NSCEB
National Security Commission on Emerging Biotechnology

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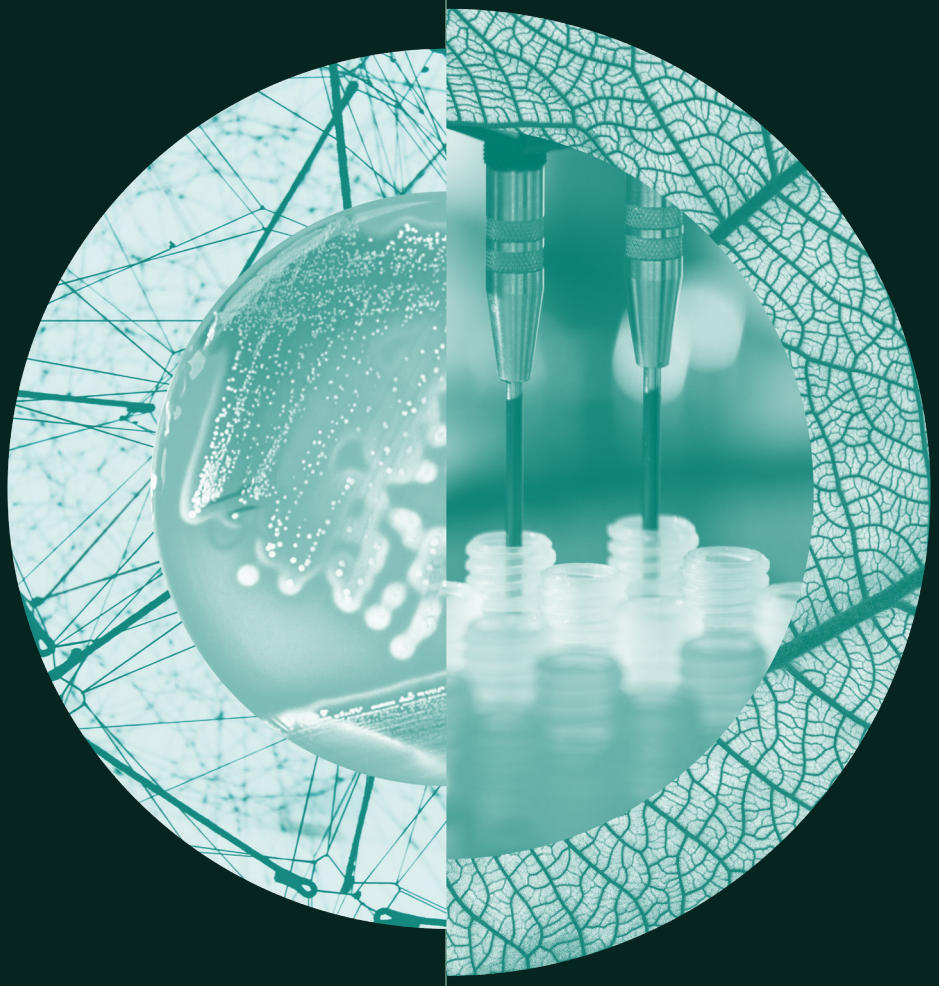

The Future of Science

A Playbook for Accelerating American Innovation

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The Future of Science: Modernizing the U.S. Scientific Enterprise

American leadership in scientific innovation is no longer guaranteed. While U.S. funding stagnates and researchers are bogged down in complex funding application processes, China is doubling down on science, racing to position itself as the innovation engine of the world. This is an ideal moment to reimagine the federal science enterprise. Leveraging major advances in artificial intelligence (AI) and automation while pushing against the status quo could move science forward. If we change the way that we think about and fund innovation, we could generate more impact and deliver breakthroughs for all Americans.

After engaging with thousands of scientists, business executives, academic leaders, philanthropists, and government officials across the country, the National Security Commission on Emerging Biotechnology (NSCEB) found clear warning signs that the United States is losing its innovative edge, not only in biotechnology but in science more broadly. We heard calls for change; we also heard suggestions that have been circulated in the scientific community for some time. Now is the time to listen and take action.

This paper series builds on the Commission's April 2025 report with additional analyses and specific policy options to secure the United States' long-standing global leadership in scientific innovation.[1] These papers focus on how to position the United States to lead at the convergence of increasingly automated, AI-powered scientific discovery, allowing us to be more efficient with taxpayer dollars, reducing overhead costs and administrative burdens, and distributing the benefits of science across all corners of the United States.

An outdated innovation ecosystem

For the past 80 years, the United States has led the world in science and technology innovation. Though home to only 5 percent of the world's population, the United States accounts for roughly 30 percent of global spending on research and development (R&D), the most of any one country.[2] For decades, this has translated into the United States being the headquarters of the world's most valuable tech companies and nearly half of the world's biopharmaceutical companies.[3] In short, this research delivers for Americans.

But after more than 20 years of steady growth, Chinese scholars now publish a larger fraction of the top 1 percent most-cited papers globally than scientists from any other country.[4] Through targeted investments, China now leads or is on par globally in commercial nuclear power and electric vehicles and batteries.[5] Additionally, China is making a substantial investment in AI and autonomous science to accelerate innovation.[6]

The United States must now adapt the way it funds and performs science research to maintain and extend its lead. To start, the federal government is one of the most challenging partners to work with because:

- Grant processes are overloaded with administrative and regulatory burdens;
- Federal research databases are poorly maintained; and
- Government agencies struggle to communicate clearly, move quickly, or take necessary risks.

At the same time, automation and AI are rapidly changing the way researchers experiment and innovate. Automation helps improve standardization, reproducibility, speed, and cost, and AI helps researchers leverage data in previously unimaginable ways. This modern approach to discovery will deliver rapid technological advances. Here in the United States, companies are cropping up weekly at the intersection of AI, automation, and scientific discovery, but the federal government is not yet acting like the catalyst it should be.

Further, for too long, U.S. scientific discovery has been an endeavor that is often only open to those considered well-credentialed at certain institutions. Individuals in every part of the country are closest to the problems in their communities, and they should have the tools and federal support to use science to solve them. A stronger scientific ecosystem means making it easier for more Americans, no matter where they live or who they are, to participate in science and reap the benefits of the investments their tax dollars make possible.

