

Science Philanthropy Giving Guide

Valerie Conn and Sandra J. Laney, PhD

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Overview

Charitable acts have been part of human nature since the dawn of time. People are inherently motivated to help one another, and examples of great generosity have occurred throughout history, particularly during health emergencies and natural disasters.

But philanthropy is about much more than crisis response. Donors use many different strategies to make the world a better place—both in the near-term, and far into the future.

One vitally important but often overlooked category of philanthropy is giving that supports science.

Science plays a crucial role in solving our world's problems, and is compelling to philanthropists by offering innovative solutions to complex societal challenges. Whether your passion is health, education, the environment, or economic opportunity, scientific research and technological advancements can provide powerful pathways to make progress. Some philanthropists support rigorous scientific methods and evidence-based approaches, to maximize the impact of their giving and create lasting, sustainable change. Other philanthropists play a vital role in catalyzing progress by funding high-risk, high-reward research that explores untested ideas and pushes the boundaries of scientific understanding, ultimately paving the way for future innovative solutions.

Often, getting involved in science philanthropy might seem intimidating—particularly for donors who lack formal scientific or technical training.

This **Science Philanthropy Giving Guide** is an invitation to inspire and empower philanthropists, both established and emerging, with the knowledge and framework necessary to make transformative contributions to advance science and innovation for the public good and to solve real-world problems.

1

An Introduction to Science Philanthropy

If you are considering philanthropic giving to science, you might have a few basic questions.

Do I want to pursue funding science?

The likely answer is, “yes!” If you are a curious person, a problem-solver, a systems thinker, or an entrepreneurial innovator, and if you want to make a significant impact on the world, science philanthropy belongs in your giving portfolio.

Do I have to be a scientist or understand science to fund science?

The short answer is, “no!” Success in science philanthropy doesn't require a scientific degree. It requires curiosity, clear goals, knowledgeable advisors, and a commitment to learning. Whatever your philanthropic priorities, there is likely a role for science in solving the problems or amplifying the impact of your giving.

Science philanthropy has evolved significantly over the past century, providing valuable lessons for donors worldwide. The early systematic approaches to funding science, particularly in the United States, offer insights that can inform new models of giving while leaving room for cultural adaptation and innovation.

Is there a way to fund “good” science?

Working with experts in science and philanthropy gives donors more confidence in their science funding decisions. Embarking on your science philanthropy journey and collaborating with peers is another proven way to begin or expand your science philanthropy. Giving while learning from advisors and peers will shape your appetite and approach to science philanthropy and will help you identify funding opportunities that align with your purpose and goals.

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Science is the answer.

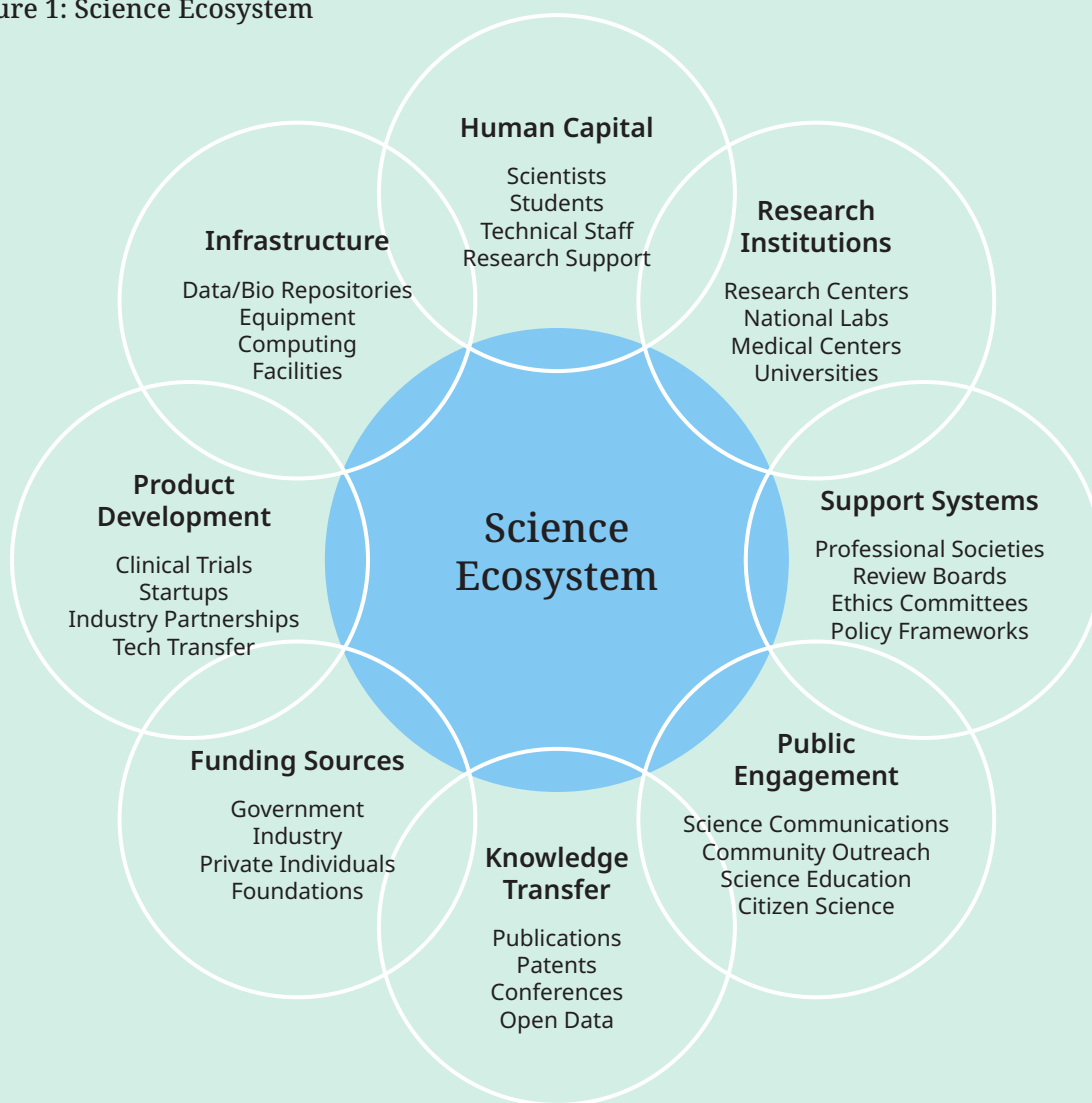
Entrepreneur, philanthropist and advocate **Lyda Hill** (Lyda Hill Philanthropies) believes that “science is the answer.” She uses philanthropy and investments along the entire spectrum of science research to catalyze and fund game-changing advances in science and nature.

Science Ecosystem

The science ecosystem is a complex network of participants and processes that work together to advance human knowledge and understanding. Science philanthropy can support this ecosystem in a variety of high leverage ways.

