INVESTMENTS

in Diversity, Equity, and Inclusion within STEM Higher Education Pathways

ALFRED P. SLOAN FOUNDATION

HEI
HIGHER ED INSIGHT

EXECUTIVE SUMMARY

Higher Ed Insight, LLC (HEI) conducted a landscape scan of investments in diversity, equity, and inclusion (DEI) within science, technology, engineering, and mathematics (STEM) higher education pathways, which was commissioned by the Alfred P. Sloan Foundation. The scan specifically looked at investments and grantmaking practices of private foundations, corporate philanthropies, and federal agencies. The full landscape report comprehensively details our findings and recommendations, while this executive summary illustrates study highlights.

Data Collection Approach

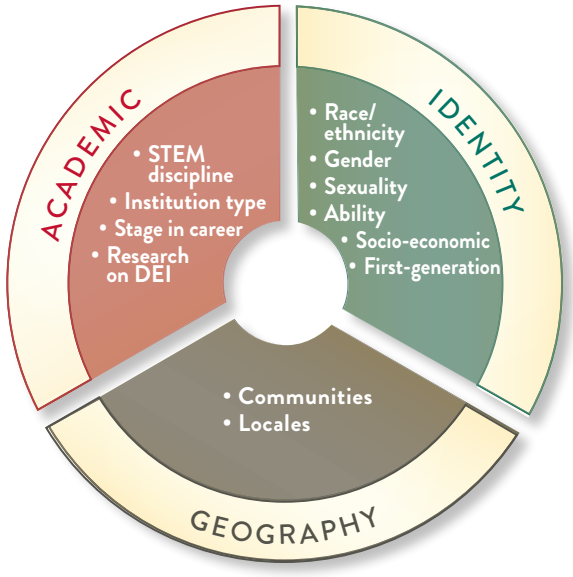
To support understanding of the DEI in STEM Higher Education Investment landscape, HEI performed three core data collection activities. These methods included (a) interviews with 11 funders from private foundations, nine federal funders, and two intermediaries; (b) datamining of public documents, financial statements, and other artifacts detailing DEI initiatives and efforts engaged by 60-75 key actors in philanthropy, corporate, and intermediary spaces; and (c) extant data collection from online databases and repositories such as the Foundation Directory Online by Candid and the National Science Foundation's (NSF) Budget Internet Information System. The primary focus was on funders who invested a minimum of $5 million annually in STEM DEI higher education pathways. When we were unable to verify annual investments, we focused on funders whose work clearly aligned with DEI in STEM education pathways.

Framing Diversity, Equity, and Inclusion within Grantmaking

Our landscape scan revealed that language around the constructs of DEI differs greatly across funders and sectors when framing investment efforts. Even when alignments regarding the use of terms are in place, how terms are defined differ (e.g., what they mean within an organizational or disciplinary context) and how the concepts are operationalized differ (e.g., what they could, should, and/or actually look like in grantmaking practice). Further, these phrases are often adopted in absence of a formalized and/or consistently applied definition within funder organizations.

Lenses of DEI

While substantial differences exist across funders in terms of language used during DEI framing, there is consistency in the lenses through which funders positioned DEI. Within STEM higher education contexts, three main DEI lenses are found. The first and most prevalent is *identity*, which includes demographic characteristics related to race/ethnicity, gender, socioeconomics, ability, sexuality, and first-generation status. The next is around *geographical environments*, such as communities and neighborhoods or urban and rural locales. The final surrounds *academic markers*, such as STEM discipline, institutional type, stage in faculty career, and research on issues of DEI.



Investment Allocations and Distributions

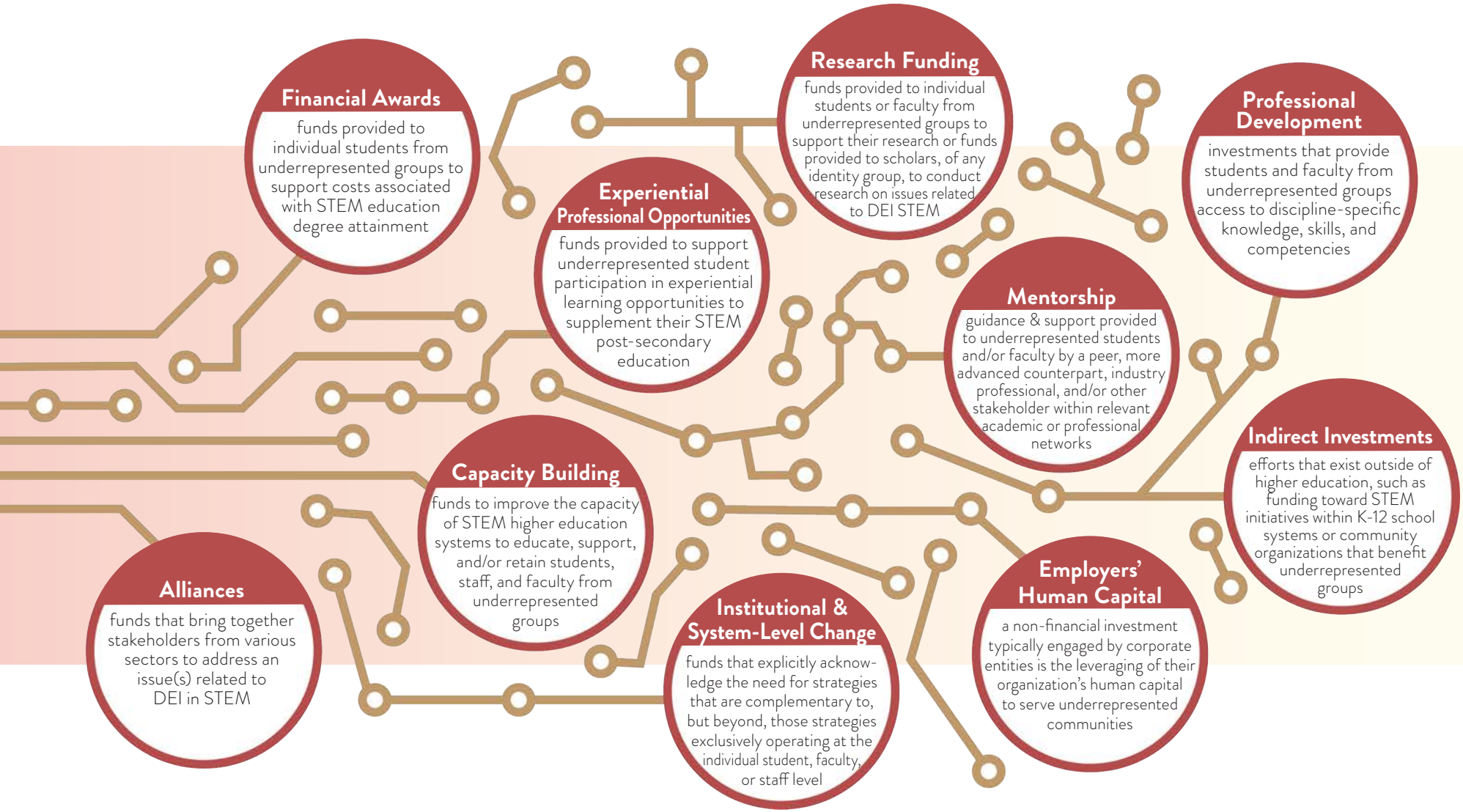
Examination of the landscape of investments in DEI within STEM higher education pathways involved understanding who provides funding, the nature of those investments, and how resources are being allocated and distributed. Trends in the investment landscape revealed that (a) elite, highly resourced institutions continue to benefit most from investments, and (b) funding is concentrated among a small group of institutions. This distribution of grant funding illustrates how educational disparities are upheld by systemic inequities related to funding distribution. The following are illustrations:

- Of philanthropic investments in STEM higher education, the top 10 most funded institutions received 44.2% of total awards.
- Of total philanthropic investments toward initiatives for populations underrepresented in STEM, the top 10 most funded institutions were awarded 51.1% of total funding.
- Of institutions among the top 200 most awarded by the National Science Foundation's Education and Human Resources Directorate, a full 44% made the list three or more times within the last five fiscal years.

As a result, power is replicated and inequities are reinforced. This pattern highlights the imperative for funders to not only invest in DEI STEM initiatives but to also examine equity and inclusion in grantmaking processes.

Investment Types

This section categorizes the types of investments we identified, grouping similar investment efforts together to represent a category of funding. In many cases, funders' initiatives included multiple investment types. Across the landscape, the majority of investments identified were focused on the individual level (e.g., financial awards, research, mentorship, professional development) toward people and programs, whereas a minority were focused on the institutional and/or systems level (e.g., alliances, capacity building, institutionalization)—a gap that has tremendous implication for systemic, sustained DEI in STEM advancement.



Funder Investment Practices

HEI investigated the investment practices that align with funders' DEI commitments and, though not representative of the entire landscape, identified three key practice areas. The below investment practices offer illustrations of how funders might consider incorporating DEI into their own investment practices, based on the current approaches of their peers.

Assess and Address Organizational Culture

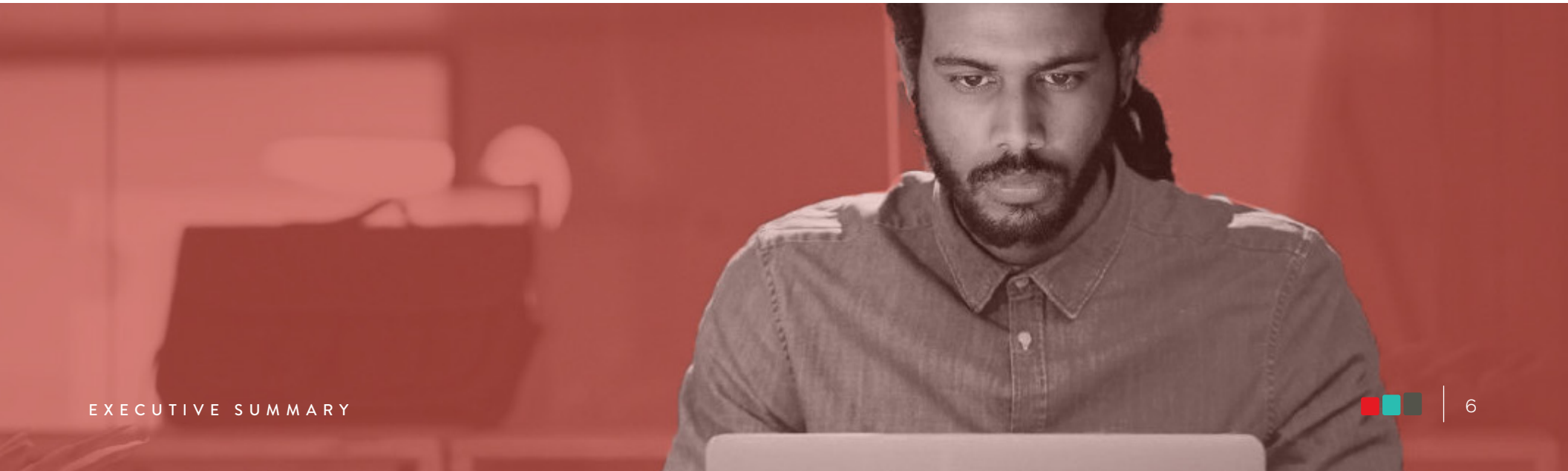
Continuously engage in the admittedly challenging process of determining whether policies, practices, and principles of the organization align with its DEI values. Funders are championing and building upon what is working while being transparent and consistent about improving what is not. Organizations can track employee diversity data (e.g., hiring and promotions), track grantee diversity data (e.g., geography of investments, leadership diversity among funding recipients), establish an anti-racism working group, create more open-solicitation funding opportunities, ensure diversity among closed-solicitation funding opportunities, or increase length of funding cycles.

Invest in Organizations with Strong DEI Records

Funders aren't just investing in issues related to DEI, but also investing in organizations that can demonstrate a history of their commitment to DEI (e.g., Minority-Serving Institutions and organizations led by people of color and/or women). Through the application and/or selection process, request the following: a DEI statement; information related to organizational diversity, disaggregated by role; past examples of DEI efforts; and/or organization's proximity to individuals and communities that funders want to reach.

Decrease Administrative Burden and Increase Flexibility

Make it easier for recipients to do the work that the funder and receiving organizations care most about. Some funders are developing a common application that significantly decreases the need for organizations to recreate similar application materials. Others allow for audio or visual reports, as opposed to more labor-intensive written narratives that are rarely reviewed in full. Be flexible in assessment practices by co-creating measures of success/impact with recipients, understanding they may change if the funding is multi-year.



Impacts, Successes, and Opportunities for Improvement

Funders provided incredible insight into their perceptions of investment impact, where they experienced greatest grantmaking successes, and what they recognized as opportunities for improvement. The following sections elaborate on these reflections.

Assessment of Outcomes and Impacts

While some foundations use traditional methods of evidence gathering (e.g., focus groups, surveys, document analysis, and grantee reporting), most had not conducted a formal evaluation of the programs and initiatives that their investments supported. However, they were able to assess outcomes and impacts through anecdotal evidence from investment recipients; quantitative data related to investment dollars and award recipients; and "report outs" when multiple grantees were convened.

Challenges in assessment include the need for more systematic evaluation practices, the need to use data to make decisions about future investments, the difficult nature of measuring education investments given the number of variables, and the difficulty of measuring or understanding impact when it is often outside the funding period.

Funder-Identified Areas of Success

Funders within **private philanthropy** offered insights on what they perceived to be the greatest successes of their investments. These are not illustrations of direct outcomes or impacts of investments but rather demonstrations of where and/or how they've done well during grantmaking. These descriptions of perceived success fall into five categories:

- Increasing STEM access for underrepresented groups
- Building multi-sector partnerships
- Having a unique and/or early impact
- Leveraging investments to generate more investments
- Having a broad impact in terms of number of people engaged.

Within the **federal space**, areas of identified grantmaking success included:

- Commitment to the organization's DEI mission
- Development and scaling of alliances
- Longevity of programs and initiatives
- Investments in Minority-Serving Institutions.

Funder-Identified Opportunities for Improvement

While funders shared many successes, they also acknowledged opportunities for improvement, some of which are illustrated below:

- Equitably addressing the limited infrastructure of smaller and/or under-resourced institutions—without the onus of mitigating this disparity being placed on these institutions
- Increasing the number of awards given
- Better promoting project outcomes to more readily find and spotlight successes without the burden of sifting through long annual reports
- Sharing learnings about promising or best practices across the organization and/or broader community as efforts can be siloed, deterring dissemination of knowledge within practical (i.e., non-scholarly) settings.

Gaps in DEI in STEM Higher Education Investments

Analysis identified gaps that exist within this landscape related to (a) framing DEI, grantmaking approaches and funding allocations, and assessing outcomes and impacts. Below are examples:

Gaps in Framing DEI

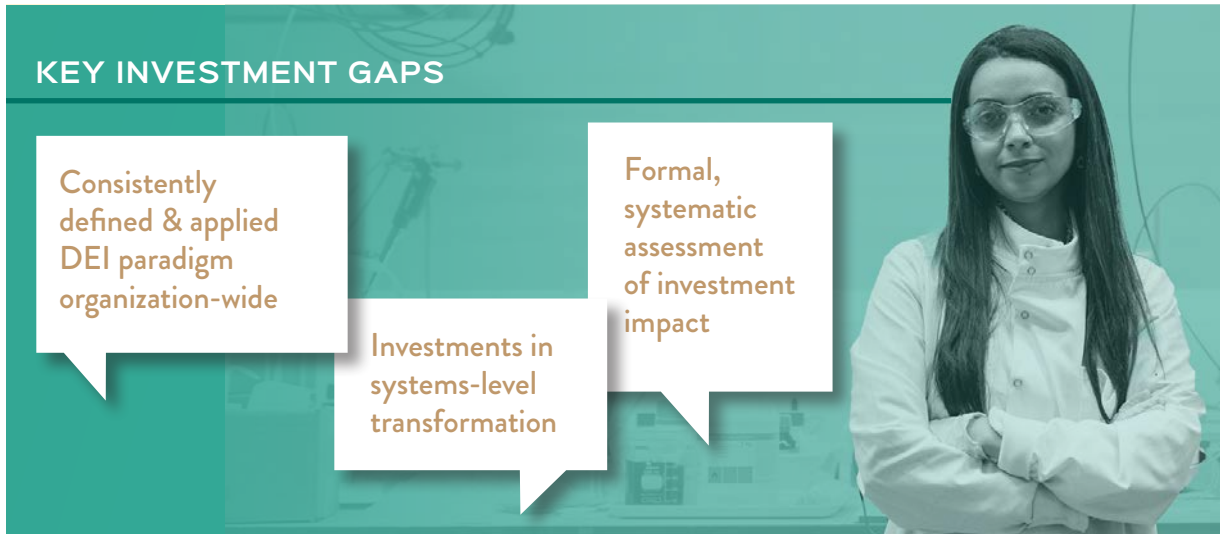
- Funding organizations often included a commitment to DEI in mission and vision statements but lacked a consistently applied DEI definition or framework that informed the organization's grantmaking practices.
- When DEI is discussed, it is often positioned as a single, unidimensional construct that largely represents diversity in participation, not inclusion within environments or equity in systems and resources.
- Investments intended to improve gender DEI often only includes women and girls at the exclusion and expense of other marginalized gender identities.