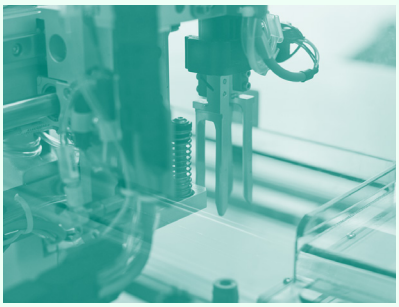
> The United States is losing its innovative edge, not only in biotechnology but in science more broadly.

Defining a New Approach to American Innovation

In this new paper series, the Commission offers actionable policies for the federal government to keep—and extend—America's lead in innovation.

These policies span three categories:

Making the Federal Government a Better Partner in Science and Technology



Enabling Autonomous Scientific Discovery

Unlocking Science Across America

The underlying theme of these policies is simple: the federal government must reform its approach to science funding to maximize and encourage industry and philanthropies to co-invest in U.S. science.

To this end, this series identifies ways that the federal government can make the down payment for the infrastructure of the scientific ecosystem—from cutting-edge research facilities to modern data infrastructure—that individual colleges or small companies cannot finance on their own. These targeted federal reforms would open the door for broader collaboration, accelerate scientific progress, and increase investments by the private sector. This would allow the government to maximize the impact of taxpayer dollars.

The policy options outlined here recognize the federal government's unique role in funding basic research. This type of research, driven by curiosity and not tied to immediate commercial outcomes, is the foundation of nearly all modern technologies. Federally funded investments to understand DNA, atomic structure, and abstract math have led to cancer treatments, nuclear energy, and modern computing.[7] These advances were made possible because the U.S. government was willing to invest in research with long timelines and uncertain outcomes, which private industry often cannot. Continued support for basic research is essential to ensuring future breakthroughs that improve the health, safety, and economic well-being of all Americans.

A modern scientific ecosystem also requires thoughtfully retooling existing federal programs into more innovative and efficient ways of funding science. Updating the funding process would make research more efficient and impactful.

The funders and performers of research in the United States today mainly operate independently, with little visibility on each other's goals and outcomes. The federal government can reposition itself as the coordinator and catalyst for burden-sharing and collaboration among funders.

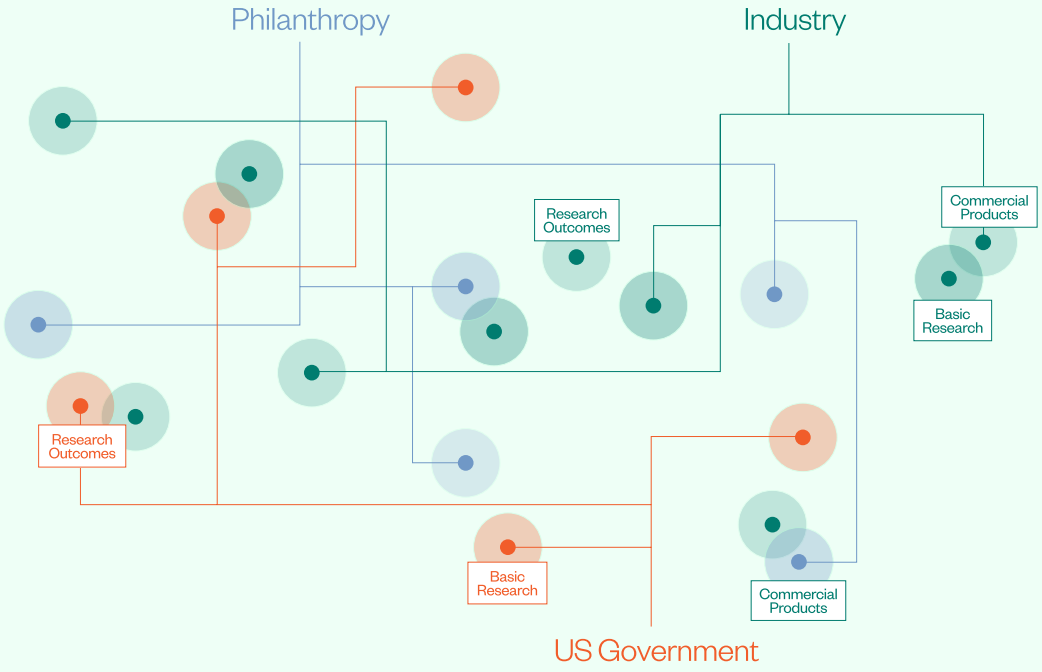
Strengthening the United States' commitment to scientific discovery requires a modernized scientific ecosystem, one that fosters collaboration across sectors and directs funding toward high-impact research. Now is the time to secure the future of science and ensure that the American people enjoy greater prosperity, better health, and increased safety for generations to come.

