

Industry Compass 2.0

Navigating the Life Sciences and Health Care Landscape



Deloitte LLP's Health Sciences & Government practice and Institute for the Future's Health Horizons program have collaborated to produce *Industry Compass 2.0*. This map is a navigation tool designed to help organizations make better decisions today while strategically preparing for the life sciences and health care world of tomorrow.

Industry Compass 2.0 goes beyond traditional stakeholders and boundaries in the health care industry to examine dynamic *zones of impact* including people, networks, markets, practices, and tools. The map does not make predictions about what the future will hold. Rather, it is intended to help make sense of the complex transformations we see on the horizon across six forces driving change. While these *drivers* signal significant changes, there will be challenges to overcome. *Industry Compass 2.0* presents these potential constraints as *hurdles* that need to be considered.

Taken together, the elements of this map provide a visual guide to an uncertain future.

To access the entire suite of tools, visit: www.deloitte.com/us/industrycompass

If you would like additional support as you explore the future of the Industry and the implications for your organization, please contact us at:

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Drivers

Demanding demographics

Nearly half of all Americans are expected to have chronic conditions by 2020. This growing number of chronically ill, along with increasingly aging, sedentary, immunocompromised, and ethnically and socio-economically diverse segments of the population, will strain society's capacity to respond to health challenges.

Broadening definitions of health

Definitions of health are expanding, encompassing everything from food to pharma, beauty to consumer electronics. Healthier lifestyles and holistic approaches to aging, eating, self-care, parenting, working, and homemaking generate consumer demand for new health offerings from a diverse set of stakeholders.

Rising pressure in policy & politics

The economics of health care heighten focus on health policy. Political discourse around health care reform calls into question the present organization and distribution of resources. Governments require metrics that link spending to better health outcomes.

Expanding connectivity: anytime, anyplace

The globalization of biomedical informatics, innovation, and production moves technology-enabled research and delivery of care out of traditional settings. New settings arise in the home, on mobile devices, in workplaces, and in remote locations, creating new sites for health discovery and delivery.

Increasing transparencies

Advances in science, communication, and information technologies are increasing visibility and awareness of health system performance, quality, and cost, as well as individual health risks (genetic, environmental, behavioral).

Converging relationships

Changing and converging business models, along with structured open-source innovations, are enabling health care providers, payors, life sciences companies, policy makers, and consumers to collaborate, innovate, and form non-traditional alliances.

Impact Zones

People

Unhealthy lifestyles migrate abroad

- Low- and middle-income countries face increasing health risk factors, including chronic disease
- Geographic differences in disease burden are diminishing

Population differences burden health systems

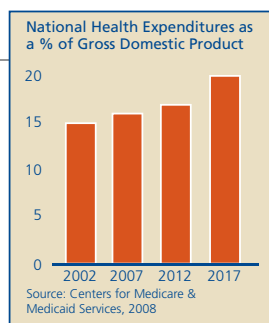
- Socio-economics
- Lifestyle choices
- Living arrangements
- Disparities in access to competent care and insurance

Wellness goes mainstream

- Distinct definitions of health, motivations, and values
- Nutrition and food choices
- Prevention and disease management
- Balance and energy
- Sleep and stress reduction

Increased financing and care demands

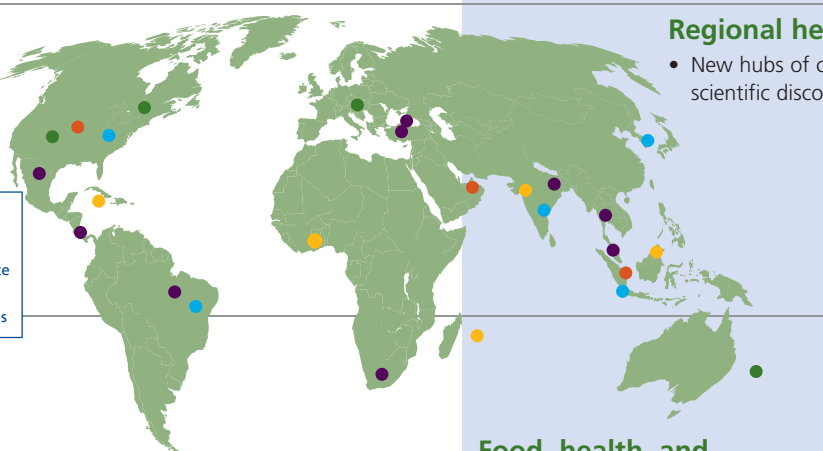
- Baby boomers become Medicare-eligible
- Health disparities expand
- Tolerance for additional risk speeds new interventions



