Feeding the Future

› How AI will impact the European food industry



September 2026

Porsche Consulting

SWISS FOOD & NUTRITION VALLEY

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To grasp the implications, we analysed:

- → Why AI global competition is intensifying
- → What the AI value for food industry executives
- → How artificial intelligence can be applied and be effective

SWISS FOOD & NUTRITION VALLEY + PORSCHE CONSULTING

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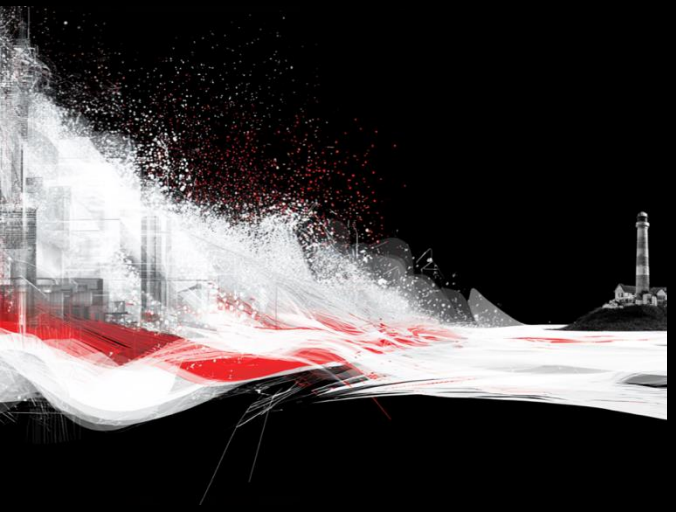
Through case studies of Danone, Givaudan, Nestlé and Bühler, we analyse real AI implementations across Food & Ingredient Development, Processing and Consumer Insights and what it takes to replicate them

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What the future of the Food Industry looks like in the AI era: regulation, industrial depth, and the trusted data ecosystems that will separate leaders from followers

Source: Porsche Consulting

Introduction



ARTIFICIAL INTELLIGENCE IN FOOD INDUSTRY

The Momentum of Transformation

Although the food sector has historically been slower to embrace digitalisation than other sectors, it is now undergoing a technological revolution. The real question is: what has changed in recent years to make this transformation not only possible, but also urgent?

PUSH FACTORS | the enablers that now make AI viable at scale:

- Data: an unprecedented availability of data across the value chain, from production to shelf
- Algorithmic: the shift from experimental models to scalable models ready for real operating environments

PULL FACTORS | the pressures that make AI urgent, not optional:

- Margin Protection: intensifying competitive pressure and the pursuit of efficiency
- Fast-changing consumer needs: shorter trend cycles and rising demand for personalization, longevity, and sustainability
- Supply chain volatility: raw material and logistics swings that make manual planning cycles too slow to react
- Labor cost: persistent shortages and rising labor costs
- Traceability and regulatory pressure: tightening requirements on origin, safety, and sustainability reporting

Where this report sits: most AI content today is either too generic – high-level frameworks with no industry grounding – or too narrow, solving isolated mini-use-cases without a system view. What's missing is the flying height in between: knowing which technologies solve which structural problems, industry by industry. That's the niche this report occupies.

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Source: Porsche Consulting



WHY

THE IMPACT OF AI

Results and opportunities for the food industry to capitalise on through artificial intelligence

Source: Porsche Consulting

Porsche Consulting

The case for AI in Food

THE F&B INDUSTRY IS FACING A STRUCTURAL TURNING POINT

To grasp the implications, we must analyse why global competition is intensifying, what the measurable value is for food industry executives, and how artificial intelligence can be applied and be effective

01

EXTERNAL AND INTERNAL PRESSURES IN FOOD INDUSTRY

Multiple external (consumer behaviour and expectations , social media influence, nutritional habits, food culture) and internal (value chain costs, industrial margin, speed to market) factors are shifting simultaneously and permanently, rising new priorities among market Food players.

02

AI CREATES VALUE (AND COST) NOW

Across the various business functions, AI can create value in different ways, by increasing efficiency and productivity or by enabling growth, but there is also the fine line between "testing/tinkering" vs. actual implementation.
Given the current rise in the costs of AI, estimating the ROI of it is becoming increasingly complex.

03

EUROPE AT A CROSSROADS, LEVERAGE AGRI-FOOD POWER

The speed at which AI evolves requires Europe to catch-up with niche solutions that solve year-long problems for its industries, thereby pushing it to innovate once again!
The strong EU Agri-food ecosystem, could be the field where the EU can take the lead in AI competition, closing the gap vs. the US and China.

04

MOVE FIRST, LEARN FAST

For F&B leaders, this is no longer a future conversation. The window for first-mover advantage is now. Within the different industries 1st mover player in AI adoption into real effective business processes secured a double-digit growth.

Source: Porsche Consulting

The consumers' market is evolving, looking for a closer and more personalized interaction with the food offering, searching for best value for money in term of nutrition and longevity

EXTERNAL CHALLENGES (CONSUMER INTERACTION) & AI SOLUTIONS

RISING CONSUMER EXPECTATIONS & PERSONALIZATION[1]

64% Of EU consumers demand for personalized nutrition and products, tailored to their lifestyles seeking for control over nutrients, with specific recommendations for their diets

CONVERSION UPLIFT VIA TAILORED RECOMMENDATIONS[4]

20% Of click-through rates improvement thanks to AI deep tailored recommendation engines. Enabling deep personalized offering for the single consumers.

GROWING CONSUMER CONCERN ON PRICES[2]

7 out of 10 Consumers feels that food price increases has impacted their daily routine

SALES INCREASE THROUGH DYNAMIC PRICING[5]

15% Average increases in sales conversion for an average CPG eCommerce platform though AI based model that can enhance sensitivity adjustment of price and promos to identify spot-on price points

INCREASED DEMAND FOR HEALTH-DRIVEN PRODUCT INNOVATION[3]

25% Of consumers is cutting processed foods and willing to pay more for products with healthy benefits and that can contribute to personal health and longevity

FASTER RECIPE DEVELOPMENT AND TIME-TO-MARKET[6]

60% Reduction in new product development cycles through AI-assisted food ingredient pairing models that analyse large-scale consumer test data and simulate consumer acceptance

SPREAD OF CONSUMER AGENTS[8]

75% Consumers frustrated with today fragmented buying journey, impacting the average sales ticket and spreading the purchasing power among multiple brands

AI DRIVEN SHOPPING AND PURCHASE DECISIONS[9]

55% Of purchases expected to be influenced by AI-enabled consumers by 2030 through AI agents that streamline product discovery, comparison and purchasing journeys

MORE COMPLEX CONSUMERS TRUST[10]

45% Of European consumers can distinguish reliable from unreliable information about food. Consumers are drowning in claims and can't tell which ones to believe

AI PRODUCT COPARISON AND FEEDBACKS[11]

70% 70%+ of health claims evaluated by EFSA rejected due to insufficient scientific evidence, creating demand for AI-powered claim-verification tools that cross-check product claims against regulatory databases in real time.

SOCIAL MEDIA INFLUENCED CONSUMERS [12]

25% Of EU consumers u as a channel for learning about food risks, up 4 pp versus 2022, and the fastest-growing channel, meaning influence is shifting faster than trust is being built

AI FACT CHECKING FOR SOCIAL NEWS[13]

AI-enabled social intelligence and claim governance: monitor food narratives, detect misinformation or conflicting claims, validate content against approved scientific sources, and generate channel-specific responses

PERSONAL METABOLIC HEALTH & DIET [14]

1 out of 4 Consumers surveyed say that their choice has shifted from diet as identity ("keto," "paleo") to ingredient as lever ("psyllium husk") moving from asking "which diet should I follow?" to asking "how does this affect my blood sugar levels?"

AI-DRIVEN NUTRITION DIETS & RECCOMANDATION[15]

2.3x Higher adherence to dietary goals among users of AI-driven nutrition apps through personalised recommendations generated from continuous glucose monitoring data and AI-based analysis of individual metabolic responses

Source: Porsche Consulting; Euromonitor, 1 Food personalization, Forward Fooding; 2 IFIC Annual Food & Health Survey; 3 Consumer trends 2023; 4-5 MIT Tech Review; 6 The predictive Recipe: Forward Fooding; 8-9 Meet the AI agents, WEF; 10-11 Trust Report 2024, EIT Food; 12-13 Food & Health Survey, IFIC; 14 Health & Wellness Trend Report 2026, The Vitamin Shoppe; 15 Weight Loss & Diet Management Market, JMIR

Meanwhile, many food companies are facing rising internal pressure from supply and operation complexity that which hinge on thinner margins and the need for efficiency

EXTERNAL CHALLENGES (OPS / SUPPLY CHAIN)		& AI SOLUTIONS	
FOOD WASTE ALONG THE SUPPLY CHAIN[1]		**FORECAST-DRIVEN WASTE REDUCTION[2]**	
30%	One third of food production lost before reaching the shelf	25%	AI-driven forecasting can reduce food waste by 20% in supply chains
EXTERNALITIES FROM TRACEABILITY GAPS[3]		**PRECISE END-TO-END TRACEABILITY[4]**	
10M$	Average cost of recalling incident (Food and marketing association)	7 days to 2.2 seconds	AI + IoT + blockchain traceability systems can reduce contamination trace-back time from 7 days to 2.2 seconds
LEGACY OPERATIONS[5]		**INCREASED CAPITAL SPENDING IN F&B[6]**	
76%	Three/fourth of food manufacturing activities can be automated	48%	Around 48% of capital investments is now focused on automation projects
UTILITIES INTENSIVE FOOD PRODUCTION[7]		**ENERGY CONSUMPTION REDUCTION[8]**	
+70%	Food production is structurally exposed to water scarcity, with agriculture accounting for roughly 70% of global freshwater withdrawals	-20%	Can reduce energy consumption by up to 20% in operations
STRUCTURAL MARGIN PRESSURE[9]		**INDIRECT COST REDUCTION[10]**	
-1%	Up to 1pp margin erosion in an industry already operating on thin (~8%) margins	-20%	41% of organizations saw cost reductions of up to 20% after implementing AI, with similar impacts reported in other indirect departments
LOW DATA MANAGEMENT MATURITY[11]		**DATA AVAILABILITY AND CRUNCING[12]**	
-65%	Of nonfinancial data are usually silosed or scattered managed in the companies	99%	99% of business relevant data can be orchestrated analysed and converted in opportunity thanks to a clean and coherent data architecture that can be enhanced and maintained with AI itself
FREQUENT SUPPLY CHAIN DISRUPTIONS[13]		**SUPPLY CHAIN AGILITY / FLEXIILITY[14]**	
90%	Of major food companies experienced some form of supply chain disruption in 2024	- 2/4 weeks	AI supply chain risk models improve disruption detection lead time by 2–4 weeks
VOLATILE PROCUREMENT COSTS[15]		**DATA-DRIVEN PROCUREMENT OPTIMIZATION[16]**	
+30%	Food commodity prices remain structurally elevated (~+30% vs 2021), driving procurement volatility	25%	AI commodity forecasting models outperform traditional econometric models by up to 25% in price prediction accuracy

Source: Porsche Consulting | Euromonitor; 1 World Resources Institute, 2. AI fix for America's - Fast Company; 3 Recall & profitability, Food Safety Magazine; 4 Blockchain for Food Traceability TraceX 5 Porsche Consulting; 6 Automation & AI in F&B, CRB Group, 7 UNESCO; 8 AI in Food Processing Technologies, Processes (MDPI); 9 Porsche Consulting; 10 AI cost reduction, InData Labs; 11 Downtime cost, Yamato Scale; 12 AI predictive maintenance, StealthAgents; 13 Supply chain tier mapping, BCI; 14 AI early warning systems, Trax; 15 Food Price Index, FAO; 16 Agricultural commodity price prediction, PLoS One

AI is shifting from pure efficiency applications to business growth enhanced solution, especially in Consumer Goods

AI adoption rate (%) on corporate processes by business function & industry*

2025 survey based on a panel of 130 interview profile across 42 companies

	Procurement & Supply Chain	Product Development	Manufacturing & Processing	Service Operation	Consumer interaction	Strategy & Finance	Risk	HR
Industrial Goods	45%	55%	50%	30%	28%	25%	28%	26%
Business, legal & professional services	22%	48%	32%	38%	51%	40%	35%	30%
Consumer goods (incl. Food & CPG)	25%	32%	41%	25%	53%	20%	22%	25%
Energy & Utilities	20%	40%	55%	18%	45%	32%	52%	26%
Healthcare /pharma & medical products	32%	52%	38%	28%	35%	22%	25%	20%
Tech, media & telecoms	35%	72%	60%	42%	68%	30%	28%	38%



Deep dive into the 3 functions where the adoption and value generated by AI are highest today

* The figures represent the % of respondents who stated that "they use AI solutions or use cases within their business and industrial activities and processes"
Source: Porsche Consulting client survey; Stanford University, Euromonitor International

KEY FUNCTIONS' APPLICATION

PRODUCT DEVELOPMENT

AI is handing F&B a fresh growth lever exactly when it's needed most

Consumers Goods Product Development with **32%** AI adoption, sits a bit behind the cross-industry average. With industry growth at 2.1% in 2025, the winners are competing on relevance — and AI is how they get there fast. **Predictive formulation tools cut R&D cycles by up to 60%.** Consumer Goods is already seizing this: turning innovation speed into a real path back to growth.

MANUFACTURING AND PROCESSING

Where AI delivers proven, bankable wins and pays off twice

This is where the **AI ROI is easy measurable** and immediate for the industry. Nestlé's AI vision cut manual quality checks by 80%; PepsiCo's reached 95% defect-detection accuracy. Sector-wide, manufacturers are capturing 8–12% OEE gains and 25–35% less food waste. Better still, it's a sustainability win too: a Nestlé UK trial cut edible waste 87% — around £14M and 1,400 tons of CO_2 saved in two weeks. **At 41%,** the plant floor is **where AI already shows up in both the P&L and the ESG report.**

CONSUMER INTERACTION (MARKETING & SALES)

AI turns the consumer relationship into a growth engine

Marketing & Sales in consumer goods records the **highest AI adoption rate (53%),** above the cross-industry average. AI is moving brands from reading consumers to anticipating them. This highlights the significant impact of big data analytics and insight generation in enhancing sales forecasting, portfolio evolution, pricing logics and the development of new channels / markets. PepsiCo scaled agentic AI (Agentforce) across sales and marketing by reusing 70% of its processes — focused execution over scattered pilots. And the frontier is opening up fast: tools like Foodpairing now predict purchase intent with 75–85% accuracy before a dollar is spent.

The US leads in patents and China in growth, but Europe's infrastructure and business culture make it the best competitive arena for Food AI

AI Patents heatmap*

Distribution of registered AI Model in the World

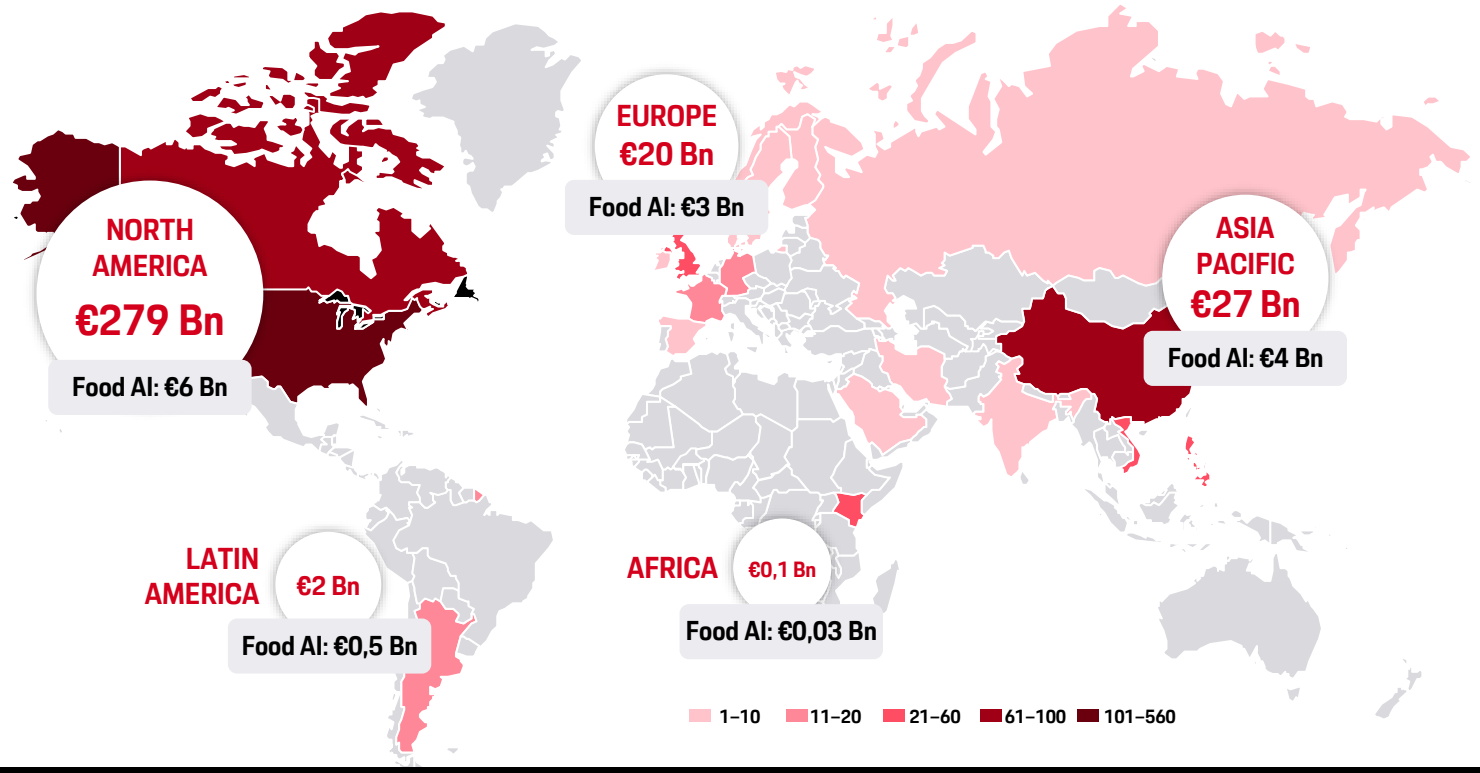
N° of Notable AI Models | 2003-25

+ Global AI Investment Heatmap**

In food, Europe doesn't need to close the AI gap – it needs to apply AI to a lead it already owns

While North America captures 80% of global AI capital, from food industry's perspective, the picture is quite different: Europe's share of investment in 'Food-tech AI' is around three times higher than its global share of AI investment, backed by the world's most advance food manufacturing and the deepest food science

Source: * Stanford HAI, AI Index Report 2025, Figure 1.3.3
** Stanford AI Index 2026 (VC+PE, Quid) + AgriFood-Tech VC (AgFunder)



THE EUROPEAN MOVE ON AI

From a technical perspective, the United States is leading the AI race in terms of volume, with 59 significant models compared to Europe's 3 in 2025, and private investment in AI more than ten times higher, but volume is not everything.

Europe can hold its own in the field of AI thanks to factors that ensure a lasting advantage: the continent produces more graduates in STEM disciplines and researchers in the field of AI than the United States; **hosts the world's highest concentration of AI talent (Switzerland ranks first globally for AI talent concentration)** and its investment is growing rapidly in more established solutions (AI now accounts for one in every three euros in the venture capital sector).

Whilst the US model concentrates AI in a handful of cutting-edge laboratories, **Europe's strength lies in its wider dissemination and a more collaborative model across corporate ecosystems, which enables the integration of AI into the industrial sectors where it already dominates,** and there's no other sector is this **opportunity greater than in the food industry**.

Source: Porsche Consulting, AI in Food Manufacturing Market, October 2025 · Stanford HAI, Artificial Intelligence Index Report 2026 · R&D World, November 2025

AI Investment in European Food & Beverage: Landscape & Opportunity

The EU Food & Agriculture economy is among Europe's primary sectors with **over 300,000 companies, 4.7 million direct employees**

EUROPE AI COMPETITIVE LANDSCAPE

1.5 T€

F&B turnover EU's 1st industry sector[1]

Food & Beverage industry is the EU's largest manufacturing sector and AI is forecasted to be the main growth lever

The EU's rich and diverse food culture, with €1.5 trillion turnover in the F&B sector of and a trade surplus of €80 billion, represents the competitive advantage in which AI can act as a catalyst, strengthening the entire value chain: from precision farming to food safety, traceability and personalised nutrition, turning an existing lead into a lasting one

20 B€

AI infrastructure investment, from European fund in 2025

EU commission goal to reach 19 running AI Factories in EU by 2027 [2]

The EU's Invest AI initiative commits €20B to establish up to 19 AI Factories, each with over 100,000 advanced AI processors, including the IT4LIA Factory in Bologna serving the agri-food sector. For food companies, this means free-of-charge access to advance computing (data centres, advanced CPUs) for AI model development, making advanced AI viable for mid-sized producers without proprietary infrastructure investment.

