

Achieving Societal Resilience: The Nutrition Opportunity

COMMUNITY PAPER

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Preface



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Nutrition-related challenges are undermining the health of individuals and overtaxing our health care systems, threatening global societal resilience. This threat was laid bare during the COVID-19 pandemic where diet-related diseases drove most hospitalizations and deaths. The world has an enormous and unique opportunity to improve human nutrition and address these challenges head-on. Rising consumer interest, increased public sector and business engagement, plus the emergence of technologies to enable widespread change can coalesce to effect great and lasting change. What is needed are clear pathways forward and the collective will and ability to embrace them.

Recognizing this need and the potential to seize the moment, the Future of Consumption Platform has articulated a bold vision: By 2035, consumers will be empowered through better nutrition to live happier and healthier lives.

To that end, we convened a series of meetings in 2021 that brought together members of the Forum's Consumer Industries community and relevant public sector leaders, academic experts, and disruptors, including industry strategy officers, marketing, innovation and R&D leaders. They engaged in working groups to imagine new opportunities to achieve holistic health and wellness through better nutrition.

Our collective goals were to engage the entire food ecosystem – consumers, businesses, civil society, academia and the public sector – to improve access to and the availability and adoption of nutritious choices worldwide and to champion and accelerate positive nutrition policies, research and viable growth-oriented business models to drive holistic and system-wide change.

This community paper, developed in close collaboration and partnership with Accenture, presents our findings so far. Our hope is that it stimulates action as well as further discussion that results in steady and sure progress towards realizing our vision.

Executive summary

The critical challenge to improve societal resilience

People are living longer but that doesn't necessarily mean they are living healthier lives. In fact, research has shown that chronic disease is on the rise. Consider, for instance, that more than half of adults in the US – 60% – have been diagnosed with a chronic illness such as heart disease or diabetes. Four in ten adults in the US have two or more. Chronic disease in Europe accounts for 86% of all deaths.

Poor nutrition is a key contributor to these illnesses. People are eating more foods that are high in fat and sugar, leading to obesity, which significantly contributes to a host of health problems. Yet messaging on weight often focuses on the *number* of calories that people consume each day rather than a dual focus on calories *and* the vitamins, minerals and type of fat that calories may contain. Data from the US alone is revealing: in 2018, just one in eight Americans was “metabolically healthy”.

Without a significant global shift towards better nutrition, people suffering from diseases related to, or accelerated by, poor nutrition will soon overwhelm healthcare systems. The economic and environmental impacts are also significant. The annual cost of total global food consumption is \$9 trillion, while the related economic, environmental

and health costs total \$19.8 trillion. The largest driver of those costs, over \$11 trillion, comes directly from costs to human health tied to unhealthy diets.

Importantly, improving people's lives through better nutrition is presenting a significant opportunity for new value creation. Consumers are increasingly seeking products and services that will improve their metabolic health. Corporate venture capitalists are supporting consumer health and nutrition businesses. Current technologies and scientific breakthroughs are enabling new opportunities to improve health through better nutrition. Governments are homing in on the issue, in many cases seeking to build on past efforts. And large food and beverage companies, increasingly committed to healthier outcomes for their customers, have been introducing to their portfolios a range of products delivering positive nutrition with reduced calorie, salt and sugar content.

The challenge is ensuring that these efforts coalesce to effect sustainable change at scale. To that end, the World Economic Forum's Future of Consumption Platform has identified what it believes are the most significant barriers to lasting, widespread change and a viable way to overcome them.

The barriers to overcome are simultaneously systemic and personal

The barriers to change include the lack of science-based global *alignment* on the purpose and value of nutrition; consumers' tendencies to undervalue nutrition as a key component of their health and well-

being, consumers' emotional, cultural and habitual ties to certain diets, the potential and possibility of sugar addiction, tight schedules, and affordability.

A social change model to pivot consumers toward healthier lifestyles

The solution is rooted in an evidence-based social change model – a virtuous cycle – developed by Edward Walker, a social scientist at the University of California in Los Angeles and at Stanford University. According to Walker, *an initial catalyst generally affects early public consciousness on a particular topic*. These catalysts can be individual advocates or organizations that function as strategic, neutral facilitators for stakeholders to coalesce on industry and policy agendas. They can also be exogenous

events, such as the COVID-19 pandemic. After that spark, *action led by institutions – businesses, governments – is unmatched as an accelerant in building widespread, durable social change*. In turn, *social change agents – individuals or groups, including media, academia and civil society organizations – leverage those reforms, generating wider societal engagement and influencing industry and policy-makers to enact further reforms*.

The 3 A's of nutrition transformation

How might the primary actors in that social change model best work together to effect lasting improvement in nutrition at scale? The research has led to the development of a framework that all interested actors can use to consider and locate their opportunity to contribute to positive change at scale. This framework homes in on three areas of focus: increasing the **availability** of nutritious choices, increasing **access** to those options, and enabling and supporting consumer **adoption** of more nutritious choices as their default.

The Forum's Future of Consumption Platform has a vision: By 2035, consumers will be empowered through better nutrition to live happier and healthier lives. This global community's members invite companies to join with them to achieve this vision and secure a healthier and more resilient society through improved nutrition, for current generations and for those to come.



1

The critical challenge to improve societal resilience



Resilience has been a leading topic over the past two years, especially in the business world. But it is also an increasingly big part of the way human beings are thinking about themselves. There is no doubt that, absent acute crises, people are living longer. But are they leading better lives? Healthier

lives? Are brains functioning at an optimal level as people develop and age? How is liver and gut health, which are critical to a body's metabolic functions and immune systems? On that front, humans are not nearly as resilient as they could be.

1.1 The size and shape of the challenge and the crucial role of nutrition

“ The cost of total global food consumption is \$9 trillion. Yet the hidden economic, environmental and health costs are more than double that, coming in at an estimated \$19.8 trillion.

Consider: According to the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), more than half of adults in the US – 60% – have been diagnosed with a chronic illness such as heart disease or diabetes. Four in ten adults in the US have two or more. Chronic disease in Europe accounts for 86% of all deaths.¹

Some of the key lifestyle risks for chronic disease are well known, including tobacco use, excessive alcohol use, and lack of physical activity. Lesser publicized (and not nearly as well understood across the general public) is **poor nutrition**.² Yet poor nutrition, driven in part by increased intake of foods that are high in fat and sugar (visible in part in rising obesity rates) is a critical cause and accelerator of chronic disease.³ Obesity, in fact, significantly contributes to health problems including diabetes, cardiovascular disease, musculoskeletal disorders (especially osteoarthritis) and cancer.⁴

According to the World Health Organization (WHO), worldwide obesity tripled between 1975 and 2016, from 4.5% – or approximately 100 million adults affected – to 13% – or approximately 670 million adults affected. It is estimated that by 2025, over 2.7 billion adults will be overweight and over 1 billion will be affected by obesity. These trends are not just isolated to adults. In 1975, less than 1% – or approximately 11 million – children worldwide were obese. In 2016, 7% – or approximately 124 million – worldwide were obese.

