Strategic Plan

Fiscal Years 2021 – 2024

August 2020

Idaho STEM Action Center (STEM AC)

FY21 – FY24 Strategic Plan

Introduction, History, and Future:

Equitable access to high-quality STEM education should not be considered a privilege; it is a necessity. A robust education, including STEM, will ensure that Idaho's workforce has the necessary skills to be prepared for the jobs of the future. Year after year, thousands of Idaho STEM jobs remain unfilled as demand for a STEM-skilled workforce has significantly outpaced supply. The result is lost wages for Idahoans as STEM jobs consistently pay twice the median wage of non-STEM jobs. If filled, STEM jobs would provide an increase to personal income for Idaho citizens.

However, not all Idaho students have equitable access to STEM opportunities. STEM AC is tasked with closing this equity gap by providing diverse STEM opportunities for students, educators, and communities. A "general, uniform, and thorough" system of education is a mandate of Idaho's constitution. Equity is at the heart of uniformity and thoroughness. Robust K12 experiences, including exposure to engaging, hands-on STEM education and careers, are essential to prepare students for future jobs. Now, more than ever, students and Idaho's workforce need to be equipped with the critical thinking, problem-solving, and computational literacy skills required for many jobs. Enhancing the skill sets of Idahoans in STEM-focused areas will support the need to navigate the ever-changing world, including the reliance on digital technologies and the infusion of digital competency into all facets of life, school, recreation, and the workforce.

STEM AC's enacting legislation ([Idaho Code 67-823](#)) focuses on five broad areas: 1) coordination of state-level STEM-related activities including equity; 2) promotion of STEM through best practices in education; 3) support of high-quality professional development and grants for educators; 4) facilitation of STEM-related competitions, fairs, camps, and student programs; and 5) engagement of private industry in the development, implementation, and sustainability of STEM AC programs. Fulfilling legislative intent is accomplished by offering grant and professional development opportunities to educators, students, and communities, and measuring outcomes from those activities.

STEM AC has also partnered with other state agencies and businesses to bring forth the following STEM legislation:

- **Computer Science Initiative** ([Idaho Code 33-1633](#), passed 2016). This legislation directs STEM AC to focus on critical training and educational needs to help populate Idaho's growing need for a tech-savvy workforce.
- **STEM School Designation** ([Idaho Code 33-4701](#), passed 2017). In collaboration with the Office of the State Board of Education (OSBE), this designation is formally recognized by OSBE and the Governor's Office. Six schools have been designated in the first two years.

- **CS for All** ([Idaho Code 33-1634](#), passed 2018). This legislation requires all Idaho high schools to offer at least one computer science course starting in 2020.
- **STEM Diploma** ([Idaho Code 33-523](#), passed 2018). This legislation provides recognition for students who have taken STEM course work that is significantly more rigorous than state graduation requirements.

The White House also recognizes the importance of STEM and STEM education and has released the [federal STEM strategic plan](#) with the goals of: 1) Building strong foundations for STEM literacy; 2) Increasing diversity, equity, and inclusion in STEM; and 3) Preparing the STEM workforce for the future. To accomplish these goals, one of the STEM pathways is to develop and enrich strategic partnerships by fostering STEM Ecosystems that unite communities. To accomplish this, STEM AC continues to form strategic partnerships to build the Idaho STEM Ecosystem. Once fully developed, the Idaho STEM Ecosystem will serve all communities and enhance STEM engagement, thereby allowing Idahoans to leverage local resources in collaboration with statewide STEM stakeholders.

A key to STEM AC's success is significant industry engagement with programs, projects, and outreach efforts. Idaho businesses have shown they are committed to supporting STEM education by providing in-kind and cash support to STEM AC opportunities. In FY20 alone, STEM AC raised over $1.75M in external funding. This is accomplished through sponsorships of student competitions, integration of collaborative industry-educator projects funded via grants, professional development guided by industry input, STEM professionals serving as mentors and volunteers, and through various workforce development initiatives such as public-private partnerships. Additionally, STEM AC Foundation was created to engage more effectively with a broader network of businesses. The monetary and in-kind support from Idaho business partners indicates they understand that students develop a STEM identity at an early age and require ongoing STEM experiences to foster interest, confidence, and to consider pursuing STEM at the post-secondary level and/or as a career.

