Appendix I   Toolkit for Developing a Challenge/Demonstration

Key questions and Guidance for preparing, developing, and conducting a challenge

I.1   Introduction

I.1.1   Purpose

This appendix offers a toolkit for organizations that are considering leveraging a ChBA approach for procurement. This toolkit provides questions and considerations that organizations should address when preparing for, developing, and executing a challenge. For purposes of the toolkit, a pre-award challenge or demonstration (i.e., white paper, on-site inspection, sandbox demonstration, live fly, etc.) is provided as one example leading to a down-select process and the ability to test and acquire innovative solutions in an operational-like environment using both FAR and non-FAR acquisition approaches.

I.1.2   Background

Designing a challenge has many elements, which include identifying resources, planning the activities, and considering both outputs and outcomes.
- Resources include human and financial resources required to support the challenge.
- Activities include all action steps necessary to produce program outputs, which are the products/services procured by the ChBA stakeholders.
- Outcomes are changes or benefits resulting from the challenge.

The checklists that follow focus on the activities needed to prepare and execute a challenge or demonstration for a pre-award down-select process. They present key questions to consider when preparing for, developing, and conducting the challenge or demonstration.

I.1.3   Challenge or Demonstration Definition in Context with ChBA

Several types of challenges or demonstrations can be executed, to include sandbox demonstrations and use of prototypes within an operational or simulated environment. Again, these are not "show and tells." These challenges and demonstrations are dynamic and are executed in an environment that represents operational circumstances as closely as possible (with interfaces, Government Furnished Information, etc.). During execution, the Use Case is performed by the vendors and evaluated throughout.

I.1.4   Three-Phased Approach

This toolkit applies a three-phased approach to planning a challenge or demonstration event composed of three phases: Prepare, Design, and Conduct. Additionally, the toolkit identifies the critical steps to include in the plan and the key questions that must be examined to ensure all items are considered, and it presents clear guidance that includes suggestions and best practices. When viewed from the lens of the major steps in ChBA execution (see page 2-1 – 2-25 and Figure 2-1. Challenge Strategy), this toolkit addresses aspects of both the Pre-Challenge and Challenge Activities with special emphasis placed on understanding, designing, communicating and conducting the challenge event. These correspond to Steps 1, 2, 4 and 6 of the major steps in ChBA Execution.

PREPARE
- Understand Challenge or Demonstration
- Identify Goals & Outcomes
- Define the Problem
- Build the Team
- Set Award Level
- Estimate Budget/Resources Needed
- Create Project Plan & Set Milestones
- Make the Case

DESIGN
- Design the ChBA-Based Challenges(s) or Demonstration(s)
- Set Rules of Play & Submission Requirements
- Determine Evaluation Criteria
- Identify Participants

CONDUCT
- Implement Communications Plan
- Execute the ChBA Challenge(s) or Demonstration(s)
- Solicit Participants and Encourage Submissions
- Accept Sign-Ups & Solutions
- Manage Evaluations
- Provide Evaluation Findings to Source Selection Authority

Figure I-1. Prepare, Design and Conduct ChBA

I.2   Checklists

I.2.1   Phase I – Prepare for ChBA Challenge(s) or Demonstration(s)

Table I-1. Checklist: Preparing for ChBA

Step	Key Questions	Guidance
a. Understand ChBA Challenge or Demonstration	• What type of acquisition is the organization contemplating (FAR-based vs. non-FAR-based acquisition)? • Does ChBA conform to the rules of specific FAR-based authorities (parts 8.4-GSA 13-Simplified Acquisitions; 15.3-Negotiations; 16.5-Fair Opportunity, other-OTA)? • What type of ChBA demonstration does the organization want to run? • Who can participate? • What intellectual property (IP) will the Government need?	• Focus on whether traditional or emerging technologies are required to determine acquisition approach. • Do not reinvent the wheel. Instead, borrow templates and other artifacts from past ChBA challenges. • Give organizations clear and unambiguous guidance on what IP is needed. • Document team process/lessons learned as the ChBA demonstration progresses to share with the next challenge team.
b. Identify Goals and Outcomes	• What is the purpose of the ChBA challenge/demonstration? • What are the benefits of conducting the ChBA? • What risks are being mitigated by conducting a ChBA? • What is the desired output/ outcome of the ChBA demonstration?	• Identify the goal and outcome early in the planning stage to avoid scope creep. -- Designs of ChBA events can vary greatly depending on the primary outcomes an organization wants to achieve, such as research advancement, operational integration, external use, education/public outreach, state-of-the-

