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# Advancing informal science and engineering learning in an evolving STEM education and engagement landscape

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In 2009, the National Academy report "Learning Science in Informal Environments" (National Research Council, 2009) helped define the informal science education sector. Since that time the sector has continued to improve in rigor and impact through field building efforts, a growing body of research, and increased coordination across the education sector (CAISE, 2025). There has also been an expansion of engineering programs in informal education.

Informal Science and Engineering Education (ISEE) is often lumped under the umbrella of Science, Technology, Engineering, and Math (STEM). STEM is often discussed as if it is a monolithic topic, but it is not. Each of the disciplines has different goals and practices. While there is significant opportunity for transdisciplinary focuses, these differences also create tensions particularly as we see shifts in strategic priorities and funding. The paper focuses on science and engineering and only discusses technology and mathematics when they impact the ISEE sector.

ISEE organizations depend on a combination of revenue sources and are often dependent on the government and philanthropic funding for their sustainability. This is particularly true of programs that serve low-income learners. This means that the changing priorities of the federal government and the philanthropic sector have a significant impact on the type and focus of ISEE programs. These funders often have the explicit goal of workforce development when considering STEM education, which contrasts with goals focused on the use of general science and engineering literacy for informed decision making and civic engagement.

In the first part of this white paper, I examine

- The impact of formal education policy on the ISEE sector particularly at the K-12 level;
- Federal policy that impacts the ISEE sector with a focus on federal strategic plans, the American Rescue Plan, the CHIPs and Science Act, and recent Executive Orders;
- Federal agency funding priorities that impact informal education; and
- A summary of the focus of private philanthropy on ISEE.

*ChatGPT was used in the initial background research for this paper. All material generated by an AI platform used in this document was fact-checked to ensure accuracy of the presented information.*

In the second part of the paper I highlight some of the themes that have emerged in ISEE over the past decade based on the public and private funders' priorities. I conclude with a discussion of how programs might balance competing priorities and goals for informal science and engineering education as they seek to respond to evolving policy and funding priorities.

## Setting the Context: Policies that Impact the Formal Education System

The majority of learning over a lifetime occurs outside of school time, which is why the informal education sector is essential. However much of the emphasis in educational policy and funding is focused on the formal education sector. ISEE learning organizations often have different goals and objectives as compared to the formal education system but are affected by what is happening in the formal system. In this section I will examine some of the major federal legislation focused on the formal education sector that is relevant to the informal.

Over the past two decades, major legislative acts and national standards have affected the amount of instructional time for specific subjects, the curriculum design, and the assessment mechanisms used in K–12 education. These policies have significant implications for how much science and engineering instruction appears in the school day, especially at the elementary level.

The *No Child Left Behind Act* (NCLB) of 2001 fundamentally reshaped K–12 accountability systems by requiring annual testing in mathematics and English language arts (ELA) and using those scores as the primary measures for school performance. This emphasis and the high-stakes nature of the testing led many districts to increase instructional time for math and ELA at the expense of other subjects. Science instruction, especially in elementary grades, was frequently reduced or eliminated to create space for test preparation and compliance with accountability requirements (NASEM, 2021).

In 2015 Congress passed the *Every Student Succeeds Act* (ESSA, 2015), which gave states more authority over their curriculum and encouraged a broader definition of a well-rounded education. In principle, this flexibility allows schools to invest more time and resources in science and other subjects. In practice, the prioritization of math and ELA persists, especially in the early grades, where time spent teaching science and engineering remains very limited during the instructional day (NASEM, 2021).

The legislative changes occurred alongside efforts to enhance science education quality through national standards development. The *Framework for K–12 Science Education* (National Research Council, 2012) and the subsequent *Next Generation Science Standards (NGSS Lead States, 2013)* provide a new vision for science education focused on three-dimensional science learning that integrates disciplinary core ideas, science

and engineering practices, and crosscutting concepts. While only 20 states have formally adopted the NGSS, 49 states use standards that follow the Framework (NSTA, n.d.)

The widespread adoption of the framework and standards at the state level has not trickled down to consistent classroom implementation (Short and Hirsch, 2020). Many states and districts lack the professional development infrastructure, high-quality instructional materials, and resources required to implement standards into daily classroom practice. This gap is particularly acute at the elementary level, where teachers often report limited confidence in teaching science. Students in the early grades continue to receive minimal exposure to science and engineering concepts even though their states have adopted rigorous standards (NASEM, 2021).

Understanding these dynamics is essential for designing informal learning experiences that are both complementary to and independent from formal educational structures. For programs focused on youth, the informal sector is often expected to fill instructional gaps and serve students who may not receive much science instruction during school hours. One way they may do so is by aligning their programs with NGSS. In many ways informal science education providers are well positioned to provide framework-based approaches since they often feature phenomenon-based experiences.

### Review of Federal Strategic Plans

Federal strategic plans are an excellent window into the priorities of the federal government. The America COMPETES Reauthorization Act of 2010 mandated a coordinated federal approach to science, technology, engineering, and mathematics (STEM) education policy managed by the Committee on STEM Education (CoSTEM), who are required to develop a federal STEM education strategic plan every five years. These plans, produced by the National Science and Technology Council, outline cross-agency priorities and serve as a key signal of federal intent in shaping the STEM education landscape, including the role of informal learning.

The 2013 federal STEM education strategic plan (*National Science and Technology Council, 2013*) from the Obama administration advanced a vision to develop a diverse, well-qualified STEM workforce capable of driving innovation and meeting the personnel needs of federal agencies and private industry. The strategy emphasized that creating a STEM-literate public capable of applying scientific knowledge in civic and personal contexts is also important. The plan includes five priority investment areas, two of which are particularly relevant for informal science and engineering education (ISEE). The first, *"Improve STEM Instruction,"* included the goal of preparing 100,000 new K–12 STEM teachers by 2020 and supporting the existing teacher workforce. This goal helped catalyze major efforts such as 100Kin10, a coalition-led initiative involving philanthropic, governmental, and nonprofit partners to address systemic barriers in STEM teacher preparation.

The second area, *"Increase and Sustain Youth and Public Engagement in STEM,"* explicitly acknowledged the role of informal learning. It called for a 50 percent increase in the number of children who receive "effective, authentic STEM experiences each year prior to completing high school." They cited a wide range of experiences including citizen science, maker spaces and "games for learning" as examples. They also noted that these experiences can take place in diverse environments outside of the classroom.

The 2018 strategy (*National Science and Technology Council, 2018*), developed during the Trump administration, retained several of the core themes of the previous plan but shifted the emphasis toward workforce development. The vision called for "lifelong access to high-quality STEM education" and for the United States to be the leader in global STEM literacy and employment. The plan placed significant emphasis on *"Preparing the STEM Workforce for the Future,"* with particular focus on career pathways aligned with computing, technical and trade occupations. The *"Build Strong Foundations for STEM Literacy"* goal included the importance of STEM literacy for civic engagement.

References to ISEE appear frequently in the plan's cross-cutting approaches including "develop and enrich strategic partnerships" and the recommendation that federal agencies encourage the creation of STEM ecosystems. A STEM ecosystem is a network of interconnected organizations, which may include schools, libraries, museums, higher education institutions, afterschool providers, businesses, and community-based groups, that together offer a rich array of learning opportunities. This approach reflects an understanding that learning does not happen exclusively in classrooms and that multiple touchpoints are needed to build sustained interest and proficiency in STEM. Informal learning institutions are essential to the ecosystem model, not as supplementary support, but as co-equal contributors that often offer accessible, engaging, and culturally responsive programming. Their role in hands-on learning, mentorship, and family engagement makes them vital partners in promoting STEM literacy and broadening participation.

The 2018 strategic plan endorsed existing ecosystem development initiatives through national and regional organizations even though it did not establish funding methods or evaluation systems. For example, the STEM Learning Ecosystems Community of Practice, (STEM Learning Ecosystems, n.d.) supported by philanthropic organizations, has facilitated the formation of over 100 local ecosystems that focus on equity, cross-sector collaboration, and sustained learner engagement. Many of these ecosystems are anchored by ISEE organizations, which serve as conveners and translators across sectors. Their positioning underscores a central theme of the ecosystem model: that durable, community-centered partnerships are necessary to ensure continuity, relevance, and impact in STEM education.

Interestingly, given the Trump Administration's recent executive order on diversity, equity and inclusion (Trump, 2025), the 2018 plan has "Increase Diversity, Equity, and Inclusion in STEM" as one of the goals of American STEM education. It notes that inclusive organizations with diverse teams are generally more innovative and higher performing. As a result, diversity, equity, and inclusion was emphasized in many of the funding opportunities from federal agencies.

The 2024 strategic plan *(National Science and Technology Council, 2024)*, released at the end of the Biden administration after the presidential election, did not gain traction and is unlikely to guide future federal investments. Nevertheless, it provides insight into the most current articulation of federal STEM priorities. The plan included workforce development as one of its central pillars and emphasized national security, economic competitiveness, and inclusion. The stated vision called for the United States to "inspire, educate, train and innovate in STEM fields and STEM careers" to fully leverage national talent. One of the four pillars, *"STEM Engagement,"* directly addressed the role of informal and lifelong learning. It framed engagement as critical to fostering belonging, supporting community-level participation, and strengthened the connection between research and practice.

Taken together, these strategic plans reflect evolving federal conceptions of the purpose of STEM education. The plans all include the need for broad public engagement. They differ in the degree to which informal learning environments have been integrated into the national strategy. The 2013 plan remains the most explicit in its support for informal and non-school-based learning experiences while the 2018 plan shifted to focus to STEM ecosystems. In the 2024 plan, references to ecosystems remain and we see an increased emphasis on engaging families in the informal sector. We also see a growing focus on workforce readiness and a deemphasis on the importance of science and engineering for an informed citizenry.

