Southwest Equity and Excellence Summit

Hosted by Arizona State University
November 3, 2023 | 1:00 pm - 5:00 pm

Workshop Summary and Readout

The STEMM Opportunity Alliance and its host Arizona State University (ASU) hosted the Southwest STEMM Equity and Excellence Summit of 2023 in Tempe, Arizona, as a platform for dialogue on advancing equity in the STEMM ecosystem. Attendees heard from industry and academic leaders, participated in in-depth group dialogues, and experienced ASU's Dreamscape Learn – a collaborative program with Dreamscape Immersive that combines advanced pedagogy with effective storytelling to redefine teaching and learning. The summit culminated with breakout sessions that allowed guests to design community led-efforts to address needs and opportunities in their region aligned with the National Strategy for Equity and Excellence.

Plenary Session 1:
Attendees heard from leaders advancing diversity, equity, and inclusion in the STEMM ecosystem. The session included a keynote address centered around the importance of diversifying and increasing the workforce to meet economic needs as well as virtual remarks from Tempe's sitting member of Congress.

Welcome and Opening Remarks
- *Jacqueline Smith, Senior Vice President, Arizona State University,* opened the event by welcoming guests, and taking note of the various identities, regions, and organizations in attendance – with representatives from across K-12 education, higher education, industry, non-profits, and the philanthropy sectors. She shared a short video acknowledging the land on which Arizona State University sits and the tribes to whom that land originally belonged.

- *Dr. Michael Crow, President, Arizona State University,* highlighted the work that ASU has undertaken over the past 20 years to become a more inclusive and supportive institution for individuals from all backgrounds pursuing STEMM degrees. He noted that ASU re-evaluated its culture and took decisive action that supported its students and

taught STEMM courses in culturally relevant ways. Today, ASU has approximately 70,000 STEMM majors enrolled, compared to only 10,000 at the beginning of its campaign two decades ago. Crow then implored participants to embrace technology, a culture of accountability, and accept new considerations to solving problems. Such a shift in mindset, he argued, would help to boost innovation and welcome people from all backgrounds into the STEMM ecosystem. Crow finished by promising continued innovation at ASU, with equity firmly at the center.

- *Dr. Sudip Parikh, CEO, American Association for the Advancement of Science,* began his remarks by calling for a shift in the ways universities are measured. Presently, universities are measured by who they exclude, but in order to achieve greater success and spur innovation, they will need to place greater emphasis on who they include – a point of emphasis made as well by ASU. Parikh emphasized the need to think through systemic changes that will be imperative to advance to the next era of scientific achievement. SOA, he noted, serves as a vehicle through which these changes can be envisioned and achieved. SOA is taking a cathedral building approach that will demand the collaboration of and engagement with members of higher education to draft plans that will change the STEMM ecosystem forever. He announced SOA's newest [partners](#), bringing the Alliance to more than 150 organizations.
    - New SOA partners include: Albert Einstein Distinguished Educator Fellowship Program, the Association of American Universities, Boston Scientific, CreateMPLS, Data Research Institute, Design Connect Create, Great Minds in STEM, the Manufacturers Association, the Mexican American Opportunity Foundation, National Q-12 Education Partnership, New America, the National Postdoctoral Association, SACNAS, the Society for Science, SEDS USA, Texas Woman's University, and University Innovation Alliance.

<u>Virtual Remarks</u>
- *Congressman Greg Stanton, Arizona District 4,* began his remarks by praising institutions like ASU for their commitment to supporting the further development of STEMM industries. Rep. Stanton highlighted the ways in which the [CHIPS and Science Act](#), the [Inflation Reduction Act](#), and the [Bipartisan Infrastructure Law](#) will positively impact the southwest region – mentioning that more than $1.25 billion in investments was announced in the Phoenix area. With this increased investment, he noted, the demand for a skilled STEMM workforce will continue to rapidly grow. Stanton pointed out that STEMM fields will help the U.S. to solve its biggest problems, such as developing cures for diseases, compete in the modern space race, and make scientific leaps that will better enable us to understand the world in which we live. In order to make these advancements, he continued, equity must be prioritized. Individuals from all backgrounds should be empowered to create innovative solutions to the problems we face as a country. He called

on local, state, and federal governments to do their part in creating a more diverse and representative STEMM workforce that can rise to meet today's challenges.