	• Why is this ChBA challenge/demonstration important to stakeholders? • What are some possible solutions to the problem (e.g., strawman prototype to show possibilities)?	art advancement, enabling a product to be brought to market, creation of new companies, etc.
c. Define the Problem	• What problem is the organization trying to solve by leveraging ChBA? • How will the organization define the problem statement? • Who owns the problem? • Who is affected by the problem? • Does the problem focus on the ultimate impact desired by the organization? • Does the problem allow industry to apply emerging technologies and its own commercial solutions? • Does the problem consider context and constraints?	• Design a clear and concrete problem statement. To achieve this, get input from stakeholders; this drives the whole challenge. • Meet with internal SMEs and internal/external stakeholders to refine problem statement and obtain stakeholder validation. There is no such thing as over-socialization at this stage. If the problem is not well defined, the participants may not be able to provide applicable solutions.
d. Build Team	• What talent is needed internally? • What talent is needed externally? • What partnerships are needed internally? • What partnerships are needed externally? • What role will partners have? • Do the team members have accountability/ownership in the solution?	• Establish a multifunctional integrated product team consisting of all functional representatives (e.g., communications, legal, risk, security, finance, oversight, etc.). • Identify the SMEs that are needed throughout the process for various efforts. Identifying SMEs is an evolving process. They can be part-time or full-time team members, depending on the phase/step of the process. • Decide if any tasks should be outsourced.
e. Estimate Budget/ Resources Needed	• What is the budget for the award? • What type of funds can be used for the demonstration, if any? (or will challenges be conducted prior to awarding any contracts?) • How many contracts/agreements will be awarded? • What are the success/evaluation criteria for the offerors? • Will there be cost-sharing incentives? • Will the down-select use subjective or objective evaluation factors? • What budget and resources are needed to initiate and plan the ChBA challenge/demonstration?	• Identify the minimum obligated amount. The minimum obligated amount should be commensurate with the level of effort required to participate in the demonstration. • Consider cost sharing incentives with commercial entities. • Leverage objective ratings when meaningful (i.e., targeting desired benefits). Use subjective ratings for other considerations (i.e., management plan, staffing plan, key personnel qualifications). • Commit funding before executing a ChBA challenge/demonstration to flesh out the specifics and level of effort to plan and manage the ChBA challenge.
f. Create Project Plan and Set Milestones	• When is the ChBA challenge/demonstration expected to begin and end?	• Identify the resources and activities required to run the ChBA challenge/demonstration, the length of time needed, and major milestones.

Step	Key Questions	Guidance
	• Are there any concerns for staging and timing of the ChBA challenge/demonstration (e.g., holidays/government conflicts, etc.)? • How will the project be managed?	• Create high-level project and acquisition plan. • Consider designating a project leader role for the team.
g. Make the Case	• What information does the multifunctional integrated project team need to inform stakeholders so they can approve the ChBA challenge/demonstration, budget and resources?	• Develop messaging and presentations for stakeholders and partners.

