**V18 – Innovative Contracting**

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| **Content structure by “Deliverable” area – outline accepted by OSTP and STPI**  General D1 (elevator pitch) for entirety of innovative contracting  General D2 (rationale/summary of premise, and benefits) for innovative contracting  General D3 (use cases), containing:  Discussion of authorities that enable different approaches  Discussion of push v. pull mechanisms  Matrix of specified specific approaches (considerations for when to use/what they require  **D4: Specific** approaches:   * rapid technology prototyping * staged contracts * competitive milestone-based payments * incentive prizes (linked elsewhere) * challenge-based acquisitions (linked elsewhere) * non-binding purchase commitments * advance market commitments   Each will cover  D1 pitch and D2 rationale  D3 – when to use  D4 – a brief case example  D5 – brief mention of  D6 – how to guidance  D7 – resource links specific to that approach  D8 – briefly clarify under which authority the approach is used  General D4 – one stand-alone case study on HHS Buyer’s Club  General D5 – *abbreviated* discussion of challenges for promoting innovative acquisitions generally  General D6 – *abbreviated* general guidance for acquisition training [AND discussion of 2 enabling frameworks]  General D7 – additional links and resources broadly on acquisitions  General D8 – additional legislative resources  General D9 – next or promising practices for innovative contracting (generally) |

***Content should be read in a modular way; that is, specific D4 approaches are self-contained.***

***Content is heavily sourced from OSTP’s 2014 Innovative Contracting Case Studies document, with the (OSTP) goal of migrating this existing content (with updates and significantly streamlined editing) to be permanently hosted and preserved on GSA’s site. Language from Federal sources, such as the 2014 case studies, may be incorporated directly, with attribution/citation. Non-Federal sources are appropriately quoted and cited.***

**Pull quotes: *[[to consider for website]]***

“Innovations arise when people are given a problem to solve instead of being told to implement a known solution.” [“[Innovation is a Contract Sport](https://ourpublicservice.org/publications/viewcontentdetails.php?id=918),” Partnership for Public Service, February 6, 2016.]

“Reasonable risk-taking is appropriate as long as risks are controlled and mitigated.” [FAR 39.102(A)](https://www.acquisition.gov/far/html/Subpart%2039_1.html)

**Deliverable 1: Elevator pitch summary**

**Intro**

Innovative approaches to contracting can help agencies maximize value while minimizing their spending. There are a variety of newer, easier, more effective acquisition models and processes that can be used under existing regulations and authorities. What they share in common is an emphasis on buying what works and paying only for successful outcomes.

Whether used for digital services or physical products, “innovative acquisitions” encompass a variety of procurement approaches that mitigate risk while delivering required outcomes. [“[Buyer’s Club: Modernizing IT Acquisition by Testing New Methods](https://www.hhs.gov/idealab/buyers-club/),” Department of Health and Human Services IDEA Lab, 2016.] These approaches improve the likelihood of on-time or early delivery of contracts, increase end user satisfaction, and can reduce the total cost of ownership. Common features of the innovative acquisition methods profiled here include early and frequent collaboration between acquisition and end-user stakeholders and the use of agile, iterative, modular implementation methods.

Current authorities in the Federal Acquisition Regulation (FAR) provide a variety of innovative contracting models that can reduce transaction costs and increase access to innovative contractors while still operating within the confines of existing law and regulation. Other authorities, including Other Transaction Authority and America COMPETES Act, provide additional alternatives. [[Crosslink authorities to authority section below]]

**Why**

In FY2016, the Federal government spent $462 billion on acquisitions crucial to achieving agency missions. [“[Overview of Awards by Fiscal Year](https://www.usaspending.gov/transparency/Pages/OverviewOfAwards.aspx),” USASpending.gov, 2017.] As budgetary constraints continue to reduce available resources, there is a heightened need to expand the use of innovative procurement practices that ensure Federal agencies pay only for successful results, not just best efforts. [Kalil, T., and Field, L., “[Buying What Works: Case Studies in Innovative Contracting,”](https://www.whitehouse.gov/blog/2014/08/21/buying-what-works-case-studies-innovative-contracting-0) White House, August 21st, 2014.] Innovative strategies are needed to achieve greater efficiency and better value for the American public from our Federal contracts, including more technologies developed by commercial firms and start-ups. [Smith, M. and Kalil, T., “[Expanding the Pentagon’s Silicon Valley Office](https://obamawhitehouse.archives.gov/blog/2016/05/19/expanding-pentagons-silicon-valley-office),” White House blog post, May 20, 2016.]

**How**

Each of the innovative contracting approaches detailed here share in common an emphasis on stimulating demand in the marketplace for new solutions. As “demand pull” mechanisms, they offer agencies the ability to discover, prove, and scale novel solutions and more impactful outcomes. These approaches include:

* **Rapid technology prototyping** to rapidly and inexpensively try out new technologies
* **Staged contracts** to solicit proposals and quickly assess them
* **Competitive milestone-based payments** to attract new solutions to well-defined, multi-component problems.
* **Incentive prizes** to source solutions from citizen solvers
* **Challenge-based acquisitions** to break the entry barrier for new actors, especially startups
* **Non-binding purchase agreements** to collaborate with industry and incentivize new solutions, without firmly committing
* **Advance market commitments** to create new markets and commit to long-term pricing for purchases

More broadly, each agency can consider how to create pathways to encourage and allow the workforce to test and adopt new and better ways of doing business as promising ideas present themselves, either in the government or the commercial marketplace. With the dedicated support of an acquisition innovation advocate and an acquisition lab, or similar mechanism, to support this pathway, the government’s collective bandwidth to produce better results can be significantly increased. [Rung, A. and Scott, T., “[Memorandum to Chief Acquisition Officers, Senior Procurement Executives, Chief Information Officers on Acquisition Innovation Labs & Pilot for Digital Acquisition Innovation Lab](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-innovation-labs-and-pilot-for-digital-acquisition-innovation-lab-memorandum.pdf),” Office of Management and Budget, March 9th, 2016.]

**Deliverable 2: Summary of underlying rationales**

The Federal acquisition workforce is responsible for awarding and administering more than $450 billion in contracts each year. [“[Overview of Awards by Fiscal Year](https://www.usaspending.gov/transparency/Pages/OverviewOfAwards.aspx),” USASpending.gov, 2017.] The work is complex and requires great skill in promoting competition, spurring innovation, balancing the fulfillment of public policy objectives, maintaining the public's trust, fostering transparency, and obtaining best value for the customer. [“[Lean Acquisition](https://www.fai.gov/media_library/exhibits/show/knowledgenuggets/item/118),” Video, FAI Media Library.] Innovative acquisition approaches can help procurement officers and their agencies source better solutions – often at lower cost, on a quicker delivery timetables, and with a faster time to award. Many of the acquisition tools profiled here can each help the workforce:

* Determine if there are better solutions to a known problem by providing objectives but not specifications
* Pilot and test new concepts less expensively
* Develop discrete areas or modular instances that feed into complex, incremental systems
* Attract innovative start-ups, small businesses, or organizations new to government contracting. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

These approaches to contracting are less encumbered by traditional – and unnecessary – operational and cultural barriers in planning, evaluation, award, and implementation. [“[Buyer’s Club: Modernizing IT Acquisition by Testing New Methods](https://www.hhs.gov/idealab/buyers-club/),” Department of Health and Human Services IDEA Lab, 2016.] They promote end user and stakeholder engagement throughout the lifecycle of a project, which helps to ensure that contracting managers and procurement officers are able to make decisions that account for the end users’ needs. In addition to shortening the time to acquisition, these methods can lessen frustration between companies and Federal officials while gaining agencies access to better products and new actors who might otherwise not engage with the Federal government. They can also help test and validate new technologies that have potential to save money in the long-run. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Innovative acquisitions also help agencies evaluate contractor capabilities based on established requirements, which can help mitigate risk of failure. (For example, evaluating IT service contractors through submission of coding, prototypes, and/or other associated work product as opposed to strictly text-based proposal submissions mitigates risk of failure because the requisite contractors are evaluated based on their capability to perform the government’s requirements.) [“[Buyer’s Club: Modernizing IT Acquisition by Testing New Methods](https://www.hhs.gov/idealab/buyers-club/),” Department of Health and Human Services IDEA Lab, 2016.] Similarly, non-binding purchase commitments list the concrete specifications for a technology or product being sought, allowing agencies to ensure the result fits their needs.

**Deliverable 3:  Use cases**

### Authorities

It bears emphasizing that these contracting approaches are strategies allowed under existing law. New regulations or new statutes have not been introduced, and are not needed to deploy any of these tools. A brief review of the following authorities follows:

1. Federal Acquisition Regulations
2. Other Transactions Authority (OTA)
3. COMPETES Act

#### 1. [Federal Acquisition Regulation](https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf) (FAR)

*“[….A]bsence of direction should be interpreted as* ***permitting the [Acquisition] Team to innovate*** *and use sound business judgment.”* [FAR 1.102-4(E)](https://www.acquisition.gov/far/html/Subpart%201_1.html) (emphasis added)

Current authorities in the Federal Acquisition Regulation (FAR) provide a variety of pathways that allow agencies to reshape existing processes to reduce transaction costs while still operating within the confines of existing law and regulation. [“[A Strategy for American Innovation](https://www.whitehouse.gov/sites/default/files/strategy_for_american_innovation_october_2015.pdf),” Economic Council and Office of Science and Technology Policy, October 2015.] The FAR actually *welcomes* innovative problem-solving. [Subpart 1.102-4(e)](https://www.acquisition.gov/far/html/Subpart%201_1.html) specifically encourages contracting officers to evaluate business process innovations when appropriate:

“If a policy or procedure, or a particular strategy or practice, is in the best interest of the Government and is not specifically addressed in the FAR, nor prohibited bylaw (statute or case law), Executive order or other regulation, Government members of the Team should not assume it is prohibited [...] Contracting officers should take the lead in encouraging business process innovations and ensuring that business decisions are sound.” [Federal Acquisition Regulation, 48 C.F.R §1.102.](https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf)

Sub-part (e) is meant to explicitly encourage the use of non-standard contracting approaches, explains Steven Kelman, former administrator for the Office of Federal Procurement Policy, because “[We heard] that many frontline contracting people believed, or even had been taught, that if something wasn’t allowed by the regulations, it was prohibited. ” [Kelman, S., “[FAR Part 1: ‘If it’s not prohibited, it’s allowed,](https://fcw.com/blogs/lectern/2014/05/far-part-1.aspx)'” FCW, May 6, 2014.]

“You can use the FAR to structure something that’s actually innovative,” confirms Dr. Camron Gorguinpour, former director of the Air Force’s [Office of Transformational Innovation](http://www.transform.af.mil/Home.aspx). [Gorguinpour, C., phone interview with Policy Design Lab, December 22nd, 2016.] There are numerous procurement tools that, while not mentioned explicitly in the FAR, are legally allowed under it and in the government’s interest to pursue. [Kelman, S., “[FAR Part 1: ‘If it’s not prohibited, it’s allowed,](https://fcw.com/blogs/lectern/2014/05/far-part-1.aspx)'” FCW, May 6, 2014.] These include incentive prizes, staged contracts, competitive milestone based-contracts, and challenge-based acquisitions. [[crosslink each to appropriate content]]

#### OTA: Other Transactions Authority

“Other Transactions” (OT) are funding mechanisms which target non-traditional sources and allow a high degree of flexibility in how the agreement is awarded.  OTs are not standard procurement contracts or standard assistance instruments (grants or cooperative agreements). OT authority allows authorized agencies to execute non-traditional agreements outside of the FAR ([10 USC §2371a](https://www.gpo.gov/fdsys/granule/USCODE-2010-title10/USCODE-2010-title10-subtitleA-partIV-chap139-sec2371)). The majority of agencies use the agreement for research and development (which may be defined broadly) or for prototyping. It’s a channel or conduit, explains Doug Rand, former Assistant Director for Entrepreneurship at OSTP, providing some measure of flexibility to engage commercial companies that are not traditional government contractors. [Rand, D., phone interview with Policy Design Lab, Washington DC, November 14, 2016.] In order to receive cutting edge technology and prototypes in a reasonable amount of time, OTs are typically fixed-price, accomplishment-based, or cost-shared contracts that are not subject to either the FAR or cost accounting standards. Additionally, intellectual property rights are negotiable.