3x - 9x

US investment in AI start-ups vs EU Tech innovation gap

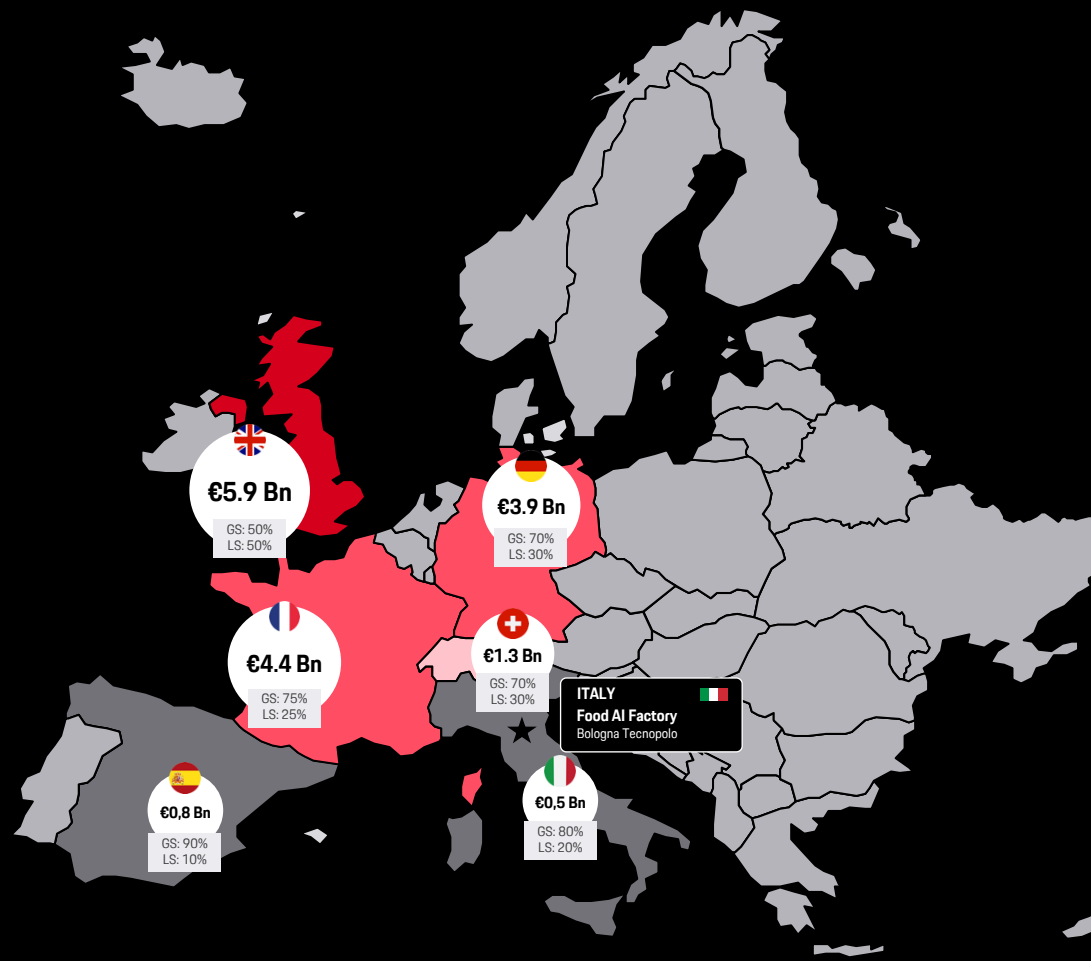
Europe's F&B AI foundations are strong, but the call to action is now[3]

European Agrifood VC investment hit a record €21.8B (+58% YoY) in 2025. Yet Europe invests 3× less than the US at growth stage and 9× less at late stage leading to the risk of innovations being scaled elsewhere

Source: Porsche Consulting, FoodDrinkEurope Data & Trends 2026; European Commission, AI Factories: Shaping Europe's Digital Future, 2025; EuroHPC 5, Dealroom.co, Agri-food x AI in the EU, 2025

EUROPE AI INVESTMENT HEATMAP

Which countries lead investment and at what stage



AI-Investment by European Countries[4]

< €100 Mn | €0,1 Bn - €1 Bn | €1 Bn - €3Bn | €3 Bn - €5Bn | > €5Bn

AI- investment from VC, PE (billions €)
Source: OECD.AI Policy Observatory 12.2025, Stanford AI Index 2026 – GS: Growth stage | LS: Late stage

Consumers readiness, industry maturity and a powerful innovation ecosystem are setting the ground for the F&B industry to build on

ENABLERS AND PILLARS OF AI ACCELERATION IN FOOD INDUSTRY

CONSUMER READINESS

AI-compatible solutions are redefining consumers habits

1 out of 2 consumers (51%) are open and interested in using AI to make safe and proper nutritional choices (this percentage is clearly on the rise if we consider the younger generations).
But when it comes to community and roots, consumers are rather AI-incompatible, instead when it comes to rituals and pleasure, consumers are AI-ambivalent.

Transparency is now a baseline purchase driver

7 out of 10 EU consumers declare that food safety & control is their top priority and that they are open to and confident that technology (including AI) will raise safety standards. It ranks as the 3rd factor guiding daily food choices (46%), preceded only by price (60%) and taste (51%), across all 27 EU Member States.

Consumer openness to AI in food is real

40% of **consumers** globally are **ready to use AI** to enhance their shopping decisions, including food product recommendations. In **Europe, 32.7%** already use generative AI in daily life, a rapidly growing base that food companies can activate through trusted, transparent AI applications.

INDUSTRY MATURITY

Food industry momentum in AI applications

AI application in global agri-food has reached €5B in combined enterprise value, up 37× since 2020 ranking 4th in fastest growth rate across all European AI industry verticals

Relevant EU investment in AI infrastructure

Europe is investing €4B across compute infrastructure, including semiconductors, data centres, and GenAI models to build sovereign capabilities. Infrastructure capacity need be saturated, with the 16% of global data centres EU use only the 5% of AI computational power

Tangible AI application that builds solid ROI

Rising costs of AI (tokens) means AI needs a clear ROI case. Since this year, AI has stopped being a promise in the food industry and started being measurable incremental growth and margin in the P&L. AI pilots are scaling 3x faster than a year ago, and the first movers are already converting investments in additional revenue and efficiency.

INNOVATION ECOSYSTEM AND REGULATION

EU AI Act: regulatory clarity as competitive advantage

World's **first comprehensive AI legal framework**, most F&B applications fall outside high-risk categories, minimising compliance burden. Any company selling AI-enabled food products into the EU must comply, giving European players a structural first-mover advantage. **€30M via AgrifoodTEF**, **200+ validated AI** services already operational across **9 countries**.

Europe solid agrifood innovation & start-up ecosystems

The **EU-backed EIT Food Accelerator Network,** the world's largest food innovation community has supported +348 agri-food startups across Europe since 2018, with hubs **in Helsinki, Munich, Paris, Bilbao** and **Warsaw.** Prominent Eu startup examples include **Holloid** and **Constellr**

World-class academia driving F&B AI innovation

Europe it co-develops AI Food research with industry at source. **Food Valley** (Wageningen, NL) anchors the continent's leading agrifood cluster around WUR, **the world's #1 agri-food university**.
In Switzerland, ETH Zurich and EPFL co-founded the **Future Food** turning academic food science directly into industrial applications.
While in Italy, **Verona Agrifood Innovation Hub counts 501** active Agrifood startups in 2025.

Source: Porsche Consulting based on NielsenIQ Mid-Year Consumer Outlook, 2024 | IFIC Food & Health Survey, | Eurostat ICT in Households Survey, EU27, 2025, Dealroom state of AI in Europe 2026, European Commission, Regulatory Framework for Artificial Intelligence, 2024 · Valcke et al., EU AI Act and the Food Sector, European Journal of Risk Regulation, 2026 · European Commission, AgrifoodTEF — AI Testing and Experimentation Facility for Agrifood, 2025

SO WHAT?
Key takeaways

Five takeaways to understand WHY artificial intelligence must be the top priority on the agenda of any food company today

01

The consumer has already changed. The industry must do the same now. Seek personalization.
Sixty-four percent of European consumers **want food tailored to them**, and one in four has stopped asking "which diet should I follow?" and started asking "what does this do to my blood sugar?" This is not a wellness fad — it is a shift from food as identity to food as mechanism, and it opens a level of product granularity no mass-market brand could economically serve before. Meanwhile, only 45% of European consumers can tell a credible food claim from a false one. **The market is more demanding and less able to judge — and that is the opening. The prize goes to whoever can personalise at scale and prove it, a combination that is, for the first time, technically achievable.**

02

The timing is now: AI has stopped being a technology decision and become a margin decision.
The industry operates on roughly 8% margins and is absorbing up to a full percentage point of erosion. Thirty percent of production is lost before it reaches the shelf. Ninety percent of large food companies experienced supply chain disruption in a single year. Against this, the interventions are proven and available today: forecasting that cuts waste by a fifth, traceability that compresses contamination trace-back from seven days to 2.2 seconds, procurement models that beat conventional forecasting by 25%. **None of this requires a bet on the future of intelligence. The window to move is open now.** The 65% of a typical food company's non-financial data that sits siloed is not a technology failure — it is a governance choice, and putting it right is what unlocks everything above.

03

The biggest upside is where adoption is lowest.
Consumer goods leads every sector in AI adoption for marketing and consumer interaction (53%, against a 45% cross-industry average) — proof the industry can already deploy at scale. Product development sits at 32% against a 49% cross industry value, showing rooms for improvement. Is relevant to state that nobody starts from zero: the tools are mature, and companies can leapfrog straight in, applying existing AI use case into the data, brands and food tech they already own. Selling better wins the quarter. Developing better wins the decade.

04

Europe and its companies own the culture and the asset. AI compounds it.
Europe's share of food-system AI investment runs roughly three times its share of AI investment overall, anchored by a €1.5 trillion food and beverage sector — the continent's largest manufacturing industry, with an €80 billion trade surplus — the world's deepest food science base, and 60% of developed-market funding in next-generation farming. Add €20 billion in public compute and the world's first clear AI regulatory framework, under which most food applications fall outside the high-risk perimeter. **European companies don't need to close the AI gap — they need to apply AI to a lead they own.**

05

The scale-up gap closes fastest when players work together.
European agrifood venture investment hit a record €21.8 billion in 2025, up 58%. Growth-stage capital is scarcer than in the US — but no player has to close that gap alone. Consumer permission is already there: 51% welcome AI guiding their nutritional choices; 7 in 10 trust technology to raise food safety standards. Infrastructure is built and regulation is clear. What venture cannot yet fund at scale, incumbents, start-ups and research hubs can build together. **First movers are not waiting for the market to mature. They are maturing it together.**

Source: Porsche Consulting

WHAT

THE AI SOLUTIONS

Food industry AI applications and opinion of the industry leaders



Source: Porsche Consulting

// WHAT? AI SOLUTIONS

Food companies are facing a wide range of challenges throughout the value chain

FOOD INDUSTRY VALUE CHAIN

RAW MATERIALS & SUPPLY | R&D & QUALITY | PROCESSING | OPS & LOGISTICS | SALES | MARKETING | CIRCULARITY

1 FARMING
2 PROCUREMENT AND SUPPLY CHAIN
3 FOOD & INGREDIENT DEVELOPMENT
4 FOOD MANUFACTURING
5 LOGISTICS & DISTRIBUTION
6 COMMERCIAL RETAIL & FOODSERVICE
7 CONSUMER INSIHTS
8 WASTE MANAGEMENT

TIPICAL FOOD INDUSTRY CHALLENGES TO BE ADDRESSED

- High price and volume fluctuations in the supply of raw materials
- Limited connection with farmers
- Product traceability and food regulations are becoming increasingly stringent
- Complex data correlation and long time-to-market lead time
- Crowded distributors network to manage across channels
- Evolving consumers preferences
- Waste & utilities management to achieve ESG targets
- Products and portfolio performance across channels

Source: Porsche Consulting

// WHAT? AI SOLUTIONS

AI is having a significant impact on mitigating and solving some of these challenges, influencing the entire value chain and opening to new opportunities

VAUE CHAIN: RAW MATERIALS & SUPPLY → R&D & QUALITY → PROCESSING → OPS & LOGISTICS → SALES → MARKETING → CIRCULARITY

	01 FARMING	02 PROCUREMENT AND SUPPLY CHAIN	03 FOOD & INGREDIENT DEVELOPMENT	04 FOOD PROCESSING & MANUFACTURING	05 LOGISTICS & DISTRIBUTION	06 RETAIL & HORECA	07 CONSUMER INSIGHTS	08 WASTE MANAGEMENT
AI IMPACT	Enhance crops, livestock & aquaculture through precision agriculture techniques exploiting multispectral satellite monitoring, autonomous agri-bots drones and tractors, IoT soil biosensors, digital twin field models. Plus is breaking new ground in CRISPR-Cas9* gene editing.	Enables the harmonisation of supply chain management through real-time forecasting based on advanced simulation models for raw material prices, supply risk, and decision-support systems in the event of disruptions cross-referencing market data, material availability and regulatory compliance within global supplier networks.	Booster in the development of new recipes and functional ingredients through computational biology and generative AI. Applications range from the in-silico discovery of ingredients to protein structure prediction (e.g. AlphaFold), rapid precision fermentation, CRISPR-based microbial optimisation and sensory modelling using deep learning.	Maximising plant output and ensure the highest standards of quality and safety during the processing of raw materials into finished food products. AI is the catalyst in the adoption of Industry 6.0 smart factory systems in the food sector: from AI-based automated batch control to 'digital twin' bioreactors that simulate fermentation using computer vision.	It ensures efficient and effective logistics. AI tackles the most complex areas — from cold chain integrity to last-mile deliveries — enabling autonomous warehouses, route optimisation and machine learning-driven stock management.	Boosts sales across modern retail, e-commerce and HoReCa through deep-analytics tools that measurably lift return on sales (RoS) and sharpen the impact of commercial initiatives. Applications range from dynamic shelf pricing and AI/ML-driven planogram and assortment modelling to seasonality refinement and real-time volume analysis.	Deepens consumer understanding by cross-referencing data from markets, individuals, social trends and regions, to create spot-on solution and target segments offering. Applications span hyper-personalised functional-nutrition (based on AI map of gut microbiome), wearable-linked dietary coaching apps and real-time nutrition intelligence platforms.	Valorises by-products, secondary food streams and residues (e.g. spent malt and fruit pulp) by matching and transforming them into functional ingredients for other food products. AI also estimates ingredient carbon footprints, optimises utility use (e.g. water) and drives regenerative-sourcing algorithms that close the loop across the food supply chain.
EXCERT OF AI APPLIC ATIONS	PRECISION FARMING GROWING ASSISTANCE LAND DEVELOPMENT	PRICE FORECASTING RESILIENCE / RISK FORECAST TRACEABILITY	PRODUCT DISCOVERY VIRTUAL FORMULATION FAST EXPERIMENTATION	PHYSICAL AI QUALITY CONTROL LINE AUTOMATION	ROUTING STOCK INTEGRETY AUTOMATED LOGISTICS	SMART SHELVES AUGMENTED REALITY DYNAMIC PRICE / PROMO	BIG DATA PERSONALISATION FEEDBACK LOOP	CIRCULAR SOLUTIONS WASTE FORECASTINGN UTILITIES MANAGEMENT

Source: Porsche Consulting | * gene-editing technology adapted from the natural immune defense systems. It allows to alter DNA with high precision by cutting the genome at a specific location to remove, add, or replace genetic material.

Along the food value chain tree stages are the most prominent for AI applications: Food & ingredient development, Food processing & manufacturing and Consumer insight analysis

MOST RELEVANT USE CASES

03 FOOD & INGREDIENT DEVELOPMENT

AI-driven formulation, flavour discovery & new ingredient development

- Virtual testing & Liking Prediction
- Generative Flavour & Recipe Design
- Novel Molecule & Bioactive Discovery
- Digital-Twin Reformulation

04 FOOD MANUFACTURING

Predictive maintenance, robotics & automated production optimisation

- Computer-Vision Quality Inspection
- Physical Automation & Robotics
- Predictive Maintenance
- AI Food-Safety & Risk Decision Layer
- Real-Time Process Optimisation

07 CONSUMER INSIGHT

Hyper-personalisation, health coaching & predictive consumer analytics

- Predictive Trend Detection
- Generative Marketing & Personalised Content
- Agentic Commerce & Commercial Activation
- Claim Verification & Governance
- Signal-Driven Demand Forecasting

Source: Porsche Consulting

One key capability recurs across every highlighted step and within any corporate function: prediction before commitment

The fourteen use cases analysed look different on the surface – taste design, machine uptime, trend detection. Underneath, they are the same scope: replace an expensive commitment made on a guess with a prediction made on data.



THE ONE IDEA TO LEAVE WITH

Predict the taste

BEFORE
YOU RUN THE BATCH

Virtual sensory models screen recipes digitally, so only the winners reach the bench

CTO KEY TOPIC

› Big data, sensors and signals provide the input data; tested and validated AI models provides the deductions

Predict the failure

BEFORE
THE LINE BREAKS DOWN

Sensors forecast wear, highlight quality risk, converting unplanned downtime into scheduled maintenance

COO KEY TOPIC

› Without any margin on food quality and safety, the more trust you build, the more you lead

Predict the trend

BEFORE
YOU LAUNCH

Signal-mining surfaces demand months ahead, feeding it straight into innovation

CMO KEY TOPIC

› Whoever owns the prediction owns the decision

Source: Porsche Consulting

New recipes, flavours, molecules and ingredients designed and screened before a prototype exists

03

FOOD & INGREDIENT DEVELOPMENT

Virtual testing & liking prediction

From Screening to Prediction AI inverts the discovery logic

2-5x
faster to production trial
Times faster → 2–10 weeks

Generative flavour & recipe design

From Lab Formula to Factory-Ready Product AI simulates scale-up behavior before any physical trial is run

10x
(up to) trial-and-error in formulation reduction

Deep learning for Novel Molecule & Bioactive Discovery

From Lab to Simulation in-silico replaces physical experimentation

20x
computational Speed

Digital-Twin Reformulation

Virtual environment for deep simulation

90%
reduction in development cost

WHAT AI DOES	Models trained on sensory panels predict how a product will taste to people, screening dozens of recipe iterations digitally before the bench. Cuts R&D cycle time & physical iteration cost. McCormick reports timelines cut 20–25%.	Generative AI models simulate and propose ingredient combination, interactions, flavor chemistry, using the brand's own sensory database and consumer preferences to create new or optimized formulations	Deep learning scans biological data to discover new functional molecules — taste peptides, bioactive — that aren't yet in the catalogue.	A computational model of the food matrix simulates how one ingredient change ripples across taste, texture, nutrition and cost — all at once.
KEY APPLICATION	Traditional ingredient discovery tests 50–100 candidates sequentially over 18–24 months with ~50% failing in late-stage feasibility after months of bench work.	Generative AI explores millions of ingredient and flavor combinations in silico, identifying formulations that meet multiple targets simultaneously. Projects that traditionally require months of iterative testing can be reduced to days, with only the most promising recipes progressing to physical trials.	Once the right ingredient is identified, the formulation challenge begins: optimizing taste, cost, shelf stability, nutritional profile and factory performance simultaneously. This requires months of sequential bench cycles. In-silico testing replaces this with computational modelling, running millions of combinations in a single model run, compressing months into days and uncovering solutions no human formulator would reach through manual exploration	Product teams simulate dozens of reformulation scenarios in parallel — swapping sugar, fat, or allergens — and see the taste, texture, and cost impact instantly. Only the top candidates move to physical testing.
INDUSTRY EXAMPLES	**Brightseed Forager** analysed 2 million plant compounds in parallel 20-fold beyond published research reducing discovery from years to months. Identified Bio-Quercetin by mapping plant compounds to human health pathways at scale. **Nuritas Magnifier AI** achieves a 64% success rate identifying targeted peptide networks.	**Givaudan ATOM** — AI identifies 33% salt reduction in cheese snacks from a small range of predicted options. Reduced-salt recipe matches original in blind taste testing. Applied also to sugar reduction, vanillin replacement, and meat alternatives **NotCo Giuseppe** — AI platform reduces formulation trial-and-error by up to 10x, tapping into a proprietary database of 8.000 ingredients to identify optimal combinations.	**Unilever x Microsoft Azure Quantum Elements** The system performs thousands of computational simulations in the time required for tens of laboratory experiments. Microsoft's Accelerated DFT capability delivers a 20× average speed. **Knorr Zero Salt Cube**: Unilever's AI-driven innovations include the development of the Knorr Zero Salt Cube. Creating a salt-free bouillon cube required AI to analyze countless ingredient combinations to replicate the taste and texture of traditional cubes	**AKA Foods / STIR:** reduced R&D time for a global CPG's plant-based cheese from 12 months to a few cycles, cutting onboarding costs by 90%
IMPACT	**Cutting R&D cycle time & physical iteration cost**	**Reduce product development cycles | Higher success rate in product launches | Reduced R&D trial costs, with broader portfolio breadth | Expands the creative search space**	**Creates proprietary, patentable IP; opens new categories. Highest-value, longest-horizon.**	**De-risks the hardest briefs (sugar reduction, plant-based). 12 months → a few cycles.**

Source: Porsche Consulting, Forwardfooding

Physical AI, deep automation, quality and uptime the lowest-risk, most measurable entry point

04

FOOD MANUFAC-TURING

	Computer-Vision Quality Inspection	Physical Automation & Robotics	Predictive Maintenance	AI Food-Safety & Risk Decision Layer	Real-Time Process Optimisation
	From Sampling to Continuous Inspection AI replaces reactive batch	From Manual Handling to Autonomous Operation	From Reactive Repair to Zero Unplanned Downtime	From Recall Response to Hazard Prevention	From Fixed Parameters to Self-Optimizing
	>98% detection accuracy in food processing applications	**+105%** YoY growth in North American F&B robot order	**ZERO** unplanned breakdown after one year of AI deployment	**10M** regulatory documents monitored daily	**–25-20%** energy consumption per unit output
WHAT AI DOES	AI cameras inspect every unit in real time — fill level, packaging integrity, foreign objects — flagging defects instantly, not at a post-production audit.	Robots handle repetitive, physically demanding tasks — boxing, packing, palletizing — addressing labor shortage and injury, not just headcount.	AI-powered computer vision & sensor — vibration, temperature, pressure — and predictive analytics optimize production parameters and detect early wear and predict failure before it happens	AI continuously scans external signals — journals, regulatory alerts, social media — to surface contamination hazards before they reach the plant.	AI-driven digital twins simulate an entire plant or warehouse — machines, conveyors, pallet flows — before a single physical change is made. Teams test layout and process changes virtually, cutting risk and catching problems before construction starts.
KEY APPLICATION	AI vision at goods-in inspects every incoming delivery against specification — eliminating defective inputs before they enter production. CNN-based systems achieve recognition rates exceeding 90% for structural defects at conveyor speeds and consistency no human inspection team can match.	Manufacturers deploy AI-vision-guided robotic grippers for high-mix, delicate picking — bulk produce, bakery items, protein cuts — where fixed automation previously couldn't adapt to product variability.	Sensors track vibration, temperature, and pressure on critical equipment continuously. ML models flag deviations from healthy baselines days or weeks before failure, turning fixed maintenance schedules into condition-based interventions.	AI models classify and prioritize incoming regulatory updates, incident notifications, and consumer signals across markets and languages, surfacing only the alerts relevant to a company's specific ingredients, suppliers, and product categories.	Manufacturers trial new line configurations and process parameters in a virtual environment, validating changes before capital is committed
INDUSTRY EXAMPLES	**Kraft Heinz** — Proprietary AI computer vision piloted on Claussen pickles detects a single defective cucumber from a truckload of thousands. North American supply chain waste fell 40% since digital ecosystem launch.	**Tyson Foods** — co-led a $10M investment in Soft Robotics, whose AI-vision robotic grippers automate delicate protein and bakery handling across Tyson's plants.	**Coca-Cola İçecek × AWS** — a cloud-based digital twin for predictive asset monitoring delivered 20% energy savings, 9% water savings, and 34 days of process time saved annually, with plans to scale across all 26 bottling plants.	**SGS Digicomply** — AI platform structuring more than 10 million documents from 200 regulatory sources across 160 jurisdictions, updated daily, to flag emerging food safety and compliance risks.	**AB InBev × Google Cloud —** ML model analyses 50+ parameters in brewery filtration process — improving beer consistency, extending filter runs, and reducing operating costs. Scaling to 12 US breweries. **Nestlé —** Connected factory system using real-time data to optimize line performance, minimize downtime, and increase automation.
IMPACT	**Guaranty 100% of quality standard compliancy and avoid any re-call actions**	**Increase production efficiency and manual repetitive task along the processing**	**Utilities, maintenance and not planned down time reduction**	**Live protocol updated according new regional and internationals food regulatory requirements and procedure**	**OEE continues improvement**