Mobile scientific populations

- New migration patterns and flows of talent

- Sources of mobile science and health workers
- Importing countries
- Medical centers of excellence
- R&D hubs
- Medical tourism destinations



Bottom-up surveillance

- Peer-to-peer rating systems
- Unfiltered information about companies' impacts on various stakeholders



Transdisciplinary training

- Moves scientific knowledge into clinical practice

Citizen scientists

- Retired professionals
- Amateur enthusiasts



Powerful Brands

What is the future role and importance of branded health care products and services?

Networks

Peer-to-peer engagement

- Biocitizens connect around shared diagnoses
- Collaboration, feedback, and collective action
- Marketing and advocacy



Health communities proliferate

- Based on needs, values, and biometric data
- Informal and transient

User-generated health care

- New trusted authorities
- Collective intelligence as source for health information

Personal health networks

- Technologies
- Information
- Products
- Providers

Health care epicenter shifts

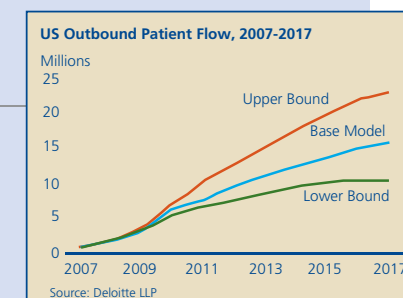
- From hospital to individual

Convergence of public, animal, and environmental health

- Response to health, natural, and bio-terror disasters
- Threat of diseases spread by animals to humans
- Growing governance gap

Regional health advantage

- New hubs of care, services, and scientific discovery



Networked tools

- Tracking, monitoring, responding
- Translational informatics

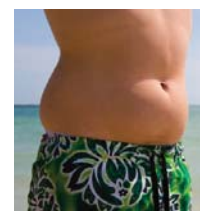
Blurring boundaries enable open innovation

- Broader set of inputs, talents, and interactions
- Ideas generated from networks, not institutions

Markets

Childhood obesity creates future markets

- True costs include economic productivity
- New collaborative partnerships form

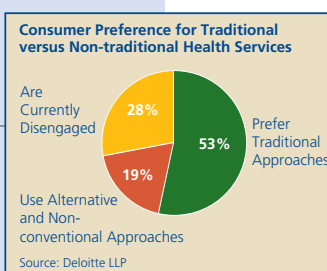


Long tail economics

- Small markets aggregated

Consumer health markets fragment

- Personal medicine leads to new products and services
- Shift from sickness to wellness business model
- New competitors from adjacent industries
- Segmentation defines new markets



Health care costs soar

- Expanded state and federal programs

Local solutions

- Coverage for medical tourism
- Workforce recruitment
- Retail-based/direct-to-consumer

Health tourism

- More economically and socially viable
- Impact to local markets

Expanding points of care

- Health management at home, in community, on the go
- New settings based on cost, access, and convenience



Cohort studies dethroned

- Clinical trial discrepancies exposed

Demonstrated accountability demanded

- Quality, cost, and performance-based metrics
- Change in traditional care referral patterns
- Increased tracking of aggregate spend



New pathways to market

- Public-private and cross-industry partnerships
- Novel partnerships produce new care models
- New roles for tiered practitioners

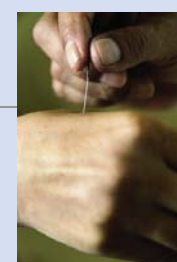
Practices

Upstream prevention strategies

- Wellness
- Diagnosis of metabolic syndromes
- Emphasis on cardiovascular risk factors

Expanded Care Coordination

- Transitioning roles
- Population health management



East meets West

- Ayurvedic and Chinese medicine

Health and workplace productivity linked

- Carrot-and-stick incentives for health behavior
- Absenteeism and presenteeism
- Support for financing of health care

Corporate social responsibility

- Self-regulation
- Product reformulation
- New positioning

Regulatory intervention

- Reference pricing
- Reimbursements tied to quality and performance
- Government mandates vs. self-directed decisions
- FDA latitude

New coordinated care models

- Smart medical home
- Technology-enabled connected care
- Hospital 2.0

Global standards adopted

- Licensing
- Accreditation
- Regulation
- Pricing
- Data

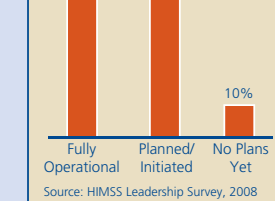
Evidence-based medicine

- Electronic health records
- Streamlined administrative practices
- Privacy concerns compete with efficiencies
- Physician adoption

Universal Quality Concerns

How will quality be measured and managed in a global marketplace?