By partnering with educational groups and industry, STEM AC diligently continues to ensure that Idaho employers will have access to the workforce they need—a workforce that possesses the skills necessary for successful transition from school to employment. Moreover, STEM AC serves as a representative on the Workforce Development Council (WDC) and the Director of WDC is now a member of the STEM AC Board. This partnership ensures that there is significant collaboration without duplication.

Within its few years of operation, STEM AC has worked to support many unique programs. STEM AC is in the process of building a statewide STEM Ecosystem and crafting metrics that can guide the work of the Ecosystem and serve to ensure that goals are met. STEM AC has also created programming in the areas of rural STEM education. The Rural STEM Program focuses on developing local communities of educators invested in creating quality maker-centered/STEM

learning opportunities for youth while engaging diverse groups and organizations within the communities to build sustainability. STEM AC has also created a very successful Educator Externship Program and has placed 40 educators into businesses for summer work to help educators understand the unique needs of Idaho businesses. Lastly, the Computer Science Initiative continues to enhance Idaho student access to computational thinking and coding. Between the 2017/2018 school year and the 2018/2019 school year, Idaho saw an 11% increase in the number of teachers teaching computer science in secondary schools. As a result, there was an 18% increase in the number of students taking computer science courses. This significant increase in accessibility to computer science courses is directly correlated to the needs of Idaho businesses and will help ensure that Idaho students are prepared for the jobs of the future.

These coordinated statewide STEM-focused efforts will support Idaho as an in-demand business destination. Idaho will have a citizenry that not only recognizes the importance of STEM, but one that also possesses a workforce with the necessary STEM skills that employers are demanding. A highly skilled STEM workforce will lead to increased investment and business opportunities throughout Idaho. Educators will have the necessary STEM skills and resources to engage students. Students will have equitable access to STEM education and will possess the 21st century skills that all Idaho employers require: critical thinking; problem-solving; collaboration; and innovation. Ultimately, Idaho students will choose to stay in Idaho to live and to work because the state can offer them solid jobs within their areas of interest, and they will possess the resilience to ensure personal success within Idaho's changing economy. The result of these collaborative efforts will be an increase in the number of businesses throughout the state and an increased number of jobs available to Idahoans. In turn, these strategic partnerships will bolster Idaho's economy and lead to long-term economic prosperity for the state and its citizens.

Mission Statement:

The mission of STEM AC is: ***Engineering innovative opportunities for educators, students, communities, and industry to build a competitive Idaho workforce and economy through STEM and computer science education.***

Vision Statement:

STEM AC envisions: ***A diverse, equitable, thriving ecosystem for a prosperous, STEM-literate Idaho.***

GOAL #1: Advance equitable access to high-quality STEM+CS opportunities for educators, students, and communities

> **Objective 1A:** Identify, create, and/or fund STEM+CS opportunities for Idaho educators and students.

Performance Measure 1: Number of student engagements with STEM AC opportunities

-*Baseline*: For FY20, 164,687 student engagements occurred as numerous events and trainings were delayed and/or cancelled due to COVID-19.

-*Benchmark*: STEM AC cash appropriation has decreased by $1.5M over FY19 and FY20; as a result, the number of student engagements has/will continue to decrease.

-This benchmark was established per the requirement of Idaho Code §67-823 and §33-1633.

Performance Measure 2: Number of educator interactions in STEM AC opportunities

-*Baseline*: For FY20, 22,369 educator interactions occurred as numerous events and trainings were delayed and/or cancelled due to COVID-19.

-*Benchmark*: STEM AC cash appropriation has decreased by $1.5M over FY19 and FY20; as a result, the number of educator interactions has/will continue to decrease.