### The American Rescue Plan Act and Its Impact on ISEE

In 2020 the formal and informal education systems were highly disrupted by the COVID-19 pandemic. Most institutions turned to remote learning, and schools and informal organizations needed to turn their attention to providing basic needs such as food or broadband access to students. The federal government made major investments to respond to this crisis. The American Rescue Plan Act (ARPA) of 2021 delivered a significant federal investment in education recovery, with substantial implications for ISEE. ARPA allocated funds to support both formal and informal educational settings, with goals that included mitigating learning loss, promoting educational equity, and strengthening digital learning infrastructure.

A central component of ARPA was the Elementary and Secondary School Emergency Relief Fund (ESSER III) (U.S Department of Education, n.d.), which allocated $122.8 billion to K–12 education. Key provisions included:

- Ninety percent of funds were directed to local educational agencies (LEAs), with a requirement that at least 20 percent be used to address learning loss through evidence-based strategies such as summer learning, extended day programs, and comprehensive afterschool programming.
- One percent of state-reserved funds were allocated to summer enrichment and afterschool programs.

These allocations created opportunities for ISEE organizations to partner with school systems to expand access to out-of-school STEM learning experiences.

ARPA also prioritized support for student populations disproportionately affected by the pandemic, including those from low-income families, students of color, English learners, and students with disabilities. Informal learning providers such as science centers, museums, libraries, and community-based organizations played an essential role in reaching these learners by offering programs that were accessible, relevant, and responsive to local community needs.

ARPA funded investments in educational technology to support remote and hybrid learning environments to mitigate uneven access to digital tools and broadband connectivity. Although the legislation did not mandate a specific allocation for digital learning, LEAs and state education agencies had discretion to fund improvements in digital infrastructure, including device distribution, broadband access, and educator training.

As ARPA funding sunsets, ISEE organizations face a critical moment. The act enabled significant advances in access, infrastructure, and equity, sustaining these outcomes will require continued investment, deeper cross-sector partnerships, and rigorous evaluation to guide future efforts. The obligation deadline was September 30, 2024, and liquidation deadline was January 28, 2025 (U.S. Department of Education, 2024). Fortunately, more than half of the states have created dedicated funding streams for afterschool programs, a component of the ISEE sector (Neitzey, 2025). Additionally, ISEE organizations have adopted a range of strategies to sustain the gains made during the ARPA period including:

- *Capacity Building and Sustainability Planning*
  Organizations are investing in internal systems to maintain operations and program delivery beyond the life of ARPA funding. For example, Maryland Nonprofits launched a capacity-building initiative to support ARPA-funded

organizations with training in federal compliance and organizational development (Maryland Nonprofits, 2023).

- *Advocacy and Policy Engagement*
  ISEE stakeholders have worked with advocacy organizations, including the Afterschool Alliance (Afterschool Alliance, 2025), to build public and policymaker support for long-term investment in out-of-school STEM learning. These efforts emphasize the role of informal education in student recovery and the broader STEM ecosystem.
- *Program Evaluation and Impact Demonstration*
  To strengthen their case for continued funding, many ISEE providers have expanded their evaluation efforts, focusing on metrics that capture student learning, engagement, and equity of access. This data supports both internal learning and external communications with funders and policymakers.

The innovations developed under ARPA offer a foundation for building more resilient and inclusive informal STEM learning systems in the years ahead.

### The CHIPS and Science Act and Its Implications for ISEE

The CHIPS and Science Act of 2022 represents a major federal investment in the nation's scientific infrastructure, workforce, and innovation capacity. Although the Act is best known for its support of domestic semiconductor manufacturing, it includes several provisions that directly affect STEM education. The legislation affirms the role of informal learning environments in cultivating STEM engagement and expands federal support for equitable access and workforce development.

The CHIPS and Science Act authorized the National Science Foundation (NSF) to expand its support for informal STEM education through new funding opportunities and revised programmatic priorities. Several key areas are relevant to ISEE:

- Integration of Art and Design: The Act encourages the incorporation of artistic and design principles into informal STEM education requirements for grants, promoting interdisciplinary learning and creativity. This approach broadens the range of learning modalities and supports engagement through multiple entry points.
- PreK–12 Engagement in Informal Settings: The Act authorizes NSF to support research and program development focused on PreK–12 learners in out-of-school settings. Emphasis is placed on serving historically underrepresented and rural communities through before-school, after-school, out-of-school, and summer programs (Fagen, 2022 and Neitzey, 2022).
- Support for rural programs: The legislation requires NSF to develop approaches to high quality STEM teaching in rural schools including online education.

- Quantum mechanics: The Act creates a "Next Generation Quantum Leaders Pilot Program," which supports ISEE organization and higher education institutions to train teachers and students on quantum concepts (Neitzey, 2022).

The Act included targeted investments to address short- and long-term workforce needs in STEM fields, with implications for education providers across sectors.

- Semiconductor Workforce Training: The Act appropriates $200 million over five years to NSF to support workforce development in the semiconductor sector. Funding supports training programs at community colleges, universities, and informal education organizations with workforce-aligned programming (Ross and Munro, 2022).
- Centers for Transformative Education Research and Translation: The Act establishes new NSF centers focused on scaling effective PreK–12 STEM education practices. These centers aim to accelerate the translation of research into practice and support broader dissemination of proven instructional models (Fagen, 2022).

Equity is a central theme of the CHIPS and Science Act. The legislation expanded access to federal STEM resources and institutional support in several ways:

- Support for Underserved Institutions and Communities: The Act prioritizes funding opportunities for minority-serving institutions, emerging research institutions, and rural organizations, with the goal of reducing systemic disparities in access to STEM education (Peterson, 2022).
- Establishment of a Chief Diversity Officer at NSF: The Act creates a new leadership role at NSF to oversee diversity, equity, and inclusion efforts. The Chief Diversity Officer is charged with developing strategic plans, coordinating equity initiatives, and monitoring progress across NSF's education and research portfolio (Peterson, 2022).

The CHIPS and Science Act extended beyond its industrial and research mandates to establish a broader policy framework for STEM education. By supporting informal learning environments, investing in workforce development, and advancing equity goals, the Act signaled a continued federal commitment to a STEM education system that is innovative, inclusive, and aligned with national priorities. For ISEE stakeholders, the Act offered both new resources and a strengthened policy rationale for partnerships that span education settings and sectors.

### Recent Federal Actions and Their Impact on ISEE

Since January 2025, federal policy shifts under the Trump administration have had far-reaching effects on science and education. These changes include the termination of diversity-related research grants, significant budget reductions for science agencies,

removal of publicly accessible datasets, and funding freezes for leading academic institutions. Collectively, these actions have disrupted efforts in ISEE, particularly those aimed at broadening participation and strengthening research capacity in underserved communities.

One of the most visible actions has been the termination of more than 1000 grants administered by the National Science Foundation (NSF) that were linked to diversity, equity, and inclusion (DEI) initiatives. These cancellations amount to roughly $773 million in withdrawn funding (New York Times, 2025) and have halted projects focused on improving STEM access for historically underrepresented groups (Dieckman, 2025). The abrupt termination of these efforts has disrupted research teams and undermined outreach partnerships serving low-income and rural learners.

The administration's fiscal year 2026 budget proposal (The White House, 2025) recommends deep cuts across several key federal science agencies. The NSF would face a reduction of more than 55 percent, decreasing its total budget from $8.6 billion to approximately $3.9 billion. NASA's Science Mission Directorate would see a 47 percent decrease, limiting its ability to support Earth and planetary science research. The National Institutes of Health (NIH) would absorb a $18 billion cut, eliminating support for many biomedical research and education initiatives (Science News Staff, 2025). It remains to be seen what Congress will do with the final budget. These proposed reductions raise concerns about the continuity of programs that fund informal STEM education partnerships, professional development, and innovation hubs.

Since the end of January 2025, the administration has removed or altered thousands of federal web pages that hosted public datasets related to health, education, climate, and environmental justice. This includes the removal of tools that tracked maternal mortality disparities, health information related to LGBTQIA+, and state-level educational attainment outcomes (Stone & Simmons-Duffin, 2025 and Marshall, 2025). Informal education providers and researchers who rely on such data for program planning, evaluation, and grant reporting have been affected by this loss of access.

In several high-profile cases, federal funding for academic research has been suspended or frozen due to disagreements over institutional DEI policies or free speech compliance. At Harvard University, more than $2 billion in federal contracts and research grants were placed on hold following the university's refusal to modify its campus DEI programs (Sanchez, Scannell, & Brown, 2025). Columbia University reported mass layoffs of research personnel after its own federal research funding was delayed under similar conditions (Alsharif & Bouarrouj, 2025). These cases are highly fluid so it remains to be seen how this will affect universities in the long run. However, these funding freezes affect not only formal academic research, but also community-based and informal STEM learning partnerships run in collaboration with university centers.

The cumulative effect of these federal actions presents serious challenges to the informal STEM education ecosystem. Programs aimed at expanding access for underrepresented learners are being defunded at the same time the broader infrastructure that supports collaboration and innovation is being destabilized. These developments threaten to reverse progress made over the past decade in building equitable and inclusive approaches to STEM engagement. For ISEE practitioners, these changes underscore the importance of long-term planning, diversified funding strategies, and continued advocacy for inclusive education policies.