At the core of the ecosystem are scientists developing hypotheses, conducting experiments, and analyzing data across diverse disciplines. These researchers typically work at academic institutions that provide essential infrastructure and resources. Their findings undergo peer review and are published in scholarly journals, which serve as quality control mechanisms and platforms for dissemination. The scientific community connects through conferences and professional networks that facilitate collaboration and exchange of ideas.

Figure 1: Science Ecosystem



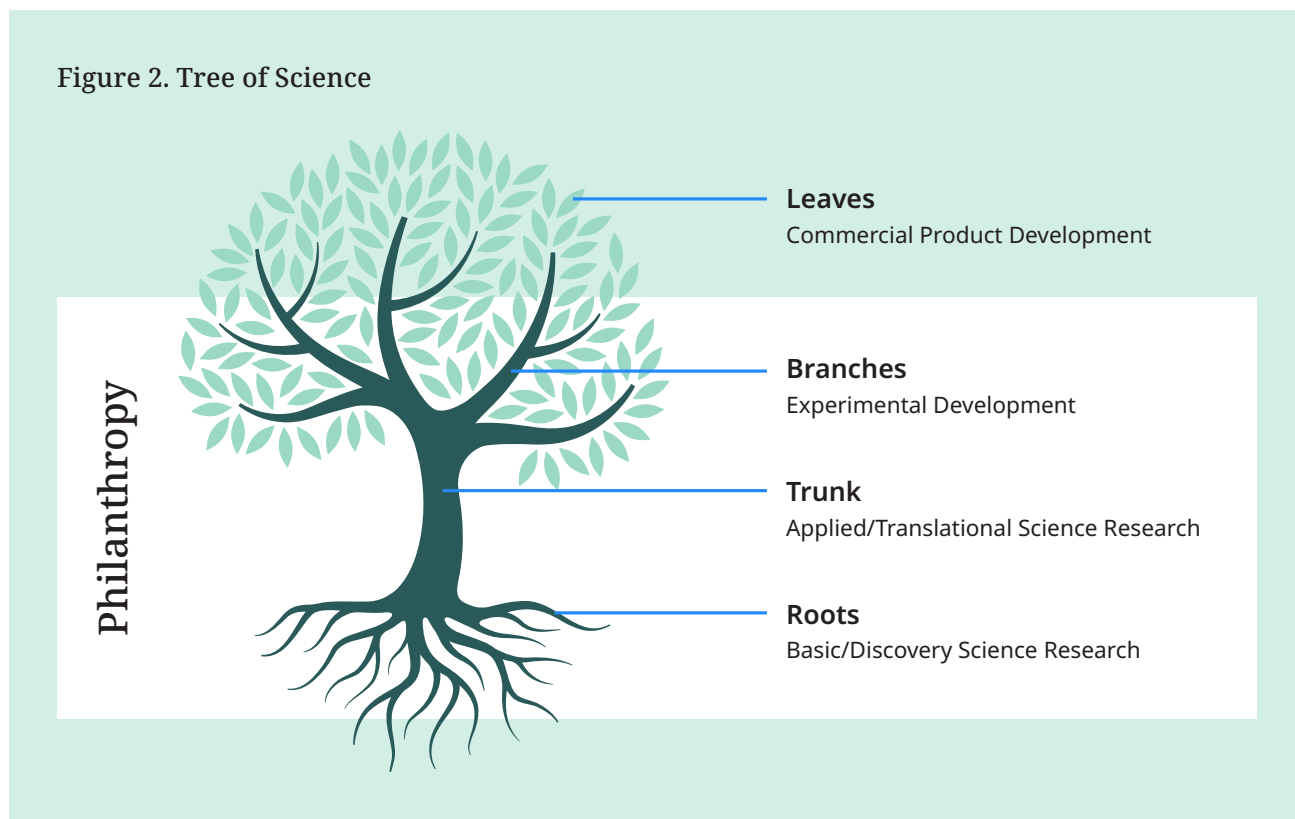
Contents of each category are illustrative

Beyond academia, the ecosystem extends to independent research organizations, such as the Broad Institute, focused on multiple areas of bioscience, and start-up nonprofits such as the Astera Institute, which supports promising innovators during their earliest stages of exploration. There are also business start-ups and industry R&D departments, which play a crucial role in developing scientific breakthroughs into practical applications. For instance, pharmaceutical companies develop and manufacture new treatments based on academic discoveries, creating a feedback loop between basic research and real-world impact.

Public engagement strengthens the entire ecosystem. Science communication, citizen science initiatives, and community outreach provide information sharing between scientists and the general public. This translation of complex findings into easily understood concepts builds trust and enhances the overall impact of science for the public good. Science, Technology, Engineering and Math education (STEM) forms the foundation of this ecosystem, with primary and secondary schools teaching fundamental concepts and creating learning environments that nurture future scientists, engineers, and innovators.

Scientific Research Process

The tree (Figure 2) is a helpful metaphor for the stages of scientific research and development, extending from basic, discovery-driven investigation (roots), to research and testing of practical applications (trunk and branches), and ultimately to products and solutions that address real-world challenges (leaves). Just as the health of the tree depends on all of its parts interacting harmoniously, successful science and innovation requires robust connections between the discovery, translation, development, and implementation phases of science research and development.



The roots represent basic science aimed at acquiring knowledge about the natural world without immediate, specific applications in mind. For example, the discovery of DNA's double helix structure emerged from fundamental curiosity about how genetic information is stored and transmitted in living organisms. This stage is often curiosity-driven research with a long term focus because it may take years or even decades to complete.

The trunk represents applied or translational science, which connects basic science to practical applications. For example, the discovery of bacteria's susceptibility to certain natural compounds led to further research on how to apply bacteria's characteristics to create a new treatment. Translating these discoveries about bacteria into real-world applications led to the development of penicillin to treat bacterial infections.

The branches represent experimental development. This scientific stage is when a potential useful idea or application has emerged, and requires verifying experiments and testing to propel the initial basic

discoveries closer to useful products, treatments, or diagnostics. For example, this is the stage when potential vaccines are tested in animal models for safety and efficacy before going into human trials.

