FUNDING RESEARCH INFRASTRUCTURE

IT’S NOT WHAT YOU KNOW....

PROGRAM SNAPSHOTS:

ITEST STEM + C DRK-12 AISL
ON THE COVER
It’s back to school time! This issue is littered with grant opportunities from the National Science Foundation. The requirements, due dates, and award amounts are all there, all that’s left is for you to make your move.
LETTER FROM THE EDITOR

Dear Readers,

In addition to more great insights and updates from our team, this month’s issue includes “Grantscasts” in the last page list of events. We will be using this term going forward in place of the generic “Webcasts,” since all our Webcasts are about grants.

Grants Office held its first public Web-based training, “Homeland Security Funding: Bringing IT Home,” on June 3, 2003. It was sponsored by Cisco Systems, and we had about 50 first responders in attendance.

In the twelve years since, we have hosted hundreds of one-hour webcasts (or, if you prefer, webinars) for over 20,000 grantseekers, primarily in education, public safety, and healthcare, and thanks to the great companies that sponsor these events, every single one has been free.

Our webcasts fall into three broad categories:
• Forecasts and budget updates
• Deep dive into a specific grant program
• Survey of funding opportunities for a specific project type

As those of you who’ve attended our events know, we also provide helpful grantseeking strategies and tips during each session.

The Grants Office team is committed to continuing our tradition of sharing what we’ve learned about finding, winning, and making the best use of grant funding, through free resources like FUNDED and our Grantscasts, as well as through our consultative grants development services.

As always, if you have feedback or suggestions on how we can make these offerings more relevant or empowering for you, don’t hesitate to e-mail me directly at mpaddock@grantsoffice.com.

Sincerely,
Michael Paddock
SUMMARY: This program, through research and model-building activities, seeks to build K-12 students’ motivation and participation in the science, technology, engineering, and mathematics (STEM) core domains along with other STEM cognate domains such as, information and communications technology (ICT), computing, computer sciences, data analytics, among others) that inform education programs and workforce domains.

ITEST may support research projects that:
• Increase students’ awareness of STEM and cognate careers;
• Motivate students pursuit of the appropriate education pathways for STEM careers;
• Provide students with technology-rich experiences that develop disciplinary-based knowledge and practices, and non-cognitive skills (e.g., critical thinking and communication skills) needed for entering STEM workforce sectors.

Proposals to the ITEST program may request support for projects that:
• Develop, implement, and study a curricular or instructional strategy or model to understand how to improve student interest in and/or preparation for STEM and/or STEM cognate careers based on a well-specified theory of action appropriate to a well-defined end-user;
• Test existing measures or create valid and reliable new performance-based measures to evaluate the implementation and impact of an intervention strategy on how to prepare students for the existing or future STEM workforce. The focus may be on student assessments or assessing growth in teachers’ knowledge of STEM and/or STEM cognate career opportunities.
• Conduct design-based pilot studies of fully or partially developed interventions to examine the attainment of intended outcomes such as knowledge about approaches, models, and interventions involving children, mentors and teachers that are most likely to increase the nation’s capacity and innovation in the STEM and STEM cognate workforce of the future.

NEXT DEADLINE: November 13, 2015

ELIGIBILITY: All U.S. organizations with an educational mission are eligible. All ITEST projects must demonstrate evidence of partnerships and collaboration in the formulation, implementation, and/or interpretation and dissemination of the project.

AWARD AMOUNTS: Approximately $35,000,000 will be available.

FOR MORE INFORMATION SEE: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5467
IT’S NOT WHAT YOU KNOW...

BY DAN CASION
...it’s who.

At least that’s true in the world of public safety. Most in the public safety realm are well aware of the annually administered, direct, federal grants, such as the Assistance to Firefighters Grant Program and the Justice Assistance Grant Local Solicitation. These grants are a “straight shot” from applicant to funder—that is, the applying entity submits an application directly to the funding agency—no middle person.

However, there are a myriad of programs from the Department of Homeland Security (DHS) and the Bureau of Justice Assistance (BJA) that are “pass-through” programs. In the pass-through process, funds go through the state, and possibly even a regional entity, before they are available to the local entity.

