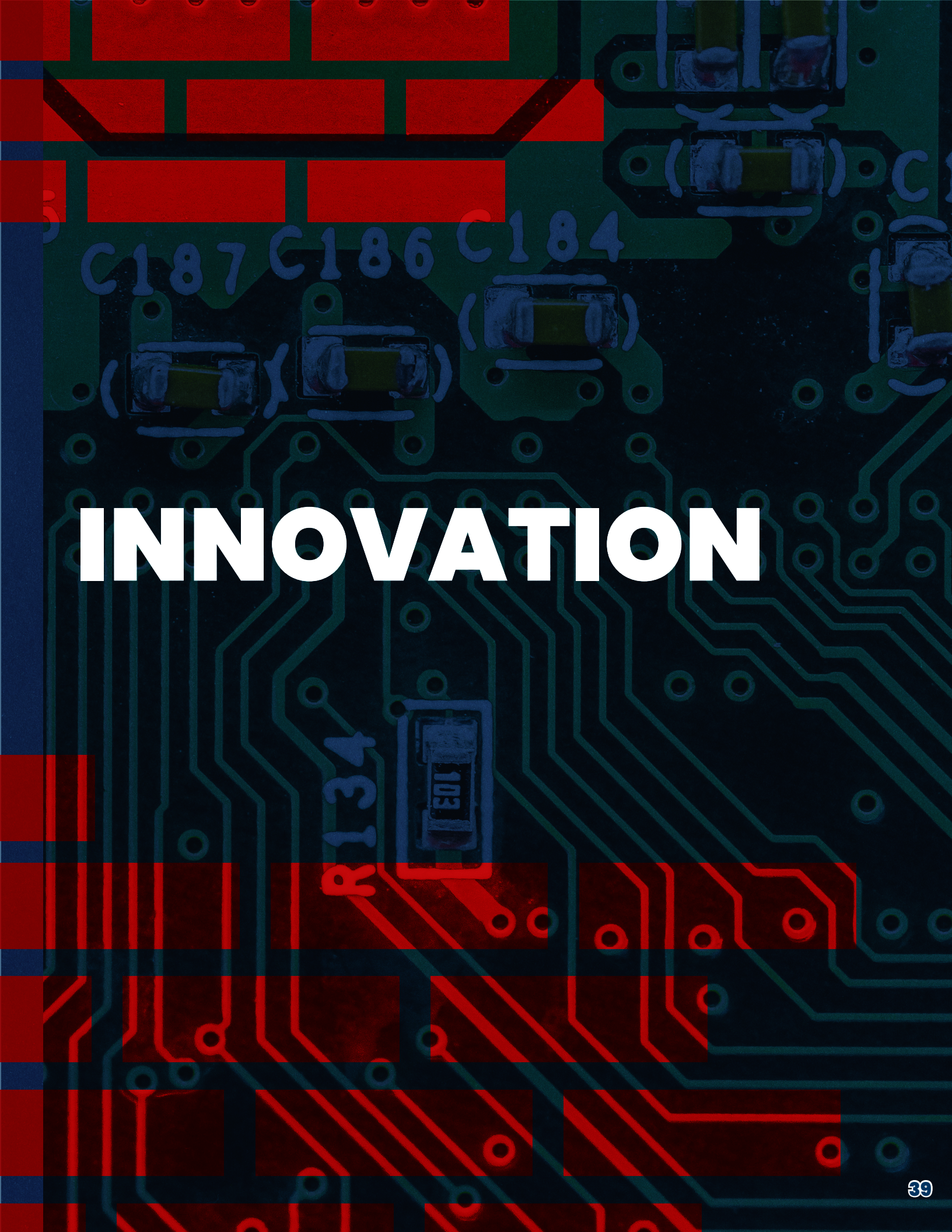




# INNOVATION

# FASTER CURES AND BREAKTHROUGHS

**MORE  
BREAKTHROUGHS**

**LESS  
PAPERWORK**

**BETTER SCIENCE**

America leads the world in scientific research and technological development, thanks in part to robust federal investment in basic science. Public funding has helped produce breakthroughs that have reshaped modern life, from GPS and the Internet to GLP-1s, while strengthening the broader economy. It is estimated that **every federal dollar invested in research and development will add nearly four dollars** in economic growth over the next 30 years.

