

Shifting Plates: The Role of Consumer Demand in Transforming Global Food Systems

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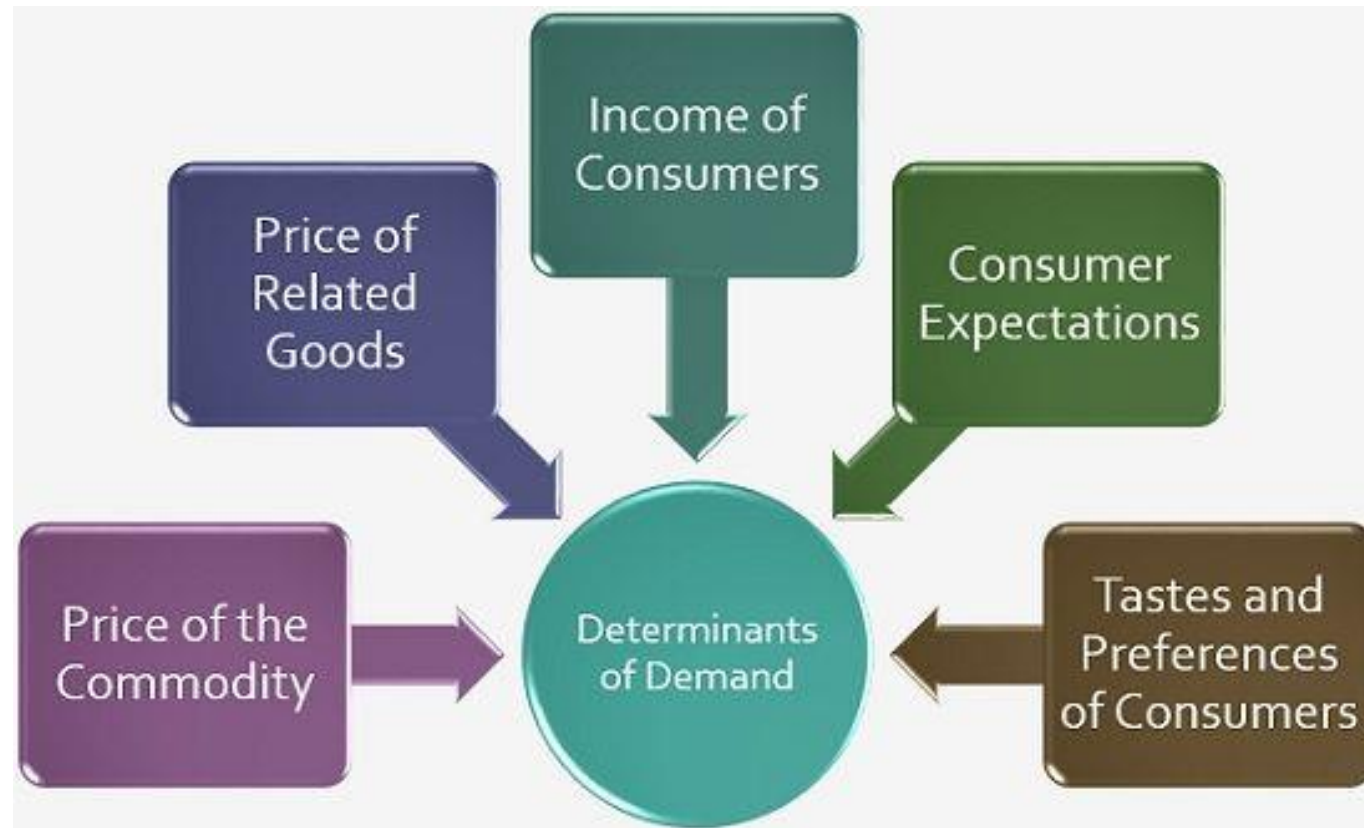
Let's Start With a Korean Proverb