EMR Implementation



Technology shapes health behavior

- New media technologies integrate layers of data
- OTC diagnostics provide real-time feedback
- Advancement of data analysis

Simulations anticipate risk

- Patient self-care
- Clinical trials
- Public health preparedness



Health Care System Breakdown

When and where will the fault lines of the U.S. health care system start to crack?

Emerging Global Competition

How will global competitors impact the development and delivery of products and services?

Hurdles

While the drivers suggest significant changes in the research, financing, and delivery of care over the next decade, the evolving landscape of life sciences and health care will be marked by challenges—or hurdles—to overcome. All forward-looking organizations should consider not only the possibilities that the future holds, but also the challenges or constraints that may affect the scope and impact of change.

Culture

Current behaviors, attitudes, beliefs, and values are entrenched and contribute to a health care system that is resistant to change. For example, many people operate in a "sick" mode and look to others for a cure, behaving as passive consumers of care.

Fragmentation

The fragmented model that has evolved supports solutions that align with specific health care needs rather than integrated systems that promote wellness, coordination and cooperation.

Risk

Concerns about litigation, liability, and privacy can prevent or slow change, innovation, experimentation, the development or use of new procedures and therapies, and the sharing of data.

Incentives

Monetary positioning and the potential for financial gain help to incentivize the status quo, making changes to the risk/reward equation problematic.

Financing

The ability to access necessary financing to fulfill needs, cover costs, and invest in innovation, has grown more constrained and complex.

Position

Conventional approaches to strategic planning and positioning may limit the flexibility to react to disruptive forces and may challenge execution during times of uncertainty.



Personalized health information

- Individualized risk assessment
- Personal health records
- Genetic screening

Consumer health technologies

- Medical expense management
- Direct-to-consumer tools and decision support
- Genotypic diagnostics and targeted therapeutic interventions

Semantic Web

- Self-identifying data
- Machines acting on your behalf
- Contextualized personal health information

Mass Personalization

What will it take to get consumers to actively manage their health care?

Online platforms for collective action

- Communities of interest become communities of action
- Online/virtual political action groups form
- Focus on cost reduction and improved health outcomes



Sensing technologies

- Eco-monitoring
- Collection of biometric data

Mobile health

- Delivery of information and services
- Peer-to-peer health management
- Adherence support and self care
- Citizen public health

How to Use This Map

Industry Compass 2.0 is designed to help you think about the future in an engaging and constructive way, by encouraging you to consider various trends and foresights. It is also intended to provoke conversation about how the issues will interact and how your organization might respond to or even co-create the future. As with all maps, a legend is often required to successfully navigate the landscape.

Drivers

The map's six rows represent the driving forces shaping change over the next decade for life sciences and health care organizations in the global health economy.

Demanding...

Impact Zones

The map's five columns, or impact zones, are the key domains in which we see change occurring. These five columns intersect with the map's driving forces to form a matrix that highlights how trends are converging.

People

Trends

Trends that are shaping the future can be found at the intersections of the driving forces and impact zones. The text side of the map provides a richer understanding of what the future might hold.

Unhealthy lifestyles...

Signals

Signals, represented on the map through photos, graphics, and other illustrations, are early indicators, innovations, and examples of trends.



Landmarks

The map's six landmarks provide important examples of the strategic questions confronting industry stakeholders as they define and navigate the future.

Powerful Brands

Hurdles

Hurdles represent important challenges or constraints to keep in mind when scanning the map.

Culture

For more information and to access the entire suite of tools, visit: www.deloitte.com/us/industrycompass

Drivers Impact Zones

Demanding demographics

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People

Population Differences Challenge Health System

Many differences divide the United States population—lifestyle choices; living arrangements; concentrations of wealth, ethnicity, and income; and disparities in access to culturally and linguistically competent health care. Globally, an increase in life expectancies, combined with urbanization and economic development, will result in changing nutritional and dietary patterns. Low- and middle-income countries face increased exposure to health risk factors, which will likely increase their chronically ill populations and overburden already fragmented health systems.