Meanwhile, messaging on weight often focuses on the *number* of calories that people consume each day and omits the message that meeting a given calorie count, by itself, is not enough to support good health. Equally important are the types of food people eat – the vitamins, minerals and type of fat that the calories contain.⁵ Data from the US alone is revealing: in 2018, just one in eight Americans was “metabolically healthy.”⁶ Good metabolic health is defined as having ideal levels of blood sugar, triglycerides, high-density lipoprotein (HDL) cholesterol, blood pressure and waist circumference, without using medications. These factors directly relate to a person's risk for heart disease, diabetes and stroke.

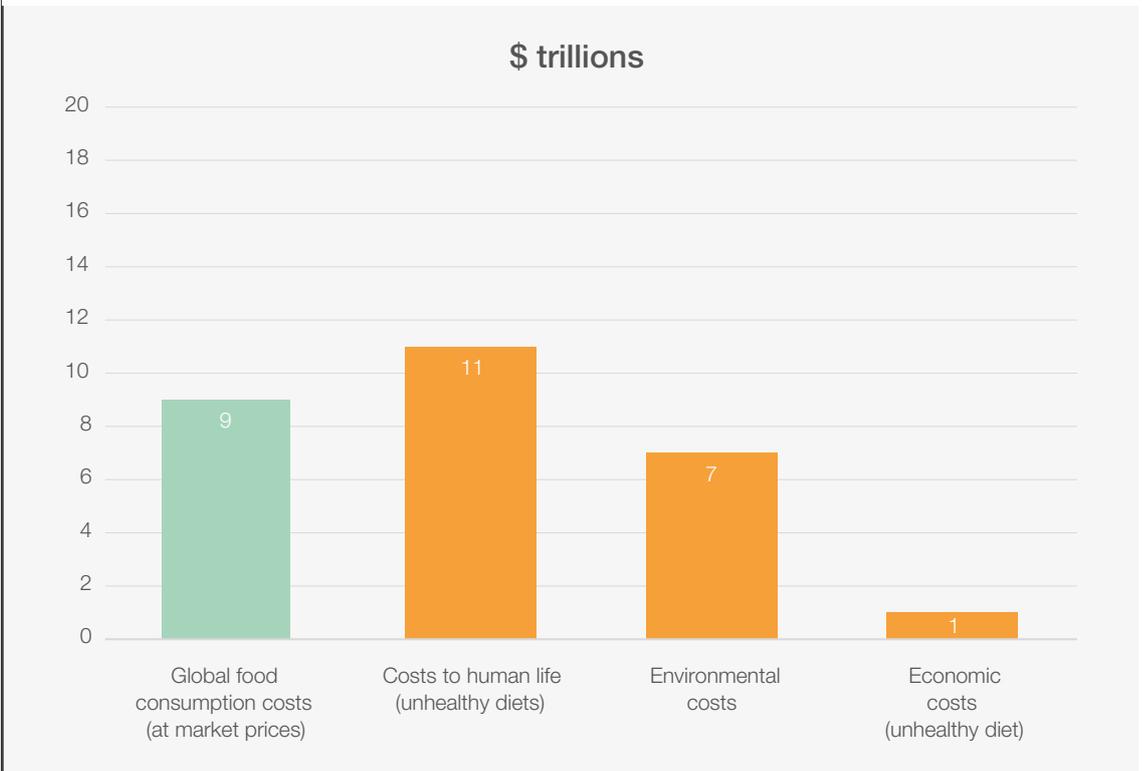
This crisis – which still flies largely under the radar – has advanced since the onset of the COVID-19 pandemic.⁷ Ultimately, without a significant global shift towards better nutrition, healthcare systems will soon be overwhelmed.⁸ Data tells the story bluntly: The annual cost of total global food consumption is \$9 trillion. **Yet the hidden economic and environmental costs and those to human life are more than double that, coming in at an estimated \$19.8 trillion. The largest driver of these costs, over \$11 trillion, comes directly from costs to human health tied to unhealthy diets.**



FIGURE 1 Measuring the current and hidden costs of today's food (global estimates for 2021 in \$ trillions)

Source: United Nations Food Systems Summit 2021 Scientific Group, *The True Cost and True Price of Food*, 1 June 2021, https://sc-fss2021.org/wp-content/uploads/2021/06/UNFSS_true_cost_of_food.pdf.

Note: Costs to human life include early mortality due to cardiovascular disease, cancers, diabetes and associated conditions. Environmental costs include costs due to climate change, biodiversity loss, depletion of water, mortality and disability due to air pollution, and additional ecosystem impacts. Economic costs include lost working days, informal care, and medical costs.



1.2 Cause for hope: a unique window of opportunity

The enormity of the crisis is undeniable. Yet, there is great cause for hope. Opportunities to address the global nutrition crisis exist now that previously did not, even in recent years.

For example, **consumer interest** in health and wellness is high. Some 77% of consumers in one recent survey said they want to do more to stay

healthy in the future, with more than half (51%) saying that they seek items that would improve their metabolic health.⁹ That interest is driving corporate venture capitalists to support consumer **health and nutrition businesses**. Corporate and investment activity in consumer health and nutrition-focused companies has grown in kind, by more than 50% from 2016 to 2020.

FIGURE 2 Strong consumer interest in health and nutrition is helping to drive rapid investment growth

What do consumers want?

- 77% want to do more to stay healthy in the future
- 57% are more concerned about their immune health because of the pandemic
- 51% are looking for items that contribute to their metabolic health
- 48% say that they will purchase more items related to health and wellness

How have corporate venture capital investors responded?

(includes corporate & venture capital investment activity in consumer health & nutrition companies, \$ million)



Source: ADM, Emerging Consumer Behavior Shifts: Six Ways Food & Beverage Innovation Is Evolving in the Face of COVID-19, 2020, <https://www.adm.com/news/news-releases/emerging-consumer-behavior-shifts-six-ways-food-beverage-innovation-is-evolving-in-the-face-of-covid-19-2>. Accenture Analysis of CB Insights collections: Food & Beverage, Alternative Protein, Digital Health, Health & Wellness Assessment, Wellness Tech, Women's Health – 3,726 tagged investment deals 2016 - 2020.

Today's technologies and scientific breakthroughs are enabling new opportunities to improve health through better nutrition – and bring successful efforts to scale. Innovation around the edges is gaining momentum, including precision nutrition, which is focused on advancing genetics research to better tailor diets to individuals' unique needs.

Artificial intelligence (AI), cloud-based, internet of things (IoT) and machine learning technologies, among others, are also enabling new ways to measure progress and adopt lessons learned quickly and effectively to sustain and build on that progress.

