



EMERGING TRANSPARENCIES

Concerns over food safety, globalization, and the food chain come together with new media technologies to drive and expand the demand for new transparencies relating to the governance of food. At the intersection of health needs, food democracies, and sustainability, consumers will demand greater transparency in food labeling, and new platforms will emerge to aggregate and diffuse information beyond what food producers provide on labels. When transparency bottlenecks occur, expect user-generated information that leverages new bar coding technologies, mobile services, and governance structures to proliferate. These new transparencies will be directed at both government and the private sector and we will need to pay attention to the shifting foci of transparency.

NEW METRICS AND FOOD CATEGORIES

As our understanding of food and nutrition sciences broadens, new metrics and categories of food and beverages will result. Consumers will demand that labels reflect new food categories—“locally developed”—or production information—“living wage labor practices.” As companies grapple with consumer preferences, the link between food and health will become even more pronounced. Consumers will continue to move toward functional foods and food-away-from-home, frequently eating meal replacement bars that function like a multi-vitamin. From probiotics to prebiotics, new scientific developments will continue to drive new choices, perhaps even finding food links to asthma and autoimmune disorders. Expect to find the convergence between pharma and food to play out in surprising ways.

RESOURCE CONFLICTS

The resource demands of our food system—on land, water, energy, and materials—will continue to fuel conflicts on multiple scales. Renewable, reusable, and multi-purpose innovations in energy, packaging, and waste recycling will proliferate, but dangers lie in options that are not holistically sustainable. Life Cycle Assessment tools for measuring the environmental impact of products and design approaches will help expose the dilemmas created by the food production process and, in response, will lead to the development of new business models to address these concerns. The unintended consequences of biofuel production will also enter into the equation and come into conflict with efforts to reduce pesticide use and increase local consumption of food; substitution effects may create problems down the line.

how-to-use this map



Read the zones of change first.

These are like compass points. They will help you get oriented to the overall shape of the future of foodscapes.



Follow the trend paths.

These are dotted with examples of new tools, practices, and needs that are emerging today and will create the day-to-day world of the coming decade. Think of these as signals—indicators of the things to come. Add your own signals if you like. This is a way to systematize what you already know about the future, and perhaps raise questions about unexplored paths that could lead you in new and innovative directions.



Tackle the big stories.

These are where some real work on the future can be accomplished. They are the strategic areas in the landscape that will demand some response. This is a perfect place to do a SWOT analysis—tally your Strengths and Weaknesses, Opportunities, and Threats for each of these stories.

about the foodscapes framework

We use the term “foodscapes” to talk about the layers of global flows of people, technologies, ideas, money, and ethics that will play a role in shaping the future of food. These layers form a new framework for thinking about food that goes beyond traditional approaches to market segmentation analysis and captures the connections and disjunctures between the various layers.

We looked to the work of anthropologist Arjun Appadurai, who in his 1990 essay “Disjuncture and Difference in the Global Cultural Economy,” identified five dimensions of global cultural flow, each of which can incorporate ideas about food and food markets:

- **Ethnoscapescapes**—the flows of tourists, immigrants, refugees, and business people, and their various eating and food customs
- **Technoscapescapes**—the flows of technologies from precision farming to mobiles and radios
- **Medioscapescapes**—the flows of images and information that convey cultural values and politics of food around the globe
- **Financioscapescapes**—the flows of capital that help create new markets, food deficits and/or surpluses
- **Ideoscapescapes**—the flows of ideas, meanings, and ethics that inform food choices

Our research lead us to consider another dimension of Appadurai’s work—**ecoscapescapes**, which we define as the flows of sustainability practices related to food production, transportation, packaging, and consumption.