A Collaborative Approach to Funding Science

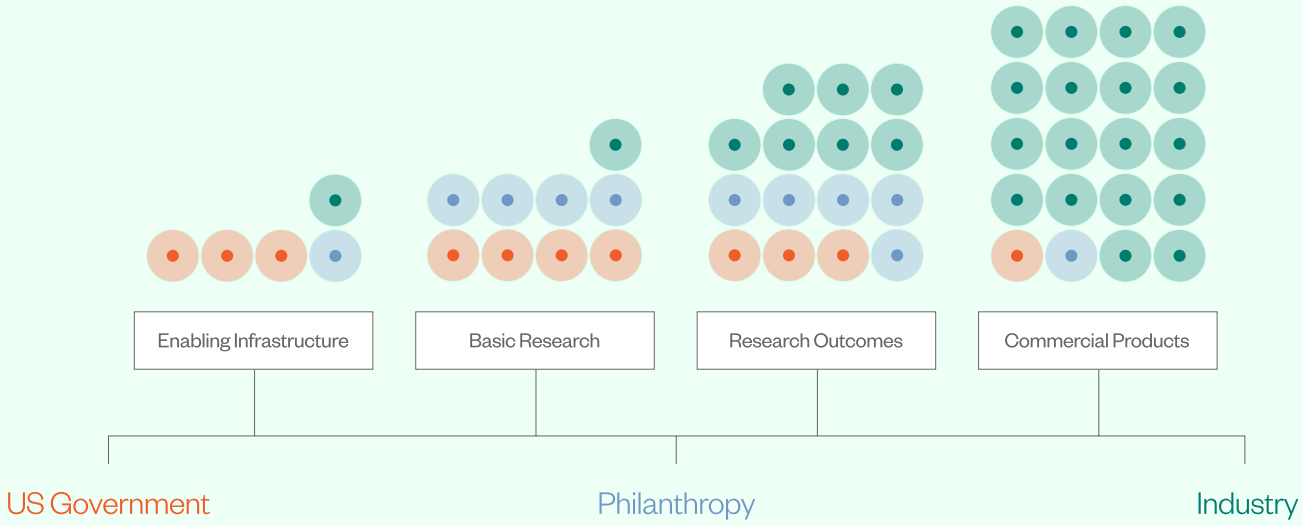
If the U.S. government acts as a better partner by convening funders and providing initial resources for enabling infrastructure for the innovation ecosystem, then the benefits of research and innovation will be more widely felt across the population and taxpayers will experience greater return on their investment.

US Government Philanthropy Industry

Current: Dispersed Efforts



Goal: Coordinated Strategy

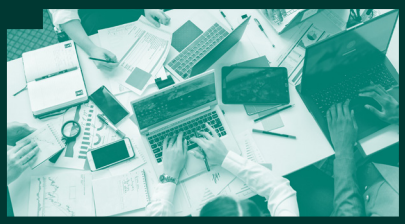


Making the Government a Better Partner in Science and Technology

Scientific and technological innovation is more complicated, interdisciplinary, and diffuse than any time in the past. How the federal government funds and supports research shapes scientific discovery in academia, philanthropy, and industry. But funding opportunities are complex for researchers to navigate; many of the government's funding systems rely on outdated measures of success and are weighed down by layers of administrative and regulatory requirements.

The federal government must make strategic changes by updating both how scientists apply for federal research funding and how federal science agencies evaluate research ideas. It must also rebalance existing funds between effective, traditional funding mechanisms and novel ones. These new mechanisms would encourage innovation and establish important infrastructure that would unlock collaboration and investments from the private sector.

This paper offers policy options around three main goals for the U.S. government to be a better partner in science and technology:



Streamline the funding application process

Offer new ways of evaluating proposed research

Use novel funding mechanisms to open up collaborations with the private sector

1.1

Streamline the Funding Application Process

Scientific researchers at universities report that they spend over 40 percent of their time on administrative tasks, time that could otherwise be spent on research.[8] Several entities, including the White House, have called for streamlining these application and reporting requirements.[9] Removing bureaucratic hurdles in the research funding process will free scientists to spend more time on research, rather than paperwork.

Streamlined grant proposals

Federal science agencies should comprehensively review their grant solicitations to streamline the application process, identifying and eliminating unnecessary regulations and reporting requirements. While funding applications should still explain key aspects of the research project such as feasibility, potential impact, and the plans to spend the money, agencies should consider removing components of applications such as duplicative budget justifications, excessive progress reporting, and documentation requirements that are not essential to assessing the quality or outcomes of the research.

An interoperable funding application process

The federal government should have a single platform for submitting scientific funding applications. Such a platform would increase efficiency by allowing researchers to more easily apply for different funding opportunities with fewer applications. This could also enable funding agencies to share and view unfunded proposals from other agencies without requiring scientists to rewrite their proposed project ideas.

Greater transparency around federal funding priorities

Federal science agencies should provide detailed information about their planned research priorities to funding applicants. Government funding agencies must eliminate uncertainty by communicating their scientific interest areas, how much they plan to fund in specific research areas, and the funding mechanisms they plan to use. This information would help federal funding agencies, industry, and philanthropy deduplicate funding priorities and find areas for collaboration.

A modern scientific ecosystem also requires thoughtfully retooling existing federal programs into more innovative and efficient ways of funding science. Updating the funding process would make research more efficient and impactful.

1.2

Offer New Ways of Evaluating Proposed Research

The typical federal grant review process has historically relied heavily on outdated metrics of success, such as how many publications a scientist has; it does not adequately measure potential impact, and it favors well-established researchers working in well-resourced institutions.[10] The United States must reimagine how scientists and their ideas are evaluated to enable a future of science that emphasizes the importance of data, interdisciplinary research, and bold ideas.

New incentive structures and metrics of success

Metrics of successful research should deemphasize how many publications a researcher accrues, the prestige of the institution at which they work, and the journals in which they publish. Instead, federal science agencies should make other metrics more prominent, such as high-quality data generation and reproducibility, evidence of cross-disciplinary collaboration, novelty of tools or techniques discovered, products or technologies patented or commercialized, and the quality of mentorship the researcher provides.

Additionally, funding agencies should incorporate different mechanisms to emphasize these new metrics and pave the way for funding potential breakthrough science. These include: "golden ticket" opportunities where each reviewer can select one or more proposals for funding that they believe will be high-impact, regardless of how other reviewers scored the proposals; the inclusion of scientific generalists on review panels; or rewarding the potential impact of the science, rather than focusing on its feasibility.[11]

Eliminating preliminary data in grant proposals

Federal science agencies should remove or minimize considerations of preliminary data from funding review criteria and look for other ways to establish feasibility. Institutions such as the National Institutes of Health (NIH) effectively require that researchers prove that their research already works by asking for preliminary data in grant applications. This requirement skews funding toward well-established labs or labs proposing research that represents incremental progress, while disadvantaging scientists who propose novel, paradigm-shifting research.[12] Some agencies, such as the Defense Advanced Research Projects Agency (DARPA), do not require preliminary data to establish the feasibility of a project and more should move in this direction.