## Federal Funding Landscape

A range of federal scientific agencies support ISEE through targeted investments, grant programs, and public engagement initiatives. The National Science Foundation (NSF) is the primary federal funder of ISEE particularly though its Advancing Informal STEM Learning (AISL) program. Since 2014, the funding for AISL has grown from $55M to $71.15M. The Institute for Museum and Library services has funded the broad informal learning sector with budgets ranging from $226M in 2015 to $266M in 2024, but the amount focused on STEM is much lower and is estimated to be less than $21M. The U.S. Department of Education provides support for out-of-school learning largely through block grants and state-administered programs: Title IVB (21st Century Community Learning Centers) provides over $1.3B of funding to support out-of-school time learning, while Title IVA **(**Student Support and Academic Enrichment Grants; $1.38B) also allows use of the funds for informal and afterschool STEM activities**.** There is also funding for education in the scientific agencies for ISEE. Through the scale of funding varies across these agencies, these investments collectively shape the ecosystem of informal STEM learning across the United States.

In the following sections, I will highlight some of the changing themes across these agencies.

## National Science Foundation

### *Advancing Informal STEM Learning*

Between FY2015 and FY2025, the NSF's AISL program evolved by expanding its scope, sharpening its priorities, and reinforcing its commitment to equity, research integration, and public engagement.

The 2015 solicitation (National Science Foundation, 2015) offered funding to support six distinct project types: Pilots and Feasibility Studies, Research in Service to Practice, Innovations in Development, Broad Implementation, Conferences/Symposia, and Literature Reviews/Meta-Analyses. The program emphasized innovation in informal STEM environments and strengthening the evidence base for learning. The research component at this time could? focus more on the evaluation of programs, rather than

theoretical understanding. There was general encouragement to serve underserved groups, but the call lacked a central equity mandate.

Over the next decade the NSF funding mechanism was revised several times reflecting shifts in priorities. By the 2024 solicitation (National Science Foundation, 2024) project types were streamlined into five categories: Synthesis, Conferences, Partnership Development and Planning, Integrating Research and Practice, and Research in Support of Wide-reaching Public Engagement. The core goals of enhancing lifelong STEM learning remain and all proposals are required to address at least one of six strategic goals including broadening participation, improving learning environments, and enhancing science communication, with an explicit expectation that projects engage historically excluded and underserved communities.

Perhaps the most significant change is the requirement that all projects integrate research and practice. Proposals must detail not only what they will do, but how they will contribute to theoretical understanding and field advancement through rigorous investigations and knowledge dissemination. This shift positions AISL strongly towards research although there have been recent efforts to focus on deploying strategies through knowledge mobilization (National Science Foundation, 2023).

The 2025 solicitation also more clearly encourages ecosystem approaches, inviting partnerships among community organizations, tribal colleges, public libraries, and other grassroots institutions. Data sharing and the use of platforms like REVISE are more prominently emphasized.

In short, the AISL program over the past decade has transitioned from a primarily innovation-driven and exploratory funder of informal STEM efforts to a more field-building, equity-centered, and evidence-generating program. It now expects projects to demonstrate not only reach and engagement, but also contribution to enduring knowledge and capacity in the field.

### *Broader Impacts*

The National Science Foundation (NSF) mandates that all grant proposals address both Intellectual Merit and Broader Impacts. The Broader Impacts criterion encompasses activities such as public engagement, education, workforce development, and outreach to underrepresented groups. Many researchers fulfill this requirement through partnerships with ISEE organizations, however the precise amount of funding directed to the informal sector via Broader Impacts is not well-documented.

Evaluations of the Broader Impacts criterion have yielded mixed results (Woodson and Boutilier, 2023). Some studies indicate that the outcomes of the work fall short of the criterion that encourages broader societal engagement or are difficult to measure. Challenges include a lack of clear guidance, variability in implementation, and

difficulties in assessing long-term impacts. These issues have led to calls for more structured evaluation frameworks and better support for researchers to design and assess Broader Impacts activities effectively.

In summary, the Broader Impacts criterion aims to integrate societal considerations into scientific research, but its effectiveness in advancing ISEE remains uncertain due to limited data and evaluation challenges.

### Institute of Museum and Library Services

The Institute of Museum and Library Services (IMLS) has historically served as a key federal agency supporting informal learning, particularly through its investments in museums and libraries as community-based educational institutions. The majority of IMLS funding goes towards projects that are not STEM focused. The funding that is focused on science and engineering goes towards a range of programs including exhibits, programming like makerspaces, and partnerships that bring scientific content to public audiences.

A review of IMLS's approach to ISEE reveals notable changes over the past decade. In its Fiscal Year 2015 Office of Museum Services (OMS) Report (Institute of Museum and Library Services, 2015), IMLS emphasized support for STEM learning through several targeted funding programs. The *Museums for America* initiative included projects centered on hands-on science exhibits and partnerships with schools for climate and environmental education. Similarly, *Sparks! Ignition Grants* supported early-stage pilot projects that introduced innovative approaches to science communication in museum settings. Language throughout the report explicitly referenced informal educational environments, science interpretation, and efforts to broaden public access to scientific knowledge particularly among underserved communities. Informal science learning was a visible and recurring theme across IMLS's museum funding portfolio often framed as part of the broader STEM umbrella.

By contrast, the FY 2024 Agency Performance Report (Institute of Museum and Library Services, 2024) reflects a more diffuse framing of ISEE. References to STEM and ISEE that remain tend to appear within broader strategic categories such as "inclusive and equitable lifelong learning" or "community engagement." Programs like *National Leadership Grants* and *Inspire! Grants* continue to support STEM-related initiatives, but science education is typically mentioned as one of several possible areas of focus, rather than a central goal. Terms such as "maker learning," "STEM camps," and "digital making" illustrate a shift toward a more expansive definition of learning that blends technology, creativity, and equity. As a result, explicit attention to science-specific informal education has become less prominent although science content is still covered.

This shift reflects a broader institutional trend toward holistic educational access, one that includes science but also prioritizes digital literacy, workforce readiness, and social

inclusion. For ISEE stakeholders, this evolution presents both opportunities and challenges. On one hand, the broadened framing allows for multidisciplinary and community-responsive approaches that align with current educational and civic priorities. On the other hand, the lack of a dedicated focus on science and engineering content may make it more difficult for informal STEM programs to secure targeted support or gain visibility within federal reporting and evaluation structures.

### U.S. Department of Education

The U.S. Department of Education has several funding streams that support ISEE initiatives, particularly in out-of-school settings and in efforts to advance educational equity. These programs provide important support for science and engineering learning outside the formal classroom, often through partnerships with community-based organizations, afterschool programs, and local education agencies.

Between 2015 and 2025, the Department of Education funding for science and engineering education has shifted subtly but significantly (U.S. Department of Education, n.d., 2014, 2017, 2018). The department's overall priorities appear to have moved toward career-connected learning and technical education pathways. CTE-related funding has grown in visibility and influence, with an increasing emphasis on workforce readiness in high-demand STEM fields. At the same time, dedicated references to informal or inquiry-based science education have become less common in federal guidance and program materials. 21st Century Community Learning Centers is a place that remains focused on a broad array of enrichment services.

This evolution reflects a broader federal trend toward aligning educational funding with economic competitiveness and labor market needs. For ISEE providers, this environment presents both opportunities and constraints. While there is continued interest in STEM-related enrichment, particularly in under-resourced communities, the framing has shifted from exploration and engagement toward career preparation and credential attainment. This change may require ISEE organizations to adapt their program models or seek new partnerships to remain competitive for Department of Education funds.

#### *Key Department of Education Programs*

#### Title I Grants to Local Educational Agencies

Title I provides financial assistance to school districts with high percentages of students from low-income families. Its primary aim is to improve academic outcomes in core subjects. Districts have used Title I funds to support enrichment activities that include informal science education, often through summer and afterschool programs. However, these activities typically compete with other priorities and are not guaranteed year-to-year.

### Title II Supporting Effective Instruction

This program focuses on improving educator effectiveness through professional development. The funding is primarily directed at formal educators, but there have been instances of joint professional learning between classroom teachers and informal educators, particularly in STEM disciplines. These collaborations have tended to be localized and grant-dependent rather than systemic.

### Title IV Part A and B

Title IV, Part A (Student Support and Academic Enrichment Grants) provides flexible funding to districts to improve academic outcomes by increasing access to well-rounded education, which includes STEM subjects. While science is not a required focus, many districts have used Part A funds to support informal STEM partnerships, hands-on learning, and enrichment programs. Title IV, Part B, which funds the 21st Century Community Learning Centers (21st CCLC), plays a more direct role in supporting out-of-school-time STEM education. This program remains the Department of Education's most consistent source of support for out-of-school time learning (Afterschool Alliance, n.d.). It is an over $1B funding mechanism that supports community learning centers that offer academic enrichment during non-school hours with a focus on students in high-poverty and low-performing schools. Funding goes to state educational agencies who are then responsible for allocating it to eligible organizations including ISEE organizations. Many ISEE organizations partner with schools and districts through this program to provide hands-on science learning and engagement opportunities. 94% of organizations that receive 21st CCLC funds offer STEM programming (Afterschool Alliance, 2025).

### Investing in Innovation (i3) Grants / Education Innovation and Research (EIR) Program

The i3 program (U.S. Department of Education, n.d.), which operated through 2016, and its successor, EIR (U.S. Department of Education, n.d.), have funded innovative, evidence-based educational practices, some of which included informal science education partnerships. EIR grants have occasionally supported STEM-focused projects involving museums, science centers, and nonprofit organizations, though ISEE remains a secondary emphasis within the program's broader innovation agenda.

### Perkins Career and Technical Education (CTE) Programs

The Perkins CTE program supports the development of skills aligned with the needs of a modern workforce (U.S. Department of Education, n.d.). In recent years, funding has increasingly focused on career pathways, credentialing, and work-based learning in STEM-related fields. This is not a significant source of funding for ISEE. However, CTE efforts occasionally intersect with ISEE through initiatives involving maker spaces, community-based technical training, afterschool programs, and partnerships with science and industry organizations (Afterschool Alliance, n.d.).