Wellness Goes Mainstream

Broader understandings of long-term health and wellness, motivations, and values will reshape consumer health markets. Consumers will pay more for their care; they will also need to engage more and self-manage their health in new ways. Over time, a range of new consumer approaches to health and wellness will emerge. Each approach, whether it is focused on balance and energy, prevention and disease management, or nutrition and food choices, will reflect distinct definitions of health, motivations, and values.

Gap Between Needs and Resources Grows

The cohort of 76 million baby boomers will become Medicare beneficiaries, increasing demand for the financing and provision of care in the United States. As employers continue to reduce or eliminate retiree health coverage, individuals will bear increasing financial burdens and put pressure on government for assistance. At the same time, they may be willing to accept greater risk if it means faster access to new treatments. In addition to health workforce shortages, the lack of sufficient cultural and linguistic competencies within the mainstream care model will perpetuate existing disparities in the treatment of diverse and underserved populations. Competing interests among stakeholders persist, slowing policy change.

Scientific Talent Moves to and Flows from New Science Hubs

Populations in the global health economy—from patients to physicians to scientists—are going mobile. These populations represent important flows and critical networks of demand, talent, and intellectual and financial resources. The global movement of scientists is an important source of change; their migration patterns create new hubs for health discovery. As a result, expect research to expand outside of traditional geographic centers in the United States and Europe to places like Singapore and Dubai.

Bottom-up Surveillance

As more top-down surveillance programs attempt to influence consumers' dietary, behavioral, and lifestyle decisions, many people will attempt to increase transparency through peer-to-peer rating systems like dotherightthing.com to inspect the actions of employers, governments, hospitals, and insurance companies. Bottom-up surveillance will provide unfiltered information about the impacts of health-related companies on people and their environments, but may also raise issues of accuracy and bias.

Post-disciplinary R&D Drives New Forms of Collaboration

In the coming decade, transdisciplinary research across traditional subject boundaries will become ever more important, opening new forms of collaboration, knowledge sharing, and translation of scientific knowledge into clinical practice. As the open science movement grows, new partnerships and organizations will emerge. Online platforms will augment the efforts of professional scientists by allowing them to reach additional sources of expertise and experience, like retired scientists and amateur enthusiasts.

Networks

Health-based Communities Grow in Number and Impact

New social communities are forming based on shared diagnoses, giving rise to biological citizens—or biocitizens—who want to have a say in how their conditions are defined and treated. Social networking Web sites, such as DailyStrength and PatientsLikeMe, connect people with similar health concerns, values, and biometric data. These sites may serve as platforms for people to demand greater engagement, collaboration, and feedback from large corporate or government institutions. Companies may also leverage these networks for marketing and research purposes.

Collective Intelligence Benefits Personal Health Networks

Personal health networks are the relationships, technologies, information, products, services, providers, and places on which people rely to manage health knowledge and information. More and more consumers will incorporate participatory media (like Wikipedia) and online social networking platforms into their personal health networks, and will use them to make healthier decisions in many areas of their lives, including the products they purchase, the foods they eat, the communities they live in, and the lifestyles they lead. Some consumers will regard user-generated content as a more useful source of information than traditional health care authorities.

Networks Drive New Models for Care Delivery

The global threat of zoonotic diseases, which are spread from animals to humans, will help drive the convergence of public, animal, and environmental health, straining the capacity to regulate and provide public health services. Domestically, the epicenter of care delivery, decision-making, and financing networks will shift away from the traditional provider and payer stakeholders to the patient or consumer. New networks will emerge to support individuals' information management needs.

Regional Health Advantages Redefine Competitive Landscape

Regions around the world are defining and marketing the advantages their health-related capabilities and assets have to offer in an expanding global health economy. New hubs of care, services, and people—from medical "centers of excellence" in India to sources for innovative scientific talent in Russia—are emerging, and are changing the competitive landscape of health care and life sciences.

Risk Mitigated Through Transparency

Risks to our health are not always visible—for example, 76 million Americans fall ill each year from eating foods contaminated with bacteria, viruses, and parasites. That number will likely increase as climate change, the global food chain, and risky consumption patterns increase transboundary zoonotic diseases and exacerbate the potential adverse health impacts of our interconnected food supply. However, advances in science and information technology will allow us to track and monitor these threats, apply translational informatics, and coordinate an effective response.

