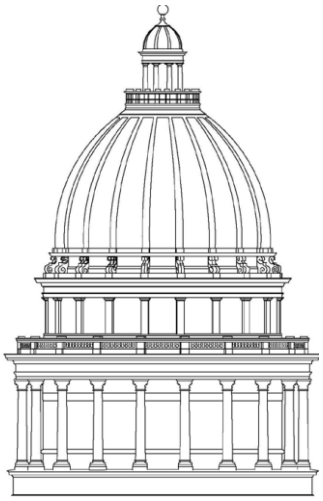
REPORT TO THE

UTAH LEGISLATURE

Number ILR 2017-C



A Limited Review of The STEM Action Center

June 2017

Office of the
LEGISLATIVE AUDITOR GENERAL
State of Utah

STATE OF UTAH

Office of the Legislative Auditor General

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JOHN M. SCHAFF, CIA
AUDITOR GENERAL

June 20, 2017

TO: THE UTAH STATE LEGISLATURE

Transmitted herewith is our report, **A Limited Review of the STEM Action Center** (Report #ILR 2017-C). The objectives and scope of the audit are explained at the beginning of the report.

We will be happy to meet with appropriate legislative committees, individual legislators, and other state officials to discuss any item contained in the report in order to facilitate the implementation of the recommendations.

Sincerely,

John M. Schaff, CIA
Auditor General

JMS/lm

REPORT TO THE
UTAH LEGISLATURE

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A Limited Review of
The STEM Action Center

June 2017

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Office of
LEGISLATIVE AUDITOR GENERAL
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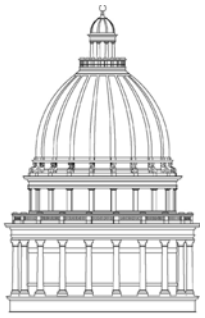
A Limited Review of the STEM Action Center

We conducted a limited review of the Science, Technology, Engineering, and Mathematics Action Center (STEM AC) based on concerns discovered in our Best Practice and Performance Note follow-up process, which was reported in our 2016 Annual Report to the Legislature. Because of the Legislature's focus on STEM integration into schools, we felt further review of the STEM AC was warranted. We found the following:

- While performance measures have improved, the STEM AC needs better coordination of its measures and lacks the ability to measure long-term successes.
- Most of the STEM AC's funding directly benefitted students in 2016. Through visits with teachers and district administrators, we found that schools are doing things with STEM subjects that were previously unavailable to them.
- Statutory requirements may inhibit the STEM AC's effectiveness by requiring programs that lack either end user utility or impact.
- Financial controls over vendor procurements appear appropriate.
- The STEM AC's financial reporting has improved.



This review was based on concerns stated in our 2016 best practices and performance note report to the Legislature.

The Legislature Has Prioritized STEM Integration in Schools

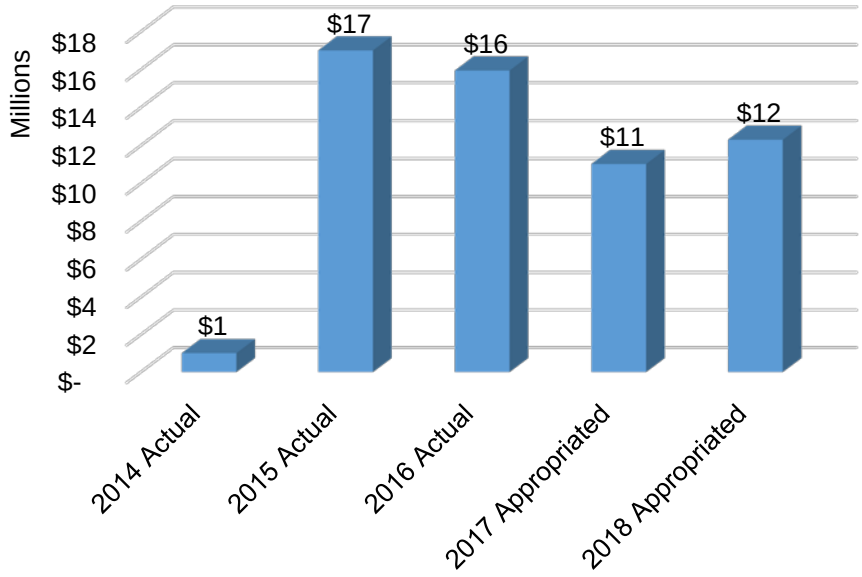
The STEM AC was established by statute in 2013. Statute assigns many responsibilities to the STEM AC including:

- collaborating with the board of education to provide school STEM endorsements
- piloting STEM learning programs
- facilitating student participation in STEM fairs and competitions
- providing STEM related professional development for teachers
- identifying STEM education best practices
- and engaging with private industry in the support of the STEM AC's activities.

To those purposes, the Legislature has allocated funding to the STEM AC since 2014. Figure 1.1 shows the STEM AC's appropriation history.

Since 2014, the STEM Action Center (AC) has been appropriated $57 million.

Figure 1.1 Since 2014, the Legislature Has Appropriated $57 Million to the STEM AC. That amount includes an estimated appropriation for 2018.



Source: Legislative Fiscal Analyst

The STEM AC has used its appropriations mainly to provide programs to benefit students with STEM related learning resources and provide training opportunities for teachers in STEM fields. While the STEM AC provides funding opportunities throughout the state for STEM related activities and curriculum, it is not the only source of STEM funding or STEM activities. Many schools may have STEM programs and funding sources unrelated to the STEM AC that were not within the scope of this limited review.