I.2.2 Phase II – Design ChBA Challenge(s) or Demonstration(s)

Table I-2. Checklist: Designing ChBA Challenges/Demonstrations

Step	Key Questions	Guidance

a. Design the ChBA based Demonstration	• Should technical evaluation support of the ChBA challenge/demonstration be outsourced to a third-party vendor or partner?
	• What IP will require protection?
	• Are there any classification considerations?
	• What materials (classified or not), training, GFI, or sample data are needed?
	• How can you make the challenge or demonstration as real or operational-like as possible?
	• Are there established interfaces?
	• Is there an established testbed?
	• What location and infrastructure are available for demonstration?
	• Is there sample or mock data and/or other GFI that the Government needs to produce and provide to the vendors?
	• If so, what, and when is this information provided?
	• Plan for logistics considerations:
	  • Date, location and infrastructure
	  • AV, seating, and internet for demonstrations
	  • Holding rooms for vendors
	  • Space for evaluation/consensus activities
	  • Required Government-Furnished Information (GFI)
	  • Security and vendor access
	  • Invitations/instructions to vendors
		• Set scope; determine target audience; determine participant rights; develop method of evaluation in instructions to offerors to describe the process.
		• Review initial project plan; verify assumptions, timeframe, and cost—is the plan realistic?
		• Engage security personnel early as part of the IPT.

Step	Key Questions	Guidance
	• Parking • Food availability • Consensus meeting location/facilities • Completed and published agenda • Documentation templates (e.g., evaluator and consensus sheets) • Evaluation Training • Demonstration Script • Logistics communication with industry (including answering questions) • Internal demonstration dry run/review	
b. **Set Rules of Play and Submission Requirements**	• What should a proposal/offer include? • Who can participate? Are any groups ineligible? • How should the offerors' IP rights be protected? • Can participants collaborate with each other to create the solution? Is partnering promoted? • What information should be requested in a submission template? • How will the IPT communicate with offerors (exchanges, clarifications, discussions)? • How will offerors submit their solutions? • Is a dataset required to participate (actual or historical data)? If so, how will it be generated? • Should any offerors be excluded from participating due to conflicts of interest?	• Ensure all participants have access to the same information at the same time. • Consider the use of non-disclosure agreements to avoid potential conflicts of interest. • Transmit all solicitation documents and communications IAW FAR or other laws and regulations (e.g., FBO.gov).
c. **Determine Evaluation Criteria**	• What are the demonstration rules for selection and award? • What is the demonstration script for the vendors? • What is the demonstration script for the Government? • What criteria will be used to evaluate offerors? • Will the submission acceptance review be automated (using algorithm) or manual using rating scales? • What rating scales will be used (subjective)? • How will the rating scales be administered?	• Collaborate with partners/agencies to determine what they consider important in a solution. • Ask SME(s) to develop a rating scale/scoring matrix with the Contracting Office. • Ensure evaluation and judging criteria are reviewed by risk management and legal SMEs to ensure objectivity. The process should be transparent, well communicated, and clearly explain how the evaluation will take place. • Because ChBA events can be subjective in nature, decide if require human judges are needed to determine whether solutions answer the challenge.

Step	Key Questions	Guidance
	• What does a strawman submission look like? • Will consensus among the evaluators be required? • Do the evaluation factors align to the needs of the Government? • Do the evaluation factors favor a particular solution? • Do the factors allow for parity of evaluation across multiple vendors? • Do evaluation factors align to expected areas of risk or vendor differentiation? • Are the subjective rating factors clearly defined?	• Use both full AND consecutive days to familiarize judges with criteria and cadence. • Allow extra time if consensus among judges is required. • Limit criteria to 5–6 of the most critical topics to evaluate. • Evaluate each submission separately based on the merit of each proposer. • Consider weighting the evaluation criteria based on their importance.
d. **Develop Comms Plan**	• Will a communication plan benefit the government? • What message does the organization want to convey about the ChBA challenge/demonstration? • Who are the target audiences for the various messages and what are the best communication channels for them? • How far in advance should the ChBA challenge/demonstration be introduced to target audiences to maximize benefit for government?	• Consider who the target audiences are. • Is the anticipated end solution something that is feasible for an individual contributor, small business, etc. (i.e., traditional defense contractor vs. non-traditional) to produce?
e. **Identify Participants**	• Who is the intended target audience? • Who might participate in the competition? • Who should participate—what characteristics should they have?	• Consider using a third party to conduct market research. • Leverage consortia, conferences, memberships, etc., to identify potential offerors. • Recognize who the broader range of stakeholders could be to help engage participants.