가재는 게 편이라

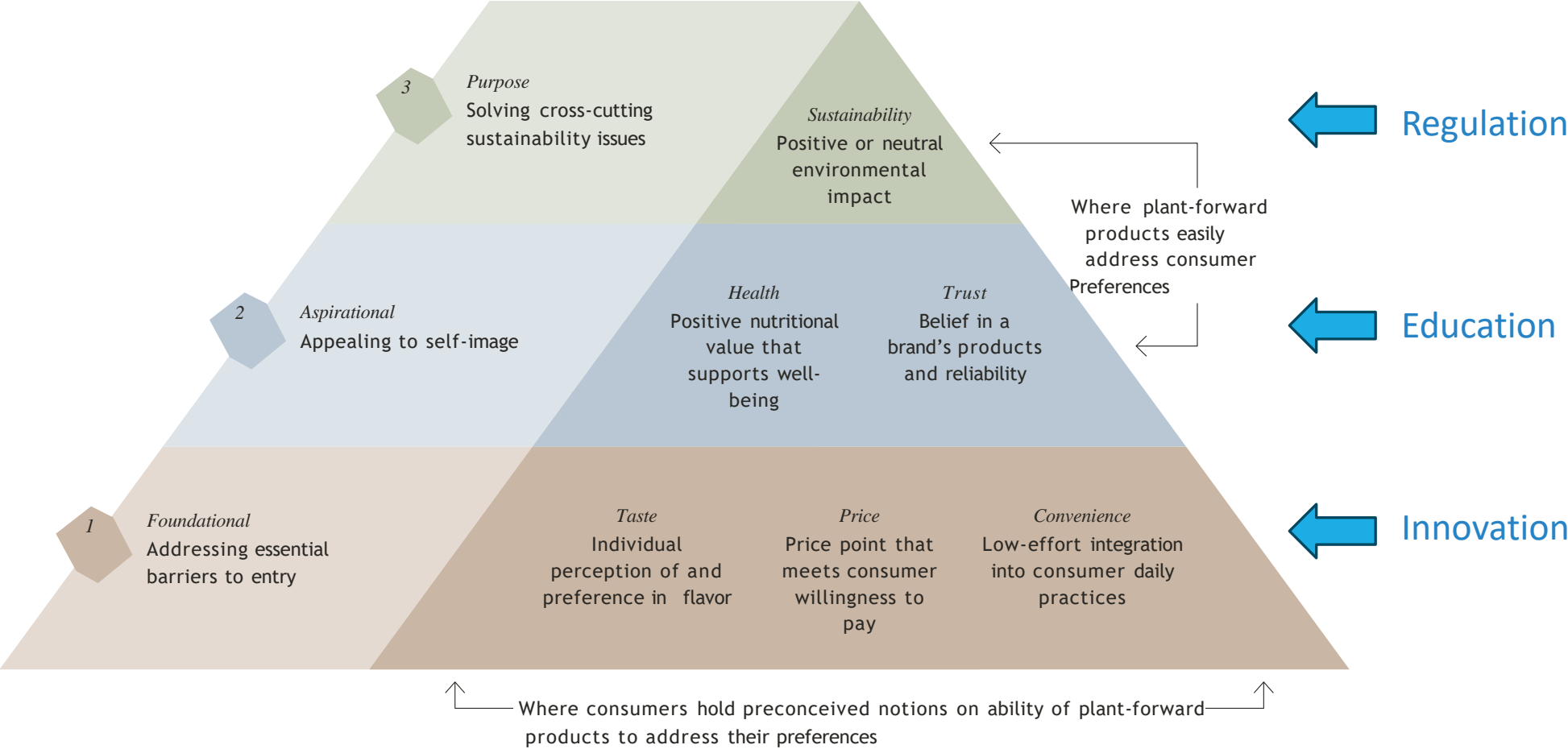
The Crayfish Sides With The Crab

What Is “Consumer Demand” And What Influences It?

Demand = “a buyer's willingness & ability to pay a price for a specific quantity & quality of a good or service”