STEM Action Center Measures Need to Improve

The STEM AC has improved its performance measurement, but coordination between vendors and measurement activities has been lacking. The STEM AC also needs to begin identifying long-term measures to gauge its impact on STEM industries in the state.

Some STEM AC Initiatives Lacked Effective, Measurable Outcomes

The lack of effective program usage and STEM AC measures in general were our greatest concerns in recommending this limited review. To improve measures, better coordination is needed between the STEM AC's vendors and its third-party evaluator. The STEM AC contracts with various product and service vendors to provide schools with STEM targeted resources. The STEM AC is also required by statute to engage a third-party evaluator to measure the STEM AC's performance. Vendors sometimes do not provide the third-party evaluator with data needed to best measure the STEM AC's impact on STEM education.

To improve STEM AC measures, better coordination is needed between vendors and the STEM AC evaluator.

The STEM AC has worked to improve its outcomes and outcome measurement. For example, according to its annual evaluations, the STEM AC's effective math program usage has increased from 9 percent to 38 percent in the two years it has been measured.[1] The STEM AC has also contracted with a new third party evaluator to review its program effectiveness. The STEM AC reports that with the selection of the new evaluator, it will have a greater ability to measure the impact of its efforts over time. For example, the STEM AC

[1] Effective usage levels (fidelity) are predetermined by the software vendors to identify the optimal levels at which their programs should be used.

believes that the new evaluator will be better equipped to measure the impacts of varying levels of student engagement with math software.

In the past, the STEM AC's third-party evaluator conducted surveys for most of the STEM AC's initiatives. The evaluator reported that while surveys for most programs were favorable, they had difficulty isolating student testing score improvements attributable to math software because the evaluator could not measure math software usage among students in general. Also, according to the evaluator, some STEM AC initiatives lacked enough recipients to provide statistically valid insights.

The STEM AC's former third-party evaluator expressed frequent difficulty in obtaining other valid data for measuring programs' effectiveness. In one instance, the programs simply lacked a sufficient baseline of historical data. In another case, the evaluator reported that the STEM AC vendors could not provide verifiably reliable data.

Product vendors differed in the benchmarks they used and the data they provided.

For example, the STEM AC's math products varied in terms of suggested usage and data collected. The evaluation ran into difficulty because each software vendor used different benchmarks for effective program use (fidelity), and each reported student data in different ways. As such, the evaluator identified some programs that appeared to perform better, but felt that better data and evaluation design were needed in future evaluations.

Related to the issues with math programs, were issues with Career and Technology Education (CTE) programs. The STEM AC's third-party evaluator appeared to have greater difficulty with the CTE program vendors in obtaining valid data for use in measuring program effectiveness. The vendors did not provide the evaluator with requested validity data to establish the reliability of vendors' assessments. Without that data, the evaluator could not confidently measure the programs' impacts. We address the STEM student initiatives further in the report.

The STEM AC responded to evaluation difficulties by improving vendor data requirements and increasing vendor/evaluator coordination. For example, in the STEM AC's latest math software procurement, the STEM AC improved its measurement processes by requiring specific usage data as a prerequisite to vendor selection. The STEM AC also coordinated discussions with software vendors and the evaluator to ensure vendors knew what data was expected of them.

Based on our findings, we give two recommendations for the STEM AC to improve its data measurement and reporting:

We give two recommendations to improve data measurement and reporting.

- We recommend that in the future, the STEM AC consult with its third-party evaluator to identify data evaluation needs and to make data requirements clear to all subsequent vendors.

- We recommend that the STEM AC produce annual performance reports for the Legislature and public centered on performance goals and measures. The performance goals should be based on statutory requirements as well as the STEM AC's mission and vision for the future.

Long-term Measures Could Help STEM AC Identify Industry Impact

The STEM AC has as its vision to "produce a STEM-competitive workforce to ensure Utah's continued economic success…" While the STEM AC uses program and student data to measure its programs' impact in the short term, the STEM AC does not measure its larger impact in producing a STEM-competitive workforce.

The STEM AC is attempting to measure its impact through testing scores and other criteria but has lacked the ability to measure long-term success according to its vision and as required by statute. ***Utah Code*** 63N-12-205(4)(a)(iii) requires that the STEM AC track "…the number of students who graduate from a Utah public school and begin a postsecondary education program".

Tracking public school students into higher education has been problematic because, until the 2017 Legislative General Session, no Utah agency or entity had been required to collect data for students from the K-12 education system and the higher education system. Additionally, if the STEM AC were to measure its impact on the STEM industry in general, it would need data from public education, higher education, and the Utah workforce. Without such an agency responsible for tracking all this data, identifying the long-term impacts of programs from K-12 to the workforce would be difficult.

Long-term STEM AC measures require data spanning multiple systems.

The Utah Data Alliance began with a mission of tying together data from K-12, higher education, and Utah's workforce; but its efforts were impeded because they relied on the cooperation of the different entities to provide high quality data. But the recently passed

legislation, Senate Bill 194, *Utah Data Research Center Act*, puts the data collection and analysis function in a center in the Department of Workforce Services and requires all participating entities to contribute data according to guidelines established by the center.

At least two states have similar measurement programs for tracking education outcomes of residents from preschool age through K-12 and higher education and into the workforce. Those programs are called P-20W. Washington State and North Carolina both have P-20W programs that they use for longitudinal analyses on the impacts of programs in the education system.

