancet>

EXHIBIT 8 How We Consume – Relevant factors for food choices



Source: Executive interviews, Strategy& analysis

Fortified and functional foods and beverages are becoming a strategic focus in the industry, driven by rising consumer demand for products that offer added nutritional benefits – such as extra protein, fiber, or targeted health functionality – without compromising on taste or affordability. Retailers are increasingly using private-label brands as a key vehicle for these health propositions, allowing them to move faster, control price points, and scale functional offerings across mass-market categories. This momentum is accelerated by the rapid rise of GLP-1 medications. In the U.S., around 10% of adults report having used GLP-1 drugs²⁵ with Ozempic’s average index growth rate outpacing estimates for other major disruptors such as the Apple iPhone²⁶. Recent evidence shows that GLP-1 adoption is already changing consumer behavior, including attitudes toward portion size, satiety, and food choices, with early impacts visible across categories such as snacks and indulgence products, signaling a broader shift in how consumers experience food.²⁷ While many companies remain cautious about predicting long-term category effects, current analysis suggests that the scale and speed of adoption could structurally shift demand toward protein-rich, functional, and nutrition-dense products.²⁸ Several interviewed companies anticipate additional opportunities in protein-enriched and functional foods, whereas others are reluctant to make major portfolio shifts until clearer patterns emerge. Many leaders also highlighted a rising consumer focus on longevity and healthy aging, which is further boosting interest in functional and health-oriented products beyond short-term diet trends. A major challenge for functional foods and beverages lies in their marketing, particularly regarding regulatory compliance and consumer confidence.

25 <https://www.kff.org/health-costs/poll-1-in-8-adults-say-theyve-taken-a-glp-1-drug-including-4-in-10-of-those-with-diabetes-and-1-in-4-of-those-with-heart-disease/>

26 <https://www.pwc.com/us/en/services/consulting/business-model-reinvention/glp-1-trends-and-impact-on-business-models.html>

27 <https://hbr.org/2025/10/how-glp-1-medications-are-changing-consumer-behavior>

28 <https://www.pwc.com/us/en/industries/consumer-markets/library/glp-1-weight-loss.html>



Food is no longer just something you eat, but something you use to improve your wellbeing. Functional foods, from probiotics to precision-formulated drinks, are one of the fastest-growing spaces we see, driven by consumers who recognize the powerful role food plays in their health”

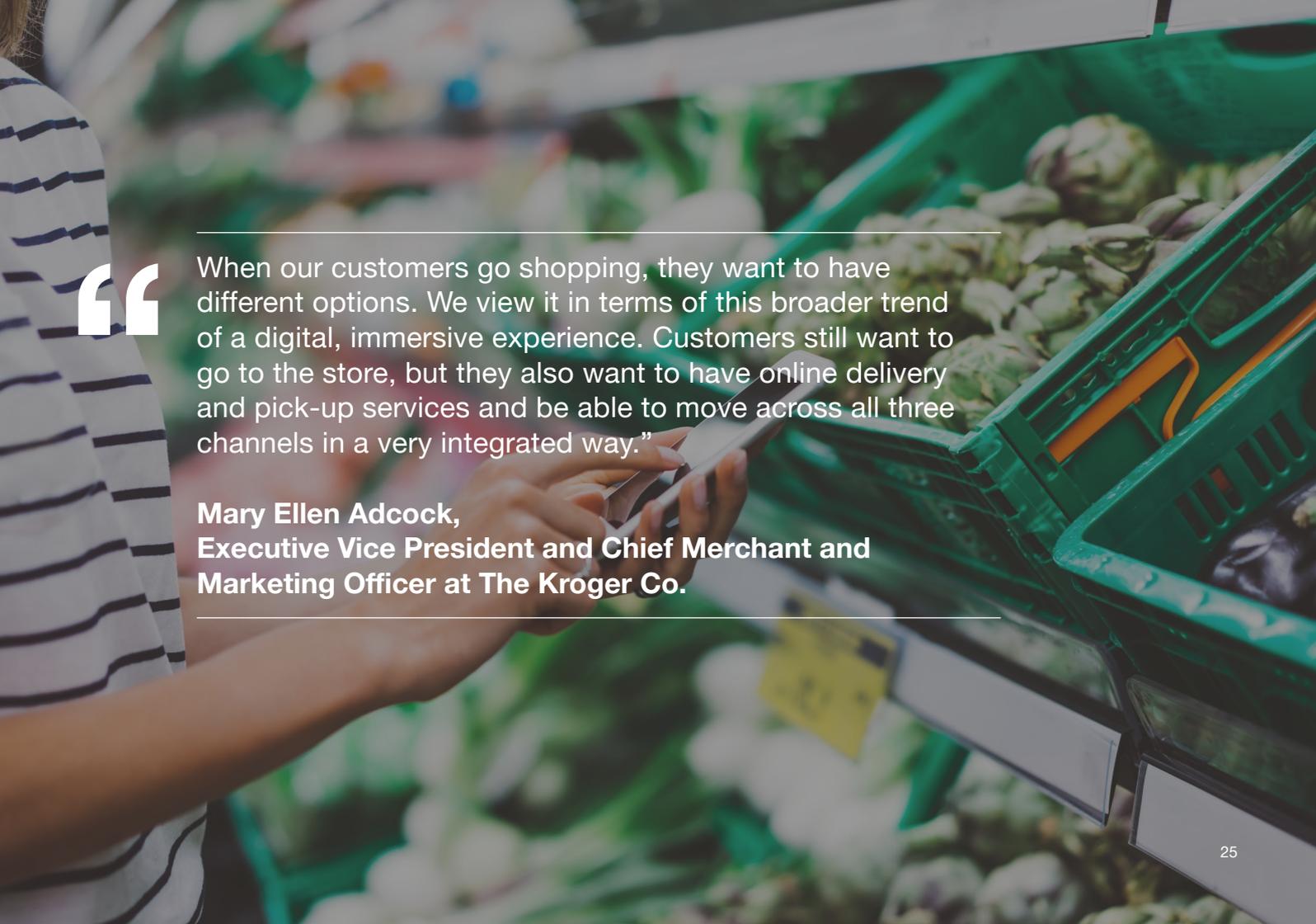
Rebecka Löthman Rydå,
General Partner at Norrsken Evolve