<u>Keynote Address</u>
- *Russlyn Ali, CEO, XQ Institute,* began her address by thanking ASU for hosting the event and applauding the audience for their investment in the movement to diversify the American STEMM ecosystem. She charged the participants with undertaking the task of bringing STEMM education awareness to the frontlines of American social discourse. Ali noted that pervasive opportunity gaps exist that will only grow and pose a hindrance to economic growth given that, according to Bureau of Labor Statistics data, 15 of the 20 fastest growing occupations are within STEMM fields. To better meet needs, Ali said we must reassess how high school students are educated and exposed to STEMM. Educators, she noted, must be empowered to design student-centered learning experiences that integrate social, cognitive, and emotional learning and reach students where they are. Ali highlighted Emerson Collective's XQ Institute which has helped approximately 10,000 high school students redefine the vision of learning in a way that bridges the gap between practice and policy. Ali also highlighted Emerson Collective's Crosstown High which engaged local communities to design a schooling program that centered diversity and practicality. Ali finished her address by reiterating the importance of being comfortable with being uncomfortable when envisioning a new era of STEMM learning and education.

<u>STEMM Opportunity Alliance Goals and Work of the Day</u>
- *Travis York, Inclusive STEMM Ecosystems for Equity and Diversity, American Association for the Advancement of Science,* set the stage for the event's breakout conversations. He spoke about the draft National Strategy for STEMM Equity and Excellence, for which SOA has engaged more than 1,300 leaders around the country in an effort to co-create shared priorities. York outlined the strategy's structure and contents, and invited attendees to think critically about their own experiences while providing feedback in the breakout sessions.

Breakout Sessions

Attendees gathered together to workshop the draft National Strategy for STEMM Equity and Excellence with a particular eye towards implementation needs in the Southwest region. Participants were invited to highlight examples from their own work and relate it to the broader strategy, including to identify areas where new or expanded efforts may be needed to meet key progress goals.

<u>Breakout Session 1: Building and Sustaining Cross-Sector Partnerships</u>

Participants sat down to discuss the five pillars within the National Strategy through the lens of cross-sector collaborations and partnerships. The group discussed how partnerships could be leveraged to fulfill the goals laid out by the strategy and what work must be done in order to achieve them.

Defining Success:
Participants were encouraged to visualize what success would look like if the National Strategy were implemented in their region or sector, with an eye toward the role of cross-sector partnerships in that success. Key themes and discussion points included:

- At the individual, local, regional, and national levels, infrastructure is needed to support cross-collaboration. Inclusive workforce development requires effective systems-level coordination that connects children, schools, and employers in thriving partnerships.
- Educators can provide culturally-relevant training and tools that would enable them to support students with access to knowledge that is reflective of the communities they serve and supports more locally-minded development. With effective partnerships, STEMM opportunities can have greater ability to reflect and support a diverse population. With better equity of opportunity, health indicators would improve, and workforce participation would match local demographics.

Adding Context:
Attendees were asked to contextualize the potential role of cross-sector partnerships and their implications for the draft National Strategy, including by considering key regional or sector-based assets or potential gaps. Key themes and discussion points included:

- Sustained interpersonal connections deepen STEMM equity efforts. People from a variety of sectors should engage in a variety of ways, from mentoring to advocacy, with the places that shape their home.
- It's vital that STEMM practitioners demonstrate and receive respect and accountability. Participants pushed for community engagement to be genuine and to tangibly change lives. On the other hand, public officials need to be responsive to these efforts, providing credit for education as a public service and persuading others to do the same.
- Creating STEMM equity requires not only an abundance of educators and job opportunities which encourage creative thinking and embrace varying interests, but ensuring that basic needs like housing stability and internet access are supported.

Action Planning:
Guests were encouraged to consider the actions that should be taken to better build and sustain cross-sector partnerships that can help achieve the goals and metrics set forth by the draft National Strategy. Key themes and discussion points included:

- Coordinating infrastructure can be created or enhanced to uplift best practices, communicate across sectors, and facilitate partnerships. Participants pointed to Utah's [STEM Action Center](#) and Alabama's [STEM Council](#) as promising models for enabling and developing partnerships.
- Stakeholders need to deepen investment in workforce development at every point in one's life from beginning STEMM education as early as elementary school, to providing mentorship for educators, and government-led data and metrics collections.
- We must initiate institutional and public policy changes to provide access and opportunity. For example, groups noted governmental measures like unlinking property taxes from school funding as it exacerbates local wealth inequalities and initiating dual-credit programs.