We recommend the STEM AC use longitudinal data to measure long-term impacts.

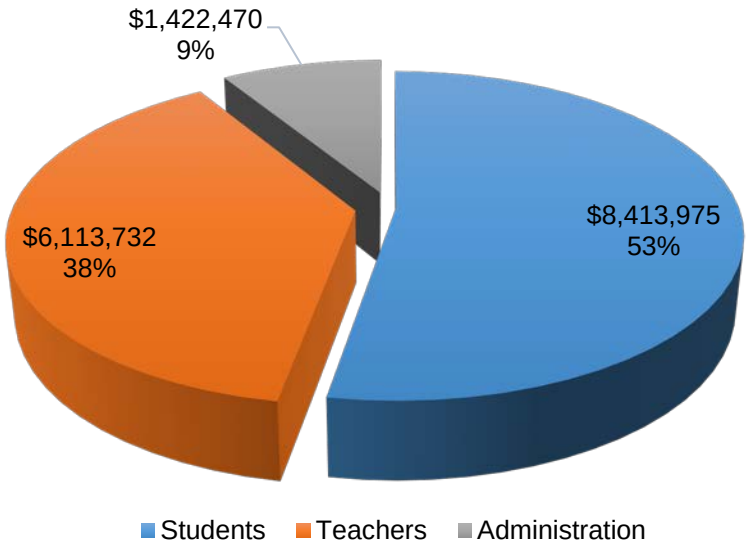
We recommend that the STEM AC take advantage of the longitudinal data that will become available from the Department of Workforce Services to measure the STEM AC's progress toward its vision of developing a more STEM-competitive workforce.

Most STEM AC Dollars Went to Student Programs

Initially, some legislators were concerned about STEM AC dollars reaching students.

The STEM AC devoted just over half of its $16 million fiscal year 2016 budget to providing STEM learning resources to students. Other expenditures went to benefit teacher training. When we began the audit, some legislators raised concerns with us about the amount of STEM AC dollars going to teachers and administration rather than to students. This section addresses STEM AC spending, discussing specific program and funding uses as well as the work we did to validate program spending. Figure 1.2 shows a breakdown of the STEM AC's 2016 expenditures.

Figure 1.2 In Fiscal Year 2016, the STEM AC Devoted More than Half of Its Budget to Students. Teacher professional development and other teacher programs comprised 38 percent of STEM AC expenditures.



Source: STEM 2016 FINET Expenditures

Most STEM AC dollars went to programs which benefit students.

Each expenditure category in Figure 1.2 addressed state statutory requirements. Statute was changed in 2017 to remove the STEM AC's requirement to procure professional development software. Specifically, House Bill 426, *STEM Amendments*, made the STEM AC acquisition of a professional development product for teachers an option instead of a requirement. In fiscal year 2016, that product cost the STEM AC $4.3 million in professional development software licenses to teachers. We will discuss professional development later in the report.

STEM AC Provides Grant Based Funding For Student STEM Activities

The STEM AC provides funding for various STEM related activities throughout the state. Student spending was based on the availability of funds and the requests from school districts and charter schools. Figure 1.3 shows a breakdown of most of the spending by county.

Figure 1.3 STEM AC 2016 Student Spending by County. Student spending includes multiple initiatives and only includes dollars we could attribute to a specific county. Funding to charter schools is included. Per capita spending uses U.S. Census Bureau estimates for total county populations.

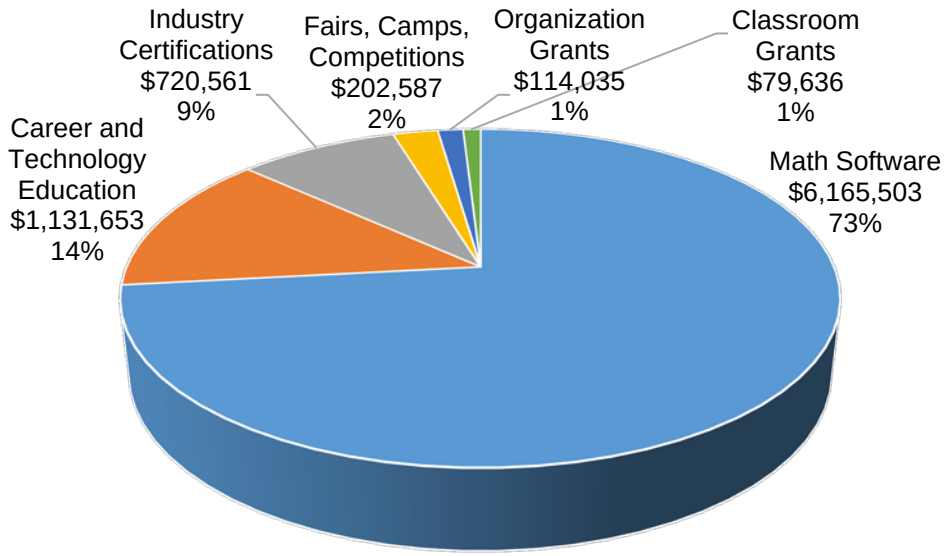
Counties	Student Spending	2016 Total Population Estimate	Per Capita Spending
Morgan	$179,565	9,822	$18.28
Sevier	191,119	20,716	9.23
Wasatch	210,400	25,385	8.29
San Juan	118,768	14,900	7.97
Beaver	47,237	6,493	7.28
Kane	40,459	7,199	5.62
Summit	195,691	37,867	5.17
Duchesne	97,145	19,003	5.11
Davis	1,519,108	316,165	4.80
Piute	6,893	1,523	4.53
Tooele	252,359	59,872	4.21
Garfield	19,674	5,085	3.87
Cache	444,033	115,931	3.83
Washington	518,669	144,613	3.59
Weber	854,091	236,565	3.61
Carbon	73,081	21,242	3.44
Juab	33,523	10,282	3.26
Emery	33,273	10,919	3.05
Sanpete	58,202	27,997	2.08
Iron	96,224	46,706	2.06
Salt Lake	1,961,250	1,064,462	1.84
Utah	869,540	540,170	1.61
Millard	13,819	12,524	1.10
Daggett	836	1,093	0.76
Box Elder	10,560	50,259	0.21
Uintah	2,350	34,682	0.07
Grand	83	9,314	0.01
Statewide	566,021	N/A	N/A
Total	**$8,413,975**	**2,850,789**	**$2.95**