Source: Porsche Consulting

Sales, marketing, claims and trend detection is where AI adoption already leads in Food sector

07

CONSUMER INSIGHTS

Predictive Trend Detection

AI-powered consumer signal / feedbacks processing & trend intelligence

60%
reduction in content production costs

Generative Marketing & Deep Personalisation

AI-driven hyper-personalisation

10x
faster content production

Agentic Commerce & Commercial Activation

Predictive demand forecasting,& AI-driven commercial planning

+9%
gain in retail sales volumes (sell-in)

Claim Verification & Comm. Governance

AI-powered communication and claims intelligence

100%
compliance and brand safeguard

Signal-Driven Demand Forecasting

AI-powered environment / sentiment driven demand forecasting

+10%
forecast accuracy improvement

	Predictive Trend Detection	Generative Marketing & Deep Personalisation	Agentic Commerce & Commercial Activation	Claim Verification & Comm. Governance	Signal-Driven Demand Forecasting
WHAT AI DOES	AI analyses social posts, purchase data, consumers feedbacks, reviews, recipes and HoReCa's menus to spot emerging trends, and demand months ahead of traditional research.	Generative AI produces campaign creative, packaging claim variants and channel-specific offering, tested on live consumer priorities. It can generate ad-personam campaigns and promotions based on consumer profiling, so as to trigger the consumer's actual reason to buy.	AI agents arm sales teams with real-time intelligence at the retailer interface and build the retailer-ready category story, to accelerate commercial activation.	AI cross-checks product claims against regulatory and scientific databases in real time	Models leverage real-time 'social and local' variables — viral topics, weather conditions, geopolitics, public sentiment, events, trending influencers, campaigns, etc. — to push and manage product distribution and availability.
KEY APPLICATION	AI agents continuously track consumptions signals from product preferences / features — immunity, protein, functional hydration — until social platforms trends and retail data, feeding R&D and brand teams with insight on specific claims to push and specific nutrients to integrate or flavours and taste to create	Generative AI learns the brand's design rules, search for real successful case and edits the output according to the final target segments, producing on-brand campaign variants across formats and channel and markets instantly, targeting maximum ROMI (Return on Marketing Investment)	AI agents unify customer profiles, real-time inventory, and consumer data to give field sales teams live, retailer-specific recommendations — shifting reps from order-taking to strategic account growth.	AI systems scan live advertising — paid search, social, on-pack copy — against regulatory codes and scientific evidence, flagging unsubstantiated or absolute terms ("sustainable," "natural," "clean label") before they trigger fines, bans, or reputational damage.	Models combine historical sales data with related 'social and local' variables relevant at that time, matching also promotional calendars to identify relevant paths and simulate them in new forecasting scenarios. (e.g. inventory ahead of demand spikes — a 1°C rise in a European summer month measurably shifts ice cream sales — cutting waste and stockouts).
INDUSTRY EXAMPLES	**PepsiCo** — AI-driven signal analysis flagged rising consumer interest in immunity; Propel with immunity-boosting ingredients reached store shelves six months later. **Tastewise** — AI food & beverage trend-intelligence platform used by PepsiCo, Nestlé, and Kraft Heinz to track social, Horeca menus, and retail signals	**Coca-Cola × Adobe** — Project Fizzion, a design-intelligence system co-developed with Adobe, encodes Coca-Cola's brand rules into a machine-readable "StyleID," letting creative teams produce on-brand content up to 10 times faster.	**Tastewise** — AI trend-intelligence platform supporting retail sell-in and category strategy for Nestlé, Kraft Heinz, and PepsiCo. **Salesforce Agentforce** — Sales AI agents embedded across customer service and field sales, as main tool; PepsiCo is among the major food and beverage companies to deploy Agentforce at scale.	**UK Advertising Standards Authority (ASA)** — its AI-powered Active Ad Monitoring system, which proactively surveys ads using AI, identified paid Google search ads from Nike, Lacoste, and Superdry as part of a targeted investigation into environmental claims in fashion retail; a	**Unilever (Ice Cream)** — AI-driven weather data analysis lifted ice cream sales and forecast accuracy by 10% in Sweden, letting supply chain teams reposition stock before demand spikes.
IMPACT	**Reducing drastically time to market of new products, anticipating the need**	**Enhanced ROMI (Return on Marketing Investment) and campaign effectiveness**	**Efficiency on field sales force team and increase conversion rate**	**Secured compliance to local and global regulatory. Reduce side cost for fines.**	**Improved working capital and faster time to market vs competitors**

Source: Porsche Consulting | *

What is the experts' view? And where do the risks and opportunities lie?

EXPERT INTERVIEWS

Source: Porsche Consulting

AI has become a top CEO priority – to unlock white collar productivity at scale

Across Industries, **C-levels are placing AI at the centre of their productivity & transformation agendas**



- **80% of interviewed** identifies data quality as the #1 barrier to scaling AI
- **70% highlighted** consumer personalisation and nutrition as the largest long-term AI opportunity
- **90% see AI accelerating** product development, R&D and ingredient innovation
- **>90% of experts see AI reshaping** decision-making and workflows across the food value chain

Source: Porsche Consulting and SFNV expert interviews. Percentage based on number of interviewees explicitly mentioning each theme

// EXPERT INTERVIEW



Mar Serra

Global Product Technical Applications and Digitalization Lead
Nestlé

"AI should not be viewed merely as a tool for efficiency. Its true potential is to help the industry design better products, reduce waste, make sourcing smarter and unlock scientific progress that was previously too complex to achieve."

OPPORTUNITY

- In product development, AI enables teams to optimise complex recipe trade-offs across taste, nutrition, sustainability, compliance, cost and sourcing
- AI can improve product development decisions by streamlining specification, ingredient selection and sourcing assessments across supplier and ingredient variables
- AI can accelerate product innovation through richer consumer insights, digital twins and faster product validation loops
- Nestlé's extensive recipe, specification and product-development data provide a strong foundation for developing proprietary AI models and strengthening innovation capabilities

THREATS

- Data quality and system connectivity remain the first constraint to scaling AI
- Food safety and regulatory requirements make human oversight non-negotiable
- The full industry-wide potential of AI is limited by sensitive data and restricted data sharing
- We need to help consumers understand how AI is used in food, so that it does not erode their trust

WHAT'S NEXT

- AI will fundamentally reshape product development, from consumer insight generation to product design, validation and optimisation
- Product developers will increasingly rely on AI to balance complex trade-offs between taste, nutrition, sustainability, compliance and cost
- Digital twins and predictive simulations will make consumer validation faster, more iterative and deeply embedded within innovation processes
- Competitive advantage will increasingly depend on the ability to connect data, science and decision-making across the entire food value chain

Source: Porsche Consulting



novonesis

Frederik Mejlby

VP for Marketing & R&D,
Food and Beverages
Novonesis

"AI has largely solved the search problem. The next challenge is predicting whether biological solutions will survive and perform consistently in the complex realities of industrial food production."

OPPORTUNITY

- AI enables targeted screening of proteins, enzymes and microorganisms by predicting biological functionality before physical testing
- Large-scale AI analysis allows researchers to identify patterns and mechanisms of action that would be difficult to detect through traditional experimentation
- The integration of laboratory, product development and customer data creates faster learning loops and accelerates the development of biological solutions
- AI-driven analysis of live production data can improve quality, productivity and process performance in industrial food environments
- AI is accelerating the transition from empirical biotechnology to data-driven biological design

THREATS

- AI performance depends on robust data architecture, high-quality metadata and systematic data collection throughout the innovation process
- Building and maintaining structured research data lakes requires significant investment, specialised skills and long-term commitment
- Some companies overstate AI capabilities while underestimating the importance of biological expertise and experimental infrastructure
- Identifying promising biological solutions is becoming easier than demonstrating consistent performance under industrial conditions
- Isolated company datasets limit model performance, while competitive concerns continue to hinder broader data sharing

WHAT'S NEXT

- Connect every experiment, customer trial and development activity within an integrated data ecosystem to enable large-scale machine learning
- Use AI to predict how biological solutions will perform under real-world operating conditions, rather than solely under laboratory conditions
- Shorten development cycles by combining AI, robotics and high-throughput experimentation within closed-loop learning systems
- Expand collaboration models that enable data sharing across value chain partners without compromising ownership of critical information
- Accelerate the transition towards a bio-based economy through AI-enabled discovery and optimisation of biological solutions

Source: Porsche Consulting

// EXPERT INTERVIEW



dsm-firmenich

Benjamin Smith

Senior Director,
AI for Ingredients,
dsm-firmenich

"In the age of AI, cognitive effort compounds faster. Thought and creativity are more valuable than ever. "

OPPORTUNITY

- AI is shifting ingredient discovery from screening to property-led design, enabling faster identification of molecules with targeted taste profiles
- Proprietary R&D data becomes a strategic asset, enabling more accurate prediction of taste properties and receptor interactions
- Structure-based modelling enables companies to explore new chemical spaces, generate novel molecule libraries and develop differentiated proprietary ingredients
- In-silico screening increases hit rates and candidate quality, accelerating innovation without increasing testing capacity
- AI expands the quality and range of ingredients available to manufacturers, unlocking opportunities beyond traditional discovery approaches

CONSTRAINTS

- Data availability remains a critical bottleneck, as accurate models depend on proprietary datasets that are difficult to access and share
- AI models alone are insufficient, as physical testing remains essential to validate candidates and eliminate false positives
- Commercial success requires combining modelling, experimentation and scalable production, capabilities many AI-native players lack
- Adoption may be slowed by the need to retrain scientists and integrate AI into established R&D workflows
- Regulation and limited access to compute can slow innovation and create disadvantages for smaller European players

WHAT'S NEXT

- Competitive advantage will depend on combining proprietary data, testing capabilities and production expertise rather than model access alone
- Ingredient innovation will increasingly shift toward AI-designed candidates with predefined sensory and functional characteristics
- Companies will move beyond traditional ROI metrics and adopt portfolio-style investment approaches to AI innovation
- Public-private collaborations should create foundational datasets that accelerate research and AI adoption across the ecosystem
- AI sovereignty, data sovereignty and compute access will become strategic priorities for maintaining European competitiveness

Source: Porsche Consulting

// EXPERT INTERVIEW



Stavroula Georgia Mougiakakou

Co-Director MSc in Medicine | Artificial Intelligence in Healthcare and Nutrition
University of Bern

"Nutrition is an essential pillar of health – we cannot live well without it. AI has the potential to explore the full landscape of nutrition-related parameters, helping us make healthier decisions that benefit not only nutrition, but the healthcare system as a whole."

OPPORTUNITIES

- AI can transform nutrition and health from a reactive, fragmented system into a predictive, personalised and sustainable ecosystem
- Personalised nutrition can integrate food composition, consumer behaviour, health records, wearable data and environmental factors into a single decision framework
- AI enables personalised food choices, respecting individual preferences, cultural habits, local context, and health needs, while improving the prevention and management of chronic diseases
- Europe can create a unique competitive advantage by combining AI with its established strengths in health, nutrition and life sciences
- Trustworthy AI can become a differentiating factor for Europe, combining innovation with transparency, fairness and societal impact

THREATS

- Data remains fragmented across nutrition, healthcare and food systems, limiting AI scalability and ecosystem-wide value creation
- Lack of standardised and interoperable data frameworks restricts the development of robust AI solutions across the value chain
- AI literacy remains limited, with many users overestimating its capabilities while underestimating its limitations and risks
- Technology development is advancing faster than its translation into real-world healthcare and nutrition applications
- Many organisations remain at pilot level, with limited evidence of large-scale deployment, clinical validation, and measurable real-world impact

WHAT'S NEXT

- Build shared data infrastructures that enable secure exchange, standardisation and reuse of nutrition and health data
- Advance personalised nutrition through the integration of multimodal data from individuals, healthcare systems, and food ecosystems
- Educate a new generation of professionals able to combine domain expertise with interdisciplinary collaboration
- Create a common language across nutrition, medicine, AI, ethics, law and regulation to accelerate translation into clinical practice and public health
- Position Europe as the global leader in trustworthy AI for health and nutrition by leveraging excellence in science, clinical validation, regulation, and societal impact, rather than competing solely on AI model scale

Source: Porsche Consulting

// EXPERT INTERVIEW



EPFL

Marcel Salathé

Co Director EPFL AI Centre
EPFL

"Europe does not lack the talent or scientific foundations to lead in AI. What matters now is speed: the ability to invest, deploy and learn at scale. In AI, progress compounds over time—and every year spent debating is a year lost to those already building."

OPPORTUNITY

- AI enables identification and ranking of startups and investment targets, supporting ecosystem-based innovation
- Strong potential in optimisation of agri-food operations (already widely used today)
- Large companies increasingly shift from internal R&D to ecosystem building and partnerships
- AI can support selection of partners and investment areas, improving decision-making
- Opportunity to leverage Europe's diversity and product quality through AI-enabled customization and optimisation

THREATS

- Cultural resistance, not technology, is the main barrier to AI adoption as food's emotional dimension will slow down AI acceptance compared to other industries
- Many AI failures are driven by incorrect implementation rather than lack of potential
- Limited EU access to computational resources can constrain AI scalability
- Unclear ROI perception delays large-scale investments in AI initiatives

WHAT'S NEXT

- AI in food will evolve from efficiency gains to growth and business model innovation
- The next wave of value will come from AI-enabled products and services, not cost reduction
- AI will increasingly drive "what people eat", not just "how food is produced"
- The food system will shift towards AI-driven, health-optimised consumption patterns
- Speed of adoption will be the key success factor in the global AI race
- Companies that fail to move beyond efficiency will miss the largest value pools

Source: Porsche Consulting

// EXPERT INTERVIEW



Givaudan

Alexandre Bastos

Head of Front End Innovation, Givaudan

"The complexity of food innovation makes it uniquely suited for AI. Dynamic consumers, biology, culture, preferences, emotions and supply chains create unprecedented opportunities for transformative innovation."

OPPORTUNITY

- AI is already delivering tangible benefits in consumer understanding, product development and R&D, not a future promise
- Nutrition and taste: AI can map complex health data (microbiome, dietary needs) to further enable successful product development and societal impact
- Cheminformatics is emerging as a core competency, combining chemistry, data science and food science for competitive differentiation
- Novel ingredient technologies (e.g. precision fermentation) could potentially reach a more viable path through AI-driven process optimisation
- Givaudan's ecosystem model, partnering with neuroscience firms (Thimus) and consumer preference AI, accelerates innovation without fully internalising cost

THREATS

- Food AI relies on proprietary data most companies haven't structured—creating a key readiness gap
- Complex variables (taste, culture, emotions, seasonality, supply, consumer context) make AI harder to train than in FinTech or standard software
- AI and food-tech regulations may slow adoption of novel foods, even when technologies are ready and cost-competitive
- Build vs. buy dilemma: core AI must be internal, but non-strategic areas could be areas for partnership. Furthermore, talent is scarce and challenging to attract for the food industry

WHAT'S NEXT

- Leaders should agree on a clear AI transformational vision and strategy
- Focus on narrow, well-defined AI use cases first—broad scope is the main failure driver
- Engage and expand the AI ecosystem to ensure proper and continuous evolution

Source: Porsche Consulting



BÜHLER

Matthias Graeber

Head of AI & Data Science,
Bühler Group

"The real promise of AI is not just to make today's processes more efficient. It is to help us redesign them to unlock business growth and shrink footprint."

OPPORTUNITY

- AI now delivers measurable performance improvements across food-industry production and business processes, from raw-material handling to plant-level operations
- AI lets food processors pursue three goals at once: Better operational KPIs, lower environmental footprint and stronger competitive position
- By combining process, sensor and image data, AI is enabling a step-by-step move from operator support toward autonomous plant operation. From decision assistance today to closed-loop machine control tomorrow
- Embedded AI in machines, for example in optical sorting, is already lifting product quality while maximizing yield and reducing waste
- Cross-industry data sharing, between farmers, processors, brand owners and retailers, will be the next unlock for food safety, circularity and end-to-end supply-chain optimisation

THREATS

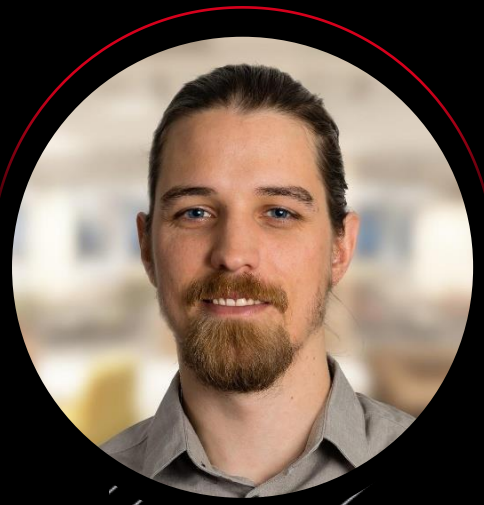
- AI adoption remains gated by three foundations: connected infrastructure, interoperable systems and reliable data availability
- No single company will unlock AI's full value alone. It will require stronger collaboration across industry players, disciplines and data networks
- IT/OT integration complexity is today the single biggest brake on AI deployment in food-processing plants
- ROI is often difficult to measure end-to-end, creating hesitation to scale even when local benefits are clear
- Isolated AI-powered point solutions that stay disconnected from real process control will remain science projects, not industrial value drivers

WHAT'S NEXT

- AI's next chapter is process redesign, not just process optimisation, fundamentally changing how we operate and even how we conceive production systems
- AI will help offset acute skill shortages, letting less experienced operators run complex processes with expert-level consistency
- The next leap in value will come from end-to-end optimisation across the food value chain, connecting raw materials, processing, packaging and logistics through shared data
- AI will accelerate circularity: Higher recovery, less waste, improving both margin and sustainability across material flows
- Winners will combine three ingredients: a data-ready plant, an AI-literate workforce and clear governance to deploy responsibly at scale

Source: Porsche Consulting

// EXPERT INTERVIEW



helbling

Stefan Stalder

Helbling Technik,
Project Manager

"The real opportunity is using AI to turn individual health and nutrition data into products that adapt to personal needs."

Source: Porsche Consulting

OPPORTUNITY

- Precise dosing enables devices to tailor products individually to each consumer's health and nutrition needs
- Strong potential to reduce food waste and increase efficiency through data-driven monitoring of food decay and losses
- Shift toward factory-level customisation, with production adapting to individual consumer requirements
- AI enhances consumer awareness and understanding of personal health needs, driving more informed food choices
- Europe has an advantage in food quality, diversity and health-conscious consumers, enabling strong positioning if data capabilities improve

THREATS

- Lack of control over data and AI platforms, with key capabilities concentrated outside Europe
- Limited availability of integrated health + nutrition datasets, reducing the ability to develop advanced AI
- Companies struggle with unclear AI use cases and overly broad project scopes
- Data privacy and security constraints slow adoption and require local infrastructure solutions
- The shift from traditional marketing to AI-driven recommendations reduces companies' direct customer influence

WHAT'S NEXT

- Develop a clear vision for AI implementation by starting with specific, narrow use cases, such as glucose-based personalisation
- Move from strategy to execution through rapid prototyping and market launch
- Build European data ecosystems linking health and nutrition (e.g. wearables, glucose monitoring)
- Develop direct-to-consumer, factory-to-user models enabling personalised production at scale
- Adapt to AI-mediated customer interaction, optimising presence in AI-driven recommendation systems

// EXPERT INTERVIEW



FlavorWiki
A GPI Company

Daniel Protz

FlavorWiki
Founder & CEO
Digital AI Research Platform

"AI allows us to keep the same frameworks of decision making, but make them faster, deeper and more at your fingertips."

OPPORTUNITY

- AI allows companies to process consumer and product data faster, making it more available at your fingertips
- Standardising and aggregating product-focused consumer data enables deeper, scalable insight generation at feasible cost
- AI reduces the historical barrier of time and cost in consumer research, unlocking broader insight generation
- In fragmented markets like Europe, AI can accelerate understanding of diverse tastes, cultures and preferences at scale
- European food diversity creates a unique opportunity to bring strong culinary traditions into global markets

THREATS

- Data is highly siloed across functions and geographies, limiting the ability to leverage AI capabilities
- Companies struggle to use existing data, stored in different places and not structured for extraction
- Many organisations are still experimenting without clear direction, as AI adoption remains early and unstructured
- There is a strong trust and transparency challenge, as companies require full visibility on data behind AI outputs
- European fragmentation and regulation create complexity

WHAT'S NEXT

- Insight generation will shift from commissioning studies to commissioning queries, enabled by aggregated data systems
- AI will make decision-making faster, leaner and more continuous, without fundamentally changing underlying methodologies
- Traditional analytical approaches will remain, but become more agile and scalable through AI
- Consumer perception and preferences remain stable, meaning AI accelerates decisions but does not change fundamental demand drivers. Technology will evolve faster than both consumer behaviour and industry adoption capacity

Source: Porsche Consulting



Sean Sims

Tetra Pak
Vice President
Automation and Solutions

"AI only works when three things are in place: high-quality data, people ready to change, and an economic model that makes sense. Without that, you are not simplifying operations—you're just adding complexity."