States may still have to apply for these funds, but often keep a portion to cover administrative costs. Each state will maintain its own re-granting process, timelines, and priorities.

It’s important to be aware of whether or not you are directly eligible to apply to a particular grant opportunity (and receive funds from it), or if it is a pass-through grant for the state. If it is pass-through you will need to follow up with the state to determine what you need to do to apply for funds for your project.

The question is: “Who do I need to contact to find out about these pass-through opportunities?” In some cases it’s fairly simple; however, other cases may require some extensive digging.

For DHS opportunities, such as the State Homeland Security Grant Program (SHSP), Operation Stonegarden (OPSG), and Emergency Management Performance Grants (EMPG), the State Administrative Agency (SAA) within each individual state is responsible for applying to the...
DHS and administering funds to entities on the local level. You can locate key points of contact (SAAs) on the Federal Emergency Management Agency (FEMA)/DHS website at the following link: http://www.fema.gov/media-library/assets/documents/28689?id=6363.

A quick email or phone call to inquire about your state’s process, timing, and application materials to the SAA will usually garner you enough details about the pass-through process for a specific program to indicate whether or not your agency can apply for funding.

Sometimes, such an inquiry is just the tip of the iceberg. You may be directed to another point of contact that your agency has to work through, such as DHS’s Urban Areas Security Initiative (UASI). For UASI funding, the Urban Area Working Group (UAWG) is responsible for preparing the applicant for submission by the SAA. This means that there’s a whole other layer to work through. These UAGWs are a tight knit group that are usually comprised of law enforcement and emergency management officials. This group represents the UASI region and holds periodic planning meetings throughout the year. If your agency resides in a UASI area and you haven’t yet worked with your UAGW, it’s important that you make contact with them and take part in these planning sessions.

However, finding points of contact for UAWG’s can be somewhat difficult. I’ve compiled a list of contacts too lengthy to include in this article, however, if you are interested in that information feel free to email your request to me at dcasion@grantsoffice.com.

State administered Justice Assistance Grants (JAG) from the BJA are another pass-through opportunity that can be tough. This is especially true considering the difference in procedure from state-to-state.

It’s usually a state’s public safety department or the state police that administers this funding, but not always. A simple search in your preferred search engine will more often than not point you to the specific state agency that administers the JAG funding. If the agency is not listed, you may want to refer back to the SAA link provided earlier in the article.

In some cases, the same group that administers DHS funding may also be tasked with dispersing JAG funding, or will know who is. You may notice that your state’s website dedicated to the JAG program, if it exists, is sorely out of date or doesn’t contain enough information for you to determine if an opportunity is viable for your agency. Once you’ve identified a point of contact for funding, again, a quick email or phone call inquiring about your state’s process, timing, and application materials will help you procure the information you need to proceed as appropriate.

Taking some time now, to become familiar with your pass-through points of contact will ensure that your agency is in tune to the various pass-through opportunities in your state. Also, it will make certain that you’re not missing out on much needed funding for your agency’s important projects.
SUMMARY: This program seeks to significantly enhance the learning and teaching of science technology, engineering, mathematics (STEM), and computing by K-12 students and teachers, through research on, and development of, courses, curriculum, course materials, pedagogies, instructional strategies, or models that innovatively integrate computing into one or more STEM disciplines, or integrate STEM content into the teaching and learning of computing.

The program offers proposers two tracks:
• Track 1: Integration of computing in STEM Education. This track seeks proposals that will integrate computing into STEM disciplinary teaching and learning, and/or integrate STEM into computer science disciplinary teaching and learning
• Track 2: Computing Education Knowledge and Capacity Building. In recognition of the fact that computing has a low presence in K-12, this track supports discipline specific efforts in computing. These efforts should be designed to build an evidence base for the teaching and learning of computing in K-12 within diverse populations or create scalable models for teacher professional development and sustainable, ongoing teacher support.

DEADLINE: April 14, 2015

ELIGIBILITY: Eligible applicants include: Universities and colleges; non-profit, non-academic organizations; for-profit organizations; state and local governments (including local school districts); unaffiliated individuals.