Source: STEM Action Center data on program expenditures.

Some counties were more proactive than others in requesting STEM AC assistance. The STEM AC directed its student funding to six initiatives. Figure 1.4 shows that math software was the largest student initiative expenditure.

Some counties were more proactive than others in seeking STEM AC grant money.

Figure 1.4 STEM AC Fiscal Year 2016 Spending per Student Initiative. Math software made up the majority of student spending.



Source: STEM AC records on program expenditures

Math Software is the STEM AC's largest student initiative.

Of the STEM AC's student initiatives, math learning software received a large majority of the funding in 2016. All other student spending equaled only 27 percent of the total. We reviewed each of the STEM AC's student initiatives.

The K-12 Math Software Initiative Could Improve Its Data Collection. Math software allows students to learn and practice math concepts both in and out of the classroom. In 2016, the STEM AC provided 166,993 product licenses from 8 different software vendors:

- McGraw-Hill
- Hot Math
- The NROC Project
- Curriculum Associates
- Pearson
- Explore Learning
- Mind Research
- Think Through Learning

The STEM AC's third-party evaluator gathered student usage data from each program to determine the initiative's effectiveness. Student SAGE testing scores were used to determine if students' scores improved because of the math software. The evaluator concluded that using some of the programs at recommended levels increased students' odds of proficiency in math testing.

One LEA we met with told us that their teachers expressed concern over vendors' fidelity requirements (recommended usage levels).[2] They reported that the requirements far surpassed the time teachers had available to work with their students. They felt that the software was helpful, but they could not use it at the level the vendors and the STEM AC wanted. The STEM AC's evaluator also ran into problems with vendors' varying fidelity requirements. Because of these factors, the evaluator felt that it could not compare the effectiveness of one vendor's software over another's. To address both the evaluator's and teachers' concerns, the STEM AC's latest software procurement included requirements for more specific data to address this issue. In the future, we recommend that the STEM AC coordinate with its evaluator to identify specific measures that will be needed from all vendors.

Varying vendor benchmarks made product comparisons difficult. Therefore, we recommend that the STEM AC coordinate with its evaluators to identify specific measures needed from vendors.

The Career and Technical Education Initiative Provided STEM Resources but Had Evaluation Difficulties. Figure 1.4 shows that the STEM AC's Career and Technical Education (CTE) initiative received the second highest proportion of funding. That initiative provided classroom resources and targeted training to teachers looking for help teaching specific concepts. From spring 2015 to spring 2016, the STEM AC used four programs to meet district and statewide applied science needs:

- Project Lead the Way (PLTW)
- Pitsco
- STEM Academy
- International Technology and Engineering Educators Association (ITEEA)

All but one of the teachers we met reported that they valued the CTE programs they used. The teachers varied in their experience

[2] Effective usage levels (fidelity) are predetermined by the software vendors to identify the optimal levels at which their programs should be used.

teaching STEM subjects, and the teachers with less experience reported that they would have been at a disadvantage without the CTE programs. All teachers we spoke with appreciated the project materials offered by the programs. Often, teachers must charge lab fees to cover the cost of materials for projects and spend considerable time identifying the materials to purchase.

The STEM AC reported to us that the CTE vendors were less helpful when it came to measuring student impact. The program vendors were uncooperative in providing the data needed by the evaluator to properly assess student outcomes. As a result, the evaluator had very little confidence in the programs' impacts other than to report that surveys of students and teachers showed positive perceptions of the programs. In the future, the STEM AC should improve its data requirements from vendors to ensure that money is being spent where it can be the most effective.

To ensure effective program spending, the STEM AC should improve data requirements for vendors.

The Industry Certification Initiative Appears Promising. The STEM AC Industry Certifications create partnerships with businesses and schools and facilitate high school students being certified in various industry recognized areas. In 2016, students in school districts across the state received industry recognized certifications in fields ranging from advanced manufacturing to computer science. Because the STEM AC did not have a previous baseline with which to compare participation in the program, the third-party evaluator did not report whether the program was a success. The evaluator did report that survey responses on the program were generally positive, and that 4,791 high school students had completed the program resulting in 639 completed industry internships.

We visited industry certification programs in advanced manufacturing and life sciences in the Granite School District. In both programs, students appeared to be learning valuable industry skills that would increase their employability.