But our lead is narrowing, and we’re not getting everything we could from the nearly \$200 billion the federal government invests in research and development each year. Today, scientists spend too much time on paperwork instead of research, federal grantmaking rewards incremental research instead of ambitious breakthrough science, and too little is invested in making the federal research enterprise itself more productive.

**That’s why our plan isn’t just to invest more in research and development, but to make our existing investments go further.** That means cutting paperwork so that scientists can spend more time doing science. It means testing new grantmaking and peer-review mechanisms to fund more breakthrough science. And it means building the infrastructure needed to allow scientists to unlock the benefits of AI in their work. By making American science work better today, we can produce more of the medicines and technologies that will improve people’s lives tomorrow.

**1**

**FUND SCIENCE, NOT  
PAPERWORK**

SIMPLIFY GRANT  
APPLICATIONS

CUT RESEARCH RED TAPE

**2**

**INVEST IN BREAKTHROUGH  
SCIENCE**

MAKE EXISTING SCIENCE  
FUNDING GO FURTHER

FUND AMBITIOUS SCIENCE

BUILD X-LABS FOR MODERN  
SCIENCE

**3**

**ADVANCE  
AI FOR SCIENCE**

UNLOCK FEDERAL DATA FOR  
AI-POWERED SCIENCE

OPEN AND AUTOMATE THE  
NATION’S LABORATORIES

SECURE COMPUTE FOR  
SCIENCE

CONNECT THE NATION’S  
SCIENTIFIC INFRASTRUCTURE

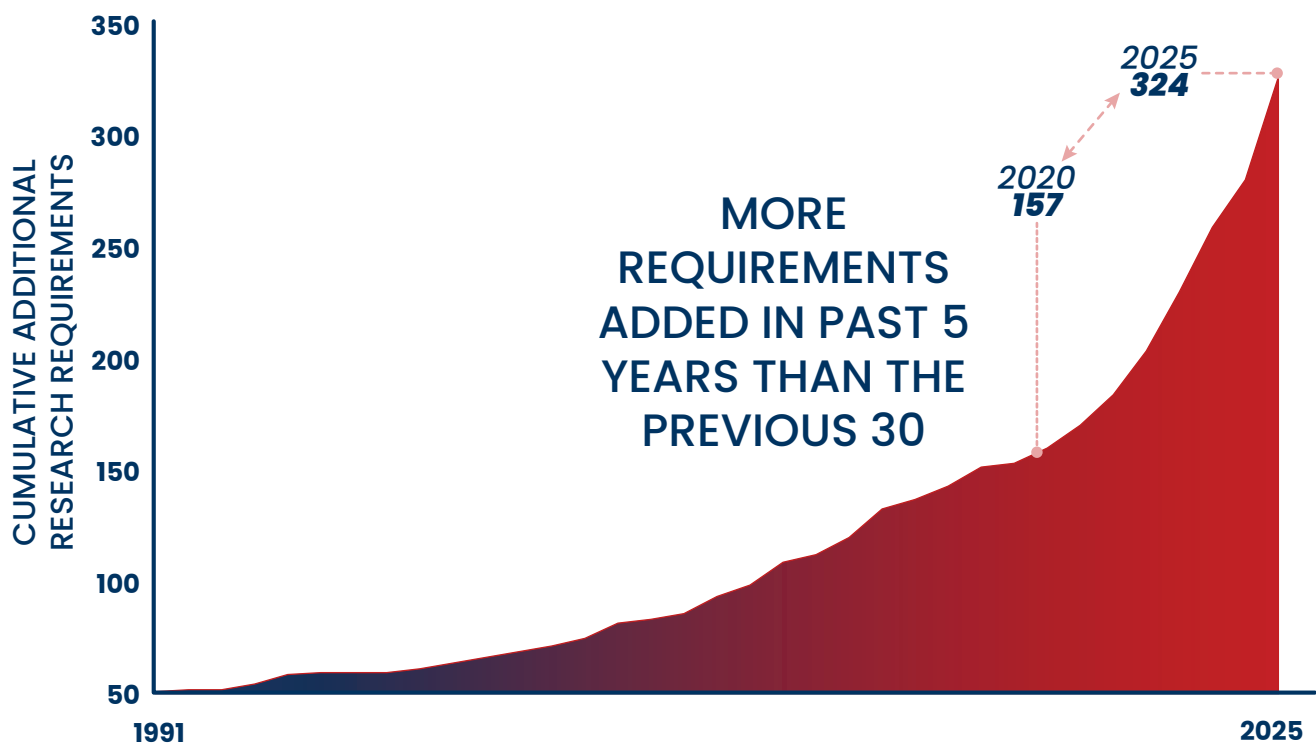
