



Office of Naval Research  
**ONR**  
Science & Technology

**NAVAL FUTURE FORCE**  
SCIENCE AND TECHNOLOGY EXPO

# Doing Business with ONR – *ONR SBIR Program*

CO-SPONSOR  
[www.navalengineers.org](http://www.navalengineers.org)

DISTRIBUTION STATEMENT A. Approved for public release



Office of Naval Research  
**ONR**  
Science & Technology

## Small Business Innovation Research (SBIR)

- **Increase innovative small business concerns (SBCs) in federally-funded research or research and development (R/R&D).**
- **Specific program purposes are to:**
  - 1) stimulate technological innovation;
  - 2) use SBC's to meet federal R/R&D needs;
  - 3) foster participation by minority and disadvantaged firms in technological innovation; and
  - 4) increase private sector commercialization of federal R/R&D, thereby increasing competition, productivity and economic growth.

DISTRIBUTION STATEMENT A. Approved for public release

2



## About Navy SBIR/STTR

- \$275M+ annual funding for SBCs
- Major players – NAVAIR, NAVSEA, ONR, MARCOR, SPAWAR – others include NSMA, NAVSUP, NAVFAC
- FY14 – 154 topics, 482 Phase I, 243 Phase II and 142 Phase III's (\$490M)
- Acquisition driven process with strong technology pull
- Wide range of SBIR/STTR topics driven by PEO/PM/FNC specific needs
- Transition SBIR/STTR developed technologies into an acquisition program/program of record

DISTRIBUTION STATEMENT A. Approved for public release 3



## Why Use SBIR/STTR?

- **Small Business Incentives**
  - Largest source of early stage R&D funds for Small Business
  - Company retains data rights for 5 years (DoD)
  - Builds credibility for company's research
  - Follow-on awards are non-competitive
- **Government Incentives**
  - Test drive small business
  - Proactive risk reduction
  - Early/High-risk S&T with SBIR funding
  - Competing approaches open up additional technology alternatives
  - Follow-on awards are non-competitive
  - High level of matching funds

DISTRIBUTION STATEMENT A. Approved for public release 4

 **Small Business as Tech Feeder**

- Innovative, competitive, fresh ideas
- Agility to respond to emerging needs and interests
- Tackle numerous, disparate complex technical challenges


What is desirable to users?

**Innovation**

What is possible with technology


What is viable in the marketplace

DISTRIBUTION STATEMENT A. Approved for public release 5

 **ONR SBIR Overview**

- **Annual ONR SBIR budget ~\$42M**
  - ~100 Phase I awards up to \$150K each, AND
  - ~50 Phase II awards s per year ranging from \$500K to \$1.125M
- **Average 40 SBIR topics per year**
  - ~ 800 proposals per year
  - Topics generated from all 6 technical codes
- **ONR SBIR/STTR program participates in 2 solicitations per year**
  - 15.1/15.A: Closes 18 Feb 2015 (30 topics from ONR; 103 total Navy)
  - 15.2/15.B: Pre-Solicitation 24 Apr – 24 May; Opens 25 May and Closes 24 Jun 2015


DISTRIBUTION STATEMENT A. Approved for public release 6




## ONR Investment Focus

### ONR is different from other SYSCOMS

- Early stage Science and Technology (S&T)
- Greater risk, greater reward
- More opportunity for innovation
- More than one technology solution
- Wider applicability
- Transition may be tougher
- Ground breaking new ideas vs. set requirements