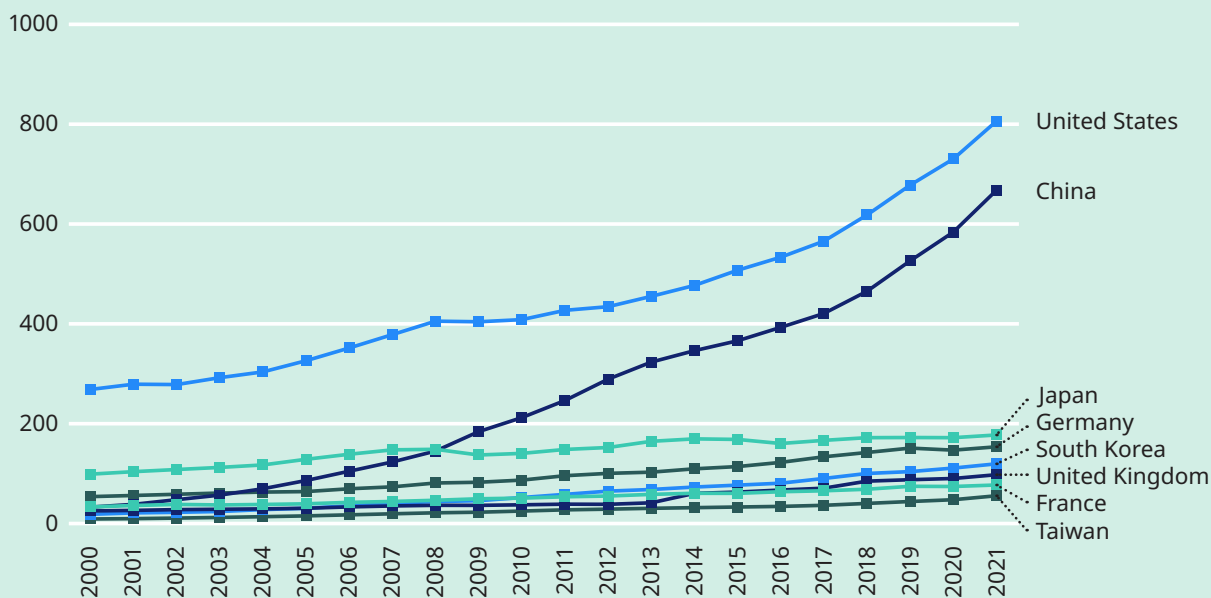
The leaves represent product development. This is the stage when scientific discoveries are transformed into tangible benefits for society. For example, the development of mRNA vaccines built upon basic research in molecular biology and applied research in drug delivery. This was followed by development and testing to ultimately produce a safe and effective, commercially-viable COVID-19 vaccine.

Global Science Funding Landscape

According to the Organisation for Economic Development, the largest funders of science R&D are in North America, East and Southeast Asia, and Europe. As of 2021, the US (\$806 billion) and China (\$668 billion) significantly lead the top performers, followed by Japan (\$177 billion), Germany (\$154 billion) and South Korea (\$120 billion).

Figure 3. Gross Domestic Expenditures on R&D by Selected Countries

Billions of current PPP (purchasing power parity) dollars



Data Source: OECD, MSTI, September 2023 release

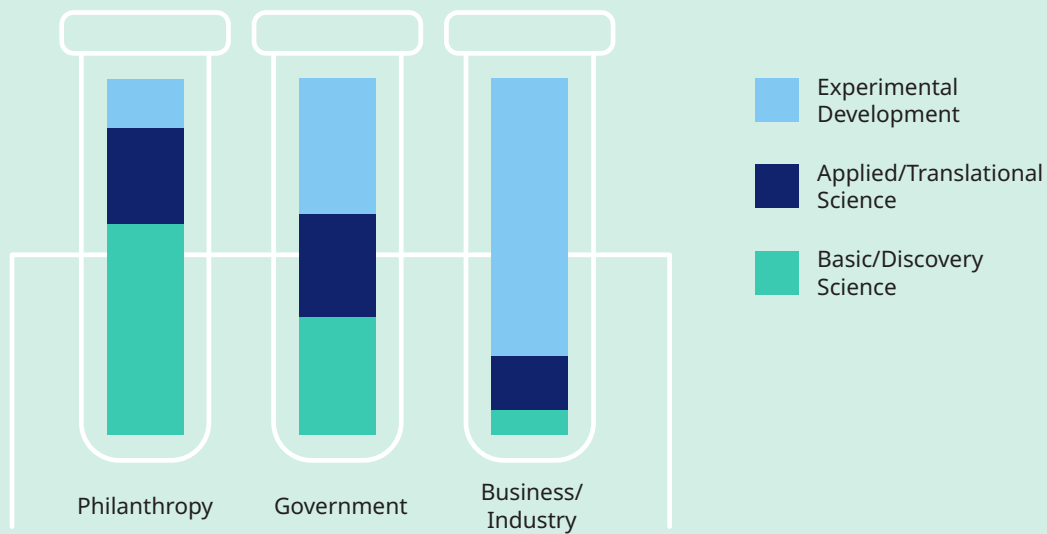
Why Science Needs Philanthropic Support

With historic substantial government and industry funding already in place, why should philanthropists give to science? A fully functioning and healthy science ecosystem depends on diverse funding streams—including government, industry, and philanthropy—that each have unique motivations and goals.

Each funding source prioritizes investment in different stages of the science process (Figure 4), often working in concert to drive scientific progress. Their complementary roles ensure the vitality and advancement of the entire scientific enterprise.

Figure 4. Who Funds What: Funder Investment Priorities Through Scientific Research Stages

Percentages based on 2022–23 data



Data Source: National Center for Science and Engineering Statistics (NCSES).

The majority of philanthropic funding to science goes to basic and applied research, and governments fund across the spectrum, whereas the majority of industry funding is focused on experimental testing and product development. Companies motivated by profits will fund new drug treatments for diseases with significant sales potential, but may overlook therapies that do not have broad commercial applications. Governments often fund basic science and areas of social need, but are often reluctant to take risks on new or untested ideas. Science philanthropy can support riskier research by taking a long-term perspective, catalyzing innovative ideas, and addressing neglected needs, such as diseases affecting under-resourced populations or small numbers of people.

Each funding source brings unique motivations and goals to further scientific progress. Their complementary roles ensure the vitality and advancement of the entire scientific enterprise.

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If you think research is expensive, try disease.

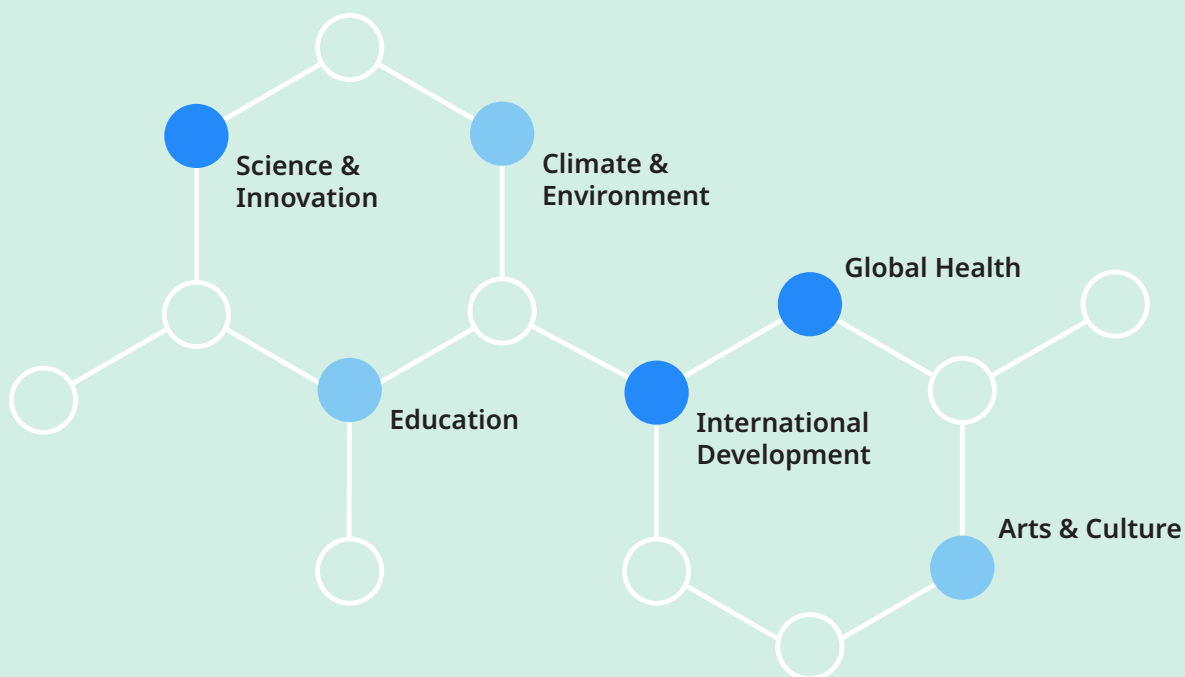
Mary Lasker (Lasker Foundation), medical research activist, followed her passion to improve health for all, and famously said, “If you think research is expensive, try disease.”