An OT agreement allows agencies and contracting partners considerable flexibility to create arrangements that are tailored to the particular project and needs of the participants. “It can be a great tool when used smartly and creatively for a portfolio of high-impact projects,” notes Doug Rand, former Assistant Director for Entrepreneurship at the Office of Science and Technology Policy. [Rand, D., phone interview with Policy Design Lab, November 14, 2016.] “And because it can be a clean sheet of paper that doesn’t necessarily draw from the existing base of contracting expertise at a given agency, it’s really important to understand how it can be tailored to achieve the agency’s mission,” he adds. [Rand, D., phone interview with Policy Design Lab, November 14, 2016.]

Typically, OT agreements are used to engage industry and academia for a broad range of research or prototype projects, sometimes with the option to extend to production. [“[Other Transaction Authority (OTA)](http://www.transform.af.mil/Projects/OtherTransactionAuthority.aspx),” Air Force Office of Transformational Innovation.] OTs may be fully funded, partially funded (cost-shared), unfunded, and under some statutory authorities, funds may be paid to the agency and its appropriations reimbursed. They may be used to support projects which are not strictly procurement or assistance; in lieu of standard assistance instruments; and, depending on specific statutory authority, for the acquisition of goods and services.

**When and Why Should You Use an OT?**

Agencies typically use OTA to obtain cutting-edge research and development (R&D) and prototypes quickly. Projects can begin quickly as funding is typically obligated within 45 to 60 days of award. OTs can be one effective method for encouraging participation from non-traditional government contractors, such as startups and other small innovative businesses, who might otherwise be reluctant to contract with the Federal government. OTs can be used to design and implement innovative business models that would not be feasible or practical under FAR-based contracts. This can include instances where specific clauses within the FAR would create unnecessary burden on the government or contractor.” [“[Other Transaction Authority (OTA) Overview](http://www.transform.af.mil/Portals/18/documents/OSA/OTA_Brief_Ver%206Apr2016.pdf),” Air Force Office of Transformational Innovation, April, 2016.] In sum, OTs:

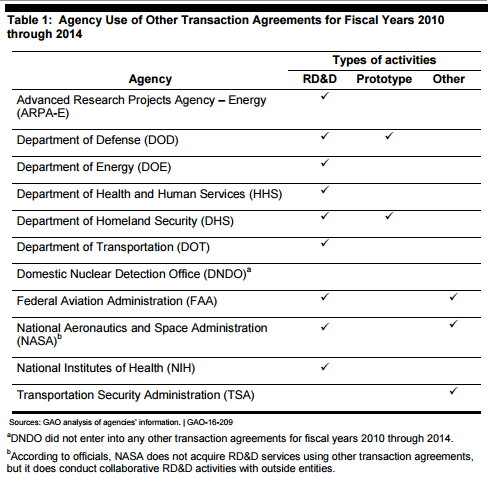
* Allow for flexible management of agreements, with lower typical overhead burden
* Permit use of Generally Approved Accounting Procedures (GAAP) rather than Government Cost Accounting Standards (CAS)
* Encourage cost sharing
* Permit negotiation of cost and pricing data and certifications
* Allow for commercially friendly intellectual property provisions [“[Other Transactions for Advanced Research](https://www.phe.gov/about/amcg/otar/Pages/default.aspx),” Public Health Emergency, US Department of Health and Human Services, December 7th, 2015.]
* Can be used to promote cooperative relationships among traditional and non-traditional contractors.

Agencies reported to GAO in 2016 that OTs were used mostly for R&D activities, primarily because the authority allowed them the flexibility to develop customized agreements that “addressed concerns over requirements in traditional mechanisms that some companies viewed as potential obstacles to doing business with a federal agency.”[“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/products/GAO-16-209),” US Government Accountability Office, January 7th, 2016.] In particular, agency officials cited the protection of intellectual property rights and compliance with government cost accounting standards as two key areas of concern for non-traditional contractors that the OT framework can effectively address. [“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/products/GAO-16-209),” US Government Accountability Office, January 7th, 2016.]

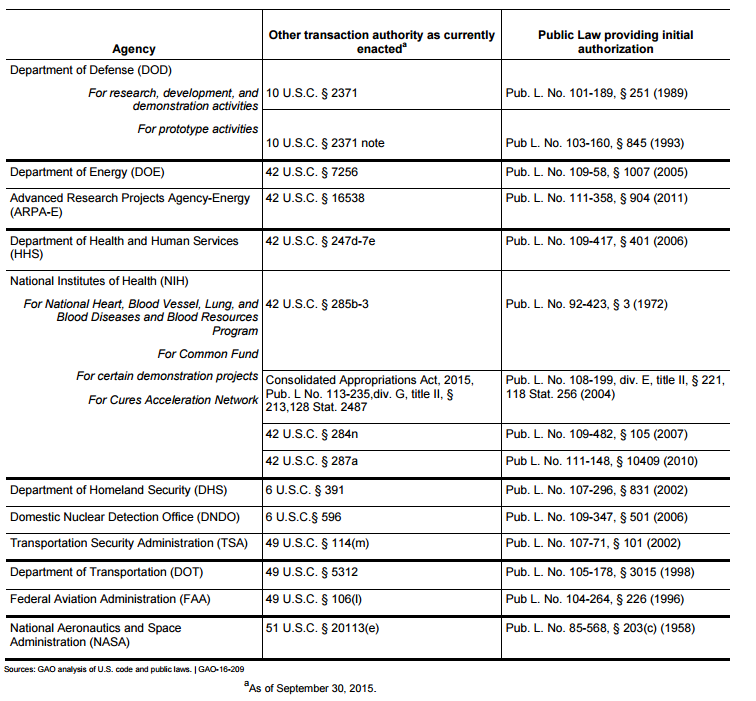
[[Footnote: “Most agencies—9 of the 11—used other transaction agreements for RD&D activities for a range of projects from medical research to energy development research. Two of the 9 agencies—DOD and DHS—also used other transaction agreements for prototype activities. Three agencies, including TSA and NASA, used other transaction agreements for activities not related to RD&D or prototype development, including airport security and education and outreach.” [“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/products/GAO-16-209),” US Government Accountability Office, January 7th, 2016.]]

**Who Has OT Authority?**

Agencies must possess express statutory authority to use OTs. The following table lists authorized agencies and the types of activities they have funded under OT authority in recent years:



[[Image source: [“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/assets/680/674534.pdf),” US Government Accountability Office, January 7th, 2016.]]](http://gao.gov/assets/680/674534.pdf)



[[Image source: [“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/assets/680/674534.pdf),” US Government Accountability Office, January 7th, 2016.]]](http://gao.gov/assets/680/674534.pdf)

For additional information on authorizing language, see **[Uploaded OTA Authorization by Agency document]**

OTs may be useful for authorized agencies that don’t want to “reinvent the wheel”, frequently identify small businesses with essential capabilities and time restrictions, or are looking to simplify current procurement methods. [Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.] For some agencies looking to reach out to startups for innovation in the research and design of prototypes, it may particularly make sense for the agency to use OT authority (or to consider to seeking approval for OT authority). OTs can be administered without FAR competitive procedures, so that if an agency identifies a startup they wish to work with, they can bypass a lengthy selection process. (Note: Agencies using OTs still must ensure their selected partner qualifies for an OT agreement (standards for eligibility vary depending on the agency), and also have to abide by OTA-specific management and reporting standards.) [Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.]

While OTs accounted for 5 percent or less of authorized agencies’ total expenditures in recent years [“[Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities](http://gao.gov/products/GAO-16-209),” US Government Accountability Office, January 7th, 2016.], agencies may consider pioneering new ground to fully leverage the flexibility inherent in OT’s. While OTs are incredibly powerful potential procurement tool, they are not a silver bullet: “OTA alone is an enabler, it’s not the solution; you still need to apply OTA against your acquisition plan and tailor both to optimize outcomes,” explains Dr. Camron Gorguinpour. [Gorguinpour, C., phone interview with Policy Design Lab, December 22nd, 2016.]

**For more information on OT Authority:**

* For extended discussion of which procurement statutes may apply to OT, see p. 19 of a July 2011 Congressional Research Service report on [Other Transaction Authority](https://fas.org/sgp/crs/misc/RL34760.pdf).
* [DIUx’s Commercial Solutions Opening How-to Guide](https://www.diux.mil/CSOguide/CSOhowtoguide.pdf): (November 2016) Reviews the DIUx’s OT authority, explains procedures for completing R&D requirements through Broad Agency Announcements, and explains the process for awarding prototype follow-on contracts.
* [Other Transaction Authority Overview:](http://www.transform.af.mil/Portals/18/documents/OSA/OTA_Brief_Ver%206Apr2016.pdf)  (April 2016) From the Air Force’s Office of Transformational Innovation, reviews DOD’s OTA authority with an emphasis on how OTAs may be used for prototyping.

#### COMPETES Act

The [2010 America COMPETES Reauthorization Act](https://www.gpo.gov/fdsys/pkg/PLAW-111publ358/html/PLAW-111publ358.htm) established authorities for all Federal agencies to offer incentive prizes and run challenge competitions “to stimulate innovation that has the potential to advance the mission of the respective agency.” In December 2016, Congress passed the [American Innovation and Competitiveness Act](https://www.congress.gov/bill/114th-congress/senate-bill/3084/text), which updated important parts of this authority. All agencies and programs should be aware of the flexibilities offered by the COMPETES Act prize authority to source solutions from American innovators. Under COMPETES, agencies have authority to establish ambitious prizes to advance national priorities:

* **Scope**: The Act authorizes agencies to conduct any prize competition that will “stimulate innovation that has the potential to advance the mission of the respective agency.”
* **Size**: Agencies can offer up to a $50 million prize without further consultation with Congress.
* **Multi-Sector Partnerships**: The Act allows agencies to partner broadly with other government entities and the private sector, as well as solicit and accept philanthropic and private sector funds to support a prize purse or the competition’s design and administration.

For more information on the prize authority in the America COMPETES Reauthorization Act, please see the [Fact Sheet and Frequently Asked Questions memorandum](https://cio.gov/wp-content/uploads/downloads/2012/09/Prize_Authority_in_the_America_COMPETES_Reauthorization_https:/cio.gov/wp-content/uploads/downloads/2012/09/Prize_Authority_in_the_America_COMPETES_Reauthorization_Act.pdf).

Additional guidance on COMPETES can be found in the incentive prizes toolkit. [[crosslink Prizes]]

**Pull vs. Push Mechanisms: Fueling Demand for Better Solutions**

“Pull” and “push” mechanisms are two organizing frameworks for understanding the role the Federal government can play in stimulating new solutions and more impactful outcomes.

Historically, science, technology and innovation policy has emphasized “technology push” by funding R&D to address agency and national priorities. [“[A Strategy for American Innovation](https://www.whitehouse.gov/sites/default/files/strategy_for_american_innovation_october_2015.pdf),” Economic Council and Office of Science and Technology Policy, October 2015.] More traditional “push” approaches like grants or contracts for research and development only pay for the creation of specific outputs, even though they may not deliver the desired product or results. Agencies pay upfront for work that may not fully address their requirements or mission goals.

In recent years agencies have started to experiment with approaches that help fuel demand for innovation rather than funding its supply. [“[A Strategy for American Innovation](https://www.whitehouse.gov/sites/default/files/strategy_for_american_innovation_october_2015.pdf),” Economic Council and Office of Science and Technology Policy, October 2015.] These “demand pull” mechanisms are deliberate efforts to stimulate activity in areas where private sector activity or investment is inadequate. Incentives such as competition prizes, milestone payments, or advance market commitments ensure that agencies pay for outcomes that meet their pre-specified requirements, rather than inputs.

While some tools, such as incentive prizes [crosslink], are already achieving significant adoption across Federal agencies, more benefit could be derived from using “demand pull” tools to address other national and global priorities. [“[A Strategy for American Innovation](https://www.whitehouse.gov/sites/default/files/strategy_for_american_innovation_october_2015.pdf),” Economic Council and Office of Science and Technology Policy, October 2015.]