AWARD AMOUNTS: Approximately $43,000,000 will be available.

FOR MORE INFORMATION SEE: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505006

STEM + C’s broad eligibility means it supports a broad array of collaborative projects. (Photo: Jon Feingerish/Getty Images)
A cloudy proposition: Funding Research Infrastructure

BY CHRIS LAPAGE

1. Can I use grant funding to fund the movement of data from physical to cloud infrastructure?
2. Can I use grant funding to convert from physical to cloud infrastructure?
3. Can I use grant funding to support cloud compute and storage infrastructure?

There is a growing trend within universities and research entities towards utilizing cloud compute and storage infrastructure. There are numerous advantages to moving data into the cloud, particularly when it comes to the collaborative nature of research projects and the higher costs associated with physical infrastructure.

Many are struggling to understand what this paradigm shift in infrastructure means, especially for a research community that relies heavily on federal grants to support their efforts.

At first glance, the three questions posed at the beginning of this article appear to address the same underlying issue. In other words, the same question appears three different ways. However, there is some nuance in how these questions are phrased that has a dramatic impact on how the infrastructure can be financed through grant funds.

It makes the most sense to start with question #3… Can grant funds be used to support cloud infrastructure? The simple answer is, absolutely! Grant funders typically remain neutral when it

Funding a data move to the Cloud may seem like a daunting task. However, if you know the right questions to ask you will be ready to tackle it.

(Photo: OutsiderZone/Getty Images)
comes to distinguishing between alternative forms of technology to accomplish a particular objective.

If compute and storage infrastructure are justified in the context of a particular research project, then it can be supported through grant funds, assuming there are no funding restrictions unique to that particular funder or grant program.

In many cases, federal funders are simply not allowed to display favoritism for one type of technology over another. The primary funders of research, the National Science Foundation (NSF) and the National Institutes of Health (NIH), are well aware of the growing trend towards cloud solutions. In the former’s case, they are in many ways leading the charge in studying and exploring the potential of cloud infrastructure to support research.

If the program is an instrumentation/infrastructure grant, then the case must be made that inclusion of the cloud resources will support several science use cases (multiple researchers and projects).

If the grant program is targeted towards a particular research area, then the expenditures must be justified in the context of the singular project that is being proposed.

An example justification: A researcher is doing a study on a particular treatment for pediatric cancer patients. He justifies the use of cloud infrastructure as a way to ensure his collaborators across the country (that lack physical storage infrastructure) have access to several large datasets.

**Final Answer: As long as the cloud infrastructure can be justified in the context of the research project, federal grant funds can be used to make it happen.**

While we have established that grant funds can be used to support cloud infrastructure, it really comes down to appropriate justification.

The issue is that most people approach funders with the idea of “converting” from physical to cloud infrastructure without understanding the potential misgivings. The NSF and NIH have invested billions of dollars in physical infrastructure over the past half-century in their roles as the primary government funders of research.

From their perspective, the idea of simply financing your organization’s conversion to cloud infrastructure is laughable. At face value, there is no reasonable justification that will convince these organizations to simply fund a conversion from physical to cloud infrastructure.

Many note that cloud is now required for collaboration, however, funders counter that previously funded physical infrastructure should be used via a virtual private network (VPN), or some other mechanisms for collaborators to access the project data.

This notion doesn’t necessarily stem from bias against cloud infrastructure (in fact, NSF is one of the primary parties responsible for its proliferation); it is merely what they see as a justified stance to protect their past investments in physical research infrastructure.

**Final Answer: You will get nowhere if you simply ask grantmakers for funds to convert your organization from physical to cloud infrastructure.**

So, as we discovered, cloud infrastructure can be funded through grants, so long as you are not simply requesting that
grant makers do a wholesale replacement of your existing physical infrastructure with cloud technology.

Does that mean only new cloud infrastructure can be funded and replacing older physical storage can never be justified?

While there are no conceivable use cases that would convince grant makers to fund full scale infrastructure conversion to the cloud, there are instances where replacement can be justified in the context of particular data relevant to a research project.