Meanwhile, **governments** are homing in on the issue, in many cases seeking to build on past efforts. One prominent example is the United Kingdom's moves to rein in advertising for foods that are high in fat, sugar and salt (HFSS). These efforts, which started in 2004, initially imposed limited bans on television advertising. The government then expanded its regulations to include certain forms of online advertising (where more than 25% of the audience is children). Most recently, the United Kingdom has passed a total ban on HFSS advertising online before 21.00, to be executed in 2023.¹⁰

Large **food and beverage companies** are also increasingly committed to healthier outcomes for their customers, introducing to their portfolios a range of products delivering positive nutrition with reduced calorie, salt and sugar content.¹¹ Unilever, for example, has set an annual €1 billion sales target from plant-based meat and dairy alternatives within five to seven years. It has also committed to doubling the number of products that deliver positive nutrition by 2025 through its "Future Foods" initiative. This initiative includes efforts to change the food on people's plates by increasing the consumption of plant-based foods, improving the diversity of foods, and providing fortification.¹²

The question is this: **How to harness all these efforts to multiply their power and secure a healthier and more resilient future?**

Answering it is the mandate. It is time to turn the significant threats presented by poor nutrition into a transformative opportunity to unlock innovation and new value creation to better meet consumers' health and well-being needs.

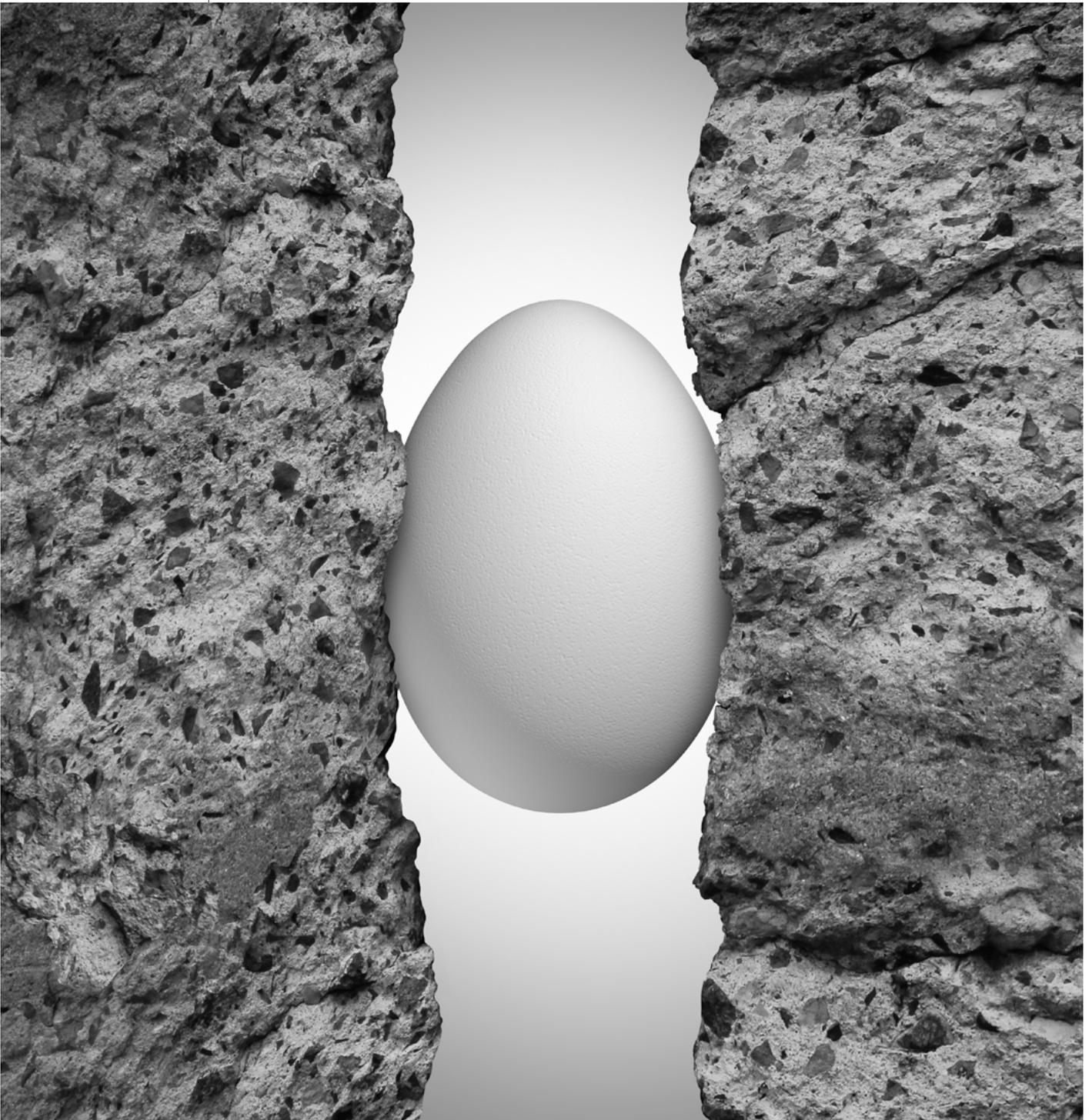
1.3 The Future of Consumption Platform's commitment

Based on the work done so far, it is evident that collective, institution-led action can capture the opportunity that this moment in time presents and drive a movement that results in improved nutritional outcomes for all.

To that end, this community paper considers at a high level the barriers to overcome, introduces an evidence-based social change model, and proposes a framework to catalyse, sustain and build on progress. The vision is that by 2035, people worldwide are living happier, healthier, more resilient lives through improved nutrition.



② **The barriers to overcome are simultaneously systemic and very personal**



There are significant barriers to bringing lasting solutions to scale. One of the greatest barriers is as simple to articulate as it is difficult to solve: the **lack of science-based global alignment on the purpose and value of nutrition**. Many definitions exist but it is necessary to home in on one – and use common language to better convey the issue and what’s at stake – to enable a focus on a paradigm that will guide humanity to the diets of the future.