Consumer Hierarchy of Needs*



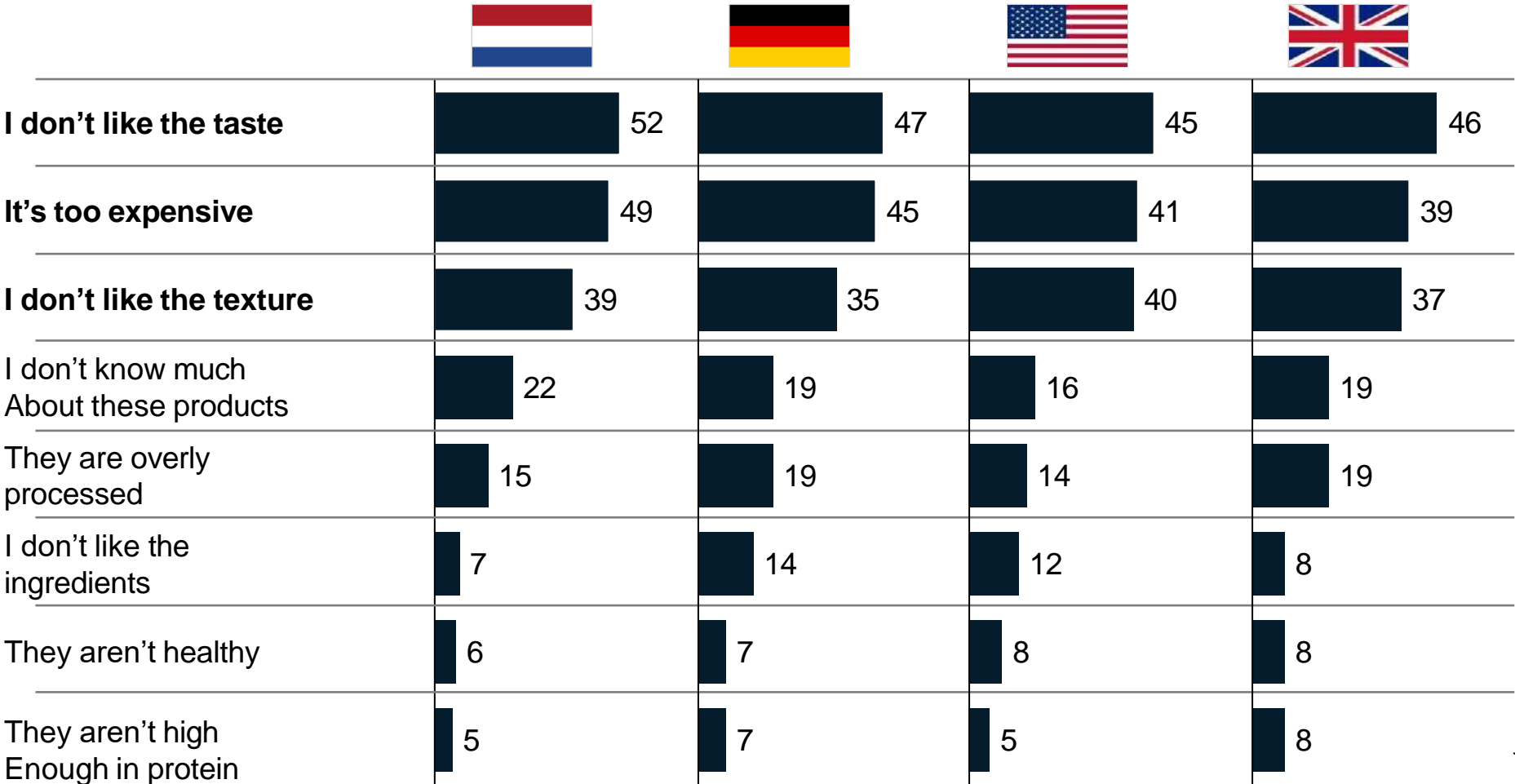
* Noting that the consumer hierarchy of needs may differ slightly by geography and continues to shift as the food system evolves

Source: WBCSD & Deloitte, 2024: The plant-forward opportunity: A business playbook to meet consumer demand within planetary boundaries

Innovation

Consumers Are Interested in Alternative Proteins, But Have Some Concerns

Why are you not consuming more alt meat? Pick 0-3 reasons, % respondents



Source: McKinsey Global Protein Survey 2022

The Top Innovation Priorities for Taste in Alternative Proteins



1

Moisture

- Dry
- Lack of moisture/juiciness



2

Flavor

- Too strong
- Beany taste
- Off flavor
- Unpleasant aftertaste



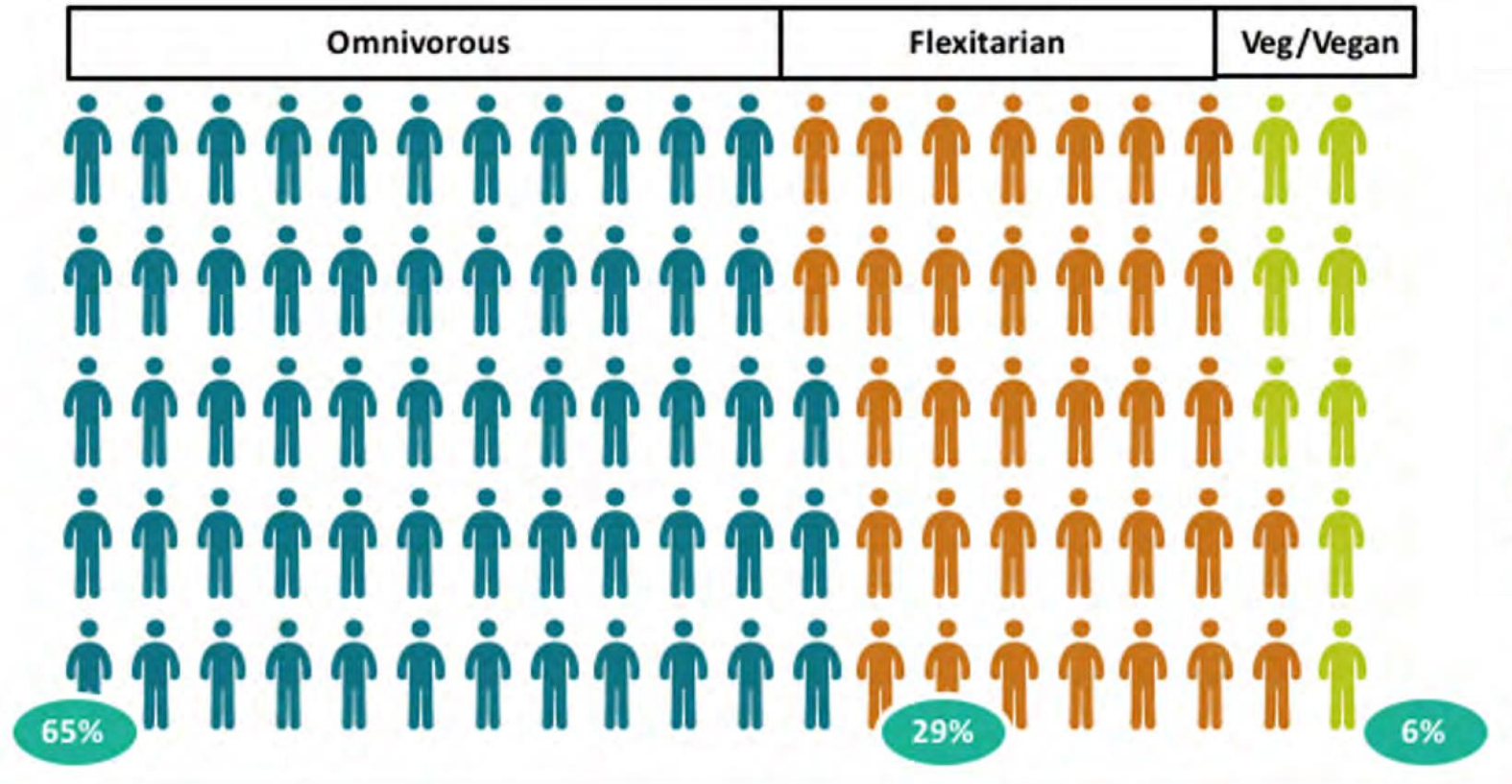
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Texture