Gaps in Grantmaking Approaches and Funding Allocations

- Funding opportunities often rely on social networks, to which people of color and/or institutions advocating for communities of color often have less access as compared to their White peers or primarily White institutional counterparts.
- Many funding decisions prioritize past scientific contributions and proven scientific impact, and privilege highly resourced, elite institutions with robust research capacity and infrastructure. This limits opportunities for new entry into, and increased diversity among, funding recipients.
- Investments are largely provided at the individual level, i.e., scholarships, programs, research. There is a dearth of investments made to strategically impact systems-level change. Despite this lack of intentionality, systems-level transformation is an expected investment outcome.
- When investments are intentionally made at the systemic level, grantmaking practices are often misaligned with expectations for impact. Specifically, the level of funding is often insufficient and/or the time of funding is often too short for the realization of sustained, systemic change and transformation.

Gaps in Outcomes and Impacts

- In grant administrative practices and the implementation and outcomes of grantees' programming, gaps exist between funding intention/allocation and investment impact.
- Funders often can't speak concretely about investment impact outside of counting dollar amounts, grantees awarded, and other standard quantitative outcome metrics (e.g., enrollment, participation). There are often no formal mechanisms to comprehensively and/or systematically evaluate implications of funding, and limited, if any, application of DEI paradigms within assessment methodology.



Questions that Grantmakers Can Ask Themselves

Informed by interviews with the funding community as well as grantmakers from the DEI in STEM convening, the below set of questions can be used as a way to assess current investment priorities and practices, and plan for the future:

1 What do we mean by DEI?

The acronym "DEI" was used as a single, unidimensional construct, although each letter represents a distinct approach to addressing lack of representation, marginalization, and exclusion within STEM education.

Some funders have found it helpful to move beyond, or at times away from, "DEI" as a term to identify the highly contextual nature of their investments. Answering the question, "What do we mean by DEI" should lead funders to develop the language that is specific to their context and reflects the true nature of their investments. This allows them to identify what they have done, examine what they are currently doing, and inform future decisions.

2 What does the diversity of our grantee portfolio look like?

In addition to funding issues related to diversity, investments should be distributed among a diverse set of grantees/awardees. Investments are more than just the transfer of funds, they involve establishing and maintaining a relationship between organizations. These relationships grow over time and are often mutually beneficial. Without a diverse set of awardees, funders can unintentionally exclude potential grantees from the benefits of such relationships and unintentionally work against their own DEI investments and interests. Some frameworks that have been used to guide DEI efforts are anti-racism, allyship, and intersectionality.

3 How connected are those we fund to the communities we desire to impact?

This question addresses the issue of proximity and can be directed toward investments at each level of change. For investments to have greater impact, it is important to consider whether those receiving investments are best positioned, through authentic connection, to reach the communities that funders desire to reach. Proximity at the organizational level is not merely about geography, though that can be one component. It also has to do with the collective ways awardees have demonstrated a commitment to and capacity for effecting DEI in STEM higher education.

4 How do we collaborate with our grantees/awardees?

Collaboration with grantees/awardees happens in many ways, the clearest being a collaboration to implement an agreed-upon strategy that addresses an issue that the funder is passionate about. However, it can also look like working with grantees/awardees to collaboratively develop measures of success, to determine reporting mechanisms and frequencies, or to identify other ways to invest in the issue that was not previously known to the funder. The key to reflecting on this question is ensuring that relationships are not static or unidirectional and that funders consider ways to learn from those they fund through partnership.

5 What level of change are we investing in?

Three levels of investment rose to the top in our analysis: (1) individual, (2) programmatic, and (3) systemic. By reflecting on this question, funders can have a better sense of the impact they intend to have. It would not make sense to assume that there will be systems-level change though only investing at the individual or program levels. This does not mean that investments at the individual and/or program levels are not valuable or needed, but rather that funders should be aware of the limitations of such investments and assess whether new funding should focus on a different domain. Organizations with strictly defined giving guidelines might consider how partnering with other funders could help to realize goals of interest currently outside allowable investment parameters.

6 How are we leveraging the strengths of the broader funder community?

Individual funders can leverage many strengths within the broader funder community. Actions might include reading impact reports commissioned by another funder, identifying the different ways funders invest in similar issues, collaborating to address a shared challenge, or pooling resources to have a larger impact. Issues surrounding DEI in STEM higher education are far beyond what any one funder can undertake, regardless of how large they are. The collective leveraging of the broader community's strengths is both necessary and tactically important.

INVESTMENTS

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within STEM Higher Education Pathways

Higher Ed Insight, LLC (HEI) conducted a landscape scan of investments in diversity, equity, and inclusion (DEI) within science, technology, engineering, and mathematics (STEM) higher education pathways, which was commissioned by the Alfred P. Sloan Foundation. The identification of key actors shaping this space, investment types and scopes, and funding beneficiaries was integral to this scan. Moreover, this study explored funders' grantmaking practices—with attention to equity and inclusion, as well as outcome and impact assessments of funding efforts. This brief details findings from the landscape scan, including illustrations of investment trends, highlights of grantmaking best practices, gaps in funding approaches, and strategic recommendations for further advancing DEI in STEM higher education.

Data Collection Approach

To support understanding of the DEI in STEM Higher Education Investment landscape, HEI performed three core data collection activities. These methods included (a) interviews with 11 funders from private foundations, nine federal funders, and two intermediaries; (b) datamining of public documents, financial statements, and other artifacts detailing DEI initiatives and efforts engaged by 60-75 key actors in philanthropy, corporate, and intermediary spaces; and (c) extant data collection from online databases and repositories such as the Foundation Directory Online by Candid[1] and the National Science Foundation's (NSF) Budget Internet Information System. Learning gleaned from these activities informed findings presented in this report. The primary focus was on funders who invested a minimum of $5 million annually in STEM DEI higher education pathways. When we were unable to verify annual investments, we focused on funders whose work clearly aligned with DEI in STEM education pathways. In addition to this self-imposed financial boundary, a full view of the landscape was limited by an inability to interview corporate funders or interview as many federal funders as we would have preferred. We were also unable to consistently access detailed information from private philanthropies related to their amount of financial investments, number of grant awards, and specific grant recipients. Conversely, corporate provided the most substantial information regarding investment types, funding amount, and funding recipients through online documentation; and we had much more success conducting interviews with private philanthropies.

[1] Please see this **fact sheet** for documentation on Candid's grants data.

Lastly, it is worth noting that leadership and governance structures are important contextual considerations but were outside the scope of this scan. These mechanisms were observed to have an influence on the broader landscape, ranging from language used to address DEI to flexibility in identifying funding priorities. Deeper examination of this phenomenon might uncover the manners with which organizational leadership and governance structures shape the landscape of investments in DEI within STEM education pathways.

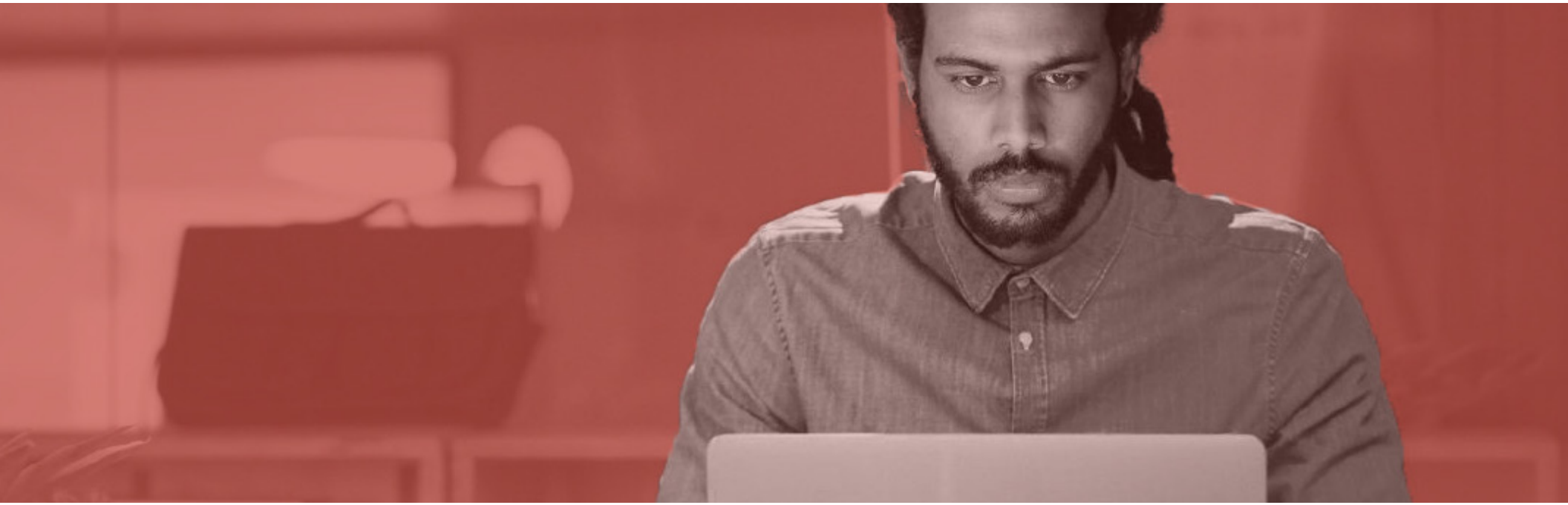
KEY TERMS

STEM Higher Education Pathways:
Initiatives that support learners' entry into and/or progress through postsecondary STEM education.

DEI Investment:
Financial and other forms of philanthropy intentionally aimed at improving representation, addressing systemic disparities, and increasing belonging.

Funders:
Philanthropies, federal agencies, and corporate organizations that invested in STEM DEI higher education pathways.

Intermediaries/influencers:
Professional societies, associations, or networks that award and/or coordinate funding, attract attention, give recognition, and/or facilitate organizational collaboration.



DEI Actors in the STEM Investment Landscape

Actors include funders and intermediaries. These groups are distinguished by their roles within the landscape. Funders' primary role involves investing financial resources and includes private philanthropies, federal agencies, and corporations. Intermediaries/influencers' primary role involves shaping the DEI STEM higher education landscape through non-financial, intentional actions and contributions. Integral actors are further described below.

Private Philanthropy

Key to advancing DEI in STEM higher education are private foundations, such as independent and family foundations. These funders are highly mission oriented. This report includes private philanthropies that invest in STEM higher education pathways and issues related to DEI. For example, the Henry Luce Foundation's Clare Boothe Luce program for Women in STEM is a foundation program whose funding intersects at STEM higher education and DEI. There is considerable variation in private philanthropies' investment type and scope, mission focus, and governance structures.

Federal Agencies

STEM higher education initiatives are developed through and supported by numerous, varied federal investments. Agencies funding DEI within STEM higher education programs include the Department of Agriculture (USDA), Department of Education (ED), Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Institutes of Health (NIH), National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), and national security and defense departments and agencies. Each has different funding priorities and levels of STEM higher education initiatives. The following descriptors outline the federal actors with the most substantial or explicit STEM DEI investments.

FEDERAL AGENCIES IN THE DEI ACTORS LANDSCAPE

Department of Education (ED)

ED's DEI within STEM investments are largely concentrated in the K-12 sector, though some of these initiatives support pathways to and through higher education. Direct funding provided by ED toward DEI within STEM higher education includes allocations to efforts like Career and Technical Education (CTE), which focuses on quality, equitable CTE programming at community colleges with emphasis on STEM fields; Hispanic-Serving Institutions - Science, Technology, Engineering, or Mathematics and Articulation Programs (HSI STEM), which endeavors to increase the number of Hispanic and low-income students attaining degrees in STEM and to develop model transfer and articulation agreements between two-year and four-year institutions in STEM; and the Minority Science and Education Improvement Program (MSEIP), which is aimed at fostering long-range improvement in science and engineering education at predominantly minority institutions of higher education and increasing the participation of underrepresented ethnic minorities, particularly minority women, in scientific and technological careers.

National Oceanic and Atmospheric Administration (NOAA)

NOAA supports postsecondary STEM education through its Office of Education. The Jose E. Serrano Educational Partnership Program with Minority-Serving Institutions (EPP/MSI)—the Office of Education's DEI-aligned initiative—is a federal STEM and NOAA future workforce program aimed at supporting the training and graduation of students, and increasing participation of students, from traditionally underrepresented minority communities; developing eligible candidates in support of a diverse future workforce for NOAA and NOAA mission-related enterprises; and bolstering post-secondary education and research capacity development at MSIs. These aims are carried out through three core program components: Cooperative Science Centers, Undergraduate Scholarship Programs, and Experiential Research and Training Opportunities.

National Aeronautics and Space Administration (NASA)

NASA contributes substantially toward DEI in STEM higher education via the Minority University Research and Education Project (MUREP), administered through its Office of STEM Engagement. Through MUREP, NASA provides financial assistance via competitive awards to Minority Serving Institutions, including Historically Black Colleges and Universities, Hispanic Serving Institutions, Asian American and Native American Pacific Islander Serving Institutions, Alaska Native and Native Hawaiian-Serving Institutions, American Indian Tribal Colleges and Universities, Native American-Serving Nontribal Institutions, and other MSIs. These institutions recruit and retain underrepresented and underserved students, including women and girls, and persons with disabilities, into STEM fields. MUREP investments enhance the research, academic, and technology capabilities of MSIs through multi-year cooperative agreements.

National Science Foundation (NSF)

The Directorate of Education and Human Resources (EHR) within NSF is the single largest funder of DEI in STEM higher education. While all of EHR's initiatives have a diversity component through its strategic commitment to broaden STEM participation, the Division of Human Resource Development (HRD) most explicitly invests in and promotes initiatives that are aimed at strengthening STEM education for underserved communities, broadening their participation in the workforce, and adding to the knowledge-base about inclusive efforts. Programs exemplifying these priorities include ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE), Alliances for Graduate Education and the Professoriate (AGEP), Historically Black Colleges and Universities Undergraduate Program (HBCU-UP), Improving Undergraduate STEM Education: Hispanic-Serving Institutions (HSI Program), Louis Stokes Alliances for Minority Participation (LSAMP), Racial Equity in STEM Education (EHR Racial Equity), Tribal Colleges and Universities Program (TCUP), and Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES).

National Institutes of Health (NIH)

NIH, though not a major funder of STEM education pathways as operationalized in this report (i.e., exclusive of the medical sciences), demonstrates supporting DEI through initiatives that identify and address structural inequities within the greater science community. As an illustration, through their NIH UNITE initiative, NIH aims to build an equitable and inclusive culture within the biomedical research enterprise and reduce barriers within the biomedical workforce. To achieve this, UNITE has five key objectives overseen by committees whose goals are twofold: to confront the problems of racism and discriminations within the sciences as well as develop methods to diversify the biomedical workforce. UNITE's acronym is: U-Understanding stakeholder experiences through listening and learning; N-New research on health disparities, minority health, and health equity; I-Improving the NIH culture and structure for equity, inclusion, and excellence; T-Transparency, communication, and accountability with our internal and external stakeholders; and E-Extramural research ecosystem: changing policy, culture, and structure to promote workforce diversity.