The Fairs, Camps, and Competitions Initiative Needs Cost-Effectiveness Data. ***Utah Code*** 63N-12-205(2)(d) requires that the STEM AC "…facilitate participation in interscholastic STEM related competitions, fairs, camps, and STEM education activities". Figure 1.4 above shows that $202,587 were used for student fairs and competitions. These funds helped students attend STEM fairs and camps in the state and compete in local, regional, and national

competitions. Among the events showcased were math, science, LEGO robotics, computer programming, and Maker activities.

Student spending for fairs, camps, and competitions needs more cost-effectiveness analysis

The STEM AC's director shared concerns with us that individual student spending for fairs and competitions is problematic because of unavailable impact data and high per person cost. We share the director's concerns that fairs and competitions may not be the most cost effective approach to engage students in STEM fields. For example, the STEM AC estimates a per student cost of $196 for STEM fairs, camps, and competitions. With the cost to attend fairs and camps so high, we would hope to see evidence that participation in fairs and camps produces a measurable increase in students' involvement and/or proficiency in STEM fields at some point.

The Classroom Grant Initiative Lacks Effective Measures. The STEM AC provided small classroom grants for materials and activities on a case by case basis. For example, we reviewed classroom grants used to purchase math manipulatives, electronics supplies, and iPads for math applications, among others. Figure 1.5 shows a math learning product that helps children learn math by manipulating and stacking blocks. This product was purchased with a STEM AC classroom grant.

Figure 1.5 Sumblox Purchased Through Classroom Grants. Teachers used products like these to facilitate teaching STEM related concepts to K12 students. These Sumblox were used to teach math concepts to elementary students.

Source: Auditor picture of Sumblox purchased by a STEM AC classroom grant

Teachers we spoke with expressed gratitude for the flexible funding to engage students with the processes and products they believed would be helpful. Some of them told us they could not have secured resources for the projects and products any other way.

While we support flexibility in funding specific needs, we are concerned at the lack of outcome measurement for these grants. Outside of anecdotal perceptions, none of the teachers we visited could identify whether the grants increased student proficiency or involvement in STEM fields. We recommend that the STEM Action Center develop measures for classroom grants and all other future initiatives to better determine the effect of its funding.

We recommend performance measures for all future STEM AC initiatives.

STEM AC Provides Teachers with Grant Based Professional Development for STEM Subjects

The STEM AC spent over $6 million for teacher professional development resources and STEM endorsements in 2016.

In 2016, the STEM AC spent just over $6 million in professional development for teachers. The STEM AC provided teachers with learning software which contained STEM related videos and progress tracking, as well as the ability for teachers to share their own videos. The STEM AC also provided funding for teachers to attend local higher educational institutions to pursue STEM courses for STEM endorsements. Figure 1.6 shows professional development spending by county. Some spending was not attributable to a specific county.

Figure 1.6 STEM AC 2016 Teacher Development Spending by County. Spending is based both on the availability of funds and the requests from schools.

Counties	Teacher Spending	County Population Estimate*	Per Capita Spending
Piute	$10,916	1,523	$7.17
Sanpete	158,277	27,997	5.65
Rich	12,009	2,269	5.29
Summit	170,433	37,867	4.50
Beaver	27,126	6,493	4.18
San Juan	55,017	14,900	3.69
Washington	533,008	144,613	3.69
Carbon	62,103	21,242	2.92
Cache	311,964	115,931	2.69
Weber	629,452	236,565	2.66
Juab	24,997	10,282	2.43
Davis	766,633	316,165	2.42
Daggett	2,502	1,093	2.29
Utah	1,124,629	540,170	2.08
Millard	24,669	12,524	1.97
Morgan	17,119	9,822	1.74
Box Elder	79,042	50,259	1.57
Iron	65,343	46,706	1.40
Salt Lake	878,437	1,064,462	0.83
Grand	7,090	9,314	0.76
Tooele	29,573	59,872	0.49
Uintah	11,044	34,682	0.32
Kane	1,733	7,199	0.24
Statewide**	1,110,617	N/A	N/A
Total	**$6,113,732**	**2,771,950**	**$2.65**

Source: STEM AC records on professional development expenditures
**Population estimate from the U.S. Census Bureau*
***As an example, the STEM AC paid $787,500 to produce statewide STEM instructional videos for teachers.*

In 2016, roughly $4.3 million was spent on product licenses for a professional development software called Edivate. The STEM AC's third-party evaluator collected teacher surveys to measure the program's impact. The evaluator stated an intention to use student SAGE scores to evaluate the program's impact, but not enough data was available. Teachers did not use the program enough to generate an

Around $4.3 million was spent on teacher professional development software.

adequate sample. We address complaints we heard about the software in the next section.

As part of its professional development spending, the STEM AC facilitates school STEM endorsements. Those STEM endorsements allow teachers to attend classes at local higher education institutions to gain further training in STEM subjects. The STEM AC spent over $500,000 toward STEM endorsements.

Statutory Requirements May Inhibit STEM Action Center's Effectiveness

Previously, statute may have been too prescriptive in the offerings vendors must provide.

One area of concern may have been resolved in the most recent legislative session. Previously, STEM statutory language may have been overly prescriptive regarding the kinds of offerings vendors must have to be considered for an initiative.

Prior to the 2017 Legislative General Session, statute required that vendors for professional development programs have such specific offerings that, in the past, only two vendors met the criteria. While the required offerings did not appear unreasonable, the lack of qualified vendors raised concerns with the STEM AC. Also, two LEAs reported to us that many of their teachers who were intended to benefit from the professional development programs were not using them, preferring to use other programs (some of them free of charge). Since the 2017 change in statute, the STEM AC has taken action to remove requirements to use its professional development vendor to receive funding.

