

AEROSPACE STARTUP COMMERCIALIZATION · GO-TO-MARKET

Tips for Speeding Up NASA's Startup Evaluation Process

NASA is notorious for delays and overruns. As an aggressive startup, with a Go-to-Market mindset, doing business with NASA can be frustrating. And if a NASA contract is essential for meeting sales goals, or even survival, it's important to understand the basics of the Agency's budget woes, so you can try to plan around the uncertainties. So bear with me....

NASA: Never on Time, Never on Budget.

Many of the delays aren't of NASA's doing. The space program has always been highly political. Public support is strong when there's some dramatic accomplishment, but can quickly turn sour when things go wrong. Space research is, in the public's view, a "nice to have," when things go well; but quickly turns to a call to fix things on Planet Earth, especially here in America, when there's a failure. And failures are always very public.

A powerful Member of Congress can also disrupt NASA funding by demanding that a project or facility must be awarded in his/her state or district. Or he/she can propose an "earmark," adding a project not requested by NASA. Earmarks can cut both ways. They're "bad" when they redirect money from your project; they're "good" when NASA must fund your project, which was otherwise unfunded. Many small startups seek support from their congressman or senator. But if you decide that you must take this step, be careful, you may make lasting enemies at NASA.

A second roadblock not of NASA's doing is the Congressional budget approval process. NASA plans its programs and prepares its budgets using a ridged planning system called the Planning, Programming, Budgeting and Execution (PPBE) system. (Introduced in the first paper.) It's an adaptation of the system introduced by Robert McNamara's Whiz Kids in the 1960s Pentagon. It's inflexible and lengthy. A NASA program manager submits a budget estimate in December of one year, and if all goes well, he/she will get funded two years later. But "all never goes well." Congress always delays, adding up to a year. So, the program manager won't see an allocation for three years. Everyone, contractors and subcontractor included, are in a waiting mode. And what the PM receives may be a fraction of what was requested, creating chaos.

In that time period, a small startup can fail.

Then finally, space research has its risks. There will be failures; and when there is a failure, all work stops until a cause is found, and a fix is approved. This is especially true for the manned space programs. Sometimes it takes an entire budget cycle to find a cause and re-start the program. In the interim, funds may be reprogrammed to another endeavor. In the case of unmanned programs, it may simply be cancelled because the scientific goals are deemed unachievable.

If you're a small startup with a subcontract with a NASA prime contractor, there's little you can do but wait it out along with your prime.

If you have a contract directly with a NASA program, you're probably in the same boat. You may be asked to stand down. A word of advice: stay aware of external factors that may affect your program. Don't only listen to the NASA (or prime) project managers. They may be hopeful, but unaware. Or they may not want to give you the bad news. Make contingency plans whenever the signs point to rough weather ahead. It isn't that NASA business is riskier than other endeavors. Most NASA programs continue in spite of delays, and are not cancelled. And many have few, if any, funding or schedule issues.

But if your company's future depends on one or two NASA research contracts, be wary.

There are NASA small-business-incentive programs that can help mitigate the damage caused by the Agency's budget woes. Several of these were summarized in the first paper. Some, such as the 8(a) program, HUB Zone, and the Mentor-Protégé program will almost certainly suffer when NASA encounters major program delays or budget issues; but at least you'll be first in line when money becomes available.

SBIR/STTR: Help is on the Way.

There are however, two small-business set-asides that can provide a shield against potentially fatal breaks in funding: the Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) programs. SBIR/STTR is a separate, identifiable line item in NASA's budget request. And while it's vulnerable to Congressional maneuvering, you can count on an appropriation with some confidence.

These are the premier small-business-incentive programs offered by NASA, and every startup company needs to consider active participation.

The following provides highlights, but the program details are too extensive to be described here. Relevant NASA and SBA websites are provided at the end of this paper, and it's recommended reading for all small Go-to-Market startups.

In 1982, Congress passed the Small Business Innovation Development Act, establishing SBIR and STTR. The programs are administered by the Small Business Administration, and seek to ensure that small, high-tech, innovative businesses become a significant player in Federal research and development. Eleven Federal agencies, including NASA, participate in SBIR; five agencies, including NASA, participate in STTR.

Both SBIR and STTR are competitively-awarded, three-phase programs.

The programs are similar; the main difference being that a small company can bid SBIR alone (or with a partner, as long as the small company has the major role), while STTR requires collaboration with a university or other non-profit research institution, or a Federally Funded Research and Development (FFRDC) organization. Award values and project schedules are somewhat different between the two programs.

Technical topics and subtopics of specific interest to NASA are published each year in a dedicated NASA SBIR/STTR proposal solicitation. The topics are selected by research personnel from each of the four participating NASA Mission Directorates: Aeronautics Research (ARMD), Exploration Systems (ESMD), Science (SMD) and Space Operations (SOMD), plus JPL.

Phase I SBIR is maximum 6 months duration and \$150K. STTR Phase I is up to 13 months. SBIR Phase II is maximum 24 months and \$850K. There are no SBIR/STTR funds for Phase III; the company must seek outside funding, either a NASA program, another agency or the private sector.