DISTRIBUTION STATEMENT A. Approved for public release 7



## ONR SBIR/STTR Program Award Structure

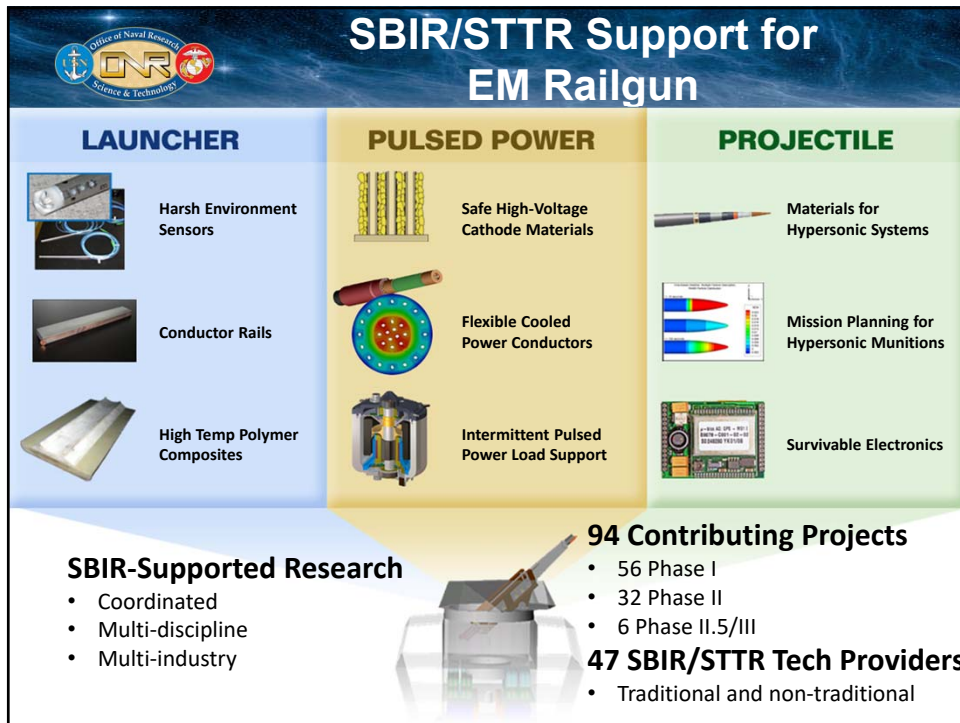
Feasibility Study		Technology Development and Prototype Demonstration			Prototype Testing & Evaluation Technology Demo & Validation		Commercialization Transition
<b>Phase I</b>		<b>Phase II</b>			<b>Subsequent Phase II</b>		<b>Phase III</b>
Phase I Base	Phase I Option	Phase II Base		Phase II Option 1	Phase II Option 2	Contingent upon having a successful project with a committed Transition Sponsor/Path	
• 6 Months (SBIR) • 7 Months (STTR) • \$80K	• 6 Months • \$70K	• 18 Months • ≤ \$500K		• 9 Months • ≤ \$250K • TTP required • SBIR PM/PO review for Option 2 at exit	• ~12-18 Months • ≤ \$750K total • 1:1 cost match • ≤ \$375K SBIR • ≤ \$375K match • Signed TTA required • ≥ to TRL 4 at exit	• Up to 24 months • 1:1 cost match • Signed TTA required • Minimum TRL 4 at entry	
FFP Contract		CPFF Contract			CPFF Contract		Transition to Acquisition Program
NTE \$150K		NTE \$1.125M SBIR/STTR Funding			NTE \$1.5M SBIR/STTR Funding		• Non-SBIR/STTR \$ (Private sector or Non-SBIR Gov. \$) • Unlimited POP • SBC Extension of Data Rights and Sole Source Designation
					NOTE: A 'Subsequent Phase II' is a <b>Requirements Driven</b> process; i.e., based upon Acquisition program needs.		Contract Type Varies Phase III contracts may be awarded without competition after Phase I/II
							No limit on funding (Just Non-SBIR/STTR)
NTE \$2.775M Total SBIR /STTR Funding							
Phase III – can occur anytime after Phase I and is funded with non-SBIR/STTR\$							
TRL: 0 - 3		2 - 5		4 - 7		6 - 9	

TTP: Technology Transition Plan  
TIA: Technology Transition Agreement

DISTRIBUTION STATEMENT A. Approved for public release



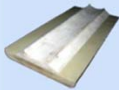




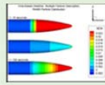

Updated 2 Apr 2014 8






**Office of Naval Research**  
**ONR**  
Science & Technology

## SBIR/STTR Support for EM Railgun

LAUNCHER	PULSED POWER	PROJECTILE
 Harsh Environment Sensors  Conductor Rails  High Temp Polymer Composites	 Safe High-Voltage Cathode Materials  Flexible Cooled Power Conductors  Intermittent Pulsed Power Load Support	 Materials for Hypersonic Systems  Mission Planning for Hypersonic Munitions  Survivable Electronics