Department of Energy (DOE)

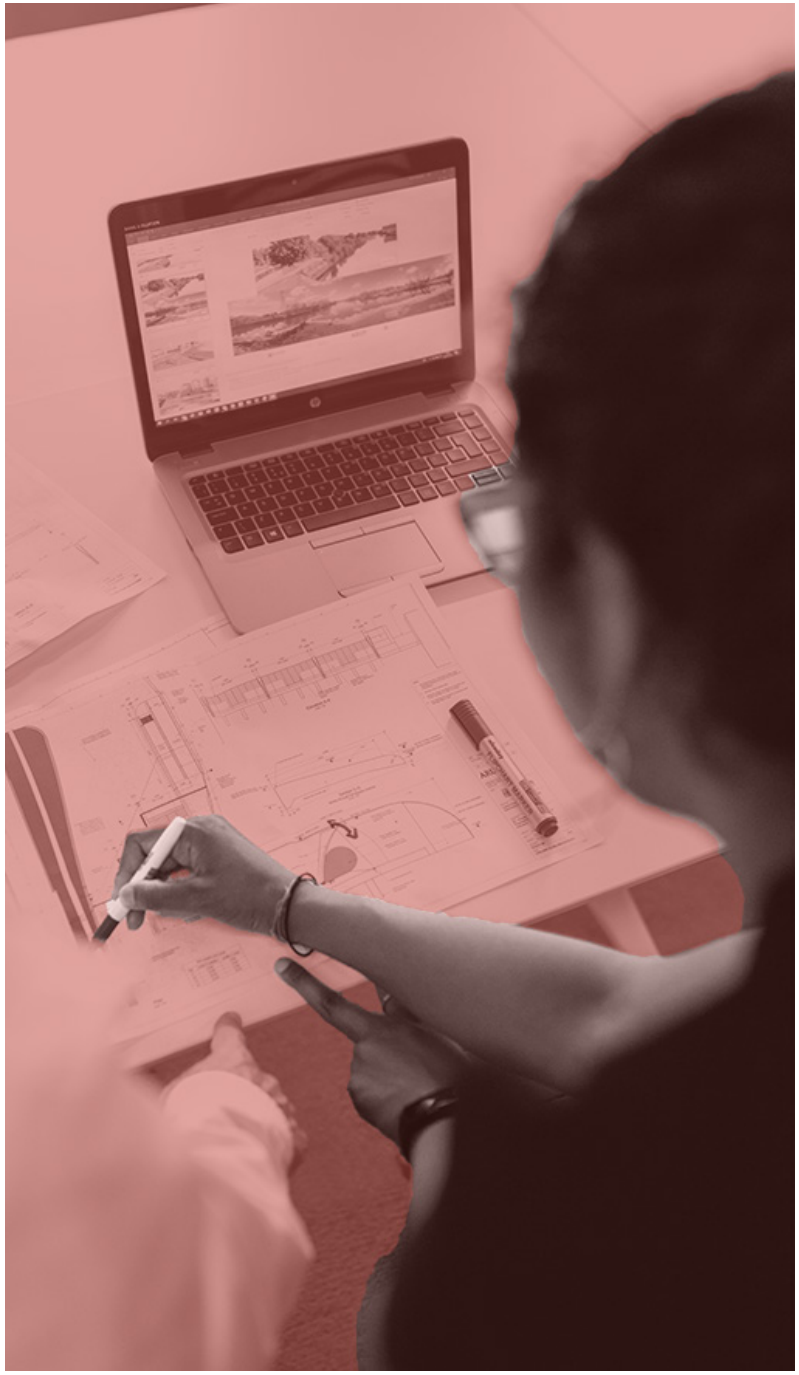
DOE demonstrates how it supports STEM education and workforce development through its STEM Rising project. Of relevance to this context is the Minority-Serving Institution Partnership Program (MSIPP), which is designed to build a sustainable pipeline between the DOE's sites/labs and Minority-Serving Institutions in STEM disciplines, and also to bring a heightened awareness of National Nuclear Security Administration plants and laboratories to institutions with a common interest in STEM research fields. Moreover, its University Training and Research (UTR) program aims to prepare the next generation of scientists and engineers to meet future energy challenges. One such effort is the Historically Black Colleges and Universities and Other Minority Institutions (HBCU-OMI) program, which endeavors to maintain and upgrade educational, training, and research capabilities of HBCUs/OMIs in the fields of science and technology related to fossil energy resources. Another initiative, the Mentorship for Environmental Scholars (MES) Program, aims to increase minority awareness and participation in the environmental science disciplines. While enhancing the retention of underrepresented students in the environmental science fields, the program also seeks to provide talented undergraduate students with exposure to the numerous research and educational opportunities that are available within the agency.

Department of Agriculture (USDA)

The National Institute of Food and Agriculture within the USDA funds DEI in STEM higher education through research, education, and extension programs that address national agricultural priorities. Illustrations of such initiatives include the Women and Minorities in Science, Technology, Engineering, and Mathematics Program (WAMS); Alaska Native-Serving and Native Hawaiian-Serving Institutions Education Competitive Grants Program (ANNH); Higher Education Multicultural Scholars Program (MSP); Hispanic-Serving Institutions Education Grants (HSI) Program; and Tribal Equity Grants Program.

National Security and Defense

A robust, technically literate STEM workforce is essential to the security and competitiveness of our nation, which requires the inclusion of diverse populations. As such, many agencies in the security and defense realms have developed initiatives that directly solicit MSIs or encourage the participation of underrepresented groups in STEM. The majority of these agencies' efforts orient around a broader national strategic impact (e.g., growth of the STEM workforce) or product (e.g., advancement of scientific knowledge). Security and defense entities exemplifying STEM DEI priorities, and illustrations of associated initiatives, include (a) Department of Navy: Historically Black Colleges and Universities/Minority Institutions Program; Science, Technology, Engineering, and Mathematics Workforce Development Program; (b) Department of Homeland Security: Minority Serving Institutions Program, including the Summer Research Team Program and Scientific Leadership Award Program; (c) Air Force Research Laboratory: Future Scholars for Science, Technology, Engineering, and Mathematics Workforce Development Programs; Diverse Collegiate Research and Development Collaboration Program; (d) Department of Defense: Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions; and (e) National Security Agency: OnRamp II Scholarship Program.



Corporate Philanthropy

This category includes formal giving that derives from a corporation, either directly or through its distinct foundation. Investments typically align with a Corporate Social Responsibility (CSR) model that either frames investments exclusively as an external, public good or as an internal, company good as well. For the latter, companies understand how these investments could potentially help them meet their STEM workforce needs. The corporations included in this report are large, multinational corporations where STEM is critical to their operation (e.g., a technology company).

Intermediaries and Influencers

Included here are professional societies, associations, or networks that award and/or coordinate funding in STEM DEI education pathways, attract attention to critical DEI issues, give recognition to exemplar individuals and organizations, and/or facilitate collaboratives oriented around common goals and missions. These organizations use the explicit language about, and are intentional in efforts to advance, DEI within STEM higher education pathways. Within this landscape, the intermediary and influencer typology encompasses four core, and often overlapping, categories: alliances and coalitions, societies and associations, identity-based professional organizations, and auxiliary entities (see below sample illustrations).

STEM SOCIETIES AND ASSOCIATIONS

- American Association for the Advancement of Science (AAAS)
- American Chemical Society (ACS)
- American Economics Association (AEA)
- American Insititute of Physics (AIP)
- National Association of Mathematics (NAM)
- IEEE Computer Society

IDENTITY-BASED STEM PROFESSIONAL ORGANIZATIONS

- American Indian Science and Engineering Society (AISES)
- National Society of Black Engineers (NSBE)
- Society of Hispanic Professional Engineers (SHPE)
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
- Association for Women in Mathematics
- MAES: Latinos in Science and Engineering
- Out in Science, Technology, Engineering and Math (oSTEM)
- National Center for Women and Information Technology (NCWIT)
- Association for Women in Science (AWIS)
- Access Computing

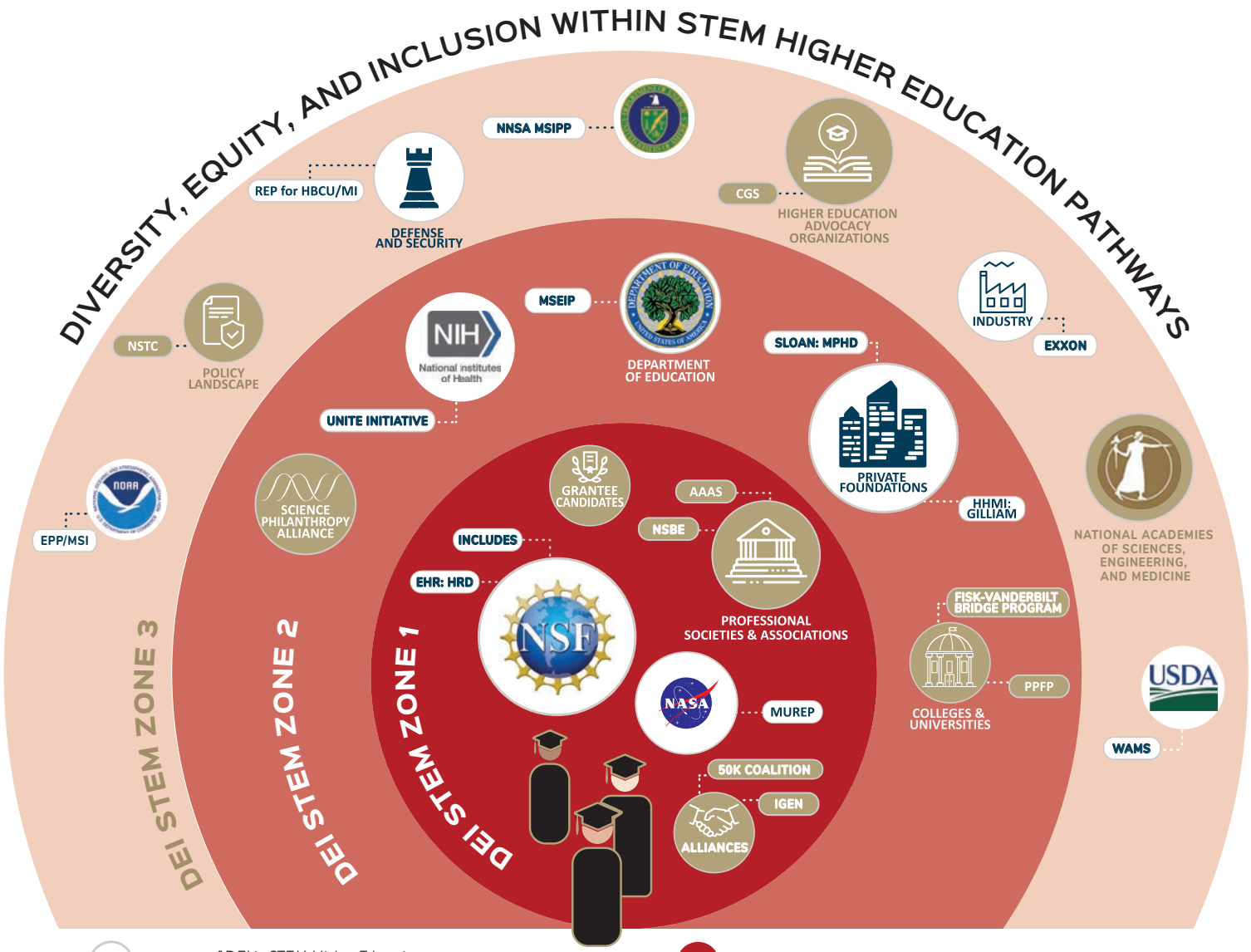
AUXILIARY STEM INFLUENCERS

- National Academies of Sciences, Engineering, and Medicine (NASEM)
- Colleges and Universities
- Grantee Candidates
- Council of Graduate Schools (CGS)
- Committee on Status of Minority Groups in the Economics Profession (CSMGEP)
  National Science and Technology Council (NSTC)
- National Action Council for Minorities in Engineering (NACME)
- The DO-IT (Disabilities, Opportunities, Internetworking, and Technology) Center

STEM ALLIANCES AND COALITIONS

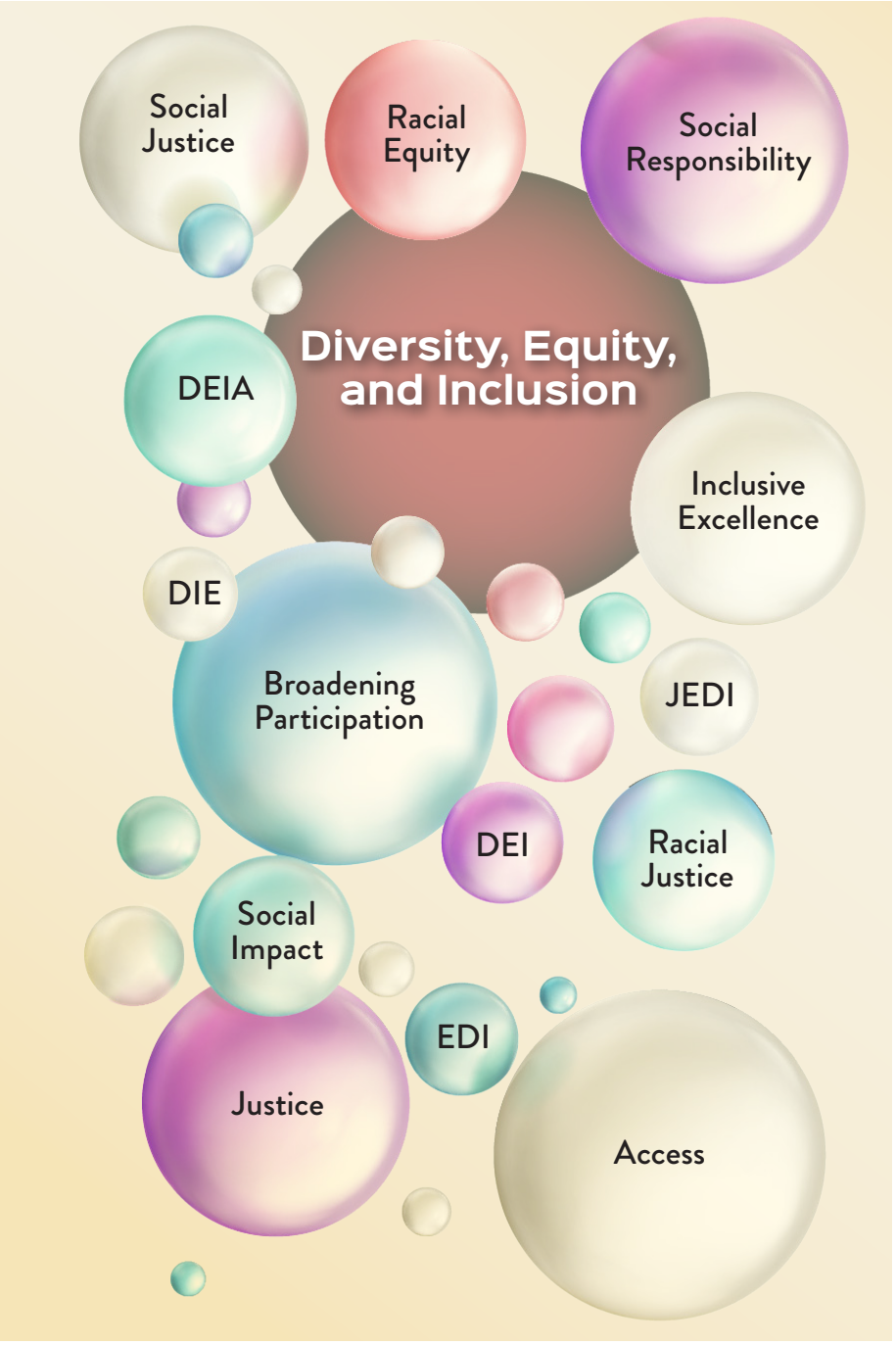
- Inclusive Graduate Education Network (IGEN)
- 50K Coalition
- Science Philanthropy Alliance
- National GEM Consortium
- INCLUDES Network
- STEM Education Coalition

The following graphic is an *Actors Map*. It illustrates funders and influencers, as well as the proximity of their investments or initiatives to DEI within STEM higher education pathways.