Meanwhile, **diet supplements** are catering to rising demand for proactive “well care”, as consumers increasingly prioritize prevention and daily health management. This growing awareness is driving interest in personalized supplements that are tailored to individual wellness programs, as highlighted by the Strategy& 2025 [Future of Health](https://www.strategyand.pwc.com/de/en/industries/pharma-life-sciences/future-of-health/2025/strategyand-future-of-health-2025.pdf) study.²⁹ Moreover, advances in wearable health trackers, AI analytics, and diagnostics are enabling **personalized nutrition** and early detection of conditions such as type 2 diabetes. This reflects a broader move toward data-driven, preventive health ecosystems that integrate real-time monitoring, behavior insights, and nutrition guidance into daily life.³⁰ Essentially, the growth of the personalized nutrition field depends on consumer participation, reduction of diagnostic costs, and further scientific progress.

Convenience

Meanwhile, the rise of the Convenience growth area is driven by urbanization, smaller households, and time-pressed lifestyles, with digitization acting as a key accelerator toward on-demand food models – a shift reinforced by COVID-19 and showing no sign of reversal.

29 <https://www.strategyand.pwc.com/de/en/industries/pharma-life-sciences/future-of-health/2025/strategyand-future-of-health-2025.pdf>
30 <https://www.strategyand.pwc.com/de/en/industries/pharma-life-sciences/future-of-health/2025/strategyand-future-of-health-2025.pdf>



“When our customers go shopping, they want to have different options. We view it in terms of this broader trend of a digital, immersive experience. Customers still want to go to the store, but they also want to have online delivery and pick-up services and be able to move across all three channels in a very integrated way.”

Mary Ellen Adcock,
Executive Vice President and Chief Merchant and
Marketing Officer at The Kroger Co.

Quick commerce is among the fastest-growing sub-segments of convenience retail. While profitability remains a challenge, driven by high fulfillment and labor costs, limited willingness to pay for delivery, and thin margins, consumer demand continues to rise, with Asia accounting for 57% of the quick commerce market.³¹ Success depends on factors such as shopping basket size, delivery fees, capacity utilization, and customer loyalty. Partnerships between established retailers and delivery specialists, such as REWE's collaboration with Flink in Germany, illustrate how traditional grocers are embedding quick commerce into broader omnichannel and eGrocery strategies to serve different shopping missions, from planned weekly baskets to urgent top-up purchases, while limiting exposure to operational risk. Automation (e.g., in fulfillment centers), AI-driven routing, and autonomous delivery technologies are expected to be key levers for unlocking efficiency and moving convenience models closer to profitability.^{32,33}