Blurred Boundaries Enable Open Innovation

Innovation will move beyond laboratory walls or research and development groups to take advantage of broader inputs, talent, and interactions. Global "crowdsourcing," which uses large networks of people to address scientific challenges, will become an ever more important source of innovation. For example, anyone can submit solutions to research and development questions posted by biomedical and pharmaceutical companies on InnoCentive. Boundaries—whether they are geographic in nature, or represent lines between disciplines, departments, and product categories—will blur, and new ideas will be generated in networks, not institutions.

Markets

Future Markets Emerge in Health

Without intervention, the children of each successive generation in the twenty-first century are likely to be fatter and sicker than their parents. As the true costs of childhood obesity expand far beyond medical expenses to include economic productivity losses, future markets around children's health will emerge, and may drive the formation of new collaborative partnerships for health. Globally, health care will also be affected by long tail economics. For example, about 25 million people in the United States suffer from "rare" diseases like Tay-Sachs or Huntington's; while individually these illnesses are uncommon, collectively they are estimated to occur in one in ten people.

Consumer Health Markets Fragment

Consumerism and prevention, emphasized by employers and governments, have defined self-care as a market, and upstream health risk management as a point of innovation. The links between diagnostics, personal medicine, and biological segmentation will provide new ways to differentiate consumer health markets. As consumer health markets fragment, traditional health care players will face challenges in moving from the sickness to wellness business model. New competitors from adjacent industries will look for ways to enter the health and health care markets.

Policy Changes Open Up New Markets to New Players

Government spending accounts for nearly 50% of all health expenditures. Constraints on public resources will continue to drive the politics of health care and pressure for change. Responses to these constraints will come in the form of local solutions, such as increased financial coverage for medical tourism, continued recruitment of foreign-trained professionals, and retail-based, direct-to-consumer care approaches. As resources move into new markets, current shortages worsen.

Costs Drive and Expand Points of Care

As the cost pressures in the United States mount, expect medical tourism to become a more viable option; especially as accreditations spread and help to ensure a comparable level of quality to the payer (whether a consumer, employer, or health plan). Similar cost pressures will drive more care out of clinical settings and will shift health management into the home, the community, the workplace, and on the go. Markets will expand based on consumers' ability to pay for cost of care, access to elective procedures, and individual care preferences.

Accountability Demands Require New Metrics

Pressure increases for providers to develop and/or apply quality, cost, and other performance-based metrics to health professionals and procedures. Stakeholders will take greater interest in tracking aggregate spend; care referral patterns will change. In drug development, clinical trial discrepancies will be exposed, challenging the efficacy of cohort studies and resulting in downward pressures on pharmaceutical expenditures.

Constraints Become Opportunities

Innovation can be stalled by constraints—such as ever-increasing costs and fragmentation of care—that dominate demands for policy change. For companies outside of health care, these constraints may represent new opportunities. Traditional commercialization strategies for drugs and medical devices will face increasing competition from new pathways to market that leverage public-private partnerships (PPPs). Successes in developing treatments for neglected diseases and providing the poor with affordable medicine will make PPPs more viable business models for the mainstreaming of drug discovery and development, as well as care delivery.

Practices

Upstream and Downstream Prevention Strategies Re-focus Care

The chronic illness crisis will force U.S. medical care to shift from an episodic to a coordinated care model across the life cycle as upstream prevention strategies are implemented. Metabolic profiles such as "diabesity" will help drive clinical practice, making treatment more targeted and influencing the way people think about health risk profiles, prevention, and wellness strategies. Demand for non-allopathic medicine grows as consumers focus on new approaches to prevention and overall population health management.

Health Comes to the "Workplace"

Businesses will tie health to market position, productivity, innovation, and competitiveness. The workplace—even as it expands beyond traditional "brick and mortar" locations and becomes more virtual—will be a site for wellness and health management. Employers will implement carrot-and-stick initiatives to increase accountability for health, and reduce direct and indirect costs, including absenteeism and presenteeism. In addition, employers will bring health care to the workplace through on-site/retail clinics and expanded wellness programs, including screenings and education.