The foodscapes framework we present to you encapsulates all of these dimensions and informs our layered approach to talking about the future of food. When reading this map, keep all of these terms in mind while considering the impact of food in the global health economy.

the future of foodscapes

In recent years, more and more people have recognized that in addition to the importance of taste, value, and even the convenience of food, food is also fundamental to their health. Indeed, the concept of foodscapes takes us beyond the simple question of whether what we eat and drink is healthy or nutritious. It recognizes that, in addition to its importance with respect to our health, food has also become a critical theme in how we think about politics, culture, and globalization. Add sustainability to the mix and the result is an even more challenging picture that often raises ethical dilemmas: **do I choose the organic beets because they are healthier for me or do I pass them over because they’re from Chile and the carbon footprint to ship them to the United States is greater than if I were to buy conventionally-grown beets from a local producer?**



Foodscapes describes the complex relationship between food and health that is shaped by converging trends in the global health economy, trade and finance, new technologies, and sustainability.



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These questions are also indicative of the transition that is underway from our traditional, producer-oriented food system to an era focused on the needs and demands of consumers. As we move away from this productionist paradigm, globalization, ecological change, and the growing prevalence of chronic diseases are driving new framings of risk. New media technologies are empowering consumers to demand greater transparency and accountability with respect to food safety and sustainability issues. These emerging layers of complexity demand a new way of looking at the relationship between food and health.

The Institute for the Future’s Health Horizons Program has designed **The Future of Foodscapes Map** to help navigate this evolving landscape. Our starting point is definitional. “Food” encompasses a full range of products, from those sold fresh at farmers’ markets to highly processed and packaged items found at the local supermarket. Food may be prepared at home or purchased at a dining establishment. Food also includes all that we drink, from organically grown coffee to our favorite cola.

So what is a “foodscape”? We derived the term from anthropologist Arjun Appadurai’s notion of “ethnoscape” and its related layers of cultural analysis that encompass the global flows of people, technologies, information, money, and ethics. Foodscapes provides a new framework for thinking about the future of food.

The Future of Foodscapes Map identifies four key areas of our rapidly changing world that are critical to understanding the complex relationship between food and health. The map’s “zones of change”—the global health economy, trade and finance, technology, and sustainability—give rise to a number of significant (and sometimes contradictory) trends that weave together to tell six big stories—our forecasts—for the future of foodscapes. Understanding the implications of these forecasts will open up opportunities for innovation and collaboration that will help shape the future of food and food markets of tomorrow.

CITIZEN SCIENCE

Lay people are contributing to and affecting scientific research and policy more systematically than ever. With new technology and media, we will see greater citizen participation in defining, supporting, and even conducting research. Lower prices for diagnostic tools and the accessibility of social networking and mobile platforms will lead to strong citizen movements around science, food, and health. At times, these movements will corroborate existing scientific knowledge. As they grow in size, scope, and frequency, they will undoubtedly raise questions about traditional canons of science and medicine, and lead the way to innovative research and diagnoses. An ethos of engagement with these movements may also open up new opportunities for brand and product development, and expand corporate social responsibility initiatives.

NEW HEALTH COMMONS AND COLLECTIVES

As the prevalence of chronic diseases and the spread of zoonotic threats to food safety continue to grow, cooperative approaches to risk management, disease prevention, and innovation are emerging. Social affinities based on biological experience drive the growth of biocitizenship and lead to the reframing of some health issues—from individual responsibilities to problems of the commons—that demand new approaches to health and governance. Perverse incentives that de-emphasize prevention in the global health economy get realigned with inspiration from these new health collectives and commons-based paradigms.

CONTESTED HEALTH CLAIMS

Science is continually exploring new ideas, making discoveries, and refining methodologies. But contradictory information from the food and nutrition sciences, especially as reported by media, can cause public uncertainty and amplify perceptions of risk. In a world of complex food choices, consumers must filter this information to make decisions about their personal and family health. Backlash against contested health claims will cycle around to create additional pressures for new transparencies, drive user-generated information, and open opportunities for trusted third-party information resources.



zones of change

GLOBAL HEALTH ECONOMY: beyond healthy food

With more responsibility for the cost of their health care, people are turning to the broader marketplace—rather than just the traditional health care delivery system—for solutions. This shift is accompanied by an expansion of what it means to be healthy, what is considered therapeutic, and what is an appropriate site for intervention or treatment. As we move toward a world of more healthy lifestyles and holistic approaches, what we eat and drink will be viewed through a health lens.