## 1

# FUND SCIENCE, NOT PAPERWORK

**America's best scientists spend nearly half of their federally funded research time on administrative tasks.** That's more than 50 million hours a year spent on paperwork instead of science, and the burden is only getting worse. In the past five years, the federal government has added or revised more research requirements than it did in the previous 30 years combined. Grant applications that were once four pages can now exceed 100, while post-award reporting has grown from a half-page summary to pages of detailed reports. **NIH now spends about \$3.7 billion in grant funding each year just paying researchers to comply with its own rules.**

We should be funding science, not paperwork. By simplifying grant applications and cutting unnecessary administrative requirements that pull scientists away from the lab, we can cut scientific administrative burden in half and return tens of millions of hours to science.

## SCIENTISTS FACE MORE RED TAPE EVERY YEAR



# SIMPLIFY GRANT APPLICATIONS

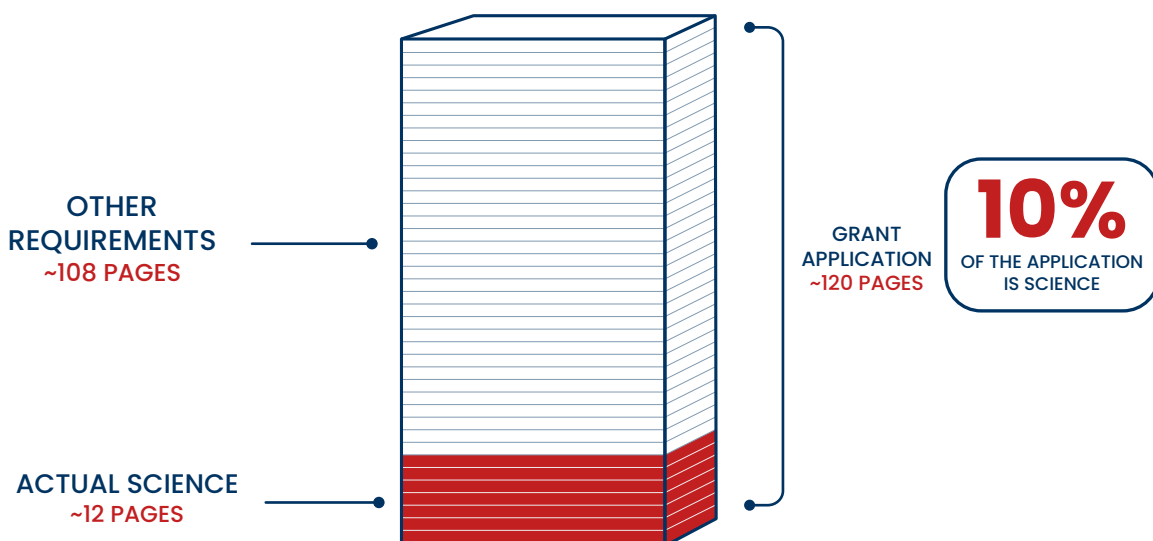
Scientists spend over 10 million hours applying for federal research grants each year. But for the roughly 80% of applications that will never receive federal funding, a lot of that time is just wasted. That's because **applicants have to spend countless hours on paperwork and administrative requirements that have little to do with whether their underlying science is worth funding** – such as completing research security training to drafting detailed mentoring, data management, and biosafety plans.