**SBIR-Supported Research**

- Coordinated
- Multi-discipline
- Multi-industry

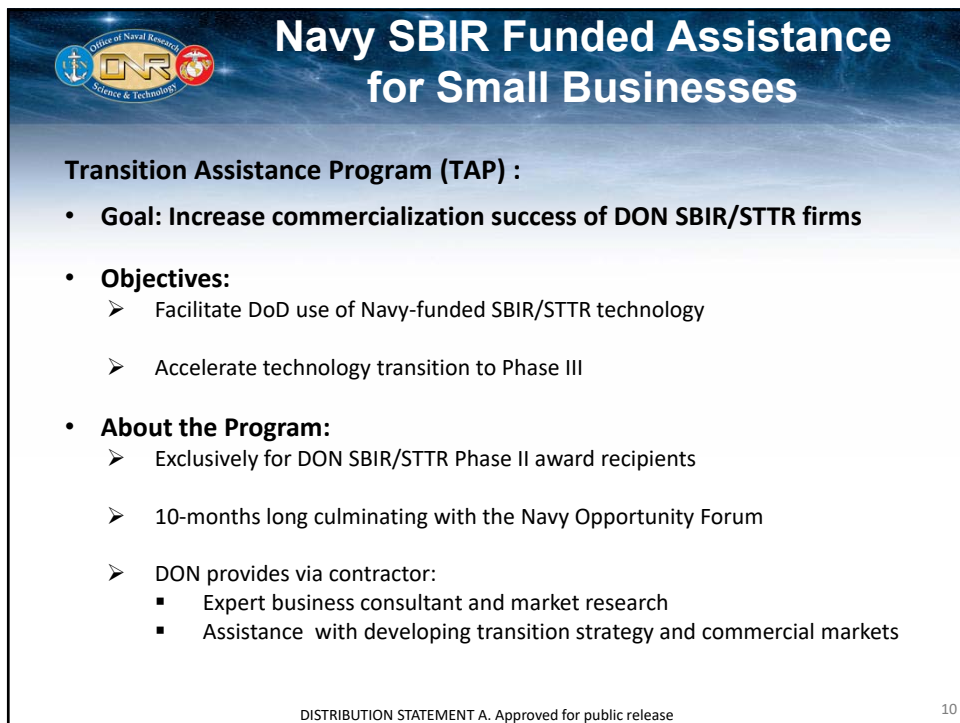


**94 Contributing Projects**

- 56 Phase I
- 32 Phase II
- 6 Phase II.5/III

**47 SBIR/STTR Tech Providers**

- Traditional and non-traditional



**Office of Naval Research**  
**ONR**  
Science & Technology

## Navy SBIR Funded Assistance for Small Businesses

**Transition Assistance Program (TAP) :**

- **Goal: Increase commercialization success of DON SBIR/STTR firms**
- **Objectives:**
  - Facilitate DoD use of Navy-funded SBIR/STTR technology
  - Accelerate technology transition to Phase III
- **About the Program:**
  - Exclusively for DON SBIR/STTR Phase II award recipients
  - 10-months long culminating with the Navy Opportunity Forum
  - DON provides via contractor:
    - Expert business consultant and market research
    - Assistance with developing transition strategy and commercial markets

DISTRIBUTION STATEMENT A. Approved for public release

10



# Search Existing SBIR Awards

## Navy SBIR Project Database

- Navy SBIR/STTR awards
- Publically accessible
- No account required
- Ability to create a briefcase
  - Save query results
  - Automate query updates and receive emails
- Partnering opportunities



## www.navysbirsearch.com

DISTRIBUTION STATEMENT A. Approved for public release

11



# www.navysbir.com


## Learn about:

- SBIR/STTR Policies and Procedures
- SBIR/STTR Phases (funding, timelines, requirements, etc.)
- Solicitation schedules
- Links to SYSCOM sites
- Program POCs
- Submitting Proposals
- Getting Started / Getting Paid



DISTRIBUTION STATEMENT A. Approved for public release

12



## More SBIR Information

- Online Tutorial at <https://www.sbir.gov/tutorials/>
  - Evaluation criteria
    - <https://www.sbir.gov/tutorials/preparing-proposal/>
  - SBIR Data Rights
    - <https://www.sbir.gov/tutorials/data-rights/>

DISTRIBUTION STATEMENT A. Approved for public release

13

**COURSE 6, TUTORIAL 6**

**PHASE I  
COMMERCIALIZATION  
PLANS**



**E**arlier we discussed the importance of understanding proposal evaluation criteria before beginning to draft your response. Although each agency will have some criteria that are unique, we previously introduced three that are commonly considered important in evaluating all SBIR/STTR proposals: Innovation, Capabilities of the team, and Commercialization. As this is a dynamic arena, please be sure to always consult the most current solicitation or Funding Opportunity Announcement (FOA) from the agencies themselves. The accompanying table provides an overview of what we will discuss.