Shopper Experience

AI-enabled technologies are increasingly important across the shopper experience. The emergence of **agentic food commerce**, where AI agents can monitor, anticipate and personalize every stage of a consumer's purchase, is one illustration. ChatGPT now supports a feature called Instant Checkout, enabling US users to purchase products from participating merchants directly within the chat interface, and partners with Walmart to complete purchases directly within ChatGPT.^{34,35} Reflecting this trend, PwC found in a 2025 survey of US consumers that 33% of respondents expect to use AI by 2030 when purchasing groceries and other household essentials.³⁶ Artificial intelligence is also transforming retail operations and the consumer experience, influencing how products are discovered, real-time stock availability is communicated, personalized recommendations are delivered, and pricing is dynamically optimized. At the same time, this digital shift will likely make human-centered food experiences in food service, such as dining out in restaurants, sitting in cafés together, and enjoying slow food and beverages, more valued by consumers in contrast to the speed and automation of everyday shopping.

Technology is also driving growth in **retail media**, which has emerged as a cornerstone of the modern shopper experience, merging advertising, personalization, and convenience across both digital and physical environments. Its momentum is accelerating globally and is projected to become the largest digital advertising channel by 2025.³⁷ Amazon remains the dominant global player, generating \$15.6 billion in advertising sales in the second quarter of 2025 alone³⁸, but traditional food retailers are catching up. For example, Walmart's annual advertising revenue was \$4.4 billion in 2024, a year-on-year increase of 27%³⁹. Retailers must maintain a delicate balance: while consumers expect personalized experiences, they are equally concerned about privacy. 83% cite data protection as essential to trusting a retailer, highlighting that effective retail media depends on responsible data use and transparent communication with customers. As food commerce becomes increasingly agent-driven, retail media will not disappear but transform – shifting from static ad placements to an AI-orchestrated layer optimized for machine decisions, real-time context, and hyper-personalized engagement across all touchpoints.⁴⁰

31 Statista Market insights: https://www.statista.com/outlook/emo/online-food-delivery/grocery-delivery/custom?token=5r-Bw_OUEhhLFkc_zPuzn5n--rwwGOF-

32 <https://www.mdpi.com/2504-446X/9/3/158>

33 <https://www.strategyand.pwc.com/de/en/industries/consumer-markets/future-of-grocery-shopping.html>

34 <https://openai.com/index/buy-it-in-chatgpt/>

35 <https://corporate.walmart.com/news/2025/10/14/walmart-partners-with-openai-to-create-ai-first-shopping-experiences>

36 <https://www.pwc.com/us/consumer-insights/>

37 <https://www.warc.com/content/paywall/article/warc-curated-datapoints/retail-media-growth-momentum-continues-set-to-lead-in-2025/en-GB/160696?>

38 https://s2.q4cdn.com/299287126/files/doc_financials/2025/q2/AMZN-Q2-2025-Earnings-Release.pdf

39 [https://stock.walmart.com/_assets/_b7bad52767fd931c1359035907b625a8/walmart/db/938/9939/earnings_release/Earnings+Release+\(FY25+Q4\).pdf](https://stock.walmart.com/_assets/_b7bad52767fd931c1359035907b625a8/walmart/db/938/9939/earnings_release/Earnings+Release+(FY25+Q4).pdf)

40 <https://www.pwc.com/au/retail-consumer-markets/retail-media.html#chapter-heading-1>