Demand pull mechanisms can substantially help agencies meet their missions by:

* Paying only for outcomes; respondents receive compensation only if efforts produce results
* Stimulating investment greater than the initial financial commitment, and catalyzing additional resources from the public and private sectors
* Attracting new solvers with unconventional perspectives
* Drawing public attention to a problem or opportunity with its emphasis on novel approaches and nontraditional problem solving [“[Secretariat Lessons Learned Series](http://agresults.org/uploads/files/AgResults_Lessons_Learned_Pull_Mechanism_Overview_Introduction_FNL_.pdf),” v. 1, AgResults, January 2016.]

Demand pull is one subset of a broader framework called market shaping, where the primary objective is to maximize the public good impact: “Market shaping is about accelerating the market to a more optimal equilibrium point […]. It is intended to be a catalytic intervention that achieves lasting results.” [“[Healthy Markets for Global Health: A Market Shaping Prime](https://www.usaid.gov/sites/default/files/documents/1864/healthymarkets_primer_0.pdf)r,” USAID Center for Accelerating Innovation and Impact, Fall 2014.] Market shaping interventions typically use three types of levers:

1. Reduce transaction costs – Lowering structural hurdles to market interactions, such as by simplifying, smoothing, or rationalizing orders without money necessarily changing hands.
2. Increase market information – Generating new data, aligning existing analyses, or improving the visibility of existing data to reduce asymmetries of information.
3. Balance supplier and buyer risks – Transferring financial risks to donors/purchasers to encourage existing and new suppliers to operate more actively in the market. [“[Healthy Markets for Global Health: A Market Shaping Prime](https://www.usaid.gov/sites/default/files/documents/1864/healthymarkets_primer_0.pdf)r,” USAID Center for Accelerating Innovation and Impact, Fall 2014.]

**Read more:**

For an in-depth look at how market shaping can be applied to an entire field of work, see USAID’s [Market Shaping Primer](https://www.usaid.gov/sites/default/files/documents/1864/healthymarkets_primer_0.pdf) (Fall 2014), which discusses the development field’s efforts to respond to specific market failures by accelerating the development and adoption of lifesaving products for global health.

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| **Case snapshot: AgResults**  *Note: AgResults is jointly funded and managed by USAID, the Bill & Melinda Gates Foundation, the U.K’s Department for International Development (DFID), the Department of Foreign Affairs and Trade (DFAT) in Australia, and Global Affairs Canada. The World Bank manages the AgResults trust fund.*  [AgResults](http://agresults.org/index.php) is a $118 million multi-donor initiative that designs and implements pull mechanisms in order to incentivize and reward high-impact agricultural technology innovations that serve smallholder farmers in developing countries. The initiative offers monetary prizes to private sector actors to enter new markets and/or increase research and development activities in risky, hard to access, less profitable areas. By offering these prizes, AgResults’ donor organizations aim to overcome existing failures and create vibrant markets with sustainable, long-lasting solutions. AgResults is also testing the effectiveness and efficiency of pull mechanisms as a finance mechanism for international development projects with an external impact evaluation.  AgResults is currently implementing six pull mechanism projects throughout the developing world: the [Brucellosis Vaccine Development Prize](http://agresults.org/en/316/Brucellosis-Vaccine-Pilot), the [Kenya On-Farm Storage Device Pilot](http://agresults.org/en/284/KenyaOnFarmStoragePilot), the [Nigeria Aflasafe™ Pilot](http://agresults.org/en/283/NigeriaAflasafePilot), the [Uganda Legume Seeds Pilot](http://agresults.org/en/308/UgandaLegumeSeedsPilot), the [Vietnam Greenhouse Gas Emissions Reduction Pilot](http://agresults.org/en/313/Vietnam-GHG-Emissions-Reduction-Pilot), and the [Zambia Bio-fortified Maize Pilot](http://agresults.org/en/307/ZambiaBiofortifiedMaizePilot). While four of the pilots are still in the early stages of implementation, two pilots, the Kenya On-Farm Storage Device Pilot and the Nigeria Aflasafe™ Pilot, are showing optimistic results that highlight the potential pull mechanisms can have on creating sustainable markets and to improving the lives of small-scale farmers living in the developing world.  The Kenya On-Farm Storage Device Pilot provides monetary incentives to companies that design, develop, market, and sell new (or redesigned) on-farm storage devices for small-scale farmers. Post-harvest grain losses in the developing world lead to lower incomes and food insecurity among farmers. This problem is particularly acute in Sub-Saharan Africa, where post-harvest losses are estimated at $1.6 billion per year, or about 13.5% of the total value of grain production. Moreover, insufficient on-farm storage often forces farmers to sell their crops right after harvest, causing a surge in supply that lowers the market price for their produce. Companies that commercially sell the greatest amount of storage capacity for farmers in the aggregate receive the largest proportion of the prize. These terms encourage companies to compete, innovate, and create a vibrant on-farm storage market where none existed before.  To date, nine companies have joined the Kenya pilot, and while results cannot be reported until the end of the competition period, early results show that these companies are actively marketing and selling their storage devices; significantly increasing the storage capacity and a post-harvest storage device market that specifically serves the needs of small-scale farmers.  The Nigeria Aflasafe™ Pilot incentivizes the commercial adoption of Aflasafe™ by providing economic incentives to private sector grain aggregators and small-scale farmers themselves. The project reduces barriers of widespread adoption of Aflasafe™ by providing a premium per-unit payment to agggregators for maize verified to contain a high prevalence of Aflasafe™. Aflasafe™ is a biocontrol agent, developed by U.S. Department of Agriculture researchers, that combats aflatoxin contamination, a highly toxic, cancer-causing substance that affects approximately 60% of the maize across Nigeria and Africa. When ingested, and, in some cases, absorbed through the skin, aflatoxins cause a myriad of fatal cancers and sever stunting in children.  The pull mechanism has been operating in Nigeria for three years with exciting results. In addition to a the proportional AgResults prize aggregators report receiving premiums for Aflasafe™ treated maize that are on average 13-17% above the market rate and the number of participating smallholder farmers has grown from 1000 in the first year to 14,000 in the fourth year. Aflasafe™ has shown to be approximately 98% effective and is now being scaled through commercial and other channels to additional countries in West, East, and Southern Africa.  By harnessing U.S. ingenuity and collaboration, and openness to new markets, African farmers can look forward to harvests full of healthy maize.  For an overview of the variety of pull mechanisms used, read more: [Lessons Learned Series](http://agresults.org/uploads/files/AgResults_Lessons_Learned_Pull_Mechanism_Overview_Introduction_FNL_.pdf), January 2016.  For more information on AgResults’ approach to using demand pull mechanisms, contact Aviva Kutnick at [akutnick@usaid.gov](mailto:akutnick@usaid.gov).  [“[Why Was AgResults Created](http://agresults.org/en/267/WhyWasAgResultsCreated)?,” AgResults, October 11, 2016; Kutnick, A., personal communication with Policy Design Lab, January 13th, 2017.] |

Demand pull mechanisms overlap significantly with the innovative contracting approaches offered here, with a unifying principle of paying for results and not proposals. “Demand pull mechanisms” considered here fall into two distinct categories:

1. **Pay for performance**

* Incentive prizes [Link Prizes content]
* Pay for Success Bonds [Link EBP content]
* Milestone-based payments [Link further in content]

1. **Purchase commitments**

* Advance market commitments [Link further in content]
* Non-binding purchase commitments [Link further in content]
* Challenge Based Acquisitions [Link further in content]

**Deliverable 4:  One or more “success stories” or learning narratives to underscore impact**

### Specific Approaches:

* Rapid Technology Prototyping
* Staged Contracts
* Milestone-based payments
* Incentive Prizes *[link to content elsewhere]*
* Challenge-based acquisitions *[link to content elsewhere]*
* Advance Market Commitments
* Non-binding purchase commitments

### Chart: An Overview of the Different Contracting Models and When to Use

*[Charted based on “*[*Innovative Contracting Case Studies*](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf)*,” White House Office of Science and Technology Policy (OSTP), 2014, with additions.]*

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| **Goal** | **Rapid Technology Prototyping** | **Staged Contracts** | **Milestone-Based Competitions** | **Incentive Prizes** | **Challenge Based Acquisitions** | **Non-binding purchase commitments** | **Advance market commitments** |
| **Business Participation** |  |  |  |  |  |  |  |
| Attract innovative small businesses |  |  |  |  |  |  |  |
| Attract actors new to government contracting |  |  |  |  |  |  |  |
| **Mission Requirements** |  |  |  |  |  |  |  |
| Develop complex, incremental systems |  |  |  |  |  |  |  |
| Develop discrete areas or modules for complex, incremental systems |  |  |  |  |  |  |  |
| Determine if solutions exist to a known problem |  |  |  |  |  |  |  |
| Test inexpensively |  |  |  |  |  |  |  |
| Encourage industry investment first |  |  |  |  |  |  |  |
| Obtain concept paper before buying prototype |  |  |  |  |  |  |  |
| Provide for follow-on production contracting |  |  |  |  |  |  |  |
| Obtain short proposals (> 10 pages) |  |  |  |  |  |  |  |
| **Prototype Requirements** |  |  |  |  |  |  |  |
| Test pre-existing prototypes before buying |  |  |  |  |  |  |  |
| Build low-cost prototypes |  |  |  |  |  |  |  |
| Test prototypes in demonstration scenarios |  |  |  |  |  |  |  |
| **Solicitation type** |  |  |  |  |  |  |  |
| Use a standard solicitation, such as an RFP, for a well-designed, multicomponent problem |  |  |  |  |  |  |  |
| Use and R&D solicitation such as a BAA to provide objectives but not specifications |  |  |  |  |  |  |  |
| **Funding** |  |  |  |  |  |  |  |
| Use firm fixed type pricing funding |  |  |  |  |  |  |  |
| Utilize milestone based payments |  |  |  |  |  |  |  |
| **Legal** |  |  |  |  |  |  |  |
| Use special authority outside of the FAR |  |  |  |  |  |  |  |
| Use FAR authority |  |  |  |  |  |  |  |

# Rapid Technology Prototyping: Finding the Right Innovation from Small Businesses

**D1: Elevator pitch and summary**

A rapid technology prototyping contract is an innovative contracting model that consists of multiple, small, fast, and cheap acquisitions to “try out” innovative technologies. They may be used to rapidly and inexpensively identify whether cutting-edge, unproven, but potentially transformative technologies are viable options for an agency’s particular requirements. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Why

Rapid prototyping provides critical information to support agencies’ evidence-based technology investment decisions, which can significantly reduce the cost, schedule, and technology risks for any subsequent work. [Carol Lundquist] Should a prototype succeed, offerors can be selected for follow-on work through standard acquisition processes or another innovative contracting model. (Note: Failure is an expected and valuable part of the rapid prototyping process. Because substantial gains in innovation are often accompanied by substantial trial and error on big ideas, a realistic expectation for success rates in terms of establishing follow-on projects is only 10% to 30%.) [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

How

Companies develop prototypes in relevant demonstration scenarios within a defined timeframe (e.g. three to six months). This process eliminates cost risk for agencies and emphasizes that the project is a test to see if the company can deliver a working prototype on schedule and budget. This approach, which uses the BAA acquisition method, can easily be tailored and customized to meet the specific requirements and constraints of different agencies. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D2: Benefits of Rapid Technology Prototyping Contracts**

This approach, which uses the Broad Agency Announcement (BAA) acquisition method, can easily be tailored and customized to meet the specific requirements and constraints of different government agencies. Among the innovative contracting models, Rapid Technology Prototyping contracts can uniquely:

* Effectively use limited government resources (time and money) to rapidly assess many technologies and make results-based decisions regarding further investment.
* Encourage small businesses to partner with others (including other small businesses or academia) to transform basic research developments into applied research that could potentially be used to address the agency requirements.
* Facilitate knowledge transfer from the government to small businesses to better enable the small business to support the government’s requirements. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D3: Candidate users**

Any agency seeking new technical capabilities to expand or upgrade their existing systems should evaluate rapid prototyping contracts, advises Carol Lundquist of the NSA. [Carol Lundquist, NSA – OSTP content].