At this point of the ChBA challenge or demonstration, the evaluators should have completed all background work and preparation needed to launch the challenge. Phases I and II are time consuming, and organizations should plan on taking several months to complete them.

I.2.3   Phase III – Conduct ChBA Challenge(s) or Demonstration(s)

Table I-3. Checklist: Conducting ChBA Challenges/Demonstrations

Step	Key Questions	Guidance
a. **Implement Communication Plan**	• How will information on the ChBA challenge/demonstration be published? • Where will information on the ChBA challenge/demonstration be published?	• Inform all interested parties about the ChBA challenge/demonstration at the same time.

Step	Key Questions	Guidance
	• How will participants ask questions about the ChBA challenge/demonstration? • How will the organization respond to crises? • What role will federal agencies/partners have as part of the communication roll-out?	• Maintain a communications plan and update it as the ChBA challenge/demonstration evolves.
b. Execute the ChBA Challenge/ Demonstration	• How will "the unexpected" be handled? • What are the risks (technical, cost, schedule, reputational, etc.) to the ChBA challenge/demonstration?	• Ensure ChBA challenge/demonstration is broadly announced, and information is provided to interested offerors. • Consider holding a series of pre-solicitation conferences and/or Vendor Logistics Day to explain the ChBA challenge/demonstration and have federal agency/partner participation. • Identify potential risks to the ChBA challenge/demonstration and periodically check assumptions and mitigations. • Create a process for handling/ responding to issues. Be prepared to make quick decisions to adjust the ChBA challenge/demonstration.
c. Solicit Participants and Encourage Submissions	• What mechanism will be in place to capture questions and provide responses to participants? • How will participants be encouraged to register, submit a proposal, and participate in the ChBA challenge/demonstration?	• Attract and engage participants throughout the launch and review of submissions. • Do not respond to inquiries individually; instead, follow Contacting- Agreement Officer instructions
d. Accept Sign-ups and Solutions	• How will registrations and offers be reviewed? • Will there be a graduated process to eliminate unqualified/non-competitive offers prior to demonstration?	• Verify companies and individuals once they submit agreements. • Implement down-selects prior to demonstrations to maximize demonstration opportunities for most qualified offerors.
e. Manage Evaluation	• Who are the evaluators? Are they qualified/SMEs in their respective domains? • What training do the judges need to be successful?	• Ensure rating criteria directly align with the Government needs in areas of highest risk. • Train evaluators about the evaluation criteria. The evaluators should receive training 1–2 weeks prior to review sessions so that the criteria are fresh in their minds.

Step	Key Questions	Guidance
		• Consider using a strawman proposal and use it to train the evaluators.
f. Provide Evaluation Findings to Source Selection Authority	• Do the evaluations strictly conform to what was in the solicitation? • Did the IPT fairly evaluate proposals across all offerors?	• Consider using a source selection tool to facilitate evaluations. • Consider using a facilitator to capture evaluations. • Consider conducting a consensus meeting immediately after each challenge or demonstration is performed.

I.2.4   Conclusion

This toolkit provides a comprehensive foundation for agencies to apply in their planning efforts. As with every checklist or toolkit, this product does not address every detail involved in planning a challenge or demonstration event. Each agency requirement has specialized aspects that must be considered in the plan. Additionally, plans must be flexible and able to evolve in response to changing conditions. With this in mind, agencies should first customize the toolkit and then maintain it to meet the specific requirements of the agency and procurement. Investing resources in the development of a robust and deliberate challenge/demonstration event will produce huge dividends during the execution phase.