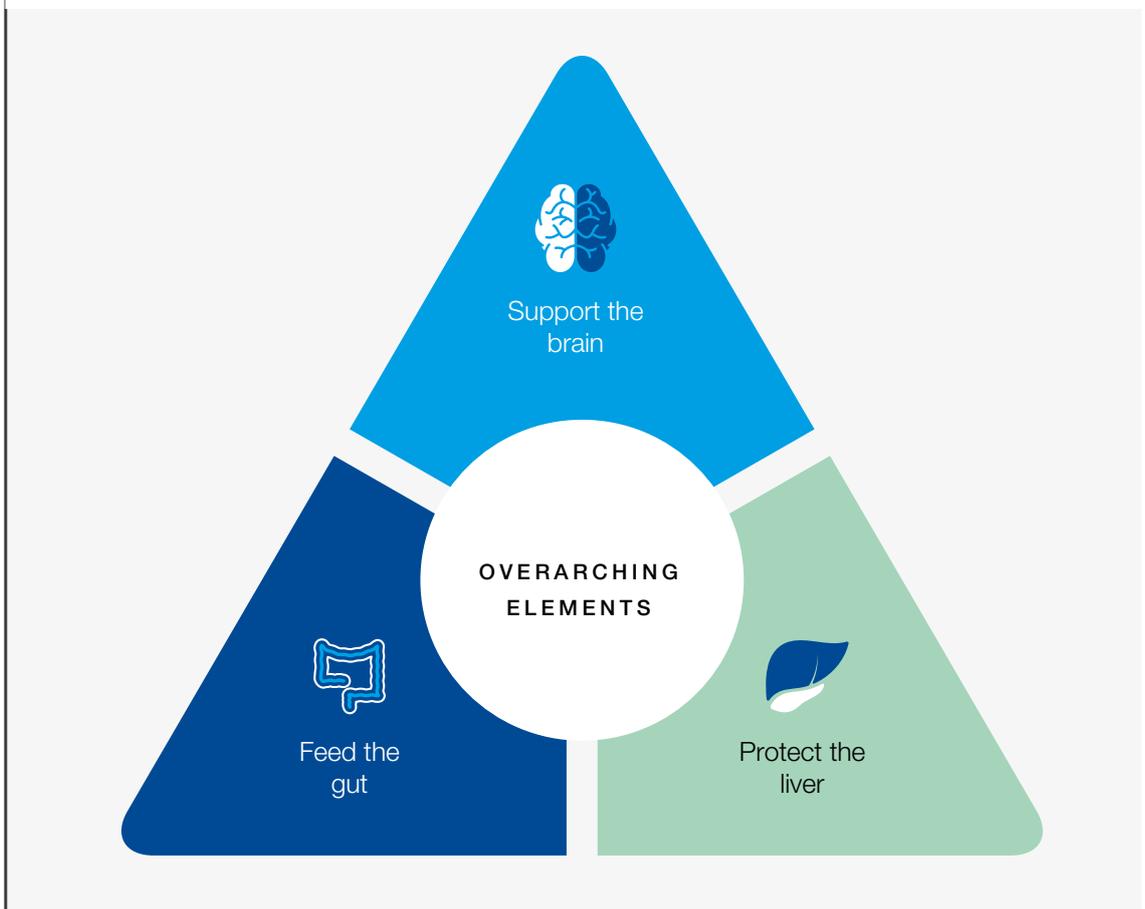
Consider: The food people eat is key to survival; but it is also fundamental to physical and mental health – the foundations of resilience. For example, according to Marian Diamond, who has studied the brain for 30 years at the University of California, Berkley, diet is the number one driver of brain health (cognition, moods, memory).¹³

Additionally, there is growing consensus on the idea that the microbiome (the micro-organisms

such as bacteria, fungi and viruses that live in the human body or any given environment)¹⁴ is essential for human development, immunity and nutrition.¹⁵ Diet directly affects this microbiome.¹⁶ Yet, despite a rising number of publications, documentaries and other communications on the topic, public awareness remains low.

Robert Lustig, Professor Emeritus of Paediatrics, Division of Endocrinology at the University of California, San Francisco (UCSF) and a member of the Future of Consumption’s nutrition community, concurs. As he has noted in his role as chair of the Scientific Advisory Team working with the Kuwaiti Danish Dairy Company, good nutrition should be based on its ability to *support the brain (the cognitive control centre), feed the gut (which extracts nutrients from food) and protect the liver (which regulates the chemicals in the blood and filters waste)*.¹⁷

FIGURE 3 Overarching elements of good nutrition



Source: Jafaar, M., Food meets health: How a new approach to metabolic health could tackle chronic disease, World Economic Forum, 23 June 2021, <https://www.weforum.org/agenda/2021/06/food-health-why-the-world-needs-a-metabolic-reset/>.

Yet, the 2021 UN Food Systems Summit found that “innumerable definitions [of a healthy diet] exist, with many similarities and several contradictions.”¹⁸ Because they lack common ground at this most basic level, disparate efforts to improve global nutrition, however well-conceived or impassioned, cannot coalesce.

This is because many **consumers still undervalue nutrition** as it pertains to health. In the US, for example, according to Sandro Galea, Dean at the

Boston University School of Public Health, “our national understanding of what constitutes ‘being well’ is centered on medicine – the lifestyles we adopt to stay healthy, the insurance plans and prescriptions we fall back on when we’re not, and an overall approach that treats health as a commodity that can be bought.”¹⁹ Viable, lasting solutions will require a widespread mindset change.

Food consumption is also an emotional, cultural and habitual experience that eschews nutritional

considerations. The smells and tastes of food hold and incite strong reactions. Food is a link to families and ethnic backgrounds. Preparing food for others is a fundamental form of caregiving. Eating is an integral part of many regular cultural and religious events, special milestones and everyday social rituals.

Consumers may also be **addicted to sugar**, which attracts them to more of the same and which is far less healthy than unprocessed alternatives. According to the US National Institutes for Health (NIH) “there is strong evidence of the existence of sugar addiction, both at preclinical and clinical level.”²⁰

Additionally, demanding **schedules** (e.g. limiting the time they have to prepare a meal) may frame consumer decisions about what to buy to eat and the types of foods and beverages – often highly processed – that are most convenient to procure may constrain these same decisions.

Affordability is also a significant factor. With food prices rising and budgets tightening, people will be far more likely to prioritize price over nutritional content. Solutions will need to take this into account. As an Accenture survey found in 2021, while health and sustainability are growing in importance in consumers’ eyes, their top two priorities when deciding what foods to buy are taste (80%) and price (65%).²¹ As one 2021 UN Food Systems Summit report put it: “sustainable and healthy food is often less affordable to consumers and profitable for businesses than unsustainable and unhealthy food.”²² Now, with inflation rising steeply, affordability plays an even more central role in consumption decisions.