### Scientific Agencies

Federal science agencies maintain education and outreach programs that offer targeted and mission-aligned support for ISEE. The agencies manage their own outreach programs as well as managing funding opportunities for third party organizations. The National Aeronautics and Space Administration (NASA) has the largest budget for science education. Its Office of Education was funded at $143.5M in 2024, which does not include funding that might be in other mission directorates. The Department of Energy (DOE), National Institutes of Health (NIH), and the National Oceanic and Atmospheric Administration (NOAA) each operate mission-driven education and outreach programs that engage learners and communities in STEM topics aligned with their respective domains at a much lower level. These programs often emphasize public understanding of science, public engagement with science, workforce development, and student engagement in agency-specific domains such as energy systems, biomedical science, climate resilience, and space exploration. These agencies play an important role in sustaining ISEE opportunities that are thematically rich, scientifically rigorous, and often highly visible to the public. Details about their relevant programs can be found in Appendix A.

In addition to their independent work the agencies also coordinate activities in support of the federal strategic plans through the Federal Coordination in STEM Education Subcommittee (FC-STEM) (Office of Science and Technology Policy, 2023). Some of their recent focus has been on cross disciplinary convergence that seeks to encourage transdisciplinary learning; computational literacy; strategic partnerships; and diversity, equity and inclusion.

### Private Foundations

Philanthropic funding plays a critical and complementary role in the ISEE ecosystem. In 2025 the size of private giving to ISEE is larger than the federal portfolio. In contrast to federal agencies which typically provide multi-year, research-driven funding shaped by appropriations and legislative priorities; private foundations, corporate funders, and backbone organizations contribute in distinct and often more flexible ways. Family and private foundations frequently support place-based innovation, prioritize equity, and fund work that may fall outside the scope of public investment. Corporate foundations tend to align their giving with workforce development goals or regional economic interests, though their grantmaking varies widely in transparency, scale, and duration. Collaborative funders and backbone organizations increasingly shape the broader field by facilitating alignment, promoting shared learning, and supporting the infrastructure needed to scale effective ISEE practice. Together, these entities extend the reach and responsiveness of ISEE funding in ways that complement and augment federal investments.

### Private and Family Foundations

Private and family foundations have played a sustained and often catalytic role in supporting ISEE. Their funding tends to prioritize equity, innovation, and local impact, frequently supporting programs that center community voice or serve historically marginalized populations. These funders are often more flexible than public agencies in how they structure grants, making it possible to fund early-stage work, capacity building, or efforts that do not yet meet federal evidence thresholds.

Many foundations in this category focus on place-based learning, often funding regional science centers, youth organizations, or programs in specific school districts or tribal communities. Others take a thematic approach, supporting climate education, inquiry-based learning, or STEM identity development through national initiatives.

There are hundreds of national and local funders who support ISEE. A sample of some of the consistent funders in this area is included in Appendix B to give a sense of the range of scales and focus. Among the most consistent national-level funders over the past decade have been the Alfred P. Sloan Foundation, which has supported the connection of the humanities to science; the Simons Foundation, connecting science, society and culture; and the Overdeck Foundation, which focuses on inspiring young people with hands on learning. Regionally focused foundations, such as the Arizona Community Foundation and the Pinkerton Foundation, play a significant role in sustaining ISEE efforts in specific geographies. Other notable Foundations focus on specific areas of science and engineering such as the Dana Foundation with its focus on neuroscience and the Lemelson Foundation, which gives grant related to invention education.

Despite their important contributions, private foundations face challenges in scale and alignment. Many funders operate independently, and grant opportunities are often time-limited and narrowly scoped. This can limit their ability to provide sustained institutional support, particularly for smaller ISEE organizations that lack dedicated development staff. Some foundations lack publicly accessible, historic records of funding making it more difficult to track changing trends in their funding.

### Corporate Funders

Corporate foundations support ISEE in ways that often reflect their industry expertise, workforce needs, or geographic footprint. These investments frequently focus on STEM workforce pipeline development, digital literacy, and workforce exposure for students, particularly in technical fields such as engineering, computing, or advanced manufacturing.

Some companies fund large-scale initiatives through formal grant programs, while others provide in-kind contributions, employee volunteerism, or one-time sponsorships.

This variability in scope and transparency can make corporate philanthropy difficult to navigate for ISEE practitioners seeking sustained or mission-aligned support.

Notable corporate funders in the ISEE space include the Amgen Foundation, which has supported hands-on biotechnology education through the Amgen Biotech Experience and LabXchange; Broadcom, known for its investment in STEM competitions and innovation challenges for middle and high school students; and Chevron, which has backed regionally focused engineering and energy education initiatives, particularly in communities near its operations. ExxonMobil has funded STEM outreach programs with an emphasis on math enrichment and teacher development. The Intel Foundation has supported digital access and community-based STEM education, especially in underserved regions. The Motorola Solutions Foundation has provided grants to nonprofit organizations that engage students in robotics, coding, and technology-related informal learning programs, often with an emphasis on equity and inclusion.

One of the challenges of corporate partnerships is that they can depend on individual relationships and are vulnerable to shifts in business strategy or economic conditions. Nonetheless, corporate investment remains a critical part of the funding ecosystem, particularly when partnerships align ISEE goals with workforce readiness.

### Collaborative Funders and Backbone Organizations

In recent years, a small but influential set of backbone organizations have emerged to coordinate philanthropic activity in the ISEE field. These entities focus on field alignment, shared learning, and strategic scaling of effective practices.

For example, the STEM Next Opportunity Fund has played a central role in building national awareness of informal STEM learning, supporting out-of-school time networks, and helping translate evidence into practice. It also acts as a convener across philanthropic, research, and practitioner communities. The Blue-Sky Funders Forum provides a platform for environmental and science education funders to align messaging, policy engagement, and grantmaking strategies. Both organizations support field-wide initiatives that aim to increase equity, expand access, and strengthen the evidence base for informal STEM learning.

These collaboratives play an increasingly important role in guiding philanthropic investment, ensuring that informal STEM education remains visible in broader conversations about educational innovation, workforce development, and social equity. Their influence helps connect small-scale experimentation with large-scale impact.

### Themes and Trends in ISEE Funding

Over the past decade, both federal agencies and private funders have played pivotal roles in shaping the priorities and practices of ISEE. Federal investments often emphasize infrastructure, research, and compliance with national policy goals, while

philanthropic and corporate funders prioritize innovation, local responsiveness, and equity. The two funding approaches differ yet they share common thematic priorities through their combined efforts. From 2014 to 2025, changing priorities due to national crises, shifts in workforce demands, and social movements have prompted funders across sectors to reexamine how and where learning occurs, who has access, and what outcomes matter most. In the following sections, I examine how public and private investments have collectively shaped the trajectory of ISEE and trace the evolution of the following funding themes and trends:

- Equity and Access
- Digital Learning and Infrastructure
- Computer Science
- Growth of Afterschool and Summer Learning
- Community-Based Organization Partnerships
- Career Readiness and Workforce Alignment
- Family and Intergenerational Learning
- Systems Change and Ecosystem Building

### Equity and Access

Between 2014 and 2025, equity shifted from a peripheral consideration to a defining feature of both philanthropic and federal investments in ISEE. Early in this period, funders increasingly sought to address disparities in STEM participation particularly among girls, youth of color, and students in low-income or rural communities, but often did so through fragmented or pilot-scale efforts. The launch of NSF INCLUDES in 2016 (National Science Foundation, n.d.) marked a significant shift, establishing a national initiative focused on systemic strategies for broadening participation across STEM fields.

Philanthropic organizations responded with more coordinated investments. The STEM Next Opportunity Fund partnered with the Charles Stewart Mott Foundation, Intel Foundation and Gordon and Better Moore Foundation to launch the Million Girls Moonshot in 2020 (Million Girls Moonshot, n.d.), a multi-year initiative aimed at expanding access to afterschool STEM programming for girls. Meanwhile, landscape research from the Afterschool Alliance found that although access to STEM in afterschool settings was growing, significant inequities persisted, particularly for programs serving Black, Latinx, and rural youth (Afterschool Alliance, 2021).

Following the onset of the COVID-19 pandemic and the increased attention to systemic racism after the murder of George Floyd, equity became not only a priority but an explicit requirement in many federal funding programs. The American Rescue Plan Act (ARPA) required that districts use a portion of their ESSER III funds to address learning loss through evidence-based strategies, with clear emphasis on reaching underserved

learners (Peterson, 2021). The Department of Education encouraged partnerships with community-based organizations and the use of culturally relevant approaches to accelerate recovery (U.S. Department of Education, n.d.). Many private funders have grantmaking focused on reducing opportunity gaps and ensuring that programs serve youth from historically marginalized communities.

Today equity is a foundational consideration across the ISEE ecosystem. Informal learning providers are expected to track participation and impact data, co-design programs with community-based partners, and demonstrate cultural responsiveness in curriculum and delivery. The sector-wide commitment to equity has led to deeper investments in organizations and networks that center marginalized learners.

It is due to the emphasis on equity that the recent Trump Administration Executive Order concerning diversity, equity, and inclusion (DEI) (Trump, 2025, U.S. Department of Justice, 2025) has had a profound negative effect on federal funding for ISEE projects. Even projects that are not primarily focused on DEI topics are being caught up in the cancellation of funding (Toppo, 2025). There is ongoing litigation that may change the disruption to funding in this area (King & Korando, 2025), but the uncertainty is very challenging for ISEE organizations.