Issue Areas for Philanthropy

Philanthropists support a variety of causes and issues, and many have found that funding science can further their mission. Within the common areas of giving pictured below, support to science can be an effective tactic. For example, the [Gates Foundation](#) funds global health, global development, gender equality, primary and secondary education, and several other topics—with science integral to many of their giving strategies.

Figure 5. Does Science Overlap with my Program Interests?

Areas that often include support from science philanthropists



History of Science Philanthropy

Science philanthropy has a rich history dating back to the 1600s, when the Medici princes funded Galileo during the Italian Renaissance. According to [The Almanac of American Philanthropy](#), modern science philanthropy's roots can be traced to the early 20th century in the United States, when industrial titans used their wealth to create private charitable foundations that reshaped scientific research and public health.

The pioneering philanthropists supported science. John D. Rockefeller established the Rockefeller Institute for Medical Research (now [Rockefeller University](#)) in 1901 with a donation of \$200,000, while Andrew Carnegie created the Carnegie Institution of Science (now [Carnegie Science](#)) in 1902 with a \$10 million endowment. The [Rockefeller Foundation](#) further expanded its impact through the [General Education Board](#), significantly improving medical education and research capabilities across American universities and the world.

These early foundations took a systematic approach to scientific funding, supporting both basic research and the development of research institutions. Their examples may have influenced the next wave of science philanthropists, such as Alfred Sloan (chairman of General Motors), who established the [Alfred P. Sloan Foundation](#) in 1934, William Myron Keck (founder of The Superior Oil Company) who created the [W.M. Keck Foundation](#) in 1954, and Howard Hughes (founder of Hughes Aircraft Company), whose [Howard Hughes Medical Institute](#), founded in 1953, is still one of the largest private funding sources, spending approximately \$4.6 billion on research and science education in the past five years.

Key Principles

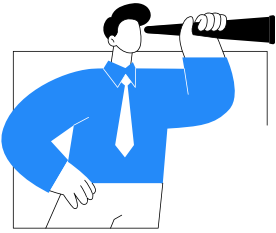
The early models of science philanthropy in the US demonstrated several keys to success for private funding seeking to advance the public good by supporting science that continue today:

- **The power of unrestricted funding for basic and applied scientific research**
- **The value of long-term capital in scientific discovery**
- **The importance of supporting big ideas, people and infrastructure**

These key principles have remained consistent for over a century of science philanthropy. What has evolved since the 20th century are new scientific fields to support, new tools to build and use, and new applications for the research and tools. Numerous new organizations have been founded in the 21st century, with significant funding for science among their focus areas such as [Bloomberg Philanthropies](#), [Chan Zuckerberg Initiative](#), [Gates Foundation](#), [Gordon and Betty Moore Foundation](#) and [Heising-Simons Foundation](#). These funders continue to bring the core values of curiosity and inspiration in contributing to new knowledge.

Critical Roles Filled by Science Philanthropists

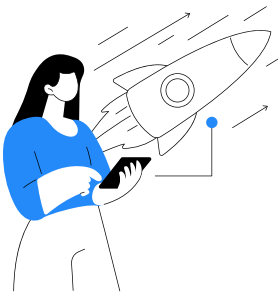
Here are three critical roles that philanthropists are uniquely positioned to play in the science ecosystem, and some of the ways they may approach their funding:



Long-Term Visionary

- Cultivate scientists at every career stage
- Seed underfunded gap areas
- Build underlying infrastructure and tools

For example, the hallmark program of the Howard Hughes Medical Institute (a private funder structured as a Medical Research Organization) is the HHMI Investigators. With generous, unrestricted funding of \$11 million per investigator over a renewable seven-year term, each scientist pushes the boundaries of basic biological and biomedical sciences, working across many scientific disciplines in a wide range of organisms, at more than 60 institutions in the US.



Strategic Risk-Taker

- Fund where others won't or can't
- Act nimbly and take risks
- Challenge conventional thought

For example in 2009, years before Ebola would devastate West Africa, Paul Allen made a science philanthropy investment by funding a project at Kansas State University to adapt an Ebola vaccine for wild apes. When the 2014–2016 Ebola outbreak emerged as the largest in history, Allen's earlier investment had positioned him to respond nimbly and decisively where others didn't have the experience to rapidly respond. As the situation escalated across Guinea, Liberia, and Sierra Leone, Allen committed an extraordinary \$100 million to combat the disease, stating, "I am committed to doing my part in tackling this crisis... to prevent it from becoming a global epidemic."



Catalytic Innovator

- Seed and launch new fields of research
- Catalyze scientific breakthroughs
- Incentivize cross-disciplinary collaborations

For example, Research Corporation for Science Advancement (RCSA) (one of America's oldest foundations), funds the Scialog program ("science + dialog") to accelerate breakthroughs in science by fostering interdisciplinary collaborations among early-career researchers in the range of \$60,000 per scientist. Scialog focuses on addressing complex scientific challenges of global importance,

such as negative emissions science where the underlying science needed to make these technologies globally scalable still requires major scientific breakthroughs, through intensive discussions and community building and a bias toward action. Scialog has had a significant impact by catalyzing groundbreaking research collaborations across various scientific disciplines for 15 years. By fostering a culture of interdisciplinary collaboration and innovation, Scialog has enabled early-career scientists to secure additional funding and contribute meaningfully to their fields. As one Scialog Fellow noted, “The Scialog model is an excellent template for stimulating creativity regardless of what you do.”

Scialog is also a great example of an interdisciplinary science collaborative—many funders have joined forces to co-sponsor and fund alongside RCSA in areas of interest to them.