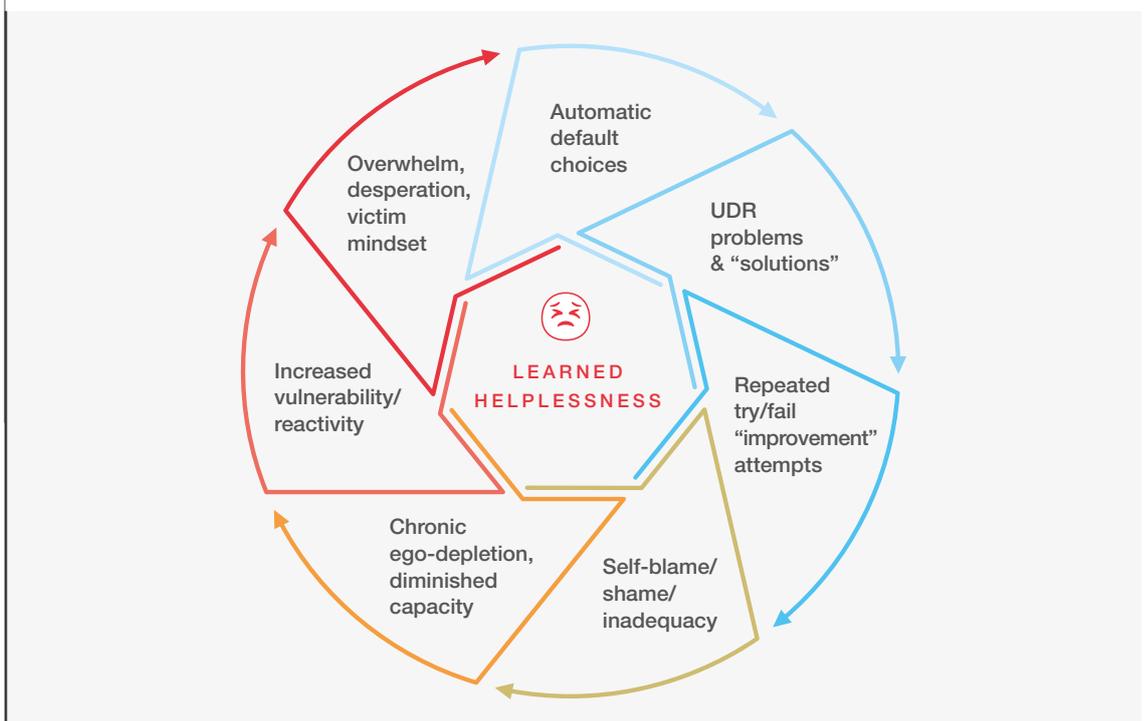
Pilar Gerasimo, health journalist and author of *The Healthy Deviant*, notes just how much the deck is stacked against widespread consumer behaviour

change at the individual level. She points out that in the current “Unhealthy Default Reality” (UDR), becoming and staying a healthy person requires choices, habits and attitudes so unconventional that they amount to a form of positive social deviance. Gerasimo holds that unprecedented levels of change – driven by the agricultural, industrial, technological and digital revolutions – have created an evolutionary mismatch between humans’ most basic, hardwired needs and their most accessible (default) diet and lifestyle options. Particularly in recent decades, she argues, accelerating rates of technological, social and environmental change have vastly outpaced the ability of most individuals to adapt to their current reality.

Meanwhile, she notes, most of the health-improvement messaging directed at consumers ignores these collective conditions and instead encourages people to focus on “what’s wrong with them” individually, implying that their failure to achieve a healthy lifestyle is the result of some failing on their part. The outcome? A sense of shame, chronic depletion and “learned helplessness”. Demotivated by repeated try-and-fail efforts, health-seekers lose hope of making lifestyle changes and become more vulnerable to the promise of a “silver bullet” and quick-fix solutions.

Finally, and perhaps reflective of all of the above, **nutrition is often absent** from discussions and actions taken to address hunger and in negotiation and debate about sustainability, food production, regulation and distribution practices that cross industry, government and social interests. At best, it is a sub-theme – mentioned but not given the attention that would be needed to raise awareness about the rising crisis and the relevance of its implications, much less compel collective action.

FIGURE 4 Vicious cycle of the unhealthy default reality



Source: Gerasimo, P., *The Healthy Deviant: A Rule Breaker’s Guide to Being Healthy in an Unhealthy World*, North Atlantic Books, 2020.

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A social change model to pivot consumers toward healthier lifestyles



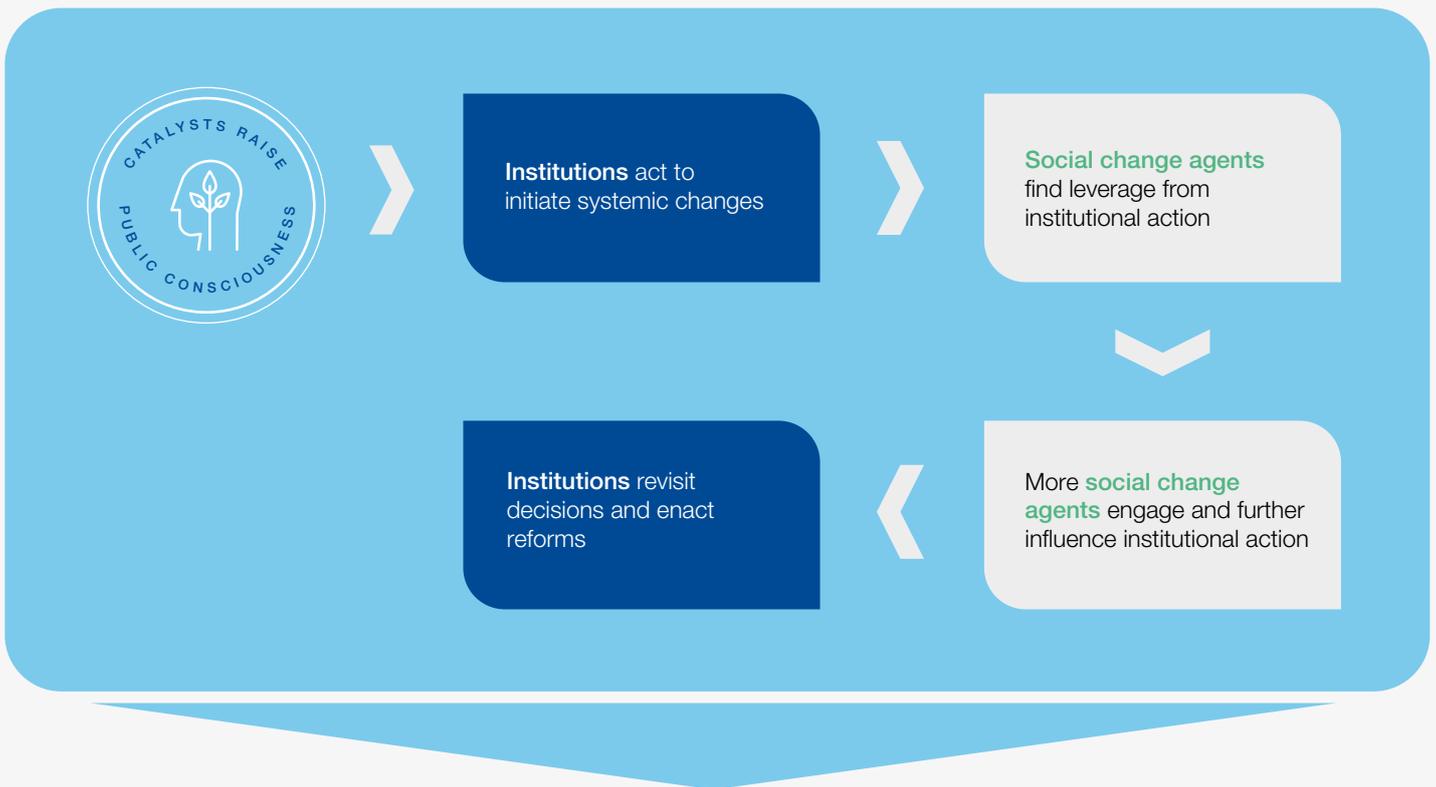
In the interest of homing in on the most effective ways to pivot consumers towards healthier lifestyles at scale, Edward Walker was invited to share his research on the roots, accelerants and sustainers of effective and lasting social change with the Forum's Future of Consumption Platform. Walker is a leading social scientist at the University of California, Los Angeles (UCLA) and Stanford University. Through his work, he has developed an evidence-based model for accelerating social change, which offers a guide on how to catalyse and build momentum for the systems transformations needed to accelerate sustainable consumption at scale.