**D4: Case study: DARPA FastTrack** [Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.]

From recognition that the high barrier for entry was limiting applicants, Defense Advanced Research Projects Agency (DARPA) piloted the Cyber Fast Track (CFT) program in 2011 to attract small companies or individuals to solve IT problems. By engaging highly agile organizations and individuals who traditionally had not worked with the U.S. government, the goal was to achieve breakthrough capabilities in less time and at a fraction of the typical cost. [“[Fast Track Program Invites Non-Traditional Roboticists to Help Bolster National Security](http://www.darpa.mil/news-events/2015-05-18),” Defense Advanced Research Projects Agency, May 18th, 2015.] Using a GSA engineering services contracting vehicle, DARPA was able to reduce the contracting time from application to task order to one month and reach more potential applicants. [Micire, M., personal communication with Policy Design Lab, January 12, 2017.]

The program manager was responsible for recruiting applicants, receiving and evaluating proposals, and making recommendations to DARPA for those to subcontract. DARPA created task orders for the chosen recommendations, matched with the relevant statement of work, negotiated the subcontract, and delivered the funding. CFT effectively executed on relatively short projects (roughly 6 months) of small dollar amounts (approximately $100,000) with non-traditional subcontractors. [Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.]

After the success of CFT, DARPA expanded the model to hardware with the Robotics Fast Track (RFT).

“We want this new generation of robotics innovators to see DARPA as a partner that can help them develop breakthrough technologies in the areas that personally interest them and help translate their ideas and know-how into game-changing capabilities. We’re eager to pioneer this new approach, which could lead to rapid, marked improvements in national security as a whole,” said Mark Micire, DARPA program manager. [“[Fast Track Program Invites Non-Traditional Roboticists to Help Bolster National Security](http://www.darpa.mil/news-events/2015-05-18),” Defense Advanced Research Projects Agency, May 18th, 2015.]

**Read more**: [Fast Track Program Invites Non-Traditional Roboticists to Help Bolster National Security](http://www.darpa.mil/news-events/2015-05-18)  (May 2015)

**D5: Challenges to deployment:**

* Not all technologies are suitable for quick prototyping
* Results require careful evaluation
* Manage risk and establish expectations
* Manage failure

Not all technologies are suitable for quick prototyping

Not all technology lends itself to rapid prototyping. For example, technologies that require a significant investment in facilities and/or personnel are not suitable for rapid prototyping due to the time it requires to get the “startup” costs in place (for example, the development of new computer chips or large-scale system architecture changes). However, components of larger efforts can be successfully demonstrated via rapid prototyping if the scope of work attempted is carefully bounded and necessary resources are in place at the beginning. [Lundquist, C., personal communication with Office of Science and Technology Policy, February, 2016.]

Results require careful evaluation

A second limitation to rapid prototyping occurs when a successful prototype is not able to be completed within the required timeframe. It is necessary to objectively evaluate why the effort failed. If the failure was due to reasons that could be potentially avoided in the future, then it may be beneficial to attempt the rapid prototyping effort again. However, if the failure was due to a flaw in the technology, then other technologies should be chosen. [Lundquist, C., personal communication with Office of Science and Technology Policy, February, 2016.]

Manage risk and establish expectations

The key to effectively managing small, rapid prototyping projects is to allow the company to manage all execution risk and avoid any dependencies on the government for information, approvals, or other items. The government’s expectations for the company should be defined and clearly articulated up front so the company knows what to expect in terms of meetings and teleconferences, prototype demonstrations, and level and amount of technical guidance and advice that will be provided. Very frequent interactions between the company and government personnel, such as participation of government personnel in the company’s daily technical meetings, should be avoided to minimize adding too much government bias to the effort and avoid shifting additional risk onto the government. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Manage failure

Substantial gains in innovation are often accompanied by substantial trial and error on big ideas. Thus, in R&D contracting one may need to accept, and even embrace the potential of failure as the mark of innovative thinking. Innovative thinking can thrive in a space that allows for failure in order to leap ahead. Most prototyping attempts will not result in a follow-on project to move the prototype into production; a realistic expectation for follow-on projects success rate is only 10% to 30%. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Although most projects will end in failure, these failures are key to the success of the program and a recognized component of R&D contracting. Four important precepts for managing failure are:

1. **Fail Early.**

All initial prototype projects should be scheduled for three to six months with a hard deadline to produce a working, demonstrable prototype at the end. If the company cannot deliver a working prototype within this timeframe, then the project stops. Although draconian, this approach allows limited government resources to effectively assess a large number of possibilities rapidly and cheaply to identify the ones which are the most viable. Most ideas will not work out, but the few that succeed make the overall effort worthwhile.

1. **Fail Cheaply**

The initial three to six month prototype projects should be done as Firm Fixed Price contracts which are executed in the company’s own facilities. This eliminates cost risk to the government and emphasizes that the project is a test to see if they can deliver a working prototype on schedule and budget. Using the company’s own facility eliminates extra costs or delays associated with using a government facility for the development work. A contract value between $50,000 and $100,000 is adequate for a prototype project of this duration. Any additional government investment should only be done after there is definite and objective proof the technology is working as advertised to minimize technical risks incurred by the government. However, the company should be allowed to contribute its own Internal Research and Development (IR&D) funding to the project to jointly fund this initial effort, if so desired.

1. **Fail Often**

Too high of a success rate is problematic. If a high percentage of the initial projects are succeeding and producing follow-on projects, it is likely that initial projects are not pursuing truly innovative and potentially breakthrough new technologies. If the success rate for establishing follow-on projects for innovative technologies is between 10% and 30%, the projects that are successful are likely to represent valuable new capabilities. Additionally, non-successful projects can generate important knowledge that helps guide the agency’s future technology directions. It’s important to try as many initial projects as possible, instead of investing a large deal of resources in just a few initial projects.

1. **Fail Smartly**

While most initial projects are expected to fail, they should not fail due to a lack of agency involvement or due to some other confounding variable. Every project should be given the best chance to succeed. It is important that an agency derive lessons learned from each failure and use them to improve the overall program. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D6: How to Guidance**

The goal is to design the acquisition approach and the request for proposal (RFP) to result in a large number of good proposals describing innovative technologies, ideas, and approaches relevant to the agency’s requirements. A second but equally important objective is to design the RFP so it expedites the overall acquisition process by designing out or mitigating issues that could cause delay to the acquisition process or the resulting prototype development projects. The Broad Agency Announcement (BAA) mechanism can serve as the basis of the acquisition effort. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

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| **Rapid Prototyping at a Glance: Eight Steps**  Rapid prototyping can be used to assess both internally-developed and externally-developed technologies. Some of the support processes needed may vary depending on whether the work will be done internally by Federal resources or externally using commercial resources. [Carol Lundquist]   1. Establish support processes and allocate resources needed to manage and enable multiple rapid prototyping efforts. Having an overarching process able to support multiple rapid prototyping efforts allows for a systematic assessment of technologies, consistency in evaluation, and economies of scale. 2. Manage technical risk by constraining cost/resources and schedule risk through the use of short duration efforts with defined deliverables or milestones and firm end dates. 3. Cast a wide net to attract as many technology offerings as possible. 4. Use both mission and technical personnel to make the technology selection decisions. In many agencies, this would mean both the initial customer and end user of the technology should be evaluating the technology’s merits. 5. Pursue multiple short rapid prototyping efforts. Three months is generally sufficient to obtain an in-depth assessment of the viability of a technology and provide the information necessary to make informed decisions regarding continued investment. Requiring a demonstration at the end of the allotted time serves as a forcing function to produce concrete results. If a technology cannot be developed and demonstrated within three months, it may indicate that the technology requires additional time to mature before being considered for mission operations or the scope of the technology being considered needs to be adjusted. 6. Minimize expenditure of time and resources until it can be determined whether or not the technology will work effectively. 7. Have potential end user personnel engage with developer personnel to provide technical guidance, ask questions regarding the inner workings of the technology, and provide advice during execution. The rapid prototyping team should drive the design and implementation to reduce outside dependencies that may impact the success of the effort or impact the accuracy of the technology assessment. 8. Produce objective evidence of success by demonstrating the prototype under controlled conditions. It is important that the personnel conducting the evaluation do not act as a proponent for any technology during this stage so as to not bias the outcome from the technology assessment. Many outside technologies do not work as anticipated when brought into Government systems so it is important to allow technologies to succeed or fail on their own merits. Efforts to intervene to “save” an incompatible technology can often end up being a futile expenditure of time and resources that could have been better spent elsewhere.   [Lundquist, C., personal communication with Office of Science and Technology Policy, February, 2016.] |

**Key steps for deploying rapid prototyping:**

Some of the considerations in using rapid prototyping are:

* Identifying the problem and specifying requirements
* Engaging the future end users early-on
* Constraining the solution space
* Identifying participants
* Developing the RFP
  + Common issues with the RFP
  + Sample proposal outline
* Evaluating proposals and selecting for award
* Executing the award
  + Continue to involve end-users
  + Provide technical guidance and advice
  + Demonstrate and test prototypes
* Providing technical guidance and advice
* Demonstrating and testing prototypes
* Pursuing follow-on work

**Identifying the problem and specifying requirements**

The problems/requirements included in the RFP need to be thought of as “bait” to attract and challenge companies to focus on solutions for these problems. Problems can be very specific with a defined result required (e.g., develop a new algorithm that can solve A, B and C with a run time under Y minutes on X amount of data on a computer with no more than Z processors). Or the problems can be very high level (e.g., looking for new types of analytics that can run effectively on large scale data). The key to the problems is to provide enough background information so a company can make an intelligent assessment about what would be required and desired in a solution. Additionally, even if a company decides to not submit a proposal, the background information provided about the problems/requirements can start to educate industry on the agency’s requirements, which assists companies to submit more relevant proposals in the future. In all cases, regardless of whether a problem is specific or general, submission of proposals should not be limited to only the problems/requirements specified in the RFP. There should always be an option for the company to submit a proposal under their own category in case there is relevant innovation in an area of which the agency is unaware. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The expectations for problems/requirements should also be sensitive to the time limits of prototype development. Focus on what can realistically be achieved in the allowed timeframe. If a problem/requirement implies a much larger problem, then the problem or requirement can focus on prototyping proofs of concept to illustrate the viability of key components of the solution instead of focusing on prototyping the complete solution. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

It’s useful to provide companies a description of approaches or technologies that the agency is not interested in. The “Not Interested In” list could be common approaches which have been tried so often that there is very little value in trying them again. This list could also include approaches the agency knows will not work effectively based on internal research. The reasons the agency is not interested do not have to be included with the description of the “Not Interested In” approach or technology. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

If specific requirements or constraints exist for a particular problem and its potential solutions, this information should also be included in the problem description. Some common specific constraints are: minimum performance requirements, the use of certain software or platforms, minimum data amounts, and the use of a particular set of test data. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Engaging the future end users early-on**

Potential end users should be engaged as early as possible, and the end users should be the main participants in identifying the problems/requirements. End users should be identified from among the subject matter experts and power users in an office because they are most likely to truly understand where the gaps exist in their technologies and what new capabilities are needed to take their work to the next level. When an office contributes some of its own funding to support the acquisition effort, the office is much more likely to support continued engagement by the end users. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Constraining the solution space**

While it is important to not constrain the ideas, it is very important to constrain the support technologies used to implement the prototype to give each technology its best chance of being integrated into existing systems if the technology proves successful. Unlike the private sector, the reality of many government systems is they are not going to undergo any large scale replacement and, instead, need to evolve in place to incorporate new technologies and capabilities. This makes it necessary to constrain the solution space so potential new capabilities are designed to facilitate integration with existing systems. For example, if most existing systems at an agency use Linux servers and Windows clients, then this type of architecture should be a requirement for potential new capabilities. If the potential capability does not have the flexibility to use the specified architecture, it likely will not be able to be used regardless of its potential benefit. Thus, it is best to discover this issue early. Some constraints to consider are:

* A preference for using open source software where suitable software is available to minimize licensing costs
* No reliance or dependency on proprietary data formats or data storage mechanisms
* Web-enabled GUIs and user facing applications
* Software developed using a common language such as C, C++, or Java
* Use of specific standards or protocols [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Solutions based on commercial products are generally less successful than solutions based on open technologies because commercial products may be less cutting-edge and innovative due to the amount of time it takes to bring a commercial product to market. Additionally, commercial products generally are associated with significant licensing fees that can be unrealistic for widespread government usage. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Identifying participants**

The goal is to have the RFP reach as many suitable companies as possible including a significant number of companies that may be new to Federal contracting. The use of this model, with its shortened timeframe of producing a prototype in 6 months or less, and at a dollar value under the simplified acquisition threshold, should encourage participation by entrepreneurs and innovative small businesses. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

However, recognize that if the agency decides to go into production of the prototype, some of the companies may lack adequate cash flow management or have difficulties adjusting to the government’s sometimes lengthy payment schedule, complex [Federal Acquisition Regulation (FAR)](https://www.acquisition.gov/far/html/Subpart%2039_1.html) and [Defense Federal Acquisition Regulation (DFAR)](http://www.acq.osd.mil/dpap/dars/dfarspgi/current/) contract clauses, and lengthy government acquisition cycles.