- Too uniform
- Too compact
- Too soft or “mushy”

Source: Food Systems Innovations, “Chicken and Burger Alternatives: Taste Test Results” (December 2018)

The Consumer Market is no longer just vegans and vegetarians



16%

of consumers regularly use plant-based alternatives such as almond milk, tofu, and veggie burgers

89%

of these consumers do not consider themselves vegan or vegetarian

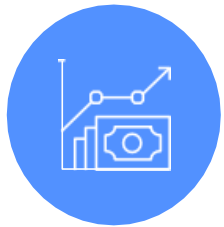
Source: Good Food Institute, Whitespace Opportunities in the Alternative Protein Sector

Example For Smart Segmenting

<p>Snack Pack 13% of UK population</p> <ul style="list-style-type: none"> • 44% overweight and obese • no consistent health conditions 	<p>Food Rich, Time Poor 17% of UK population</p> <ul style="list-style-type: none"> • 80% overweight and obese • high blood pressure & hypertension 	<p>Health Poor 19% of UK population</p> <ul style="list-style-type: none"> • 90% overweight and obese • 2x more likely to have diabetes
<p>WHO: young adults, who often still live at home and are in full-time education, or young families</p>	<p>WHO: married, middle aged with high levels of education and income and high % working full time</p>	<p>WHO: lower income, education and % in work than average, all ages</p>
<p>WHAT: low-variety diets high in sugar and salt, low in fruits/ vegetables and protein</p>	<p>WHAT: diets high in meat, salt and alcohol and low in fruits/ vegetables and fish, some dieting</p>	<p>WHAT: diets low in healthy food (fruits/vegetables, fish) but also low sugar and alcohol; high red meat intake</p>
<p>HOW: either out at fast food restaurants or at home watching TV</p>	<p>HOW: frequent restaurant-goers</p>	<p>HOW: alone at home while watching TV</p>
<p>Leisurely Home Cooks 24% of UK population</p> <ul style="list-style-type: none"> • 80% overweight and obese • high cholesterol and high blood pressure 	<p>Refuelers 14% of UK population</p> <ul style="list-style-type: none"> • 39% overweight and obese • some hypertension 	<p>Rainbow Eaters 13% of UK population</p> <ul style="list-style-type: none"> • 22% overweight • normal blood pressure and blood sugar
<p>WHO: older empty-nesters, many retired; high education levels and mid-high income</p>	<p>WHO: low-income and single person households; either young adults or 75+</p>	<p>WHO: 25-44 year-old working people with kids at home and high levels of both income and education</p>
<p>WHAT: varied diets high in fruits/ vegetables and fish, but also high in alcohol; meets the most Eatwell recommendations on average</p>	<p>WHAT: diets high in sugar but low in fruits/vegetables and very low in protein</p>	<p>WHAT: varied diets with high fruits/ vegetables and fish and low sugar, but high in calories and fat</p>
<p>HOW: at the table at home</p>	<p>HOW: alone at home</p>	<p>HOW: at the table (very infrequently while watching TV)</p>

Source: World Business Council on Sustainable Development (WBCSD), 2021: Shifting Diets: Methods to encourage Consumers in the UK to eat healthier, more sustainable Meals