# 10M

hours per year spent  
by researchers  
completing scientific  
grant applications

Programs at DARPA and the Department of Energy have reduced this burden using two-stage review. Researchers submit just a short summary of their idea first, and only the most promising applicants are invited to submit a full proposal, including the required administrative materials. Extending this approach across scientific agencies – with guardrails like annual submission limits and strict quality standards – **would save researchers whose applications aren't funded over a million hours each year**, without lowering standards for the projects that do receive funding.

## GRANT APPLICATION LENGTH



### OUR SOLUTION

Implement two-stage peer review across scientific agencies.

# CUT RESEARCH RED TAPE

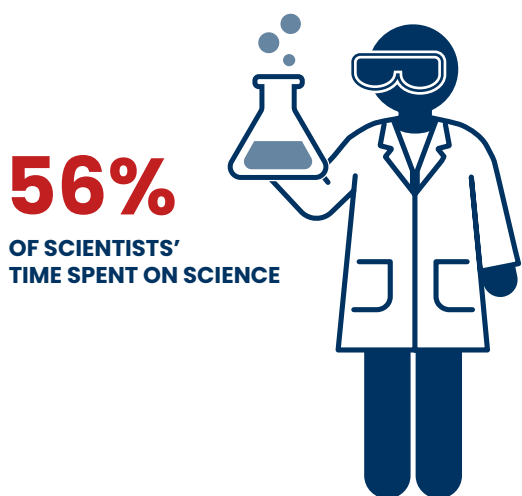
Over the last decade, the number of research requirements imposed on federal grant recipients has exploded. Researchers must comply with an expanding set of rules governing everything from research security and financial disclosures to data management, reporting, and documentation. Agencies regularly add new rules but rarely assess whether they work and at what cost. And because agencies write their requirements independently, the nearly one-third of researchers who receive funding from multiple agencies are forced to navigate inconsistent rules and unstandardized definitions and application forms.

# 215

new or revised  
research  
requirements  
since 2016

Part of why these rules keep piling up is that no one in the federal government is responsible for cleaning up and harmonizing them. As a result, the average researcher spends 44% of their federally funded research time on administrative tasks rather than science, and Americans pay for paperwork rather than scientific discovery. By streamlining these requirements, **we can return more than 25 million research hours per year to science.**

## SCIENTISTS SPEND NEARLY HALF OF THEIR TIME ON PAPERWORK



### OUR SOLUTION

Establish a centralized body to streamline federal research regulations and cut administrative burden in half.

## 2 INVEST IN BREAKTHROUGH SCIENCE

The nature of science is changing, and our funding institutions must change with it. Today's breakthroughs increasingly come from two kinds of work: team-based, infrastructure-intensive research, and ambitious paradigm-shifting exploration. **But the way we fund science hasn't changed in decades.** Grants still flow through the same conservative peer-review processes to the same short-term individual awards, with little effort to test whether using alternative approaches for certain projects would produce more discoveries per dollar.

Modernizing how the federal government's nearly \$200 billion research and development budget is allocated and administered, and making existing funds go just 5% further, could effectively unlock \$10 billion a year to improve the lives of Americans – **equivalent to a second National Science Foundation.**

## MAKE EXISTING SCIENCE FUNDING GO FURTHER

Virtually none of the federal government's nearly \$200 billion investment in research and development is spent on learning how to make that money go further. Agencies often don't know which grant review and funding methods advance the most promising science, or which administrative requirements are worth their cost. That's because most agencies don't have teams dedicated to answering those questions. Metascience units – small teams within agencies that test new ways to review and fund grants, identify processes that waste time, and recommend better ways to allocate research funding – can fill the gap and **figure out what works so we can stop doing what doesn't.**

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### 3

months cut from grant application to award in a pilot led by the UK Metascience Unit

### OUR SOLUTION

Establish metascience units at each major scientific agency.