-This benchmark was established per the requirement of Idaho Code §67-823 and §33-1633.

Objective 1B: Identify, create, and/or fund the delivery of high-quality STEM and CS professional development (PD).

Performance Measure 1: Number of educators receiving STEM+CS professional development through STEM AC opportunities

-*Baseline*: In FY20, 54 opportunities were offered; however, nine additional programs were delayed due to COVID-19.

-*Benchmark*: STEM AC cash appropriation has decreased by $1.5M over FY19 and FY20; as a result, the number of STEM PDs has/will continue to decrease.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 1C: Develop new, and expand existing, high-quality STEM AC grant programs for educators and the community at large.

Performance Measure 1: Total number of grant opportunities offered

-Baseline: In FY17,12 grant opportunities were made available to Idaho educators, students, and communities. In FY18, 35 STEM AC opportunities included grants. In FY19, STEM AC redefined "grants" to include only opportunities that did not contain educator training as best practice indicates that resources are more effectively utilized when training is provided. This shift focuses on depth of reach, rather than breadth, and will ensure that educators have the training needed to effectively utilize the resources in their educational settings. This change resulted in 10 grant opportunities in FY19; additional funding shifts and reductions led to four grant opportunities in FY20.

-New Benchmark: With the STEM AC cash appropriation decreasing in FY21, it is anticipated that the number of grant opportunities will decrease.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 2: Percentage of competitive grant opportunities awarded

-Baseline: In FY18, 67.7% of competitive grant opportunities received funding. In FY19, this was 66.7%. In FY 20, 70.2% of competitive grant applications were funded.

-Benchmark: STEM AC opportunities continue to be competitive which means only the highest-quality applicants are selected. Applications undergo thorough review by Idaho grant reviewers to ensure fairness and reliability of the awards. Though the state cash appropriation has decreased, STEM AC anticipates funding of competitive application will continue to remain steady at 70%. This is because funding traditionally allocated to competitive opportunities has been re-directed into expanding programs with more significant impact and more limited eligibility, thereby reducing the number of eligible applicants.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 1D: Increase access and participation in STEM/CS opportunities for students, educators, and communities that represent traditionally underrepresented populations in STEM/CS by working with partner organizations.

Performance Measure 1: STEM AC will develop a statewide STEM Strategic Plan that is focused on equity for underrepresented populations in STEM based on regional needs

-Baseline 1: In FY20, STEM AC held its first statewide convening of STEM Ecosystem partners. In FY21, STEM AC will conduct a statewide anonymous needs assessment and focus groups and then analyze the data.

-Benchmark 1: The survey and focus group data will be aggregated in FY21. Analyses will include regional assessments to make data-driven adjustments to STEM AC opportunities.

-Baseline 2: Number of group interactions with STEM ecosystem stakeholders to gain insight into regional STEM needs and how to better serve traditionally underrepresented populations in STEM+CS including working groups, regional development meetings, and at least two whole-group planning meetings.

-Benchmark 2: STEM AC has not tracked this metric in the past, but anticipated that at least 12 group interactions will occur in FY21 that will lead to the drafting of a statewide STEM Strategic Plan. This plan will guide the direction of future STEM AC opportunities and funding focused on equity and regional needs.

-This benchmark was established as directed in Idaho Code §67-823: STEM AC will perform a needs assessment to determine future STEM activities.

Objective 1E: Collaborate with and leverage other state-level STEM partner organizations.

Performance Measure 1: Serve as the lead entity for the STEM School Designation Legislation (Idaho Code §33-4733)

-Baseline: In FY18, an Idaho committee determined a process for selecting and designating Idaho STEM schools. In FY19, four Idaho STEM Schools completed the rigorous application process and were designated. In FY20, two additional schools were designated.

-Benchmark: In FY21, STEM AC will explore additional ways to support emerging STEM schools on their pathway to designation including a collaboration with Micron and Boise State University.