## Comparison of Phase I SBIR Guidelines on Commercialization

	Section Name	Suggested Length
DoD	Commercialization Strategy	1 page
DOE	Commercialization Plan	2 pages
HHS	Mentioned in Field Name- Research Strategy	N/A
NSF	Commercial Opportunity	2-4 pages
NASA	Potential Post Application	Not mentioned





In this Tutorial we will quickly look at what each of the five largest agencies state that they would like to see regarding commercialization in a Phase I proposal. So let's start with a definition. Commercialization is defined in the SBIR and STTR Policy Directives and we have listed the definition here. Although it is brief, there's a lot to it!

### **DEPARTMENT OF DEFENSE (DOD)**

We will briefly review what each of these agencies requests regarding commercialization in their solicitation – starting with the Department of Defense. The DoD provides an overview of solicitation guidelines for Phase I in a document referred to as the DoD Instructions or Preface. When working with DoD it's important to remember that each component that participates in a solicitation may have additional guidance for their component – so you will need to look not only at the DoD Instructions, but also at those provided by the Component. In this tutorial we will only point out what is mentioned in the general DoD Instructions. In reviewing this document you will find that the proposer is asked to include a section called Commercialization Strategy that is approximately 1 page in length in their Technical Proposal. The guidance to proposers is to:

*“Describe... your company's strategy for commercializing this technology in DoD, other Federal Agencies, and/or private sector markets. Provide specific information on the market need the technology will address and the size of the market. Also include a schedule showing the quantitative commercialization results from this SBIR project that your company expects to achieve.”*

### **DEPARTMENT OF ENERGY (DOE)**

The Department of Energy requests a two page Commercialization Plan that is uploaded through Grants.gov in a specific section referred to as Other- Phase I Commercialization Plan in the DOE Funding Opportunity Announcement. The Department of Energy has been placing increased emphasis on commercialization in both Phase I and Phase II and states that “If the Commercialization Plan is not included at the time of application submission, your application will be administratively declined without review.” – so be sure to include it. DOE also provides a useful example of a responsive Phase I Commercialization Plan on their website.

### **DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS)**

The Department of Health and Human Services (HHS) places its emphasis on commercialization in Phase II and only requires a separate commercialization plan for Fast Track applicants who are submitting a combined Phase I/Phase II application.

**“Commercialization is the process of developing products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets.”**

However, all Phase I applicants are asked in the Research Plan in the section designated by Field Name – Research Strategy, under the subheading of significance, to “Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses” and “to explain the project's potential to lead to a marketable product, process, or service.”

### **NATIONAL SCIENCE FOUNDATION (NSF)**

The National Science Foundation asks that applicants discuss the Commercial Opportunity in the Project Description section, recommending that two to four pages are spent discussing items such as:

- » Is there a broader societal need you are trying to address with this commercial opportunity? Please describe.
- » Describe the market and addressable market for the innovation. Discuss the business economics and market drivers in the target industry.
- » How has the market opportunity been validated?
- » Describe your customers and your basic business model.

### **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)**

The National Aeronautics and Space Administration refers to a Potential Post Application section which is to be submitted as part of the Technical Proposal. By the way, NASA refers to the adoption of a technology within NASA as “infusion”. The guidance to proposers indicates:

“The Phase I proposal shall (1) forecast the potential and targeted application(s) of the proposed innovation and associated products and services relative to NASA needs (infusion into NASA mission needs and projects), other Government agencies and commercial markets, (2) identify potential customers, and (3) provide an initial commercialization strategy that addresses key technical, market and business factors for the successful development, demonstration and utilization of the innovation and associated products and services. Commercialization encompasses the transition of technology into products and services for NASA mission programs, other Government agencies, and non-Government markets.”

As you can see the commercialization requirements are diverse. Therefore, make sure that once a solicitation is released, that you review the commercialization requirements so that you have time to prepare an appropriate response. Also keep in mind that in some cases, the section that deals with commercialization is part of the technical proposal as a whole, while in other cases, it is a separate attachment.