One specific clause in state statute led to STEM AC concerns about competitive bidding. ***Utah Code*** 63N-12-210 states the following:

> (1) The STEM Action Center shall, through a request for proposals process, select technology providers for the purpose of providing a STEM education high quality professional development application.
>
> (2) The high quality professional development application … shall:

> … (c) allow educators to work in online learning communities, including giving and receiving feedback via uploaded video…

The STEM AC reported that the requirement for uploading video made it difficult for them to competitively procure professional development software. Ironically, although the selected vendor had met the criteria for online video communities, the STEM AC later reported that function was not working.

Two LEAs reported to us that prior to using the STEM AC's vendor, their teachers already used collaboration tools for professional development. Some LEAs provide tools through their own budgets, or teachers use free tools available on the internet. Two LEAs reported that those alternative tools have been more intuitive than the software provided by the STEM AC. In fact, one LEA we spoke with suggested that freely available tools on the internet might be just as effective and easier to use than the software provided by the STEM AC.

In the 2017 legislative session, with the H.B. 426, *STEM Amendments*, the requirement for the STEM AC to procure professional development software was removed. The STEM AC can still procure and provide the software if it so chooses. Consequently, the STEM AC acted to remove the requirement for grant applicants to use the STEM AC's professional development software. Grant applicants may still receive software licenses, but must now justify their need for the software in the grant application to be considered.

With the change in statute, the STEM AC now grants money to LEAs without requiring them to use STEM AC professional development vendors

In the future, we recommend that if the STEM AC is going to provide programs and products, the programs should have a proven record of accomplishment as well as buy-in from the teachers who will be using it. We also recommend that the STEM AC not require that the professional development software be used for LEAs to qualify for future professional development resources.

Although statutory requirements may limit the number of qualified vendors, agencies must still work within procurement laws and rules to ensure products and services are the best attainable value for the state. The next section identifies best practices for public procurements and identifies the STEM AC's adherence to those practices.

Vendor Procurement Processes Appear Reasonable

Based on concerns expressed to us by multiple parties, we looked at vendor procurement processes for STEM products. We evaluated four procurements (two from 2014 and two from 2016) for both products and services. In our sampling, we found STEM AC procurements followed reasonable and controlled processes.

One of the most common concerns we heard from some stakeholders concerning the STEM AC was that product vendors may have had too close a relationship with STEM AC staff. Also, the vendors may have been too deeply involved in developing STEM AC legislation. The STEM AC director shared that they have worked to identify legislation that might be favorable to any private interest and to amend that legislation. The STEM AC also uses the Utah Division of Purchasing and General Services to conduct its procurements.

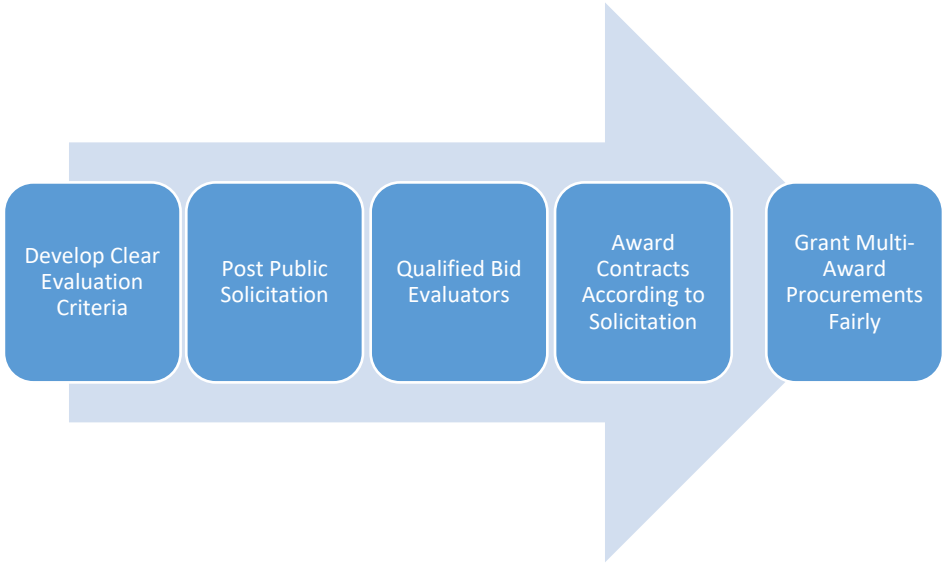
To test for possible vendor issues within the procurement process, we evaluated four STEM AC procurements to determine whether the processes were sound. We looked at four STEM AC procurements:

The STEM AC uses the Utah Division of Purchasing and General Services for its procurements.

- K-12 Math Software
- Professional Development Software
- Career and Technology Education
- STEM AC Third-Party Evaluation

Utah's Division of Purchasing and General Services identified five main control points for ensuring a healthy and competitive procurement, shown below in Figure 1.7.

Figure 1.7 A Typical Procurement Process Follows Five Main Steps. The Utah Division of Purchasing and General Services works with agencies for the first four of the five steps.



Source: Auditor generated, based on consultation with State Purchasing and General Services

A good procurement meets 5 criteria: clear criteria, public solicitations, qualified evaluators, appropriate awards, and fair award distribution.