Emerging markets as the next growth frontier

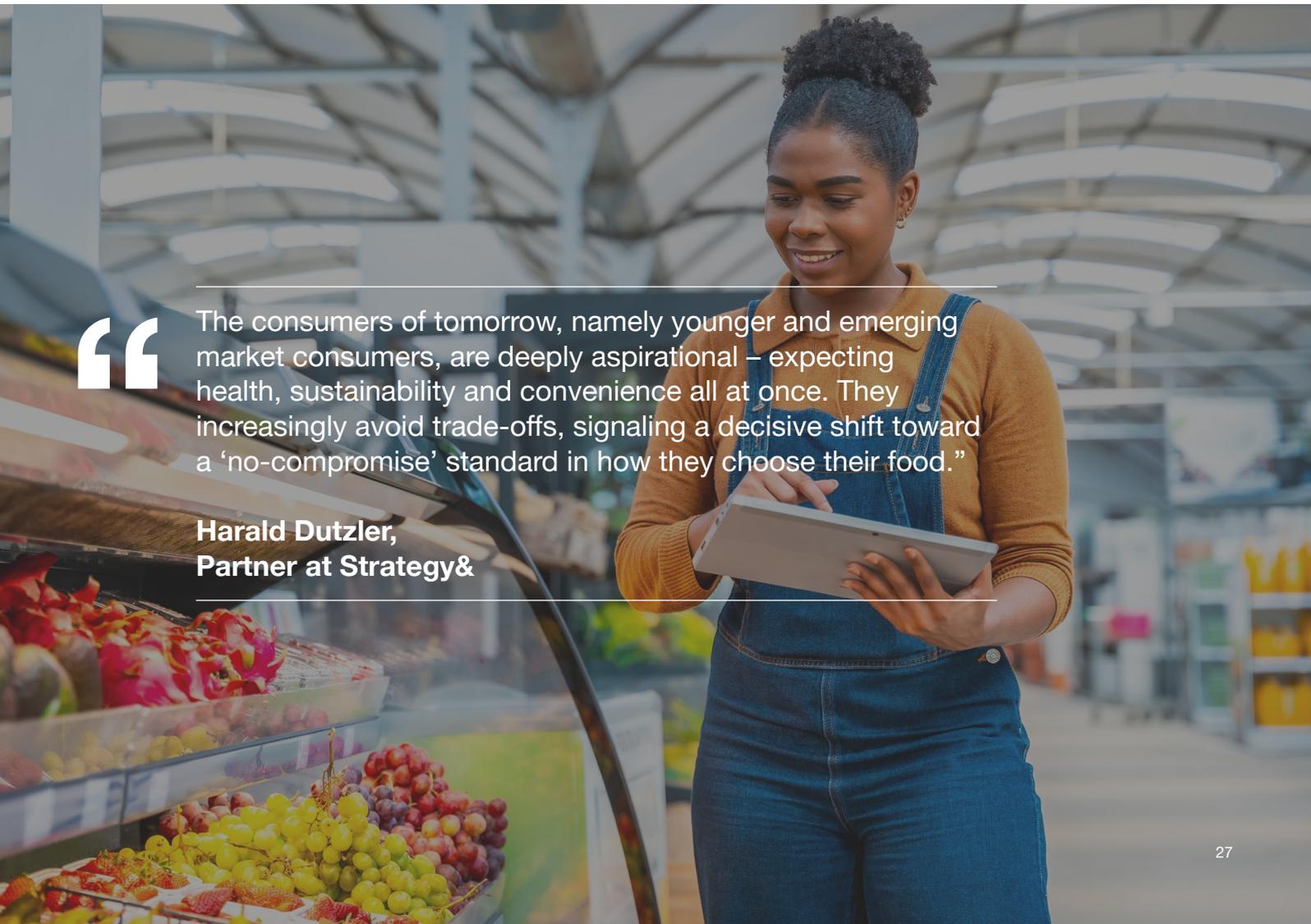
Beyond global trends such as convenience or healthy eating, interviewed executives consistently pointed to emerging markets as a major long-term growth engine for consumer food products. In Asia, South America, and parts of Africa, rapid population growth, urbanization, and the expansion of a price-sensitive middle class are driving demand for affordable, higher-value food offerings. As incomes rise, consumption patterns are shifting toward more protein, convenience formats, and on-the-go consumption, opening significant opportunities for food players that can operate at scale while maintaining tight cost control.

At the same time, executives emphasized that capturing this growth is far from straightforward. Emerging markets are highly heterogeneous: consumer preferences, regulatory environments, infrastructure quality, and channel dynamics differ sharply not only across regions but often from country to country. Many interviewees acknowledged that while the strategic importance of markets such as China, India, and parts of Africa is clear, few companies have fully developed playbooks to win there. Success increasingly depends on deep localization across the entire value chain – from regional supply chains and adapted price points to locally-tailored product development, manufacturing footprints, and go-to-market models – while navigating infrastructure gaps, regulatory uncertainty, and fast-moving geopolitical and economic conditions.



The consumers of tomorrow, namely younger and emerging market consumers, are deeply aspirational – expecting health, sustainability and convenience all at once. They increasingly avoid trade-offs, signaling a decisive shift toward a ‘no-compromise’ standard in how they choose their food.”