Deploying artificial intelligence (AI) to assist with science funding

Federal science agencies should collaboratively build models that monitor the world of scientific discovery and propose novel or emerging areas of science. Additionally, all agencies should consider how to use AI to complement the human review process. For example, federal science agencies could employ AI models to scan submitted proposals and provide suggestions of potential breakthrough ideas, identify funding overlaps, and increase review efficiency.

1.3

Use Novel Funding Mechanisms to Open Up Collaborations with the Private Sector

The classic scientific funding model of one academic lab receiving one grant to work on one project no longer reflects how innovation happens today. Many breakthroughs have occurred through bigger-picture, cross-sector efforts, involving government researchers, businesses, and universities. While agencies such as the Advanced Research Projects Agencies (ARPAs) have shown how federal investment can accelerate high-risk, high-reward research, more must be done to increase public-private sector collaboration. This includes incentivizing research efforts that are designed to translate into real-world products, services, or technologies.

Research-to-commercialization projects

Federal science agencies should develop programs that connect existing funding mechanisms together so that interdisciplinary teams of scientists, technologists, and entrepreneurs can apply to a single program to move their ideas from basic science concept to product commercialization. Current funding models might fund one or two stages of this process, leaving researchers struggling to find new funding for the following stages while good ideas stall. These programs would leverage more flexible federal funding mechanisms, such as Other Transactional Authorities (OTAs), to help fill gaps. These programs could have gating mechanisms at different technology readiness levels (TRLs) to unlock new allocations of money, culminating in business loans to assist with commercialization.

Quick-decision funding mechanisms

Federal science agencies should establish more quick-decision funding mechanisms—such as rapid funding for time-sensitive opportunities—that have short applications, rapid review windows, and quick final decisions.[13] Federal agencies need to be able to quickly fund and begin research on important, time-sensitive ideas.[14] All departments and agencies should employ these mechanisms regularly to ensure opportunities for fast turnaround research funding.

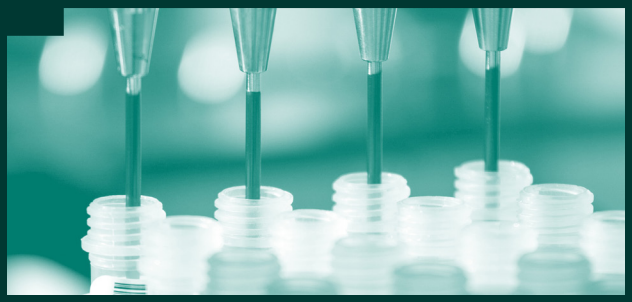
Burden sharing for scientific research

Federal science agencies should design funding opportunities to encourage private fund matching. The topics and goals of these opportunities would be designed in agreements between the government and the private sector, with input from relevant researchers. This matching process would encourage government, industry, and philanthropic donors to better align funding priorities and efforts, allowing the private sector to burden share with the government and maximize returns on large-scale research projects.

Enabling Autonomous Scientific Discovery

Scientific discovery is transforming as artificial intelligence (AI), robotics, high-performance computing, and automation converge to accelerate the scale and pace of research. These frontier technologies will transition scientific experimentation from a largely hands-on manual process into an automated one, where AI-driven robots can run thousands of experiments in a fraction of the time with high reproducibility. Realizing this potential requires targeted federal actions to develop these technologies, empower scientists to adopt them, and crowd-in private and philanthropic investment in their development and adoption.

Today, scientists spend most of their time manually conducting experiments, repeating and refining them step by step. Two emerging technologies are fundamentally changing that dynamic:



Automated laboratories
Automated labs use robotics, computers, liquid handling systems, and other advanced technologies to run scientific experiments based on scientists' direction. Many industries, such as the biopharmaceutical sector, already rely on automation to run large-scale experiments.

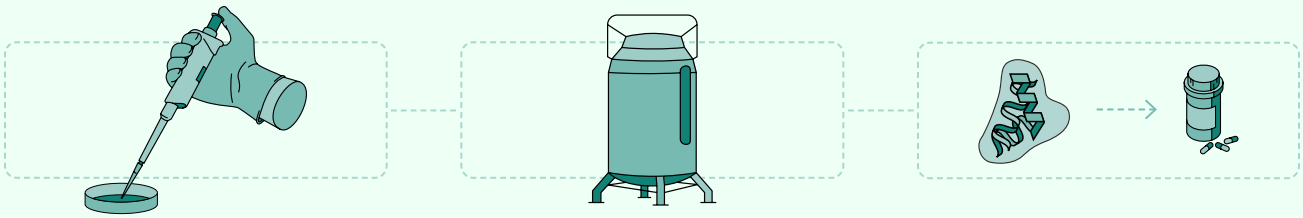
Autonomous laboratories
Instead of requiring scientists to specify each step, autonomous labs take a more open-ended prompt or a specific end-goal and use AI and robotics to design and run experiments. The lab then analyzes the results and iterates on the process until achieving that specific end goal, all with minimal human intervention.

