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## SBTC Concerns with AFWERX SBIR Program Changes

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The new AFWERX approach to the SBIR program sets the US Air Force on a radically different path for accessing innovations from America's small business ecosystem. This approach has some positive features, such as streamlining and producing model contracts, but also discards many features that have been drivers of SBIR success, and seems to violate the intent, spirit, and the letter of the SBIR law.

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Overall, the SBIR program at DOD has been working very well in terms of stimulating small business innovation, meeting Federal agency R&D needs, broadening participation in innovation and entrepreneurship, and boosting commercialization derived from Federal R&D. The result has been delivering innovation and new technology to DOD through the leveraging of the small business community of agile R&D professionals. In addition, the Air Force already does an effective job of bringing new companies into the SBIR program, as almost half of Air Force's current awards are to companies who have won one award or fewer.<sup>1</sup>

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The Air Force has made significant progress towards speeding up SBIR contracting process through their Pitch Day rapid evaluations, technology selections, same-day contracting actions and same-day payments. While these innovations may help speed the development and delivery of new technology to the warfighter, there are limitations to the pitch day model that make it impractical to use as the only method of making SBIR/STTR awards. SBTC does believe that simplified and expedited contracting procedures, such as those used by pitch day and AFWERX, can and should apply to all SBIR awards, but without the radical shift in focus away from innovation.

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Applying AFWERX's approach to the much of the SBIR program threatens the underlying successes of DOD's SBIR program. It refocuses SBIR from innovation to technology transition, from stimulating early TRL innovation to focusing upon harvesting later stage innovations already made. Further, AFWERX appears to reduce the depth and applied expertise of merit evaluations; places too high value on company knowledge of Air Force procurement offices, interests and processes; converts Phase I work from proof-of-concept to marketing; shifts Phase

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<sup>1</sup> "A review of currently active SBIR and STTR awards indicates that there are currently 542 companies that have 888 Air Force awards. A little over one half of SBIR - STTR awards go to companies with more than one award, and a little less than one half go to companies that only have one award. Based on this, it appears that the Air Force has routinely determined that companies with more than one award have offered the best proposal to address Air Force needs. Limiting companies to only one award prevents the Air Force from receiving proposals of the highest quality possible."



II TRL 2-4 work to much later stage development; requires cost-share; and artificially truncates the number of active awards to one thereby screening out potentially-superior alternative proposals while discriminating against small businesses in a way the government would never discriminate against large ones.

A Summary of the shortfalls:

- Refocusing SBIR from the prior focus on innovation to the AFWERKS focus on technology transition: This risks removing early stage innovations from the pipeline and would likely lead to longer term warfighter technology inferiority as our foes continue to innovate:
  - The focus of the entire AFWERX effort on already-commercialized commercial sector technologies will capture some true innovations, but will primarily result in evolutionary low risk adaptations to military needs. There could be a role for SBIR exploring such commercial spinoffs to military (e.g. where the military use requires some significant innovation), but AFWERX appears to be supplanting the entire AF SBIR program.
  - This “harvesting” approach should produce some quick transitions of already relatively-mature technologies, as the cost of displacing true innovations that do not get initiated or developed. There would likely be some quick successes, but we risk our international competitors, who continue to invest in innovations, advancing past us in development technology, and ultimately fielding that next-generation technology while we play catchup with technology already in commercial use today.
  - The Phase II matching funds requirement further limits Phase II awards to companies with ready-to-market products, not necessarily towards innovation and contrary to the SBIR Policy Directive.
  - SBIR should stimulate small business ingenuity and innovation, using it to solve specific agency challenges while also developing disruptive innovations leapfrogging past our future foes. Focusing on adapting existing commercial technologies will not do this.
- AFWERX centralized reviews with pitch decks risk displacing substance with form:
  - The rapid pitch deck approach to proposing potentially important new technologies limits the depth of technical merit assessment and review, and also skews awards towards being based on marketing and presentation skill and away from technical merit. A shark-tank environment adds drama, but is not necessarily the right one for conducting a measured review of nascent disruptive technology.
  - The co-location of proposal evaluations at one time using a limited evaluation panel questions whether the right USAF experts are being tapped. We have seen first-hand that in many cases the required USAF technical expert cannot participate in the pitch day downselect due to scheduling or travel constraints.
- Phase I proposal success requires sophisticated AF presence and knowledge by proposers, asking the company to show the technology meets AF program office requirements without the program offices first communicating their needs. Innovations do not conveniently line up at already-experienced Air Force small business contractors or at those that have the highest marketing skills.
- Refocusing of Phase I awards from R&D to product marketing:
  - This is inconsistent with 15 USC §638(e)(4)(a) in that it does not address the scientific and technical merit and feasibility of ideas in Phase I.