Barriers That Inhibit Scaling of Innovations



Economics

Higher production costs lead to unfavourable unit economics

+34%

Price premium of plant-based vs. conventional products



Policy

Food systems need more supportive regulatory frameworks

2.5 years

Regulatory approval time for novel food products in the European Union



Consumers

Consumption of resource-intensive foods persists

69% vs. 2%

of consumers care about sustainability vs. willing to pay premium



Infrastructure

Missing basic infrastructure to enable innovations

20%

of agriculture has access to irrigation infrastructure, but grows 40% of food



Integration

Innovations are often not fit for purpose and integrated into contexts

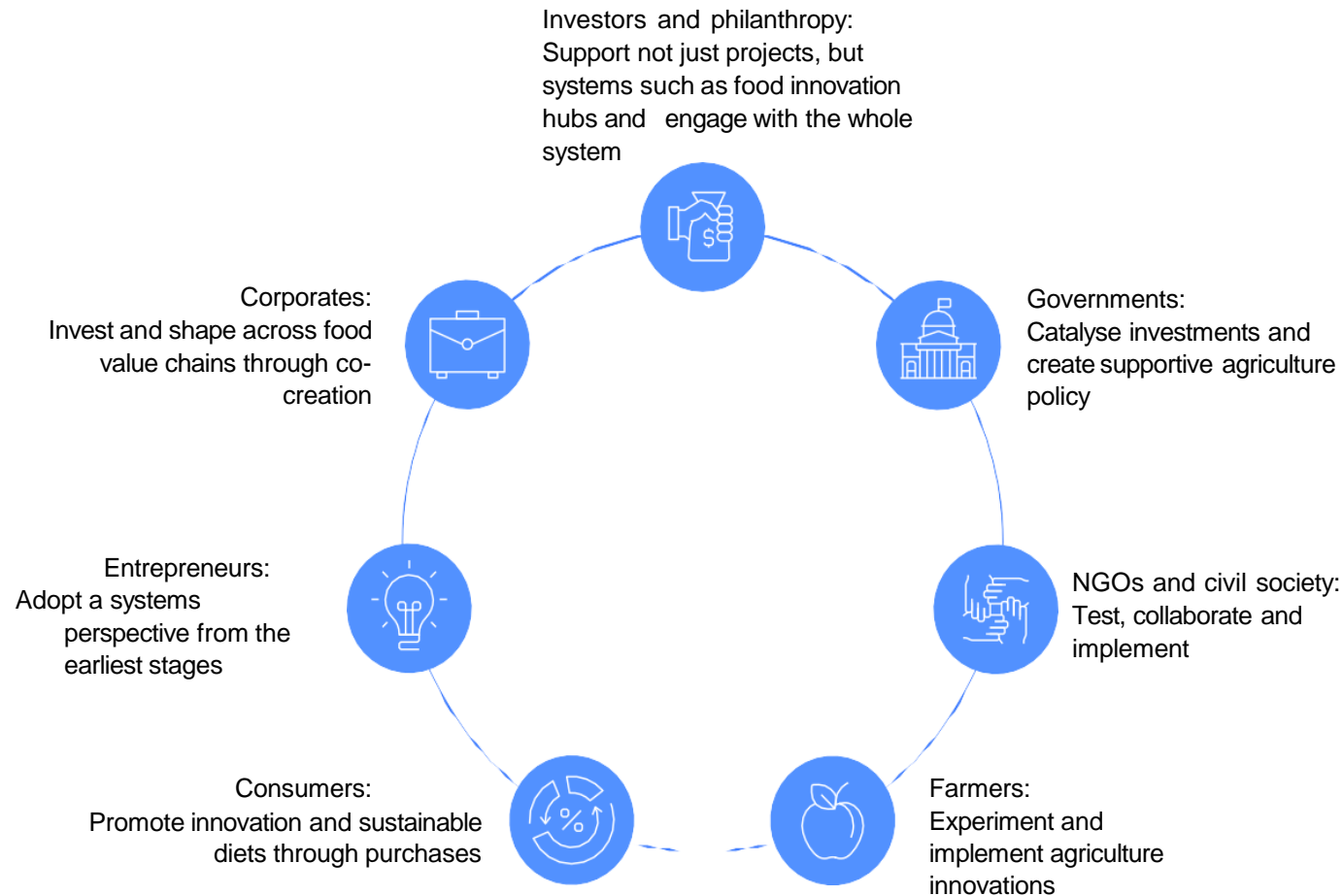
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total digital ag solutions with >1 million users in sub-Saharan Africa

Source: Protein Production Technology, PwC, Statista, FAO, Good Food Institute

Source: World Economic Forum: Mainstreaming Food Innovation: A Roadmap for Stakeholders, Whitepaper, September 2024

Stakeholder Roles In The Innovation Ecosystem



Source: BCG analysis

Source: World Economic Forum: Mainstreaming Food Innovation: A Roadmap for Stakeholders, Whitepaper, September 2024

Education

There Is a Large Body of Evidence Showing That Education Influences Consumer Behavior / Demand