Supporting science philanthropy presents an opportunity to learn from established practices while creating new approaches that reflect diverse perspectives and priorities. By understanding historical models while maintaining flexibility for innovation, philanthropists can determine what role they want to play by developing effective strategies to create meaningful impact.

Learn from Experts and Choose Your Guides

Science philanthropy offers numerous opportunities to connect with experienced individuals and organizations to help guide you and build your strategy. As you make consequential decisions along your journey, seeking guidance from experts in both philanthropy and science can provide inspiration and valuable perspectives and partnerships. Ideally you partner with peers and advisors with experience in science philanthropy.

Peer Mentors

New science philanthropists often begin by consulting friends who are already funding scientific initiatives. These conversations happen both informally and through organized roundtable discussions on philanthropy. Many funders are inspired by observing their peers' giving and reach out to learn more.

First-time science funders frequently conduct “listening tours” to meet with established donors, who typically share their approaches and experiences enthusiastically. These peers can provide guidance, mentorship, and collaboration opportunities as you begin your science philanthropy journey.

Beyond peer connections, establishing a relationship with a trusted expert advisor early in your process can be invaluable. Their expertise can help you explore your purpose, identify focus areas, and create an effective science funding strategy.

Philanthropy Advisors

Philanthropy advisors bring specialized experience and networks, serving as connectors between stakeholders. As trusted advisors, they help funders articulate their motivations, develop mission statements, create giving strategies, and overcome psychological barriers as described in a recent report by the National Center for Family Philanthropy, Gates Foundation, Ideas 42 and Arabella Advisors.

Philanthropy advisors may work on short-term projects or become long-term partners with individuals, families, or foundations. Even the earliest science donors like John D. Rockefeller, Sr. relied on philanthropy advisors.

Advisory services come in various forms: solo consultants, boutique firms, and large global consultancies. Some wealth management firms and donor-advised funds (DAFs) also employ philanthropy advisors. While wealthy individuals may initially turn to their legal or financial advisors, these professionals rarely have expertise in philanthropy best practices, particularly in science philanthropy.

When selecting a philanthropic advisor, consider their experience with science giving, and with working from the funder's viewpoint. Look for advisors specializing in philanthropy who feel aligned with your social impact goals. As Emma Beeston and Beth Breeze describe in their book Advising Philanthropists, philanthropy advising is a process, and especially valuable with an advisor you trust.

The specialized field of science philanthropy advising has emerged recently, with resources including individual consultants, boutique science philanthropy firms (such as this article's authors), and larger specialized organizations such as the Science Philanthropy Alliance (basic research), the Milken Institute's Science Philanthropy Accelerator for Research and Collaboration (SPARC) (all research stages), and Climate Lead (climate focus).

Science Advisors

In addition to expertise in philanthropy, it can be beneficial to acquire complementary expertise in science. Science advisors help navigate technical nuances and explain the complexity of the scientific ecosystem.

Utilizing referrals from peers, advisors and scientists, many philanthropists begin with one or a small group (1–5) of trusted scientists as advisors. These may be full-time science program staff, part-time consultants, or members of a Science Advisory Board (SAB) (paid or unpaid) that meets regularly to guide strategy and review grant applications.

When recruiting science advisors, prioritize trustworthiness and thoughtful input over celebrity status. Look for scientists with characteristics such as: in mid- to late-career stages, with administrative experience (academic leadership or grantmaking), and who possess broad scientific expertise across multiple fields. Most importantly, make sure your advisors have no conflicts of interest and are not seeking funding for their own research from you.

Carefully selected advisors in both philanthropy and science can significantly enhance the effectiveness of your giving strategy and the confidence and satisfaction you feel making your funding decisions.

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Giving While Learning: Give, Learn, Grow

Many of the world's problems can be solved through science, and a recent global survey has found that scientists are among the most trusted people in society.

Philanthropy at its best is a journey of discovery, purpose, and bold action. Now that you have a deeper understanding of the science ecosystem and the powerful role that philanthropy can play, it's time to take the next step: creating your science philanthropy strategy. Whether you are just beginning or ready to deepen your commitment, this section offers a practical guide to help you move from inspiration to action. You will define your purpose, sharpen your focus, build a strong team, and begin giving while learning. Like scientific discovery itself, your journey will unfold over time—shaped by curiosity, informed by collaboration, and driven by a vision for a better future.

Why

Clarify Your Philanthropic Purpose

Why do you want to make a difference through science philanthropy? Understanding your personal why—your core purpose and deepest motivations—creates the foundation for meaningful, sustained giving. Author Simon Sinek explains that starting with why is critical to the most successful businesses. Likewise, aligning your giving with your purpose and values, your why, leads to better decisions, deeper commitment, and greater fulfillment from your philanthropy—ultimately leading to greater impact.

Your why emerges from your life experiences—both challenges and triumphs. Your family legacy may also play an important role. Your why should be action-oriented, others-focused, expressed in positive terms, clear and simple, and true to your authentic self.

What

Explore Focus Areas

What science supports your purpose? Once you have determined your why, you will explore what issues you, your family, or your organization are interested in impacting that are connected to your purpose. Science philanthropy broadly focuses on supporting scientific research and education across a vast range of disciplines to address societal challenges and advance knowledge. Areas of interest might include life sciences, physical sciences, engineering, and interdisciplinary fields like climate change, food security, and global health.

Design Your Strategy for Lasting Impact

Many highly successful business people can see the connection between business and science innovation. Yet it often requires an adjustment to move from a short-term, quarterly profit business approach, to a long-term, social-good motivated mindset. A prominent science philanthropist described the change he experienced as he shifted from working as an attorney in the business world to becoming a science philanthropist.

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The most difficult transition for a very successful business person in this day and age is shifting from short-term thinking to long-term thinking. That's hard to do, because if you're a really successful innovative entrepreneur you're looking at how your service or product is going to come to market and produce substantial revenue in a short period of time. **Thinking out five years is an eternity in the context of a business. I found out early on when I was asked to operate the Curci Foundation, that discovery life science research focused on helping improve and sustain human health, requires one to think in 10 and 20-year increments.** It takes that long to really understand complex science and make breakthroughs.

From a conversation between Valerie Conn and **Ronald Rosequist**, lawyer, board member and president of the Shurl and Kay Curci Foundation, 2025

Science Funding Areas, Approaches, and Examples

There are an infinite number of ways to structure your science philanthropy portfolio that will combine into and be driven by your ultimate giving strategy. It can be helpful to work with peers and science philanthropy advisors to develop your strategy and goals which will inform your funding approach. You may be inclined to solve a particular problem or support system level gaps in the science ecosystem.

Philanthropists can choose which approaches will work best together to support their mission and strategy. Using multiple giving vehicles, funders can reinforce research in their interest area from multiple angles. For example, a multi-pronged funding approach could include creating fellowships to cultivate the next generation of scientists (human capital), funding specific research projects (ideas) designed to solve a problem, supporting a research center to sustain an underfunded research area (institutional), and funding a global data repository to build a much-needed research platform (infrastructure.)