Framing DEI Within Grantmaking

In this report thus far, we have emphasized DEI during our framing of investment efforts. However, our landscape scan revealed that language around this construct differs greatly across funders and sectors. In certain instances, funders refer to their investments as DEI investments. In others, grantmakers might focus explicitly on a single construct like access or inclusion. It is also quite common for acronyms to be applied that represent varied combinations of diversity, equity, inclusion, justice, and/or access, like DEI, EDI, JEDI, DEIA, and so forth. In other instances, funders uphold equity or justice-oriented concepts, like social justice, racial justice, or racial equity. Within the corporate sector, use of terms like social responsibility or corporate responsibility have been observed. There are entities that use proxies like broadening participation, social impact, or inclusive excellence to demonstrate DEI-related priorities. In other contexts, less abstract phraseologies are chosen, which speak more directly to stakeholders about whom DEI efforts are intended to benefit, e.g., underrepresented, underserved, or under-resourced populations and communities.

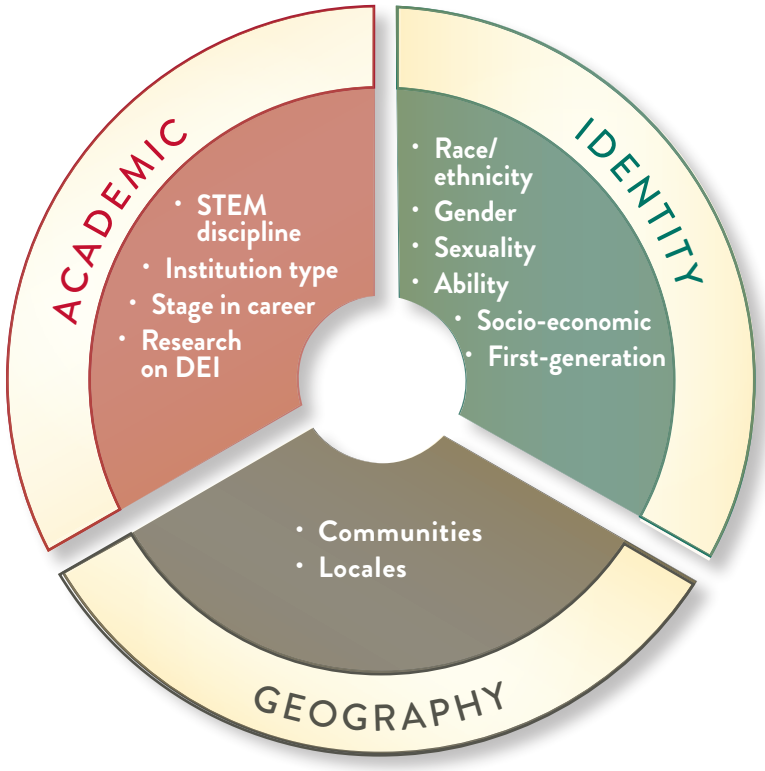


Even when there are alignments in terminology, there are differences in how terms are defined (e.g., what it means within an organizational or disciplinary context) and operationalized (e.g., what it could, should, and/or actually look like in grantmaking practice). Further, these phrases are often adopted in absence of a formalized and/or consistently applied definition within funder organizations. The following are learnings gleaned from interviews about how DEI is conveyed by grant funders:

- Internally, most funders do not have an organization-wide definition of DEI or concrete explanations of other proximal terminologies they might use. Individual staff members, however, often developed their own definitions of what those constructs mean broadly, internally, and/or as related to grantmaking.
- Many stakeholders expressed frustration that DEI was overused and had therefore lost all meaning. Some also discussed how it had become too broad of a term to fully and/or accurately reflect their organization's focus.
- Some funders felt that people get too caught up in the politics of language, over-analyzing literal words while failing to advance what should be of importance at the heart of the work.
- Funders also voiced concern about how racial matters are avoided in DEI conversations because people don't know how to discuss such topics or experience discomfort when talking about race. This avoidance often leads to the conflating of histories of marginalized racial/ethnic groups during discussions and within grantmaking efforts.

Lenses of DEI

While substantial differences exist across funders in terms of language used during DEI framing, there is consistency in the lenses through which funders positioned DEI. Within STEM higher education contexts, three main DEI lenses are found. The first and most prevalent is *identity,* which includes demographic characteristics related to race/ethnicity, gender, socioeconomics, ability, sexuality, and first-generation status. The next is around *geographical environments*, such as communities and neighborhoods or urban and rural locales. The final surrounds *academic markers,* such as STEM discipline, institutional type, stage in faculty career, and research on issues of DEI.



Investment Allocations and Distributions

Examination of the landscape of investments in DEI within STEM higher education pathways not only requires understanding who provides funding and the nature of those investments; attention to how resources are being allocated and distributed is equally imperative. The following sections detail trends in investment allocations and distributions, including across sectors and geographies, as well as recipient characteristics.

Institutions of Higher Education within the United States

Direct investment recipients discussed in this section of the report are institutions of higher education (IHEs). IHEs distribute awarded dollars to stakeholders and/or entities within their system as necessary. As such, it is important to provide context about the universe of IHEs within the United States. According to the National Center for Education Statistics[2], as of 2019–2020, there are 3,982 colleges and universities in the nation. This includes 2,679 four-year and 1,303 two-year institutions, of which 1,625 are public and 2,357 private. Within private, 1,660 are non-profit and 697 for-profit. Based on the 2018 Carnegie Classification of Institutions of Higher Education, 131 institutions are classified as R1: Doctoral Universities – Very high research activity. In terms of MSIs, 89 are four-year and 12 are two-year HBCUs[3], 569 are HSIs[4], 335 are Tribal Colleges and Universities, 102 are Predominantly Black Institutions, 36 are Alaska Native-serving institutions or a Native Hawaiian-serving institutions, 168 are Asian American and Native American Pacific Islander-serving institutions, and 25 are Native American-serving nontribal institutions[5].

Philanthropic Investments in STEM Higher Education, 2016–2021

Researchers examined philanthropic investments in STEM higher education using Foundation Directory Online by Candid (FDO), a database that allowed specification of funding criteria. Researchers recognize that a limitation of these data (and therefore, subsequent findings) is that they might not reflect the philanthropic sector's giving in full. However, substantial challenges arose related to transparency about and access to private foundations' grant-making histories—a cultural issue within this sector that must be addressed. As such, Candid's FDO, while potentially limited, was the most comprehensive available resource and therefore utilized to understand philanthropic investments within this landscape context.

In the FDO, Foundation types include family foundations, company sponsored foundations, independent foundations, and operating foundations. The parameters for this search included the following:

- **Subject Areas** (with results required to "Match All" subject areas below):
  - Higher Education (i.e., Community College Education, Undergraduate Education, University Education)
  - Science (i.e., Biology, Engineering, Forensic science, Mathematics, Physical and Earth sciences, Technology)
- **Geographical Focus:** United States (Country)
- **Location of Grantmaker or Recipient:** United States (Country)
- **Organization Type:** Schools (Recipient)
- **Years:** 2016–2021
- **Search Exclusion:** U.S. Federal Funders

[2] NCES: Degree-granting postsecondary insitutions

[3] Bridges, Brian. "African Americans and College Education by the Numbers" United Negro College Fund: African Americans and College Education by the Numbers.

[4] Excelencia in Education! Summary of the 2019-2029 HSI List

[5] NASA List of Minority Serving Institutions.

At the time of reporting[6], this search yielded 2,330 grantmakers, 10,565 grants, and 326 recipients, with the total value of grants amounting to $2,146,060,802. The total amount awarded by an individual grantmaker within this time period ranged from a few hundred dollars via a single award to $333,792,993 across 2,506 grants.

Top Awarded Institutions for STEM Philanthropic Funding

To gain a sense of where philanthropic funds were being most directed, researchers identified the institutions receiving the highest awards as well as the number of grants included within those allocations. The top 10 highest awarded institutions included the following:

INSTITUTION	GRANT AMOUNT	# OF GRANTS
Massachusetts Institute of Technology	$ 174,413,416	862
Stanford University	$134,310,533	516
President and Fellows of Harvard College	$ 116, 621,132	241
University of California at Berkeley	$ 89,900,007	217
University of California, Irvine	$ 84,842,173	66
California Institute of Technology	$ 73,944,567	379
University of California, San Diego	$ 56,684,963	131
University of Texas at Austin	$ 56,684,963	378
Virginia Polytechnic Institute and State University	$ 56,667,480	84
Columbia University	$ 53,452,343	297

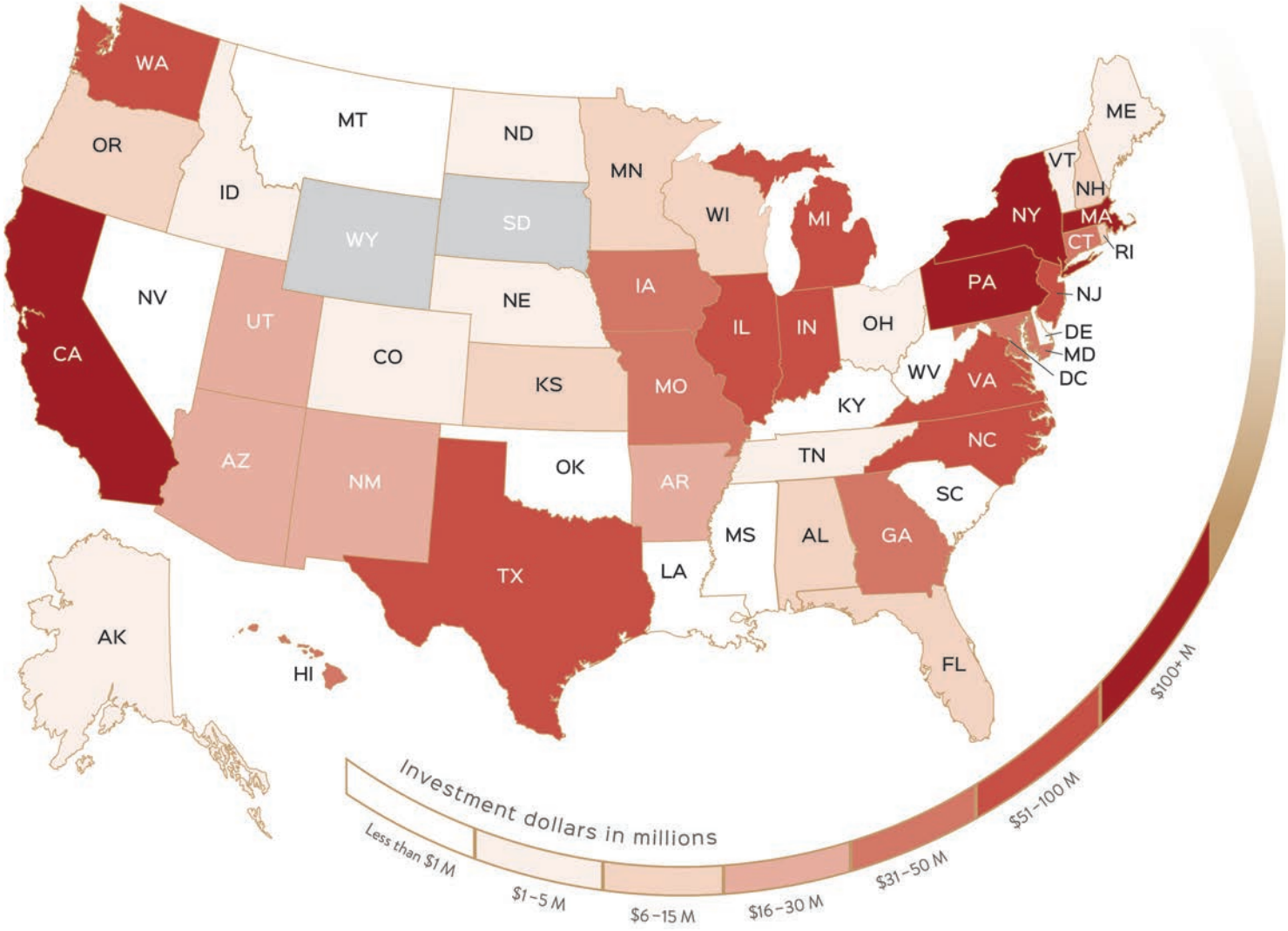
The combined funding awarded to these 10 institutions amounted to $906,657,81, or 44.2% of total philanthropic investments in STEM higher education. Whereas there is an equal split of public and private four-year institutions, all are designated as being Doctoral Universities with Very High Research Activity (i.e., R1 Status). Two trends in philanthropy giving, and the investment landscape more broadly, is that (a) elite, highly resourced institutions continue to benefit most from investments, and (b) funding is concentrated among a small few. This distribution of grant funding illustrates how educational disparities are upheld by systemic inequities related to funding distribution.

[6] Candid's Foundation Directory Online system updates daily as new information is gathered

Geographic Distribution of Philanthropic Funding by State

Just as levels of funding across institutions differed substantially, funding across states also yielded notable disparities. Specifically, funding is most prevalent along the coastal regions; most coastal states received $50M or more in investments per state. The top most funded states include California at about $573M, Massachusetts $320M, Pennsylvania $126M, New York $109M, and North Carolina $99M. In contrast, Wyoming and South Dakota did not have any higher education grant recipients, with an additional nine states receiving less than $1M. The following map demonstrates geographical distribution of awards based on recipients' locations.

PHILANTHROPIC INVESTMENTS IN STEM HIGHER EDUCATION BY STATE, 2016–2021



Philanthropic Investments in STEM Higher Education for Underrepresented Populations, 2016–2021

Researchers further refined search parameters to specify "Populations Served" to better understand initiatives directed toward groups underrepresented in STEM. The following additional filters were applied, with all other criteria remaining the same:

- **Population Served** (with results allowed to "Match Any" of the following populations):
  - **Ethnic and Racial Groups:** Indigenous Peoples (i.e., Alaskan Natives, American Indians, Native Hawaiians, Pacific Islanders), People of African descent, People of Latin descent (e.g., People of Caribbean descent, People of Central American descent, People of South American descent)
  - **Gender and Sexual Identity:** LGBTQ people, Women and girls
  - **Health:** People with disabilities
  - **Social and economic status:** At-risk youth, Economically disadvantaged people

At the time of reporting, this search yielded 203 grantmakers, 593 grants, and 117 recipients, with the total dollar value of grants amounting to $123,546,845. This data means that funding explicitly targeting groups underrepresented in STEM comprised just 5.8% of total STEM higher education philanthropic investments and that only 203 out of 2,330 or 8.7% of philanthropic grantmakers funded initiatives for groups underrepresented in STEM. The total amount awarded by an individual grantmaker within this time period ranged from a few hundred dollars via a single award to $23,016,213 across 209 grants.

Top Institutions Awarded by Philanthropy for Underrepresented Populations in STEM

To better understand where philanthropic funds were being most directed, researchers identified the institutions receiving the highest awards as well as the number of grants included within those allocations. The top 10 highest awarded institutions included the following:

INSTITUTION	GRANT AMOUNT	# OF GRANTS
University of Michigan-Flint	$12,200,000	2
North Carolina A&T State University	$ 10,035,186	4
University of Washington	$ 7,503,537	19
Stanford University	$ 5,684,087	24
Yale University	$ 5,322,296	28
Howard University	$ 5,289,699	7
University of Chicago	$ 5,049,846	10
Georgia Tech Research Corporation	$ 4,637,146	12
New Mexico Tech	$ 4,006,789	4
University of Texas at Austin	$ 3,362,768	50

The combined funding awarded to these 10 institutions amounted to $63,091,354, or 51.1% of total philanthropic investments toward initiatives for populations underrepresented in STEM. Given to just 10 institutions, this share again speaks to the unequal concentration of resources. Moreover, only two of the top 10 most funded institutions in STEM higher education identified previously are on this list, demonstrating great potential that resources provided to these heavily funded colleges and universities might not be explicitly and/or substantially allocated toward advancing DEI.