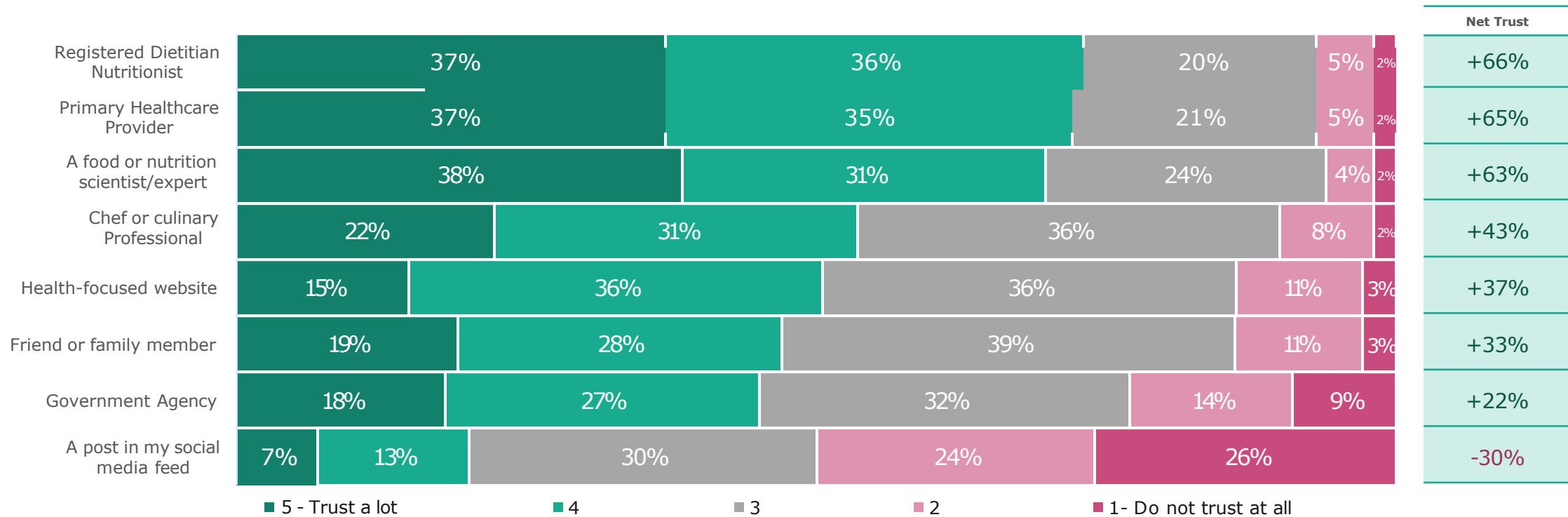
Summary of research on customer education.

Study	Key insight	Key dependent variable	Mediator	Study context	Method
Eisingerich and Bell (2006)	Customer education increases customer participation.	Customer participation	–	Financial services	Survey
Bell and Eisingerich (2007a)	Customer education enhances customer loyalty.	Customer loyalty	–	Investment services	Survey
Eisingerich and Bell (2008b)	Customer education enhances customer trust.	Customer trust	–	Financial services	Survey
Suh et al. (2015)	Customer education enhances customer loyalty through service quality.	Customer loyalty	Service quality	General	Survey
Weeks et al. (2016)	Customer education increases shoppers' saving behavior across time.	Saving behavior	–	Grocery shopping	Longitudinal field experiment
Retana et al. (2016)	Proactive customer education from service providers improves customer retention and decreases customers' demand for technical support.	Customer churn, questions asked	–	Public cloud infrastructure services	Field experiment
Bell et al. (2017)	Firm-specific customer education increases loyalty to a firm, while market-related customer education decreases loyalty. These effects occur through changes in customers' perceived switching costs.	Relationship depth, Purchase growth	Firm-specific and market-specific expertise, perceived switching costs	Financial services, medical services	Survey, lab experiment
Vigolo et al. (2019)	Customer education enhances attitudinal loyalty towards cultural services.	Attitudinal loyalty	–	Cultural services	Survey
Sari et al. (2020)	Customer education helps promote customers' intention to buy green products.	Purchase intention	Perceived economic accessibility, benefit	Green products	Survey
Steils (2021)	Customer education moderates the influence of impulsiveness on purchase frequency of unhealthy food.	Purchase frequency	–	Grocery shopping	Survey, lab experiment

Source: Xiaochi Sun ^a, Thomas Foscht ^{a,*}, [Andreas B. Eisingerich](#) : Does educating customers create positive word of mouth? [Journal of Retailing and Consumer Services 62 \(2021\) 102638](#)

But Consumers Do Not Trust Every Source of Information on Food (Safety)

While nearly 3 in 4 (73%) of people that actively avoid harmful food ingredients have high levels of trust in registered dietitian nutritionists, half (50%) express low levels of trust in posts they encounter in their social media feeds.