Harald Dutzler,
Partner at Strategy&



SECTION 3

3. Reinvent to capture growth: how food companies can adapt for the next decade

With the growth areas defined, the central question becomes: how can companies capture them? All 30 executives we interviewed emphasized that unlocking the next generation of growth areas will require a fundamentally different approach to innovation and reinvention. Four themes emerged in our interviews:

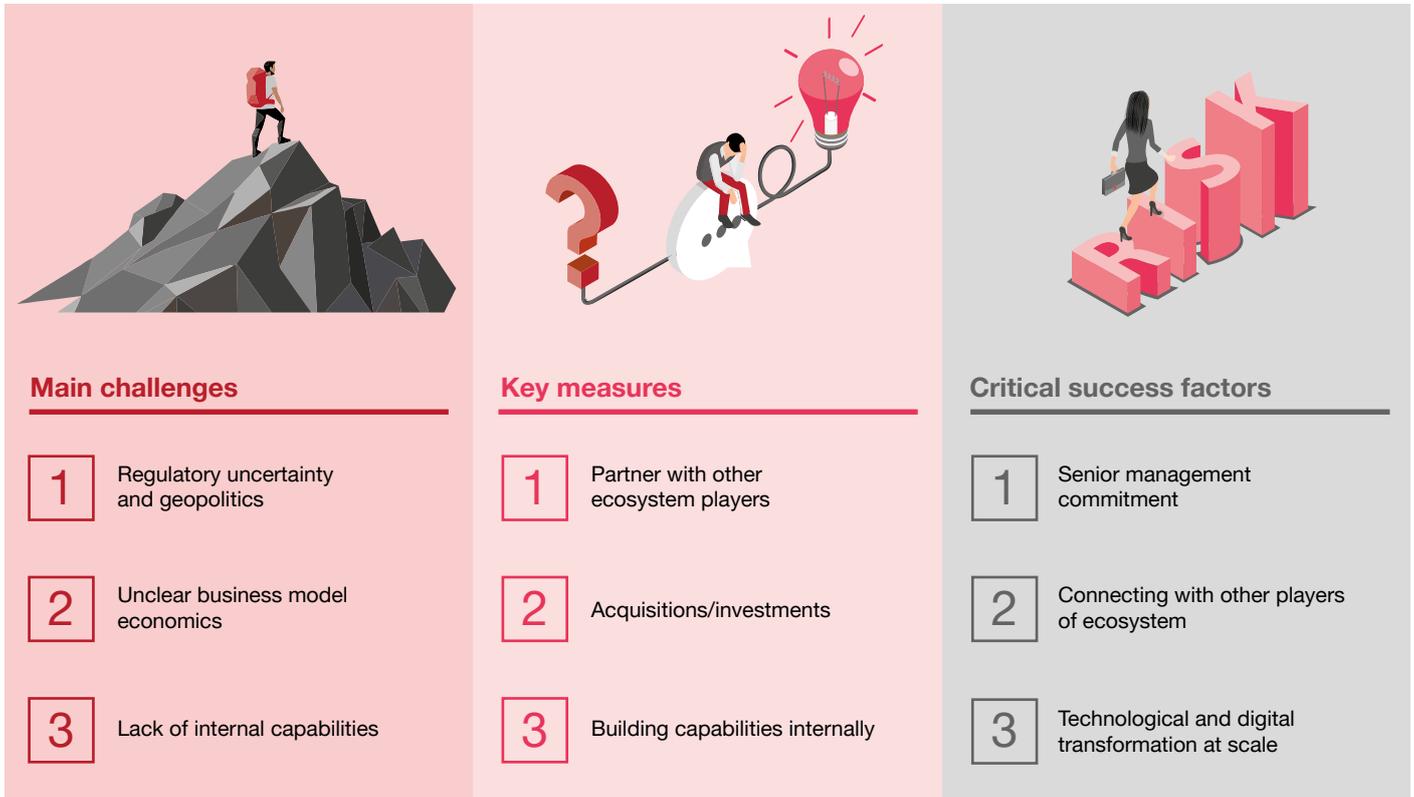
1. **Innovation must extend beyond the core**, requiring new and unconventional approaches that merge capabilities across industries – not simply lifting existing products into new markets or small iterations on existing products.
2. **These opportunities are difficult to unlock** when business cases are uncertain, internal capabilities are limited, and regulatory environments remain challenging.
3. **To navigate this complexity, companies are increasingly sharing risk**, turning to partnerships or acquisitions to access missing capabilities they cannot build in-house.
4. **Ultimately, success depends on strong leadership, deep ecosystem connectivity, and technology scaled across the enterprise**, enabling companies to commit to growth areas and sustain momentum despite early-stage uncertainty.