## COURSE 6, TUTORIAL 1

# BEFORE YOU BEGIN, UNDERSTAND THE PROPOSAL EVALUATION CRITERIA

**B**efore writing a proposal you must first understand how it will be evaluated as the proposal that you submit must be responsive to these criteria. All solicitations contain a section where the evaluation criteria are discussed - usually placed somewhere towards the end of the solicitation document. One criterion that is ever present in all SBIR/STTR solicitations is “innovation”. For example, the Department of Defense (DoD) first evaluation criterion is “the soundness, technical merit and innovation of the proposed approach...” The Department of Health and Human Services (HHS) lists Innovation as an evaluation criterion and elaborates by asking “Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies?” The Department of Energy (DOE) evaluates the Strength of the Scientific/Technical Approach as evidenced by the innovativeness of the idea and the approach, and the significance of the scientific or technical challenge. The National Science Foundation (NSF) does not use the word “innovation” but instead talks about Intellectual Merit which encompasses the potential to advance knowledge. The National Aeronautics and Space Administration (NASA) talks about plans for developing and verifying the innovation which must demonstrate a clear understanding of the problem and the current state of the art.

<p><b>DoD</b></p> <p>“the soundness, technical merit and innovation of the proposed approach...”</p>	<p><b>HHS</b></p> <p>“Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies?”</p>	<p><b>DOE</b></p> <p>“Strength of the Scientific/Technical Approach as evidenced by the innovativeness of the idea and the approach, and the significance of the scientific or technical challenge.”</p>	<p><b>NSF</b></p> <p>Talks about Intellectual Merit which encompasses the potential to advance knowledge</p>	<p><b>DOE</b></p> <p>“Strength of the Scientific/Technical Approach as evidenced by the innovativeness of the idea and the approach, and the significance of the scientific or technical challenge.”</p>
--	---	--	--	--



**INNOVATION IS A ‘MUST’**

Given this criterion, in your proposal one item that you **must** address is innovation. But how will you know if your work is innovative? How can you assure that you are responsive to this criterion? Guidance is actually provided in the way innovation is discussed in the various solicitations. In order to demonstrate an innovation, you must show an understanding of the current state of the art. You must review the literature and contrast your approach with that of conventional wisdom.

For some applicants reviewing the literature and contrasting your approach with conventional wisdom is commonplace. However for others who have been practicing their art for a number of years and who are not from an academic environment this may be somewhat foreign. However, what is required is consistently mentioned in the solicitations - you must demonstrate a knowledge of the state of the art and contrast what you are proposing with that as the baseline. You cannot assume the reviewer’s knowledge of the literature – it is your responsibility to demonstrate your knowledge of the state of the art and clearly call out what is innovative about your approach.

**EXPERIENCE, AULIFICATIONS AND FACILITIES**

Another evaluation criterion that is common across all SBIR/STTR programs is Experience, Qualifications and Facilities. DOE evaluates the “Ability to carry out the project in an efficient manner as evidenced by the qualifications of the Principal Investigator or PI, other key staff, subcontractors and consultants”. The National Science Foundation looks at how well qualified the individual, team or organization is and if adequate resources are available to the Principal Investigator (PI) to carry out the proposed activities. DoD evaluates the qualifications of

the proposed principal/key investigators, supporting staff and consultants. The Department of Health and Human Services evaluates if the Program Directors, also called PDs, the PIs, collaborators and other researchers are well suited to the project; while NASA evaluates the technical capabilities and experience of the PI, project manager, key personnel, staff, consultants and subcontractors, if any and evaluates for consistency with the research effort and their degree of commitment and availability.

This evaluation criterion means that you must place considerable emphasis on putting your team in place. It’s not enough that you believe that you have the capabilities to do X, you must be able to demonstrate that you CAN do X. The government is looking to minimize its risk and will look for teams that have a track record for delivering comparable services.