Imagine a scenario where the NIH funded physical infrastructure so that a cancer researcher could access and analyze datasets that were measured in Megabytes a decade ago. The use of imaging in oncology has dramatically increased the size of datasets in this particular field over that timeframe. The data is now measured in Terabytes and the project has grown to include researchers across the United States, Europe, and Asia. In order to deal with the ballooning size of the data and the collaborative nature of the research, a principal investigator could make a case to the NIH to move the data into the cloud.

If a researcher strings enough of these use cases together, they may get to a point where they have converted completely from physical to cloud, albeit in a piece-meal fashion.

**Final Answer: Scientific use cases specific to a particular research project will dictate whether grant funds can be used to move data into the cloud.**

In addressing these three issues related to the funding of cloud infrastructure, we should now understand the beginning three questions as drastically different rather than repetitious.

While the differences may appear subtle at first, each approach will lead to drastically different responses from grant funders. The positive news is that the time has never been more ripe to use grant funding for cloud infrastructure... you just need to ask the right questions.
SUMMARY: The goal of this program is to catalyze research and development of science, technology, engineering and mathematics (STEM) education innovations or approaches that can serve as models for use by the nation’s formal STEM education infrastructure (e.g., schools, districts, states, teachers).

Projects in the DRK -12 program build on: Fundamental research in STEM education and prior research and development efforts that provide theoretical and empirical justification for proposed projects. DRK -12 invites proposals that address immediate challenges that are facing PreK-12 STEM education, as well as those that anticipate radically different structures and functions of PreK-12 teaching, learning, and assessment. The projects funded by DRK-12 should reflect the needs of the increasingly diverse population as well as national, state, or discipline priorities and contribute to the research base in STEM education by studying how students and teachers learn through well-articulated STEM education innovations with clear theories of action. Projects are expected to result in peer-reviewed research and practice publications, as well as innovations or approaches that could be used by others.

The DRK -12 program has three research and development strands:

- Assessment
- Learning
- Teaching

The DRK -12 program recognizes that there is some overlap among the strands in the activities involved in a project, but there should be a clear focus of the research and development efforts.

The program supports five types of projects:

- Exploratory
- Design and Development,
- Impact
- Implementation and Improvement
- Conferences and Syntheses

All five types of projects apply to each of the three DRK -12 strands.

DEADLINE: December 7, 2015

ELIGIBILITY: All capable entities are eligible.

AWARD AMOUNTS: Approximately $50,000,000 will be available.

FOR MORE INFORMATION SEE: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=500047

Funded September 2015
It’s no secret that the National Science Foundation (NSF) concerns itself with awarding grant opportunities related to STEM endeavors.

However, often times we only consider cutting-edge, high-level research, or sub-field specific grants or, alternately, the plethora of fellowship opportunities that are available to individual researchers.

Often forgotten are grants which can be utilized as a vehicle to support the effectiveness of STEM learning for people of all ages in all settings - including K-12 education.

Open now are four such education-oriented programs: Innovative Technology Experiences for Students and Teachers (ITEST), STEM+ Computing Partnerships (STEM+C), Discovery Research PreK-12 (DRK-12), and Advancing Informal STEM Learning (AISL).

These grants, from the NSF’s Division of Research on Learning in Formal and Informal Settings (DRL) in the Directorate for Education and Human Resources (EHR), aim to improve STEM education through field-based activities. They seek to translate previously completed foundational and early stage research to further research, design, development, and implementation of STEM learning in various environments.

First, a look at the commonalities shared between these grants. As previously mentioned, all of these opportunities aim to improve STEM education through examining field-tested models, pedagogies, tools, techniques, curricula, strategies, etc.

Each of the four grants requires that the projects be guided by a specific research question. Further, each opportunity necessitates that proposals submitted include relevant research and contributes to the research knowledge-base.

Finally, embedded in all the grants is a desire to broaden STEM field participation for underrepresented populations (e.g. women, racial and ethnic minorities, persons with disabilities, etc.). Proposals that involve engaging diverse sets of learners are strongly encouraged.