Biotechnology Innovation of Today

Years to decades

$$$

Billions of dollars



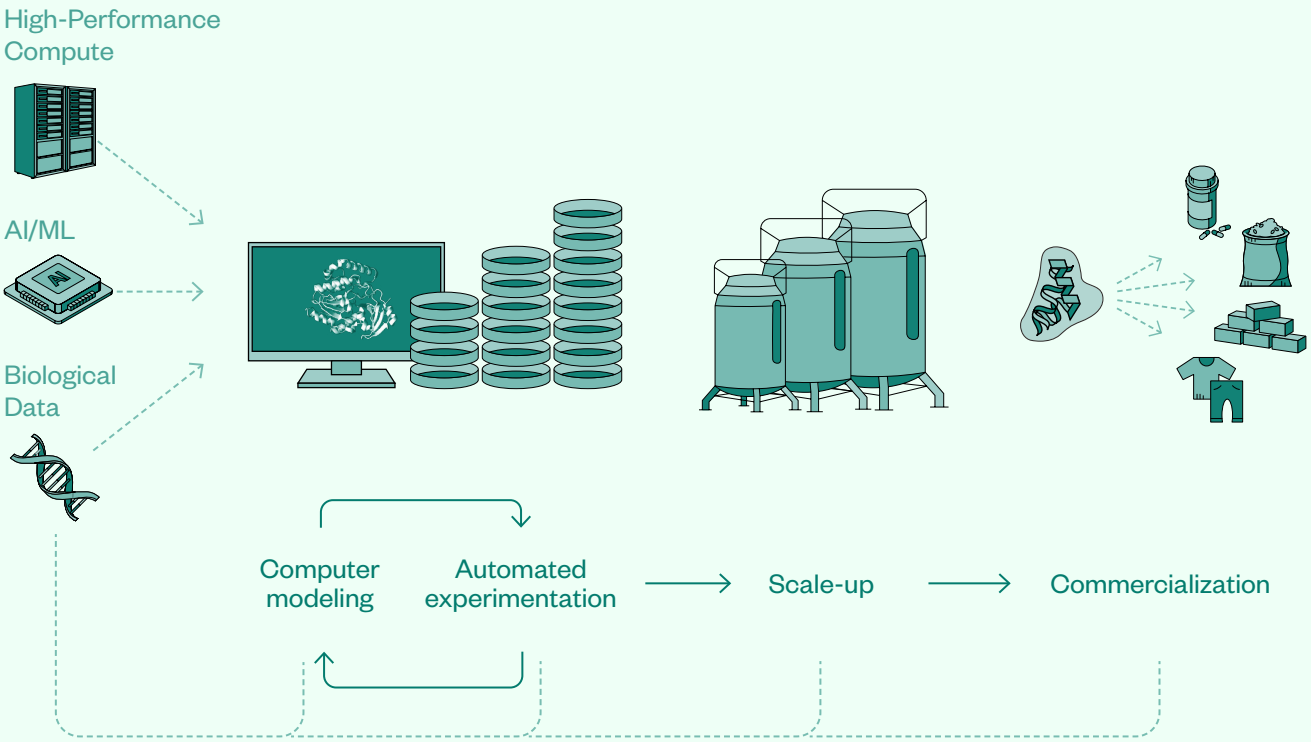
Manual Experimentation → Scale-up → Commercialization

Biotechnology Innovation of Tomorrow

Days to months

$

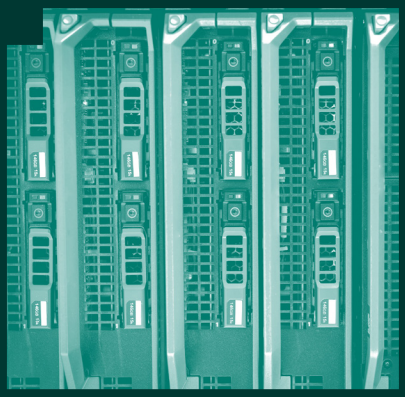
Thousands of dollars



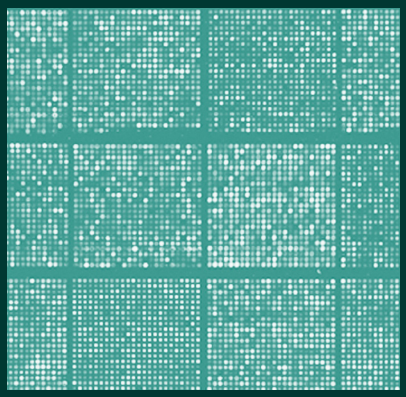
Despite the immense potential of these new automated research technologies, current federal policies do not sufficiently enable their adoption. There are insufficient data and data systems, an outdated research infrastructure, and a lack of incentives for scientists to embrace these technologies.

To realize a future where U.S. science accelerates through automated and autonomous research capacity, the federal government must make targeted investments in the country's underlying data infrastructure. With this infrastructure in place, alongside policy recommendations that drive data collection and remove barriers to infrastructure access, the United States can position academia, industry, and philanthropy to more efficiently and effectively advance a new age of scientific discovery.

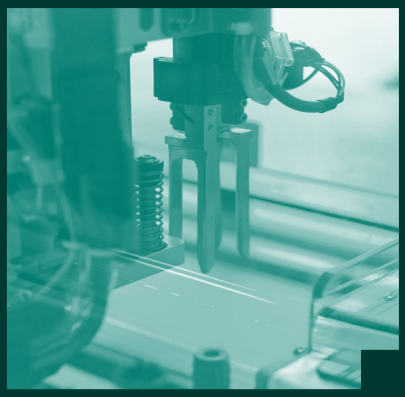
This paper offers policy options to achieve the following three goals:



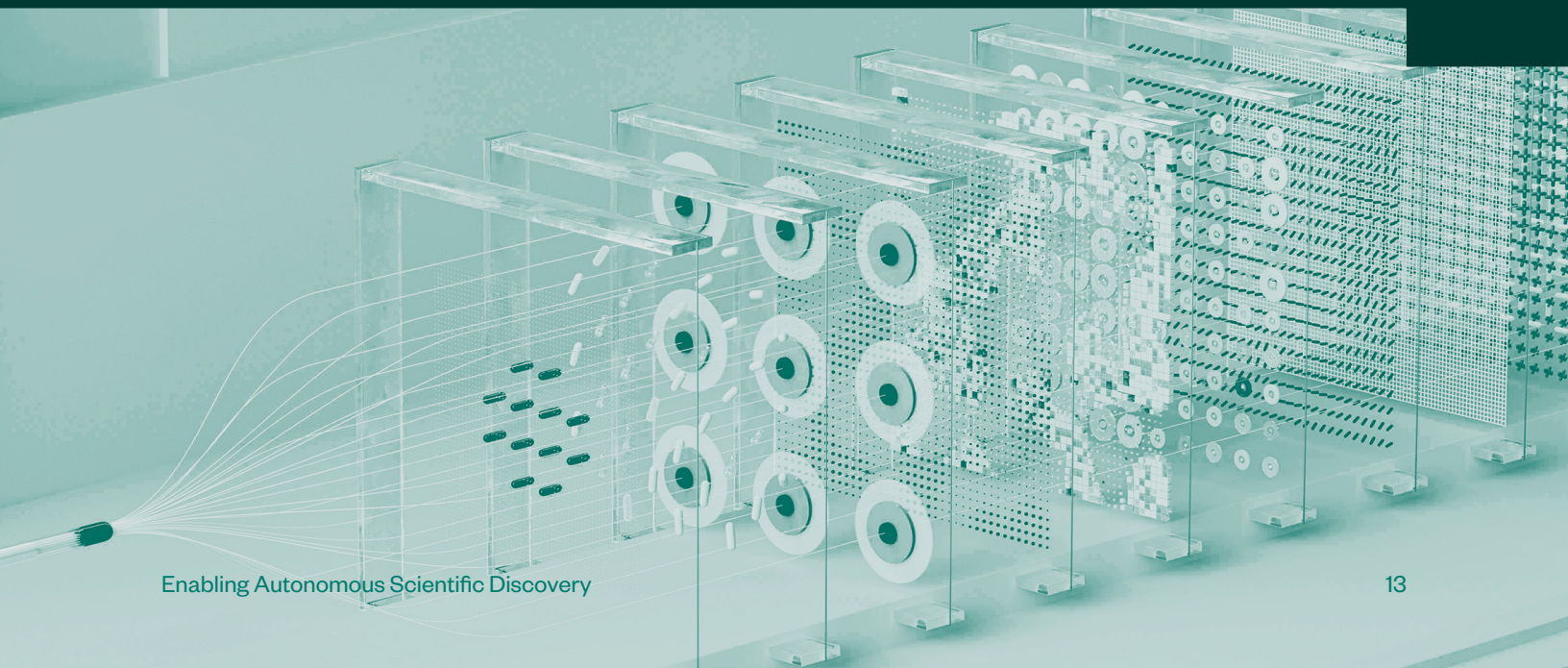
Modernize U.S. research infrastructure



Generate more high-quality training data



Create collaborative, technology-enabled research ecosystems



2.1

Modernize U.S. Research Infrastructure

Despite the increasing importance of high-quality data for discovery, the underlying digital infrastructure that would allow scientists to handle large datasets does not exist, meaning the scientific community cannot effectively share, store, and use research data. The United States must make strategic investments to modernize its underlying data infrastructure. Building on an April 2025 Commission recommendation to create a "Web of Biological Data", a single-point-of-entry to all federally funded biological data resources, the U.S. government must make a robust initial investment in American research infrastructure. With this infrastructure, researchers across sectors would be able to:

- More effectively share data;
- Enable more data collection to power autonomous labs; and
- Incentivize research investments from academia, industry, and philanthropy to develop more powerful AI tools.

Modernizing data and computing architecture

The federal government should continue ongoing, and initiate new, partnerships with the private sector to fund and develop computational and data infrastructure that supports the full data lifecycle—from generation and analysis to long-term storage and reuse. While the government produces vast amounts of scientific data, much of it remains underused due to fragmented storage and inconsistent management practices. The newly planned Department of Energy (DOE) supercomputers with NVIDIA, Oracle, and AMD represent critical investments in computational power to drive AI and scientific discovery. To realize their full value, Congress should invest in scalable, hybrid data infrastructure—combining secure government data facilities with cost-efficient commercial cloud resources. Establishing a federal data lifecycle fund to preserve the lifespan of data beyond individual grants, as well as aligning agency standards, and cloud partnerships along an interoperable ecosystem, would maximum the usability of taxpayer-funded scientific data and the return on public investment.

Requirement for depositing data

Federal science agencies should require that researchers deposit their research data and related information into the systems as described in the previous recommendation as a condition of federal funding. This is a requirement of most federal funding already, but agencies rarely enforce it and the government lacks a repository for the data. Additionally, these requirements should be updated to better capture a holistic picture of the data that researchers generate—including the context, thought processes, and experiential knowledge not captured in traditional published papers. Agencies should also direct researchers to share more comprehensive research outcomes as a condition of federal funding, including negative results.

Dedicated funding for compute

Federal science agencies should fund compute access and data storage as a standardized and separate allocation of money in science funding proposals. Currently, if researchers need to purchase expensive compute and data storage for their research, those dollars must come out of their total funding allocation. With a shift toward more data- and computation-intensive research, standardizing and separating compute funding would allow researchers to advance their AI and advanced computational capabilities without reducing funding for other needs.

2.2

Generate More High-Quality Training Data

AI-powered autonomous labs require vast amounts of high-quality training data including data that scientists typically do not publish, such as negative results. Directed federal policies would require scientists to release a broader range of high-quality data that could be used in autonomous labs.

Comprehensive research data, including negative results

When researchers publish results, they often present polished stories that omit unsuccessful experiments—data that are invaluable for other scientists and for training AI models for autonomous labs. To increase publication of these negative data, federal agencies should consider researchers' history of releasing high-quality positive and negative data as a success metric in grant review processes and prioritize funding for applicants with demonstrated data-sharing track records. This should be adapted into requirements, as described above.

NIST-led standards for machine-readable research data

Building on an existing April 2025 Commission recommendation to promote AI-ready biological data (Recommendation 4.1b), the National Institute of Standards and Technology (NIST) should collaborate with the private sector to develop standards for AI-ready research data to promote data interoperability and sharing. These standards should be used when depositing data into the comprehensive data repositories described in the recommendation above. These standards would make research-related data machine-readable and include important contextual information, such as experimental workflows.

Digitizing existing biological datasets

Congress should establish cost-sharing partnerships between the government and the private sector to digitize biological samples, which would bolster the amount of scientific data available for research and ensure broader scientific access to such data. Following the model of industry partners such as Regeneron and GSK's partnership with the UK Biobank, U.S. industry partners would contribute funding and technical expertise to help with data digitization in exchange for limited periods of exclusive access to the collected data.[16]

The United States could implement such a program to unlock the data from biological samples held by federally funded programs, such as the Joint Genome Institute, the National Institute of Health's (NIH) All of Us program, and the Department of Veteran Affairs' (VA) Million Veteran Program (MVP), which currently lack adequate resources to make data widely and securely available to researchers.