According to Walker, large-scale change in social norms and behaviours begins with an initial catalyst that affects early public consciousness on a particular topic. These catalysts can be endogenous actors such as individuals engaged in advocacy efforts or organizations that function as strategic, neutral facilitators for stakeholders to coalesce on industry and policy agendas, such as the Forum's Future of Consumption

Platform. Catalysts can also be exogenous events that fundamentally alter society. The COVID-19 pandemic is a prime recent example.

When it comes to building widespread, durable momentum for social change, Walker's evidence-based social science research identifies **institution-led action as an unmatched accelerant**. He defines institutions as businesses and governments that can act as powerful levers for lasting systemic change through new legislation and corporate agendas. Specifically, policy reforms by both public and private sector actors can improve nutrition and public health by compelling changes to the options available to consumers and thus their "default" choices. Social change agents – referring to individuals or groups including media, academia and civil society organizations – find leverage from institutional reform, which generates wider societal engagement on a particular issue and then influences industry and policy-makers to enact further reforms. Ultimately, this results in a fundamental change in social norms and behaviours.

FIGURE 5 Model for accelerating social change



The model enables **individual changes** that **influence communities** and **shift social norms**

Source: Edward Walker, University of California Los Angeles College of Social Sciences

The [Americans with Disabilities Act](#) (ADA), signed into law in 1990, is one highly visible example of this social change model in action. Actions of the **individuals and organizations** who advocated tirelessly for equal rights prior to the ADA were the initial catalyst that legislators could not ignore. One powerful illustration of their activism was the [Capitol Crawl](#), where people with disabilities gathered on the steps of the US Capitol just months before the ADA vote, demonstrating the inaccessibility of public places. The ADA made it illegal to discriminate against people based on their disabilities in instances like employment, access to public places, and transportation. **The law ushered in a wave of sustainable change at scale.**

Subsequently, **affiliated social change agents**, including [The Arc](#) and [ADAPT](#), were able to shift the focus to enforcement and additional reform at all levels – local, state, national government and the court system.

Ultimately, Walker finds, it takes an institutional lead to ensure systemic change at scale. Specifically, institutional interventions – government regulations, the actions of large companies or company collectives – drive a virtuous cycle by giving leverage to “social change agents” (groups such as international organizations, individual activists, academics and other stakeholders). Their efforts in turn build momentum for wider institutional reform.



④ The 3 A's of nutrition transformation – availability, access and adoption



A sustainable solution will require the efforts of institutions and social change agents (including researchers, organizations and consumers) to coalesce. To that end, the World Economic Forum's Future of Consumption community took on the challenge of identifying a range of promising initiatives – government, corporate, scientific, technological, advocacy. Community members considered the ways in which these high-potential activities could complement and build on each other **to increase the availability, access and adoption of nutritious choices**. They also discussed how each might populate the model to accelerate social change and build momentum towards improved nutrition.

The following illustrative examples are just a few among many:

- **The Kuwaiti Danish Dairy (KDD)**. A private company based in Kuwait, KDD is among the oldest established manufacturers of food and beverages in the Arabian Gulf. KDD collaborated with Robert Lustig to create a scalable, replicable “metabolic matrix” – a science-based template for designing foods that support metabolic health by supporting the brain, feeding the gut and protecting the liver. In promoting it to industry actors, the company is directly acknowledging the impact of poor nutrition in the region. As Mohammad Jaafar, KDD's Chairman and Chief Executive Officer, wrote:

“A diabetes epidemic is sweeping the MENA region. Based upon International Diabetes Federation (IDF) estimates, three countries from the Arab world are among the top 10 countries worldwide for the prevalence of T2DM [type 2 Diabetes]: Saudi Arabia, Kuwait, and Qatar. By 2045, the total expenditure on diabetes in the region is estimated to reach \$37.1 billion.”²³

KDD is also taking on the challenge of producing and selling foods that contribute to long-term nutritional and economic security.²⁴ As Jaafar notes:

“An effective alliance supporting action at a countrywide or regional level is essential to provide the impetus for change. Such an alliance of forward-thinking medical, economic and political leaders is called for, and immediate actions must be taken to not only educate, but to forge policies and practices that can be embraced and propagated as a region, with strategies that focus and intersect at multiple levels: consumer, industry, health and government.”²⁵

- **Unilever, Nestlé and PepsiCo**. These global giants, among others, have developed tailored nutrient profiling mechanisms for internal use. At PepsiCo, for example, business leaders have segmented the company's offerings into four classes of progressively enhanced nutritional

value based on criteria set by independent global dietary authorities. These nutrition criteria are intended to support and compel business leaders throughout the company to make product nutrition enhancements through innovation and reformulation. Indeed, they have been adopted companywide as a consistent way to measure and, where feasible, accelerate progress on nutrition goals. As a result, product development, business and marketing teams are also aligned and using consistent criteria and language across categories and geographies.^{26,27}

- **Brightseed**. A California-based start-up, Brightseed is working to deepen humanity's understanding and use of plants in the food system through new data solutions and AI-based algorithms. Plants produce upwards of 10 million chemical compounds but only about 100,000 are understood today. The company's goal is to partner with food companies to deliver these plant-based compounds widely to improve health and develop new frameworks and language to drive innovation to accelerate access to and the adoption of plant-based foods. Too often, the western approach to well-being and nutrition involves identifying and isolating a single highly potent “hero” to simplify and improve outcomes for consumers (e.g. low fat, organic, free of genetically modified organisms (GMOs), antioxidants, multigrain, gluten-free, no high fructose corn syrup). That is usually not the way the body and plants work. Humans benefit from the additive and synergistic effects of these plants from a wide variety of sources.²⁸
- **Harrisburg University**. Recognizing the growth in consumer demand for locally produced food for local consumption, Harrisburg University's Center for Advanced Agriculture and Sustainability is accelerating the adoption of technology-enabled approaches to sustainable and more localized farming methods. Shifting some agriculture production, particularly for soft perishable foods and fish, from an export-driven model to a “local for local” model offers consumers improved access to healthier foods through shorter supply chains that can focus more on providing tasty, fresh, nutrient-dense and affordable foods directly to local markets.
- **Pure Harvest Smart Farms**. Pure Harvest, based in the United Arab Emirates, is an example of an innovator in the emerging space of controlled environment agriculture (CEA). Pure Harvest is focused on the sustainable production of greenhouse fruits and vegetables in particularly challenging climates like the Middle East using world-leading Dutch greenhouse growing technologies. It is improving food equity and access to locally grown, nutritious foods for consumers in vulnerable regions around the world (including food deserts in developed markets) while

efficiently managing resources like water, energy and capital. Its model, and those of similar CEA innovators, offers the promise of a viable pathway to improve access to nutritious foods but this type of model will need improved infrastructure, technology innovation and technical expertise to maximize its potential.