OPPORTUNITY

- AI is accelerating the rise of "nutrition gastronomy" — new food formats that combine speed, consistency, and health optimisation
- Europe's food culture — regional, diverse, trust-driven — is a natural differentiator for AI-powered personalisation at scale
- Producers will deploy AI-driven automation to drastically reduce production costs while significantly bridging critical skills shortages
- Consumers will increasingly rely on AI for real-time ingredient checks, nutritional guidance, and transparent food choices
- Italy, Spain, France and Germany's strong mechanical and manufacturing base positions Europe for a unique physical/AI convergence in food production

THREATS

- Data is the key bottleneck—existing data lacks quality and integrity for reliable AI
- Without solid data foundations, AI increases confusion instead of reducing complexity
- Adoption is behavioural, not technical—AI adds friction if ways of working don't change
- The gap is translation skills, not tech talent connecting business problems to AI
- With consumption pricing, only measurable use cases justify cost
- Slow movers risk structural disadvantage as speed becomes a lasting differentiator
- Unclear IP ownership creates strategic uncertainty for AI investments

WHAT'S NEXT

- Data structuring and operationalisation— not technology access — will define AI readiness
- Competitive advantage will belong to those who design human-machine decision-making systems
- AI is ecosystem-driven; partnerships shift from strategic option to baseline requirement
- Only use cases with tangible, measurable value will survive as costs rise
- Physical AI — the convergence of robotics, automation and generative AI — is the next frontier of value creation

Source: Porsche Consulting

// EXPERT INTERVIEW



GDI GOTTLIEB DUTTWEILER INSTITUTE

Christine Schäfer

Senior Researcher,
GDI Gottlieb Duttweiler Institute

"The future challenge is not whether AI can optimize food choices, but whether it can do so without reducing the diversity of products, traditions and cultural experiences that make food meaningful."

OPPORTUNITY

- AI can help consumers make healthier and more informed food choices.
- personalisation enables food recommendations tailored to individual preferences and needs.
- AI can optimize measurable dimensions of food culture such as health (nutrition, influence of food on physical & mental health) and control (portion size, calorie intake, restraint).
- AI can accelerate access to information, recipes and food-related knowledge.

THREATS

- AI-generated recommendations may reinforce standardization and reduce diversity in food choices.
- Traditional food knowledge, local recipes and cultural heritage risk becoming less visible in digital ecosystems.
- Community, rituals and local food rootedness remain difficult to capture through AI-driven optimisation.
- Increasing dependence on AI recommendations may weaken independent decision-making by consumers.

WHAT'S NEXT

- AI will evolve from a search tool into a decision-making layer that increasingly shapes what consumers buy, cook and eat.
- The next generation of food trends will be amplified by AI-generated content, AI-generated products and AI-driven recommendation systems, creating faster and more volatile market dynamics.
- The food industry will face a growing challenge between efficiency and diversity, balancing personalised recommendations with the preservation of cultural identity and culinary heritage.
- Human-made, local and tradition-based food experiences may become increasingly valuable as consumers search for authenticity in an increasingly AI-mediated food landscape.

Source: Porsche Consulting

// EXPERT INTERVIEW



Michele Amigoni

Chief Research, Development & Quality Officer
Barilla Group

"First analyse the process, then understand where AI can help, not the other way around."

WAITING

OPPORTUNITY

- AI can accelerate decision-making across consumer insights, product formulation, packaging design and communication through connected use cases rather than isolated pilots
- Broad AI adoption requires organisations to provide employees with tools and empower them to select the solutions that best meet their business needs
- The next stage of AI maturity involves connecting previously independent initiatives into a coherent, enterprise-wide AI strategy
- Effective governance can transform fragmented experimentation into coordinated value creation across functions and business processes
- AI should be evaluated as a business tool, with adoption driven by practical utility and measurable process impact rather than technology hype

THREATS

- The AI landscape is evolving rapidly, making premature technology bets difficult to justify
- Many organisations remain trapped in proof-of-concept mode without a clear path towards enterprise-wide integration
- Prioritising AI adoption before understanding underlying process requirements increases the risk of deploying solutions that deliver limited business value.
- In the food sector, evidence of sustainable competitive advantage created through AI remains limited
- Fragmented implementation creates isolated use cases rather than scalable capabilities across the organisation

WHAT'S NEXT

- Move from experimentation to orchestration by connecting AI initiatives across functions, business domains and partners
- Analyse business processes first, then identify where AI can create measurable value
- Establish enterprise-level governance capable of coordinating technology choices and investment decisions
- Expand AI adoption through training, structured enablement and progressive integration into daily workflows
- Shift the conversation from AI tools to business outcomes, focusing on utility rather than the technology itself

Source: Porsche Consulting

Experts agree that AI could be the real catalyst for the food industry, whilst acknowledging that certain foundations need to be laid before real investment is made

AI has progressed beyond experimentation.
With proven efficiency gains across energy, quality and R&D, organisations are moving beyond recommendation systems towards semi-autonomous process control

Deep proprietary data assets. In an increasingly commoditised AI landscape, proprietary historical datasets combined with industrial expertise create a competitive advantage that is difficult to replicate

Efficiency and new capabilities. The proven efficiency layer generates near-term returns, which can self-fund more transformative AI capabilities and long-term value creation

STRENGTH

OPPORTUNITIES



WEAKNESS

THREATS

Personalised nutrition. The convergence of food, health and biomarker data is enabling a shift towards a predictive, preventive and personalised food system

Faster ingredient discovery. AI compresses multi-month development cycles, increases screening and testing capacity, and enables the design of novel ingredients, molecules and formulations

Value chain payback. Process optimisation, sensor driven quality control, early contaminant and food safety detection deliver auditable margin protection

Data remains fragmented. Industrial data is scattered across functions and inconsistently structured, leading to underperforming models and limiting AI's full potential

Weak ROI discipline. AI budgets are often treated as open-ended investments rather than being tied to clearly defined returns. The ROI of AI initiatives remains difficult to quantify and can vary significantly across use cases

Human capital and culture. A shortage of 'translator' profiles capable of bridging business, food science and AI is compounded by a traditionally low-tech workforce and operating environment

Consumer trust is fragile. Food is inherently more emotional than many other sectors, and perceptions of 'AI-made' products risk triggering a GMO-style consumer backlash

Europe risks losing the speed race. Regulatory uncertainty and growing structural dependencies are slowing investment, increasing the risk that Europe will remain a follower to the US and China in the development and scaling of AI

Structural dependency is increasing. External platforms are gaining greater control over data and regulatory frameworks, while structural shortages in data centre and computing infrastructure constrain the region's ability to scale AI adoption

Source: Porsche Consulting based expert interviews

SO WHAT? Key takeaways

Five key points on WHAT artificial intelligence is already delivering across the food value chain and what the real potential is

01

Predict before you commit

Make "prediction before commitment" the organizing principle of your AI agenda: across all 14 use cases — from taste design to machine uptime to trend detection — AI replaces an expensive guess with a data-driven forecast, so whoever owns the prediction owns the decision.

02

Start where risk is lowest, scale where value is highest

Enter through Food Manufacturing (computer-vision quality, robotics, predictive maintenance) for measurable, low-risk wins like >98% defect detection and zero unplanned downtime, then reinvest those returns into higher-value R&D and consumer-insight applications.

03

Concentrate bets on the three winning stages

Focus investment on the three value-chain stages where AI is most prominent — Food & Ingredient Development, Manufacturing, and Consumer Insights — where proven cases already cut R&D cycles up to 10x and lift forecast accuracy and sell-in volumes

04

Fix the data foundation first

Treat data quality as the #1 barrier (flagged by 80% of experts) and impose ROI discipline before scaling: analyse the process first, then apply AI, because fragmented data and open-ended budgets turn promising pilots into disconnected science projects.

05

Move now, or lose the speed race

Convert experimentation into enterprise-wide orchestration and act fast, since >90% of experts see AI reshaping decision-making while Europe risks slipping behind the US and China — every year spent debating is a year lost to those already building

Source: Porsche Consulting



HOW

THE WAY TO AI

How companies can unlock AI's full potential

Source: Porsche Consulting

C-level executives' key questions regarding AI...

#1

How **AI can be applied along the business** ?

#2

How can we integrate AI into our **strategic objectives**?

#3

How can we **rapidly** and **effectively build AI capabilities**?

#4

How can we **reconcile AI and people centricity** (employees, customers, society)?

#5

How can we ensure AI is **deployed ethically**, in compliance with **new regulations**

#6

How can we capture **"quick wins"** with AI?

#7

How can **AI improve existing operations**?

#8

What are the **pitfalls & risks** associated with AI?

Source: Porsche Consulting, IBM, AviationToday, DXC, IEA, WeForum

// HOW? AI IMPLEMENTATION

AI is sold as a silver bullet. How does reality look like?

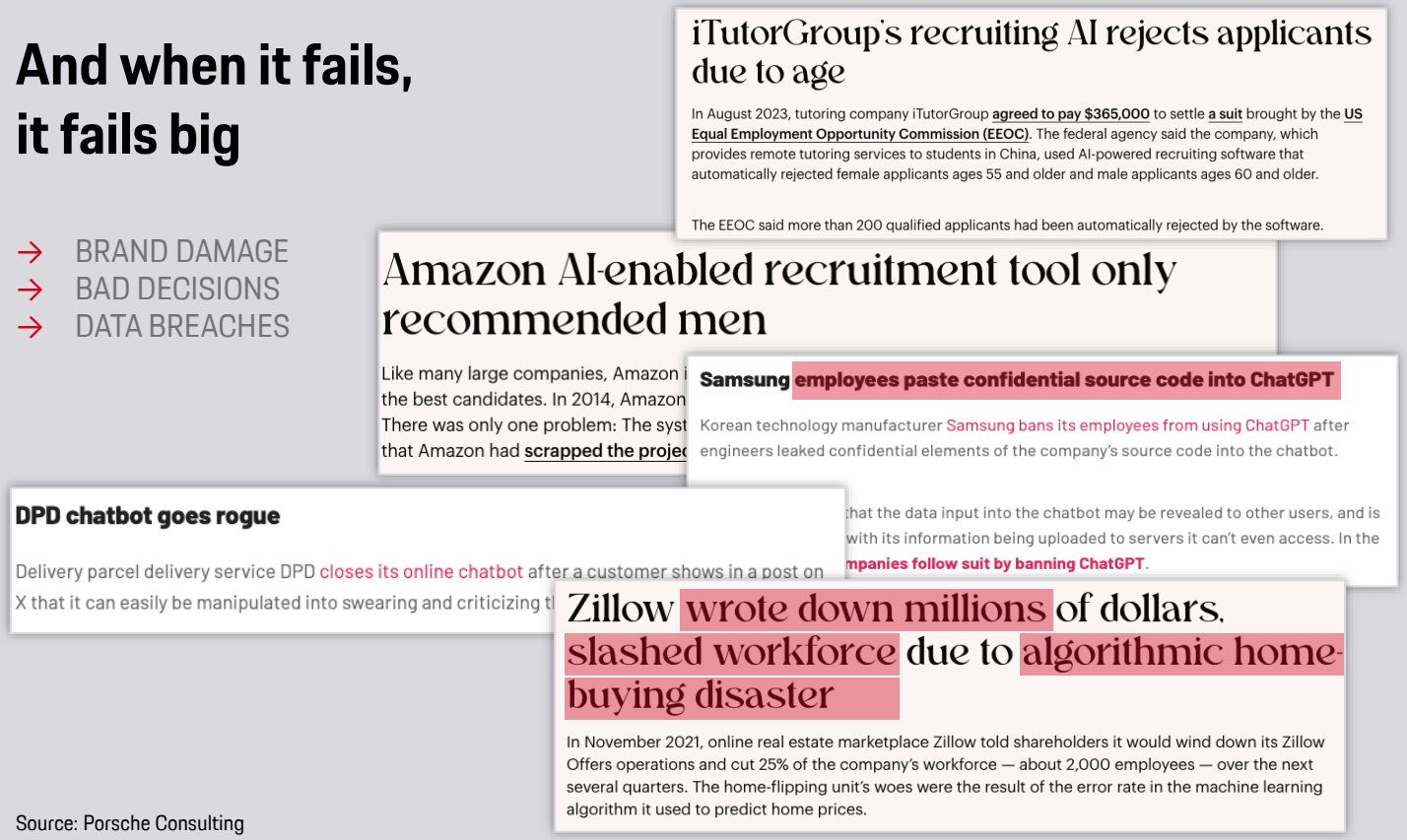
80%
of companies run pilots

BUT

only 25%
see real impact

And when it fails, it fails big

- → BRAND DAMAGE
- → BAD DECISIONS
- → DATA BREACHES



iTutorGroup's recruiting AI rejects applicants due to age

In August 2023, tutoring company iTutorGroup agreed to pay $365,000 to settle a suit brought by the US Equal Employment Opportunity Commission (EEOC). The federal agency said the company, which provides remote tutoring services to students in China, used AI-powered recruiting software that automatically rejected female applicants ages 55 and older and male applicants ages 60 and older.

The EEOC said more than 200 qualified applicants had been automatically rejected by the software.

Amazon AI-enabled recruitment tool only recommended men

Like many large companies, Amazon
the best candidates. In 2014, Amazon
There was only one problem: The syst
that Amazon had scrapped the projec

Samsung employees paste confidential source code into ChatGPT

Korean technology manufacturer Samsung bans its employees from using ChatGPT after engineers leaked confidential elements of the company's source code into the chatbot.

hat the data input into the chatbot may be revealed to other users, and is
with its information being uploaded to servers it can't even access. In the
mpanies follow suit by banning ChatGPT.

DPD chatbot goes rogue

Delivery parcel delivery service DPD closes its online chatbot after a customer shows in a post on X that it can easily be manipulated into swearing and criticizing t

Zillow wrote down millions of dollars, slashed workforce due to algorithmic home-buying disaster

In November 2021, online real estate marketplace Zillow told shareholders it would wind down its Zillow Offers operations and cut 25% of the company's workforce — about 2,000 employees — over the next several quarters. The home-flipping unit's woes were the result of the error rate in the machine learning algorithm it used to predict home prices.

	✓ AI LEADERS ~15–20 % of firms	✗ AI LAGGARDS ~80–85 % of firms
SCALED PILOTS (%)	70–80 %	< 25 %
BENEFIT	+8–10 % YoY gains	Flat or declining
IMPACT AREAS	Integrated across core functions Operations, R&D, Sales	Limited to isolated pilots in specific areas
CHANGE MINDSET	Agile, iterative, team-empowered	Centralized, IT-driven

Source: Porsche Consulting

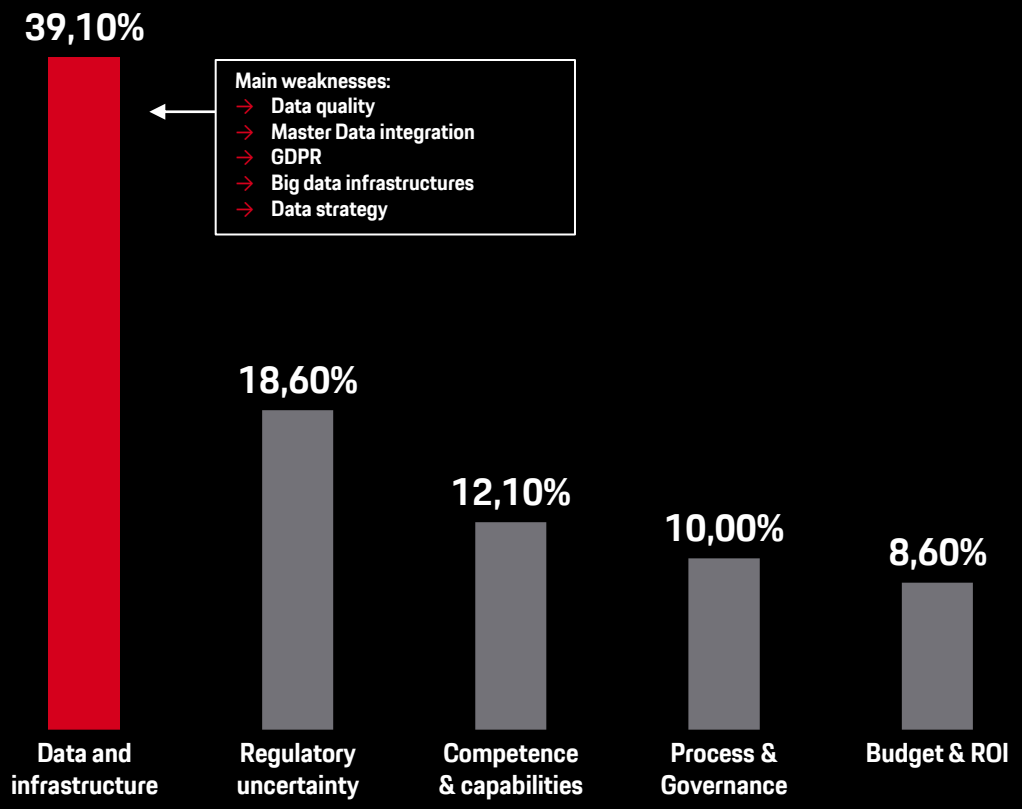
74% of companies aim to adopt AI organically across the functions, yet only a few are ready to implement it

COMPANIES THAT WANT TO IMPLEMENT AI

74 %

of organisations report challenges in implementing AI use cases at scale

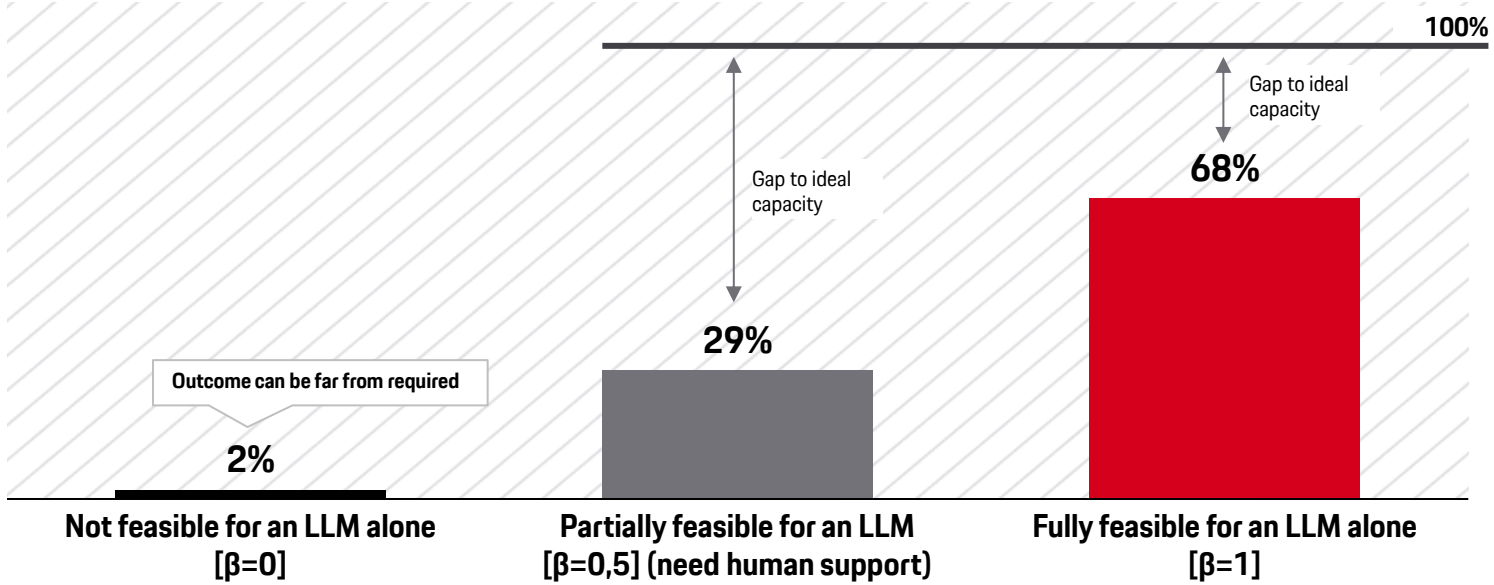
LARGEST SHARE OF IMPEDIMENTS TO AI-ADOPTION



Source: Porsche Consulting based on executive survey and interview results business directors in food

This is proven by the gap between the theoretical number of tasks that AI can perform and the actual number of tasks it performs, which remains wide, with an average discrepancy of 32 per cent

SHARE OF AI LLM USAGE BY TASK EXPOSURE RATING (ALL INDUSTRIES)*



- **Why might actual usage fall short of AI theoretical capacity?**
  Some tasks that are theoretically possible may not show up in usage because of model limitations, or legal constraints, or specific software requirements, or need for human verification steps.
- 32% gap on potential "full LLM feasible task" show how **corporate struggles in apply and deploy effective AI on repetitive tasks with low human added value**
- 71% gap compared with the 'Partially feasible for an LLM' potential demonstrates the **greatest gap is in AI support for tasks that cannot be fully automated** (AI in support of human activities)

AI is far from reaching its theoretical capacity: actual coverage remains a fraction of what's feasible

*** Analysis of "AI exposed business tasks":**
- [β=1] were those that could be completed in half the time with an LLM
- [β=0,5] tasks that were "exposed with tools" were those subject to the same speedup with an LLM that had access to software for, e.g., information retrieval and image processing
- [β=0] tasks that were not exposed could not have their duration reduced by 50% or more using an LLM

Source: Porsche Consulting, Anthropic "Labor market impacts of AI" | LLM - Large Language Model

To overcome these hurdles and achieve tangible results from AI adoption, cross-functional collaboration is essential, and certain new priorities must be included amongst the C-levels' objectives

CEO

CHIEF EXECUTIVE OFFICER

AI must be a board-level responsibility, not an IT project

The companies pulling ahead are those where the CEO personally defines AI as a strategic priority, allocating capital, setting governance, and demanding P&L accountability from every initiative. Those treating AI as a technology experiment will find themselves structurally disadvantaged within 24 months.

"Today when you look at AI, there is a way of working that can be much more clear, fast and agile"

Philipp Navratil
Chief Executive Officer, Nestlé

Nestlé

CTO

CHIEF TECHNOLOGY OFFICER

The data foundation is not a precondition. It's part of the strategy.

AI at scale demands a unified master data architecture, a cloud backbone, and core systems that can carry autonomous agents. But data alone isn't enough, AI needs room to operate across every function, not just IT, or it will die inside the IT department. The winners are already migrating AI out of sandboxes and into the operating model from sales forecasting to factory digital twins

"We are building an AI architecture for the future"

Ian Roberts
Chief Technology Offices, Buhler

BÜHLER

COO

CHIEF OPERATIONS OFFICER

The intelligent supply chain anticipates, it no longer just reacts

Predictive maintenance, ML-powered demand forecasting, real-time digital twins, and agile production lines are eliminating the operational margin once lost to unplanned downtime and forecast error. For F&B operations leaders, AI is delivering measurable outcomes across both the supply chain and the factory floor

"AI is pivotal to transforming how we operate, compete, and create value, enabling better decision-making and greater operational agility"

Emmanuel Butstraen
Chief Operations Officer, dsm-firmenich

dsm-firmenich

CIO

CHIEF STRATEGY OFFICER

Scattered AI pilots are not a strategy. Concentrate efforts or fall behind.

