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Introduction

Good afternoon Chairman Wu, Ranking Member Smith, and members of the Subcommittee. I am Robert Berdahl, President of the Association of American Universities (AAU). I appreciate the opportunity to present AAU's views on the Small Business Innovation Research (SBIR) and Small Business Tech Transfer (STTR) programs to you today.

AAU is the association of 60 leading U.S. public and private research universities, and we also have two Canadian university members. AAU's 60 U.S. member institutions perform 60 percent of federally funded university-based research and award more than half of all Ph.D. degrees earned in our country.

I. AAU supports the current SBIR and STTR programs and set-aside percentages.

Let me begin by stating that AAU supports the SBIR and STTR programs as they are currently structured. We agree with the National Academies assessment of these programs as being "sound in concept and effective in practice." Both programs play an important role in the nation's overall innovation ecosystem by transforming cutting-edge, innovative ideas and research into viable, market-ready products for the American consumer.

In the early years of SBIR, many on our campuses were critical of the program, viewing it as coming at the expense of funding that would have otherwise supported university-based basic research. In recent years, however, as our universities and faculty have become more interested in commercializing new technologies, our universities' attitude towards the SBIR and STTR programs has become more positive.

Indeed, the SBIR and STTR programs are now widely viewed by many faculty and research administrators as an important tool that can help them transform the research generated in our university laboratories into new industrial products, goods, and services. As a result, more and more of our faculty are directly engaged in research funded through these two programs.

When the National Research Council (NRC) surveyed SBIR recipients for its 2008 report, "An Assessment of the SBIR Program," more than half of respondents reported that university faculty were involved in their SBIR-funded projects. Clearly, SBIR and STTR

are encouraging university faculty to start or work with small companies in an attempt to commercialize their research results.

The NRC found that the SBIR and STTR programs not only provide a vehicle for commercialization of research but also stimulate scientific and technological collaboration between faculty and industry that yields a variety of "knowledge outputs." These "knowledge outputs" can take the form of "data, scientific and engineering publications, patents and licenses, analytical models, algorithms, new research equipment, prototype products and processes, and spin-off companies."[1]

To elaborate on this point, I would like to highlight an SBIR success story from two of our AAU universities.

The first example comes from Chairman Wu's home state of Oregon. Electrical Geodesics Inc. ("EGI"), a University of Oregon spin-off company, was founded by UO neuroscientist Dr. Don Tucker to develop advanced, noninvasive ways to visualize brain activity. Over the last decade, SBIR grants played a key role in fueling EGI's maturation, growth and expansion. As a direct consequence of SBIR support, EGI's Geodesic Sensor Net can now be found in more than 350 laboratories in 28 countries around the world, supporting human neuroscience research on topics ranging from child development to psychopathology to neuroeconomics. EGI's Geodesic Sensor Net has become an icon of advanced neuroscience technology, appearing on the covers of National Geographic and Newsweek. Electrical Geodesics has been a past winner of the Tibbetts Award for excellence in the SBIR program. This innovative, university-born small business - whose research, development and manufacturing provide high-quality employment to scores of Oregonians in the City of Eugene - received recognition as Oregon's Bioscience Company of the Year in 2006, and received the Emerald Award for Innovation from the Eugene Chamber of Commerce in 2008.

The second example comes from Nebraska, where, in 2002, GC Image, LLC, a Lincoln based company was incorporated based on software developed by a University of Nebraska-Lincoln computer science professor, Dr. Stephen Reichenbach. GC Image delivers industry-leading software solutions for visualizing, analyzing, and reporting on scientific data from comprehensive two-dimensional gas chromatography and comprehensive two-dimensional liquid chromatography. The company has been awarded $1.5 million in SBIR and STTR Phase 1 and 2 awards over the last five years from the National Science Foundation and the National Institutes of Health. GC Image continues to grow and build on its successes through strategic partnerships to deliver software products in diverse markets.

So, to address the first of the questions posed by the subcommittee, clearly the SBIR and STTR programs have played an important role in stimulating innovation at small high-tech firms in Oregon, Nebraska, and throughout the country. The specific degree to which the programs are responsible for innovation, however, is not easy to assess because of a lack of sufficient data.

[1] National Research Council, Assessment of the SBIR Program, National Academies Press , p.3

According to the National Institute of Standards and Technology (NIST), more than $26 billion has been spent on SBIR and STTR grants, yielding 84,000 patents and attracting more than $36 billion in venture capital for more than 17,000 SBIR-funded companies. The NRC report cites Small Business Administration (SBA) data indicating that nearly 15,000 small companies received at least one Phase II SBIR grant between 1992 and 2005.

Despite the success of these programs, the NRC report makes significant recommendations about the need for better data-collection and systematic assessment of SBIR/STTR, and we commend those suggestions to you. We would agree with the NRC that is difficult to truly assess the economic and innovation impact of SBIR and STTR because there has not been systematic data-gathering on the part of sponsoring agencies. Requiring such data collection and program assessment and providing the resources needed to finance these activities would be one positive action that this subcommittee and the Congress could take to enhance the SBIR and STTR programs.

You also asked us to assess the current SBIR and STTR set-aside percentages. In response to this question, AAU is supportive of the current SBIR set-aside of 2.5 percent of R&D spending for major research agencies and the 0.3 percent set-aside for the STTR program.

While supportive of the current set-aside, we oppose any increases in the SBIR set-aside because there is no clear justification for such increases. We question whether there is enough small business research—and of sufficient quality—to merit SBIR funding that would come at the expense of peer-reviewed basic and applied research programs at agencies such as NIH and NSF, where success rates unfortunately have hit all-time lows in recent years. In our view, increasing the set-aside would reduce even further the number of successful research grants that are awarded by federal research agencies.