### Digital Learning and Infrastructure

From 2014 to 2019, digital learning was a growing but unevenly supported priority in informal STEM education. The Digital Learning Now! Report Card (Foundation for Excellence in Education, 2014) underscored the fragmented nature of digital access and readiness across states. The report highlighted gaps not only in broadband and device availability, but also in digital content quality and educator training. Although the report focused on formal education systems, its findings mirrored challenges faced by museums, libraries, and afterschool programs seeking to deliver technology-rich STEM programming without adequate infrastructure or guidance.

From the early 2000s, corporate and philanthropic funders began laying groundwork for broader digital access. Verizon Innovative Learning (Verizon, n.d.), which started in 2012, and the Intel Foundation (Intel Foundation, n.d.) supported targeted initiatives in Title I schools and underserved communities, investing in mobile hotspots, teacher training, and digital learning environments. The programs target both the formal education system as well as afterschool.

The COVID-19 pandemic in 2020 shifted digital learning from a nice-to-have to a necessary delivery mode. As schools and out-of-school time programs closed or transitioned to remote or hybrid models, digital access became a prerequisite for participation in STEM education. Overdeck Family Foundation (Eroh, 2020), the Carnegie Corporation of New York (Carnegie, n.d.) and many other funders responded by rapidly expanding device distribution, investing in asynchronous content

development, and supporting professional development for informal educators adapting to new formats. Many community-based organizations had success reaching out to corporate funders like Sprint, Google and BestBuy for computers, and Comcast for free Wi-Fi (STEM Learning Ecosystems, 2020).

Federal funding followed through the CARES Act and ARPA (U.S. Department of Education, 2021). Billions in ESSER funds flowed to districts for device procurement, broadband expansion, and learning continuity. ESSER funds primarily targeted formal education but could be used by districts to partner with community-based informal providers to deliver digital enrichment, distribute STEM kits, and co-develop family-accessible platforms. These partnerships introduced a new approach to view informal STEM learning as essential for supporting formal recovery education particularly for students who were disconnected from traditional learning.

By 2025, digital learning has become a sustained feature of informal STEM education. Funders and agencies alike now view digital infrastructure as fundamental to equitable access. Informal providers continue to develop hybrid and asynchronous programs, and philanthropic strategies increasingly frame digital fluency as both a learning modality and a workforce competency. The integration of digital platforms has also enabled providers to reach students in geographically isolated or structurally under-resourced areas, broadening the field's potential for inclusive engagement.

### Computer Science

The mix of private and corporate funders who support informal STEM education has changed over time. New funders launch and others sunset regularly. Even established funders often shift their focus. This places a challenge for programs to maintain sustainability. In recent decades technology firms have increased their corporate giving in the education sector. Firms such as Google, Amazon, Microsoft, Verizon and others have emerged as major education funders, often focusing on programs that centers on coding, computational thinking, and digital skills (Google for Education, n.d., Amazon, n.d., Microsoft, n.d., Verizon, n.d.) Many of these investments have been channeled through partnerships with nonprofits such as Code.org (code.org, n.d.) and Girls Who Code (Girls Who Code, n.d.), which deliver scalable, branded programming across schools and community-based organizations. These corporate efforts are typically framed around workforce development, innovation, and digital equity and are closely aligned with the companies' internal talent strategies and public commitments to broadening access to technology careers.

As noted earlier STEM is multi-disciplinary not monolithic. Math is the primary focus in formal schooling due to its role in accountability systems. Corporate funding appears to be shifting to technology as more technology firms enter the philanthropic world. Science and engineering education providers have responded by integrating coding,

data science, and digital media into their offerings. This has created both opportunities and tensions: while computer science funding brings new attention and resources, it can also divert focus from foundational science engagement and public understanding.

Compared to other STEM disciplines, computer science has a distinct delivery ecosystem. Informal programs are often delivered online or through hybrid models, with lower infrastructure costs than hands-on science or engineering initiatives. Programs target a wide age range, but engagement is strongest among middle and high school students. Equity has become a central narrative, with digital inclusion framed not only as an access issue, but also as an economic necessity.

Today computer science is a core pillar of the informal STEM education ecosystem. While science and engineering remain essential to public engagement and intergenerational learning, especially in institutions like museums and libraries, computer science has taken on a prominent role in youth workforce development, equity strategy, and philanthropic visibility. Informal STEM providers are increasingly expected to embed digital fluency, coding, and computational thinking into their programs, even when their primary focus remains scientific inquiry or engineering design.

### Growth of Afterschool and Summer Learning

By the mid-2010s, the importance of afterschool and summer programs in supporting STEM engagement was well established. Federal support through the 21st Century Community Learning Centers (21st CCLC) program helped sustain OST (out-of-school time) programming in high-need communities, yet STEM was not a consistent priority within that framework. In the private sector the Noyce Foundation invested over $75M between 2006 and 2015 in out-of-school time STEM learning including support for research and advocacy to make the case of the need for additional resources. The Charles Stewart Mott foundation began building out afterschool networks at the state-level (Krishnamurthi, Ottinger, & Topol, 2013) in this same time period.

Despite this support national surveys conducted by the Afterschool Alliance during this period found high demand for STEM learning in after school settings but persistent barriers to access, particularly for students in under-resourced communities (Afterschool Alliance, 2014). Informal STEM providers, including science centers, museums, and youth development organizations, were often well-positioned to offer hands-on, inquiry-based learning, but lacked sustainable funding to scale or evaluate their work effectively (Krishnamurthi, Ottinger, & Topol, 2013). Funders such as STEM Next Opportunity Fund, which was launched by the Noyce Foundation in 2016, continued to build out support (STEM Next, 2016).

The COVID-19 pandemic helped to accelerate the expansion of afterschool learning. With schools closed and students disconnected from traditional classrooms, afterschool

and summer programs became critical spaces for learning recovery. In the fall of 2020 parents were very aware of the need for afterschool programs, but the pace of offerings has not kept up with demand. For every child that was enrolled in an afternoon school program there were three more waiting to get in. ARPA included explicit set-asides for enrichment: 1% of state-level ESSER III funds for afterschool programs and 1% for summer learning (Afterschool Alliance, 2020). These allocations created new incentives for school districts to partner with informal learning providers and invest in out-of-school STEM.

Philanthropic funders responded in parallel (Afterschool Alliance, n.d.). The Overdeck Family Foundation updated their "funding model that aimed to thread the needle between being responsive to grantee needs." (Overdeck Family Foundation, 2021) STEM Next Opportunity Fund provided advice to grantees about how to respond to the COVID crisis (Ottinger & Forrester, 2020). Many corporate funders also stepped up with funding for the digital infrastructure and to support programs.

Today the pandemic era funding has run down while demand for services remains high and afterschool providers are shifting to that new reality (Augustine, Leschitz, & Kushner, 2023). The role of afterschool and summer STEM programming are essential components of the learning ecosystem, particularly for students facing structural barriers to opportunity. Working to maintain support that keeps them accessible to low-income students will be an ongoing challenge.

### Community-Based Organization Partnerships

Over the past decade, community-based organizations (CBOs) have emerged as essential partners in delivering ISEE, particularly for youth historically excluded from traditional learning pathways. Prior to 2020, CBOs that offered STEM-related programming were often overlooked in large-scale federal and philanthropic grantmaking. Funding frequently flowed to universities, museums, or national networks, leaving local organizations reliant on small grants and short-term partnerships to sustain science and engineering activities (Regional Educational Laboratory Northwest, 2025).

By the mid-2010s, some funders began to recognize the potential of CBOs to expand access and deepen engagement. For example, the Pinkerton Foundation created the NYC Stem Education Network that supported local organizations in New York City that provided hands-on science and engineering programs to youth (Pinkerton Foundation, 2023). STEM Next Opportunity Fund worked with regional intermediaries to connect CBOs to broader networks and resources (STEM Next, n.d.). Analysis of programs indicated that trusted CBOs were important intermediaries in reaching traditionally underserved audiences. This period of time also marked the launch of the STEM Ecosystems Initiative, which purposely connected the formal education system with

community organizations and businesses (STEM Learning Ecosystems, n.d.). These early investments reflected a growing awareness that place-based, culturally responsive programming was central to equity in STEM (King, Collier, Johnson, Acosta & Southwell, 2021).

The COVID-19 pandemic solidified the role of CBOs as critical infrastructure for science and engineering learning. With schools shuttered and in person programs paused, many CBOs pivoted quickly. Providing a range of services including delivering science kits to homes, facilitating online engineering design challenges, and maintaining contact with students through trusted, community-embedded relationships (Orr Partners, 2021). As learning loss and digital divides became national concerns, CBOs proved to be adaptive and resilient nodes in the informal STEM ecosystem.

Federal recovery funding, particularly through ARPA ESSER, encouraged school districts to collaborate with external partners to address learning gaps. Though CBOs were not typically direct recipients of ESSER funds, many were brought in through partnerships or subgrants to provide afterschool and summer science programming, especially in communities disproportionately impacted by the pandemic. This marked a shift in visibility, if not yet in structural funding access.

Philanthropic funders responded by directing more support toward organizational capacity, evaluation, and infrastructure-building for CBOs engaged in science and engineering education. STEM Next Opportunity Fund and others launched technical assistance initiatives to help these organizations navigate shifting public funding landscapes and regional foundations, such as Pinkerton, Broadcom, and the Burroughs Welcome Fund, offered general operating support and STEM-specific grants. These investments aimed to stabilize and scale programs with demonstrated local impact, particularly those serving Black, Latinx, Indigenous, and immigrant youth.

There are now STEM ecosystems in almost every state and community-based organizations are often partners on ISEE funding. Despite the importance of community-based organizations in the ISSE ecosystem, there remain tensions between the scientific community and the CBOs particularly around the framework of the nature of science versus other ways of knowing (ICBO and Allies Workgroup, 2022). Continuing to build trust and expand partnerships will be critical in the years to come.