From here on, each of the four programs—ITEST, STEM+C, DRK-12, and AISL—grows increasingly unique.

Let us first begin with the ITEST grant. According to the program solicitation, ITEST proposals “support the development, implementation, and spread of innovative strategies that engage students in experiences that: 1- increase student awareness of STEM and Information and Communication Technology (ICT) careers; 2- motivate students to pursue the education to participate in those careers; and 3- provide students with technology-rich experiences that develop their knowledge of related content and skills needed to enter the STEM workforce.”

This opportunity allows applicants to center on formal and informal learning environments for STEM students ranging from grades PreK through 12.

Additionally, projects may involve a single grade of students, or multiple grades of students as the
subjects of focus. Proposed projects may also include engaging mentors, teachers, other education professionals, and adult volunteers. Moreover, ITEST projects are open to education efforts in any one or more of the STEM sub-fields.

In order to effectively examine the newly developed learning strategies or those in need of further testing and development, a partnership between a Higher Education Institution and a K-12 District is strongly encouraged in addition to partnerships involving local business or industries.

The second grant, STEM+C, is exclusively concerned with examining STEM learning within formal education settings (i.e. school). Like ITEST, projects can involve a single grade of students, or multiple grades of students as the subjects of focus. Also similar to ITEST, STEM+C encourages partnerships between K-12 Districts and Higher Education Intuitions, along with other entities.

Unlike ITEST, however, STEM+C is an opportunity which requires proposals to consider a multidisciplinary approach - requiring collaboration amongst the STEM sub-fields rather than honing in on just one discipline.

This is because the STEM+C grant was chiefly created in order to fund the integration of computing into traditional STEM disciplinary learning of K-12 students. Interestingly enough, this opportunity also affords applicants the option to propose projects which would involve teachers in professional development activities.

Another opportunity, focusing exclusively on formal education settings for STEM learning, is the DRK-12 Grant.

Akin to ITEST and STEM+C, DRK-12 projects can involve a single grade of students, or multiple grades of students as the subjects of focus.

Unlike the previously discussed grant opportunities, DRK-12 grants fund projects that wish to research the STEM learning process itself in addition to the development of subsequent STEM learning models.

The key to winning funding that works? Understanding the nuance of each grant, and discovering the one that meets your needs. (Photo:Fuse/Getty Images)
This grant centers its efforts on understanding how to develop students 21st century skills by thoroughly exploring STEM teaching, learning, and assessment. As such, proposed projects under DRK-12 have the ability to examine learning within any one, or more, STEM sub-field. They may also engage students, teachers, or both as the subjects of study.

Finally, much like the STEM+C grant, DRK-12 grants encourage partnerships between K-12 Districts and Higher Education Intuitions.

Advancing Informal STEM Learning (AISL) is dissimilar from all of the aforementioned opportunities in that - as the name suggests - projects should center exclusively on informal learning settings: zoos, aquaria, planetariums, nature centers, parks, libraries, out of school time activities, science communication, radio/television/film, Maker initiatives, online interactions, games, and other such environments.

This is the only opportunity out of this suite that also is interested in STEM learners of all ages, education, and professional levels - be they STEM professional audiences, or the general public.

Often, however, we see this grant utilized to explore how learners make bridges between what is learned in one setting and the next - particularly at the K-12 level.

The AISL grant seeks proposals for new approaches and ways of understanding the design and development of STEM learning.

Similar to ITEST and DRK-12, AISL projects are not limited to any one sub-field within the STEM discipline; proposals may examine one or more area. Additionally, given the breadth of target audiences and topics covered by this grant, partnerships among multiple entities are quite common.

Now, this is by no means an exhaustive list of NSF funded opportunities for STEM education. In fact, within the DRL, there are two other grants - Advance Technological Education (ATE) and EHR Core Research - but, you’ll understand if we save those for another day!

The four grants that we’ve covered - ITEST, STEM+C, DRK-12, and AISL - are all open now and accepting applications, so I urge you to take a few minutes and see the Program Snapshot sections of this issue of Funded (pages 4, 7, 11, and 15) for more information about each of these opportunities.