**COMMERCIALIZATION**

Another criterion that all agencies include relates to commercialization. In the HHS guidelines, you will find commercialization mentioned as part of the “Significance” criterion where it asks “Does the proposed project have commercial potential to lead to a marketable product, process or service? Does the Commercialization Plan demonstrate a high probability of commercialization? The Department of Defense evaluates “The potential for commercial applications (that is, Government or private sector) and the benefits expected to accrue from this commercialization.” With the Department of Energy you will find this under “Impact”. DOE evaluates the evidence of impact by looking at the likelihood that the proposed work could lead to a marketable product or process and the likelihood that the project could attract further development funding after the SBIR or STTR project ends. The fourth factor that NASA evaluates is

## Commercialization Criterion

Commercialization	
HHS	“Does the proposed project have commercial potential to lead to a marketable product, process or service? Does the Commercialization Plan demonstrate a high probability of commercialization?”
DOD	“The potential for commercial applications (that is, Government or private sector) and the benefits expected to accrue from this commercialization.”
DOE	“DOE evaluates the evidence of impact by looking at the likelihood that the proposed work could lead to a marketable product or process and the likelihood that the project could attract further development funding after the SBIR or STTR project ends.”
NASA	“The offeror’s experience and record in technology commercialization, co-funding commitments from private or non-SBIR/non-STTR funding sources, existing and projected commitments for Phase III funding...will be considered along with the initial commercialization strategy for the innovation.”
NSF	“NSF looks at the broader impact which encompasses the potential of the proposed project to benefit society and contribute to the achievement of specific, desired societal outcomes. ”



called “Commercial Potential and Feasibility” stating that “The offeror’s experience and record in technology commercialization, co-funding commitments from private or non-SBIR/non-STTR funding sources, existing and projected commitments for Phase III funding...will be considered along with the initial commercialization strategy for the innovation.” NSF looks at the broader impact which encompasses the potential of the proposed project to benefit society and contribute to the achievement of specific, desired societal outcomes.”

role in the down select process of topics to which a company decides to respond. It will also surface areas where more resources need to be garnered. For example, if you can readily demonstrate that your technology is innovative, but you need to strengthen your team, an immediate task becomes addressing the weaknesses in proposed personnel. In other words, you won’t eliminate all potential topics because of gaps – but you will focus on those where you will be more competitive.

## Sample Evaluation Criteria

Evaluation Criteria	Evidence of	How Do we Stack Up
<b>Strength of Scientific/ Technical Approach</b>	(1) Innovativeness of the idea and approach (2) Significance of the scientific or technical challenge, (3) Thoroughness of the presentation	
<b>Ability to carry out the project in an efficient manner</b>	(1) qualifications of the PI, other key staff, subcontractors and consultants, if any and level of adequacy of equipment and facilities (2) the soundness and level of adequacy of the work plan to show progress toward providing the feasibility of the concept, (3) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.	
<b>Impact</b>	(1) the significance of the technical and/or economic benefits of the proposed work, if successful, (2) the likelihood that the proposed work could lead to a marketable product or process, (3) the likelihood that the project could attract further development funding after the SBIR or STTR project ends, and (4) the appropriateness of the data management plan for the proposed work.	

### KNOW THE EVALUATION CRITERIA

By reading the evaluation criteria before you begin proposal preparation, you will understand those items that you must address thoroughly within your proposal. What has been mentioned here are only criteria that all participating programs evaluate – specifically the innovation of what you propose; your team; and attention to commercialization in a manner that is consistent with that agency’s mission. These are not all of the evaluation criteria, so be sure to find and review that section of the Funding Opportunity Announcement or solicitation which states the criteria against which your proposal will be evaluated.

### KNOW THE EVALUATION CRITERIA

What successful companies do, once they have identified the evaluation criteria is assess “win themes”. In other words, they evaluate how they stack up against these evaluation criteria. This will surface gaps and will help in the elimination of potential topics to which they might respond. It is not uncommon that within a few days of a solicitation’s release potential proposers gather with colleagues or management to review those topics that seem relevant. The evaluation criteria play an important

The concept of “win themes” is not only useful for surfacing gaps and deciding which topics to address, but is also important to consider as you write your proposal. You must make it easy for reviewers to verify that your proposal is responsive to the evaluation criteria. This is accomplished by including language within your proposal that clearly and subtly calls out the evaluation criteria and which emphasizes your strengths relative to them. Sometimes a proposer may choose to call out areas where they have a perceived weakness and clarify what they have done to mitigate this risk.

Understanding the evaluation criteria that will be applied to a proposal effects everything – from your internal down select process, to the early surfacing of gaps that you will address and the actual writing of your proposal. Those that develop winning proposal always allow sufficient time before submitting their proposals to have another party independently review the draft and evaluate how the proposal stacks-up against the evaluation criteria. Make sure that you allow sufficient time so that you can address the feedback that they provide.