### Career Readiness and Workforce Alignment

Between 2014 and 2025, funders increasingly focused on the role that science and engineering education plays in developing the STEM workforce of the future especially for students from communities historically excluded from STEM careers. Early in the decade, many informal science and engineering funders cited a desire to raise science and engineering literacy or engage learners in science. Career-oriented STEM investments such as internships and dual-enrollment courses were the purview of high

school and postsecondary programs. These career efforts were largely disconnected from the informal learning sector, which emphasized engagement and enrichment over workforce preparation.

The call for change was catalyzed in part by the Pathways to Prosperity report (Symonds, Schwartz & Ferguson, 2011) which argued that the U.S. education system was too narrowly focused on college readiness and failed to provide most young people with practical, career-connected learning experiences. Although the report focused broadly on CTE, it helped lay the groundwork for expanding workforce development efforts in STEM, including those taking place outside of traditional school settings.

Federal policy began moving in this direction with ESSA in 2015, which encouraged states to integrate career and technical education and allowed for greater flexibility in building partnerships across education sectors (U.S. Department of Education, n.d.). The Perkins V reauthorization in 2018 further emphasized experiential learning and industry alignment, legitimizing informal programs that provided real-world science and engineering experiences in community-based or out-of-school contexts (U.S. Department of Education, n.d.). We also see an increasing emphasis on workforce development in the CoSTEM Strategic plans of 2018 and 2024.

Philanthropic funders, particularly in the corporate sector, responded by scaling efforts to connect informal science learning with career awareness. Toyota funded a variety of STEM programs in Texas designed for workforce development (Lynch, 2025). The Intel Foundation and Motorola Solutions Foundation funded initiatives linking engineering design, computing, and maker-based learning to local workforce needs (Bajarin, 2015, Motorola Solutions Foundation, n.d.). Chevron supported technology and engineering education programs, particularly in regions near its facilities, with a focus on building diverse talent pipelines (Chevron, n.d.). These efforts often emphasized early exposure at the middle school level or even earlier and included partnerships with science centers, libraries, and regional STEM hubs. Informal education providers were increasingly engaged in workforce development initiatives such as the Department of Energy's STEM Website and partnerships like the STEM Next Opportunity fund's Institute for a STEM Ready America (U.S. Department of Energy, n.d., STEM Next, n.d.).

By 2024, workforce readiness was a key area of emphasis for funders. Informal science and engineering programs are expected to incorporate real-world applications, mentorship, and career exposure into their offerings. Funders are prioritizing models that bridge hands-on STEM learning with long-term workforce outcomes, particularly those that open doors for students historically excluded from science and engineering education and careers.

### Family and Intergenerational Learning

Although families have long played a role in shaping students' interest in science and engineering, few philanthropic or federal strategies before 2020 treated family engagement as a core component of STEM education and if it was mentioned it focused more on school and partner partnerships. In the mid-2010s, most informal programs that involved families did so through one-off science nights, open houses, or take-home kits. The activities were often framed as enrichment rather than essential learning. Research by the Harvard Family Research Project and the National PTA during this period pointed to the underutilized potential of families as active participants in STEM pathways, but widespread investment lagged behind the research (Yamashiro, 2015, Jackson & King, 2016).

The pandemic transformed this dynamic. As schools and many in-person programs shut down in 2020, caregivers became de facto learning facilitators. This shift brought new attention to how informal science learning could be supported and sustained at home. Funders responded by backing the development of tools, media, and hands-on activities designed for intergenerational engagement. For example, STEM Next Opportunity Fund published a national framework for integrating family engagement into out-of-school STEM programs based on their many years of experience in this area (STEM Next, 2023, (STEM Next & Institute for Science and Research on Youth, 2021). Work that has already been started at TERC's Center for Equitable Family STEM Learning engaged families in engineering activities (TERC, n.d.). These efforts emphasized that caregivers of all educational backgrounds could be powerful catalysts for inquiry, persistence, and identity development in science and engineering.

At the federal level, there is no dedicated funding stream targeted family engagement in science learning specifically, but broader education recovery programs included provisions that encouraged community partnerships and family communication. For example, ARPA ESSER guidance allowed for funding outreach and engagement strategies designed to re-engage disconnected students and families, many of which were implemented through informal education partners. Meanwhile, federally funded research centers and programs, including some under the Institute of Education Sciences (IES), began to explore how family partnerships affect learning continuity and STEM interest development (McCallum, Martinez, Waits &Mugo, 2024).

Family and intergenerational learning is increasingly seen not just as an access strategy, but as a central feature of effective ISEE, particularly for learners in elementary and middle grades. Families are now engaged in out of school-time STEM learning but there is still work to do to equip them to best support their learners (Pattison et. al., 2021). Using co-design approaches and considering learning through an equity lens are essential for success. Funders now support program models that embed family participation in design, implementation, and evaluation. Resources are more likely to be

available in multiple languages, grounded in culturally responsive practices, and structured to be inclusive of multigenerational households. For many ISEE providers, families have become collaborators, not just audiences.

### Systems Change and Ecosystem Building

Efforts to build more connected, coherent systems for science and engineering education gained momentum between 2014 and 2025, driven by both philanthropic innovation and shifts in federal strategy. Early in this period, local STEM learning ecosystems—coalitions of schools, museums, afterschool programs, libraries, and workforce partners—emerged in a handful of regions, often operating with limited funding and infrastructure. The STEM Funders Network, through its STEM Learning Ecosystems Initiative, helped formalize this work, providing early support to cities and regions interested in building cross-sector STEM strategies. Reports from the Noyce Foundation (STEM Learning Ecosystems, 2015) and programs like Battelle's STEMx network (STEMx, n.d.) underscored the need for shared measurement, sustained coordination, and intermediary organizations capable of managing complex partnerships.

Federal policy gradually adapted to this system-level perspective. The Every Student Succeeds Act (ESSA), passed in 2015, gave states more flexibility to define indicators of educational quality through Title IV, Part A, opening new space for informal learning, community engagement, and out-of-school partnerships to be included in state accountability frameworks (Next Generation Science Standards, n.d.). Although not designed specifically to support STEM ecosystems, ESSA enabled some regions to braid funding and align initiatives across agencies and education providers.

The COVID-19 pandemic accelerated calls for structural coordination. Emergency federal funding, most notably through the American Rescue Plan Act (ARPA), encouraged collaboration between districts, municipalities, and nonprofit partners to address learning loss, digital access, and equity gaps (U.S. Department of Education, 2022). Many states responded by building or strengthening cross-sector networks to manage the influx of federal relief funding. These efforts created new infrastructure for informal providers, including science education organizations, to work more closely with schools and state education agencies.

Philanthropic investment in systems-building expanded in parallel. The Overdeck Family Foundation increased support for state-level OST STEM networks and data-sharing infrastructure, while the Schusterman Foundation launched initiatives like the Tulsa Regional STEM Alliance (TRSA) to build durable backbone capacity (Tulsa Regional STEM Alliance, 2019). Organizations such as the Afterschool Alliance and Education Reimagined received funding to develop technical assistance tools, shared metrics, and to convene STEM ecosystem leaders. Meanwhile, groups formed that

focused on specific topics areas, like Blue Sky Funders Forum, which focuses on meaningful outdoor experiences.

Today STEM ecosystem work is no longer new. Systems-level coordination is widely recognized as essential for scaling ISEE, improving access, and ensuring coherence across learning environments. Funders and agencies position ecosystem building as a central strategy for impact and equity and provide support for intermediary organizations, shared data platforms, and long-term infrastructure.

## Looking to the Future

Over the past decade, ISEE has matured as a field and is a critical component of national STEM education. From changing federal and philanthropic investments to the acceleration of digital infrastructure and the rise of community-based partnerships, ISEE programs have demonstrated resilience, responsiveness, and reach.

Even though science and engineering remain foundational disciplines for informal learning, there is increasing pressure for ISEE programs to respond to a broader set of expectations: to deliver on workforce development goals, to demonstrate quantifiable impact, to bridge digital divides, and to center equity in both design and outcomes. These demands are ambitious and not always accompanied by the long-term, stable funding that high-quality informal education requires.

Looking ahead, ISEE must navigate several tensions. It must balance the need for alignment with formal education systems while preserving its unique strengths in creativity, inquiry, and intergenerational learning. It must integrate emerging fields like computer science and AI without marginalizing scientific and engineering content. And it must continue to advance equity, even as political and funding pressures complicate the use of that very language.

Many ISEE providers, particularly those that focus on underserved audiences, are universities or non-profit organizations that must balance their missions with their financial viability. How can they remain viable when many of their core functions are being questioned or defunded? At the present time this may mean leaning into an emphasis on workforce and ensuring that all individuals are opportunity ready. It will also require funders to recognize that building science literacy and engagement is a long-term endeavor, not a short-term campaign. Informal science and engineering education, when resourced and supported, is essential to prepare the next generation of creative problem solvers.

The already established STEM ecosystems and other strategic partnerships are an important asset to the ISEE community. Leveraging the existing communities of practice to exchange information will help to build capacity across the sector. There are also opportunities to consider efficiencies of scale including approaches to bring down

costs by sharing resources. Mergers between organizations with similar functions should also be explored. Numbers are also important in advocacy so coordination between groups is essential to make the case for continued funding.