The strategic risk of AI is no longer moving too fast ,it's dispersing investment across disconnected experiments while competitors concentrate on strategic pillars. Winning strategies also mean testing and iterating relentlessly fast, then feeding what's learned back into every other function

"The combination of data, AI and deep expertise is becoming a critical differentiator. For us at Givaudan, this reinforces a clear direction"

Christina Yeo
Head of Business Solution and IT, Givaudan

Givaudan

Source: Porsche Consulting, Nestlé, Buhler, dsm-firmenich, Givaudan official communications and interviews

Lead AI potential with the right sequence of actions. Start with the proven cases and priorities them according to risk, not ambition

HOW TO SEQUENCE ADOPTION



01 Start where ROI is measurable

Tangible, defensible and low-risk results. Application can range from food processing, quality control, predictive maintenance, pricing sensitivity.



02 Find the white spot and close the innovation gap

Search for mature tools/application and empty field. Food product development sits under-penetrated (15% vs 26% benchmark).



03 Integration throughout the value chain

Each data source makes the others sharper and more effective. Partnerships with suppliers, distribution and even competitors can enrich data visibility and business insight generation

THE EUROPEAN FOOD INDUSTRY IS PROVING TO BE A PIONEER IN THIS

› Nestlé, dsm-firmenich, Givaudan, Buhler and other industry leaders carry a large share of the AI flagship cases, showing that “Europe applies AI to a lead it already owns”

Source: Porsche Consulting

The food industry, indeed, offers some of the most successful examples of AI implementation

MARKET CASE STUDIES

Source: Porsche Consulting

// HOW? AI IMPLEMENTATION

Case study

ACHIEVEMENTS WITH AI IMPLEMENTATION

6 weeks Ideation cycle
Down from 6 months

7,000+ NesGPT users
in US, within 3-month from the launch

14% - 20% inventory reduction
while maintaining product availability

10% worktime saved
for US Office Marketing team

> "The upscaling of our unique capabilities in deep tech is key to maximize efficiency in innovation and operations. And all of this is powered by a leaner and more agile R&D organization.."
>
> Stefan Palzer, CTO, Nestlé S.A.

Nestlé imperatives for successful AI results (1/2)

03 FOOD & INGREDIENT DEVELOPMENT

R&D: Recipe Optimisation Tool

WHERE AI PLAYS

Nestlé's **recipe optimisation tool balances ingredients, nutrition, cost and sustainability against consumer expectations**.
For Nescafé Dolce Gusto Neo, it let engineers optimize coffee-pod-machine interactions virtually — before testing any physical machine settings.

KEY SUCCESS FACTORS

Human capability, not technology, as the primary deployment lever: First Nestlé trained ~100 non-specialist team members before any large-scale rollout capability came before technology, not after. Year-round structured communication kept Shadow AI in check and the organization aligned. Lesson: AI adoption is a human infrastructure problem first.
[Structured onboarding | Cross-functional training | Shadow AI prevention]

VALUE DELIVERED

Ideation: 6 months → 6 weeks (–75%)
"The tool has accelerated the product ideation process from six months to six weeks."
Shan Collins, Head of IT North America, Nestlé
Approximately 100 team members in the innovation community are now using the tool. The system presents concept ranges in just over one minute from a single prompt.

04 FOOD PROCESSING & MANUFACTURING

Operations: Demand Forecasting & Stockout Prediction

WHERE AI PLAYS

AI and **Intelligent Process Automation** are implemented **at large scale to automate demand forecasting**. The system **predicts stockouts at retail locations** and **optimizes pricing and promotions in real time across Nestlé's supply chain.**

KEY SUCCESS FACTORS

Data Infrastructure as the investment – AI as the return mechanism: Nestlé's AI results come from its data — 340M+ "first-party records" built up over a decade of shifting media investment digital. The Digital Twin and demand forecasting systems don't outperform because their models are more advanced; they outperform because their data is proprietary, clean, and at scale.

VALUE DELIVERED

Nestlé's AI forecasting helped reduce inventory levels by 14–20%, unlocking tens of millions of dollars in freed-up cash while maintaining high product availability.

07 CONSUMER INSIGHT & MARKETING

Marketing: 3D Digital Twin Pipeline

WHERE AI PLAYS

Exact 3D virtual replicas (digital twins) of physical products are created on NVIDIA Omniverse. AI modifies packaging, localization and format variants digitally — eliminating the need to reshoot. Assets are deployed across e-commerce, social and streaming in channel-specific formats (6+ ad formats per campaign).

KEY SUCCESS FACTORS

Governance resolved upfront - compliance as the enabler of scale, not a constraint: NesGPT operates on a fully isolated Azure instance with no external data exposure. This was not a technical precaution ,it was the strategic prerequisite that unlocked deployment across legal, marketing, and innovation simultaneously. Governance certainty converted regulatory risk into competitive speed. Compliance architecture built first; enterprise scale followed directly.

VALUE DELIVERED

45 min/week saved per employee (~ 10% worktime) | 230,000 prompts: In a recent internal survey, NesGPT users cited saving an average of 45 minutes per week, creating better and faster content, and spending less time searching for information. In just three months, more than 7,000 US employees generated nearly 230,000 prompts.

Source: Porsche Consulting, Nestlé corp comm: Shan Collins, Head of IT North America, Nestlé (worklife.news/technology/nesgpt-nestle-genai) | Nestlé USA Official Blog (nestleusa.com/stories/unlocking-new-opportunities-gen-ai) | Consumer Goods Technology — (consumergoods.com/nestle-lvmh-loreal-ramp-content-creation-ai-powered-digital-twins) | Nestlé press release — June 2025 (nestle.com/media/news/brands-ai-digital-twins-content-service), Emerj - Artificial-intelligence-at-nestle

// HOW? AI IMPLEMENTATION

Case study

Deep Tech Centre

First-of-its-kind in the food and nutrition industry

ACHIEVEMENTS WITH AI IMPLEMENTATION

OPERATIVE SINCE

2026

LOCATION

Orbe, Vaud — Switzerland

BUILT ON

Nestlé System Technology Centre (existing campus)

FUNDED BY

Internal R&D redeployment

INDUSTRY FIRST

First dedicated deep-tech R&D hub in food & nutrition

WHY IT MATTERS

Switzerland hosts the world's first food-industry deep-tech R&D hub, confirming Europe's leadership in AI for food and beverage.

Nestlé imperatives for successful AI results (2/2)

03 FOOD & INGREDIENT DEVELOPMENT

Generative AI for Material Discovery

IBM Regression Transformer + custom chemical language model proposes entirely new high-barrier packaging molecules — structures never previously tested, optimised for cost, safety, and recyclability.

AI-Driven Recipe Optimisation

AI rapidly analyses vast data sets to suggest ingredient combinations that improve taste, nutrition, and sustainability — accelerating time-to-market for products that meet consumer expectations.

Precision Fermentation + Biotech AI

Next-generation screening assays and a re-enforced clinical research program drive postbiotics, symbiotic and bioactive underpinning precision nutrition for maternal/early-life, medical nutrition, and healthy longevity.

04 FOOD PROCESSING & MANUFACTURING

Zero-Touch Manufacturing

Self-controlling equipment uses intelligent process control and machine learning to automatically adapt and optimise operations — what Nestlé calls 'zero-touch' manufacturing, enabling real-time adjustments with limited human intervention for better efficiency, consistency, and quality.

Dynamic Quality Assurance

Next-gen inline sensors replace end-of-line sampling. ML models update quality thresholds continuously from live data — measurable gains in yield, consistency, and line efficiency.

Digital Twin at Factory Scale

Nestlé uses digital twins to virtually commission manufacturing lines (e.g. Nescafé Dolce Gusto Neo) and runs a single ERP backbone connecting approximately 90% of Nestlé's 335 factories.

07 CONSUMER INSIGHT & MARKETING

Personalised Nutrition at Scale

Connected devices — from smart appliances to the Petivity IoT cat health ecosystem — use real-time behavioural and physiological data to generate individual dietary and health recommendations.

VR Consumer Testing & Prototyping

Sensory panels and product validation run fully in virtual reality — removing physical prototyping cost and enabling global consumer research at scale. Applied live on Nescafé Dolce Gusto Neo.

Advanced AI insight conversion

Advanced AI models scan and synthesise scientific literature and proprietary data — converting research signals into actionable product and formulation insights, faster than any manual process.

Source: Porsche Consulting, Nestlé Press Release, 14 May 2025, Nestlé Digital Innovation page, Nestlé × IBM Packaging AI, IBM Regression Transformer, Nature Machine Intelligence, Nestlé Annual Report 2025

Case study

Givaudan

ACHIEVEMENTS WITH AI IMPLEMENTATION

+12.5% Group sales growth

Group sales 2025 (CHF 7.4B) vs 2023

+10 years foresight horizon

AI anticipating future F&B consumer shifts

20 yrs. of proprietary R&D data

Underpinning ATOM AI flavour formulation

9.000 hours saved in a year

thanks to Ooby Marketing Platform

AI as a System-Wide Growth Engine at Givaudan

03 FOOD & INGREDIENT DEVELOPMENT

07 CONSUMER INSIGHT & MARKETING

WHERE AI PLAYS

ATOM: AI formulation on +20 yr. data

Givaudan's Advanced Tools for Modelling (ATOM) **apply AI built on over two decades of proprietary research to optimise food and flavour formulation**. The system identifies positive and negative flavour drivers, explores ingredient synergies and generates formula options aligned with consumer preferences, compressing time to market.

Customers foresight: industry first AI future scaping

Customers Foresight is Givaudan's proprietary future scaping platform, built in-house combines human expertise, big data, and AI to anticipate industry disruption, foresee consumer expectations, and shape winning food experiences. **The platform helps customers understand and prepare for shifts in consumer behavior, informing strategic planning** and opening co-creation opportunities.

Ooby as productivity booster

Ooby™ is Givaudan's AI-powered creative platform, that generates category-specific, on-trend concepts in seconds. Trained with a mix of external and proprietary Givaudan data, Ooby™ compresses steps that used to take days or weeks into minutes: starting from a single keyword, persona, or mood, the platform proposes dozens of concept directions, guiding users through every item in the marketing mix.

KEY SUCCESS FACTORS

Givaudan has looked for the **real sweet spot for AI**, which **is Testing**, by harnessing the unrivalled AI's **processing power and speed**. ATOM's first applied case: reformulating a cheese snack to reduce salt. The AI identified the ideal recipe, delivering 33% less salt, from a much smaller range of options. In blind taste testing the reduced-salt version scored equally to the original. The same approach has since succeeded in sugar reduction, vanillin replacement, and meat-alternative projects.

Customer Foresight pairs AI with expert "Futurescapers", the **human intermediary between platform output and commercial application, secure ultimate quality**. As it keeps learning through AI, Consumers Foresight is designed to extend its foresight a decade or more into the future.

Givaudan unveiled its Digital Factory (where Ooby was developed) in the Saint-Lazare district of Paris in October 2024. **A dedicated team of 30 professionals in technology innovation** — including data scientists and analysts, software engineers, and customer success managers — drives digital transformation initiatives from the site.

VALUE DELIVERED

With 2024 full-year sales of CHF 7.4 billion, up 12.3% LFL vs 2023, exceeding the 4–5% strategic target, **Givaudan demonstrates that AI embedded in the core innovation model drives measurable commercial performance**. Average LFL growth of 6.8% over the full 2021–2025 strategy period confirms the return on a digitally-led business model.

The platform **helped a customer reverse declining growth in carbonated soft drinks in an emerging market**: AI clustered signals across demographic, social and economic drivers; "Futurescapers" mapped these into actionable product scenarios.

Once launch, **more than 300 projects across beverages, snacks, confectionery, and dairy have been created with Ooby worldwide**. Over 70% of Givaudan's marketers now use the platform daily, turning it from a prototype into a go-to creative tool.

Source: Porsche Consulting, based on Givaudan Annual Report & Media Releases (ATOM Feb. 2021; Customer Foresight May 2023; Digital Factory Oct. 2024; Full Year Results Jan. 2025 & Jan. 2026); Premium Beauty News, Mar. 2025; Perfumer & Flavorist, Oct. 2024; Confectionery Production, May 2023, AI-powered Ooby™: a creative ally in food and beverage innovation | Givaudan Integrated Report, Customer Foresight futurescaping platform | Givaudan, Customer Foresight: looking beyond the horizon | Givaudan, (20) Post | LinkedIn, Givaudan opens new space in Paris for its Digital Factory | Givaudan

// HOW? AI IMPLEMENTATION

Case study

BÜHLER

ACHIEVEMENTS WITH AI IMPLEMENTATION

~80 Mills already AI-monitored
Continuously tracked & self-maintained

17% energy saving
+ relevant impact on food waste reduction

5–10% extra saleable product
hundreds of thousands $ in extra revenue

2% to 5% boost in OEE
Overall Equipment Effectiveness

Building the Autonomous Plant: AI Across Milling, Sorting & Asset Care

03 FOOD & INGREDIENT DEVELOPMENT

● Bühler SmartMill

WHERE AI PLAYS

Across an **estimated 80 Bühler mills**, cloud-based AI already **tracks performance around the clock and flags both the problem and the fix** — no analyst required.
Direct return: fewer unplanned stops and faster decisions, starting today.

KEY SUCCESS FACTORS

The success factor of the Bühler SmartMill program is its incremental, **step-by-step approach to digital transformation**, which prioritizes strong operator engagement, advanced automation technologies and a reliable data foundation. Rather than forcing a sudden, disruptive overhaul, Bühler treats the transition to an autonomous mill as a continuous journey.
A mill that runs itself with zero human input is still years away, anyway what is described above is already running.

VALUE DELIVERED

At a handful of sites, AI now watches every roller stand and adjusts settings itself to protect yield and quality, live. One flagged case pointed to a **17% energy saving on that stand** — a single example, not yet a fleet-wide average.
This has an **enormous impact also on food waste** (as known 1/3 of food produced is wasted, and that drives 8–10% of global emissions - UNEP).

04 FOOD PROCESSING & MANUFACTURING

● Deep learning on food processing quality

SORTEX AI700 **uses deep learning** (trained on millions of images) **to spot defects** by colour, shape and texture, replacing manually-set sorting rules with a system that learns on its own.
For oats, it removes far more barley, wheat and rye — the allergenic grains — than before, while rejecting less good product at the same time.
Direct return: **more sellable oats from the same raw material.**

Commercially launched in May 2025, the success in the implementation of SERTEX AI700 lies in the **gradual transition from traditional engineer-driven machine learning to advanced Deep Learning** powered by Convolutional Neural Networks.
It catches what older sorters miss, increasing profitability and yield.

Better sorting plus less rejection of good product means more usable output from the same input, today. Bühler estimates a **5–10% gain in usable product per year** — worth **hundreds of thousands of dollars in extra revenue.**

● Bühler Roll Asset Management (BRAM+)

Bühler already handles roll refurbishment, stock, delivery and spare parts as one service (BRAM), keeping chocolate-refining rolls in peak condition. As an add-on **(BRAM+), a smart sensor and algorithm already read roll condition and flag the ideal replacement moment** — turning maintenance from a fixed calendar into a data-driven call, avoiding both early and late swaps.

The AI solution is integrated and bundled with the installation and service contract of the equipment, cutting admin work for operators while protecting refining performance and roll life — without a separate maintenance team.

Actual results from BRAM+:
- Up to **30% reduction in unplanned downtime**
- **50% faster roll turnaround** times
- **2% to 5% boost** in overall equipment effectiveness (**OEE**)

Source: Porsche Consulting, Bühler AG, SmartMill Whitepaper, Carbon Brief (UN/FAO data) ▪ UNEP Food Waste Index Report 2025, Bühler Group press release May 2025, Product Manager SORTEX AI700, Bühler Group, BRAM/BRAM+ service page

Case study

DANONE
ONE PLANET. ONE HEALTH

ACHIEVEMENTS WITH AI IMPLEMENTATION

25% uplift in sales on fresh dairy

For YoPRO, AI conducted multilingual interviews with 320 consumers across 4 markets, analysing 6,400 feedback

2,000+ R&I experts

40+ countries

40% Faster batch release

leveraging formulation digital twins

AI Academy in 34 Countries

€30M invested over 5 years in Singapore D-Lab, to deploy globally AI Health Tools

AI as a System-Wide Science and Growth Engine at Danone

	03 FOOD & INGREDIENT DEVELOPMENT	04 FOOD PROCESSING & MANUFACTURING	07 CONSUMER INSIGHT & MARKETING
WHERE AI PLAYS	**Digital twins to simulate nutrition formulations**	**Predictive maintenance: Smart sensors cuts unplanned downtime**	**First-Party Data Powers AI demand forecasting**
KEY SUCCESS FACTORS	**Danone uses digital twin models to simulate biological responses, predict protein structure and optimise formulas in terms of stability and texture**. Fermentation processes are replicated digitally, with in silico formulation replacing physical testing. For milk filtration, artificial intelligence identifies optimal configurations whilst eliminating unnecessary testing, thereby shortening innovation cycles and improving the precision of clinical nutrition. Danone secured strategic partnerships to secure solid scale-up. In 2025 co-founded the Biotech Open Platform with Michelin and DMC Biotechnologies, **investing over €16 million in AI precision-fermentation scale-up facility** in Clermont-Ferrand. The initiative highlights a critical success factor for next-generation food and ingredient development: enabling industrial-scale validation of promising biotechnology innovations that have already proven their technical feasibility in the laboratory	**Danone deployed AI-enabled predictive maintenance powered by continuous real-time equipment monitoring and AI computation** for scenario simulation. Smart vibration and temperature sensors continuously collect machine-health data, allowing Danone to detect anomalies and predict failures before they occur rather than relying on scheduled manual inspections. **Danone announced a structural multi-year collaboration with Microsoft** — supply chain (predictive forecasting, digital twinning), manufacturing (predictive maintenance, GenAI operational chatbots), procurement (GenAI for contract and vendor intelligence). Plus the establishment of Danone AI Academy: 34 countries, 60 sites, 250 AI Champions — **AI literacy treated as a core operating capability, not a technology rollout**.	**Danone combines retailer transaction data and enriched consumer datasets with AI-powered quantitative analysis** to identify target segments, understand purchasing behaviour and optimise demand forecast, pricing and campaigns. Fresh dairy is Danone's hardest forecasting challenge: short shelf lives, >30% of volume through promotions, demand driven by weather, media and POS signals. AI platform results: −20% forecast error, −30% lost sales, +10 pts promotion ROI, −50% demand planner workload. **Danone adopted Databricks Data Intelligence as enterprise data foundation** ('OneSource 2.0') — Unity Catalog governance + AI/BI Genie natural language ('Talk to Your Data'). Resulting in data-to-decision time −30%; data ingestion pipeline ~2 weeks → 1 day; automated data accuracy ~95%. Provides the governed, AI-ready data layer underpinning all AI use cases across the organisation.
VALUE DELIVERED	**Danone combined AI, microbiome science and proprietary biotic assets to accelerate ingredient discovery** and reduce the time required to identify, validate and commercialize novel gut-health ingredients, **with 40% faster batch release**	**Improved manufacturing reliability** and operational efficiency. • **25% Maintenance backlog reduction** • 50% Fewer physical site walkthroughs: • 7.3% Total supply Chain cost reduction	**Danone gained** faster, deeper consumer understanding and used the insights to refine **YoPRO's positioning and messaging**. Separately, a data-collaboration campaign with a major retailer generated a reported **25% uplift in combined online and offline sales.**

Source: Porsche Consulting, Danone & Microsoft AI Collaboration Press Release; Danone Mission Committee Report (Apr-2025); Danone Biotech Open Platform Press Release with Michelin & DMC Biotechnologies; Databricks Customer Story & OneSource 2.0 (Apr-2025); CIO Online interview on OneSource 2.0 and "Talk to Your Data" (May-2025); Bolt Insight / YoPRO Consumer Research Case Study (2025); Danone Facts & Figures; Danone R&I and Microbiome Innovation Communications

// HOW? AI IMPLEMENTATION

Core capabilities and a collaborative operating model are the key basics to achieve successful AI implementation and benefits

From the analysis of the current best practices in the market, 7 key Capabilities (basics enabler for AI) have been identified:

01

TASK CLASSIFICATION & HUMAN OVERSIGHT DESIGN

Gain competitive advantage by integrating AI into selected core processes / tasks and industry's white spot applications. Tasks is crucial as benefits can't be get for model limitations, legal constraints or need for human verification steps.

02

DATA FONDATION SET-UP

Structuring a robust, clean and reliable data knowledge source for AI training and output generation. Data must be secured with a clear "Data strategy", aimed to reclassify and link decades of business data spread across the organization.

03

INFRASTRUCTURES RUMP-UP & API INTEGRATION

Many tasks work only when tooling and APIs are built around the model, not the model alone. The selection of the platform and the technology stack must allow future developments whilst striking a balance with current requirements.

04

ORGANIZATIONAL & GOVENRANCE EVOLUTION

Organisational structure must reflect the new AI tasks and evolve roles and responsibilities (particularly in case of human oversight). Governance model must cover dynamic make-or-buy strategy of AI add-ons and manage the AI budget (token consumption and monitoring).

05

AI CHANGE ADOPTION & DIFFUSION

Drive cultural change and achieve AI at scale by qualifying all employees to utilize off-the-shelf solutions in the best possible way (e.g. self-service tools, master class and competence centre). Expand the change also in external communication to customers and consumers.

06

AI COMPETENCE CENTER

AI-literate workforce that embraces change transforms innovation adoption into a cultural strength rather than a barrier. Dedicated team of professionals in AI tech innovation (data scientists and analysts, software engineers, CX designer) that drives AI initiatives from the site.

07

LEGAL & REGULATORY CLEARANCE

Analyze, reflect and react on latest regulatory about AI, defining internal thresholder in AI task, human responsibility and general assessment of risk related to AI. Ensuring that feasible tasks do not stall on legal barriers.

Source: Porsche Consulting

// HOW? AI IMPLEMENTATION

Core capabilities | Prioritizing corporate tasks to unlock AI potential

01

TASK CLASSIFICATION & HUMAN OVERSIGHT DESIGN

Gain competitive advantage by integrating AI into selected core processes / tasks and industry's white spot applications. Tasks is crucial as benefits can't be get for model limitations, legal constraints or need for human verification steps.