Breakout Session 2: Developing Commitments to Support Equity and Excellence
Individuals gathered to discuss the importance of shared commitments across industry, research, and academic sectors to address equity and inclusivity in the STEMM field. Participants were encouraged and supported in thinking concretely about what their organizations individually and collectively could commit to doing to help advance needed work outlined in the National Strategy.

Defining Success:
Participants were encouraged to visualize what success would look like if the National Strategy were implemented in their region or sector, with an eye toward their own organization or sector's role in helping to drive that success. Key themes and discussion points included:

- Communities should feel like science is part of their community and expands active, lifelong learning. New models of education create cultural relevance and should be started early alongside job exposure to make opportunities feel concrete.
- Local communities often share concerns about brain drain, and efforts to improve access to STEMM can be seen as both extractive and top-down from outsiders. This requires development of thoughtful and community-led approaches, such as those that elevate and provide pathways into local industries like agriculture.
- STEMM should be more inclusive of the communities it encapsulates, not just researchers. Instead, a STEMM educator can incite real cultural change to make students feel like they can innovate and belong.

Adding Context:
Participants were asked to consider what unique assets or challenges their region or sector may face, to serve as context for what type of new or expanded work key actors may need to commit

to advancing in order to achieve the goals and metrics set forth in the draft National Strategy. Key themes and discussion points included:

- The Southwest region contains many rural areas, including tribal lands, and it can be challenging to ensure remote educational environments have equitable access to high quality STEMM learning experiences. For instance, this includes inequitable broadband access.
- Resources, especially money and time, constrict the ability to learn new skills and make cultural change difficult. In addition, few organizations go out of their way to prioritize proactive local efforts like network building due to a lack of short-term and/or financial incentive.
- Making standards and initiatives clear would help provide more vision for what it means to connect across sectors. Models can show what it means to break down silos, be accessible, and communicate effectively.
- A systems-level approach would include policy opportunities to implement laws and collect data and institutional opportunities to lean into collaboration and transparency.

Action Planning:
Guests were encouraged to consider what goals they have for their own organization's role in advancing equity in STEMM, and to brainstorm potential actions they or others might need to commit to in order to make progress against the National Strategy. Key themes and discussion points included:

- Better understanding the context and uplifting important learnings and best practices. Participants saw that they could do more quantitative and qualitative data collection and relationship building to understand communities. Additionally, celebrating successes can encourage those in the STEMM ecosystem to continue innovating.
- Amending existing structures to break down silos and improve collaboration abilities. For example, the learning environment could be widely connected from in- and out-of-school opportunities across one's whole life.
- Expanding the STEMM narrative so that everyone understands their position within the ecosystem, placing emphasis on those not traditionally seen as STEMM innovators.

Breakout Session 3: Measuring Progressing on the National Strategy
Participants discussed tangible ways to measure the success of the National Strategy's efforts to increase diversity and equity in STEMM. Through the lens of the strategy's five pillars, participants considered how to effectively achieve proposed goals and showcase progress over time.

Defining Success:

Participants identified what success would look like if the National Strategy were implemented in their region or sector, with an eye toward considering specific issues that might be solved and how progress could be measured. Key themes and discussion points included:

- Creating building blocks so that people can understand what it means to progress throughout education or meet industry demands. Additionally, such building blocks can chart out life transitions like continuing education from community colleges into 4-year institutions and sustain progress like that made after the first year of STEMM programming.
- Reacting to local needs where progress has not been made. For example, participants raised that 20,000+ jobs went unfilled in Arizona last year due to a lack of candidates with bachelor's degrees.

Adding Context:
Participants were asked to consider what unique challenges or gaps exist in their community, and what key metrics would be particularly relevant to track their own community or region's efforts to advance equity in STEMM. Key themes and discussion points included:

- Leaders need to be proactive about embracing collaboration and equity. In Arizona, some participants noted worry about political attacks against DEI and were curious about coordination between government entities that oversee education.
- Cultural change can be difficult to embrace, especially with how it shifts education and workforce development. Despite the need to begin STEMM education early, participants noted that many preK-12 educators haven't received much training on the subject. On a different note, participants stressed that companies need to authentically and transparently embrace DEI efforts, even if there's not a clear monetary gain for them.
- Lack of high-quality data makes it difficult to set benchmarks. Participants felt that they didn't understand what the Arizona workforce looked like, and while the information may exist, they were unsure if it was available or accessible.