A final note: Despite a desire to also further STEM education initiatives, remember that these are research grant opportunities first and foremost. Most grant opportunities require some level of intentionality (i.e. a logic model) behind the project design, an evaluation of the project, and reporting of the projects outcomes or findings.

The key difference between those foundation and state funded opportunities and the previously discussed NSF grants is that the NSF is challenging you—as an applicant—to a higher standard of rigor! So, whether you’re an old pro or a new-comer to the land of grants, this suite of opportunities is an excellent way to dive head first and gain some new experience!
SUMMARY: The AISL program seeks to advance new approaches and evidence-based understanding of the design and development of STEM learning in informal environments for public and professional audiences; provide multiple pathways for broadening access to and engagement in STEM learning experiences; advance innovative research on and assessment of STEM learning in informal environments; and develop understandings of deeper learning by participants. To achieve the greatest return on its investments, the AISL program encourages projects that will “raise the bar” in the fields of informal STEM education. It invests in projects that advance the leading edge of the field and address its most critical challenges.

The AISL program supports seven types of projects:

• Collaborative Planning - provide groups of people and organizations the support necessary to increase partnerships, understanding, and influence, so that they can develop ideas and strategies to address the most complex issues of the field;
• Exploratory Pathways - opportunities for practitioners and researchers to investigate issues in and approaches to informal STEM learning and to establish the basis for future research, design, and development of innovations or approaches;
• Research in Service to Practice - focuses on research that advances knowledge and the evidence base for practices, assumptions, broadening participation, or emerging educational arrangements in STEM learning in informal environments;
• Innovations in Development - The Innovations in Development project type is expected to result in deliverables such as exhibits, media products, afterschool programs, etc., and in innovative models, programs, technologies, assessments, resources, or systems for an area of STEM learning in informal environments;
• Broad Implementation - supports the expansion or reach of models, programs, technologies, assessments, resources, research, or systems that have a documented record of success, innovation, or evidence-based knowledge building;
• Conferences - for conferences, symposia, or workshop
• Informal STEM Learning Resource Center (FY 2016 only) - AISL seeks proposals that will result in a single award for the development and implementation of an Informal STEM Learning Resource Center (ISLRC)

DEADLINE: November 4, 2015

ELIGIBILITY: All capable entities are eligible.

AWARD AMOUNTS: Approximately $28,000,000 to $38,000,000 will be available.

FOR MORE INFORMATION SEE: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504793
UPCOMING GRANTSCAST EVENTS

- Winning Technology-friendly Grants for K-12 - Sponsored by NetApp
  September 22nd at 2:00 pm EST
  Register: http://tinyurl.com/ndadsce

- Funding Campus Technology Projects - And They’re Nearly All Technology Projects -
  Sponsored by NetApp
  Watch: http://tinyurl.com/nndpyxs

- Funding IT Security in Government and Education - Sponsored by VMware
  Watch: http://tinyurl.com/oc84v8q

- Grant Funding to Transform how the Campus Community Stores, Accesses, and Uses Data -
  Sponsored by VMware
  Watch: http://tinyurl.com/pv5n84h

- Navigating the Landscape of K-12 STEM Funding - Sponsored by NetApp
  Watch: http://tinyurl.com/okdr9jy

Listings of past and upcoming Grantscasts at: http://www.grantsoffice.info/webcasts.aspx

RECENT GRANTSCAST RECORDINGS

- Funding Campus Technology Projects - And They’re Nearly All Technology Projects -
  Sponsored by NetApp
  Watch: http://tinyurl.com/nndpyxs

- Funding IT Security in Government and Education - Sponsored by VMware
  Watch: http://tinyurl.com/oc84v8q

- Grant Funding to Transform how the Campus Community Stores, Accesses, and Uses Data -
  Sponsored by VMware
  Watch: http://tinyurl.com/pv5n84h

- Navigating the Landscape of K-12 STEM Funding - Sponsored by NetApp
  Watch: http://tinyurl.com/okdr9jy

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