Stats & pills on the capability

- Most F&B AI applications and tasks (65%) are classified as reasonable risk under the EU AI Act

INCREASING AI AUTONOMY

HUMAN LED DECISIONS

AI provides **recommendations only**

Decisions are made by **individuals**

Train users to validate AI outputs and document decisions

RULE-BASED AI DECISIONS

AI **executes within** clear predefined **rules**

Non-standard cases are escalated to humans

Monitor performance and drift with regular control reviews

AUTONOMOUS AI DECISIONS

AI makes **decisions** end-to-end

Decisions operate within defined **policies and guardrails**

Build guardrails, a kill switch, and real-time supervision

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook

// HOW? AI IMPLEMENTATION

Core capabilities | Data strategy and architecture set-up for AI enabling

02

DATA FONDATION SET-UP

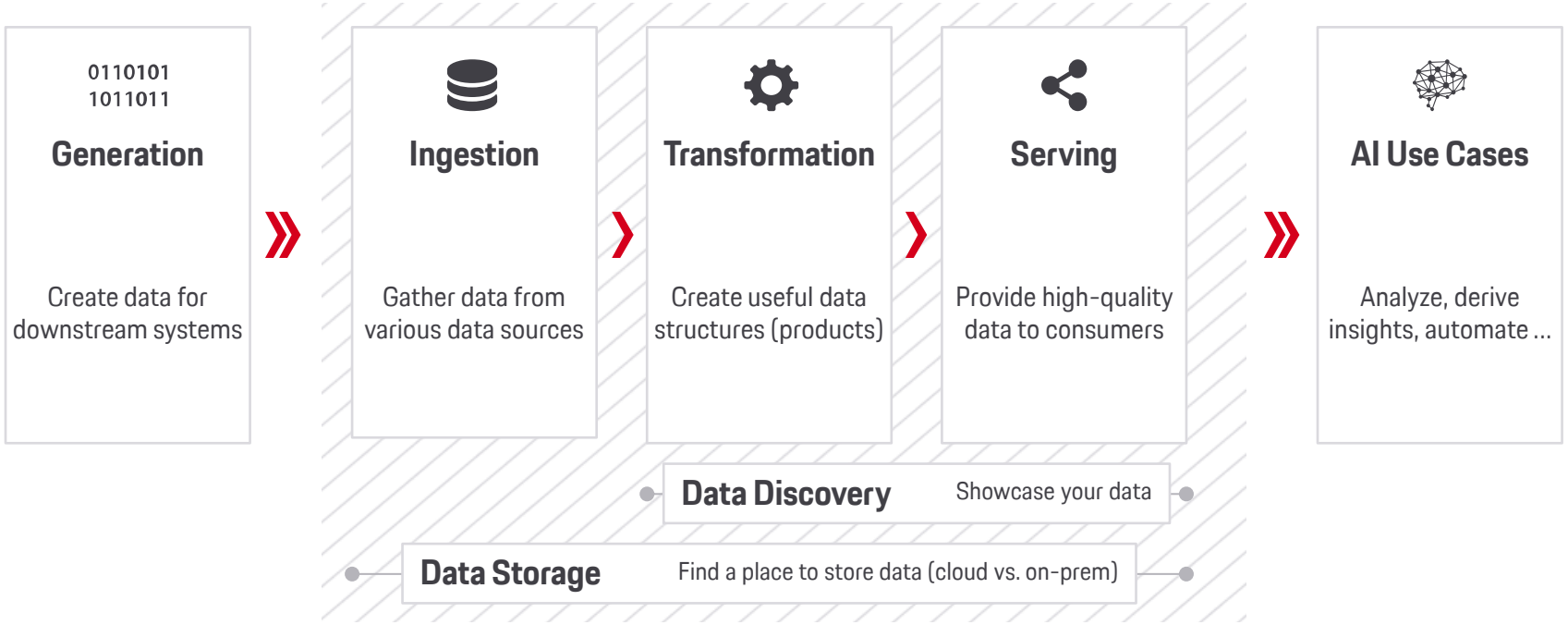
Structuring a robust, clean and reliable data knowledge source for AI training and output generation. Data must be secured with a clear "Data strategy", aimed to reclassify and link decades of business data spread across the organization.

Stats & pills on the capability

- Building a standard data centre costs US$10.0–15.2 per watt in leading European hubs'
- In 2025, the average global data centre construction cost was US$10.7 million per MW
- Operating a mid-sized data centre can cost US$10–25 million annually, with cooling alone accounting for US$1.9–2.8 million per MW per year

AI DATA FOUNDATION

A robust data engineering pipeline ensures that high-quality data is available for your AI use case



Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook, JLL, 2026 Global Data Center Outlook (jll.com, pubblicato 5 gen 2026)

// HOW? AI IMPLEMENTATION

Core capabilities | Tech stack and infrastructure investment for AI scaling

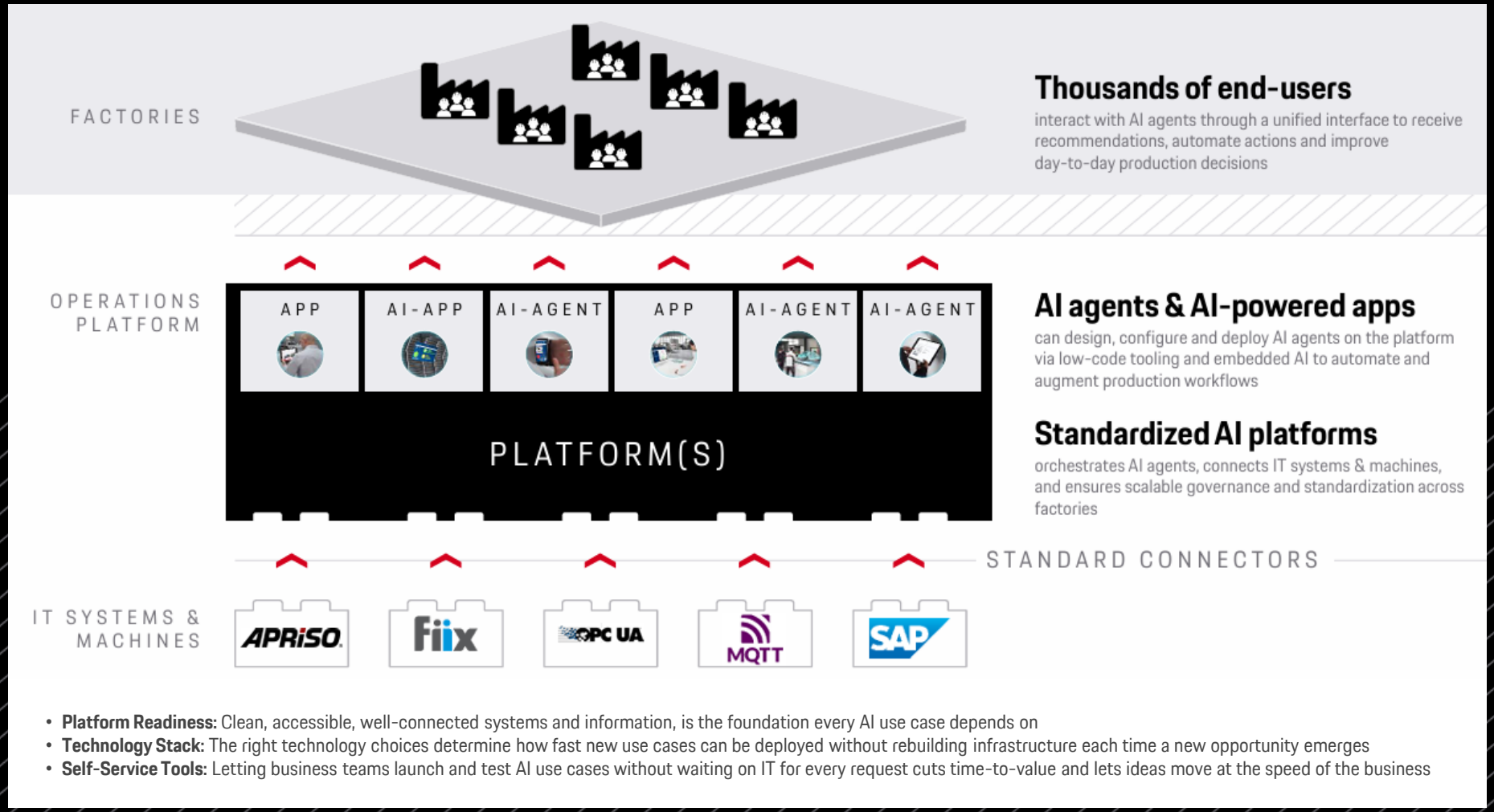
03

INFRASTRUCTURES RUMP-UP & API INTEGRATION

Many tasks work only when tooling and APIs are built around the model, not the model alone. The selection of the platform and the technology stack must allow future developments whilst striking a balance with current requirements.

Stats & pills on the capability

- The AI market in the F&B sector was valued at US$11.7 billion in 2024 and is projected to reach US$320 billion by 2034
- AI payback periods typically range from two to four years—three to four times longer than those of traditional technology investments
- 83% of F&B manufacturers plan to increase AI spending in 2025



- **Platform Readiness:** Clean, accessible, well-connected systems and information, is the foundation every AI use case depends on
- **Technology Stack:** The right technology choices determine how fast new use cases can be deployed without rebuilding infrastructure each time a new opportunity emerges
- **Self-Service Tools:** Letting business teams launch and test AI use cases without waiting on IT for every request cuts time-to-value and lets ideas move at the speed of the business

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook

// HOW? AI IMPLEMENTATION

Core capabilities | Evolved organization and operating model to embed AI use cases across the functions

04

ORGANIZATIONAL & GOVENRANCE EVOLUTION

Organisational structure must reflect the new AI tasks and evolve roles and responsibilities (particularly in case of human oversight). Governance model must cover dynamic make-or-buy strategy of AI add-ons and manage the AI budget

Stats & pills on the capability

- 62% of food/FMCG executives expect AI to radically reshape operating models, but only 38% have started the transformation
- Only 41% of food & beverage companies have formal enterprise AI programs, while employee AI usage is already widespread, creating a growing governance and compliance challenge

Business need	Entities, properties & compliance	Ownership & governance	Data management
• Use-cases data inter-linkage • Data business scope • Data granularity rules	• Core entities & business def. • Uniqueness rules • Properties • Data compliance	• Owner per entity • Source system • Update frequency • Token consumption and monitoring	• Storage layer • Data structure • Partitioning • Life-cycle
Derive data needs from use-cases Clear data development across function, and data connection, will empower collaboration, data trust and sharpness	**Define data feeding and maintenance** The Digital Omnibus (2025) proposes consolidating the GDPR, the Data Act and the AI Act into a unified regulatory framework, reducing the compliance burden for enterprises	**Define clear AI task ownership** Dedicated AI workstream owners and robust governance standards enable high-quality AI outputs to scale consistently across business units	**Data architecture at the basis of scaling** Clean, integrated data and systems, supported by sufficient computing capacity, form the foundation for successful AI deployment

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook, JLL, 2026 Global Data Center Outlook (jll.com, pubblicato 5 gen 2026)

// HOW? AI IMPLEMENTATION

Core capabilities | Drive cultural change to diffuse AI at all organization level

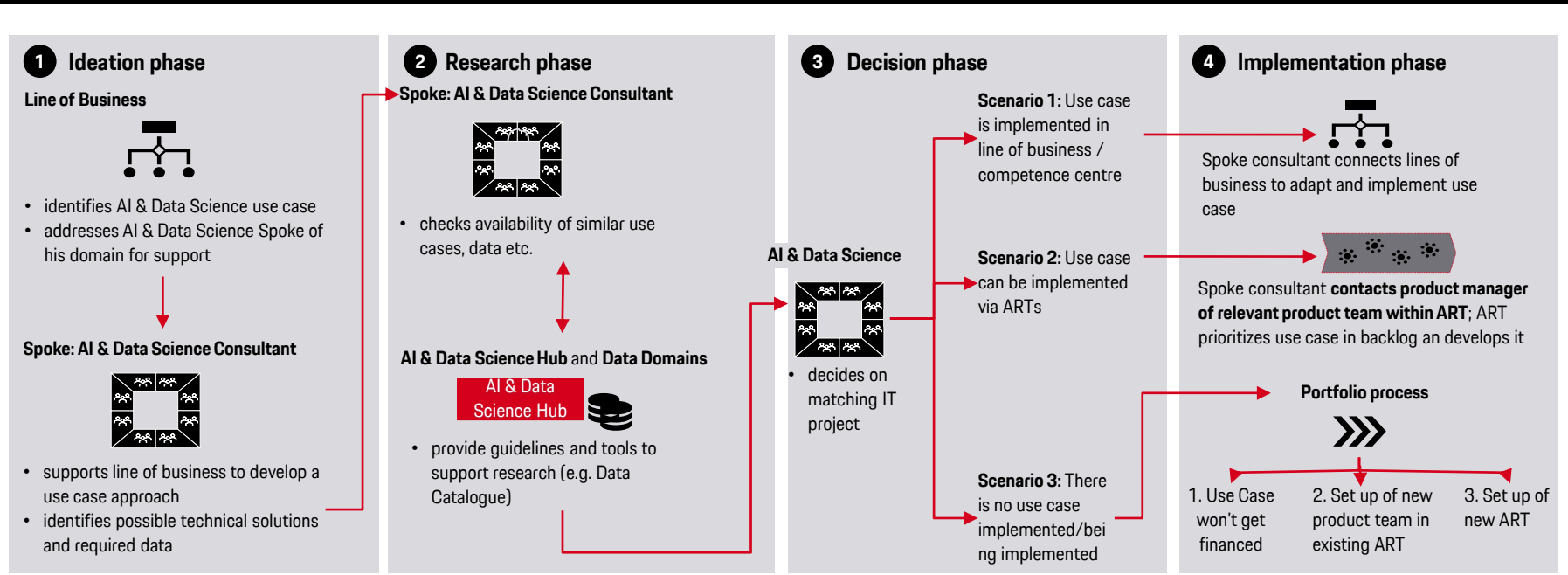
05

AI CHANGE ADOPTION & DIFFUSION

Drive cultural change and achieve AI at scale by qualifying all employees to utilize off-the-shelf solutions in the best possible way. Expand the change also in external communication to customers and consumers.

Stats & pills on the capability

- 53% of shoppers use AI for food-related needs, including recipe discovery, price comparisons, nutritional information and meal planning
- AI-driven personalised nutrition is emerging as a leading trend, with the market projected to grow at a CAGR of 27.2% through 2033
- 39% of consumers now consider AI a key factor in their purchasing decisions for consumer goods



- **Value Realization Framework** — Define AI value in business terms — revenue growth, cost reduction, time saved — and apply a consistent, repeatable methodology to evaluate every use case against the same criteria. This turns value tracking from an ad-hoc exercise into a structured discipline that scales with the portfolio.
- **Portfolio Prioritization and Scaling** Rank use cases against that framework to decide which move from pilot to company-wide deployment, and which get deprioritized before they consume further resources.
- **Drive cultural change** and achieve AI at scale by qualifying all employees to utilize off-the-shelf solutions in the best possible way (e.g., CoPilot, ChatGPT, ...

- **Hybrid Organization** — Domain-oriented teams paired with a central platform
- **Roles & Responsibilities** — Clear decision rights at each level — strategic (who owns which data domain), organizational (DataOps teams), technological (who maintains interoperable interfaces)
- **Make-or-Buy Strategy** — Build a self-serve data platform only where it creates real differentiation; buy proven data products and tools everywhere else.
- **Budget & Resource Sizing** — Size investment in platform and governance capabilities to expected business value, not to internal pressure or urgency.
- **Token Consumption Monitoring** — Automated policies and a data catalog keep usage and spend trackable in real time.

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook, FMI Grocery Shopper Snapshot, 1,518 US shoppers, Jan 2–6, 2026]

// HOW? AI IMPLEMENTATION

Core capabilities | Enhance adoption via dedicated AI competence centre

06

AI COMPETENCE CENTRE

AI-literate workforce that embraces change transforms innovation adoption into a cultural strength rather than a barrier. Dedicated team of professionals in AI tech innovation (data scientists and analysts, software engineers, CX designer) that drives AI initiatives from the site

Stats & pills on the capability

- 26% of large enterprises now have a dedicated Chief AI Officer (CAIO), up from 11% two years ago, reflecting the shift from AI experimentation to enterprise-wide governance and value realization
- Leading consumer-goods companies are increasingly adopting federated AI governance structures, combining a central AI CoE with distributed business-unit ownership

Overview of role interaction with the AI Competence Centre

Domain Roles

DOMAIN ROLES:
Location: Domain
Competency: Domain Know-How with basic understanding of data (e.g. basic training)

Business Analyst

BUSINESS ANALYST:
Location: Domain
Competency: Domain Know-How with additional data competency requirements (e. g. Upskilling)

Data Analyst

Data Scientist

DATA ANALYST:
Location: Domain
Competency: MINT + Business Administration with Data & AI competency (e. g. Upskilling)

DATA SCIENTIST:
Location: IT & Domain
Competency: MINT + Experience Data & AI

AI Engineer

Data Engineer

DATA - / AI ENGINEER
Location: IT
Competency: Computer Science, Software & IT Architecture Understanding / Experience

[BUSINESS UNIT]
Requirement of specific specialist domain know-how

Requirement of specific AI know-how [AI COMPETENCE CENTRE]

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook, FMI Grocery Shopper Snapshot, 1,518 US shoppers, Jan 2–6, 2026]

// HOW? AI IMPLEMENTATION

Core capabilities | Secure compliance to AI regulatory frame

07

LEGAL & REGULATORY CLEARANCE

Analyze, reflect and react on latest regulatory about AI, defining internal thresholder in AI task, human responsibility and general assessment of risk related to AI. Ensuring that feasible tasks do not stall on legal barriers.

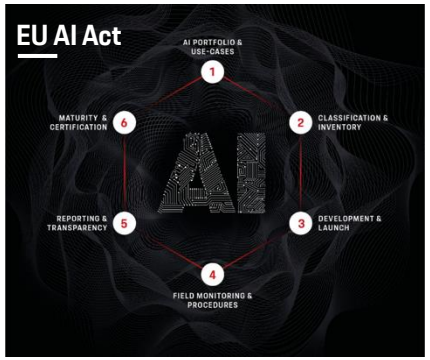
Stats & pills on the capability

- EU AI Act and regulatory clarity positively linked to firm-level AI adoption
- The Digital Omnibus (2025) proposes consolidating the GDPR, the Data Act and the AI Act into a unified regulatory framework, reducing the compliance burden for enterprises

Regulatory compliance & Responsible AI

Country-specific AI regulations & compliance

EXTRACT



- AI portfolio & use cases
- Classification & inventory
- Development & launch
- Field monitoring & procedures
- Reporting & transparency
- Maturity & certification

US AI Safety Institute (by NIST)

- **Federal AI Regulation** (e.g. Algorithmic Accountability Act)
- **Executive Order 14110** (e.g. Responsible AI development)
- **NIST AI Risk Management Framework** (e.g. AI risk mgmt.)
- **State and Municipal AI Regulation** (e.g. CA, CT, IL, TX, NY)

- **Algorithmic Recommendation Management Provisions** (e.g. utilization of algorithmic recommendation systems)
- **Interim Measures for the Management of Generative AI Services** (e.g. GenAI technologies)
- **Deep Synthesis Mgmt Provisions** (e.g. deep synthesis techn.)

Responsible AI

EXAMPLE



AI technologies & tools

- AI technologies and tools usage standards
- AI development and deployment guidelines
- AI risk management for technologies and tools

AI culture

- AI Code of Conduct ("ethical AI principles")
- AI events and active employee involvement
- AI innovation council and dedicated representatives

AI capabilities

- Technical AI capabilities
- Human-AI-driven capabilities
- Roadmap for future positioning and people development

Source: Porsche Consulting, European Commission, Euromonitor, Eurostat, Pitchbook

The 'make or buy' decision, in relation to the use cases analysed so far, opens up a range of competitive and risk scenarios. In a fast-evolving context buying beat making, but is this always the case?

USE CASES IDENTIFIED ALONG FOOD VALUE-CHAIN IN FOCUS

03 FOOD & INGREDIENT DEVELOPMENT

Virtual Testing & Liking Prediction, Generative, Flavour & Recipe Design, Novel Molecule Discovery, Digital-twin Reformulation

04 FOOD PROCESSING & MANUFACTURING

Computer Vision Quality inspection, Physical Automation & Robotics, Predictive Maintenance, Food-Safety & Risk Decision Layer, Real-Time Process Optimisation

07 CONSUMER INSIGHTS

Predictive Trend Detection, Generative Marketing & Personalised Content, Agentic Commerce & Commercial Activation, Claim Verification & Governance, Signal-Driven Demand Forecasting

THE STARTUP MARKET HAS MATURED THANKS TO THE WHIDE COLLABORATION

MOLECULE DISCOVERY

Shared scientific platforms developed in collaboration with various global companies. Whilst ensuring a competitive advantage in terms of flavours and formulations IP, which the company does not licence out

QUALITY INSPECTION

"Turnkey on shelf" models specifically designed to identify defects in specific product categories, fine-tuned line by line through implementation on a plant-by-plant basis

PREDICTIVE MAINTENANCE

Proprietary model converted in open models trained on failure data pooled across many companies and plants, not one

CLAIM VERIFICATION

Shared compliance registries spans 1,600+ brands, 81,000+ products, cross countries securing international registration & patents

TREND DETECTION

Active vendor platforms can scan 75B social posts + 1T transaction (sell-in / sell-out) to predicts trends and share real time results, securing consumers 'data compliance and privacy



The following slides present a 'make-or-buy' analysis of the use cases identified across the three focus clusters of the value chain

Source: Porsche Consulting

Make or Buy | Food & Ingredient Development use cases (1/2)

FOOD & INGREDIENT DEVELOPMENT

Virtual Testing & Liking Prediction

AI models that predict consumer sensory liking (taste, texture, aroma) from formulation and panel data, replacing physical taste-panel rounds before prototypes are built.

DISCRIMINANT

Panel testing volume & category breadth (not size)

The real question isn't headcount or revenue — it's whether the company runs enough CLT/HUT studies, across enough categories, to accumulate the 5+ years of structured panel data a proprietary layer needs. A large company that tests infrequently or in a single category stays a rational buyer; a fast-scaling, multi-category innovator can rationally justify building once that data threshold is crossed.