Beyond funding individual research projects, visionary science philanthropists are increasingly considering how to strengthen the overall scientific ecosystem:

- Supporting open science initiatives that make research findings widely accessible
- Investing in research infrastructure that benefits entire fields
- Addressing incentive structures that may prioritize publication quantity over quality or reproducibility
- Advocating for science policy and encouraging public engagement and support for scientific inquiry

These system-level interventions recognize that advancing science requires not just funding research directly, but strengthening the conditions that allow science to flourish.

One systems-level strategic approach is laid out in the Issues in Science and Technology article entitled [A Vision for the Future of Science Philanthropy](#), by Alfred P. Sloan Foundation's Evan S. Michelson and Adam F. Falk. They advocate that "science philanthropies...need to serve a broader purpose" and could pursue critical support to parts "of the research enterprise that philanthropies will need to advance: seeding new fields of research, broadening participation in science, fostering new institutional practices, and deepening links between science and society."

Here are examples of funding areas that science philanthropists can choose to fund, preferably with a portfolio approach of several areas, to support their strategy:

Figure 6. Examples of Science Philanthropy Funding Areas

<p>Human Capital</p> <ul style="list-style-type: none"> • Fellowships • Challenges, Awards & Prizes • Training Programs • Early Career Support 	<p>Research & Development</p> <ul style="list-style-type: none"> • Basic/Discovery • Applied/Translational • Experimental Development • Clinical Trials 	<p>Institutional Support</p> <ul style="list-style-type: none"> • Research Centers • Core Operations • Innovation Hubs • University Programs
<p>Infrastructure</p> <ul style="list-style-type: none"> • Research Facilities • Equipment and Tools • Computing Resources • Repositories: Data/Biobanks 	<p>Field Building</p> <ul style="list-style-type: none"> • Collaboration Platforms • Networks/Convenings • Conferences • Professional Societies 	<p>Public Engagement</p> <ul style="list-style-type: none"> • Open Access Initiatives • Community Outreach • Science Education • Science Communications

Human Capital

By investing in early-career science faculty at a critical time in their career, the Alfred P. Sloan Foundation's support for the [Sloan Research Fellowships](#) has a 70-year legacy of funding exceptional people. These fellows are tenure-track, early-career faculty, selected across seven fields of research, who are seen to "have the potential to revolutionize their fields of study."

Research & Development

Important scientific research isn't always about test tubes and microscopes. The [Gates Foundation](#) funded a major clinical trial across five countries that showed immediate kangaroo mother care, skin-to-skin contact between mother and newborn, significantly reduces deaths among preterm and low birth weight babies. This research demonstrated that simple, human-centered interventions can be as impactful as high-tech solutions, saving thousands of newborn lives worldwide. In other global health research, through a [Global Grand Challenges](#) collaborative, innovative research and development projects are funded, for example, [engineering the infant gut microbiome for better health](#), and [new approaches to characterizing antimicrobial resistance](#). These grants provide early-stage funding to researchers worldwide, helping turn promising ideas into real-world solutions for pressing global health problems.

Institutional Support

From the biggest challenges (the universe), to the smallest (nanoscale), and the most complex (the brain), industrialist and philanthropist Fred Kavli chose to establish new institutes at leading universities across the globe. The 20 [Kavli Institutes](#) he funded through the Kavli Foundation explore basic science primarily in these three chosen areas of interest.

Infrastructure

The [Allen Institutes](#) were founded by Paul Allen who invested heavily in creating open-access, large-scale brain research infrastructure. They developed comprehensive brain atlases, high-throughput data collection platforms, and advanced imaging tools. These resources are designed to accelerate understanding of the brain's complexity, addressing fundamental gaps in neuroscience that can be used by researchers globally.

Field Building

The Rockefeller Foundation's visionary support in the 1930s and 1940s is widely recognized as a catalyst for the emergence of molecular biology—a field that has since revolutionized medicine, genetics, and biotechnology. More recently, [Heising-Simons Foundation](#) launched the [51 Pegasi b Fellowship](#) for early-career scientists to conduct research in planetary astronomy, which brings together research efforts of two fields—planetary science and astronomy—to characterize planetary systems. These examples illustrate how strategic philanthropy can do more than accelerate progress in existing disciplines; it can create entirely new scientific paradigms.

Public Engagement

The [Civic Science Fellows](#) program, initiated by the [Rita Allen Foundation](#), aims to foster a deeper connection between scientific research and community engagement. By placing fellows in non-traditional settings—such as community organizations, museums, and media outlets—the initiative encourages fellows to actively participate in local discussions, promote scientific literacy, and advocate for evidence-based decision-making in various sectors.

How

You do not have to wait until you have everything figured out before beginning your science philanthropy journey. Giving while learning, especially when facilitated by experts and peers, is a recommended approach as it mirrors core principles of science—to learn, to experiment, to gather data, and to evolve your approach accordingly. However, it is also important to be clear with the science community when you are in learning mode, to avoid signaling that you are committing to long-term funding in a particular area before you are ready.

A Portfolio Approach to Philanthropy

It is optimal for philanthropic grants to be focused on fulfilling your strategy, which is based on your stated mission. There are several key decision points for executing your science philanthropy strategy.

Just as financial wealth managers advise clients to invest in multiple funds considering risk tolerance and time horizon, philanthropic advisors recommend a balanced yet diversified portfolio of grants. This portfolio approach to philanthropy increases the likelihood of innovation and impact when addressing significant problems or gaps in scientific research.

Gordon and Betty Moore emphasized this concept in their [State of Founders' Intent](#), asking, "Does [our contribution] contribute to a portfolio effect? Synergy can increase impact and a portfolio can decrease risks."

Giving Scale

Determining your annual giving budget as well as your intended timeline and duration of giving can help define the scale and scope of the problems you aim to solve and the approaches you take to achieve your goals.

Here are examples of the scale of giving across different funding opportunities. These can vary greatly depending on the organization or area you choose to fund.

Figure 7. Scale of Funding Opportunities

Science funding opportunities exist in every funding range at each stage of the scientific research process.	\$	Graduate students or postdocs
	\$	Conferences and convenings
	\$	Science communications
	\$\$	One lab or small-scale research project
	\$\$	Fellowships and awards
\$\$\$	Repositories/platforms for data/biobanks	
\$\$\$\$	Programs/initiatives across multiple labs	
\$\$\$\$	Professorship or Department	
\$\$\$\$\$	Center or Institute	
\$\$\$\$\$	Collaborations across multiple institutions	
\$\$\$\$\$	Grand Challenges/Big Bets	

Examples of Science Funding Pathways

Each philanthropist will eventually determine their overall approach to funding science and the scale of their giving. This may include targeting one or more research stages, selecting preferred types of funding opportunities and addressing specific problems or gaps. Here are some examples of how your why, connected to your preferences for what and how, can lead you down various pathways in science philanthropy.