To ensure healthy competition, the agency must first develop clear criteria defined by subject matter experts in those areas. Second, the agency should solicit bids publicly to identify as many qualified bidders as possible. Third, the agency should use qualified evaluators to score bids based only on the evaluation criteria. Where practicable, the evaluators may be independent of the agency. Fourth, the agency should award the contract according to its pre-determined award criteria and the evaluation scores. Lastly, if multiple vendors are awarded contracts, the agency should have a process for identifying which vendors will be used in which circumstances.

We evaluated each of our four sampled procurements according to the process above and found that the STEM AC used good procurement controls in each case. Figure 1.8 shows our results.

Figure 1.8 STEM AC Procurements Met Procurement Standards. The STEM AC used the Division of Purchasing and General Services for each of its procurements and each met the division's criteria.

Contract	Clear Criteria	Public Solicitation	Qualified Evaluators	Awarded Appropriately	Granted Fairly
Math Software	Yes	Yes	Yes	Yes	Yes
CTE	Yes	Yes	Yes	Yes	Yes
Professional Development	Yes	Yes	Yes	Yes	Yes
Independent Evaluator	Yes	Yes	Yes	Yes	N/A

Source: Procurement records from State Purchasing and the STEM AC

All procurements we reviewed met proper procurement criteria.

The STEM AC used the Utah Division of Purchasing and General Services to conduct all its procurements. To the extent that we could determine, all four procurements used clear and reasonable evaluation criteria. For example, among other things the math software procurement asked bidders to identify hardware requirements for their software, provide specific information on how student progress would be measured and reported, and explain what technical support they would provide.

The procurements were posted publicly using statewide public procurement platforms. The STEM AC used independent evaluators from the education field to evaluate providers' proposals in all but one procurement. For example, many evaluators were also educators in Utah schools. One procurement (the independent evaluator) used STEM AC staff to score the proposals. In that case, staff reported that they were counseled by the Utah Division of Purchasing and General Services to use internal staff because the procurement needs were more specific to the STEM AC.

We also observed that the providers who received the highest evaluation scores were selected. Further, multiple vendors were selected consistent with the original intent shown in the bid solicitations. Where multiple vendors were selected, the bid solicitations stated that multiple vendors might be selected.

Finally, we found that the STEM AC's process for selecting its qualified vendors was based on grant applicants' requests. The STEM AC provides lists of its vendors for grant applicants. For this area,

Figure 1.8 shows that the independent evaluator was not applicable because the STEM AC awarded only one proposal. In all, we found nothing to suggest the STEM AC's vendor procurement process was inappropriate in any way.

Financial Controls We Tested Have Improved

Because of concerns with previous STEM AC financial reporting, we did some audit work with the center's FINET entries. Specifically, we looked at the STEM AC's financial reporting and tracking of private donations.

FINET Reports Match Closely With Appropriations

We found that since June 2016 the STEM AC has been tracking expenditures in FINET appropriately. Our initial concerns with the STEM AC's FINET reports were based on the difficulty of comparing FINET records with the Legislative Fiscal Analyst's budgeted amounts. After reviewing recent FINET records and budgeted amounts and after consulting the Legislative Fiscal Analyst we determined that STEM AC reporting practices had improved.

Our previous concerns about the STEM AC's financial reporting were resolved with increased use of FINET and separate tracking of private donations.

Private Donations Are Now Tracked Appropriately

Prior to September, 2016, the STEM AC failed to separate private donations from public dollars in FINET. The STEM AC is encouraged by statute to pursue donations from the private sector. Those donations needed to be tracked separately, but the STEM AC foundation had not yet received a legal status from the Internal Revenue Service until May, 2017. Consequently, the STEM AC was not distinguishing private donations from public dollars in FINET.

Since September 2016, those funds are now differentiated in FINET. Although the STEM AC foundation just recently received its legal status from the Internal Revenue Service, the STEM AC had already created a financial unit in FINET specific to the foundation to appropriately distinguish its private donations.

Recommendations

1. We recommend that the STEM AC consult with its third-party evaluator to make clear data requirements for vendors to ensure valid data for measuring program effectiveness is obtained.

2. We recommend that the STEM AC provide annual public performance reports, based on performance goals and measures, to the Legislature.

3. We recommend that the STEM AC utilize future longitudinal data from the Department of Workforce Services in measuring STEM AC impact in higher education and in STEM industries.

4. We recommend that the STEM Action Center develop measures for its classroom grants initiative and all other future initiatives to better determine the effect of its funding.

5. We recommend that the STEM AC provide programs and products with proven track records and buy-in from the teachers who will be using it.

6. We recommend that the STEM AC not require its own professional development software vendor be used for LEAs to qualify for other professional development resources. This recommendation is consistent with legislative changes from the recently passed H.B. 426.

Agency Response

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Governor's Office of Economic Development
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State of Utah

GARY R. HERBERT
Governor

SPENCER COX
Lieutenant Governor

Q. Val Hale
Executive Director

Tamara L. Goetz
STEM Executive Director

June 12, 2017

Mr. John Schaff, Auditor General
Office of Legislative Auditor General
Utah State Capitol Complex
350 North State Street
Salt Lake City, Utah 84115

Re: Limited Review Report Number ILR 2017 - C

Dear Mr. Schaff,

The STEM Action Center (STEM AC) team would like to express its gratitude to the Office of Legislative Auditor General (OLAG) for its time and effort with this review. They were thorough and their thoughtful questions and comments helped the STEM AC team to consider better ways of achieving performance measures and increasing our effectiveness. The Auditors recommendations were on target and we are eager to move forward to implement several solutions that we believe will help us to continue to improve as an organization.