Exhibit 9, next page summarizes the key challenges, measures, and success factors that shape how companies unlock growth areas, as identified by interviewed executives.

1. Innovation beyond the core

The growth areas identified in this study cannot be unlocked through incremental improvements or “lift-and-shift” strategies. They require companies to innovate in fundamentally new ways – merging capabilities across industries such as biotech (e.g., precision fermentation), agriculture (e.g., regenerative practices), AI (e.g., agentic food commerce), and even pharma-level science (e.g., functional foods and beverages). Success increasingly depends on combining technologies, data, and collaborating across functional siloes.

EXHIBIT 9**Main challenges and success factors in unlocking growth areas**



Source: Strategy& interviews



For a company like ours, rooted in cocoa and chocolate, exploring alternatives challenged long-held beliefs. But the volatility in cocoa has shown everyone that innovation is not optional anymore. With that realization, the organization is now strongly moving forward together.”

Dries Roekaerts,
President Customer Experience at Barry Callebaut Group

2. The barriers to unlocking growth

A recurring theme across interviews was that many companies **lack the internal capabilities** needed to unlock emerging growth areas. From AI to next-generation food technologies, the expertise required often does not exist in-house – and competition with other industries for digital and scientific talent makes it even harder to build. Legacy structures and resistance to change further slow progress, particularly when long-serving employees are asked to adopt entirely new ways of working. In addition, high costs and long lead times when building or acquiring expertise make it hard to scale new business models, even when the ambition is there.

Compounding this challenge is the fact that many of the most promising opportunities still have **unclear business model economics**. Interviewees noted that models ranging from regenerative agriculture to delivery-as-a-service often come with uncertain returns and unclear growth trajectories, making them difficult to compare with established, fully optimized operations. These uncertainties complicate investment decisions and can lead to promising innovations being paused or abandoned prematurely. Several interviewees emphasized that early-stage business models are particularly hard to assess, because their prospects depend on multiple stakeholders, evolving technologies, and still-developing consumer demand.

These internal and economic barriers are intensified by **regulatory uncertainty** and growing geopolitical volatility, which executives widely described as defining forces for the decade ahead. Across our interviews, leaders highlighted how shifting rules slow investment, complicate planning, and in some cases push innovators to launch products abroad in more permissive markets. Precision fermentation was cited by several interviewees as an example of a technology held back by fragmented or shifting rules.

On a more positive note, other executives pointed out that when governments make firm commitments to a new technology, for instance with subsidies for renewable energy, entire industries can accelerate quickly.

At the same time, **geopolitical tensions** are reshaping global supply chains. Several interviewees highlighted how geopolitical developments, such as reduced imports of Russian inputs and increased US tariffs, are driving up costs, prompting their companies to develop alternative sourcing strategies, become more regionally focused, and prioritize building resilience. A number of interviewees shared examples of projects halted due to geopolitical risk, underscoring how trade has become a strategic constraint.

3. Sharing risk to move forward

Faced with these barriers, companies are increasingly turning to three strategic measures to unlock growth areas – beginning with partnerships, expanding into acquisitions, and supported by targeted internal capability-building.

Partnerships and collaboration emerged as the most immediate and effective way for companies to share risk, access missing capabilities, and maintain momentum despite regulatory uncertainty. Interviewees described how alliances with research institutions, technology providers, farmers, or even competitors, can open doors that no single actor could unlock alone. A PwC study revealed that companies that have already embraced such ecosystem approaches are seeing tangible benefits, with the most profitable CPG players twice as likely to grow revenues through ecosystem participation and generating as much as 60% of their revenues from these collaborations.⁴¹

In practice, these partnerships already run deep. Several farming companies are collaborating with universities and NGOs to advance regenerative agriculture or test biological inputs too

⁴¹ <https://www.pwc.com/gx/en/issues/business-model-reinvention/how-we-feed-ourselves/reconfiguring-global-food-system.html>

risky to trial independently. Long-standing relationships can become powerful engines of innovation: Tirlán and Diageo, for example, have collaborated for more than 50 years across their supply chains, recently launching a sustainable farming academy in Ireland to train farmers and co-developing a plant-based Baileys-brand liqueur drink using oat milk.⁴²