- This will displace development of actual new and far-reaching innovations through required R&D, in favor of existing solutions adapted to short-term USAF needs.
- The current Phase I proof-of-concept stage plays a vital role in SBIR's success: it requires winners to win a highly competitive Phase I proposal merit review (only around 1 in 8 are selected for Phase I projects), and then demonstrate the core claims of its technology in the Phase I (only 40% advance to Phase II. In contrast, the AFWERX process resolves substantially less risk: it does not require any technology R&D, and has as its primary screen the ability of the Phase I firms to convince a program office to support them. With much less selective Phase Is and no requirement to actually prove one's claims during the Phase I, program office decisions will have made with less data.
- Limiting the number of awards per company, when the submitted proposals are for different work, is discriminatory against small businesses and artificially minimizes competition from competent companies that could supply superior solutions.
  - By limiting the number of AFWERX awards in place at one time, this screens out potentially superior proposed solutions, the reviewed solution set is arbitrarily reduced, and the final selections will be made without broader competition. This reduction of competition due to limitation of number of contracts also clashes with the SBIR/STTR requirement for competition, and will lead to inferior solutions being selected for award. Our international competitors would not dream of screening against their winners to pick second, third or fourth best technologies, and we too would not limit multiple wins by our better DOD large business industrial base – only one sub at a time by GD or one project at a time by Lockheed?
  - One argument made for placing limits on number of parallel SBIR awards to any participating small business is to ensure wider distribution of SBIR investment throughout the small business community. But SBIR is not a welfare program; it is a data-driven merit-based competition search for the best solutions American small business can provide, where the best idea wins, regardless of its source.
  - Further, limiting the number of awards to a particular small company because they already have an active Phase II contract will severely restrain that successful company's ability to grow as a DOD supplier, both ensuring that the small company remains small (especially in an environment when VC investments in DOD products and services are few and far between) or leading to business failure of a business that is successfully developing an innovative DOD technology. All businesses seek multiple customers for their products and services, and small ones are no different.

DOD and the Air Force SBIR program have had remarkable success. After 17 National Academy of Sciences studies and 3 economic impact studies of 95% of all SBIR Phase II studies at Air Force, Navy and all of DOD, changes should be carefully considered. SBIR technologies saved the Joint Strike Fighter over \$500 million. SBIR isn't broken and works better than any government program at meeting government R&D needs and in commercialization of the research and innovations the SBIR program creates. The current AF SBIR program benefits from many multiple award winners, and AF may wish to re-evaluate this policy before cutting off access of projects from these merit-selected winners.



## SBIR/STTR Economic Impact Studies

*Dollar amounts in millions*

<u>Awards and Sales</u>	<u>Air Force ('00-'13)</u>	<u>Navy ('00-'13)</u>	<u>DOD ('95-'12)</u>	<u>NCI ('98-'10)</u>
Total SBIR/STTR Award Investment	\$4,000	\$2,300	\$14,400	\$787
Rate of Commercialization	58%	64%	58%	53%
Cumulative Sales	\$14,692	\$14,174	\$121,000	\$9,144
Military Sales	\$4,386	\$6,960	\$28,000	XXX
Military Sales % of Total	30%	49%	23%	XXX
Follow-on R&D	\$3,545	\$3,489	\$15,200	\$957
Total Acquisition Value of Acquired Firms	\$6,768	\$1,795	\$35,600	\$21,630
Total Outside Investment Funding	\$1,872	\$646	\$9,500	\$4,260
Total Economic Output	\$47,900	\$44,000	\$347,000	\$26,100
Return on Investment	12:1	19:1	22:1	33:1

*Source: Swearingen, Will and Jeffrey Peterson, "National Economic Impacts from Air Force and Navy SBIR/STTR Programs, 2000-2013"; "1998-2018 National Economic Impacts from the National Cancer Institute SBIR/STTR Programs"; and "National Economic Impacts from the DOD SBIR/STTR Programs 1995-2018"*