# FUND AMBITIOUS SCIENCE

Transformative scientific breakthroughs often come from researchers taking risks and pursuing open-ended questions. But federal grantmaking tends to favor proposals with a predictable path to success, pushing researchers to pursue safer, more incremental work instead of exploratory projects with high potential.

That bias has caused federal grant makers to overlook early work behind breakthrough technologies like the automated gene sequencer and mRNA vaccines. We can counter this by setting aside funding for talented scientists, offering exploratory research grants, and allowing some promising ideas to get funded without winning consensus from a traditional review panel. If we don't, we risk leaving the next generation of breakthroughs on the table.

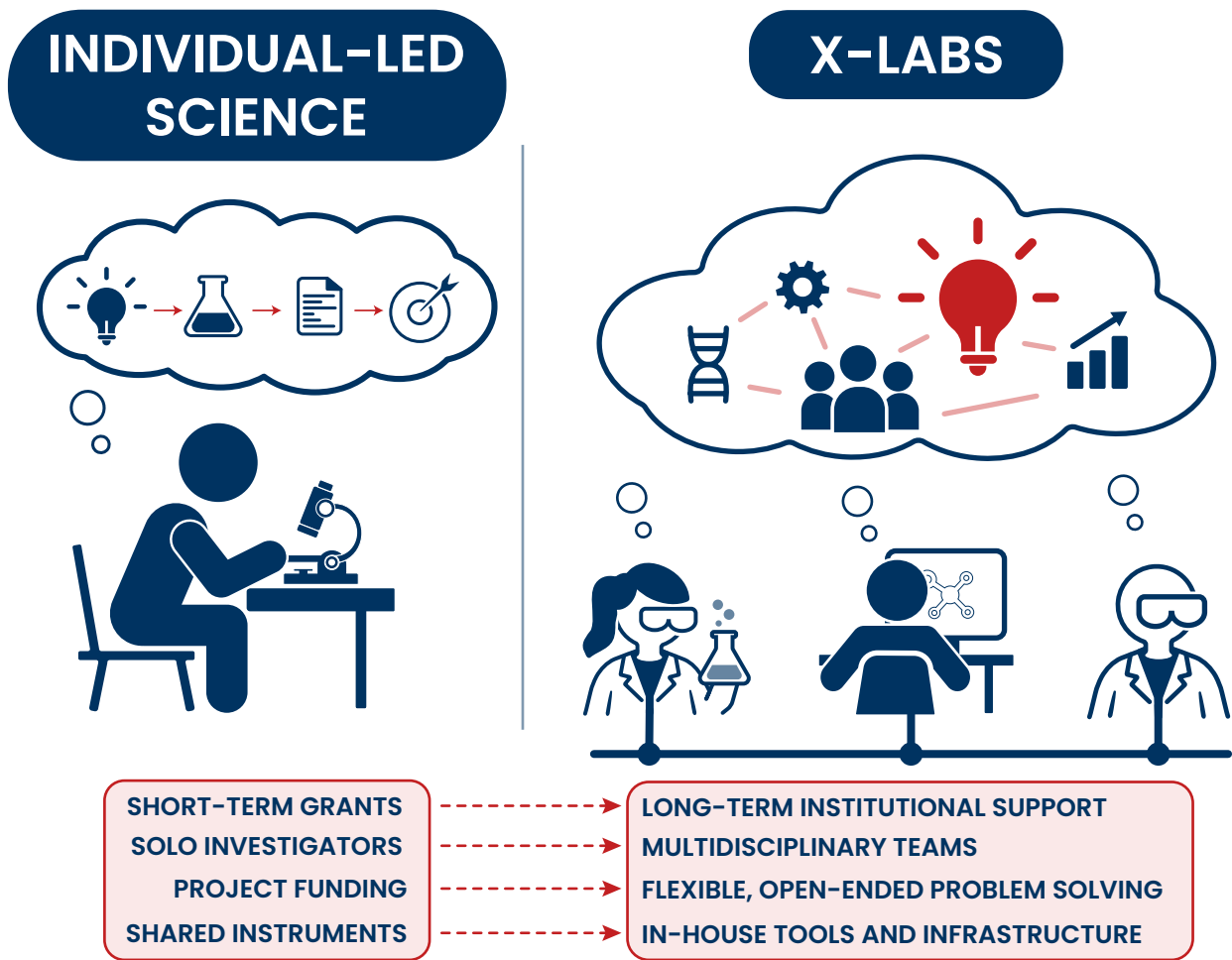


## OUR SOLUTION

Scale granting and peer-review mechanisms that reward ambitious science.