Therefore, it may be beneficial to prescreen companies for interest using a market survey or some other advance notice of the upcoming acquisition to ensure they understand the requirements of a Federal acquisition.

**Developing the RFP**

There are two goals for the RFP:

(1) Design the RFP to eliminate as many delays and obstacles as possible and automatically mitigate what cannot be eliminated; and

(2) Have the proposals responding to the RFP include sufficient information to support comprehensive evaluations and allow the proposal to serve as the Statement of Work (SOW) for any resulting contracts.

If the resulting proposals are complete, comprehensive, and contain all information necessary to support proposal evaluation and contract award, the acquisition process can be expedited because the Contracting Officer will not have to hold discussions with the company to resolve areas which are unclear or are contrary to the government’s requirements. If the resulting proposal is sufficiently complete, it can serve as the SOW for any resulting contract which will also expedite the acquisition process. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

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| **Common delays and obstacles that can be mitigated with RFP specifications**  The delays and obstacles encountered when awarding a contract for technical work will be specific to each agency, but here are some common issues that can be set forth in the RFP:  1. ***IT Governance*** – If an agency has IT Governance requirements dictating or forbidding the use of specific hardware or software, this information should be included in the RFP as requirements for all resulting projects. For example, many agencies are standardized on the use of the Windows operating system for client applications and on the use of the Linux operating system for back end server applications. If this is the case, then this information should be a requirement in the RFP. If there are two possible technical options for supporting potential solutions and additional approvals are required for one option but not the other option, consider limiting the company’s IT choices for their prototype to the option that does not require the additional approvals.  2. ***Security* –** Different agencies have different security requirements for companies performing work. If there are options or approaches that require less approval than other options or approaches, to expedite the process, it may be beneficial to make the option requiring less approval mandatory if it will not unduly constrain the resulting prototype development effort. Security requirements and restrictions can always be revisited for successful prototypes when planning for longer term follow-on work.  3. ***Intellectual Property and Government Rights*** – The RFP needs to clearly state the conditions that will apply to all Intellectual Property developed under any contracts resulting from the project and whether the FAR/DFAR (or other agency specific) clauses regarding intellectual property will apply. Additionally, the RFP should state the minimum level of rights the agency is willing to accept, for example, Government Purpose rights, for all work developed under resulting contracts. Companies should also be informed in the RFP that offering to provide the prototype with rights less than the minimum level the agency is willing to accept may negatively impact their proposal evaluation.  4. ***Payments*** – Although contracts are likely to be firm fixed price, most efforts will involve incremental payments. The RFP should identify the payment schedule and tie each payment into a specific deliverable, for example, invoice #1 corresponds to the delivery of monthly status report #1. The company can then propose the amount for each scheduled payment. Having all companies follow the same payment schedule and identifying the payment amounts up front eliminates a common time-consuming item for Contracting Officer discussions with the company and simplifies the management of multiple projects after award.  5. ***Deliverables***– The RFP needs to clearly define what deliverables are associated with any resulting contracts. If there are requirements for a deliverable that are beyond what is described in the Data Item Description (DID) for that deliverable, these additional requirements need to be clearly noted in the RFP. The minimum technical deliverables should be: 1) written monthly status reports; 2) a prototype and a prototype demonstration; and 3) delivery of all source code, documentation, licenses, and other materials needed to allow the government to install and run the prototype on the agency’s hardware in a government facility for a year to fully assess the prototype.  6. ***Automatic Disqualification***– The RFP should also specifically state the conditions that would automatically disqualify a proposal from consideration. This will save both the agency and the company a great deal of time and should mostly eliminate the receipt of non-compliant proposals. Some common conditions that could cause an automatic disqualification are: 1) proposing a cost exceeding the amount allowed by the government; 2) proposing a schedule that exceeds the time allotted by the government; 3) not adhering to the government’s requirements in the RFP when writing the proposal; and 4) proposing to deliver something other than a prototype (e.g., a requirements document, a study).  7. ***Test Data*** – A significant challenge in developing rapid prototypes is obtaining a sufficient amount of suitable test data to make the prototype’s operations relevant to the larger agency requirements. Where possible, the RFP should identify publically available collections of test data consistent with the agency’s own data as well as describe collections of government test data that could be provided to companies upon contract award.  8. ***Proposal Content and Format***– If the RFP provides specific instructions on the content and format of the proposals, it will expedite evaluation of the proposals and make it more likely that companies will include all necessary and relevant information in their proposals. See Sample Proposal Outline for suggested content that could be included in the Technical proposal.  [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

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| **Sample Proposal Outline**   1. Executive Summary – Intended to provide an overview of the salient features of the entire proposal. 2. State-of-the-Art – A description of the current state-of-the-art concerning the proposed technology/approach, a discussion of comparable products, technologies and/or approaches similar to what the company is proposing, and an explanation of why what the company is proposing is well beyond the current state-of-the-art. 3. Description of the Prototype – A discussion of the idea being addressed by the prototype, identification of the key challenges, description of the proposed solution, a detailed research plan and technical approach to implement the functional prototype within the specified timeframe, and identification of the personnel and other resources available for the work. 4. Facilities, Software Frameworks/Data Sets and GFI – A description of the facilities the company has available to use for this work and identification of any equipment that needs to be purchased to support this effort. Any hardware, software, data, or documentation items the company wants to request from the government to support this effort need to be identified in the proposal so potential delays in providing these items to the company can be factored into the proposal evaluation. 5. Technical Data or Computer Software – Identification of all technical data or computer software that will be furnished to the government and the rights that will be provided to the government for each item. 6. Sub-Contracts or Relevant Collaborations – A description of any proposed sub-contracts or relevant collaborations planned or already in place with industry, government organizations, universities, or other institutions. 7. Other Parties – Identification of other parties to whom the proposal has been or will be sent. 8. Deliverables – A detailed description of all deliverables to be provided to the government as a result of the work and in accordance with the requirements in the Contract Data Requirements List. 9. Past Performance in similar R&D work. 10. Relevant Experience of Company and/or Key Personnel in the area being proposed.   The RFP should also specify page limits for the Technical and Management proposals. For short, rapid prototyping efforts, a 15-page Technical Proposal and a 5-page Management Proposal should be sufficient. This length is sufficient to provide a comprehensive description of the work, and it can still support relatively rapid proposal evaluations.  [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

**Evaluating proposals and selecting for award**

The proposal evaluation plan should reserve the right to fund all, some, or none of the proposals received under the BAA solicitation in order to retain the greatest flexibility for the government. A key point to make in the proposal evaluation plan is that the awards will be done in an effort to achieve a balanced program providing the best value to the government. Focusing on a balanced program will permit the government to consider factors other than absolute technical scores or lowest cost in making the selections so the government can select a mix of awards which provides the biggest benefit to the government. The wording listed below describes one way that this right can be reserved in the RFP:

*“The Government reserves the right to shift funding across problem and topic tracks and/or add additional funding based on the quality of the proposals. Award(s) resulting from this BAA will be made to the responsible offerors whose offers, conforming to the BAA, represent in aggregate the greatest potential for contributing to the Government’s current technical research needs as described in the BAA. The Government may select proposals for award that have lower technical or overall ratings if it is determined that the mix of topics represented by the awarded proposals represents the best value to the Government by providing a balanced program.”* [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The proposal evaluation criteria should be simple and straightforward. Three evaluation criteria that work effectively for small, rapid prototyping projects are:

Overall Technical Merit

* Scientific and technical merit
* Innovativeness and uniqueness
* Viability and practicality of technical approach
* Prototype capabilities

Potential Contribution and Relevance to the Mission

* Relevance and importance
* Applicability and validity
* Usefulness and effectiveness

Cost and Schedule Realism

* Schedule feasibility
* Risk management
* Cost realism

A two phase evaluation process also works well for small, rapid prototyping projects. Phase 1 consists of up to three reviewers independently evaluating and rating each proposal. If many proposals are received or if different proposals require different technical expertise, then different reviewers could be assigned to each proposal so the same three people do not have to evaluate each proposal. In Phase 2, a technical peer review is conducted by a small group of stakeholders to consider the evaluation information provided by the three independent reviewers and determine the specific proposals to be recommended for award that represent the best value to the government by producing a balanced program. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Executing the award**

The main objective in executing the awarded contracts is to produce demonstrable prototypes of the new technologies that are as relevant as possible to the government’s requirements thereby allowing informed, results-based decisions to be made regarding any follow-on work and additional investment to turn the prototypes in actual mission capabilities. If the company is able to deliver the prototype on schedule and budget and if the prototype has the capabilities and features stipulated in the original proposal, then this is a good indication that the company is likely to be successful in subsequent work. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Continue to involve end users

It is critical for end users to be involved with oversight of the technology aspects of each project, but it is equally important that the technical end users do not have to spend their limited and valuable time on the administrative aspects of the project, especially when most of the projects will not continue into follow-on work and will just stop at the end of the contract’s period of performance. If many of the issues that could cause delays or obstacles to execution are designed out of the program from the beginning, then one person can easily handle the administrative duties for multiple awardees, leaving the technical end users to solely focus on the technical aspects of the work. Offices that have a need for the capabilities potentially offered by the technology and offices that would have to be involved in implementing the prototype into production environments are good sources for technical end users to participate in technical discussions with the company after contract execution. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Provide technical guidance and advice

There should be regular opportunities during the execution of the project for the Government’s technical end users to ask questions of the company about the work being done and for the company to ask the technical end users questions about requirements, system environments, demonstration scenarios, relevant use cases, etc. Teleconferences can easily take the place of face-to-face meetings, especially where time or location considerations apply to the personnel participating in these meetings. The objective is to provide the company with sufficient information about the government’s needs so that the company can develop the most relevant prototype possible given the cost and schedule constraints. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Demonstrate and test prototypes

A prototype demonstration at the end of the contract provides an effective assessment of the work that has been done and should clearly illustrate how the technology could potentially be applied to mission requirements. The technical end users should assist the company in defining relevant use cases and crafting the demonstrations scenarios so the prototype illustrates relevant operational situations as much as possible. Seeing the technology function under pseudo-operational situations should allow results-based decisions to be made regarding the viability and relevance of the technology. The demonstration of a functional research prototype also serves to verify that the work was actually done and something was built. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Pursuing follow-on work**

Prototypes selected for follow-on work should be transferred to the standard acquisition processes supporting the development of mission systems. Technical end users who participated in the execution phase of the project are likely candidates for sponsoring the follow-on work. The prototype itself may serve as justification for a sole source follow-on contract for the company. Companies with prototypes that are not considered for follow-on work should be notified and provided with constructive feedback as to why their prototype was not selected for follow-on work so the company can improve its efforts in the future. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**(D7) Resources:**

For more information on how to deploy a rapid prototyping approach, contact Carol Lundquist, [clundqu@nsa.gov](mailto:clundqu@nsa.gov)

**(D8) Authority:**

Rapid technology prototyping contracts can operate within existing frameworks under the Federal Acquisition Regulations (e.g., FAR [Part 35](http://www.ecfr.gov/cgi-bin/text-idx?SID=68c66ee95a646848dc7dd770230ee55c&mc=true&tpl=/ecfrbrowse/Title48/48cfr35_main_02.tpl) and [Part 15](http://www.ecfr.gov/cgi-bin/text-idx?SID=774c132cd89f432a4396b976f68a0661&mc=true&node=pt48.1.15&rgn=div5)). Prototypes are also an explicit use case for the use of Other Transactions, for the agencies expressly permitted to use Other Transaction Authority. [[crosslink to OTA content/chart]]