MAKE

Who can do this:
LARGE ENTERPRISE / TECH-FORWARD

- A critical mass of structured Central Location Test (CLT) / Home Use Test (HUT) panel data, tagged by formulation, demographic and market, where volume and category breadth determine readiness, not time elapsed
- A licensed base predictive engine to train a proprietary layer on top of, plus MLOps infrastructure — model monitoring and retraining pipelines — to keep predictions accurate as formulations chang
- A sensory scientist embedded with the data team to validate model output against real panels

Below this data threshold, the proprietary layer performs no better than a generic vendor tool — it's a data-volume problem, not a maturity one.

BUY

Who buy this:
SME / LARGE ENTERPRISE

FlavorWiki
A GPI Company

- A vendor contract with a data-use clause: the vendor cannot train other clients' models on your formulation data
- 10–15 trained tasters to seed the vendor's model for your first product category
- One validation round against a real panel before relying on the tool for launch decisions

Speed-to-market and lower fixed cost outweigh ownership — building here without the data asset is the most common wasted-spend mistake.

Generative Flavour & Recipe Design

Generative AI models that create novel flavour combinations, ingredient systems and product recipes from formulation, sensory and consumer data, enabling digital ideation and screening before physical prototyping begins.

DISCRIMINANT

Formulation complexity & recipe scale

MAKE pays off when a company runs continuous, multi-brand reformulation pipelines: every new recipe adds to a proprietary ingredient knowledge graph that competitors cannot replicate, and that graph compounds with each cycle. BUY is the rational choice for single-category or single-brand innovation: a commercial platform delivers the same speed and quality gains without the fixed cost of building and maintaining the underlying engine.

MAKE

Who can do this:
LARGE ENTERPRISE / TECH-FORWARD

- A critical mass of formulation, recipe, sensory and consumer insight data — structured across categories, markets and brands — where volume and category breadth determine readiness, not time elapsed
- A proprietary ingredient knowledge graph linking ingredients, functionalities, flavor attributes, processing constraints and costs
- Flavor scientists, food technologists and AI engineers embedded together to continuously validate and retrain models against real-world formulation and sensory outcomes

The economics only work when formulation knowledge is already a strategic asset. The objective is not faster ideation alone but creating proprietary product-design capability that compounds with every new recipe and sensory observation.

BUY

Who buy this:
SME / TRANSITIONING CPG

NotCo

- Access to a commercial generative formulation platform with strong data-protection and IP-ownership provisions
- Internal R&D and flavor teams capable of evaluating and refining AI-generated concepts before development
- Limited proprietary data requirements; the company primarily contributes product objectives, constraints and brand guidelines

Speed-to-market and lower fixed cost outweigh ownership. Most food companies lack the formulation data, knowledge graph and AI capabilities required to create a differentiated generative engine, making external platforms the lower-risk route to value.

Source: Porsche Consulting

Make or Buy | Food & Ingredient Development use cases (2/2)

FOOD & INGREDIENT DEVELOPMENT

	MAKE	BUY
Molecule & Bioactive Discovery AI that mines DNA, protein, enzymes and molecular libraries to predict which naturally occurring compounds will deliver a target health or functional benefit — before any wet-lab screening begins. **DISCRIMINANT** **Depth of scientific specialization** Co-developing is key in this sector since bioactive discovery requires a science stack (genomics, computational chemistry, wet-lab validation) that sits structurally outside food R&D. The only 'Make' path is a company for whom discovery itself is the core business	Who can do this: **INGREDIENT DISCOVERY SPECIALIST** novonesis • A proprietary peptide/molecular library at the scale of millions of characterized entries, built from hundreds of millions of lab-validated screening experiments — not a curated shortlist • Bioactive discovery requires a science stack — genomics, computational chemistry, wet-lab validation — that sits structurally outside food R&D. The only 'Make' path is a company for whom discovery itself is the core business. Only pays back if discovery is the company's actual business model — not a single ingredient launch.	Who buy this: **CPG OR INGREDIENT HOUSE (ANY SIZE)** • A licensing or co-development agreement with a discovery specialist, scoped to a specific health target or functional claim • Internal capacity to run or commission the preclinical/clinical validation the partner's discovery doesn't cover The science stack (genomics, cheminformatics, wet-lab screening) sits outside core food R&D at any company size — even Nestlé partners rather than builds.
Digital-Twin Reformulation AI-guided simulation that models thousands of reformulation combinations — recipe, process, cost, nutrition — virtually, closing the loop between formulation and plant-scale outcome before a single physical trial run. **DISCRIMINANT** **Integration depth** Even the largest enterprises rely on external self-driving-lab and simulation platforms rather than building the underlying AI engine — the make/buy decision itself isn't in question at any scale. What actually varies is integration depth. At the shallow end, a company uses the platform's standard, self-serve, no-code interface, running its own experiments through someone else's software. At the deep end, a company co-invests in a dedicated deployment built around its own equipment.	Who can do this: **DEEP FOOD-TECH ENTERPRISE** • A licensed simulation/self-driving-lab engine, with a proprietary layer trained on the company's own recipe, process and scale-up constraint data • An existing MLOps pipeline and food scientists running closed-loop validation — simulated batch vs. pilot-plant output — across a handful of iterations before committing to full-scale production" Tech-forward teams already run the infrastructure this needs — the marginal cost of extending it to reformulation is low, and it keeps formulation IP off a vendor's server.	Who buy this: **CPG LEGACY-TRANSITIONING** • A turnkey digital-twin or self-driving-lab subscription from an existing platform provider, scoped to one reformulation problem at a time • A contractual limit on the vendor's use of your process and scale-up data — specifically, no cross-client benchmarking that could expose your production parameters to competitors sharing the same platform Building simulation infrastructure from scratch is rarely justified for occasional, non-recurring reformulation needs.

Source: Porsche Consulting

Make or Buy | Food Processing & Manufacturing use cases (1/3)

FOOD PROCESSING & MANUFACTURING

Computer-Vision Quality Inspection

AI-powered sensors that inspect every unit at line speed, catching defects and contaminants that manual visual inspection misses or can't scale — including visible allergen fragments, though chemical residue still requires separate swab testing

DISCRIMINANT

Product-specific defect library depth

Standard defects on standard commodities — buy a turnkey machine, already trained on it. The moment defects are proprietary to the product itself (irregular shapes, brand-specific spec, unusual blemish types) and volume is high enough to amortize the build, in-house pays off.

MAKE

Who can do this:
OEMs / ENTERPRISE WITH PROPRIETARY DEFECT MODELS

- A proprietary defect library trained on years of the company's own product-specific imagery, not a generic vendor modelling
- In-house computer-vision/ML engineers who retrain models whenever SKUs, packaging, or supplier mix change
- Integration into the plant's existing line-control system, with a quality team validating model flags against real rejects

Only pays back when defect types are unique and proprietary to the product — irregular shapes, brand-specific spec, unusual blemish patterns — and volume is high enough to amortize a dedicated pipeline. For standard commodity defects, a turnkey solution is the solution.

BUY

Who buy this:
SME / SINGLE-PLANT OPERATION

- A turnkey optical sorter or vision system from an equipment OEM, with the defect model already trained on the commodity type
- A hardware/camera integration budget, without a dedicated in-house computer-vision team
- A service contract for periodic recalibration and retraining as regulations or defect types evolve

Building a proprietary CV pipeline for a single line rarely pays off when mature turnkey machines already exist for common defect types.

Physical Automation & Robotics

Robotic arms, grippers, and AI perception systems that pick, pack, palletize, and inspect on the line, replacing repetitive manual handling at scale

DISCRIMINANT

OEM/integrator dependency

Robotics is an OEM/integrator play at every size, including the largest enterprises that run dozens of robots per plant but still depends on external suppliers for the hardware, because food and beverage — unlike automotive — has no dedicated robotics engineering base. What a company can actually own is process design, line standards, and the data feedback loop.

MAKE

Who can do this:
OEM & TECH-FORWARD ENTERPRISE

- Requires process & data ownership
- Proprietary process-redesign and line-standardization playbooks, built from built from standardizing lines across multiple plants and SKUs — not any single deployment
- A data feedback loop connecting robot performance and downtime data back into future line-design decisions
- Enough SKU/plant volume to justify a dedicated internal robotics-integration function

Even the largest food players rarely build the robots themselves — the internal value sits in integration standards and data reuse, not hardware R&D.

BUY

Who buy this:
SME / LARGE ENTERPRISE

- Robotic arms, grippers, and AI perception modules bought directly from an OEM or systems integrator
- A systems-integration contract covering installation, line commissioning, and operator training
- A service/maintenance agreement rather than an internal robotics-maintenance team

Robotics hardware and AI perception are mature, commoditized OEM products — food companies buy the capability rather than engineer it.

Source: Porsche Consulting

Make or Buy | Food Processing & Manufacturing use cases (2/3)

FOOD PROCESSING & MANUFACTURING

Predictive Maintenance

AI models that analyze sensor data — vibration, temperature, sound, pressure — to flag equipment failures before they happen, shifting maintenance from reactive or scheduled to predictive

DISCRIMINANT

Vendor dependency

Even the largest, most sophisticated food manufacturers run predictive maintenance on licensed vendor AI platforms rather than a fully self-built engine. What differs by company size and maturity isn't whether the AI is bought, but how deep the internal reliability team's validation and integration work goes.

MAKE

Who can do this:
LARGE ENTERPRISE — HOMOGENEOUS FLEET

- A licensed AI/IoT sensor platform as the base layer, with a proprietary failure-pattern library trained on years of the company's own equipment history
- Internal reliability engineers who validate model alerts against real failures and feed corrections back into the mode
- IA large enough installed base of repeated, homogeneous equipment (same pumps, fillers, compressors across many plants) to make retraining worthwhile

Even the largest food manufacturers run on licensed vendor platforms rather than a fully self-built engine — the proprietary value sits in how failure history is validated and fed back, not in building the AI itself.

BUY

Who buy this:
SME / LARGE ENTERPRISE

ethon.ai

- A subscription to a vendor AI/IoT sensor platform (wireless vibration/temperature sensors + cloud analytics)
- Installation support from the vendor, with the model trained partly on the vendor's own cross-industry failure library, not just the buyer's plantA
- Internal technical owner to action alerts and integrate them into existing maintenance systems (e.g., SAP PM)

Sensor hardware and failure-pattern AI are mature vendor products — the value is fast deployment and cross-industry pattern libraries no single plant could build alone.

AI Food-Safety Decision Layer

AI that continuously screens food-safety signals — HACCP monitoring data, supplier records, cold-chain telemetry — and prioritizes which anomalies need human review, always under auditable human sign-off.

DISCRIMINANT

Cost of the last incident

This is safety-critical, so buying a validated monitoring/documentation layer is the default at any size. What pushes a company toward building its own decision-intelligence layer is an incident history expensive enough to justify it

MAKE

Who can do this:
LARGE ENTERPRISE

- A proprietary risk-alert system trained on the company's own incident and near-miss history, not just generic industry patterns
- A dedicated global food-safety leadership function with the mandate and budget to own the decision layer, not a plant-level tool
- Auditable human sign-off built into the system, so AI prioritizes and flags but a named person approves every corrective action

This tends to get built only after an incident expensive enough to justify owning the decision logic — the case for building follows the cost of failure, it doesn't precede it.

BUY

Who buy this:
SME / LARGE ENTERPRISE

- A cloud-based food-safety/traceability SaaS platform that auto-generates HACCP records, CCP monitoring logs, and lot-tracking from existing sensors
- Hardware integration limited to what the company already has (temperature loggers, pH meters), not a custom sensor build-out
- A qualified food-safety person who still reviews and signs off on every AI-flagged deviation

Building a proprietary risk-alert system rarely makes sense before a company has the incident history and dedicated function needed to train and own one.

Source: Porsche Consulting

Make or Buy | Food Processing & Manufacturing use cases (3/3)

FOOD PROCESSING & MANUFACTURING

Real-Time Process Optimization

AI that continuously tunes live production parameters — temperature, pressure, line speed, filtration — in a closed loop against yield, waste, and energy targets, rather than flagging problems after the fact

DISCRIMINANT

Number of replicable lines

The deciding factor is whether a trained model can be redeployed across many similar lines. AB InBev's filtration model paid off because it could scale from one brewery in Newark to breweries in 126 countries. A single-plant, single-process operation rarely generates enough replication value to justify building rather than buying

MAKE

Who can do this:
GLOBAL ENTERPRISE WITH IN-HOUSE TECH TEAM

- A cloud ML pipeline (built on a hyperscale's tools) combined with an internal team that owns the model and decides how to scale it
- Multiple similar production lines across a global network, so a model trained at one plant can be redeployed at dozens of others
- Enough historical process data (months of granular sensor readings) from the specific process step to train a proprietary model on worthwhile

Largest food manufacturers rarely designed a fully self-built engine — the proprietary value sits in how failure history, performance targets (KPIs) and validated feedbacks. More in general they run on licensed vendor platforms

BUY

Who buy this:
SME

ethon.ai

- A subscription to a vendor process-optimization platform trained across many manufacturers' processes, not just the buyer's own
- Existing line sensors/PLC data feeding directly into the vendor platform, without a custom data-science build-out
- Front-line operators empowered to act directly on the platform's recommendations, rather than a dedicated internal data science team

The AI and cross-industry process expertise already exist in mature vendor platforms — building an equivalent model for a single plant's process rarely pays back

Source: Porsche Consulting

Make or Buy | Consumer Insights use cases (1/3)

CONSUMER INSIGHTS

Predictive Trend Detection

AI that continuously scans social conversations, restaurant menus, recipes, and search behaviour to spot emerging flavours, ingredients, and consumer needs before they show up in category sales data

DISCRIMINANT

Vendor dependency

Even the largest, most sophisticated food manufacturers run predictive maintenance on licensed vendor AI platforms rather than a fully self-built engine. What differs by company size and maturity isn't whether the AI is bought, but how deep the internal reliability team's validation and integration work goes.

MAKE

Who can do this:
GLOBAL ENTERPRISE IN CODEVELOPMENT

Nestlé

- A trend-sensing model co-developed with an external social-listening specialist, but owned jointly with the company's own R&D and innovation pipeline
- Internal innovation teams who validate external signals against the company's own consumer research and sales data before greenlighting development
- A fast-track R&D process able to take a validated signal from detection to launch in under a year worthwhile

Pays back when a company launches often enough that shaving months off the signal-to-shelf cycle compounds across many products a year.

BUY

Who buy this:
VENDOR TREND-INTELLIGENCE PLATFORM

tastewise

- A subscription to a food-specific trend-intelligence platform that already aggregates social, menu, and retail signal data at scale
- No dedicated internal data-science team — insights teams interpret and act on vendor-delivered reports
- Access to the same signal layer used by category leaders, since the platform serves many CPGs at once

The underlying data collection (menus, social, recipes) is expensive to replicate alone and more valuable pooled across many brands.

Weather & Signal-Driven Forecasting

AI that combines historical sales, weather forecasts, local events, and geolocation data to predict store-level demand day by day, rather than relying on manual restocking or generic seasonal averages

DISCRIMINANT

Scale of stockout cost

Both routes reach mature accuracy gains from weather and event signals — the deciding factor is whether transaction volume justifies training and owning a proprietary algorithm. Most retailers, including large get equivalent gains faster by adopting an established vendor platform

MAKE

Who can do this:
GLOBAL ENTERPRISE WITH PROPRIETARY ALGORITHM

- A proprietary forecasting algorithm trained on the company's own historical retail sales data, not just a vendor's generic model
- A cloud partnership (weather feeds, geolocation data) integrated by an internal data team
- A direct channel pushing predictions to the field (e.g., automated messages to store managers) so the forecast actually changes restocking behavior

Pays back at a scale where even a few percentage points of stockout reduction translate into meaningful revenue across thousands of outlets

BUY

Who buy this:
ANY SIZE | VENDOR DEMAND PLATFORM

foodforecast

- A subscription to an established demand-planning platform, already trained across many retailers' weather/event/promotion data
- Existing POS and inventory data fed into the vendor system, without building custom weather-data pipelines
- Store or category teams acting on vendor-generated forecasts rather than maintaining an internal forecasting team

Weather-driven demand modeling is a mature, well-established vendor category — building an equivalent engine for one retailer's own use rarely beats a platform already trained across a much larger dataset.

Source: Porsche Consulting

Make or Buy | Consumer Insights use cases (2/3)

CONSUMER INSIGHTS

Claim Verification & Governance

AI that checks every health, nutrition, or sustainability claim against each target market's regulatory register — EFSA, FDA, FTC — before it goes on a label or into marketing copy, flagging what can't be said and what needs a qualifying disclaimer

DISCRIMINANT

Portfolio breadth across markets

Regulatory registers change too fast and too often for any single company to track more cost-effectively than a vendor serving many clients — buying is the default at almost any scale. Building a proprietary evidence graph only makes sense for a portfolio broad and multi-market enough to amortize it, which is why we couldn't verify a clean, publicly documented in-house build case

MAKE

Who can do this:
LARGE MULTI-MARKET PORTFOLIO

- A proprietary evidence graph linking every claim the company makes to its underlying scientific substantiation file, across every SKU and market
- Legal, regulatory, and marketing teams working from one shared source of truth instead of siloed spreadsheets per market
- A change-monitoring layer that flags when a regulatory update (e.g., a new EFSA ruling) invalidates a claim already in mark

Only pays back for a portfolio large and multi-market enough that the cost of building a proprietary evidence graph beats paying a vendor per-market, per-SKU.

BUY

Who buy this:
SME / LARGE ENTERPRISE

AUTHENA PROTECT AUTHENTICITY

- A subscription to a claims-compliance platform that checks label and marketing copy against multiple regulators' registers (EFSA, FDA, etc.) at once
- Existing product/ingredient data fed into the platform, rather than a custom regulatory database build
- A qualified compliance person who still reviews and approves every AI-flagged claim before it ships

Regulatory registers across 18+ markets change constantly — no single company can track them as cost-effectively as a vendor serving many CPG clients at once

Generative Marketing & Personalized Content

Generative AI that produces on-brand marketing copy, images, and localized ad variants at scale, with legal/brand-safety guardrails and human approval before anything ships

DISCRIMINANT

Content volume and localization need

The deciding factor is how much content a company needs to produce, in how many markets and languages, on an ongoing basis. Large corporations built proprietary brand-rules engines because they operate in 130+ languages and 180+ countries; a company producing far fewer localized assets per year gets equivalent lift from a vendor generative-copy platform without the build cost

MAKE

Who can do this:
GLOBAL ENTERPRISE / PROPRIETARY BRAND-RULES ENGINE

- A design-intelligence system trained on the company's own creative archive and brand guidelines, encoding brand rules into a reusable model rather than a one-off prompt
- 3D/digital-twin asset libraries of the company's own products, so content can be regenerated in new formats and languages without a new physical photoshoot
- A mandatory human-in-the-loop approval step before any AI-generated asset reaches the public, with legal and brand teams retaining final sign-off

Pays back only when content volume and localization needs are large enough — many markets, many languages, constant campaign cadence — to justify building a reusable brand-rules engine.

BUY

Who buy this:
SME / LARGE ENTERPRISE

- A subscription to a generative-copy platform that generates and tests content variants across audiences, without a custom brand-rules build
- Existing brand guidelines fed in as prompts/style references rather than encoded into a proprietary model
- A lighter internal review step, since the vendor platform is scoped to copy/messaging rather than full creative production

Building a proprietary brand-rules engine only pays off at multinationals content volume — most companies get sufficient lift from a vendor platform generating and testing copy variants.

Source: Porsche Consulting

Make or Buy | Consumer Insights use cases (3/3)

CONSUMER INSIGHTS

Agentic Commerce & Retail Sell-In

AI agents that negotiate, recommend, and transact on a company's behalf — representing the CPG toward retailers (sell-in), or representing the shopper toward the CPG's products (AI shopping assistants)

DISCRIMINANT

Retail footprint size

Instacart's ChatGPT integration means agents are already shopping groceries today. Building integrated platform is only justified by a retail footprint in the millions of locations; for most food companies, the immediate move is agent-readable product data, with a build decision to follow once scale justifies it

MAKE

Who can do this:
GLOBAL ENTERPRISE / DEEP RETAILER / DIST. NETWORK

- A retailer-facing agent platform (built on vendor agent infrastructure) fused with the company's own real-time POS, warehouse, and consumer-behavior data
- A retail footprint large enough (millions of accounts, tens of thousands of field reps) that automating sales-rep interactions saves meaningful time
- Internal capacity to keep the fused dataset current and prioritize which emerging use cases (planograms, personalized recommendations) to build next

Only pays back at a scale where millions of retail touchpoints make agent-assisted decision-making worth the integration cost

BUY

Who buy this:
SME / LARGE ENTERPRISE

- One canonical, structured product feed (schema markup, ingredients, allergens, nutrition, price, availability) maintained in a PIM
- Compliance with each AI shopping surface's feed protocol (OpenAI's ACP, Google's UCP, Amazon's listing rules) — about 70% of requirements overlap across platforms
- A monitoring process to check whether products are being surfaced accurately, correcting claims agents may pick up from unstructured content

AI shopping surfaces in grocery are already live, so even companies unwilling to build a platform still need product data legible to agents shopping today

Source: Porsche Consulting

SO WHAT? Key takeaways

Five takeaways to understand HOW artificial intelligence can be integrated and implemented

01

Own AI at the board, not in IT

Make AI a CEO-level responsibility with capital, governance and P&L accountability — not a technology experiment — because 80% of companies run pilots but only 25% see real impact, and those treating AI as an IT project risk structural disadvantage within 24 months

02

Fix the data foundation first

Attack data quality and integration head-on, since it is the single largest impediment to adoption (39%) and the average 32% gap between what AI could do and what it actually does proves value stalls without a clean, unified data backbone.