# BUILD X-LABS FOR MODERN SCIENCE

The vast majority of America's science funding is awarded to individual researchers pursuing predefined, incremental research. But some of today's biggest scientific challenges require a more collaborative and infrastructure-intensive approach. **X-Labs are one answer: multi-year research organizations that bring scientists and engineers together on one team, support long-term investments in shared infrastructure, and give researchers the flexibility to adjust their research as they learn, rather than holding them to the scope of a grant proposal written years in advance.** Dedicating a small percentage of R&D funding to X-Labs would complement individual-led science spending by enabling projects like ambitious fundamental research and the development of new scientific tools that are difficult to pursue in traditional academic or corporate settings.



## OUR SOLUTION

Establish 20 X-Labs across scientific agencies.

# 3 ADVANCE AI FOR SCIENCE

AI is ushering in a new era of accelerated scientific progress. In 2020, determining the structure of a single protein, a process critical to drug development, took scientists four years and \$100,000. **Two years later, AI had predicted more than 200 million protein structures using the federally funded Protein Data Bank.** Similar leaps are possible across scientific domains, but they depend on infrastructure – high-quality data, computing resources, and experimentation capacity – that many fields lack. Without it, American scientists and the public will miss out on this new era of discovery and the breakthroughs that come with it.

The federal government is uniquely positioned to build that infrastructure. But it will require making government scientific data AI-ready, procuring and allocating computing power to researchers who need it, seeding a cloud laboratory network to connect and automate the nation's scientific instruments, and building the connective software that links it all together to let scientists seamlessly access and use these resources. **Together, these investments could double scientific productivity within a decade.**

## UNLOCK FEDERAL DATA FOR AI-POWERED SCIENCE

The federal government holds enormous amounts of scientific data that, when analyzed by AI, could unlock new drugs, materials, and energy technologies. **But most of it isn't maintained in a form that can easily be used to support AI-driven analysis.** Some records are still on paper, while others lack necessary context or formatting. NIH's gene sequence archives, for example, hold tens of millions of samples suitable for AI-driven diagnostics and drug discovery, but the labels describing them aren't standardized. As a result, researchers have to spend months cleaning and reconciling data before they can use it. Making federal scientific data AI-ready by default would let researchers spend less time cleaning data and more time doing science.

### OUR SOLUTION

Set standards for AI-readiness, reward researchers who release data that meets those standards, and make high-value federal datasets AI-ready.

# OPEN AND AUTOMATE THE NATION'S LABORATORIES

AI can generate promising new drug and materials candidates faster than researchers can synthesize or test them in a lab. As AI helps generate new leads, limited lab capacity becomes a bottleneck on scientific discovery. Programmable Cloud Labs offer one solution: partially automated laboratories that researchers can access remotely to run experiments using sophisticated scientific instruments they otherwise wouldn't have access to. Cloud labs have already contributed to advances in carbon capture and battery technologies and promise to turn specialized laboratory equipment into shared scientific infrastructure. That lets scientists design and run experiments faster, from anywhere, while accelerating the development of new medicines, materials, and technologies.

## OUR SOLUTION

Scale the National Science Foundation's Programmable Cloud Labs and favor the purchase of federally funded scientific equipment with open software and data standards.