-This benchmark was established per the requirement of Idaho Code §33-4733.

Performance Measure 2: Serve as the lead professional development entity for the CS for All Legislation (Idaho Code §33-1634) working in conjunction with IDLA, OSBE, SDE, CTE, and WDC

-Baseline: In FY18, STEM AC served as the lead entity for CS professional development pursuant to the CS Initiative, Idaho Code §33-1633.

-Benchmark: In FY19, STEM AC provided 26 professional development opportunities CS. In FY20, 18 professional development opportunities were offered in CS. The decrease in offerings was a result of the STEM AC CS cash appropriation decreasing by 50% in FY20 and the impacts of COVID-19 leading to significant trainings that were postponed and/or cancelled.

-This benchmark was established per the requirements of Idaho Codes §33-1634 and §33-1633.

Objective 1F: As a technology customer of the Office of Information Technology Services (ITS) in the Governor's Office, STEM AC is using the cybersecurity systems and technical expertise in ITS to fulfill requirements related to Executive Order 2017-02. Staff from ITS were briefed on the NIST Core Framework, CIS Controls 1-5, and their plan for adoption of the NIST Cybersecurity Framework. STEM AC participates in DHR and ITS administered cybersecurity training, as awareness is a critical component of an effective cybersecurity program. As briefed by ITS staff, implementation of the CIS Controls 1-5 will be their responsibility for the systems they operate and, as technological tools applied to the computer systems, largely invisible to us as a customer. ITS, working through the multi-agency Incident Response Task Force, has developed an Incident Response Program in support of our agency.

GOAL #2: Align STEM education with workforce needs throughout Idaho.

Objective 2A: Engage industry to support STEM education outcomes.

Performance Measure 1: Amount of industry contributions and personal donations to STEM AC to promote and enhance opportunities for K-career STEM education

-Baseline 1: Systematically track contributions that are received directly (cash and cash equivalence).

-Baseline 2: Track in-kind activities provided directly to STEM AC for projects and programs.

-Benchmarks 1 and 2: In FY19, STEM AC raised $1.34M in cash and $4.44M in in-kind activities including industry time, talent, and earned media coverage. In FY20, STEM AC raised $1,750,583 in cash and $4,880,204 through in-kind activities and contributions of time and talent.

-These benchmarks were established per the requirements of Idaho Codes §67-823 and §33-1633 to engage industry in various STEM-related activities. STEM AC will continue to consistently track various types of contributions to reach its annual goals of at least $1M cash raised and at least $2M in in-kind contributions.

Objective 2B: Support industry-led initiatives that focus on workforce development and industry needs.

-Performance Measure 1: Number of high-quality educational opportunities focusing on workforce development in high-demand fields

Baseline: STEM AC did not support these types of activities in FY16. In FY17, STEM AC supported one workforce development initiative. 32 opportunities were sponsored in FY18. In FY19, 48 opportunities were supported through public-private partnerships. In FY20, 43 opportunities were supported through public-private partnerships. 51 programs were approved, but 8 were delayed due to the impacts of COVID-19.

-Benchmark: STEM AC continues to foster relationships with industry to co-sponsor educational opportunities based on industry demand and workforce needs. Even with the STEM AC cash appropriation decreasing in FY21, STEM AC will prioritize these interactions, attempting to maintain the same level of partnership.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 2C: Create opportunities for students and educators to partner with local businesses.

Performance Measure 1: Number of mentors and volunteers utilized in programs and events funded by STEM AC

-Baseline: This is a new STEM AC metric to capture the involvement of business and industry in providing mentorship and volunteer engagements to educators and students within STEM AC programming. In FY19, 833 mentors/volunteers engaged with 18,824 students. Due to COVID-19 delays, FY20 numbers will not be reported until November 2020; therefore, updates will be included in this Strategic Plan.