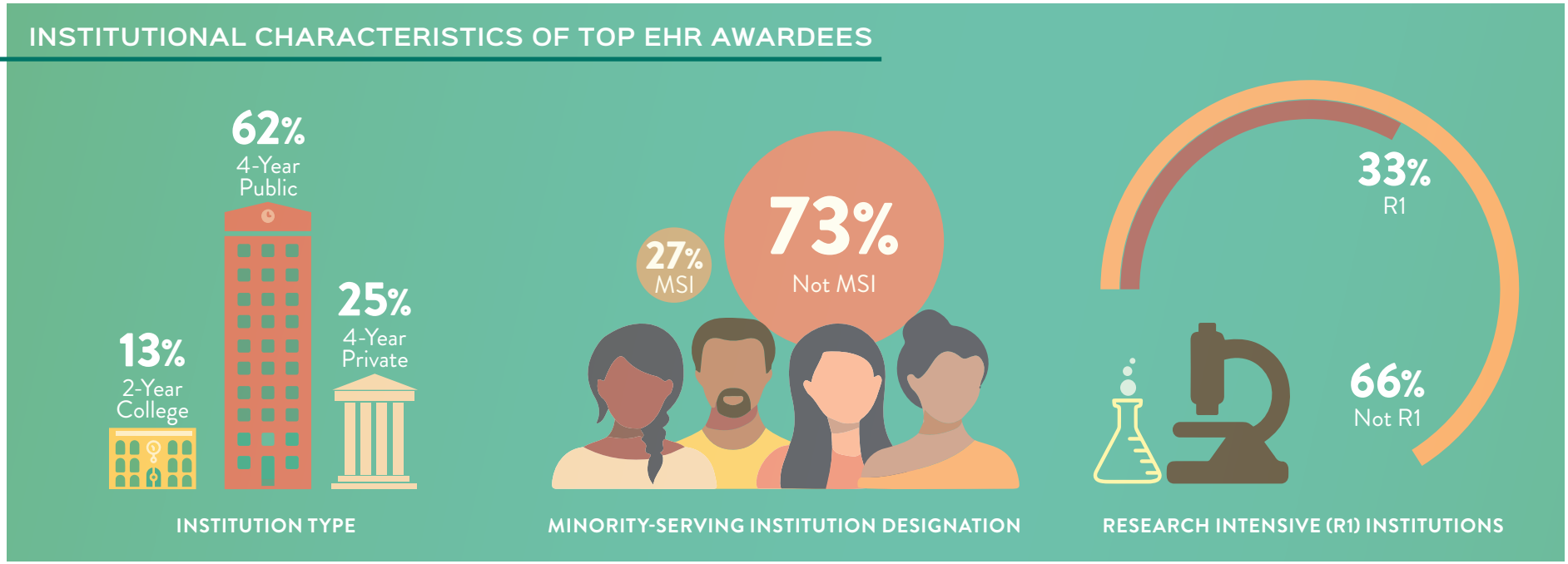
NSF Directorate of Education and Human Resources Investments, 2016–2020

Researchers examined EHR's investments across the last five years using NSF's Budget Internet Information System. It is important to note that while all of these investments were to institutions of higher education, they all were not aimed at supporting postsecondary students or faculty. However, these investments do—directly or indirectly—contribute to strengthening STEM pathways. Further, given EHR's directorate-wide priority to broaden STEM participation, all funding also (at least theoretically) aligns with tenets of DEI (as operationalized by NSF) in some form.

Top 200 Institutions Awarded by EHR

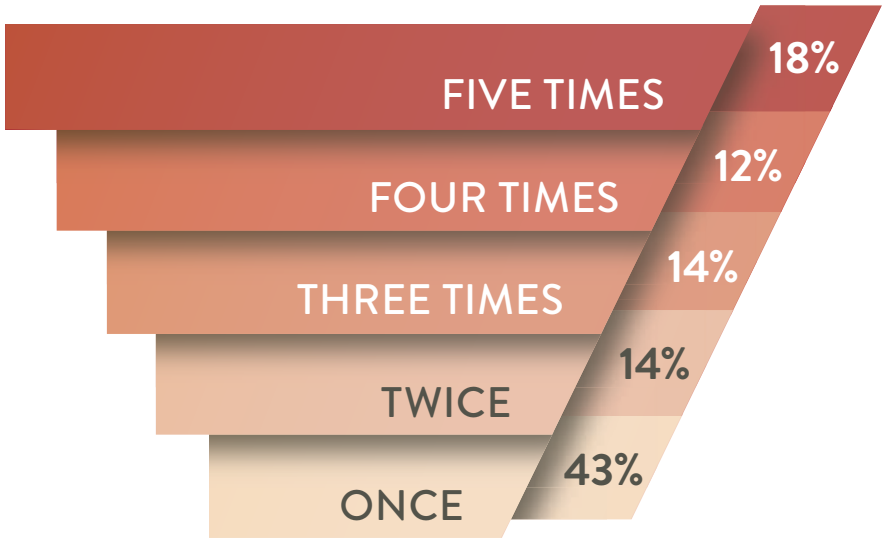
To better understand trends in funding allocations at EHR, researchers examined the top 200 institutions receiving the highest award in each year, from FY 2016–2020. Funding for these institutions amounted to $3,719,030,000 in this five-year period. These allocations included about 5,100 grants to approximately 405 unique institutions. Whereas 405 unique institutions were included within the population of those receiving the largest portion of EHR's funding, there was potential for there to be 1,000 if each institution was among the top 200 most awarded just once across the five-year period. This realization contributed to inquiries regarding who comprised this elite group and whether any trends emerged.

Of the top awarded institutions, about one in eight were two-year colleges, two in eight were private four-year colleges and universities, and six in eight were public four-year colleges and universities. About one-fourth are designated as an MSI and one-third are R1 institutions. An observation was when there are institutions of diverse types receiving funding (or inclusion of non-majority or lesser resourced institutions), there are still differences in the levels of funding between two-year and four-year, MSI and non-MSI, and R1 and non-R1 institutions, wherein individual award amounts are more substantial for the high-resourced groups.



HEI identified that 18% of institutions among the top 200 most awarded made the list five times in this five-year period, meaning nearly one-fifth of these institutions received the highest award dollars every single year from FY 2016–2020. About 12% were among the top funded four out of the last five years. Looking at this from a different perspective, 44% of institutions were among the top 200 most awarded institutions three or more times within this last five-year period.

YEARS INSTITUTIONS IN TOP 200



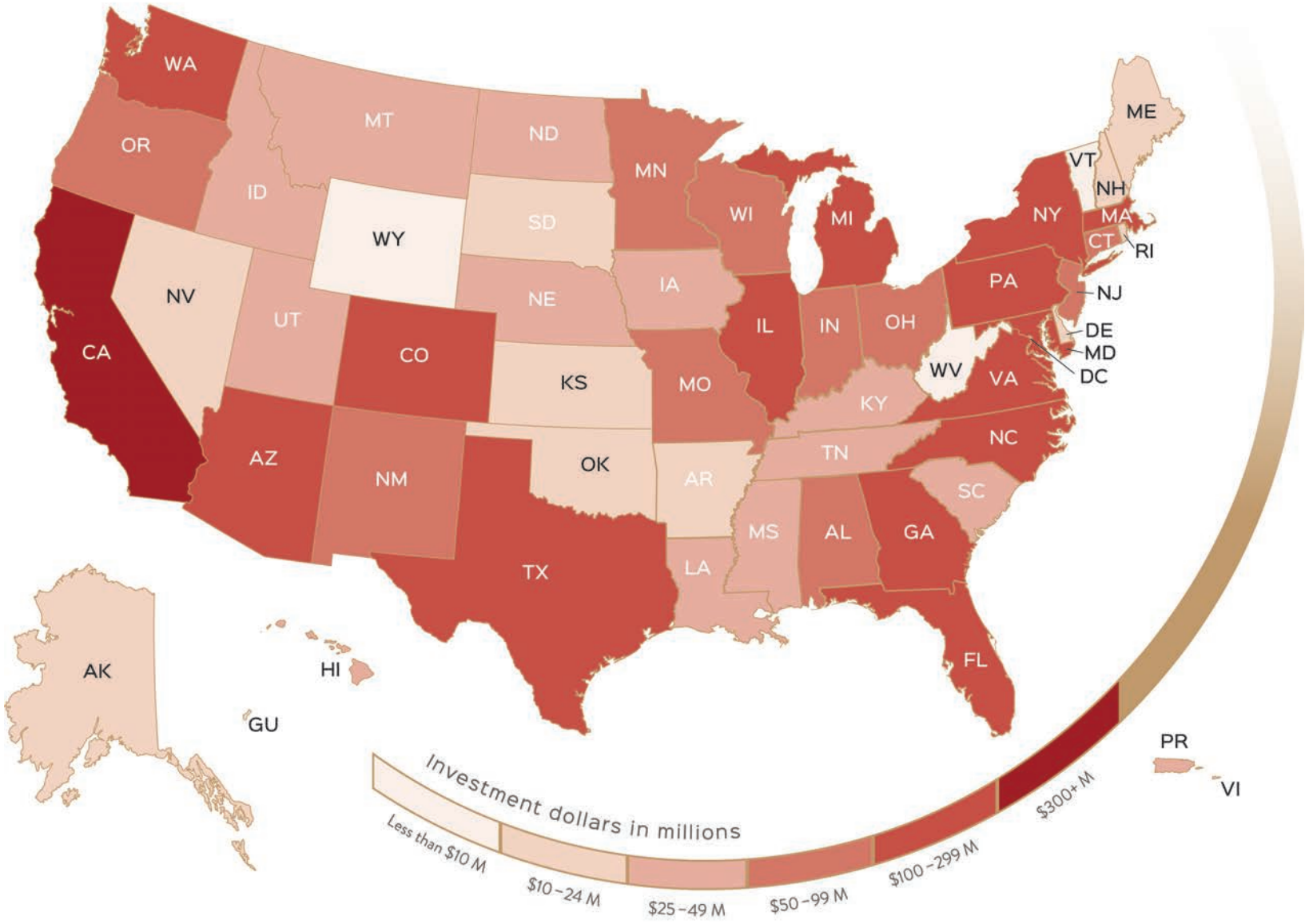
This trend of the same organizations being furnished with abundant financial resources is observed across sectors and organizations. This convergence of recipients is a recurrent theme in private philanthropy and federal spaces; this disparity exists landscape-wide. This results in a replication of power and reinforcement of inequities. This pattern highlights the imperative for funders to not only invest in DEI STEM initiatives but to also examine equity and inclusion in grantmaking processes. Part of that reflective process requires grantmakers asking, *Do my internal grant-making efforts foster equitable access to and distribution of opportunities and resources? Or, am I creating, perpetuating, and upholding unjust systems?*

Geographic Distribution of EHR Funding by State

Researchers examined EHR data on the number of awards and amount of funding provided to universities by state. In this context, NSF defined universities as "academic institutions of higher education regardless of accreditation status, that offer at least two years of college-level studies in residence." Upon analysis, similar funding trends to philanthropic investments emerged regarding geographical distributions of EHR awarded funding. Specifically, funding is most prevalent along the coastal regions where most coastal states received $100M or more in investments. The top most funded states include California at a substantial $615M, followed by New York at $279M, Texas at $259M, Massachusetts at $243M, North Carolina at $208M, and Illinois at $203M. In contrast, Wyoming, West Virginia, and Vermont received less than $10M.

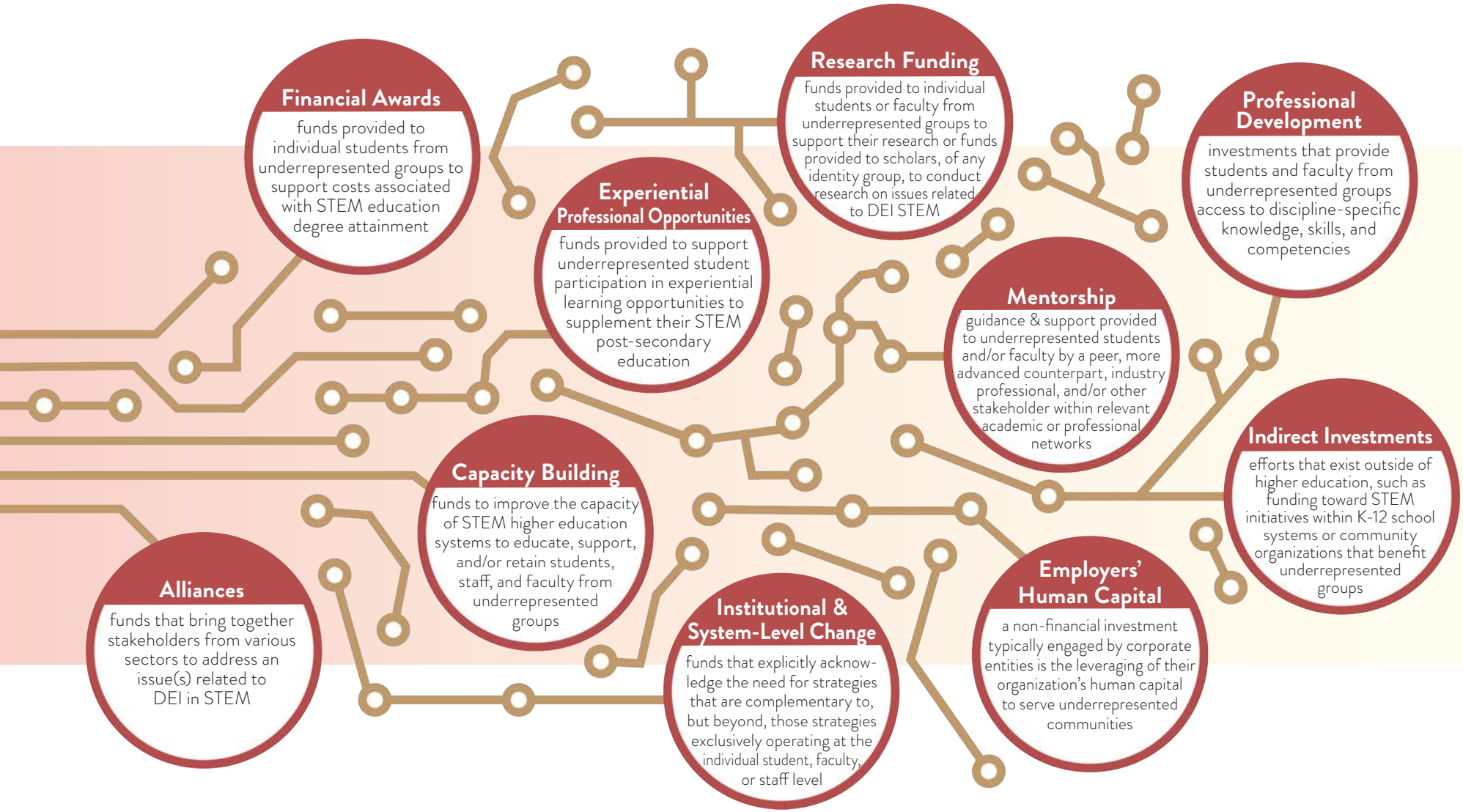
The following map demonstrates geographical distribution of awards based on recipients' locations.

NSF EDUCATION AND HUMAN RESOURCES INVESTMENTS 2016-2021



Investment Types

The ways funders leverage their investments to improve DEI in STEM education reflect diverse funder foci, DEI framing, and DEI lenses that exist across the landscape. This section categorizes the types of investments we identified, grouping similar investment efforts together to represent a category of funding. Each of these categories of investment are defined below along with examples of investments inherent to these categories to offer insight into how funders direct their resources toward improving DEI in STEM education.



We do not discuss the frequency with which these investment types are implemented across funders, as the feasibility of representing approaches quantitatively is limited given substantial differences in funding administration (e.g., single vs. multi-year awards; individuals, institutions, or collaboratives as awardees), levels (e.g., funding amount), and focus (e.g., activities comprising a single award) within and across organizations and sectors. Instead, we present the diverse funder investment methods, which demonstrate funders' broader investment practices. The majority of the investments identified were focused on the individual level (e.g., financial awards, research, mentorship, professional development, department), whereas a minority were focused on the institutional and/or systems level (e.g., alliances, capacity building, institutionalization)—a gap that is discussed in later sections of this report. Moreover, investments to increase or improve DEI in STEM higher education largely centered race/ethnicity and gender. While there were funding efforts aimed at other areas of diversity such as geography (e.g., urban or rural locales, underserved or under-resourced communities and neighborhoods), sexuality and gender expression, and ability, funding overwhelmingly tended to be geared toward women and people of color underrepresented in STEM.

Although we present the investment categories discreetly for clarity, we often found that multiple investment types were a part of a funder's initiative. For example, mentorship was provided as a component of an internship experience; or research funding might include additional funding to attend an annual conference.