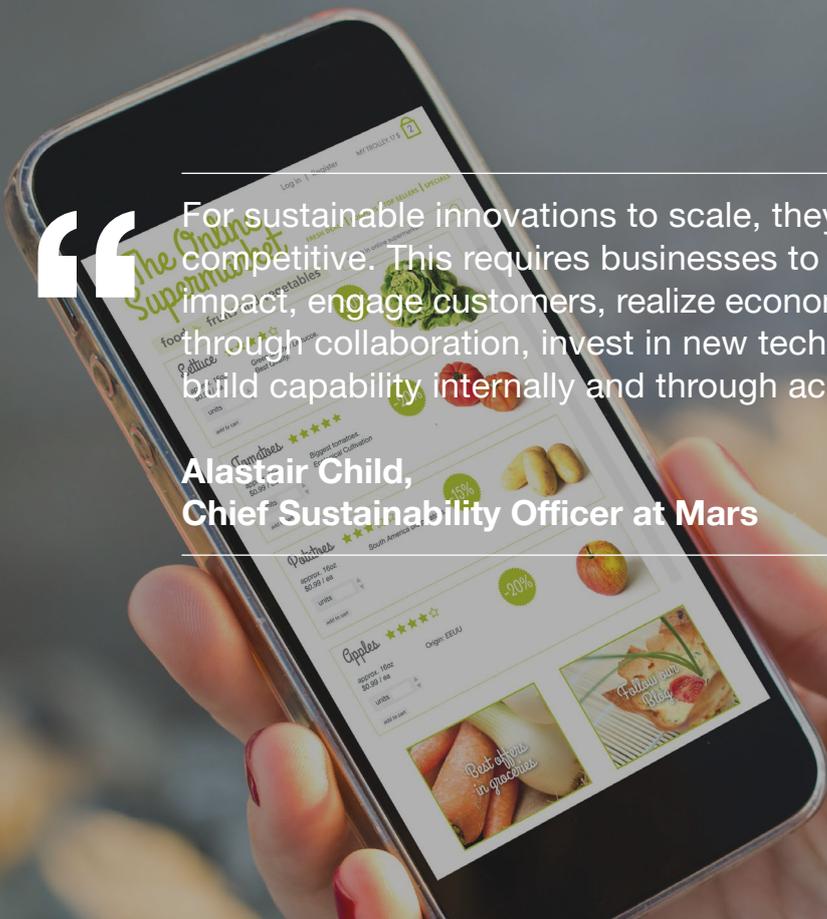
When partnerships are not enough, **acquisitions and equity investments** become the second major pathway to access external capabilities. Several interviewed companies have made acquisitions recently or plan to do so soon. Other interviewees say their companies are relying on joint ventures and minority stakes to access new technologies that would take years to build internally. They noted that these deals can be costly, because they are often struck late, when valuations are high. However, they provide immediate access to scarce expertise and help companies compete in categories where innovation cycles move faster than internal capability development. Even partnerships may eventually evolve into acquisitions once strategic fit and technological potential are validated.

The third measure, **building capabilities internally**, remains important but inherently limited. Companies value the sovereignty and control it provides, and some rely on vertically-integrated models to develop solutions in-house. Yet interviewees were candid that in-house capability building alone cannot fully close capability gaps: legacy structures, slow knowledge transfer, and limited exposure to new ideas all curb innovation. Internal building is therefore seen as essential groundwork, but not a sufficient strategy on its own – particularly in areas such as AI and biotechnology, where the frontier moves faster than internal teams can scale.

⁴² Based on interviews and <https://www.tirlanfarmlife.com/news/tirlan-and-baileys-celebrate-50-years-in-partnership-with-launch-of-third-sustainable-farming-academy?>

“For sustainable innovations to scale, they must be competitive. This requires businesses to value societal impact, engage customers, realize economies of scale through collaboration, invest in new technologies, and build capability internally and through acquisition.”

**Alastair Child,
Chief Sustainability Officer at Mars**



4. What it takes to win

Strong **senior management commitment** emerged as the single most important success factor for unlocking new growth areas. Interviewees emphasized that when business models are uncertain, economics unclear and investment requirements high, only clear-sighted leadership can distinguish promising opportunities from distractions, set a long-term direction, and maintain momentum when early results are ambiguous. Several executives noted that without leadership willing to “stick with the bet” through initial losses, even high-potential innovations can be abandoned prematurely. This requires not just vision but discipline: leaders must also adopt the right KPIs to evaluate new growth initiatives, since traditional performance metrics often fail to capture early-stage progress.