Policy Focuses on Performance and Cost Management

Regulatory intervention intended specifically to curb costs—whether through reference pricing or reimbursements tied to performance, quality, and outcomes—will expand the scope of oversight in the coming decade. Greater FDA latitude in getting products to market for smaller, approved populations may result from increased demand by consumers willing to tolerate the associated risk. Industries facing pressure for heightened corporate social responsibility will promote self-regulation, product reformulations, new content, messages, and missions.

Quality and Design Standards Spread to New Care Settings

The proliferation of new health settings—whether abroad, in the community, or in the home—will raise questions about and demands for transparency of quality and outcomes. Greater consistency in global standards for accreditation and licensing, will be critical. Toolkits and connected technologies for self-care will complement traditional products and services to shift more care to consumers at home and in their daily lives. Clinicians will blend coordinated care management with conventional diagnostic, therapeutic, and surgical services to implement medical home and Hospital 2.0 care models.

Privacy and Access Concerns Compete with Efficiencies

Evidence-based medicine becomes the standard of care. Electronic health records systems become more commonplace as physician adoption increases and organizations streamline administrative practices to help reduce preventable deaths and unnecessary hospitalizations. But individuals' concerns for the privacy, accuracy, and confidentiality of health-related information remain. Proper incentives and confidentiality guarantees will need to be in place before most Americans will trust the safety of their personal health information with third-party payers.

Openness and Collaboration Drive Innovation

Organizations will develop more open working relationships and collaborative markets that leverage converging interests. One emerging practice is the creation of "knowledge commons" as platforms that enable people to share ideas, intellectual property, and expertise. Groups that span multiple disciplines can work with lead users, patient experts, and a wide range of scientific talent to drive new innovations. The drive for openness and collaboration will lead to shared accountability for quality across safety, effectiveness, and measurable outcomes.

Tools

Genetics Reaches the Hands of Consumers

Advances in genetic science will soon usher in an era of greater prediction, prevention, and personalization in health and medicine. Web-based services like 23andMe and Navigenics will place personalized medical information directly into the hands of individuals. Expect these tools to raise ethical dilemmas about previously unknown risks. Trade-offs between privacy, convenience, and value will factor into the informed health choices made possible by these tools.

Health Management Offerings Evolve Rapidly

Personal health technologies—from direct-to-consumer diagnostics and nutrigenomic tests to mobile devices and online platforms that connect people to health and wellness support resources—will evolve rapidly and diffuse widely as individuals shoulder more responsibility for their health. Stakeholders across the health economy will need to use tools such as genotypic diagnosis and therapeutic interventions in lieu of traditional phenotypic methods to create new health management offerings. Expect these to include personalized feedback on health behaviors and decisions, nutritional coaches, biometric data tracking, or connection to a support network.

Tools to Promote and Drive Advocacy Expand

Policy-makers will use their legislative power to adopt fiscal and monetary policies at the local, state, and federal levels to affect changes in the health system, from cost reduction to improved health outcomes. Online platforms and tools, like Change.org and Collective, will enable citizens to exert their influence in the policy process and form virtual political action committees like never before. Communities of interest will become communities of action that can quickly scale from individuals to small groups to large constituencies that promote and drive advocacy on health issues.

Sensing Technologies Enable Health-aware Environments

Mobile devices will emerge as more simple, user-friendly platforms for delivering health information and consumer services. Health management will shift to new settings as technology embedded in objects, places, and even humans will sense, monitor, and respond to people's physical, social, and emotional well-being.

Real-time Feedback Leads to Targeted Interventions

Advances in molecular science, diagnostics, clinical decision support tools, and data analysis will enable greater transparency, more preventive care, more accurate disease staging, and earlier, more targeted interventions. Over-the-counter bioinformatics and health simulators will reveal real-time feedback about the metabolic processes in our bodies. And, new media technologies, like mashups, which integrate layers of data onto an online map, will redraw risk boundaries and identify shared areas of interest.

Open Science Platforms Expand Sources for Innovation

Open platforms and open science together may lower the financial barriers to innovation and help overcome market failures by pooling human, intellectual, and financial capital. This approach will encourage cross-disciplinary and external collaboration to tackle pressing health concerns. Web-based, networked innovation platforms provide streamlined expert-sourcing and connect outsiders to specific projects inside companies. Companies will partner with retired and amateur scientists and citizen-activists to develop new products, and depend on lead users to improve on existing ones.

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