Financial Awards

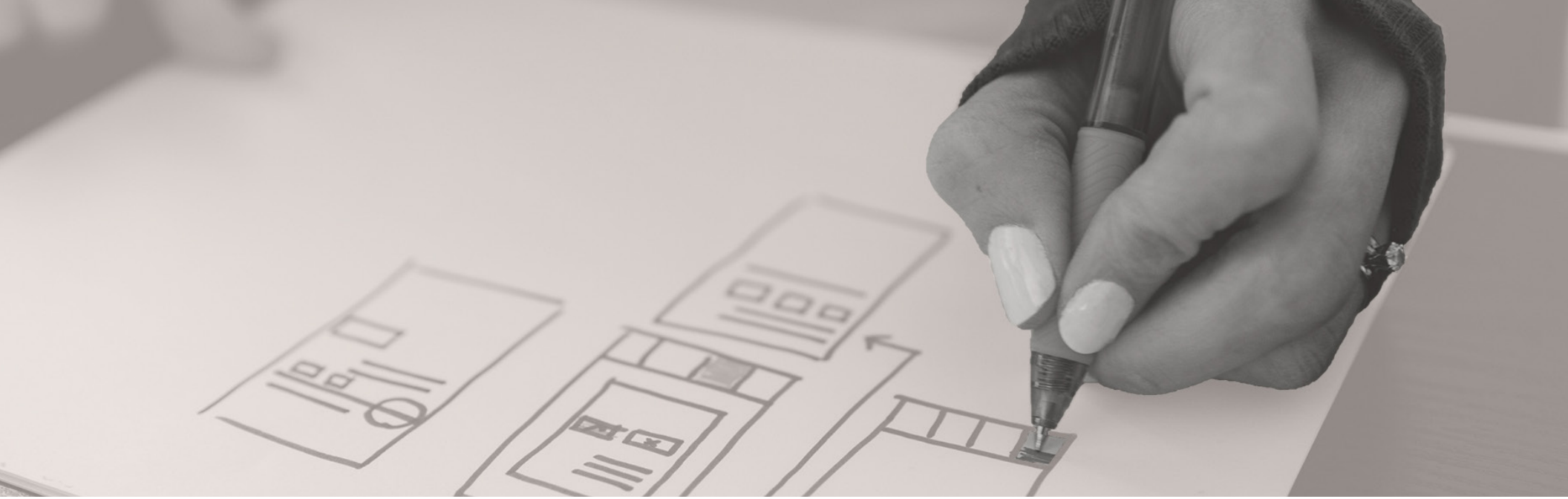
These funds are provided to individual students from underrepresented groups to support costs associated with STEM education degree attainment. Examples of these awards include scholarships, fellowships, assistantships, or other forms of individual funding. The amount, duration, and giving criteria of financial support varies across individual financial awards. In some cases, an institution of higher education will serve as the intermediary and distributor of awards. Lastly, some funders work with external organizations that have relationships with the student groups that funders endeavor to invest in, as a means of identifying and recruiting students for these awards.

The A. James & Alice B. Clark Foundation's A. James Clark Scholars Program at eleven of the nation's top engineering institutions, support students with financial need who exhibit strong academic and leadership potential through engineering scholarships.

Experiential Professional Opportunities

These funds are provided to support the participation of underrepresented groups' participation in experiential learning opportunities to supplement their STEM post-secondary education. The primary examples of this funding type are internships and apprenticeships, which have a workplace/job component. Since many STEM degree earners go into industry, these experiences are critical to not only help students develop important professional skills but also to expose them to potential jobs. Many internships and apprenticeships were not designed explicitly for underrepresented students, however, we include them here when outreach efforts exist to diversify the pipeline of students recruited to and matriculated into these programs.

The EPP/MSI Undergraduate Scholarship provides funds for two years of undergraduate study to rising junior undergraduate students attending MSIs and majoring in STEM fields that directly support NOAA's mission. Participants conduct research at a NOAA facility during two paid summer internships.



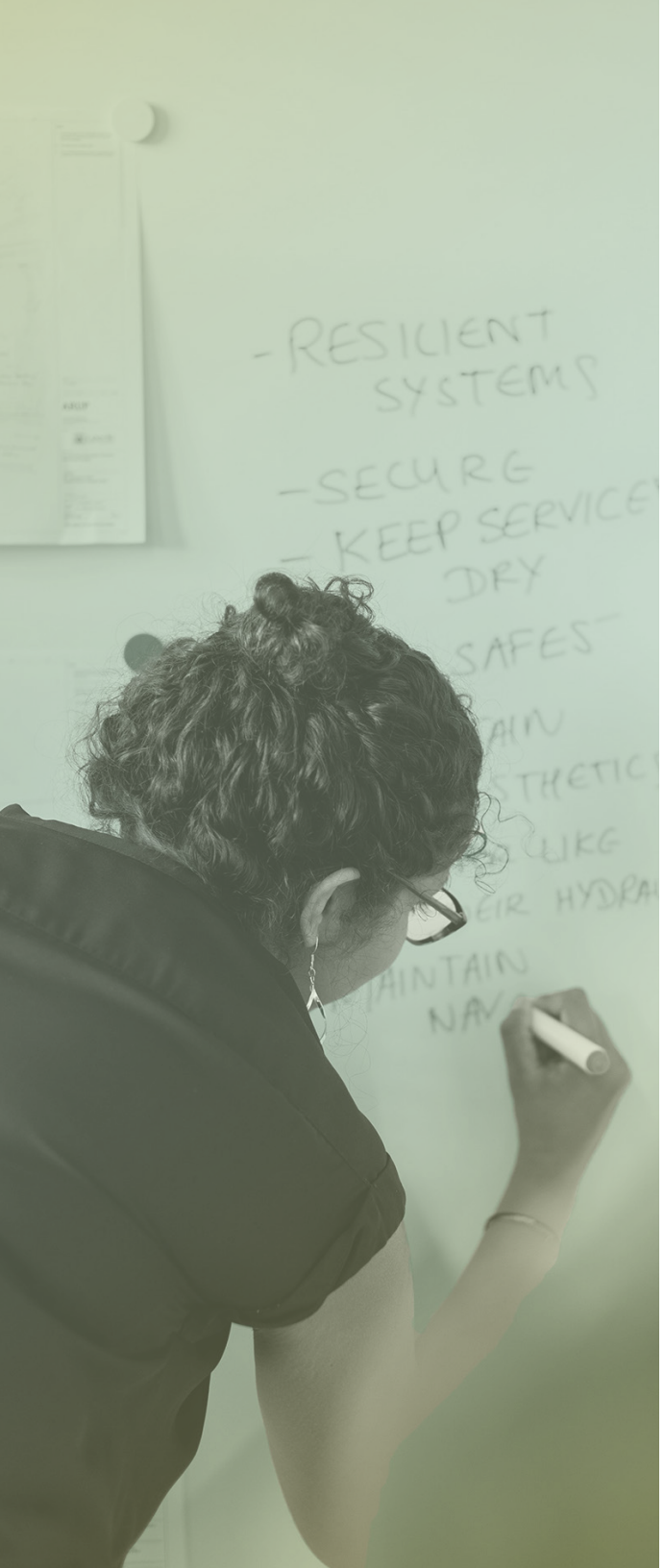
Research Funding

This investment type exists in two forms. The first is funding support for students and faculty from underrepresented groups to conduct research. This form of investment addresses the disparity where underrepresented students and faculty often do not have the same access to research experiences and/or funding to support research activities as their White, male counterparts.

MUREP Institutional Research Opportunity (MIRO) was established to strengthen and develop the research capacity and infrastructure of MSIs in areas of strategic importance and value to NASA's mission and national priorities. One of the funding goals is to strengthen participation of faculty, researchers, and students at MSIs in the research programs of NASA's mission directorates.

The second form of research investment is funds provided to scholars, of any identity group, to conduct research on issues related to DEI in STEM. Similar to the first form's attempt to address inequitable funding in research, this model addresses the relatively low level of funding provided for researching issues related to DEI STEM.

Henry Luce Foundation supported the National Academies of Sciences, Engineering, and Medicine's research and report examining the prevalence and impact of sexual harassment in academia on the career advancement of women in the scientific, technical, and medical workforce. This investment was intended to support the transformation of the STEM ecosystem to be more equitable, diverse, and inclusive.



Mentorship

This form of investment rarely exists alone but instead is typically combined with another form of investment. In this context, underrepresented students and/or faculty are paired with a peer, more advanced counterpart, industry professional, and/or other stakeholder within relevant academic or professional networks. Mentorship can help students and faculty from underrepresented groups manage challenges such as isolation, culture shock, racism, and/or sexism, among others. Mentorship can also aid in cultivating positive identity, efficacy, and a sense of belonging. The idea is that a person(s) who is familiar with the environment or system that students and/or faculty are navigating can provide personal, social, or professional supports, like helping to identify resources, providing a safe space to discuss concerns, or aiding in the development of a path or plan for academic or career success. Rarely was it a requirement that the mentor and mentee share the same identity, a point that might be attributed to the lack of gender and racial/ethnic diversity in STEM.

The Jack Kent Cooke Foundation is sponsoring the American Indian Science and Engineering Society's (AISES's) Full-Circle Mentorship Program, a year-long mentorship program that is a first-come, first-served program made available to AISES members, i.e., college students and early careers professionals (eligible to be mentees) and early career and later professional (eligible to be mentors).

Professional Development

These are investments that provide students and faculty from underrepresented groups access to discipline-specific knowledge, skills, and competencies. Professional development investments are often offered to college and university stakeholders who desire to strengthen DEI understandings and practices within educational institutions (i.e., from both underrepresented and overrepresented groups). Professional development opportunities are offered through various methods such as conferences, trainings, webinars, workshops, and residencies.

Heising-Simons Foundation funds MIT's Rising Stars in Physics program, a series of annual two-day academic career workshops for young women physicists that bring together top graduate students and postdoctoral researchers for scientific discussions and informal sessions aimed at navigating the hiring process and the early stages of an academic career.

Alliances

Alliances bring together stakeholders from various sectors to address an issue(s) related to DEI in STEM (e.g., underrepresentation of girls and women in STEM). Funders invest in these alliances and also, at times, participate as alliance members. Alliances may take the form of communities of practice, professional networks, institutional consortia, or cross-sector/discipline partnerships. The presence of alliances highlights the fact that issues related to DEI in STEM education involve multiple systems and benefit from aligning actors within and across sectors. Additionally, alliances allow funders to be a part of a larger investment footprint and presumably have a larger impact than they would as an individual investment source.

The American Indian Science & Engineering Society (AISES), the National Society of Black Engineers (NSBE), the Society of Hispanic Professional Engineers (SHPE,) and the Society of Women Engineers (SWE), the preeminent diversity engineering organizations (collectively serving more than 85,000 pre-collegiate, collegiate and professional members), formed a coalition focused on a bold national goal: to produce 50,000 diverse engineering graduates annually by 2025. The 50K Coalition receives financial support by numerous funders like United Engineering Foundation, NSF, and Shell Oil.

Capacity Building

This type of funding seeks to improve the capacity of STEM higher education systems to educate, support, and/or retain students, staff, and faculty from underrepresented groups. The approach of capacity building acknowledges the inadequacy of simply trying to get more individuals from underrepresented groups into STEM without addressing the culture of the institutions they are accessing. Some examples of this type of funding include curriculum development, sharing, or training; dissemination of promising pedagogical practices; supporting institution-specific recruitment and retention efforts; investments to improve research facilities and equipment at MSIs; and employee upskilling.

NSF's Tribal Colleges and Universities Program (TCUP) provides awards to Tribal Colleges and Universities, Alaska Native-serving institutions, and Native Hawaiian-serving institutions to promote high quality STEM education, research, and outreach; including for Instructional Capacity Excellence in TCUP Institutions (ICE-TI) projects. ICE-TI projects provide support to design, implement and assess comprehensive institutional improvements in the STEM instructional and research capacity in TCUP-eligible institutions of higher education.

Institutional and System-Level Change

This funding explicitly acknowledges the need for strategies that are complementary to, but go beyond, those strategies exclusively operating at the individual student, faculty, or staff levels. This investment type seeks to create more inclusive and/or equitable environments for students, staff, and faculty from underrepresented groups to learn and work. Due to its broad focus, investments aimed at institutional- and systems-level change typically require more resources to be invested and are more difficult to measure and assess impact.

The HHMI Driving Change (DC) initiative aims to drive genuine and lasting culture change on university campuses so that undergraduate students from all backgrounds, particularly those who belong to historically excluded groups, can excel in STEM and graduate from college well prepared to pursue advanced degrees and eventually assume leadership roles in STEM. This initiative encourages a comprehensive approach to culture change with three interlocking elements: (1) a robust framework to support student success in STEM, (2) a more inclusive STEM learning environment, and (3) a learning community of institutions.

Employers' Human Capital

A non-financial investment typically used by corporate entities is leveraging their organization's human capital to serve underrepresented communities. The size and geographic span of many companies mean that their employees are some of their most substantial resources. One way they often leverage such resources is by having employees serve as mentors, guest speakers, and/or in other volunteer roles within STEM education initiatives. This sharing of human capital gives underrepresented students, particularly young learners or novices to the field, exposure to the STEM workplace, workforce, and/or industry cultural norms. Additionally, employers contribute to STEM higher education by serving on workforce boards or industry advisory committees, helping STEM programs of study remain relevant and industry-aligned.

ExxonMobil partners with the Hispanic Heritage Foundation (HHF) for the Latinos On Fast Track (LOFT) program to provide STEM fellowships for Hispanic college students in STEM fields. A core part of the fellowship consists of five, one-hour meetings with a mentor who is an ExxonMobil engineer/scientist.

Indirect Investments

Indirect investments are those that exist outside of higher education, like funding toward STEM initiatives within K-12 school systems or community organizations that benefit underrepresented groups. While not explicitly within postsecondary contexts, these funding efforts often contribute to strengthening STEM pathways and pipelines, including supporting trajectories into and through higher education. We include these as forms of funding because with careful planning, these investment types can very easily be intentionally applied to diverse student and faculty populations. Such initiatives can include K-12 teacher recruitment and training (e.g., recruit teachers from STEM fields, training of pre-service teachers, enrichment programs in schools, in-service teacher professional development), K-12 early exposure programs (e.g., informal STEM learning via afterschool programs or summer camps), or STEM-oriented college connections and career planning supports (e.g., outreach to parents and families, exposure to education and career pathways).

The Intel Foundation launched the Million Girls Moonshot in 2020, in partnership with the Betty Moore Foundation and Charles Stewart Mott Foundation, to provide financial and in-kind support to a variety of organizations and initiatives with the goal of transforming STEM education pathways for girls, particularly for underserved and underrepresented youth.

Funder Investment Practices

In addition to how and the amount funders invest in DEI STEM pathways, HEI investigated the associated investment practices that align with a commitment to DEI. This section presents investment practices that reflect funders' commitments to DEI. It is not intended to be a representation of the entire field. In some instances, the practices discussed are representative of only a single or a few funders. The purpose of this section is to offer lessons on how funders might consider incorporating DEI into their own investment practices, based on the current approaches of their peers.

Assess and Address Organizational Culture

Continuously engage in the admittedly challenging process of determining whether policies, practices, and principles of the organization align with its DEI values. Funders are championing and building upon what is working while being transparent and consistent about improving what is not. Organizations can track employee diversity data (e.g., hiring and promotions), track grantee diversity data (e.g., geography of investments, leadership diversity among funding recipients), establish an anti-racism working group, create more open-solicitation funding opportunities, ensure diversity among closed-solicitation funding opportunities, or increase length of funding cycles.

Snapshots of Patterns in STEM Investment

DEI is often positioned as a single, unidimensional construct: Investments that center DEI in STEM higher education largely focus on increasing diverse representation; attention to components of equity or inclusion tends to be minimal.

Invest in Organizations with Strong DEI Records

Funders aren't just investing in issues related to DEI, they are also investing in organizations that can demonstrate a history of commitment to DEI (e.g., MSIs and organizations led by people of color and/or women). Through the application and/or selection process, request the following: a DEI statement; information related to organizational diversity, disaggregated by role; past examples of DEI efforts; and/or organization's proximity to individuals and communities that funders want to reach.

Decrease Administrative Burden and Increase Flexibility

Make it easier for recipients to do the work that the funder and receiving organizations care most about. Some funders are developing a common application for organizations that significantly decrease the need to recreate similar application materials for participating funders. Others allow for audio or visual reports, as opposed to more labor-intensive written narratives that are rarely reviewed in full. Be flexible in assessment practices by co-creating measures of success/impact with recipients, understanding they may change if the funding is multi-year. These measures can require additional administrative labor from the funder, in both establishing and maintaining these processes.