- **LifeNome.** This precision health company is working to better understand the key links between nutrition and disease prevention and good health. As Co-Founder and Chief Executive Officer Ali Mostashari told the Forum community in March 2021:

“Even though the technology is still evolving, companies can offer significant value to consumers through precision nutrition today. There are differences in our genetics that can create significant differences with regards to the absorption and bioavailability of micro and macronutrients. ... There is also a complex relationship between lifestyle and genetics and

how they affect each other. Certain people have higher cravings for sugar or are more sensitive to bitter molecules in leafy green vegetables, for example. ... Improved access to hyper-personalized nutrition solutions will lead to more empowered consumers adopting responsible, science-backed lifestyle recommendations to live the healthiest lives possible.”²⁹

- **Food Switch UK.** A free smartphone app, FoodSwitch helps users make healthier food choices by scanning food and beverage product barcodes. The app reveals immediately whether a product is high (red), medium (amber) or low (green) in fat, saturates, sugars and salt. It also searches the database for similar but healthier alternative products, making it easier to make a healthier food choice in the moment. FoodSwitch was developed through the collaboration of Action on Salt and Action on Sugar, associations of specialists, and the George Institute for Global health.³⁰

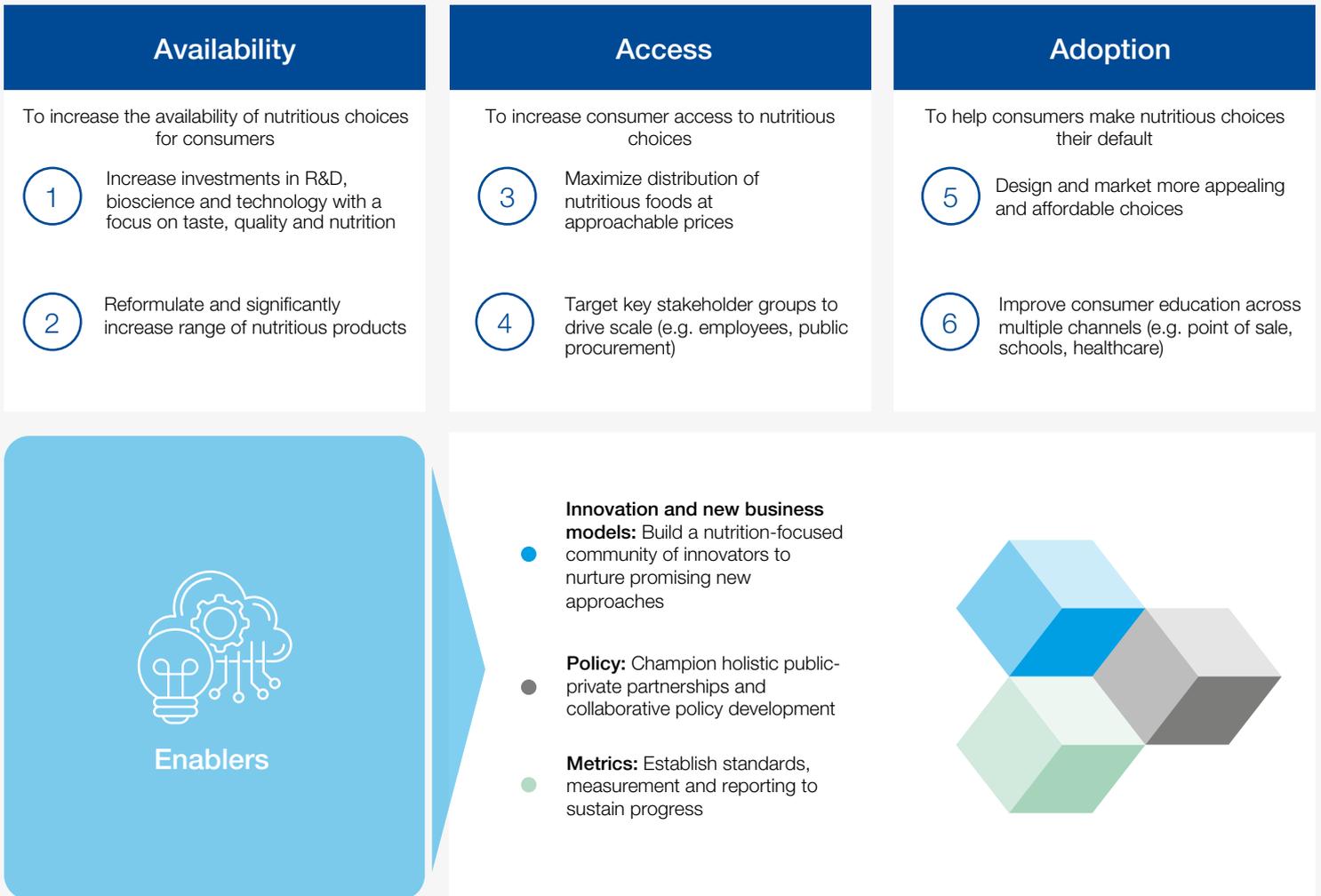
4.1 The 3 A's Framework

Ultimately, using these and other examples to inform the work, the community **developed a framework that all interested actors can use to consider and locate their opportunity to contribute to positive change at scale.** This

framework homes in on three areas of focus: increasing the **availability** of nutritious choices; increasing **access** to those options; and enabling and supporting consumer **adoption** of more nutritious choices as their default.



FIGURE 6 | 3 A's Framework for improving nutrition



These “3 A’s” don’t represent a sequence of activities. They are not linear. Availability and access increase adoption. Meanwhile, adoption drives demand for availability and access. Moreover, the boundaries between each are blurred, with many activities fitting in more than one area. Merchandising, for example, could serve both access and adoption. What is important is that together, they frame a comprehensive set of actions that can shape a new, more positive environment. Each one, and all three together, feed the cycle of improvement.