Finally, the STEM education field, along with the broader scientific research community, must renew and strengthen the public case for why science is essential to the future of the country. Current dialogue around ISEE often narrows the rationale to workforce development, which is an important but incomplete justification. By exploring a wider set of frameworks, including civic engagement, environmental resilience, public health, and national competitiveness, the field can articulate a more comprehensive vision of science as a public good. It is not enough to prepare the technical workforce of tomorrow; we must also invest in cultivating a society that understands and values scientific evidence, that can engage in informed decision-making, and that sees science and engineering as tools for equity, inclusion, and shared problem-solving. In a time of growing misinformation, political polarization, and uneven access to opportunity, ISEE has a unique role to play in fostering curiosity, trust, and civic participation.

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## Appendix A. Additional details on funding from science agencies

### *Department of Energy*

The Department of Energy (DOE) supports ISEE primarily through mission-driven public engagement and workforce development initiatives. DOE does not maintain a formal ISEE strategy or dedicated funding line for informal learning. Its programs serve informal audiences through national laboratories, academic competitions, and community-based partnerships.

One of DOE's most visible contribution to ISEE is the National Science Bowl, a nationwide extracurricular competition that engages middle and high school students in science and mathematics (U.S. Department of Energy, Office of Science, n.d.). Many DOE national laboratories also host community open houses, school visits, and public science festivals. These outreach efforts include hands-on activities, science demonstrations, and educational materials developed for use in museums, libraries, and afterschool programs.

In 2019 DOE partnered with Kavli Foundation on an initiative called SciPEP (Science Public Engagement Partnership) to "deepen our understanding of effective public engagement around basic research, by exploring how we can improve this practice and providing tools for scientists and practitioners" (SciPEP, n.d.). This six-year long program included virtual convenings, research, and white papers that brought together researchers and practitioners to document evidence-based approaches to communicating basic science. This is an example of how a private-public partnership can provide thought-leadership on topics relevant to ISEE.

Between 2020 and 2021, DOE programs adapted in response to the COVID-19 pandemic, shifting toward virtual delivery and expanding access to underserved populations (U.S. Department of Energy, 2020). Laboratories developed remote STEM career panels, citizen science modules, and family-oriented energy literacy materials. Virtual adaptations of the Science Bowl and other outreach efforts enabled broader geographic participation, including students in rural and low-income communities. This period marked a growing awareness of the importance of informal learning channels, even if not yet formally integrated into DOE's strategic priorities. The role of informal education was framed within efforts to advance environmental justice, inspire interest in energy careers, and connect young people to the science underlying national climate and energy priorities.

Recent programming has increasingly embedded ISEE within DOE's workforce goals (U.S. Department of Energy, n.d.). These efforts include summer energy camps, student innovation challenges, tribal energy education programs, and local partnerships focused on clean energy literacy.

### *National Institutes of Health*

The National Institutes of Health (NIH) has traditionally focused its science education efforts on supporting the biomedical research workforce rather than engaging the public directly in informal learning. Unlike agencies such as the National Science Foundation, which maintain explicit mandates for public science literacy and broad engagement, NIH's education investments have historically centered on formal instruction, professional training, and research infrastructure. However, through the Science Education Partnership Award (SEPA) program, NIH has sustained a consistent, if narrowly scoped, commitment to supporting community-based biomedical science learning (National Institute of General Medical Sciences, n.d.). SEPA represents one of the agency's few mechanisms designed to connect health research with informal learning environments, often through partnerships with museums, science centers, and community organizations.

In 2013, NIH closed its Office of Science Education, which had served as the primary internal hub for K–12 STEM outreach and curriculum development. This move marked a consolidation of efforts, shifting the agency's education strategy toward more distributed, grant-based models (Mervis, 2013). Although the closure reduced NIH's centralized focus on education, SEPA remained active and continued to support a variety of informal education initiatives.

In 2017, SEPA was transferred to the National Institute of General Medical Sciences (NIGMS) to improve alignment with NIH's broader capacity-building and workforce development efforts. The transfer positioned SEPA alongside other NIGMS programs that support early-stage research training and institutional development, reinforcing its role in preparing students for biomedical and health-related careers. At this stage, SEPA's scope expanded to emphasize partnerships with a range of educational institutions to deliver hands-on learning and improve public understanding of science and medicine.

By 2023, SEPA had further evolved to support a broader set of education and outreach goals. The program now funds projects that promote interactive digital media, curriculum development, and community health literacy, often in partnership with informal learning institutions. SEPA explicitly prioritizes outreach to underserved communities, supporting efforts that expose students to biomedical research careers and equip educators with professional development in science content and pedagogy (National Institutes of Health, 2023). Exhibits developed through SEPA grants contribute to public understanding of topics such as infectious disease, genetics, and clinical trials.

Although SEPA is modest in scale compared to major NSF or IMLS initiatives, it plays a distinct role within the ISEE ecosystem by supporting health- and medical-focused content. Its integration into NIGMS has strengthened its alignment with NIH workforce

priorities while preserving its commitment to engaging learners and educators in accessible, community-based environments.

### *National Aeronautics and Space Administration (NASA)*

NASA has long been recognized as a leader in engaging the public with science and engineering through informal education. Its distinctive missions and public visibility, combined with an extensive network of visitor centers and partnerships, have enabled it to reach diverse audiences across the country. Its commitment to education and public outreach started in 2000 and continues to the modern day. Between 2015 and 2025, NASA's approach to ISEE evolved significantly, emphasizing greater centralization, higher-quality educational materials, and expanded national access.

Informal education at NASA is coordinated primarily through the Office of STEM Engagement (OSTEM), which oversees funding, partnerships, and strategic planning for the agency's educational portfolio (NASA Office of STEM Engagement, 2024). At the same time, individual mission directorates including Science, Aeronautics, and Human Exploration and Operations continue to develop outreach materials and programs aligned with their specific research goals. This distributed model has encouraged innovation and presented coordination challenges. Over the past decade, efforts to unify these activities under common frameworks and to improve the consistency of public-facing STEM engagement have gained momentum (NASA Science, n.d.).

Several signature programs have defined NASA's contribution to ISEE. The Science Activation (SciAct) program links NASA scientists and subject matter experts with educators and informal learning institutions to co-develop and deliver STEM programming. TEAM II provides funding for informal institutions, such as museums, libraries, and youth-serving organizations to design NASA-themed learning experiences tailored to local audiences (NASA, n.d.c.). NASA also supports the Space Station Explorers initiative, which connects students and educators with research aboard the International Space Station and encourages inquiry-based exploration (NASA, n.d.a.).

Throughout the decade, NASA has taken steps to improve the visibility and accessibility of its education resources. The development of centralized online platforms, including the STEM Engagement portal, has made it easier for educators and informal learning professionals to find activities, curricula, and funding opportunities (NASA, n.d.b.). The OSTEM Annual STEM engagement reports show sustained national reach: in Fiscal Year 2024, NASA supported 592 awards across all U.S. states and territories, engaging over 970,000 students and nearly 60,000 educators (NASA Office of STEM Engagement, 2024).

Despite these achievements, NASA's STEM engagement programs have experienced recurring funding uncertainty. OSTEM has faced multiple proposals for elimination or significant reductions in the federal budget process. Fortunately, Congress has

continued to appropriate funds, but this uncertainty has made it difficult for partner institutions to plan long-term and may disrupt continuity in grant cycles (Thomas, 2018).

Still, NASA's impact on ISEE remains substantial. The agency's strategic efforts to consolidate resources, raise program quality, and strengthen partnerships have helped ensure that its STEM engagement offerings are both scientifically rigorous and broadly accessible. As national priorities continue to emphasize workforce development, equity, and climate resilience, NASA is well positioned to contribute to these goals as long as stable investment and cross-agency coordination remain in place.

### *National Oceanic and Atmospheric Administration (NOAA)*

NOAA has maintained a long-standing commitment to ISEE as a core element of its public engagement and environmental literacy mission. From 2015 to 2025, NOAA positioned ISEE as essential to advancing community understanding of Earth systems, climate resilience, and stewardship. Its support has included direct funding, strategic partnerships, and the development of tools and networks that connect national scientific priorities with local, place-based learning (National Oceanic and Atmospheric Administration, n.d.d.).

NOAA's 2015–2035 Education Strategic Plan explicitly emphasized climate literacy, community engagement, and the role of informal education institutions in delivering environmental science content. During this period, the agency partnered with aquariums, science centers, tribal organizations, and youth-serving institutions to increase access to experiential, place-based learning opportunities focused on coastal ecosystems, weather systems, and marine conservation. Informal education was recognized as a critical pathway for expanding public understanding of Earth system science and promoting informed environmental decision-making (National Oceanic and Atmospheric Administration, n.d.a.).

The release of the 2021–2040 Education Strategic Plan marked a shift in tone. The plan continues to emphasize resilience, equity, and environmental literacy, but it omits direct references to anthropogenic climate change and removes the term "climate change" entirely. Instead, it adopts broader framing such as "hazards," "stewardship," and "decision-making under uncertainty." This reframing reflects broader federal trends and political sensitivities, but it has implications for curriculum development and educator training within NOAA-funded informal education programs. The absence of direct language about climate change complicates efforts by partners to teach evidence-based environmental science, especially in settings that prioritize clarity and scientific accuracy (National Oceanic and Atmospheric Administration, n.d.e.).