03

Sequence by risk, not by ambition

Start where ROI is measurable and low-risk (quality control, predictive maintenance), then close the innovation white spot (product development is under-penetrated at 15% vs 26%), and finally integrate data across the whole value chain

04

Buy speed, make only your moat

Default to buying proven platforms for fast, low-risk value and build in-house only where proprietary data is a true strategic asset — even Nestlé partners rather than builds for molecule discovery, and the make-case only pays back above a clear data-volume threshold

05

Treat AI adoption as a human problem

Install the seven core capabilities and a collaborative operating model — training people before technology, as Nestlé did with ~100 staff and a governance-first NesGPT rollout — because adoption is behavioural, and disconnected pilots stay science projects, not industrial value

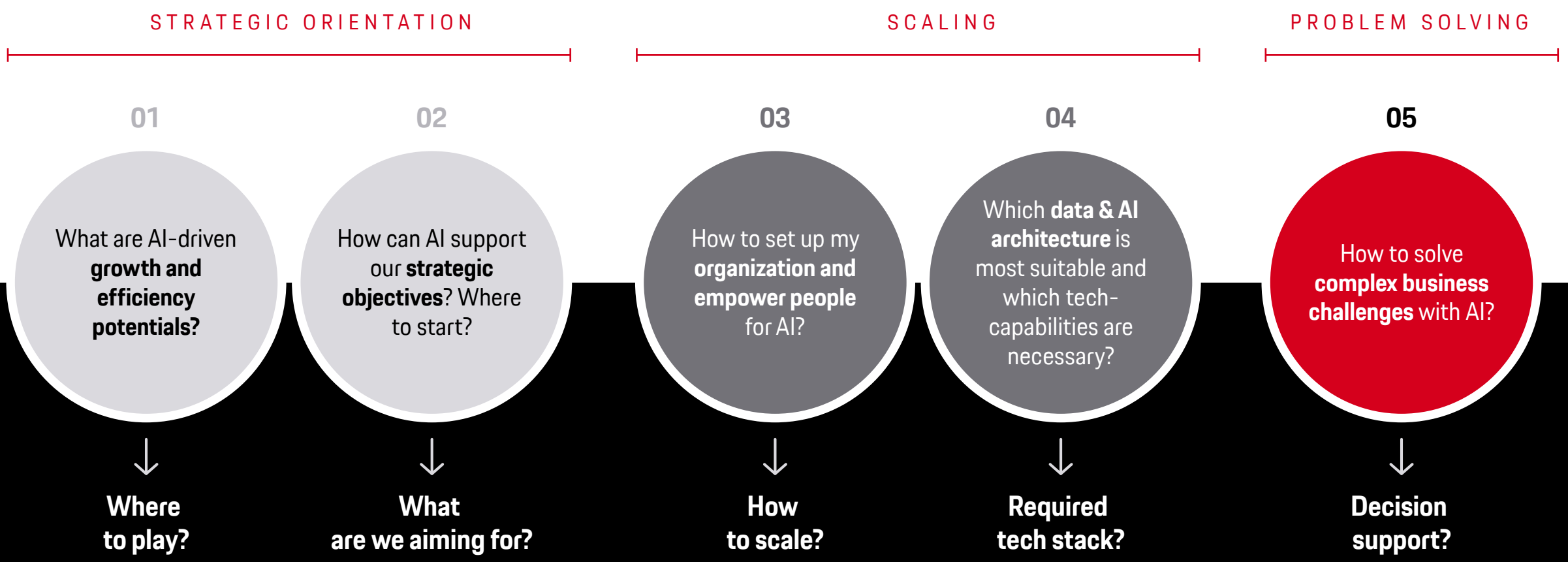
Source: Porsche Consulting

Our proprietary approach to support your AI transformation needs

AI STRATEGY PROGRAM

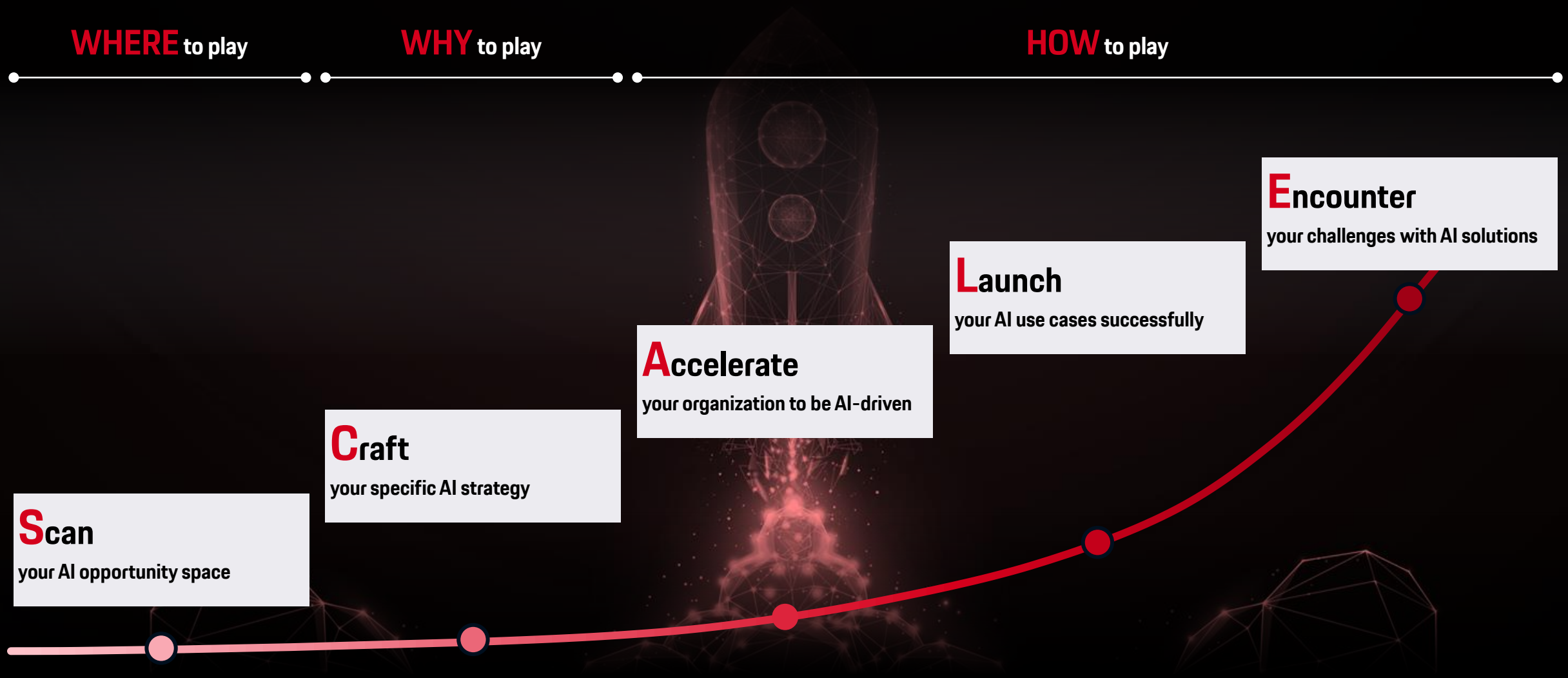
Source: Porsche Consulting

Porsche Consulting service offering is designed to guide our client from the strategic orientation in AI adoption, until the specific business application for competitive advantage or problem solution



Source: Porsche Consulting

We help you to seize AI opportunities, craft AI strategies and SCALE up your AI organization & abilities



Source: Porsche Consulting

The Porsche Consulting "AI at SCALE" service offering

STRATEGIC ORIENTATION

Scan
your AI opportunity space

- AI potential analysis
- AI maturity assessment

Craft
your specific AI strategy

- AI use case portfolio
- Integrated AI Strategy
- AI ecosystem & partnering

SCALING

Accelerate
your organization to be AI-driven

- AI organization, governance & delivery mechanism
- AI transformation & people empowerment
- Regulatory AI compliance & responsible AI

Launch
your AI use cases successfully

- AI data foundation
- AI operationalization
- AI integration

PROBLEM SOLVING

Encounter
your challenges with AI solutions

- Understand & foresee patterns
- Optimize patterns
- Manage complexity

Source: Porsche Consulting

Within our experience of field, we developed an AI portfolio with more than 600 exiting use cases

600

Porsche Consulting Use Case Library

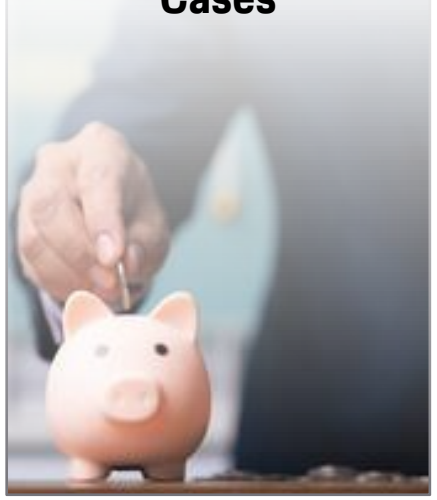


From 7 different business function covered

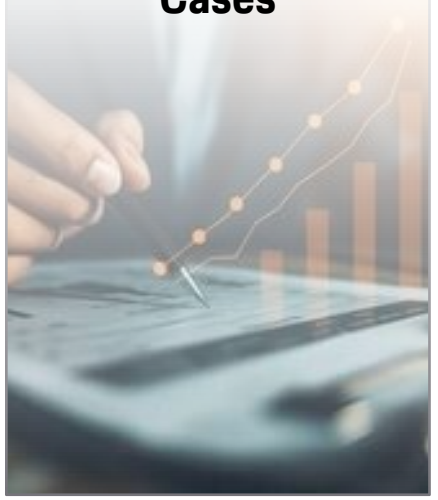
(Sales, Marketing, Procurement, Manufacturing, Supply chain, Logistics, R&D)



124 Bottom Line Cases



450 Top Line Cases



26 Environmental Impact Cases



Source: Porsche Consulting

OUTLOOK

THE ROAD AHEAD

What the future Food Industry in the AI world



Source: Porsche Consulting

Porsche Consulting

THOSE WHO MOVE FIRST MOVE FASTEST

In the age of AI, speed compounds, the window to be a first mover in Food Industry is open now

Source: Porsche Consulting

Europe can lead in AI for Food by combining regulation, industrial depth and trusted data ecosystems

01 AI & REGULATORY INFRASTRUCTURE

02 INDUSTRIAL DATA INFRASTRUCTURE

03 AI INNOVATION

Europe

AI Act applied to food systems
The EU AI Act applies to AI systems used in product safety, critical infrastructure and supply chain monitoring rendering Europe one of the first regions where food AI systems are developed within a standardised regulatory framework

Regulatory Data Infrastructure
EU regulations[1] require standardised reporting across traceability, labelling, food safety and agricultural monitoring. These regulatory frameworks generate large volumes of standardised operational and compliance data that can support AI applications in traceability, quality control and risk monitoring

Concentration of food and biotech ecosystems
Europe hosts established ecosystems in food manufacturing, life sciences and biotechnology. The proximity between food, biotech and scientific research ecosystems may support innovation in AI for food R&D

Common market
The EU single market enables the circulation of goods under common regulatory and labelling standards. Common regulatory frameworks may support the scaling of AI solutions across multiple European markets without country-by-country adaptation

EU investment in digital and cloud infrastructure
The EU has expanded investment in cloud, data-sharing and digital infrastructure through programs including Digital Europe and Gaia-X[2]. Shared digital infrastructure initiatives may support secure industrial data exchange and AI deployment across European food ecosystems

Industrial AI specialization
European AI activity remains strongly concentrated in enterprise software, industrial automation and B2B applications. Europe may be comparatively better positioned in operational AI systems for manufacturing, quality control and supply-chain management

Concentration of food science institutions
Europe hosts globally recognised food and agricultural research institutions. The proximity between food science research and industrial ecosystems may support the development of specialized AI applications in food processing, safety and agriculture

Public environmental data infrastructure
European institutions provide open-access environmental and climate datasets through infrastructures including Copernicus and the European Environment Agency[3]. Public environmental datasets may support AI applications in agricultural forecasting, climate-risk monitoring and resource management

Deep sector expertise
Europe hosts long-established expertise in food engineering, processing technologies and industrial manufacturing systems. Europe hosts long-established expertise in food engineering, processing technologies and industrial manufacturing systems

Switzerland

FOCUS

How Switzerland positions itself under each pillar

Flexible regulatory approach
Switzerland has not introduced a standalone AI Act and currently relies on sector-specific regulation and existing legal frameworks. A flexible regulatory environment may allow faster experimentation and commercialization of AI applications

Advanced data infrastructure
Switzerland ranks among Europe's leading countries in digital connectivity, cloud adoption and data infrastructure readiness. This positioning may facilitate the deployment of AI systems across food manufacturing, biotech and supply-chain operations

Globally recognised research institutions
Switzerland hosts leading research institutions including ETH Zurich, EPFL and the Swiss Federal Food Safety and Veterinary Office. Strong scientific ecosystems may support AI innovation in food safety, biotechnology

International connectivity
Switzerland operates outside the EU while remaining strongly integrated into European research, trade and industrial ecosystems. Its international positioning may support cross-border collaboration between European regulation and global capital networks

National computing
Switzerland hosts advanced computing infrastructure including the Swiss National Supercomputing Centre (CSCS), which can advance AI and data-intensive research

Deep tech specialization
Switzerland has one of Europe's highest concentrations of deep tech and life-science startups relative to population size that may facilitate AI innovation in high-value food and agricultural applications

1 | including the General Food Law (EC 178/2002), the Food Information to Consumers Regulation (EU 1169/2011), HACCP requirements and the Common Agricultural Policy (CAP); 2 | Gaia-X is a European initiative developing interoperable and sovereign cloud and data-sharing infrastructure for secure cross-border data exchange 3 | Copernicus and the European Environment Agency (EEA) provide large-scale public environmental and climate datasets across Europe;
Sources: EU AI Act · European Commission TraceMap (2026) · EFSA · EU Farm-to-Fork Strategy · Food Navigator · MDPI Foods 2025 · AgFunder News · White & Case AI Watch · ISPI IMD bUsiness School

European Regulatory Framework

EU AI ACT

AUG 2024
The law enters into force
A risk-based framework applies across the EU. Embedding AI in food-processing machinery is classified high-risk by default limiting machine sales in the EU until safety is formally proven, functionalities are documented and built for operators' supervision.

FEB 2025
Some AI practices are banned immediately
Manipulative food recommenders, subliminal nudging and social scoring are prohibited. All operators must ensure staff have basic AI literacy. The goal is to ensure people make food choices freely and are not manipulated below their awareness. The AI Act treats these practices as fundamental rights violations, not just consumer protection issues.

AUG 2025
Foundation model providers must be transparent
Any company offering a general-purpose AI model must publish training data summaries and demonstrate EU copyright compliance.

AUG 2026
Full obligations kick in for high-risk food AI
Conformity assessments, technical documentation, and human oversight become mandatory for any standalone AI system making food safety decisions.

DEC 2027
Hard deadline for safety-critical applications
Allergen detection, contamination monitoring and food safety diagnostics must be fully compliant. No extensions expected.

AUG 2028
Embedded AI in food machinery comes in scope

SWITZERLAND

SEP 2023
Data protection law already covers AI
The revised FADP applies to any AI processing personal data, incl. food preference profiling and supply chain analytics. No sector carve-outs.

MAY 2025
Regulator confirms FADP applies to automated decisions
Individuals have data subject rights when AI makes food-related decisions about them. Companies must run impact assessments for high-risk profiling.

2025 ONWARD
No AI-specific law yet: CoE convention signed
Switzerland signed the Council of Europe AI Convention setting direction for transparency and non-discrimination. Not yet ratified, no binding obligations today.

END 2026
First draft AI law expected for consultation
The Federal Department of Justice will release a draft bill covering transparency, oversight and non-discrimination. Industry codes of conduct in parallel.

~2029
Earliest a Swiss AI law could be in force
After full parliamentary debate and potential referendum. Until then, FADP and general product safety rules remain the operative framework.

NO TIMELINE
EU market access gap remains open
Full equivalence requires a Mutual Recognition Agreement update. Negotiations have not started. Swiss companies exporting to the EU must comply with EU rules regardless.

What this means in practice

When do obligations start?
- Dedicated AI law. Full compliance for high-risk food AI by August 2026
- Data protection applies today. A dedicated AI law is at least 3–4 years away

Are food companies specifically targeted?
- Yes. Food safety AI is high-risk by definition. Manipulative food recommenders are explicitly banned
- No food-specific rules. General data protection and product safety law apply instead

How hard is it to enter the market?
- Compliance is a prerequisite to operate in the EU unlocking 450M consumers
- Lower barrier domestically. Selling into the EU still requires EU compliance — no shortcut

Do small companies get relief?
- The AI Omnibus extends some exemptions, but high-risk food AI compliance costs remain substantial
- Self-declaration and industry standards dominate. Minimal mandatory overhead for food tech developers

Where is regulation heading?
- More obligations arriving in waves through 2028. The scope does not shrink only enforcement is phased
- Converging toward EU standards slowly and voluntarily. Full alignment requires political decisions not yet made

Sources: EU AI Act · European Commission · White & Case AI Watch · Chambers & Partners Switzerland AI 2025 · OECD AI in Agriculture 2026 · FDPIC May 2025

// THE ROAD AHEAD

Three structural transformations | Across R&D, production, and consumer engagement – that define the industry's next operating model

01 R&D & INGREDIENT DEVELOPMENT — CTO

From empirical discovery to computational design — food innovation becomes a software problem

Food treated as a programmable biomaterial.
AI links molecular composition to functional performance and sensory outcomes. Self-driving laboratories automate ingredient discovery predicting protein folding, stability and flavour profiles in silico before physical synthesis begins.

Precision fermentation replaces conventional sourcing.
AI compresses microbial strain selection from empirical trial to directed molecular prediction enabling protein, enzyme and fat production without animal inputs at commercially viable costs and scale.

R&D pipelines accelerate structurally. AI integrates ingredient design, fermentation, texture analysis and sensory science into a single pipeline, reducing development cycles and trial costs, moving product development from months to weeks.

DISCOVERY SPEED | SUSTAINABILITY FIT
PORTFOLIO BREADTH | HEALTH ALIGNMENT

02 PROCESSING / MANUFACTURING — COO

Factories self-optimise — AI moves from assisting operators to replacing operational decisions

AI-driven process control delivers 15–20% energy savings. Machine learning and predictive analytics optimise processing parameters in real time cutting energy consumption and achieving defect detection accuracy above 98% across unit operations.

Agentic supply chains eliminate human consensus loops.
LLM agents autonomously negotiate inventory levels, delivery quantities and capacity allocation between companies, converging on coordinated decisions without a central controller.

Human-machine collaboration, not replacement.
Physical AI handles standardised production processes while humans remain central in experience-driven and high-judgment contexts. The paradigm shift is collaborative: robotics and autonomous systems expand human capacity rather than eliminate it.

YIELD ↑ | DEFECT RATE ↓
THROUGHPUT ↑ | DOWNTIME ↓

03 CONSUMER INSIGHT & MARKETING — CMO

AI shifts from supporting consumer decisions to mediating them — food selection becomes a system output

Consumer food choice is structurally disrupted — not incrementally improved. AI's impact on what people consume is not an efficiency gain but something categorically new: systems that anticipate needs, optimise across health, taste and sustainability simultaneously, and execute decisions autonomously on the consumer's behalf.

Europe's cultural diversity becomes a personalisation asset.
Europe's competitive advantage is not in building AI models but in applying them. Diverse food cultures across European markets become differentiated inputs for personalisation engines transforming fragmentation into a strategic advantage.

AI mediates food selection brands compete for algorithmic trust, not consumer attention. AI will progressively recommend, order and optimise meals based on health and taste, making choices on the consumer's behalf. Consumer adoption will be emotionally divided: early adopters report transformed diets, others resist strongly. The brands that win are those that position AI as enhancing food culture rather than overriding personal choice

TREND LEAD TIME | CAMPAIGN ROI ↑
PERSONALISATION | PORTFOLIO AGILITY

Sources: EU AI Act · European Commission · White & Case AI Watch · Chambers & Partners Switzerland AI 2025 · OECD AI in Agriculture 2026 · FDPIC May 2025

OPTION A

Conclusions

01

AI is reshaping the entire F&B value chain — not just individual functions

From R&D and manufacturing to consumer intelligence and supply chain, AI is creating compounding advantages for those who act early and systematically.

02

Success requires five organisational pillars — technology alone is not enough

Data foundations, technology architecture, cybersecurity, talent and change management must be built in parallel. AI projects fail when the organisational foundations are not ready.

03

Switzerland has a structural advantage — but it must be activated deliberately

World-class food science, precision manufacturing heritage and a dense innovation ecosystem position Switzerland uniquely. The window to lead is open, but it will not remain so indefinitely.

04

Every stakeholder has a distinct role to play in the ecosystem transformation

Corporates, startups, investors, researchers and intermediaries like SFNV must each execute their part — and collaborate across boundaries — to unlock the full value of AI in food.

05

The organisations that start now — even imperfectly — will define the next decade

Waiting for the perfect data set, the perfect tool or the perfect strategy is a losing posture. Disciplined experimentation, rapid learning and bold leadership are the real competitive advantages.

Source: Porsche Consulting

OPTION B

Conclusions

01

Apply AI to a lead Europe already owns

Europe doesn't need to close the AI gap — it needs to compound its head start. Anchored by a €1.5 trillion F&B sector, an €80 billion trade surplus and the world's deepest food science, Europe already channels roughly three times its global AI-investment share into food-tech, turning an existing industrial lead into a lasting one

02

Make Switzerland the proof point of European leadership

Switzerland shows what "advantage" looks like in practice — and it's ready to scale. It ranks first globally for AI-talent concentration, hosts ETH Zurich, EPFL and the CSCS supercomputer, and now anchors the world's first food-industry deep-tech R&D hub (Nestlé, Orbe); paired with a flexible, fast-to-experiment regulatory stance, it converts scientific depth into commercial speed

03

Win by flying at the right height

The prize goes to those who match the right technology to the right structural problem. Value is neither in generic frameworks nor isolated mini-use-cases, but in the "flight-height" in between — knowing precisely which AI application solves which industry challenge, so investment lands where R&D cycles, quality and forecast accuracy visibly improve

04

Think beyond silos — interoperability is the multiplier

Connect the data, and every use case gets sharper. With ~65% of non-financial data still siloed, the biggest unlock is interoperable, well-governed data flowing across functions and partners; Europe's common market, shared infrastructures (Gaia-X, AI Factories) and standardised frameworks make cross-boundary integration a genuine structural strength

05

Build the capabilities that turn adoption into visible ROI

Start where returns are measurable, then build the seven capabilities that scale them. Entering through low-risk, high-proof wins — >98% defect detection, zero unplanned downtime — self-funds the data foundation, governance, competence centre and value-realisation discipline that carry AI from promising pilots to bankable, P&L-visible impact

Source: Porsche Consulting

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Source: Porsche Consulting

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Source: Porsche Consulting

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