This health lens defines the global health economy and will fuel innovation and growth in the food and beverage market. This trend is most pronounced in the United States, where more than 90% of the population seeks health benefits in food, but it will spread globally as new products, services, and technologies focus on this broader definition of health.

Food also raises health concerns: in the Western world, diet-related health problems range from allergies, to food insecurity, to obesity; in developing countries, malnutrition remains a persistent challenge. Systems-based thinking about the intersection between food, nutrition, and health offers new approaches to these problems.

TRADE AND FINANCE: the global movement of food

Today, many of us enjoy a diverse, international selection of food and beverages, thanks to lower transport costs, improved supply chain management, and liberalized agricultural trade policies. Indeed, our dinner plate—whether prepared in the family kitchen or on-the-go—may be one of the most ubiquitous reminders of today's global interdependence. From fruit to coffee, more and more consumers around the world expect to have a wide selection of food and beverage choices available to them at relatively low prices.

Yet as demand grows for the global movement of food, livestock, and agricultural commodities, regulatory and infrastructural bottlenecks are emerging. Often-conflicting international public and private safety standards are proliferating and facing scrutiny in light of recent food scares. The relative healthiness or unhealthiness of a company's portfolio of food products influences Wall Street's traditional assessments of risk of litigation. Asymmetries in risk perception by producers and consumers of food will play out in trade, as well. Agricultural, environmental, development, and energy policies intertwine, and consumers make trade-offs between trade, growth, and sustainability as citizen-driven food movements challenge the existing volume, mix, production, transport, and marketing of foods and beverages.



TECHNOLOGY: bottom-up food management

Technological developments are affecting how people make choices about what they eat and drink, as well as how food and beverages are produced and distributed. As mobile platforms advance, consumers will rely on both user-generated tagging and producer-generated labeling at the point of purchase to filter information, spur bottom-up accounting, and expose companies' production, transportation, and marketing practices. This vast ecosystem of product information will generate new customer communication channels and stimulate open dialogue around product choices. Peer-to-peer networks will foster technology-supported citizen engagement and the effortless materialization of issue-driven groups.

Technological advancements underlie one of the key issues fueling citizen engagement. Although food producers have generally embraced technologically-driven improvements in food production—making it safer, cheaper, and more reliable in the short-term—consumers have resisted the introduction of genetically-modified organisms (GMOs) into their diet. Yet, more than a decade after the Pure Food Campaign-led international boycott of genetically engineered foods quelled consumers' appetite for GMOs, "smart breeding" is producing nutritious, tasty, safe, and plentiful crops that require less pesticides, fertilizer, and irrigation, and that offer more traits that consumers desire. What's more, the collaborative and open research approach being adopted by food scientists around the world—essentially open source innovation in agriculture—is challenging industry's control of food science.

SUSTAINABILITY: the ecology of food

The politics of sustainability is a critical factor in understanding the intersection of food and health in our foodscape. From water to land usage to carbon emissions, new "footprints" that measure the environmental impact of food production, distribution, and consumption are growing in importance in the eyes of consumers, governments, non-governmental organizations, and corporations. This adds a new, qualitative dimension to food production beyond the quantitative measures of food that we have seen in the past. A consumer's purchasing decision about organic products grown at a distance versus local, non-organic items is but one example of the complexity of choices people now face in light of competing values and priorities regarding food, health, and sustainability practices.

Food intersects with ecological concerns to create demand for sustainable practices along the entire food chain

SUSTAINABILITY: the ecology of food