Comprehensive clinical datasets for AI training

Federal agencies, such as the NIH and the Food and Drug Administration (FDA), should collaborate with academia and industry to curate and centralize clinical datasets. These datasets could include de-identified electronic health records, health outcomes, lab values, images, and negative results from failed trials. These comprehensive datasets would better train AI models that could inform future clinical trials. These data would also give researchers a better understanding of why certain clinical trials succeeded or failed and how to improve clinical trials in the future.

2.3

Create Collaborative, Technology-Enabled Research Ecosystems

Researchers face consistent barriers, such as cost or exclusivity, when seeking access to the newest autonomous technologies or AI capabilities. Removing these barriers would enable novel research, especially where computational modeling and robotic experimentation could drive faster discovery with less hands-on experimentation.

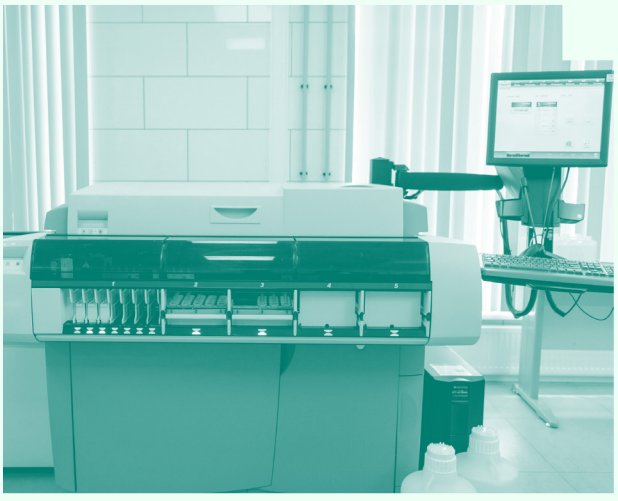
Federal partnerships to expand open-access AI tools

Federal departments and agencies should negotiate broader open-access provisions in federally funded AI systems. This could include requirements that AI tools developed under federal grants and contracts include open-access components, research-use exemptions, and ensure that academic institutions and nonprofit organizations have access.

"Lab of the Future" grand challenge

Federal science agencies should establish a grand challenge, in collaboration with the private sector, to advance the convergence of AI, robotics, and automation for physical lab infrastructure. Part of the funding should provide targeted investments in autonomous lab infrastructure and emerging AI-robotics systems. The resulting, underlying instrumentation and methodologies built through such a grand challenge would open opportunities to a wide range of researchers to use these technologies and advance science more efficiently.

With this infrastructure in place, alongside policy recommendations that drive data collection and remove barriers to infrastructure access, the United States can position academia, industry, and philanthropy to more efficiently and effectively advance a new age of scientific discovery.



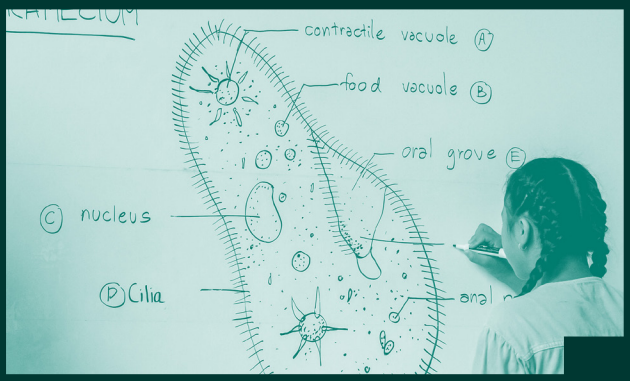
Unlocking Science Across America

A strong U.S. innovation ecosystem requires new policies that unleash talent and problem-solving from every part of the country.

The federal government's current research apparatus favors a relatively small group of elite institutions and highly trained scientists in established hubs. Instead, the federal government should adopt a more comprehensive vision for science that enables participation from universities, researchers, and students across the country.

This paper provides targeted actions that the federal government could take to unlock scientific potential across the country. The proposed policy options would:

Advance science to solve local problems



Open opportunities for more Americans to participate in science

3.1

Advance Science to Solve Local Problems

The federal government can enable scientific discovery in all parts of the country. Federal cost-sharing and collaboration should be provided to local communities to advance science that serves them.

Science Extension programs at universities across America

Modeled after the Agricultural Cooperative Extension System, the federal government should partner with local universities and industry to establish Science Extensions.[17] Whether created in new offices or by expanding existing ones, such as technology transfer offices or Tech Hubs, these Science Extensions would enable scientists to collaborate with their communities to identify local problems and co-fund research projects to find solutions.

"Laboratories of Innovation Initiative" for states

The federal government should launch the "Laboratories of Innovation Initiative," which would provide matching funds for state and local governments that want to award and test alternative research funding mechanisms, such as those presented earlier in this series. For example, the National Institutes of Health (NIH) could give money directly to state governments — to be pooled with state and local funds — for disbursement to test these new funding mechanisms. This initiative would also allow states and local governments to leverage local expertise and pursue scientific topics most relevant to their communities.

"Emerging Innovation Collaborative" for scientific entrepreneurship

The federal government should convene early-career scientists and emerging business leaders, such as Master of Business Administration (MBA) students or process engineers, through an "Emerging Innovation Collaborative" to help create go-to-market plans for early-stage basic research projects. While many basic research projects yield promising results in a lab, discoveries are often not economically feasible when transitioned to the commercial market because they use expensive inputs or face scale-up challenges. Including these interdisciplinary collaborations early in the process would increase the likelihood of successful commercialization.

Tax credits for industry-academia partnerships

The federal government should offer a tax credit to spur local industry-academic partnerships. This credit would go toward companies that fund cooperative research and development (R&D) agreements with local universities and provide guaranteed pathways to employment at their own company or other related companies in the sciences. For example, this type of tax credit could support partnerships similar to the May 2025 agreement between Purdue University and Eli Lilly and Company meant to accelerate pharmaceutical innovation.[18]

Local user-facilities

Building on an April 2025 Commission recommendation to establish community labs, federal science agencies should establish localized user facilities. Establishing community-level user facilities with shared resources and cloud lab access could lower research costs, open up jobs for skilled technicians on-site to assist researchers, and increase broader access to instrumentation.[19] Additionally, federal funding agencies should make travel and user fees allowable costs under existing research grants to further enable access to such user-facilities.