Q5. Please rate how much you would trust information from the following sources about what food ingredients to eat and avoid. (n=600; FILTER: actively avoids preservatives, flavors, dyes/colors, sugar substitutes, monosodium glutamate, caffeine, or bioengineered/GMO ingredients)

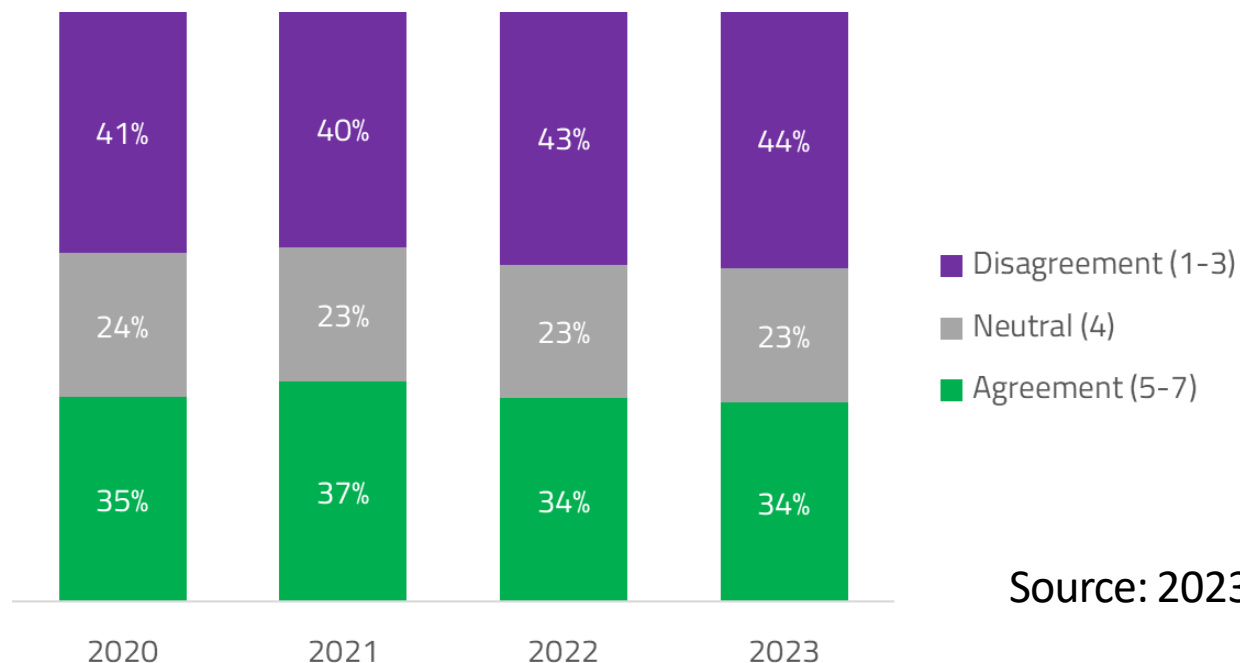
Source: 2024 IFIC Spotlight Survey: American Perceptions of Food Ingredient Safety

A Lot of Work Still To Be Done: Openness of Europeans Towards New Food Products Is Low

Since 2020 the willingness to adopt new food products has remained more or less stable, with a small spike in 2021.

More people are conservative in their food choices (44%) than open to innovation (34%).

Openness to new food products



Source: 2023 EIT Food Trust Report

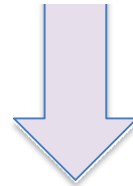
Regulation

Before Globalization: Food System Changing Demand

State intervention in agricultural markets



Intervention in agricultural production and markets assumed to change demand and enhance consumption