Despite this shift, NOAA's programmatic support for informal learning has remained robust and wide-reaching. Flagship programs include:

- B-WET (Bay Watershed Education and Training): Provides funding for place-based environmental education across coastal and watershed communities. Many B-WET programs operate through informal venues such as field centers, marine labs, and youth organizations (National Oceanic and Atmospheric Administration, n.d.b.).
- Environmental Literacy Grants (ELG): Supports resilience-focused education initiatives that include informal learning components, civic science, and community preparedness (National Oceanic and Atmospheric Administration, n.d.f.).
- Planet Stewards Education Project: Maintains a national educator network that integrates sustainability and stewardship themes into both formal and informal education settings (National Oceanic and Atmospheric Administration, n.d.g.)
- Science On a Sphere: NOAA's interactive data visualization platform, installed in dozens of science centers and museums, facilitates public engagement with Earth science data in dynamic, immersive formats (National Oceanic and Atmospheric Administration, n.d.h.).
- Citizen Science Programs: Support volunteer monitoring and data collection on coastal health, marine debris, and other environmental indicators, often in partnership with local science centers and environmental nonprofits (National Oceanic and Atmospheric Administration, n.d.c.).

Over the decade, NOAA has also expanded digital and virtual access to its resources. In response to the COVID-19 pandemic, many programs pivoted to include virtual field trips, online tools, and remote learning modules. This transition increased reach to rural and low-income communities and allowed informal learning institutions to incorporate NOAA science into distance and hybrid models.

Equity and inclusion have become more central to NOAA's education strategy since 2020. Programs now routinely require attention to equitable access in project design, implementation, and evaluation. This has strengthened the role of community-based organizations and tribal partners in NOAA's informal learning network, though gaps remain in sustained capacity and institutional support.

NOAA's evolving approach reflects both the strengths and challenges of integrating informal science education within a mission agency context. Its programs are notable for their alignment with local environmental conditions, their reliance on partnerships, and their responsiveness to pressing social and ecological challenges. At the same time, shifts in language and framing may impact how informal education partners communicate about science, particularly on politicized topics such as climate change.

## Appendix B: Sample of Private and Corporate Funders

The following list of private and corporate funders is in no way comprehensive and represents only a small fraction of all funders. The sample provided was selected because they are frequently cited in available lists of ISEE funders, they represent different scopes and scales, and they provide easily obtained information on public facing websites.

| Funder | Foundation Goal | 2015 funding level | 2024 funding level | Major project or audience |
|---|---|---|---|---|
| Arizona Community Foundation | "At the Arizona Community Foundation, our mission is to lead, serve, and collaborate to mobilize enduring philanthropy for a better Arizona." | | Unclear how much goes to ISEE | Experiential learning, STEM Education, Community-based programs |
| Brinson Foundation | "The Brinson Foundation is a privately funded philanthropic organization that provides an opportunity to focus our family's common interests in encouraging personal initiative, advancing individual freedoms and liberties, and positively contributing to society in the areas of education and scientific research." | | Most support <$100k per grantee | Focus primarily on Illinois. Funders include a range of ISEE organizations. |
| Burroughs Welcome Fund | "Improving human health through education and powering discovery in frontiers of greatest need." | $8.63 – Science Education $1.26 – Science and Philanthropy | $1.9M – Education $1.6 – Science and Philanthropy | Education in North Carolina – creative inquiry-based STEM enrichment activities, Science Communication is national. |
| Dana Foundation | "The Dana Foundation advances neuroscience that benefits society and reflects the aspirations of all people. We explore the connections between | | $8M in unpaid grant awards (2023 financials) | Public engagement on neuroscience, Brain awareness week, "The Dana Frontiers program supports multidirectional community |

| Funder | Foundation Goal | 2015 funding level | 2024 funding level | Major project or audience |
|---|---|---|---|---|
| | neuroscience and society's challenges and opportunities, working to maximize the potential of the field to do good." | | | engagement to collaboratively identify and address key issues at the intersection of neuroscience and society." |
| The Lemelson Foundation | "We focus on Impact Inventing, prioritizing inventors and inventions that have positive social impact, are environmentally responsible, and yield financially sustainable products and businesses, while remaining sector agnostic and retaining focus on tangible inventions." | | | Inventions, Lemelson Center at the Smithsonian |
| Gordon and Betty Moore Foundation | "Enabling conditions for science to flourish" | | $63M since 2019 (unclear how much per year) | Curiosity-driven science initiative, Million Girls Moonshot |
| Charles Stewart Mott Foundation | "PURPOSE: To expand opportunities for children and youth to succeed in school, work and — ultimately — life." | $13.6M (Advancing afterschool) | $23.3 (2023 Advancing afterschool) | Million Girls Moonshot, Afterschool networks, Mizzen Education (foundation app) - "The Foundation remains focused on bringing the unique power of afterschool to bear in helping the nation's youth, particularly those in underserved communities, recover from learning loss fueled by the global pandemic." |
| Overdeck Family Foundation | "Build the next generation of confident, creative problem-solvers by expanding access to | | $63.5M for all programs | Inspired minds program focuses on STEM mostly afterschool and |

| Funder | Foundation Goal | 2015 funding level | 2024 funding level | Major project or audience |
|---|---|---|---|---|
| | engaging and challenging STEM learning experiences." | | | summer but some online and other programs like festivals |
| Pinkerton Foundation | "Dedicated to improving the lives of young people in low-income neighborhoods throughout New York City by helping them develop the skills, self-reliance and strong values necessary to live up to their full potential." | <$1M? | ~$2M | Only NY area – Pinkerton Science Scholars, STEM Educators Academy and NYC STEM Education Network, ExpandED Schools Partnership |
| Charles and Lynn Schusterman Family Philanthropies | "Every student—regardless of race, ZIP code or socioeconomic status—deserves an education that prepares them for academic, career and life success." | | | Geographic focus on Tulsa, OK. Their main focus is on literacy, but some ISEE organizations are funded. |
| Simons Foundation | "The Simons Foundation and its partners provide opportunities nationwide for people to forge lasting connections with science, whether in museums and community centers or at art exhibits and craft breweries. Everyone everywhere deserves the very human experience of awe, wonder and belonging that comes with scientific discovery" | $36.7M | $39.2M (2023) | Science Society and Culture |
| Alfred P. Sloan Foundation | "In our increasingly technological world, it is more important than ever that the fruits of scientific discovery be accessible to everyone. We partner with artists across a diverse range of media to | $11M for public understanding of science grantees | $13M for public understanding of science program | Books, films, radio, TV, theater. New media. |

| Funder | Foundation Goal | 2015 funding level | 2024 funding level | Major project or audience |
|---|---|---|---|---|
| | tell stories that expand and deepen public engagement with science and technology." | | | |
| Walton Family Foundation | "Expanding access to a high-quality education for a lifetime of opportunity" | $179M for all education | $264M for all education | Wide range of education support including ISEE and research |

| Funder | 2025 Goal | Funding | Major project or audience |
|---|---|---|---|
| Amgen | "The Amgen Foundation seeks to advance excellence in science education to inspire the next generation of innovators, and invest in strengthening communities where Amgen staff members live and work." | $275M since 1990 | LabXchange, Amgen Biotech Experience, Amgen Scholars Program, Khan Academy |
| BP Foundation | "Fueling the next generation of innovators with STEM." | | Focus on energy transition, sustainability and workforce |
| Broadcom Foundation | To advance science, technology, engineering and mathematics (STEM) education by increasing opportunities to achieve success through equitable access to STEM pathways. | $5M | Thought leadership, STEM Pathways to College and Universities, Coding with Commitment |
| Chevron | "We give priority to programs that encourage creative STEM (science, technology, engineering and math) programs for grade levels K-12." | | Fuel Your School program, Project Lead the Way |
| Dow Corporation | "We work to build and diversify STEM & skilled trade education pipelines and connect students with innovation-based jobs, with an emphasis on underrepresented populations and youth." | | Dow Promise Grants, FIRST Robotics |

| Funder | 2025 Goal | Funding | Major project or audience |
|---|---|---|---|
| Exxon Mobil | "We are working with local educators, universities and nonprofits, as well as global academic leaders to address the STEM education gap." | $1.6B since 2000 | Partnership with Education Alliance, Teacher STEM Training, Teen Engineering and Tech Centers, Khan Academy |
| Intel | We are targeting our work on STEM education to advance gender and racial equity, with a commitment to expand technology access to fuel human potential in every community. | | Intel She Will Connect: Million Girls Moon shot, WiSci STEAM Camps<br>Intel Future Skills<br>Family engagement |
| QualComm | "We inspire the next generation of innovators to develop the workforce in technology-related careers." | | Engaging women and underrepresented minorities in STEM fields, Building STEM capacity among teachers and educators – QualComm Thinkabit Lab TM |
| Motorola Foundation | "We're helping to build safer cities and thriving communities." | $100M in the last 10 years for all programs | Communities in which it operates, Technology and Engineering Education |
| Regeneron | "Regeneron is committed to fostering the next generation of scientific innovators who can help solve society's greatest challenges." | | Supporting the STEM Ecosystem, Regeneron Science Talent Search, BioBus, Regeneron DNA Learning Center |
| Verizon Foundation | "Our funding priorities are aligned around Digital Inclusion, Climate Protection and Human Prosperity." | $6M for all programs in 2022 | Programs that support digital skills |
| Westinghouse Charitable Giving program | "Grants defined as education with a focus on STEM are those used to improve knowledge and literacy with a focus in the areas of science, technology, engineering and math | | Focus on communities where their employees live and work |

| Funder | 2025 Goal | Funding | Major project or audience |
|---|---|---|---|
| | among students, teachers and the general public." | | |

| Funder | 2025 Goal | Funding levels | Major project or audience |
|---|---|---|---|
| STEMNext Opportunity Fund | "STEM learning should be everywhere and for everyone." | $12M in 2023 | Million Girls Moonshot<br>Growing STEM Leaders, Igniting Innovation, Research & Advocacy |
| Blue Sky Funders Forum | "To inspire philanthropy that supports thriving communities by advancing equitable opportunities for meaningful outdoor experiences and connections to nature." | | Rethink Outside TM Initiative<br><br>List of members:<br>https://blueskyfundersforum.org/membership/members/ |