-*Benchmark*: STEM AC will work toward the goal of providing access to 1000 mentors/volunteers for 20,000 students by 2022.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Performance Measure 2: STEM AC will facilitate externships for teachers and career counselors

-*Baseline*: In FY19, a statewide externship program was launched as a pilot program with a matching grant from WDC with the goal of placing 10 educators into 10 business for summer work.

-*Benchmark*: STEM AC placed 16 externs into 16 organizations during the summer of 2019 with 23 teachers applying for this pilot program. In FY20, the program was scaled, and 41 educators were placed; however, due to COVID-19, only 28 externs served at 24 Idaho businesses. External contributions into the program increased from 50% in FY19 to 80% in FY20. STEM AC will continue to engage with external sources to support this program and to provide a cost share.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 2D: Fund and support the CS Initiative, including: programs, events, trainings, and other promotions throughout the state.

Performance Measure 1: Number of community events related to CS

-*Baseline*: In FY18, 96 initiatives, programs, events, trainings, and other promotions related to CS were supported throughout the state. In FY19, 99 CS activities were supported. In FY20, 34 CS activities were held due to a 50% reduction in the state CS cash appropriation and the impacts of COVID-19.

-*Benchmark*: With the unknown continued impacts of COVID-19 and the CS appropriation decreasing by an additional 50% in FY21, STEM AC anticipates fewer CS-related activities.

-This benchmark was established per the requirements of Idaho Code §33-1633.

Performance Measure 2: Number of high-quality professional development opportunities for educators in CS and number of educators impacted by these trainings

-*Baseline*: In FY18, 18 opportunities were supported and in FY19, 26 opportunities were supported. In FY20, 18 professional development opportunities were offered in CS, directly impacting 4,338 educators.

-*Benchmark*: In FY18 and FY19, only the number of programs were tracked. In FY20, the number of programs and corresponding number of direct educator impacts were also tracked. However, with the state CS cash appropriation decreasing by an additional 50% in FY21, STEM AC anticipates fewer CS professional development opportunities for Idaho educators.

-This benchmark was established per the requirements of Idaho Code §33-1633.

Performance Measure 3: Number of student competitions and camps in CS and number of students impacted by these opportunities

-*Baseline*: In FY16, CS student competitions and camps were not supported by STEM AC. In FY17, STEM AC supported three competitions and nine camps. In FY18, STEM AC supported three CS competitions and 29 CS camps. In FY19, STEM AC supported four competitions and 11 camps. Less funding was provided for camps in FY19 to increase other CS activities, such as educator PD and public-private partnerships. In FY20, STEM AC supported four camps, five student competitions, and nine public-private partnerships and sponsorships resulting in 10,636 direct student impact. Due to the impact of COVID-19, numerous programs were postponed or cancelled. In addition, STEM AC CS state cash appropriation was reduced by 50% in FY20 so it was anticipated that significantly fewer CS camps and competitions would be supported.

-*Benchmark*: With the CS cash appropriation decreasing by an additional 50% in FY21, STEM AC anticipates fewer students will be supported in fewer CS camps and competitions.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

GOAL #3: Increase awareness of the importance of STEM throughout Idaho.

> **Objective 3A**: Promote and communicate the value of STEM and CS opportunities throughout the state.

> > Performance Measure 1: Number of users of STEM AC's online portal for resources and best practices

> > > *-Baseline*: This portal was created and deployed in December 2018 with an average monthly utilization of 172 users. For FY20, the number of average monthly users was 291.

> > > *-Benchmark*: The goal will be to increase utilization to 500 individuals/month. This will be accomplished by continue to discuss the availability of the portal during STEM AC presentations. STEM AC will also add i-STEM lesson plans to the portal which will also lead to increased utilization.

> > > > -This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

> > Performance Measure 2: Number of outreach opportunities provided or supported through STEM AC funding and/or STEM AC staff

> > > *-Baseline 1*: In FY20, 200 outreach opportunities were conducted. This decreased from the 288 events in FY19 was due to COVID-19 event cancellations.

> > > *-Benchmark 1*: Due to the FY21 STEM AC cash appropriation reduction, it is anticipated that fewer outreach opportunities will be supported.