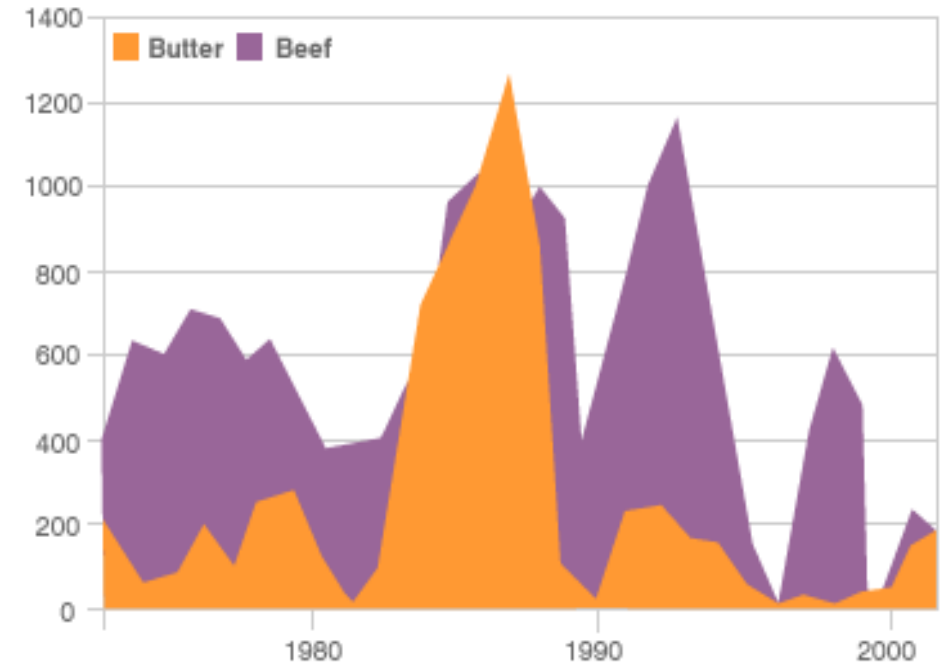


Passive consumers



BEEF AND BUTTER MOUNTAINS

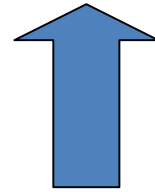
Thousand tonnes



SOURCE: European Commission

After Globalization: Demand Changing Food Systems

- **Farmers:** global competition for supplying private companies through “long chains”
 - **Food processors:** more power; tighter coordination
 - **Food retailers:** the new power brokers



“**Active**” consumers”: consumers send their **demands** back to influence what is produced through a flexible, **globally** efficient food system



National Governments Still Struggle To Improve Citizen's Health

The Hypothesis

That consumers would have preferences for diets that were sufficient in quantity and which would make them nourished & healthy – and the newly flexible, globalized food supply chain would be able to satisfy this demand

Reality

Most Consumers:

- Are not sufficiently informed to be able to demand a healthy diet
- Do not necessarily prioritise nutrition and health when choosing food
- Are still poor, lack assets & resources to utilize what is available
- Have preferences which are influenced by food environments

They are not the only “demanders”

- “Demand” in the food system is not just from final food consumers – but from the “food consuming industries”
- FCIs are affected by incentives in the food system which are not related to consumer demand
- FCIs have incentives to mobilise demand from final food consumers & influence preferences

Implications for Policy / Regulatory Actions

Target	Why?
Consumers	We have been placed in the driving seat of the modern food system but are not fully informed about how it works, the foods it produces or health. Actions to provide information & skills to choose & use wisely will change consumer demand, which will influence supply; information can mobilise consumers to demand food systems change – Example: Environmental Labeling, Subsidized Alternative Proteins
Consumer Food environment	Food environments influence our ability to express our preferences; they shape our preferences; they can be manipulated to stop us expressing preferences. Policies to change food environments will change consumer demand and food systems: Example: National Dietary Guidelines
Food systems	What the food supply chain produces is influenced not just by consumer demand but by “FCI demand” which in turn is influenced by characteristics and incentives in the food systems. Using a range of tools to change food systems will underpin lasting changing in food environments, influence consumer demand and have co-benefits Example: GHG Limits on the Supply Chain

Source: What is “demand” in the food system? Implications for how to build healthy food systems, World Public Health Nutrition Association conference, Building Healthy Global Food Systems Oxford, September 8-9, 2014

Singapore Setting The Gold Standard

Singapore provides strong public support for alternative proteins, particularly in research and infrastructure funding. The country's alternative protein policy can be mapped to the same four-step framework as EVs.

Set ambitious targets. Alternative proteins can play a role in helping Singapore achieve its ambitious “30 by 30” goal—producing at least 30% of its nutritional needs domestically by 2030—and making its food supply chain more resilient.

Stimulate supply. Singapore has dedicated \$107 million to fund R&D for alternative proteins, including projects to improve the nutrition, taste, and texture of plant-based proteins produced domestically.

Drive demand. The Singapore Food Agency (SFA) has pioneered a regulatory framework for cultivated and microorganism-based meats. The SFA changed the approval process, requiring alternative protein makers to seek premarket approval of products that do not have a history of being consumed as food. Companies must submit test results addressing potential risks such as toxicity and allergenicity, as well as details of their manufacturing processes. This preapproval process is designed to give consumers confidence in the safety of alternative proteins.

Address scale-up challenges. Singapore is building its production capacity by helping startups fund the construction of shared laboratory and production spaces. This includes a \$21 million investment in the Food Tech Innovation Centre, which will provide up to 10,000 liters of capacity for microbial fermentation. In addition, academic institutions in Singapore have been working with industry partners to develop short courses to train adult learners and career switchers for jobs in the plant-based meat industry.

Source: BCG, GFI, Synthesis Capital, July 2024, What the Alternative Protein Industry Can Learn from EV Companies

Call To Action

- The Needs of Consumers are pretty well known, but there has to be much more collaboration across Innovation Ecosystems in Pre-Competitive Spaces (for example: Valorization of Side-Streams)
- Education is Key to steering and driving up demand, but consumers trust only neutral parties. Industry would do well to produce content to be shared with trusted parties, like EIT Food (eg Food Unfolded), EUFIC and many others
- Business needs to pay close attention to Regulation and be very active in sharing perspectives on all levels – In Trade Blocs, National, and possibly regional levels



Thank you,

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