Action Planning:
Guests were encouraged to consider the actions that might need to be taken in order to make progress against the metrics identified, and what type of progress and timeline for impact might need to be considered for their community or region. Key themes and discussion points included:

- Shifting culture can improve the political environment and overall landscape for STEMM equity. From disparate subjects like school funding to scientific review, sustained commitment to equitable and excellent STEMM can ensure resources are more shared and provided to those who are effective in creating a strong ecosystem.

- Metrics must be flexible, especially as the STEMM ecosystem changes. While STEMM industries need to be actively informing all of education, today's metrics can only inform today's students. Both education and industry need to hold each other accountable to training communities to be true innovators.

Plenary Session 2:

Panel: Create the Workforce of the Future
Dr. Kenro Kusumi, Dean of Natural Sciences, The College of Liberal Arts and Sciences, Arizona State University, moderated a panel on how to best create a sustainable STEMM workforce that will propel the U.S. into the future.

- *Dr. Raaghu Santanam, Senior Associate Dean of Executive Education, W.P. Carey Business, Arizona State University,* traced his interest in pursuing STEMM to his upbringing in India as a means of achieving upward mobility. Eventually he found his passion in economics which he described as the intersection between science, mathematics, and technology. Santanam went on to describe ASU's [AZNext](#) program, a Department of Labor public-private partnership that aims to educate individuals to address shortages in IT, cybersecurity, and advanced manufacturing careers. More than 1,200 individuals have been trained by the program.

- *Kathleen Jolivette, Vice President of Attack Helicopters Programs, Boeing,* reflected on her experiences as a non-traditional student in STEMM and how pursuing higher education later in life following a career in the military propelled her career forward. She applauded Boeing for providing ample opportunities that enabled her to catch up to individuals in her age range. In addition to supporting non-traditional students, Boeing also provides opportunities for individuals interested in pursuing STEMM careers who do not attend college. By accommodating a variety of individuals from various backgrounds, she noted that Boeing is taking an active role in helping to bring greater equity and diversity to STEMM, and helping shape the workforce of the future.

- *Dr. Daniel Corr, President, Arizona Western College,* stressed the importance of not only providing students with opportunities, but ensuring that they have the ability to access those opportunities. Approximately 76 percent of the students at Arizona Western College (AWC) are Hispanic or Latino. Additionally, he noted that a high percentage of AWC students are experiencing financial hardships. In order to meet students' needs, AWC offers a wide range of on-campus opportunities via public- private partnerships and regional memberships that help to keep students engaged in STEMM.

- *Ines Halloran, Enterprise Technology Executive, State Farm,* briefly recounted her individual experience with pursuing STEMM. Originally from Germany, Halloram found herself in the U.S. and pursued an education in computer science which led her to State Farm. Since she began her tenure at State Farm, she described having observed the company's dedication to investing in future leaders and bettering the communities of which it is a part. She highlighted State Farm's $30 million investment in ASU as evidence of its commitment to bolstering a workforce that will have access to safe, sustainable careers. She also described a similar investment at Georgia State University. In total, State Farm's programs currently have 150 students enrolled and 34 alumni.

Closing Remarks:
- *Craig Barrett, Former Chairperson, Intel Corporation,* closed the session by reflecting on his time at Intel. While at Intel, he and his colleagues noticed that most of the talent they hired came from outside of the U.S. This prompted the company to better understand the pipeline for talent domestically, and subsequently Intel chose to invest $100 million annually in K-12 STEMM education improvement measures to help break down barriers and close key gaps. They also sponsored a talent search to identify students with a penchant for STEMM. Following his tenure at Intel, Barrett began working with charter schools in an effort to further contribute to STEMM education reform in K-12 schools. Barrett noted that in order to better prepare K-12 students to achieve success in STEMM, teachers must be properly trained in STEMM fields. By committing to this effort, he noted, the U.S. will be better primed to compete with other OECD nations in STEMM education.

Next Steps: The Road Ahead
- *Michael Feder, Program Director, American Association for the Advancement of Science,* thanked attendees for their participation in the event, the last in a series of 11 convenings held throughout the country over the course of ten months. He finished by noting the next steps SOA plans to undertake to revise and publish a finalized National Strategy and continue to attract new partners committed to increasing diversity and excellence in the American STEMM ecosystem.