#### Staged Contracts: Identifying Scalable Innovations for Tailored Government Solutions

**D1: Elevator Pitch and Summary**

Staged contracts offer agencies a tool to solicit proposals widely across the private sector—from established contractors to entrepreneurs—and rapidly assess them. A staged contract is an innovative contracting model that follows a three-phase evaluation process consisting of a short concept paper, invite-only full proposal, and subsequent 1-2 year pilot evaluation. Staged contracts may be used for the rapid and inexpensive assessment of many existing or prototype private-sector technologies. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Why

Staged contracts reduce administrative burden for both offerors and agencies while ensuring that the proposed solutions are well-fitted to an agency’s particular needs. Agencies can more rapidly sample the diverse technology landscape for potential solutions by foregoing the extensive requirements of traditional acquisition processes in favor of short concept papers. The concept papers allow respondents to communicate the essence of their proposal without expending undue time and effort; staged contracts require offerors to submit only an initial summary slide and eight page concept paper instead of the hundreds of pages expected in traditional acquisition processes. This dramatic decrease in the burden of doing business with government may better ensure that successful offerors’ core competencies lie not in proposal drafting but in delivering technology solutions. By lowering the barrier from a 300+ page RFP response to an eight-page concept paper, agencies can also increase and diversify the participation of small businesses and other innovators that respond to their solicitation. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

How

Staged contracts’ deep evaluative process ensures that solutions are customized to meet an agency’s specific requirements. From solicitation to pilot completion, offerors’ solutions are vetted during at least three dedicated evaluation periods: concept paper review, full proposal review, and pilot evaluation. Solutions undergoing pilot evaluations are not guaranteed agency-wide scale-up: unsatisfactory pilots can warrant further development, project termination, or user deployment. The hands-on, real-time implementation of pilots and frequent, informal communications with end users during the period of performance also provides offerors invaluable feedback to tailor solutions more precisely to government requirements. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

In general, staged contracts work as follows:

* *Announce:* Agencies release a broad solicitation for contractors to submit short concept papers communicating the essence of their proposed technologies.
* *Study:* Agencies invite promising offerors to submit detailed full proposals with both technical and cost/price components.
* *Evaluate:* Agencies evaluate selected full proposals in 1-2 year pilots, during which there is ample opportunity for offerors to communicate with end users and refine their technology.
* *Deploy:* Agencies decide to deploy, terminate, or further evaluate pilots. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D2: Benefits of Staged Contracts**

Not all innovation is relevant to a particular government agency, and many innovations cannot be effectively used to meet an agency’s particular requirements. Staged contracts enable rapid funneling of promising private sector technologies into rigorously evaluated pilots to identify the most promising technologies with strong potential for wide impact. Applicants with promising solutions can then submit a full proposal for subsequent pilot testing. The evaluation of the technology allows decisions regarding additional investment of government resources to be results driven and significantly reduces the cost, time, and technology risks for subsequent scale-up work. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Among the innovative contracting models, staged contracts can uniquely:

* Solicit solutions from a wider range of industry by lowering the burden with short concept papers
* Effectively use limited agency resources to rapidly assess many technologies and make results-based decisions regarding further investment
* Ensure extensive agency end user involvement, buy-in, and subsequent technology adoption
* Facilitate knowledge transfer from the government to small businesses, especially during pilots to better enable the small businesses to support the government’s requirements [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D3: Candidate users**

Staged contracts are useful for rapidly funneling multiple private sector technologies to both identify and validate options for meeting an agency’s particular requirements. This approach, which uses the BAA acquisition method, can be easily tailored and customized to meet the specific needs of different agencies. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D4: Case study: Department of Veterans Affairs Innovation Initiative (VAi2) Industry Innovation Competition**

The Department of Veterans Affairs Innovation Initiative (VAi2) Industry Innovation Competition illustrates the promise of staged contracts. The VAi2 Competition staged contracts followed a three phase process consisting of a four-page concept paper, 50-page invite-only full proposal, and 1-2 year pilot evaluation. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

VA’s experience demonstrates the value of the staged contracting approach for testing out promising ideas and sourcing new solutions: The competition has attracted a 50-50 mix of established and first-time government contractors. In four rounds of competitions, the VA has continued to iterate and refine its requirements for proposals to lower the administrative burden. The inaugural VAi2 Industry Innovation Competition solicited 350-page submissions; in subsequent years, organizers later reduced the concept paper requirement first to 28 pages, then 8 pages, and currently the concept paper requirement is no more than a four-page concept paper. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

As of 2014, the VAi2 competition has awarded no fewer than 135 solutions worth $102.5 million, fielded solutions in eight topic areas, received over 20,000 ideas from 600 industry offerors, and collaborated with over 100 subject matter experts. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The VAi2 competition demonstrates that regardless of the outcome of the scale-up phase, agencies can derive significant value from the technology pilots of staged contracts. For example, the VA provided seed funding to VETransfer, a nonprofit startup, to create an end-to-end business accelerator for Veteran entrepreneurs, offering individualized mentorship at a physical incubator facility as well as online resources. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

From 2011 through 2014, VETransfer had generated 24 startups, raised nearly $1.4 million, created 89 jobs, and is scaling nationwide. Moreover, around 400 Veterans have completed the three-month online programs. Another awardee, Agilex Technologies, developed a system that enables providers to access electronic health record information on mobile devices. Most pilot participants (55-70%) reported a positive impact on their productivity and ability to communicate with patients and other providers. The pilot also demonstrated the feasibility of deploying mobile devices in a clinical setting on VA networks.

A final example is MedRed’s TBI Toolbox, which enables care providers to continuously develop, share, and administer the latest treatment methods in the rapidly evolving field of polytrauma care. Pilot users project the TBI Toolbox will eliminate collection of over 19,000 paper forms per year if deployed across the VA enterprise. When asked for their feedback, 74% of end users strongly agreed or agreed the system provides process improvement; 68% of users strongly agreed or agreed the system improves continuity of care; and 84% of users are extremely satisfied or very satisfied with system scoring and reporting. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D8: Authority:** The VAi2 Broad Agency Announcement (BAA) was issued under Federal Acquisition Regulation (FAR) [Parts 35.016](https://www.gpo.gov/fdsys/pkg/CFR-2011-title48-vol1/pdf/CFR-2011-title48-vol1-sec35-016.pdf) and [6.102(d)(2)(i),](https://www.gpo.gov/fdsys/pkg/CFR-2002-title48-vol1/pdf/CFR-2002-title48-vol1-sec6-302-1.pdf) which provide for the competitive selection of proposals submitted in response to a BAA.

**(D7) Read more:**

[The VA’s Industry Innovation Competition](http://www.innovation.va.gov/industry-competition.html)

[Detailed information on requirements can be found in the FAQ.](http://www.innovation.va.gov/faq.html)

For more information, contact: Amber Schleuning, Deputy Director, VACI, [Amber.Schleuning@va.gov](mailto:Amber.Schleuning@va.gov)

**D5: Challenges to deployment**

There are limitations to the applicability of staged contracts. Because staged contracts are designed to rigorously implement and evaluate ideas (either novel or established in the private sector) within a short timeframe, this approach may not be optimal for the engineering of complex, incremental systems or for the rapid development of cutting-edge prototypes on the other hand. [[crosslink rapid prototyping content]] [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The process of rapidly funneling solutions into rigorously evaluated pilots also presents several challenges:

* Define the problem clearly
* Provide adequate guidance in the initial solicitation
* Manage risk and establish expectations
* Plan thoughtfully the transition to follow-on contracts [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Define the problem clearly

Agencies must be thoughtful in articulating the problem statement, its scope, and the types of solutions sought. Subject matter experts may be inclined to focus the problem statement too narrowly, excluding potential innovative solutions. Contract officers must be comfortable embracing the fact that the government does not know what the ideal solution looks like and must craft the problem statement accordingly to harness open-ended innovation. [ [crosslink to problem definition content in Grand Challenges]] [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Provide adequate guidance in the initial solicitation

The initial solicitation encourages small business participation with its simplicity, and its open-ended nature emphasizes contractor creativity. However, these same qualities require agencies to ensure that the procurement office assists applicants and provides adequate government engagement. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Manage risk and establish expectations

Agencies must acknowledge and prepare for the uncertainty of contract funding, especially because each contract extends across two to three years. Staged contract pilot sites may also experience difficulties handling unforeseen timing issues, integrating prototype technologies within existing systems, and receiving buy-in from pilot staff. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Because the majority of pilot staff may have other, perhaps dominant, work responsibilities, agencies should maximize the number of technical end users, contract organizers, or other interested parties overseeing pilot progress. Unforeseen issues, particularly with larger pilots, may arise from an insufficient number of participants, technological bugs, or not getting participants security clearances in time. To mitigate these challenges, the government’s expectations for the company and relevant information on the pilot site should be defined and clearly articulated at the outset. Frequent, informal interactions between the company and government personnel can ensure coordination and adequate progress. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Plan thoughtfully the transition to follow-on contracts

The requirements for full and open competition in the [Competition in Contracting Act of 1984](https://www.gpo.gov/fdsys/granule/CFR-2011-title41-vol3/CFR-2011-title41-vol3-part102-id900-subpartB-subjectgroup-id927/content-detail.html) may pose obstacles for agencies seeking to transition pilots into sole source follow-on contracts. Despite these challenges, the VAi2 Competition has demonstrated that the technology pilots themselves can provide agencies significant value. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D6: How to Guidance**

The main objective using a staged contracting model is to design the acquisition approach and the RFP to result in a large number of high-quality proposals describing innovative technologies, ideas, and approaches relevant to the agency’s requirements. A second, but equally important, objective is to design the RFP so that it expedites the overall acquisition process by “designing out” or mitigating any areas or issues that could cause delays to the acquisition process or the resulting prototype development projects. The BAA mechanism can serve as the basis of the acquisition effort. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Key steps for deploying staged contracts**

Steps for using staged contracts are:

* Identifying the problem and specifying requirements
* Engaging the future end users early-on
* Constraining the solution space
* Identifying participants
* Developing the BAA
  + Common issues with the BAA
  + Sample concept paper outline
  + Sample full proposal outline
* Evaluating proposals and selecting for award
* Executing the award
  + Continue to involve end-users
  + Provide technical guidance and advice
  + Demonstrate and test prototypes
* Pursuing follow-on work

**Identifying the problem and specifying requirements**

The problems/requirements included in the BAA can be thought of as “bait” to attract and challenge companies to focus on solution. The key is to provide adequate background information so a company can make an intelligent assessment about what would be required and desired in a solution. Agencies should spend considerable time engaging end users to define problems adequately. It’s important to resist the temptation to prescribe solution requirements. Clear problem definition is worthy of resource investment, as it generates long-term value; even if a company does not submit a proposal for a particular issue, the background information provided can start to educate industry on the agency’s requirements, which assists companies to submit more relevant proposals in the future. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Choose initial areas of interest adjacent to ongoing high-complexity, high-centrality, and high-visibility agency initiatives. Such initiatives are likely to have well-defined challenges and subject matter experts the BAA could draw from. High visibility initiatives may also attract increased private sector interest for the BAA. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

If specific requirements or constraints exist for a particular problem and its potential solutions, this information should also be included in the problem description. Some common specific constraints are: minimum performance requirements, the use of certain software or platforms, minimum data amounts, the use of a particular set of test data, etc. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Engaging the future end users early-on**

Potential agency end users should be engaged as early as possible, and these end users should be major participants in identifying the problems/requirements. End users should be identified from among the subject matter experts and “power users” in an office because they are most likely to truly understand where the gaps exist in their technologies and what new capabilities are needed to take their work to the next level. When an office contributes some of its own funding to support the acquisition effort, the office is much more likely to support continued engagement by the end users. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Engaging with potential end users early could also lead to a clearer articulation of agency areas of interest for innovative technologies in the BAA, which is particularly important should the BAA contain multiple areas of interest. For example, the VAi2’s BAA prioritizes dialogue with end users and subject matter experts to craft detailed one-pagers for each topic area, providing background on the problem (e.g. scope and impact) and explicitly listing what features the VA was interested in. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Constraining the solution space**