Consider each in turn. **Availability** includes companies, like KDD, Brightseed and LifeNome, that are prioritizing nutrition-led R&D by developing or reformulating products to be more nutritious. Availability also includes innovating to create entirely new product lines that put nutrition at the fore. Additionally, it includes concentrating on taste rather than durability in growing and developing foods and beverages. Doing that blurs with accessibility, which includes shortening distribution

distances by identifying ways to grow and manufacture food and beverages close to the point of sale and consumption.

Accessibility is ultimately about distribution and pricing. It also encompasses identifying and supporting those local-to-local opportunities, as Pure Harvest is doing. It includes engaging a broad ecosystem – entities throughout a business’s value chain and beyond – for the purpose of identifying and prioritizing new business models and other viable ways to champion nutrition. Accessibility could also mean prioritizing nutrition in merchandising strategies, including placement, pricing and other incentives.

Adoption means helping consumers easily make the necessary changes in their buying habits and lifestyles to prioritize better nutrition. Making more nutritious foods and beverages available and accessible is a big piece of this, as is education. Education in school settings will help. Education in community settings will as well. Employees

represent a clearly defined group and natural “student body”. Health professionals that deliver aligned messages are also important adoption influencers. Topics covered should range from what nutrition is and how it affects well-being, to the differences between calorie-dense foods and beverages that are nutrient-rich and calorie-dense foods and beverages that are not. Disturbingly, nutrition is rarely prioritized in medical schools. In the United States, less than 20% have a single required course in nutrition.³¹ In Europe, more medical schools require nutrition training (over 65%); however, on average, this represents less than 25 total hours of training.³² That lack of emphasis translates into a de-prioritization of nutrition in treatment plans and in the conversations that doctors have one-on-one with patients who depend on their guidance. Continuing education for nutrition is expanding in an effort to change that landscape. For example, the American Nutrition Association educates and trains health professionals and the

public in the science and practice of personalized nutrition. Another example is David Eisenberg’s Healthy Kitchens, Healthy Lives continuing education conference co-sponsored by the Harvard Chan School of Public Health and the Culinary Institute of America. It merges the latest nutrition science with practical preparations skills to improve patient adoption of healthier food choices.³³

Through its work, the community has also identified the **enablers** that will be critical to ensuring that these efforts add up to more than the sum of their parts. These include efforts to convene change agents to accelerate innovation and promising new business models while advancing public-private partnerships and holistic policies and metrics to sustain progress. These enablers should also include strong advocacy for (and the promotion of) holistic public-private partnerships and policy development, along with convergence on standards, measurements and reporting to sustain progress.



5

Durable initiatives build on past experience



Institution-led change has worked successfully to improve nutrition in the past. However, many of these efforts have fallen short of the traction needed to last and grow. With that in mind, one imperative in efforts going forward is to build on lessons learned from past experience.

Consider the United Kingdom's salt reduction programme aimed at driving gradual product reformulation to reduce salt intake across its population. Initially, the programme was a staggering success. Efforts by early proponents led to food and beverage companies and government collaboration, which led to companies setting and meeting voluntary progressive sodium reduction targets. The following seven years resulted in a 15% reduction in consumer sodium intake, an estimated 6,000 fewer deaths per year from cardiovascular disease, and £1.5 billion in healthcare savings.³⁴ However, the effort proved unsustainable. What are the lessons from that initiative? One might be that voluntary reductions, while inspirational, will not necessarily go the distance. Ongoing government engagement and regulation must ultimately play a part. Another key takeaway is that considering all stakeholder interests and contexts is critical to long-term success.

One promising example of public-private partnership currently underway is Jersey City, New Jersey's (US) initiative to deliver a sustainable source of fresh produce for populations in low-income areas through a new programme called Healthy Greens.

Through its partnership with the Future of Consumption Platform, Jersey City's municipal leadership team identified a select group of partners, including Aerofarms, a New Jersey-based indoor vertical farming and Certified B Corporation, IBM, Quest Diagnostics, Ōura Ring and Rutgers University, to launch ten sites across the community located in senior centres, schools, public housing complexes, as well as in municipal buildings. The farms will grow 8,600 kg (19,000 pounds) of vegetables annually. These greens will be made freely available to the public with one stipulation: participants must attend five healthy eating workshops (run by the city's Health and Human Services Department) and agree to quarterly health screenings. The city also offers access to Ōura Ring fitness trackers free of charge to bring more personalized information to participants.

Critically, this initiative is also working with federal and state food programmes, including the Community Food Bank of NJ's SNAP-Ed programme, the US federal WIC programme (the Special Supplemental Nutrition Program for Women, Infants and Children, which is administered at the state level), the city's Summer Meals and Congregate Senior Lunch and Lot Community Gardeners programmes. In this way, it is both aligning and simplifying the messages that consumers receive. Moreover, it is providing citizens with different ways to learn about healthy greens and expand their knowledge about nutrition.

Ultimately, this is about giving people the education they need about the importance and impact of the decisions that they make and viable, lifestyle-friendly opportunities to make better decisions. As Jersey City Mayor Steven Fulop recently stated:

"I believe that if we're able to do that, then people will make those better decisions. It's about education and access, and it's also about respect – respect for the individual, and their culture and background, and respect for the challenges they face.

"You and I might take for granted that we get blood work done regularly and have an annual physical. People who are economically challenged and living in vulnerable neighbourhoods can't necessarily do that. They may not realize the importance of it, and they might not have access to or education about the data. So, if you can learn about the data, and have access to the data, and technology helps you see, then you're going to ultimately make better decisions. Then you start feeling better besides, and that's added incentive to keep improving. And you can also see the sources of those improvements – the plants growing and being farmed – without going out of your way. And those plants are free. All those things will help create new and healthier habits. That's my belief."³⁵

6

Conclusion

Efforts to drive positive nutrition across the nutrition landscape have begun. However, there is an acute need for more impactful, faster and broader-reaching actions to knit disparate efforts together and realize the collective vision: By 2035, consumers will be empowered through better nutrition to live happier and healthier lives. Increasing access to and the availability and adoption of nutritious choices will be critical to achieving that vision, along with building greater momentum towards positive social and system-wide change.

As a global community, the Forum's Future of Consumption Platform will therefore work in the next two years (2022-2023) to:

- Elevate nutrition on institutional agendas worldwide

- Align on the purpose and value of nutrition
- Accelerate new business models and operating capabilities that leverage innovation, data and technology to make nutritious and healthy options the norm
- Identify standards, measurements and reporting to ensure sustained progress
- Leverage public-private partnerships to accelerate positive change

To this end, the community's members dedicate their passion and their time and urge companies to join with them to achieve this vision and secure a healthier and more resilient society through improved nutrition, for current generations, and for those to come.



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AeroFarms	Minerva Foods
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American Nutrition Association	N.thing
Anheuser-Busch InBev	National Aeronautics and Space Administration (NASA)
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Bonumose	NX Food
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