We would also like to thank the Auditors for recognizing the several areas in which they found that the STEM AC is meeting its mission: as noted in the report the "STEM AC devoted just over half of its 2016 budget to providing STEM learning resources to students. Other expenditures went to benefit teacher training." The Auditors also noted that "the industry certification initiative appears promising…Certifications create partnerships with businesses and schools and facilitate high school students being certified in various industry recognized areas." The Auditors found vendor procurement processes to be "reasonable and controlled processes" and specifically noted that FINET reports "match closely with appropriations."

There were six recommendations and we concur with all of them. In many instances, we have now implemented or resolved the issues raised by the limited review, or we are moving forward with solutions. The following responses are aligned with the Auditor's recommendations:

Recommendations 1 and 5

1. We recommend that the STEM AC consult with its third-party evaluator to make clear data requirements for vendors to ensure valid data for measuring program effectiveness.

5.We recommend that the STEM AC provides programs and products with proven track records and buy-in from the teachers that will be using it.

Response:
We agree with the recommendations. The STEM AC has made, or will make, the following changes to address Recommendations 1 and 5.

- ***Proven track record:*** All future Request for Proposals (RFP's) will require that vendors provide information for all past and current clients that have used or are using the product (e.g., project lead name, contact information, duration of use etc.)
- ***Ensure data requirements are clear:*** The STEM AC, in coordination with Utah State Board of Education (USBE), has been conducting product provider meetings on a monthly basis. These meetings address implementation progress, evaluation and data collection and other general customer support. All product providers are highly encouraged to attend and to-date nearly all product providers have participated. The data requirements are outlined in the RFP, but these regular meetings will ensure that all product providers are monitored and reminded of their requirements. The STEM AC, working with its new evaluation team, is using prior year's data to improve benchmarks that apply to effective usage.
- ***Teacher buy-in:*** We recognize that teacher buy-in is critical to success in all of our projects. An essential component of buy-in is building relationships through regular interaction. The following activities have been ongoing at the STEM AC to build relationships and facilitate communication (1) site visits and one-on-one discussions (2) annual Best Practices Conference and training workshops and (3) feedback on pre- and post-surveys. However, the recommendations and feedback from the limited review confirm that we must continue to facilitate these interactions, and in a few cases increase our efforts to ensure that the changes are effective.

Recommendation 2

2.We recommend that the STEM AC provide annual public performance reports based on performance goals and measures to the Legislature.

Response:
We agree with the recommendation. The STEM AC has a statutory requirement to report to the Education Interim Committee, the Public Education Appropriations Subcommittee and the Utah State Board of Education annually. In addition, the STEM AC submits a written annual report to the Education Interim Committee that contains both the STEM AC's activities, project outcomes and the third party evaluation data. The STEM AC has recognized, based upon the feedback from the limited review, that it can do a better job of communicating performance measures to the Legislature. Thus, we will commit to focusing on communicating our performance more effectively.

Concurrent with the limited review, the STEM AC was engaged in a four-month strategic planning effort, which culminated in the creation of a three year strategic plan. The plan focuses on identifying specific mission based goals/objectives, strategies and actions, as well as, detailed performance measures and outcomes for all STEM AC programs and projects through 2020.

Recommendation 3

3.We recommend that the STEM AC utilize future longitudinal data from the Department of Workforce Services in measuring STEM AC impact in higher education and in STEM industries.

Response:
The STEM AC is in complete agreement with this recommendation. We should be doing a better job of aligning with labor data in order to start identifying trends and patterns in job demand. We will also take advantage of the resources provided by the Utah Data Alliance (UDA), which can improve our ability to gather longitudinal data. The STEM AC has contracted with a new third party evaluator, which is a partnership between Utah Valley University (College of Education) and the University of Utah (Utah Education Policy Center). The STEM AC is confident that the expertise and background of the new evaluation team will improve how we can track longitudinal data to determine impact in higher education and industries.

Recommendation 4

4.We recommend that the STEM AC develop measures for its classroom grants initiative and all other future initiatives to better determine the impact of its funding.

Response:
We agree with the recommendation. The classroom grant program provides funding directly to qualified teachers to secure resources that support the design and/or implementation of new STEM activities in the classroom. This program is extremely popular with teachers but we have not adequately measured impact beyond the number of students that have access or are exposed to the new activities. The STEM AC will work more closely with the new third party evaluation team and teachers to identify additional data that can be collected, as well as a mechanism that allows for more effective collection of impact data.

Recommendations 1 and 5

Response provided on page 2

Recommendation 6

6.We recommend that the STEM AC not require its own professional development software vendor be used for LEAs to qualify for the other professional development resources.

Response:
We agree with this recommendation and have now resolved the issue. The previous statutory language required the STEM AC to procure a product for the video-based platform. This language was changed in the 2017 General Legislative Session (HB426) to allow the STEM AC to determine if procurement of a product was the most feasible option. The STEM AC found, after feedback from administrators and teachers, that a procured product was not the most cost effective option for many Local Education Agencies (LEAs – charter schools and districts.) The application for the new round of professional learning grants allowed for optional video-based platforms. The flexibility given to the STEM AC because of the statutory change now allows LEAs to use other video-based tools as part of their grant activities.

The STEM Action Center appreciates the insight and recommendations made by the Legislative Auditor General and we look forward to resolving all recommendations in a timely manner.

Sincerely,

Dr. Tamara L. Goetz
Executive Director
STEM Action Center