While it is important not to define the problem statement too narrowly, at the same time it is critical to constrain the support technologies used to implement the prototype, in order to give each technology its best chance of being integrated into existing systems if the technology proves successful. The reality of many government systems is they are not going to undergo large-scale replacement and, instead, need to evolve in place to incorporate new technologies and capabilities. This makes it necessary to constrain the solution space so potential new capabilities are designed to facilitate integration with existing systems. For example, if most existing systems at an agency use Linux servers and Windows clients, then this type of architecture should be a requirement for potential new capabilities. If the potential capability does not have the flexibility to use the specified architecture, it likely will not be able to be used regardless of its potential benefit. Thus, it is best to discover this issue early. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Some important constraints to consider are:

* A preference for using open source software where suitable software is available to minimize licensing costs
* No reliance or dependency on proprietary data formats or data storage mechanisms
* Web-enabled GUIs and user facing applications
* Software developed using a common language such as C, C++, or Java
* Use of specific standards or protocols

Solutions based on commercial products are generally less successful than solutions based on open technologies; commercial products may be less cutting-edge, due to the amount of time it takes to bring a commercial product to market. Additionally, commercial products generally are associated with significant licensing fees that can be unrealistic for widespread government usage. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Requiring concept papers to identify themselves as Development Proposals vs. Field Test Proposals can be helpful in signaling to agencies the technology’s maturity. This information informs appropriate expectations and focus for the technical review committee and pilot managers regarding implementation readiness, evaluation, and scale-up potential. For example, pilot managers may prioritize repeatability and rigorous testing for Field Test Proposals, in contrast to achieving a working prototype for Development Proposals. Distinguishing proposals may also inform the selection of appropriate pilot sites. For example, Development Projects may not be well-suited for centralized, fastpaced pilot sites as failure risks may interrupt integral agency services. To coordinate agency efforts, both proposal types should be kept on consistent timelines, such as a 12-24 month period for pilot implementation and evaluation. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The VAi2 BAA provided the following definitions for Development Proposals and Field Test Proposals:

*Development Proposals: New and untested ideas and technologies or novel customization and application of existing technologies that have the potential to provide benefits outweighing all costs and results that significantly exceed currently deployed solutions. Technologies and products submitted as Development Proposals shall achieve a working prototype or test system.*

*Field Test Proposals: Products and solutions that have demonstrated significant value in commercial or other production environments but are new to the operating environment within Veterans Affairs. Solutions shall be repeatable and ready for small-scale deployment at the VISN [Veterans Integrated Service Networks] or facility level. Should the results from small-scale deployment prove favorable, the solution shall be scalable to a VA-wide implementation. It is anticipated that an award made in response to this BAA will fund the small-scale field testing.* [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Identifying participants**

The goal is to have the BAA reach as many suitable companies as possible including a significant number of companies that may be new to Federal contracting. The use of this model, with its staged approach, should encourage participation by entrepreneurs and innovative small businesses. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Developing the BAA**

There are two goals for the BAA:

(1) Design the BAA to eliminate as many delays and obstacles as possible and automatically mitigate what cannot be eliminated; and

(2) Have the proposals responding to the BAA include sufficient information to support comprehensive evaluations and allow the proposal to serve as the Performance Work Statement (PWS) for any resulting contracts. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The acquisition process can be expedited when the resulting proposals are complete, comprehensive, and contain all information necessary to support proposal evaluation and contract award, because the contracting officer will not have to hold discussions with the company to resolve areas that are unclear or are contrary to the agency’s requirements. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The delays and obstacles encountered when awarding a contract for technical work will be specific to each agency, but here are some common issues that can be set forth in the BAA:

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| **Common delays and obstacles that can be mitigated with BAA specifications**  1. ***IT Governance***– If an agency has IT Governance requirements dictating or forbidding the use of specific hardware or software, this information should be included in the BAA as requirements for all resulting projects. For example, many agencies require the use of the Windows operating system for client applications and the Linux operating system for back-end server applications.  If this is the case, then this information should be a requirement in the BAA. If there are two possible technical options for supporting potential solutions and additional approvals are required for one option but not the other option, consider limiting the company’s IT choices for their solution to the option that does not require the additional approvals.  2. ***Security***– Different agencies have different security requirements for companies performing work. If there are options or approaches that require fewer approvals than other options or approaches, it may be beneficial to make the option requiring fewer approvals mandatory -- if it will not unduly constrain the resulting prototype development effort. Security requirements and restrictions can always be revisited for successful prototypes when planning for longer term follow-on work.  3. ***Intellectual Property and Government Rights***– The BAA needs to clearly state the conditions that will apply to all intellectual property (IP) developed under any contracts resulting from the project and whether the FAR/DFAR (or other agency specific) clauses regarding intellectual property will apply. Additionally, the BAA should state the minimum level of rights the agency is willing to accept, for example, Government Purpose rights, for all work developed under resulting contracts. Companies should also be informed in the BAA that offering to provide the prototype with rights less than the minimum level the agency is willing to accept may negatively impact their proposal evaluation.  4. ***Payments*** – Although contracts are likely to be firm fixed price, most efforts will involve a series of payments. The BAA should articulate that only offerors invited for full proposals will be asked to provide their desired funding profile, informed by planned expenditures based on calendar quarters. Agencies may alternatively tie each payment into a specific deliverable, for example, invoice #1 corresponds to the delivery of milestone #1. The company can then propose the amount for each scheduled payment. Having all companies follow the same payment schedule and identifying the payment amounts up front eliminates a common time-consuming item for contracting officer discussions with the company and simplifies the management of multiple projects after the award.  5. ***Deliverables***– The BAA needs to clearly define what deliverables are associated with any resulting contracts. The deliverables expected depend on the proposal type, but in all cases should provide sufficient information for continual and final evaluation regarding scale-up potential. Such information could come in the form of milestones. For example, the VAi2 BAA [crosslink] required:  *Development Proposals shall include milestones that demonstrate achievement of significant design steps, validation of new technologies and/or architectures, completion of work that indicates substantial risk reduction, etc. Prototype delivery and/or demonstration milestones shall be included, if appropriate.*  *Field Test Proposals shall include milestones that demonstrate significant steps in design, integration, testing, installation, verification, data collection, etc. The proposal shall clearly identify any required interaction with VA resources, data, facilities, etc. Prototype delivery and/or demonstration milestones shall be included, if appropriate.*  *All Proposals shall clearly identify the risks involved with their proposed solutions, and plans for mitigation of said risks.*  6. ***Concept Paper Content and Format***— If the BAA provides specific instructions on the content and format of the concept papers and full proposals, it will expedite evaluation of the submissions and make it more likely that companies will include all necessary and relevant information in their submissions.  7. ***Full Proposal Content and Format***– When it is time for the second stage of this model, the agency will issue a BAA with specific instructions on the content and format of the full proposal to streamline the evaluation process. For example, the BAA could request to include the following content in the proposal:  [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

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| **Sample Concept Paper Outline**  The BAA should also specify page limits for the concept paper—the [VAi2 Competition](http://www.innovation.va.gov/industry-competition.html) requests papers limited to four pages in length, including a cover sheet and single-page summary slide.  As an example, the [VAi2 Industry Innovation Competition](http://www.innovation.va.gov/industry-competition.html) requested concept papers to include the following content:   1. Proposed Approach (Technical Summary) – A concise description of the technical approach, describing the architecture, implementation plan, and the impacts and benefits of the proposed innovation. A short statement of the structure and timeline should be included. Clearly outline any technical challenges inherent in the approach and possible solutions for overcoming potential problems. 2. Supporting Technical Analysis: Address how the proposed technical approach is innovative or revolutionary and how it rises above the current state of practice. 3. Anticipated Requirements for Agency Resources: In addition to the funding requested, please describe any anticipated requirements of the agency to make the pilot or field test successful. Examples include software hosting, access to patient data, etc. 4. Team Expertise: A brief summary of expertise of the key personnel on the project relevant to the program goals. If the team is multi-organizational, a proposed management structure should also be included. In addition to a cover sheet requesting the Technical Point of Contact’s information, the proposal type (Development, Field Test, or both), the cost Rough Order of Magnitude (ROM), and the duration of the proposed work, the VAi2 BAA requested a single-page summary slide containing the following sections: one-line description, one-paragraph summary, key picture/chart, ROM and schedule, and promised impact to the agency. Together, these three documents should support the rapid assessment of the technology landscape while providing enough technical detail to inform full proposal invites.   [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

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| **Sample Full Proposal Outline**  The BAA should specify page limits for the full proposal, split into a technical and cost/price volume. The technical volume should be limited to 50 pages and the cost/price volume should have no limit. This length is sufficient to provide a comprehensive description of the proposals selected from the first round of rapid concept paper evaluations.   1. Executive Summary – Intended to provide an overview of the salient features of the entire proposal. 2. Background & Description – A detailed background, discussion and description of the proposed solution, and categorization as a Development Proposal and/or a Field Test Proposal. 3. Impact – A clear, concise definition of the impact, benefits, and scalability of the solution to the stated area of interest. Additional information such as a description of the current state-of-the-art concerning the proposed technology/approach, a discussion of comparable products, technologies and/or approaches similar to what the company is proposing, and an explanation of why what the company is proposing is of value. 4. Description of the Solution Design and/or Architecture – Development Proposals should clearly identify the new technology being developed, including a description of the current technology status and the future development to be undertaken. Field Test Proposals should clearly indicate the current level of deployment of the solution and describe the areas where agency deployment involves new or untested usage. The solution description should be written in a clear and concise manner and shall serve as the basis for a PWS should the proposal submission result in a contract award. Any hardware, software, data, or documentation items the company wants to request from the government to support this effort need to be identified in the proposal so potential delays in providing these at the pilot sites can be factored into the proposal evaluation. 5. Feasibility & Methodology – A reasonably complete discussion that details the feasibility and the methodology of the proposed approach(es) and identifies the level of effort to be employed. Risks associated with the proposers’ solutions as well as mitigation strategies should be identified and discussed. 6. Unique Capabilities – A presentation of the offeror’s unique capabilities and/or specialized experience. The offeror should also identify and provide resumes for key personnel and the principal investigator showing relevant experience. 7. Cost/Price – As a separate volume in the full proposal, the offeror’s cost/price proposal should be prepared in a clear and concise manner that accurately reflects the offeror’s total proposed amount for accomplishing the proposed solution. Cost data should include all costs expected during the performance of the contract. All details, broken down by cost element, should be prepared for each major task along with supporting rationale. Cost elements include: direct labor, materials, travel, other direct costs, consultants, subcontractors, indirect costs, profit/fee, and desired funding profile. The agency should indicate a preference for Firm Fixed Price (FFP) type contracts. 8. Sub-Contracts or Relevant Collaborations – A description of any proposed sub-contracts or relevant collaborations planned or already in place with industry, government organizations, universities, or other institutions. 9. Past Performance on similar R&D work   [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

**Evaluating proposals and selecting for award**

The proposal evaluation plan should reserve the right to fund all, some, or none of the concept papers and full proposals received under the BAA solicitation in order to retain the greatest flexibility for the government. The BAA should clearly articulate that an invitation to submit a concept paper or full proposal does ***not*** guarantee a contract award. The BAA should also specify that all proposals are treated as sensitive competitive information with disclosure, use, or duplication only for purposes of evaluation, and that no funding is available for direct reimbursement of proposal development costs. To support the rapid assessment of innovative technologies, the BAA should emphasize the importance of clear, concise papers and proposals, as below:

*Offerors are advised that the quality of the information presented in the proposal is significantly more important than the quantity. It is desired that the proposals, as briefly as possible, provide details of the technology and the design of the proposed solution, the impact on the stated field of interest, the scalability of the solution, the implementation plan, and the capabilities and expertise/experience of the Offeror as described in the section entitled “Proposal Submission Format.”* [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The evaluation criteria for concept papers and full proposals should be simple, straightforward, and consistent. Six evaluation criteria that work effectively for pilot proposals are:

1. The potential impact, benefits, and contributions of the solution to the agency mission areas of interest
2. The quality of the proposed solution design
3. The quality of the proposed implementation plan
4. The scalability of the proposed solution
5. The offeror’s capabilities, related expertise/experience, past performance, facilities, techniques, or unique combinations of these that are integral factors for the achievement of proposal objectives
6. The cost-effectiveness of the solution in proportion to its potential impact/benefits [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The evaluation of concept papers and full proposals can be streamlined by requiring that submissions be categorized as Development Proposals or Field Test Proposals, and by requiring that full proposals consist of distinct technical volumes and cost/price volumes. The former requirement orients the technical review committee to appropriate evaluation standards, while the latter better aligns the evaluation criteria to full proposal submissions. To ensure that offerors with strong paper proposals can deliver on them, agencies should thoroughly review financial backgrounds before award decisions are announced. Consistent with the BAA solicitation to offerors, the technical review committee should be clear that the evaluation process is not a competition, even within a topic area. The lack of a common statement of work precludes fair comparisons among offerors. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The technical committee should consist of both subject matter experts and potential agency end users with membership size dictated by the topic area’s complexity. For example, the [VAi2 2011 Industry Innovation Competition](http://www.innovation.va.gov/industry-competition.html) arranged committees of five to fourteen experts depending on topic area. Subject matter experts involved in the identification of topic areas should serve on the technical review committees to more accurately assess if offerors’ technologies indeed satisfy agency needs as well as help identify appropriate pilot sites.