This is not to suggest that we do not favor increasing the amount of funds going to SBIR and STTR. Our view is that the best way to increase the amount of funding available to these programs are to provide steady and sustained funding increases for federally supported research. Indeed, we hope to work with the small business community to increase research budgets across all of the major research agencies, which would result in significant funding increases for the SBIR and STTR as well as other important research programs.

As for modifications to the set-aside, the only modification we would encourage would be the slight increase recommended by the National Research Council in the percentage of the set-aside that could be used for program management and assessment from .03 percent to .05 percent of the total program funding.

II. AAU supports allowing small businesses with significant amounts of venture capital investments to participate in the SBIR and STTR programs.

AAU supports the Subcommittee's view that firms with significant venture capital funding should be allowed to compete for SBIR and STTR awards. As you know, current Small Business Administration (SBA) regulations limit participation in these programs to companies that are at least 51 percent owned by individuals, rather than companies or other entities. This regulation effectively disqualifies small companies that have received significant venture capital investment or are owned by another company with significant venture capital investment from competing for SBIR and STTR funds. We would note that this was not always the case. Before 2001 and 2003 SBA administrative law judge rulings, companies with venture capital were allowed to participate in the SBIR program.

As then-NIH Director Elias Zerhouni said in a 2005 letter to the SBA, "this rule dries up Federal funding for early stage ideas from small companies that, by attracting substantial [venture capital] funding, show strong signs of likely success." AAU shares the view of the NRC that venture capital investment in companies seeking SBIR funding confirms the quality of those projects and would raise the quality of the applicant pool overall.

III. Recommendations on how the SBIR and STTR programs can be improved.

You also asked for thoughts concerning ways to improve the effectiveness of the SBIR and STTR programs. In responding to this request, I would commend to you the recommendations made by the National Research Council in its 2008 report, which we fully endorse.

Program Evaluation: We agree with the NRC that the agencies should conduct regular evaluations of their SBIR and STTR programs. As part of this overall evaluation process, we support the idea of agencies providing annual reports to Congress on the successes or disappointments of their programs, as well as developing a form of external evaluation of the programs' effectiveness.

SBIR Award Sizes: We also support the NRC recommendation that award sizes be adjusted. Currently, SBIR/STTR Phase I awards are limited to $100,000 at NSF and $150,000 at NIH, and Phase II awards are limited to $750,000 at NSF and $850,000 at NIH.[2] The statutory amount of SBIR and STTR Phase I and II awards should be adjusted to reflect the effects of inflation over the years and, more importantly, to make the awards more attractive. In its report, the NRC calls for a one-time adjustment in award sizes increasing Phase I awards from $100,000 to $150,000 and Phase II to $1 million.[3] Embedded within this recommendation is the notion that standard award sizes simply serve as guidance for the agencies and that agencies should be given the flexibility to exercise their own judgment when determining the size of the award needed to meet the mission and goals of the SBIR project.

[2] National Research Council, An Assessment of the SBIR Program, National Academies Press, p. 44; pp-95-97.
[3] National Research Council, An Assessment of the SBIR Program, National Academies Press, p. 84-85

Post Phase II Awards: Another NRC recommendation that AAU supports is that agencies be given the flexibility to develop follow-on SBIR funding mechanisms beyond Phase II. NIH has improvised to provide such funding with its "competing renewal" mechanism for especially promising projects, and the Navy has a similar "Phase IIb" option. NSF also has a mechanism to match supplemental industry funding for Phase II awards. We agree with the NRC that such follow-on SBIR and STTR funding would enable small companies with highly promising projects to traverse "the 'Valley of Death' between the end of Phase II research funding and the commercial marketplace." This is the single greatest challenge for SBIR and STTR-funded companies.

Additional "Gap" Funding: There is one other related issue that we would ask the Subcommittee to examine in reauthorizing the SBIR and STTR programs. Even with the existing SBIR and STTR programs, there still exists a funding gap which often prevents universities from moving new research discoveries and technologies quickly into the marketplace. SBIR and STTR funding presumes there is already sufficient evidence that a particular research advance or technology has enough commercial value to attract further investment for commercialization. Often times, however, there is not the funding available within our universities, or from other sources, to push these technologies across the "Valley of Death" to that point.

The current economic climate has left companies, angel investors and venture capitalists even less willing to invest in the proof-of-concept, scaling up, and modeling required to explore the commercial value of such advances. While the current SBIR program partially addresses this issue, it often still falls short of providing enough funding to allow emerging technologies to reach the level of development required for investment or adoption by the commercial sector. AAU would welcome the opportunity to work with the subcommittee to explore innovative new ways that would allow our universities to extend the horizon for development of research advances and new technologies, thereby making the end product easier to transfer to a small business and improving the success rate of these businesses.

Conclusion

If there is a consistent theme in these recommendations, it is that the SBIR and STTR are, at their core, good programs that help to foster successful entrepreneurial opportunities for our nation's scientists, engineers, and technology innovators. However, these programs, which were created well over 20 years ago, can stand to be improved by increasing award sizes, providing flexibility in program administration and management, and providing beyond Phase II award opportunities. We also believe that it might be time to consider supplementing these programs with a new program aimed at providing additional gap funding.

Chairman Wu, Ranking Member Smith, and members of the Subcommittee, thank you for the opportunity to share AAU's thoughts and perspective on the SBIR and STTR programs. We would welcome the opportunity to work with you in fleshing out some of

the recommendations we have made today. I look forward to any questions you may have at this time.