K-12 emphasis: Funding for STEM diversity is heavily invested at the K-12 level. As the level of education increases from K-12 to undergraduate education to graduate education, the funding for STEM diversity decreases. Even when investments are made to institutions of higher education, often the foci of the initiatives are on K-12 stakeholders and contexts

Impacts, Successes, and Opportunities for Improvement

As part of this environmental scan, researchers sought to understand funders' perceptions of investment impact, where they experienced greatest grantmaking successes, and what they recognized as opportunities for improvement. The following sections elaborate on their reflections.

Assessment of Outcomes and Impacts

While most of the grantmakers interviewed had not conducted a formal evaluation of the programs and initiatives their investments supported, they did share the different ways they assessed outcomes and impacts. The patterns that emerged are as follows:

- In addition to anecdotal evidence from investment recipients, funders gathered evidence using one or more of these traditional methods: focus groups, surveys, document analysis, formal program evaluations, student self-reports, and grantee reporting.
- The primary method for measuring outcomes and impacts was a **simple count**. This data collection included, for example, the number of scholarships awarded, number of recipients touched by funding, number of minority-led organizations invested in, or number of grants awarded. For investments targeted at the student level, for instance, impact would be quantified using measures such as student enrollment, graduation rates, persistence rates, and GPA, as well as student demographic information.
- Though outcomes are primarily understood and reflected quantitatively, some funders recognized the value in measuring outcomes qualitatively, especially within the context of DEI. For example, for those initiatives that built partnerships/alliances across multiple organizations, another form of data came from evidence of **cross-organizational learning and collaboration.**
- Some challenges in assessment include the need for more systematic evaluation practices, the need to use data to make decisions about future investments, the difficult nature of measuring education investments given the number of variables, and the difficulty of measuring or understanding impact when it is often outside the funding period.

Vague diversity commitment:
Opportunities at the graduate and/or faculty levels often use vague language, including phrasing such as "HBCUs and Minority Institutions [or some other minoritized population] are encouraged to submit proposals; however, no portion of this Funding Opportunity Announcement will be set aside for HBCU or MI participation." This verbiage is often the extent to which DEI is represented in many significant funding opportunities across sectors. While the DEI emphasis is very limited (lacking both explicitness and intentionality), many entities use this type of language to demonstrate that they consider DEI in their grant-making.

Funder-identified Areas of Success

Funders within **private philanthropy** offered insights on what they perceived to be the greatest successes of their investments. These are not illustrations of direct outcomes or impacts of investments, but rather are demonstrations of where and/or how they've done well during grantmaking. These descriptions of perceived success fall into five categories: increasing STEM access for underrepresented groups, building multi-sector partnerships, having a unique and/or early impact, leveraging investments to generate more investments, and having a broad impact in terms of number of people engaged.

- Unsurprisingly, one of the most consistent ways foundations described success of their investments was **increasing diversity in STEM education**, particularly for underrepresented groups within STEM. Examples include increasing STEM faculty of color through professional development and network building efforts or increasing women undergraduate students pursuing STEM degrees through scholarships.

- Second, while investments may have been provided to one organization, some foundations found it necessary to build partnerships in order to maximize the investment's success. This bridge building speaks to the interconnected nature of STEM education, an endeavor that involves business, government, other foundations, and community organizations. With that realization, one way foundations described success was through their ability to **build multi-sector partnerships** that engaged partners in increasing the visibility of a particular issue or initiative and (re)designing their own efforts to align with those of other partnership members.

- Foundations, especially foundation boards, appeared to value having an **early and/or unique impact** as a result of their foundation's investments. The foundations sought to be early investors in organizations or

Professional associations are core influencers: Professional societies and associations (e.g., Committee on the Status of Minority Groups in the Economics Profession) use the most explicit language in describing efforts to increase STEM diversity at the higher education level, making them a significant influencer in the DEI space.

invest in areas that other foundations aren't invested in, giving them an opportunity for a disproportionate impact.

- Although foundations wanted to have an early and/or unique impact through their investments, they did not always desire to be the only investors. Some believed they were successful when they were able to use their investments to attract other investors. In other words, **leveraging their investments to generate more resources**, when achieved, was considered a great success.

Within the **federal space**, areas of identified grantmaking success included commitment to the organization's DEI mission, development and scaling of alliances, longevity of programs and initiatives, and investments in MSIs.

- Federal funders described a major success as having **programs that are directly aligned with their DEI mission**. They articulated how their agencies have staff with substantial expertise around developing programming intended to advance DEI. This robust expertise is cultivated through the engagement and contribution of both internal and external stakeholders. Such rich knowledge sets and mission-aligned programming have aided the realization of success at varying levels (e.g., short-term, intermediate, and long term; programs, institutions, and society; education and workforce systems).
- Federal organizations discussed pride in their **investment in alliances**. Not only do these initiatives support collaborations among numerous, varied partners and networks (a success in itself), but the alliances themselves have grown in scale exponentially, including increases in member stakeholders and extensions across states and geographical regions.
- Other federal funders highlighted the **duration of DEI-focused programs, departments, and divisions within their agencies** (with many initiatives having been established for numerous decades), describing how such longevity was a success worth celebrating.
- Federal funders spoke highly of their **direct investments into MSIs**. In fact, those initiatives were most often identified as areas of greatest success. They discussed development of and growth in STEM programs and offerings at MSIs as being a valued accomplishment not only for the institution but also for promoting social and economic autonomy among the underrepresented populations they serve.

Cultural and social capital of intermediaries: One of the many assets of gender-, race-, or other identity-based intermediaries and influencers is their robust cultural understanding and social belonging to the groups they serve. Their connections to communities of interest allow for the cultivation of symbiotic relationships.

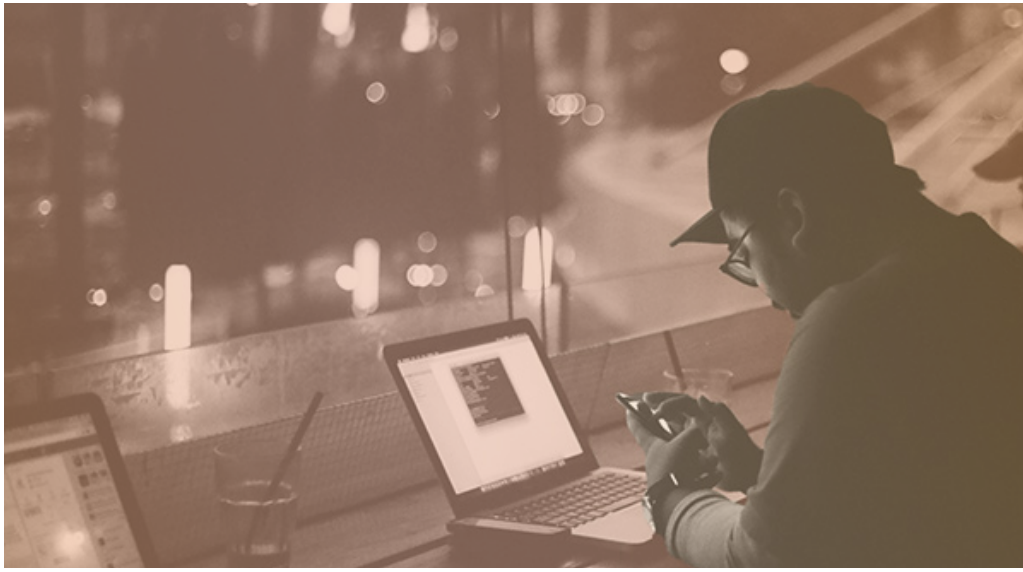
DEI in graduate STEM investments comprise three different streams: Investments appear to be *infrastructural/programmatic* enhancements within institutions (e.g., facilities, curriculum, programming), *research* for scientific knowledge advancement, and support or development of *people* (e.g., scholarships, fellowships, mentorship). The most common investments in STEM DEI at the graduate level are internships and fellowships.

Funder-identified Opportunities for Improvement

While funders shared many successes, they also acknowledged opportunities for improvement, some of which are illustrated below.

- Be active in helping to make more people aware of opportunities available to them
- Equitably address the limited infrastructure of smaller and/or under-resourced institutions—without placing the onus of mitigating this disparity on these institutions
- Increase the number of awards given
- Communicate information more effectively and clearly via the organization's website
- Find people or organizations who might have great ideas for projects but don't submit proposals for funding
- Better promote project outcomes to more readily find and spotlight successes without the burden of sifting through long annual reports
- Have more intentional conversations with grantees to gauge and/or support their understanding of the importance of diversity
- Address the ongoing decrease of available demographic data, which is not being reported by proposal reviewers or principal investigators
- Share learnings about promising or best practices across the organization and/or broader community; otherwise, efforts can be siloed, deterring dissemination of knowledge within practical (i.e., non-scholarly) settings

Pooled resources for maximum investment impact: Exemplar program models strategically merge investments from multiple funders, thus supporting effective implementation and sustainability of interventions and innovations. As an illustration, the Fisk-Vanderbilt Bridge Program maximizes the prospect of investment impact by pooling resources from NASA, NSF Faculty Early Career Development (CAREER), and NSF Integrated Graduate Research Traineeship (IGERT) programs.



Gaps in DEI in STEM Higher Education Investments

This study endeavored to understand STEM DEI grantmaking practices and investment trends, as well as identify gaps that exist within this landscape. The following are gaps that emerged, organized by the following themes: (a) the manners with which DEI is framed, (b) grantmaking approaches and funding allocations, and (c) investment outcomes and impacts.

Gaps in Framing DEI

- Funding organizations often included a commitment to DEI in mission and vision statements but lacked a consistently applied DEI definition or framework that informed their grantmaking practices. When DEI is discussed, it is often positioned as a single, unidimensional construct that largely represents diversity in participation and not inclusion within environments or equity in systems and resources.
- The lack of definition or multidimensional constructs lead funders to oversimplify the incredibly diverse realities of the individuals and communities they invest in. For example, the experiences and needs of women in STEM are not only informed by their gender but also their race/ethnicity, socioeconomic status, and/or ability.
- Investments intended to improve gender DEI in STEM often only include women and girls, at the exclusion and expense of other marginalized gender identities.

Gaps in Grantmaking Approaches and Funding Allocations

- Funding opportunities often rely on social networks, to which people of color and/or institutions advocating for communities of color often have less access as compared to their White peers or primarily White institutional counterparts.

Grantee candidates shape the DEI landscape: While funders make opportunities available, potential grant recipients have demonstrated great power and influence in their use of investments to shape DEI in STEM higher education by proposing targeted research or programmatic innovations, even where funding opportunities and commitments are vague.

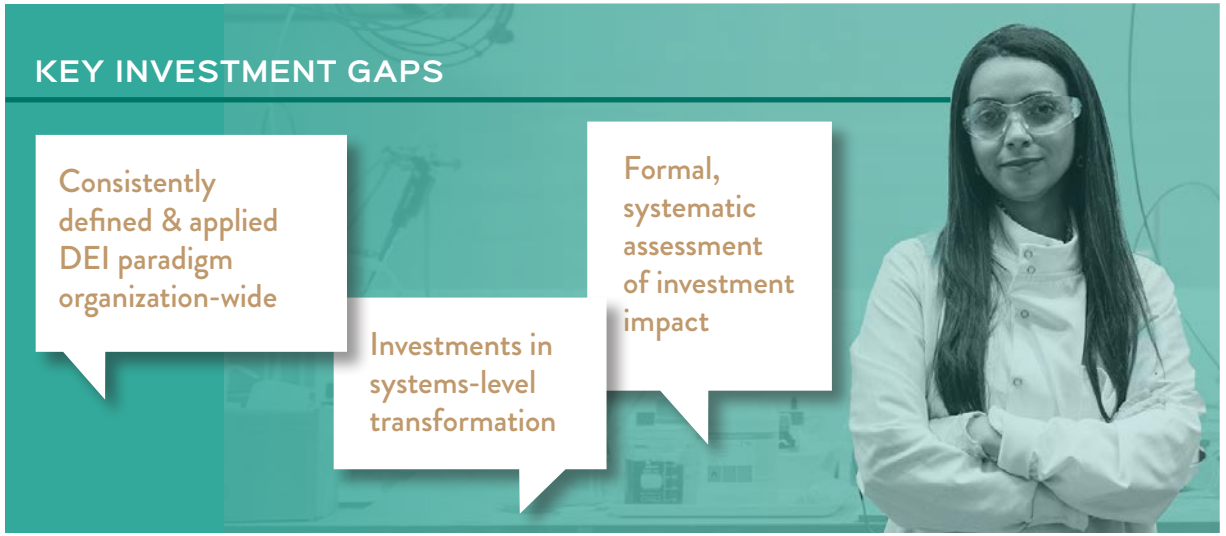
- Overwhelmingly, the same scholars and institutions are granted funding awards, perpetuating inequities related to access and opportunity in STEM higher education. These scholars come from, and the institutions themselves are, well-resourced public and private institutions. This repetition and lack of intentional effort to increase recipient diversity is prevalent across funders and exists whether funding opportunities are open to all or invite-only.
- Many funding decisions prioritize past scientific contributions and proven scientific impact, or privileges highly resourced, elite institutions with robust research capacity and infrastructure. This limits opportunities for new entry into, and increased diversity among, funding recipients.
- Funders often positioned their expectation of and commitment to scientific excellence as mutually exclusive from their intentional support for researchers of color, as if the two cannot co-exist. In particular, within many predominantly science-focused organizations, funders amplified the importance of valuing research and innovation

as a foundational principle to funding administration. This was the rationale for why there might still be disparity when examining who receives research support. Overwhelmingly, DEI, if and when considered, was secondary in these contexts. Such an argument amplifies biased cultural norms within STEM regarding who belongs, and therefore, who or what is deserving of funding. DEI is *fundamental* to scientific excellence.

- Not only are design and decision processes related to funding opportunities biased against underrepresented faculty of color in STEM, few opportunities exist explicitly for their professional and/or research development to account for already inequitable access to resources.
- Although many funders acknowledge the importance of race in their work and the broader national context, some demonstrate a lack of effort to understand the nuanced racial experiences of underrepresented and marginalized communities within STEM education, and specifically in society more broadly (e.g., Black, Latinx, and Indigenous populations).
- Most investments are provided at the individual level, i.e., scholarships, programs, research. There is a dearth of investments made to strategically impact systems-level change. Despite this lack of intentionality, systems-level transformation is an expected investment outcome.
- When investments are intentionally made at the systemic level, grantmaking practices are often misaligned with expectations for impact. Specifically, the level of funding is often insufficient and/or the time of funding is often too short for the realization of sustained, systemic change and transformation.

Gaps in Outcomes and Impacts

- In grant administrative practices and the implementation and outcomes of grantees' programming, gaps exist between funding intention/allocation and investment impact.
- Funders often can't speak concretely about investment impact outside of counting dollar amounts, grantees awarded, and other standard quantitative outcome metrics (e.g., enrollment, participation). There are often no formal mechanisms to comprehensively and/or systematically evaluate implications of funding, and limited, if any, application of DEI paradigms within assessment methodology.



Questions that Grantmakers Can Ask Themselves

Informed by interviews with the funding community as well as grantmakers from the DEI in STEM funder convening, the below set of questions can be used as a way to assess current investment priorities and practices, and plan for the future:

1

WHAT DO WE MEAN BY DEI?

The acronym "DEI" was used as a single, unidimensional construct, although each letter represents a distinct approach to addressing lack of representation, marginalization, and exclusion within STEM education.

Some funders have found it helpful to move beyond, or at times away from, "DEI" as a term to identify the highly contextual nature of their investments. Answering the question, "What do we mean by DEI" should lead funders to develop the language that is specific to their context and reflects the true nature of their investments. This allows them to identify what they have done, examine what they are currently doing, and inform future decisions.

2

WHAT DOES THE DIVERSITY OF OUR GRANTEE PORTFOLIO LOOK LIKE?

In addition to funding issues related to diversity, investments should be distributed among a diverse set of grantees/awardees. Investments are more than just the transfer of funds and also involve establishing and maintaining a relationship between organizations. These relationships grow over time and are often mutually beneficial. Without a diverse set of awardees, funders can unintentionally exclude potential grantees from the benefits of such relationships and unintentionally work against their own DEI investments and interests. Some frameworks that have been used to guide DEI efforts are anti-racism, allyship, and intersectionality.