If your purpose includes stimulating curiosity and learning about the natural world, you might fund basic research and discovery science.

Jim and Marilyn Simons were fascinated by the early origins of the universe, so one area they chose to fund is astronomy research. “We thought the universe was all that we could see, but now we know that visible matter makes up just 5 percent of the universe...Science does not just provide answers, but also implores us to rethink our ideas and assumptions.”—Simons Foundation 25th Anniversary Book

If your motivation is to provide direct support to develop talent and catalyze the collective genius, you might support people.

In his book [Philanthropy and the Future of Science and Technology](#), Evan S. Michelson describes the [Meyerhoff Scholars Program](#) at the University of Maryland, Baltimore County (UMBC) as “a more inclusive model of training and support to help advance under-represented minority students in science and engineering.” This program has received significant support from Chan Zuckerberg Initiative and Howard Hughes Medical Institute to further expand the Meyerhoff model on other campuses.

If you are driven to solve problems, you might fund or collaborate with others to support every stage of science—from discovery to development and implementation.

To combat mosquito-borne diseases like dengue, Zika, and chikungunya, philanthropists helped advance the [World Mosquito Program’s](#) innovative approach of introducing *Wolbachia*, a naturally occurring bacterium, into *Aedes aegypti* mosquitoes. Once released, these mosquitoes pass on *Wolbachia* to others and dramatically reduce their ability to spread viruses. The [Gates Foundation](#) funded the early discovery science, with [Wellcome](#), USAID, and local governments supporting development and implementation. A pivotal randomized trial in Yogyakarta, Indonesia—funded exclusively by the [Tahija Foundation](#)—showed a 77% drop in dengue cases and 86% fewer hospitalizations. With further support from the Gates Foundation, local governments, a \$20 million contribution from [MacKenzie Scott](#), and others, the World Mosquito Program now protects [over 13 million people in 16 countries](#). Because *Wolbachia* spreads naturally in the local mosquito population, the benefits are self-sustaining and scalable through active local release strategies—a breakthrough in global disease prevention.

If your mission is to impact the entire field of science by seeding breakthroughs at the systems level, you might identify gaps and support infrastructure and tools that can unlock innovation.

Seeded by the Klarman Family Foundation, Wellcome, Chan Zuckerberg Initiative, and additional philanthropic partners, the Human Cell Atlas is an international collaborative research consortium that is mapping all cell types across the human lifespan to drive major advances in healthcare and medicine worldwide. By making this tool, the Human Cell Atlas, available to all, researchers everywhere are studying and making discoveries about how the genes in our cells shape life.

If your why is to create new products for real world access, you might even fund the development stages of a product.

For example, [Bill and Melinda French Gates](#) once said that they “wake up every day determined to use our resources to create a world where everyone has the opportunity to lead a healthy and productive life.” One of their earliest initiatives resulted from seeing that there was little commercial incentive for pharmaceutical companies to develop a vaccine for a disease, meningitis A, that primarily affected children in sub-Saharan Africa. The Gates Foundation awarded a \$70 million grant to launch the [Meningitis Vaccine Project](#)—a partnership with the World Health Organization and PATH enabling the development, testing,

and introduction of MenAfriVac, an affordable and highly effective vaccine tailored specifically for the African meningitis belt. By 2010, MenAfriVac was launched, costing less than 50 cents per dose and quickly reaching millions of people. The result was a dramatic reduction in meningitis A cases and the prevention of countless deaths, demonstrating how targeted philanthropic investment can create new health products for real-world access where traditional markets fail.

3

Implementing Your Science Philanthropy Vision

Trends in Science Philanthropy

As the landscape of both science and philanthropy evolves, several emerging trends are reshaping how philanthropic capital can most effectively advance scientific progress and, in turn, how science can effectively advance philanthropic goals. New science philanthropists may wish to consider these approaches as they develop their giving strategies.

Partner to Amplify Impact

Philanthropy is increasingly moving beyond the traditional single-funder approach toward collaborative models that pool resources, expertise, and networks. Whether it's joining a learning community or a funding community, giving with peers can expedite both knowledge and confidence. In 2010, 40 of America's wealthiest individuals joined Bill Gates, Melinda French Gates, and Warren Buffett, to form the [Giving Pledge](#). These philanthropists publicly commit to give the majority of their wealth to charitable causes during their lifetime or in their wills. Almost 50 of the more than 240 signatories of the Giving Pledge in 2025—more than 20 percent—direct significant philanthropic resources toward science, mathematics, and health initiatives.

Collaborative giving is on the rise, as described in [The Bridgespan Group's The Philanthropic Collaborative Landscape](#) report. While there are still few collaboratives for science research, the approach holds promise, specifically to enable:

- Tackling complex challenges requiring multidisciplinary approaches and substantial resources
- Sharing due diligence and evaluation costs
- Creating communities of practice where funders learn from each other
- Amplifying impact through coordinated strategy and complementary investments
- Often integrating the perspectives of the funders and the doers, incorporating grantee and community voices into the picture

In these emerging models of collaboratives and co-funding, a challenge is to encourage funders to share and exchange ideas as they build trust. This is particularly critical when the collaboration involves pooled funds. It's vital to align member interests with available funding opportunities in order to implement a successful collaborative.

In science philanthropy there are examples of successful co-funding, from climate research to pandemic preparedness, which demonstrate how coordinated capital can achieve what individual funders cannot accomplish alone. For example, in brain research and mental health research:

- Brain Canada is an independent foundation that is jointly funded by private sources such as philanthropy and corporations for collaborative research in high demand areas of brain research. Through this joint funding, Brain Canada supports capacity building grants, team grants, and platform support grants. This is a successful public-private partnership.
- Breakthrough Discoveries for thriving with Bipolar Disorder (BD²) is the first organization focused on funding and advancing research and care for bipolar research on a global scale, and this collaborative is managed by the Milken Institute. According to BD² Managing Director Cara Altimus, “BD² is revitalizing and expanding the field, driving fundamental and innovative research, and providing new hope to those with bipolar disorder and their loved ones.”



Trust-Based Approaches

A growing movement in philanthropy emphasizes trusting grantees' expertise and reducing administrative burdens. According to the Trust-Based Philanthropy Project, “trust-based philanthropy advances a just and equitable society by alleviating the inherent power imbalances between funders, nonprofits, and communities.” In science philanthropy, this manifests as:

- Providing unrestricted or minimally restricted funding for scientists, rather than projects, allows freedom to pursue promising leads, enabling scientific serendipity
- Structure grants with flexibility allowing the scientist to follow the science and pivot as new ideas emerge
- Simplifying application and reporting requirements to maximize time spent on research
- Building genuine partnerships with grantees that incorporate their voices in strategy development

Of course, listening to scientists is key. These approaches acknowledge that scientific breakthroughs often come from unexpected directions and that overly prescribed funding can inadvertently constrain innovation.