\$150K

Phase I SBIR maximum, 6 months

\$850K

SBIR Phase II maximum, 24 months

None

SBIR/STTR funds for Phase III

All of the NASA Centers, plus JPL, participate in managing SBIR/STTR programs; and they seek to reinforce NASA's objective of infusing and/or integrating the results of Phase II projects into its major programs and projects. It's generally agreed at upper management levels that technology fusion has failed in the past. Powerful Members of Congress have become aware of this failure, and have increasingly applied pressure on NASA, and other SBIR participating agencies, to make better use of this taxpayer investment in SBIR/STTR of around \$2.5B annually. NASA's annual appropriation is about \$175M.

The Valley of Death.

The end of Phase II seldom results in a technology that is ready for commercialization, either within NASA, or elsewhere. Bridging the gap between Phase II and commercialization has been dubbed “the valley of death,” where most promising technologies simply die.

This has been an enduring problem for all Government agencies that have SBIR programs. To help alleviate this serious deficiency, a plethora of Post Phase II programs have been introduced, with a common objective of providing financial assistance to small companies, so they can remain viable, and further mature their technologies, while they seek partners for Phase III commercialization.

Below is a summary of promising initiatives that can measurably reduce the time to mature a technology, and provide Go-to-Market startups with a clear pathway to a profitability in non-NASA markets. The descriptions are lengthy, but they are important avenues for startups to exploit, as a means to accelerate winning NASA contracts.

SBIR/STTR Phase II Extended

The objective of the Phase II-E is to further advance technology for active Phase II contracts. Funding is up to \$375,000 for an additional 6-12 months, but requires a 1:1 match with non-SBIR/STTR funding. Matching funds must come from non-SBIR-Program sources, e.g., other NASA programs, other Agencies or the private sector.

SBIR/STTR Sequential

Via an open invitation, NASA invites to SBIR Phase II companies to propose Sequential Phase II programs with higher award values ranging between \$2.5M to \$4M. These awards will facilitate rapid, post-Phase II development of technologies with the goal to infuse them into specific NASA programs. A Phase II awardee may receive only one additional Phase II Sequential award.

Civilian Commercialization Readiness Pilot Program

CCRPP is a funding opportunity available to SBIR/STTR contractors with a primary objective of accelerating the near-term transition of SBIR/STTR-funded technologies to infusion and/or commercialization, not for technology maturation. There is a minimum investor funding requirement of \$500,000, and the NASA SBIR/STTR program will match between \$500,000 and \$2.5 million of the external investment. The period of performance is 24 months.

SBIR Ignite

This pilot program seeks technologies that will stimulate commercial markets where there is a need overlap with NASA, but where a NASA program is not the primary application. Regular SBIR solicitations are focused on the infusion of technologies into NASA mission programs. Under SBIR Ignite, entrepreneurs, startups, and small businesses will receive NASA funding to de-risk their technology, making it more attractive to investors. NASA will also provide an assessment by top NASA technology and industry experts of the technology for its commercialization potential. Ignite follows the same three phases, with the same funding levels, as a traditional SBIR program, but with an emphasis on non-NASA commercialization.

Innovation Corps

NASA I-Corps is an intensive training program for small businesses, including startups, to increase the odds of accelerating the process of developing their SBIR/STTR technologies into a repeatable and scalable business model. The program involves the further development of their business model hypotheses, testing it through an interview process, involving meetings with seasoned business executives. The intended results are to help small businesses and startups conduct customer discovery to (a) learn their customers' needs, (b) obtain a better understanding of their company's value proposition as it relates to those customer needs, and (c) develop an outline of a business plan for moving forward. Versions of this I-Corps "boot camp" are available to selected Phase I and Phase II awardees.

Technical and Business Assistance

In FY19, Congress gave NASA the authority to provide increased funding for discretionary technical and business assistance (TABAs) to SBIR/STTR Phase I/II awardees. This is a NASA obligation over and above the SBIR/STTR contract face value. Awardees are free to select an independent company to assist in commercializing its technology with a number of services, including: market research, developing commercialization plans, and assistance with product sales. The assistance limits are: \$6,500 for Phase I and up to \$50,000 for Phase II.

Speeding Up NASA.

Cutting NASA's procurement red tape has to involve Congress. Just recently, a Congressionally-mandated commission just completed a study of DoD's red tape, which is even more complex than NASA's. Recommendations have been made, but change is slow in coming. So, as a small startup, it's best to "work the system."

SBIR and STTR give the small guy relief from most of the frustrations of traditional bidding. Finding opportunities that fit your plans is relatively easy. Bidding procedures (described in the fourth paper) are rigid, but far less paperwork is involved. Small business can be confident that an annual procurement will take place. And the time-to-contract is far shorter. Proposals are due 60 days after the solicitation is released. Award decisions are within 90 days after submission. And contracts are signed within three-six months of award announcements.

So, a contract can be awarded and work begun within six-nine months. That's "lightning speed" for Government contracting.