3

HOW CONNECTED ARE THOSE WE FUND TO THE COMMUNITIES WE DESIRE TO IMPACT?

This question addresses the issue of proximity and can be directed toward investments at each level of change.

For investments to have greater impact, it is important to consider whether those receiving investments are best positioned, through authentic connection, to reach the communities that funders desire to reach. Proximity at the organizational level is not merely about geography, though that can be one component. It also has to do with the collective ways awardees have demonstrated a commitment to and capacity for effecting DEI in STEM higher education.

4

HOW DO WE COLLABORATE WITH OUR GRANTEES/AWARDEES?

Collaboration with grantees/awardees happens in many ways, the clearest being a collaboration to implement an agreed upon strategy that addresses an issue that the funder is passionate about. However, it can also look like working with grantees/awardees to collaboratively develop measures of success, to determine reporting mechanisms and frequencies, or to identify other ways to invest in the issue that was not previously known to the funder.

The key to reflecting on this question is ensuring that relationships are not static or unidirectional, and funders consider ways to learn from those they fund through partnership.

5

WHAT LEVEL OF CHANGE ARE WE INVESTING IN?

Three levels of investment rose to the top in our analysis: (1) individual, (2) programmatic, and (3) systemic. By reflecting on this question, funders can have a better sense of the impact they intend to have. It would not make sense to assume that there will be systems-level change though only investing at the individual or program levels. This does not mean that investments at the individual and/or program levels are not valuable or needed but rather that funders should be aware of the limitations of such investments and assess whether new funding should focus on a different domain. Organizations with strictly defined giving guidelines might consider how partnering with other funders could help to realize goals of interest currently outside allowable investment parameters.

6

HOW ARE WE LEVERAGING THE STRENGTHS OF THE BROADER FUNDER COMMUNITY?

Individual funders can leverage many strengths within the broader funder community. Actions might include reading impact reports commissioned by another funder, identifying the different ways funders invest in similar issues, collaborating to address a shared challenge, or pooling resources to have a larger impact. Issues surrounding DEI in STEM higher education are far beyond what any one funder can undertake, regardless of how large they are. The collective leveraging of the broader community's strengths is both necessary and tactically important.

Appendix A: Actionable DEI Investment Practices

1. **Define the lens of DEI through which you will engage in grantmaking.** Funders must be explicit about their paradigm of DEI and how it is applied to internal and external grantmaking efforts. Be intentional in your selection of language; operationalize it internally and communicate it within and outside your organization; and assure investment practices align. For instance, if your investments primarily focus on helping institutions increase STEM enrollment among diverse groups or increasing diverse learners' participation in STEM programming—wherein the goal is to grow or expand STEM representation—perhaps it would be more appropriate to frame your investment priorities from a lens of diversity specifically as opposed to DEI holistically.

2. **Ensure that grantmaking practices reflect the diversity of underrepresented groups.** Underrepresented groups are diverse, not monolithic. Amalgamating these populations into a single identity minimizes the differences in their experiences and might even contribute to disparities between or within groups if proper attention isn't given to each individually. Grantmaking and investment practices should reflect this understanding and assure that strategies adequately address each population's unique needs.

3. **Employ culturally responsive approaches.** Funders must increase their cultural awareness and competency and adopt and/or develop culturally responsive approaches to facilitate positive engagements with and support of diverse populations.

4. **Center race in grantmaking.** Ignoring race can perpetuate, exasperate, and/or create new racial disparities. Engage a more nuanced understanding of racially/ethnically diverse groups and consider the effects of social injustices and structural inequities on racially minoritized populations. Education is a significant lever for racial equity, and therefore, equitable access to educational opportunity must be catalyzed.

5. **Broaden sourcing pools to get a more diverse portfolio of grantees.** Philanthropies need to ensure that the inequities in social networks and prior/exclusionary grantmaking practices are not perpetuated in current grantmaking efforts, particularly as they relate to "invited/solicited/closed application" processes.

6. **Make certain that funding outreach permits equitable access to information and opportunity.** If your organization has a desire to be inclusive, reflect on how you are getting into contact with targeted groups. For example, if your primary contacts are members of your network, but they are exclusive of people of color and/or women, engaging only these constituents is not an effective approach to increase diversity/representation among those groups. Locate where populations of interest operate and devise strategies to successfully reach them.

7. **Directly name who or what you are funding.** Be explicit about the population(s) you are intending to serve and how that will be demonstrated through grantmaking. Coded or overloaded language conflates and/or mask intentions, minimizing the potential for meaningful impact.

8. **Be accountable to your social responsibility.** Funders must recognize the role they serve as gatekeepers of funding opportunity, and hold themselves accountable. The onus for work must not be placed solely, or largely, on the communities being served. Funders must actively shift responsibility from "if you want money, find us" to "we have money, and would like to invest in you, cultivate positive relationships, and build trust."

9. **Move from awareness to action.** Federal, philanthropic, and corporate entities have demonstrated increased attention to issues of DEI, in some cases identifying inadequacies in current DEI practices. However, most seem to be stagnant at an awareness stage; greater movement toward action is needed for advancement in STEM DEI.

10. **Support capacity building at under-resourced institutions.** Funders have acknowledged the different levels of resources available within and accessible to different types of institutions, a disparity that has strong implications for award competitiveness. Funders must directly address these disparities by supporting institutional capacity building at MSIs and under-resourced institutions instead of allowing inequities to widen when these colleges and universities experience challenges meeting standards established within merit-review processes.

11. **Acknowledge, value, and support the people moving internal DEI efforts forward.** DEI work, while imperative and rewarding, can be arduous, laborious, and exhausting. Discussions often center organizations' practices in this space; however, it must not be forgotten or minimized that real people are doing the work. Moreover, the experience of being grantmakers in DEI is not a singular one and might, in fact, be more taxing on grantmakers who themselves are from marginalized identities and backgrounds. Consider the reality of lived experience, distribution of effort, and culture of grantmaking environments and spaces during organizational strides toward advancing DEI imperatives.

12. **Be prepared to confront difficult issues.** Conversations about DEI will likely become uncomfortable for some; don't allow discomfort to stall or hinder progress. Create a space that embodies shared learning, mutual trust and respect, and inclusivity of people and perspectives.

13. **Identify opportunities for partnership with organizations that apply an equity or justice lens to their work.** DEI might not be an area of strong organizational expertise, especially for foundations that have historically focused on STEM. Partnerships among STEM philanthropies and DEI-focused organizations could mitigate this challenge. Philanthropies might seek technical assistance from adjacent philanthropic organizations centering advancement of DEI (e.g., ABFE on issues related to racial justice for Black communities).

14. **Leverage the social and human capital of intermediaries.** Partnering with identity-based intermediaries and influencers and leveraging the cultural understanding of individuals within these professional networks can aid private and corporate foundations in further strengthening their grantmaking practices. These partnerships can also support the expansion of funders' grantee networks to include diverse populations of interest.

Appendix B: DEI in STEM Higher Education Investments Information Tables

The following tables depict additional information regarding the landscape of DEI in STEM higher education investment, organized by major actors—federally funded agencies, departments of education, and national security and defense entities. Information illustrated includes disciplinary focus (i.e., STEM focus or Open to STEM), DEI focus (i.e., representation for numerical diversity or diversity+ for efforts extending beyond representational diversity), DEI emphasis, education level, investment focus, and investment amount. Data displayed within these tables were sourced from publicly available information on organizational websites. Investment types and amounts by private foundations and corporate philanthropy were not easily disaggregated by each of these variables based on public-facing information, thus these two sectors have been excluded from the below tables. *(See Appendix C for definitions of DEI within STEM higher education investments table terms.)*

TABLE 1: Federally Funded STEM Agencies

	DEI EMPHASIS	EDUCATION LEVEL	INVESTMENT FOCUS	INVESTMENT (IN MILLIONS)
NSF				
Education and Human Resources Directorate ■■	DEI in participation	Undergraduate, Master's, Graduate, Doctoral/Post-Doc/Faculty	Infrastructural or programmatic enhancements, Research advancement, Support/development for people	$940.0
Racial Equity in STEM Education (EHR Racial Equity) ■■	DEI in research, DEI in participation	Undergraduate, Graduate	Infrastructural or programmatic enhancements, Research advancement, Support/development for people	—
Graduate Research Fellowship Program (GRFP) ■■	DEI in participation	Undergraduate, Master's, Graduate, Doctoral/Post-Doc/Faculty	Infrastructural or programmatic enhancements	~
Cyberinfrastructure for Sustained Scientific Innovation (CSSI) ■■	DEI in participation	Undergraduate, Master's, Graduate, Doctoral/Post-Doc/Faculty	Infrastructural or programmatic enhancements, Research advancement, Support/development for people	$ 33.0
ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) ■■	DEI in participation	Doctoral/Post-Doc/Faculty	Infrastructural or programmatic enhancements, Support/development for people	$ 29.0
Innovations in Graduate Education (IGE) Program ■■	DEI in participation	Graduate	Infrastructural or programmatic enhancements	$ 4.0
Improving Undergraduate STEM Education: Pathways into the Earth, Ocean, Polar and Atmospheric & Geospace Sciences (IUSE: GEOPAths) ■■	DEI in participation	Undergraduate, Graduate	Infrastructural or programmatic enhancements	$ 6.0
Louis Stokes Alliances for Minority Participation (LSAMP) ■■	DEI in participation	Undergraduate, Master's, Graduate, Doctoral/Post-Doc/Faculty	Infrastructural or programmatic enhancements	$ 10.0

■ STEM focus ■ Diversity+
■ Open to STEM ■ Representation

DEI in research
DEI in participation

Undergraduate
Master's
Graduate
Doctoral/Post-Doc/Faculty

Infrastructural or programmatic enhancements
Research advancement
Support/development for people

~ Investment < $1M
— Not publicly available

	DEI EMPHASIS	EDUCATION LEVEL	INVESTMENT FOCUS	INVESTMENT (IN MILLIONS)
Centers of Research Excellence in Science and Technology (CREST)				$ 19.3
Tribal Colleges and Universities Program (TCUP)				$ 10.3
Alliances for Graduate Education and the Professoriate (AGEP)				$ 12.1
Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES)				$ 3.0
EHR Core Research: Building Capacity in STEM Education Research (ECR: BCSER)				$ 12.0
NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)				$ 115.0
EPSCoR Research Infrastructure Improvement				$ 10.5
Faculty Early Career Development Program (CAREER)				$250.0
Robert Noyce Teacher Scholarship Program (Noyce)				$ 67.0
EHR Core Research (ECR)				$ 35.0
Accelerating Discovery: Educating the Future STEM Workforce (AD)				—
National Research Traineeship (NRT)				$ 55.0
Historically Black Colleges and Universities—Excellence in Research (HBCU-EiR)				$ 10.0
GEO Opportunities for Leadership in Diversity (GOLD)				$ 2.0
SBE Doctoral Dissertation Research Improvement Grants				$ 2.5
Broadening Participation in STEM Faculty: A Program to support the Diversity Initiative for Tenure in Economics (DITE)				—
DOE				
Department of Energy: Office of Science				$6,600.0*

STEM focus
Open to STEM
Diversity+
Representation
DEI in research
DEI in participation
Undergraduate
Master's
Graduate
Doctoral/ Post-Doc/ Faculty
Infrastructural or programmatic enhancements
Research advancement
Support/development for people
— Not publicly available
* Organization-/ Department-wide funding

	DEI EMPHASIS	EDUCATION LEVEL	INVESTMENT FOCUS	INVESTMENT (IN MILLIONS)
NIH				
National Institutes of Health				—
NASA				
Minority University Research and Education Project (MUREP)				$ 36.0
NOAA				
National Oceanic and Atmospheric Administration: Jose E. Serrano Educational Partnership Program with Minority Serving Institutions				$ 33.0
USDA				
National Institute of Food and Agriculture				$998.0*

STEM focus
Open to STEM
Diversity+
Representation
DEI in research
DEI in participation
Undergraduate
Master's
Graduate
Doctoral/ Post-Doc/ Faculty
Infrastructural or programmatic enhancements
Research advancement
Support/development for people
— Not publicly available
* Organization-/ Department-wide funding

TABLE 2: Department of Education

	DEI EMPHASIS	EDUCATION LEVEL	INVESTMENT FOCUS	INVESTMENT (IN MILLIONS)
Hispanic Serving Institutions-Science, Technology, Engineering, or Mathematics and Articulations Program (HSI STEM)				$ 94.9
Ronald E. McNair Postbaccalaureate Achievement Program				$ 50.0
Master's Degree Programs at Historically Black Colleges and Universities				$ 8.4
Minority Science and Engineering Improvement Program (MSEIP)				$ 9.7
Title III Part B, Strengthening Historically Black Graduate Institutions Program				$323.9
Career and Technical Education (CTE)				—
Collegiate Science and Technology Entry Program (CSTEP)				$ 12.0

STEM focus
Open to STEM
Diversity+
Representation
DEI in research
DEI in participation
Undergraduate
Master's
Graduate
Doctoral/ Post-Doc/ Faculty
Infrastructural or programmatic enhancements
Research advancement
Support/development for people
— Not publicly available

TABLE 3: National Security and Defense

	DEI EMPHASIS	EDUCATION LEVEL	INVESTMENT FOCUS	INVESTMENT (IN MILLIONS)
Department of the Navy: Historically Black Colleges and Universities/Minority Institutions Program				$ 1.4
Department of Homeland Security: Minority Serving Institutions Program				—
Air Force Research Laboratory: Future Scholars for Science, Technology, Engineering, and Mathematics Workforce Development Programs				$ 50.0
Department of the Navy: Science, Technology, Engineering & Mathematics Education and Workforce Program				$ 29.0
Department of Defense: Research and Education Program for Historically Black Colleges and Universities and Minority-Serving Institutions				$ 25.0
Air Force Research Lab: Diverse Collegiate Research and Development Collaboration Program				$ 2.4
National Security Agency: OnRamp II Program				$ 10.0
Department of Homeland Security: Summer Research Team Program for Minority Serving Institutions				—

STEM focus
Open to STEM
Diversity+
Representation
DEI in research
DEI in participation
Undergraduate
Master's
Graduate
Doctoral/ Post-Doc/ Faculty
Infrastructural or programmatic enhancements
Research advancement
Support/development for people
— Not publicly available

Appendix C: Definitions of DEI within STEM Higher Education Investments Table Terms

The following are definitions related to Investments in DEI within STEM Higher Education Pathways.

Disciplinary Focus

- STEM Focus: Investments that are focused exclusively on postsecondary students and faculty within the STEM disciplines.
- Open to STEM: Investments that are not exclusive to higher education students or faculty from STEM disciplines; however, these opportunities are open to these STEM stakeholders in addition to postsecondary students and faculty from broader disciplinary fields of study.

DEI Focus

- Representation: Investment efforts intended to increase representational or numerical diversity among postsecondary students and faculty from groups underrepresented in STEM.
- Diversity+: Investment efforts that extend beyond increasing representational diversity within STEM higher education. While all investments included within these tables address diversity at a minimum, initiatives characterized as being Diversity+ also intentionally address issues of equity and/or inclusion (e.g., dismantling systemic disparities, facilitating equitable access to opportunity and realization of outcomes, cultivating positive sense of belonging).

DEI Emphasis

- DEI in Research: Investments that support research addressing issues of DEI in STEM. DEI is represented in research content.
- DEI in Participation: Investments that support the participation of postsecondary students or faculty from historically excluded identities within STEM.

Education Level

- Undergraduate: Investments that support STEM learners at the undergraduate level.
- Master's: Investments that support STEM learners at the master's level.
- Graduate: Investments that support STEM learners at the graduate level.
- Doctoral/Post-Doc/Faculty: Investments that support doctoral students, post-docs, and/or faculty within STEM.

Investment Focus

- Infrastructural or programmatic enhancements: Investments that support infrastructural (e.g., facilities or equipment; policies, procedures, or structures; culture or climate) or programmatic (e.g., program offerings, curriculum and instruction, learning environments) development or enrichment within higher education institutions.
- Research advancement: Investments that support scientific knowledge development.
- Support/development for people: Investments that support student or faculty development (e.g., mentorship, training), provide them with financial resources (e.g., scholarships, fellowships, stipends), or otherwise facilitate their participation in STEM.