3.2

Open Opportunities to More Americans to Participate in Science

A strong U.S. innovation base requires leveraging the strengths of all Americans to advance scientific discovery, not just those who hold PhDs. The federal government, in close coordination with the private sector, must expand pathways for every American to engage in, and benefit from, the scientific endeavor.

Small dollar grants to jumpstart research

Federal science agencies should break up larger existing grants to establish mini grants for discovery research. These mini grants could jumpstart new researchers' careers or fund completely novel research areas. In the current system, recent graduates compete with incumbent researchers and cannot pave their own research paths. The proposed mini grants would be small dollar amounts (<$100k) with minimal reporting requirements. Early-career scientists would be eligible to use these funds in any research capacity, whether at a university or as independent scientists.

G.I. Bill extension for emerging technologies

Congress should establish a new Veterans for Emerging Technologies Program within the G.I. Bill that funds graduate, trade, or vocational training related to emerging technologies such as biotechnology, artificial intelligence (AI), and quantum. Additionally, the Department of Veterans Affairs (VA) and the Department of Defense (DOD) could:

- Increase the monthly housing allowance when veterans are enrolled in a STEM program;
- Expand DOD outreach to companies working on emerging technologies to participate in the SkillBridge Program; and
- Revise the Transition Assistance Program curriculum to educate separating service members about career pathways in emerging technologies.

Emerging TECHnical Workforce Program

The federal government should provide pooled funds with state and local governments to establish technical and vocational training pathways for emerging technologies. These certification programs, hosted by local businesses and universities, would provide individuals the opportunity to upskill in the technical roles needed for emerging technologies. The state-level programs would include in-classroom training as well as full-time employment at local industries in technical roles, such as biomanufacturing technicians or data center engineers.

Separating training grants from research grants

The White House should lead an effort to assess and execute an initiative to separate training grants from research grants. When federal agencies issue research grants, researchers use them not only to run their labs, but also to support their graduate student trainees. However, there is often a mismatch in timing between three-year grants and five+ year graduate programs. This form of funding also ties graduate students to traditional forms of research. Offering separate research and training grants would provide the next generation of scientists with stable funding while allowing them to pursue new research paths, including those outside of traditional academic settings.

Opportunities for federal employees to gain experience in the private sector

Federal science agencies should establish a "Federal Innovation Exchange Program" for federal employees to work and gain experience in the private sector. Federal employees and scientists are best suited to serve the American people when they understand how the private sector operates within the broader innovation ecosystem. As a requirement for leadership positions, science agencies should mandate that federal employees participate in a one-year externship, co-funded by the private sector, to better understand how industry, academia, or philanthropy operate and bring those lessons learned back into the government.

Strengthening the United States' commitment to scientific discovery requires a modernized scientific ecosystem, one that fosters collaboration across sectors and directs funding toward high-impact research.

Now is the time to secure the future of science and ensure that the American people enjoy greater prosperity, better health, and increased safety for generations to come.

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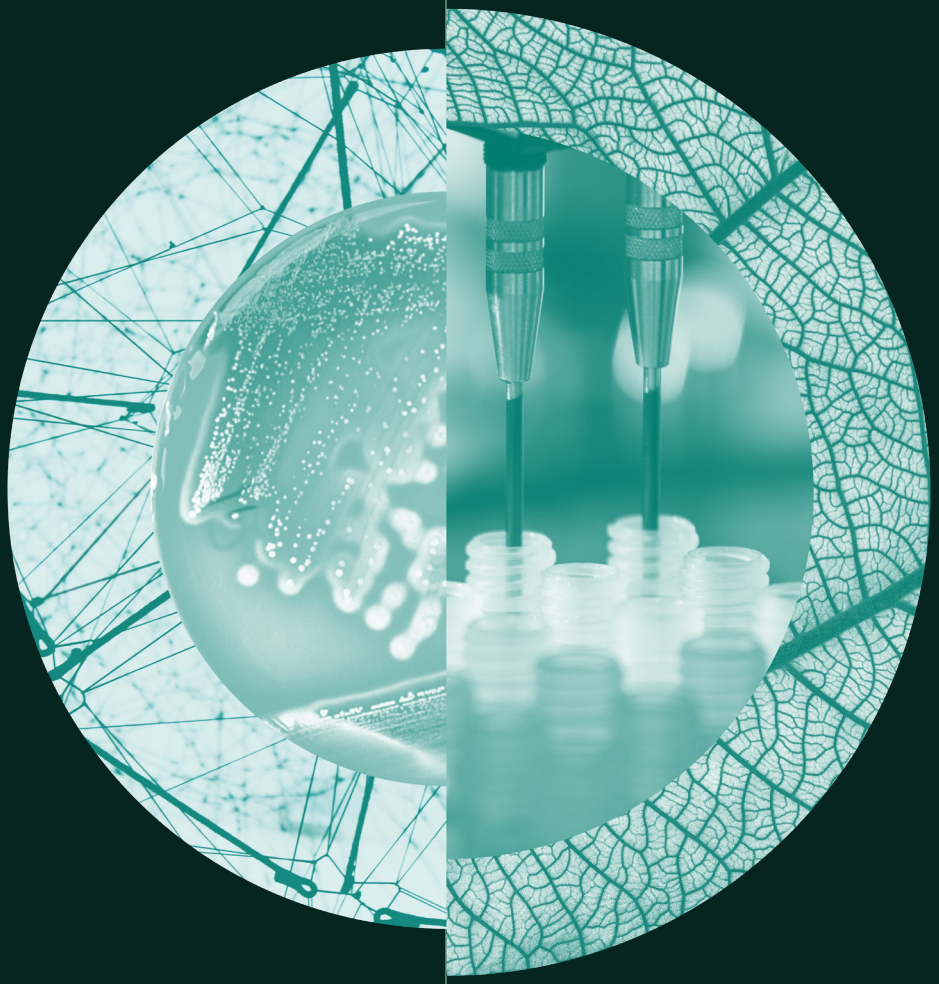

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