# SECURE COMPUTE FOR SCIENCE

Publicly funded scientific research is increasingly held back by a lack of computing power to support AI-driven science. **The private sector's computing capacity is estimated to be growing more than four times faster than university capacity, and nearly twice as fast as the federal government's.** At the same time, private companies are locking up computing resources years before they come online. This gap is already forcing researchers to pursue smaller questions and ration experiments, and, if it continues, it could shut them out of the most ambitious AI-driven scientific work altogether, leaving discoveries with enormous public value to private companies with no obligation to pursue them. The National AI Research Resource Pilot has demonstrated one solution by giving researchers, nonprofits, and small businesses shared access to computing power, data, and AI models. But it needs far more computing resources to meet demand.

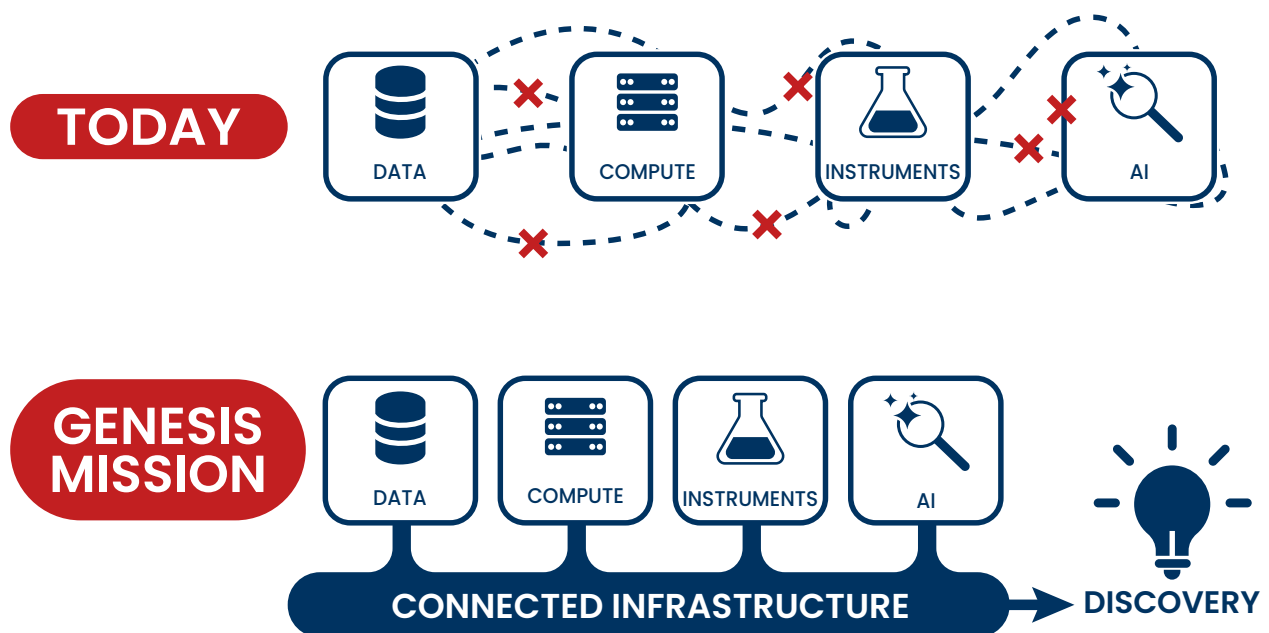
## OUR SOLUTION

Expand the National AI Research Resource and fund computing resources for researchers at federal scientific agencies and national labs.

# CONNECT THE NATION'S SCIENTIFIC INFRASTRUCTURE

The federal government operates one of the world's most powerful collections of scientific infrastructure – including massive datasets, computing resources, and state-of-the-art instruments and research facilities. Connecting it all is critical to unlocking the full potential of AI-driven science. But today, researchers are still reformatting data, navigating siloed software systems, and using separate credentials just to move information between different resources. This can require significant effort and specialized technical expertise, putting AI-enabled science out of reach for many researchers. The Genesis Mission has begun to address this problem by building a shared platform to connect the nation's scientific tools and by funding teams to apply that platform to priority national challenges. **Scaling and sustaining such a platform could double the productivity and impact of American research and development within a decade.**

## ONE SCIENTIFIC BACKBONE



### OUR SOLUTION

Permanently authorize the Genesis Mission and build the systems to link the nation's scientific data, computing resources, and instruments.