Distribution of Granting

Great ideas can come from anyone, anywhere. However, not all ideas have the same opportunity to be tested. In the United States, the concentration of research funding among a small number of elite institutions has come under increasing scrutiny. Recent analyses show that nearly half (42%) of R&D spending occurs at just 30 of 910 institutions surveyed.

Forward-thinking philanthropists are exploring ways to:

- Run more open calls for proposals that anyone, anywhere can apply to, and select proposals based on the value of the idea, not the pedigree of the applicant. Here are some examples that often include calls for science research funding:
 - Grand Challenges family of initiatives fostering innovation to solve key global health and development problems
 - Lever for Change, a nonprofit affiliate of the MacArthur Foundation, designs open calls to deploy large-scale capital to help nonprofits address problems that need to be tackled at scale
 - The Audacious Project, housed at TED, is a funding initiative that encourages the world's greatest changemakers to dream bigger
- Fund talented researchers at a broader range of institutions, including those historically overlooked
- Create pathways for underrepresented groups to lead scientific endeavors
- Design application processes that remove barriers for organizations with less grant-writing capacity

By addressing these imbalances, philanthropists can help tap into previously overlooked talent pools and research perspectives, potentially accelerating discovery through greater diversity of thought and ideas.

Measuring Impact

Think of your grantees as your partners and engage with them during the proposal and selection process, and certainly during the period of the grant award. By cultivating a trusted relationship between grantor and grantee, the philanthropist will stay abreast of the progress of the research, and feel satisfied about the success of the grant. Traditional metrics of scientific impact are expanding beyond publication counts and citation indices to include:

- How research influences policy decisions
- Contributions to solving practical problems facing society
- Development of new methodologies or tools that enable further discovery
- Growth of scientific capacity with under-resourced populations, regions or institutions
- Access, distribution and use of open science tools (data, code, open publications)

This broader view of impact allows philanthropists to support valuable scientific work that might not receive recognition under conventional metrics.

By incorporating these emerging approaches, new science philanthropists have the opportunity to not only fund great science but also help shape a more effective, equitable, and resilient scientific enterprise for the future.

There are additional ideas about areas of potential investment in science in a special section of the [Issues in Science and Technology](#).

Spark Discovery and Solve Intractable Problems Through Your Giving

This is where your science philanthropy journey culminates in a defined and committed science giving program. You have a defined mission and strategy, a defined scale and scope, and a clear approach to catalyzing discovery and change for fueling breakthroughs, nurturing new knowledge, and driving solutions. You may decide to go solo or join peer funders in a collaborative. As with all science, you should remain open to learning and evolving your approach as new evidence emerges.

Conclusion

For more than a century, philanthropic investments have catalyzed scientific breakthroughs, activated government funding, and advanced research in fields that might otherwise have gone unexplored.

The power to shape the future of human knowledge and capability lies within the hands of visionary philanthropists like you, to build on the generosity of the philanthropists before you.

By engaging in science philanthropy, you are not merely funding research, you are catalyzing discoveries that can transform our world. From unraveling the mysteries of the universe to developing cures for devastating diseases, your philanthropy has the potential to touch countless lives and affect our planet.

As you embark on your journey of science philanthropy, you are joining a legacy of benefactors who have propelled some of humanity's greatest advancements.

Let this guide serve as your compass, navigating you through the complex yet rewarding landscape of science philanthropy. Consider this an invitation to get excited about what problems you might solve and what legacy you might leave through the generosity of funding catalytic science. Embrace the opportunity to collaborate with brilliant experts, to challenge conventional thinking, and to be part of something truly extraordinary. The future of science is not predetermined—it is shaped by those who dare to envision and support it. Step boldly into your role as a science philanthropist. Your decision to invest in scientific progress is a declaration of hope and a commitment to new knowledge and solutions to daunting problems.

Your Science Philanthropy Journey



Explore and Learn about Science Philanthropy

Learn About Science Philanthropy

Learn about science and the history and growth of science philanthropy

Meet Peer Travelers

Connect with experienced science philanthropists who can help shape your learning journey

Join a Donor Group

Consider a science collaborative or other group to give and learn with peers

Find Experts

Engage trusted science and philanthropy advisors to guide you as you learn and build your strategy

Giving While Learning: Give, Learn, Grow

Clarify Your Purpose

WHY—Define your purpose, mission, and philanthropic vision

Explore Focus Areas

WHAT—Identify your passions, problems you want to solve, and areas or systems you want to impact

Design Your Strategy

HOW—Decide your tactics: giving approach, portfolio balance, giving vehicles

Set Your Pace and Scale

Determine the size, scope, and timeframe of your giving

Implement Your Vision and Impact the World

Partner to Amplify Impact

Collaborate and give alongside peers to magnify your impact

Use Trust-Based Approaches

Listen to scientists and give them freedom, flexibility and time to innovate

Distribute Your Granting

Seek out and support promising individuals and initiatives outside your traditional networks

Spark Discovery—Solve Intractable Problems

Nurture new knowledge, fuel breakthroughs, and drive innovative solutions

About the Authors

Valerie Conn is a leader in the modern era of science philanthropy advisors; after 25 years as a university science fundraiser (Illinois Institute of Technology, Stanley Manne Children’s Research Institute and University of Chicago), she went on to lead Science Philanthropy Alliance, helping drive more than \$1 billion in private funding to basic science research in five years. Currently, as the founder of [Future Science Now](#), she is a trusted philanthropic strategist connecting more funding, faster, for science. Valerie has worked with more than 40 science philanthropists in the past decade.

Sandra J. Laney, PhD is the founder and president of the [Strategic Journey Lab, Inc.](#), where she catalyzes meaningful giving by advising high and ultra-high-net-wealth individuals, family offices, private foundations, and corporations on their philanthropic strategies at the intersection of science and society. A scientist by training, Dr. Laney brings over two decades of experience across field and laboratory research, global health, philanthropy, and policy—including leadership roles at the U.S. Department of State, the Bill & Melinda Gates Foundation, Paul G. Allen’s Ebola Program, and the Walder Foundation. She works closely with donors and investors to align their capital with their purpose, designing legacy-driven strategies that turn intent into real-world impact.

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To Learn More

We invite you to join the journey of funding science. Also available is **Science Philanthropy Stories** which shares models and examples of successful science philanthropy. Facilitated learning workshops, curated events globally, and expert-sourced giving opportunities can be made available upon request.

The [Gates Foundation](#) is guided by the belief that every life has equal value, and works to help all people lead healthy, productive lives. The foundation’s Philanthropic Partnerships team inspires and enables more informed and intentional generosity by all. Ruixi Hao: ruixi.hao@gatesfoundation.org

[Future Science Now](#) is a science philanthropy advisory group that educates and connects philanthropists and scientists to accelerate strategic science philanthropy now. Valerie Conn: valerie@futuresciencenow.com

[Strategic Journey Lab, Inc.](#) helps donors give their money meaning by advising at the intersection of impact, science and society. Sandra J. Laney, Ph.D.: sandra@sjladvising.com