> > > *-Baseline 2:* Track the number of presentations and events attended by STEM AC staff as part of STEM/CS outreach and awareness efforts.

> > > *-Benchmark 2*: In FY19 and FY20, STEM AC staff averaged five outreach and/or awareness activities per week (200 total) which is likely the maximum number that the STEM AC Team can support.

> > > > -These benchmarks were established per the requirements of Idaho Codes §67-823 and §33-1633.

> > Performance Measure 3: Number of monthly communication efforts using the monthly newsletter, website, and social media including Facebook, Instagram, and Twitter

-Baseline: In FY20, ten STEM AC newsletters were published, reaching 5,475 subscribers. STEM AC website traffic averaged 3,000 users per month, and STEM AC social media presence engaged 4,064 individuals monthly.

-Benchmark: STEM AC continues to see increased utilization of the newsletter, website, and all social media platforms. STEM AC will continue to track monthly communication efforts.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

Objective 3B: Collaborate with Idaho's State Board of Education, the Division of Career-Technical Education, the State Department of Education, the Workforce Development Council, public higher education institutions, industry, and national partners to enhance communications related to STEM education throughout Idaho.

Performance Measure 1: Number of collaborative programs involving STEM AC

-Baseline: This is a new FY19 metric, captured when STEM AC focused on its coordination role and began systematically planning, hosting, and/or attending collaborative meetings to better meet the needs and activities of statewide partners. As a result, 86 collaborative programs were launched through public-private partnerships, STEM sponsorships, and STEM conferences. In FY20, 54 collaborative programs were supported, including sponsorships, public-private partnerships, and STEM AC's inaugural STEM Ecosystem convening. This decrease was primarily due to the impacts of COVID-19.

-Benchmark: To ensure continued collaboration and to prevent redundancy, STEM AC will attempt to maintain this level of interaction. However, with the STEM AC cash appropriation decreasing in FY21, it may be difficult.

-This benchmark was established per the requirements of Idaho Codes §67-823 and §33-1633.

External Factors Affecting STEM AC Goals

1) Infrastructure
   a. Additional staffing is needed to accomplish the seven STEM AC statutes. As a result, contractors, interns, externs, fellows, and VISTAs have been hired to help full-time staff fulfill legislative intent for STEM AC programs and projects.

2) Funding and Economic Conditions

a. Additional ongoing funding would allow STEM AC to fulfill the intent of the STEM AC legislation as well as the CS Initiative, STEM School Designation, and CS for All.
b. Partnering with industry will require industry awareness and confidence in STEM AC, as well as financial confidence in the economy which will be challenging during the COVID-19 economic recovery.
c. COVID-19 shutdowns have impacted economic conditions across the state and will have unknown effects on donor support and programming offered in conjunction with STEM AC activities in the future.

3) Statewide Awareness
a. The STEM AC Team may not be aware of local initiatives and resources in rural and remote areas of Idaho.
b. When offering STEM AC opportunities, messaging to ensure statewide interest and diversity will be paramount in guaranteeing that educators and communities from diverse backgrounds are represented.

4) COVID-19
a. With the sudden shift away from in-person educational and professional development opportunities due to COVID-19, many STEM AC-funded programs are experiencing delays, alterations, and other complications.
b. COVID-19-related changes to programs have had significant impacts on several metrics identified within this Strategic Plan.
c. STEM AC quickly shifted course in response to COVID-19, shifting funding and resources to coordinating statewide responses, including the creation of 11,700 fabric masks, 4,300 face shields, 5,035 mask extenders, and 3,200 3D printed masks.

5) Idaho STEM Ecosystem
a. The creation of the Idaho STEM Ecosystem may shift the roles and relationships of STEM AC and its active partners in business, education, government, and other stakeholder groups.
b. Further study is needed to identify and address community needs throughout Idaho using the STEM Ecosystem model. STEM AC has secured funding to support this work in FY21.