Leadership commitment alone, however, is insufficient without the **ability to mobilize the wider ecosystem**. Many executives stressed that in an environment defined by capability gaps, regulatory uncertainty, and fast-moving technologies, connecting with other players across the value chain becomes a critical success factor. Partnerships with suppliers, research institutions, startups, and even competitors enable companies to share risk, accelerate development, and access capabilities they cannot build internally.



Ecosystem connectivity is crucial. We simply cannot do this perfectly – or fast enough – on our own. Having the right partners and alliances across the value chain, from product design to manufacturing and distribution, is absolutely essential.”

**Head of Strategy,
at global CPG company**

Finally, **technological and digital transformation at scale** underpins both leadership ambition and ecosystem connectivity. Interviewees stressed that digitization is not about adopting tools but about building the in-house skills, data foundations, and operating model needed to use technologies such as AI effectively. Whether integrating AI into product development, deploying digital twins in processing facilities, or harnessing real-time consumer insights, digital maturity determines how quickly companies can close capability gaps and translate partnerships into scalable impact. Without these digital foundations, even the strongest ecosystem relationships and internal initiatives struggle to deliver results in a food ecosystem being reshaped by rapid technological change.



To reinvent food, we need more than marketing – we need world-class technical talent, modern automated factories, strong R&D, and leaders who know how to make decisive, competent choices.”

**Tjaart Kruger,
CEO at Tiger Brands**

SECTION 4

4. Conclusion: Choose, Connect, Capture

As roughly \$3.1 trillion in value shifts into new growth areas over the next decade, food companies will need to make sharper choices about where to compete and how to win. In an increasingly volatile and uncertain environment, scenario-based thinking becomes essential: leaders must map out plausible future scenarios and make deliberate strategic bets today, knowing that inaction or incrementalism risks leaving significant growth potential unrealized. Those that commit to a focused set of growth areas, build the right partnerships, and scale proven solutions will be best placed to capture this value and to help rebalance a food ecosystem under strain. *Exhibit 10, next page* summarizes our “Choose, Connect, Capture” approach for translating these choices into action.

Choose means being explicit about where to play. Leaders will need to decide which growth areas – across How We Grow, How We Produce and How we Consume – are most relevant to their role in the food systems and hardest for competitors to replicate. This requires a clear understanding of the structural trends reshaping supply and demand (healthy eating, changing consumer expectations, climate and environmental pressure, and the rapid advance of technology) and of how these trends are creating new opportunities, from farmer relationships and processing to consumer brands and data.

Connect and Capture are about execution. Connect requires building systems that no one company can do alone, from the farms, technology providers and policy makers, to alliances with packaging manufacturers, healthcare providers, logistics and retail. The goal is to overcome capability gaps, share risk and accelerate innovation, and, ultimately, to turn these collaborations into scale. Companies that move first on this agenda will not only secure their own growth, but also play a central role in shaping a more resilient global food system.



Capturing the value requires clear choices on where to play, the right partnerships to access missing capabilities, and decisive leadership to execute the transformation.”

Stuti Sethi,
Director at Strategy&

EXHIBIT 10

Choose, Connect, Capture – the 3Cs of successful reinvention in the emerging global food ecosystem



Question to consider

- **Market opportunities:** Which areas in the food system offer the most growth potential?
- **Unmet needs:** What gaps or challenges must we address to stay competitive?
- **Tech disruptors:** Which technologies could fundamentally change our offerings or operations?
- **Partner selection:** Which partners are critical to unlocking our chosen opportunities?
- **Collaboration tools:** How can data and AI increase visibility, trust and joint innovation?
- **Ecosystem role:** What role should we play in shaping a sustainable and resilient food ecosystem?
- **Capability requirements:** What new capabilities or operating model shifts are essential to win?
- **Monetization model:** Which new revenue and value-sharing models fit the food system of tomorrow?
- **Success measurement:** How to measure success (qualitative vs. quantitative)?

Source: Strategy& interviews

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As the only at-scale strategy business that's part of a global professional services network, we embed our strategy capabilities with frontline teams across PwC to show you where you need to go, the choices you'll need to make to get there, and how to get it right.

The result is an authentic strategy process powerful enough to capture possibility, while pragmatic enough to ensure effective delivery. It's the strategy that gets an organization through the changes of today and drives results that redefine tomorrow. It's the strategy that turns vision into reality. It's strategy, made real.