**Executing the Award**

The main objective in executing the awarded contracts is to establish and thoroughly assess pilots of the offerors’ technologies such that promising pilots can be rapidly scaled across the agency through follow-on contracts. Additionally, if the company is able to deliver the pilot on schedule and budget and if the pilot has the capabilities and features stipulated in the full proposal, this is a good indication that the company can succeed in subsequent work. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Continuing to involve end users

It is critical for end users to be involved with oversight of the technology aspects of each project, but it is equally important that the technical end users do not have to spend their limited and valuable time on the administrative aspects of the project, especially when most of the projects will not continue into follow-on work and will stop at the end of the contract’s period of performance. If many of the issues that could cause delays or obstacles to execution are “designed out” of the program from the beginning, then one person can easily handle the administrative duties for multiple proposals, leaving the technical end users to solely focus on the technical aspects of the work. Offices that have a need for the capabilities potentially offered by the technology and offices that would have to be involved in scaling up the pilot are good sources for technical end users to participate in technical discussions with the company during contract execution. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Providing technical guidance and advice

Throughout the solicitation and proposal evaluation process, there should be regular opportunities for the contractors to ask questions of the government agency. Within several weeks of the BAA publication, agencies should host an industry day webinar to provide information for each area of interest and address questions from industry. Informal communication should be encouraged, with all questions and responses posted for all contractors to see to avoid duplication and ensure a fair playing field. Procedural questions could be directed to the agency’s technology acquisition center (TAC) and substantive questions to subject matter experts. Questions and responses could be posted on an online forum such as FedBizOpps.gov. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

After the announcement of award decisions, communications should be limited solely to offerors participating in pilots. There should also be regular opportunities during the execution of the pilots for the agency’s technical end users to ask questions of the company about the work being done, their progress, and their pilot’s potential for scaling up. Teleconferences can easily take the place of face-to-face meetings, especially where time or location considerations apply to the personnel participating in these meetings. The objective is to provide the company with sufficient information about the agency’s needs so that the company can develop the most relevant prototype possible given the cost and schedule constraints.

**Evaluating Pilots**

The monitoring, evaluation, and intervention of technology pilots should be continual, akin to adaptive management—a structured, iterative process of course-correcting that reduces uncertainty over time via system monitoring. Uncertainties associated with introducing a novel technology to a pilot site include its effectiveness, operability, and resistance to adoption. In this way, adaptive management seeks to fulfill short-term objectives while accumulating the knowledge base to optimize long-term pilot outcomes. This process of evaluation and intervention is predicated on frequent and honest dialogue among end users, offerors, and pilot managers. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Once the pilot has been completed, agencies must decide whether the technology is scalable. Such decisions should be informed by the nature of the technology (software vs. hardware), its complexity, and the offerors’ financial background and resources. Agencies should also assess the technology landscape to ensure advances have not rendered the pilot technology obsolete, considering the time and cost associated with fully vetting another technology. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Pursuing Follow-on Work**

Pilots selected for follow-on work should be transferred to the standard acquisition processes. Technical agency end users who participated in the execution phase of the project are likely candidates for sponsoring the follow-on work. If possible, agencies may cite the pilot as justification for a sole source follow-on contract for the company. Companies with prototypes that are not considered for follow-on work should be notified and provided with constructive feedback as to why their technology was not selected for follow-on work so the company can improve its efforts in the future. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Agencies should acknowledge and prepare for multiple scenarios in scaling up promising pilot technologies agency-wide. The requirements for full and open competition in the [Competition in Contracting Act of 1984](https://www.gpo.gov/fdsys/granule/CFR-2011-title41-vol3/CFR-2011-title41-vol3-part102-id900-subpartB-subjectgroup-id927/content-detail.html) may present obstacles for agencies seeking to transition pilots into sole source follow-on contracts. For example, the VAi2 Industry Innovation Competition has observed intense competition for follow-on contracts mandated by full and open competition. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D8: Authorities**

The authority to solicit BAAs for staged contracts is outlined under the provisions of [Parts 35.016](https://www.gpo.gov/fdsys/pkg/CFR-2011-title48-vol1/pdf/CFR-2011-title48-vol1-sec35-016.pdf) and

[6.102(d)(2)(i)](https://www.gpo.gov/fdsys/pkg/CFR-2002-title48-vol1/pdf/CFR-2002-title48-vol1-sec6-302-1.pdf) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of proposals submitted in response to the BAA. Accordingly, proposals selected for award must be considered the result of full and open competition and fully compliant with [Public Law 98-369 (The Competition in Contracting Act of 1984)](https://www.gpo.gov/fdsys/granule/CFR-2011-title41-vol3/CFR-2011-title41-vol3-part102-id900-subpartB-subjectgroup-id927/content-detail.html). Note that staged contract BAAs are only an expression of interest and thus do not commit the government to make an award or pay proposal preparation costs. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

#### Competitive Milestone-Based Contracts: Maximizing Value from Small Businesses

**D1: Elevator pitch and summary**

Competitive milestone-based contracts are a useful tool for attracting businesses with innovative approaches to well-defined, multi-component problems. A competitive milestone-based contract is an innovative contracting model that promotes competition among a stable pool of selected offerors across a series of clear, technically feasible milestones, with payment withheld until the associated, agreed-upon milestone is completed. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Why:

Agencies need the ability to attract innovative approaches to well-documented problems, while minimizing cost, risk, and liability. Milestone-based contracts accomplish these goals by financing the completion of authorized work, in the form of milestones, withholding payment until the agreed-upon milestone is completed. In crafting the solicitation, the government establishes a series of milestones, each with well-defined requirements, a deadline, and an assigned monetary value. The unique combination of attributes in these contracts—firm-fixed price, indefinite delivery/indefinite quantity (IDIQ), and performance incentives—maximizes value delivered to government and places full financial responsibility on the contractors. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

By foregoing a bulky, long-term deliverable in favor of a series of achievable milestones, these contracts encourage participation from traditionally underrepresented contractors, such as small businesses and high-growth startups. Competitive milestone-based contracts also provide agencies considerable flexibility in contract financing and solicitation. Among the innovative contracting models, competitive milestone-based contracts can uniquely:

* Strengthen small businesses through more accessible financing and recruitment of private investment
* Maximize value and innovation delivered to government on specific, concrete agency challenges
* Ensure government flexibility in financing and solicitation given limited resources [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

How:

In crafting the solicitation, the government establishes a series of milestones, each with well-defined requirements, a deadline, and an assigned monetary value.

In general, competitive milestone-based contracts work as follows:

1. *Announce:* Agencies release a broad solicitation for contractors to compete through a series of milestones, each with a defined problem statement and monetary value.

2. *Select:* Agencies select a pool of competing contractors following the initial solicitation.

3. *Launch:* Agencies announce which milestones are under competition and provide more specific language on technical constraints and deadlines.

4. *Maintain:* Agencies award first milestone winners and decide when to place the remaining milestones under competition, depending on fiscal constraints. The government is not compelled to compete any milestones beyond the first, and no contractor is entitled to award money beyond the minimum. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D2: Benefits**

Competitive milestone-based contracts offer agencies significant flexibility in funding and solicitation while achieving cost-effective results. Agencies may choose which milestones to put in play and withhold others depending on available funds. As each milestone is independent of another, agencies have no ongoing liabilities following the conclusion of one milestone, and possess the flexibility to modify or freeze the contract. For solicitation, the initial BAA need only contain the statement of objectives, baseline requirements, and property/data rights; the details of individual milestones can be augmented with greater specificity later, once the contractor pool is established. The same applies to future milestones not currently underway. This provides government agencies the flexibility to introduce or modify downstream milestone requirements should needs change. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Competitive milestone-based contracts may also be more cost-effective than traditional contracts. For example, contracts for NASA’s Innovative Lunar Demonstrations Data (ILDD) (detailed below) paid only $500,000 -- rather than the typical $3-5 million – it its first milestone for propulsion data from innovative rocket injectors using green propellants. A NASA Inspector General report found that NASA’s Commercial Orbital Transportation System (COTS) program, by using milestone-based payment approach, produced results at 1/10th the cost of traditional procurement approaches. [“[Falcon 9 Launch Vehicle NAFCOM Cost Estimates](https://www.nasa.gov/pdf/586023main_8-3-11_NAFCOM.pdf),” NASA, August 2011.]

**D3: Use cases**

Milestone-based competitions provide agencies the ability to attract innovative approaches to well-documented problems, while minimizing cost, risk, and liability. This approach, which uses the BAA acquisition method, can easily be tailored and customized to meet the specific requirements and constraints of different government agencies. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

As of December 26, 2014, changes made in [2 CFR 200](http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr200_main_02.tpl) effectively limit the use of fixed amount sub-awards (including milestone based payments) on new U.S.-based procurements to a threshold of $150,000.Agencies can request waivers on an agency level. Work with your procurement office to learn more. [Kutnick, A., personal communication with Policy Design Lab, January 10, 2017.]

**D4: Case Studies : NASA’s Innovative Lunar Demonstrations Data (ILDD) and Commercial Orbital Transportation Services (COTS)**

**Case 1: Innovative Lunar Demonstrations Data (ILDD)**

The NASA Innovative Lunar Demonstrations Data (ILDD) program illustrates the promise of competitive milestone-based contracts. The NASA ILDD program sought responders to deliver specific data related to lunar exploration that could from commercial development of small, robotic lunar landers.. The NASA ILDD program awarded small, firm-fixed price, indefinite delivery/indefinite quantity (IDIQ) contracts over the course of five years, with a small minimum order, followed by sequentially ordered tasks for which a contractor is not paid if work is stopped. "We're not funding the missions themselves," explained Nantel Suzuki, Advanced Exploration Systems program executive. [“[New NASA Moon Plan: Pay Others to Go: Discovery News](http://www.seeker.com/new-nasa-moon-plan-pay-others-to-go-discovery-news-1766498798.html),” Seeker, February 11, 2013.] "These teams had to, as part of the proposal, not only explain their technical capabilities, but also their business potential. They had to demonstrate they had viable end-to-end lunar missions … and some kind of business strategy.” [“[New NASA Moon Plan: Pay Others to Go: Discovery News](http://www.seeker.com/new-nasa-moon-plan-pay-others-to-go-discovery-news-1766498798.html),” Seeker, February 11, 2013.]

With an open-ended 18-page BAA, the program attracted underrepresented organizations, including small businesses, non-profits, new startups, and university consortia, before ultimately selecting six teams. All six teams are participating in the Google Lunar X PRIZE, which provides a total of $30 million in prizes to privately funded teams to safely land a robot on the moon’s surface, have the robot traverse 500 meters, and send data back to Earth. Moreover, the six teams participating in the NASA ILDD program were not established contractors; though most had identified private investors and crafted a business case, none had ever contracted with the government. The NASA ILDD program also encouraged significant private investment tied to government-established milestones: several competitors had private investments dependent on the successful completion of NASA milestones. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D7: Resources**

Read: [NASA Awards Contracts For Innovative Lunar Demonstrations Data](https://www.nasa.gov/home/hqnews/2010/oct/HQ_10-259_ILDD_Award.html), October 2010

Watch: “[Milestone-Based Acquisition with George Xenofos,”](https://www.fai.gov/media_library/exhibits/show/federalwidebuyersclub/item/31) OFPP and FAI Library

**D8**: **Authority:**

The NASA ILDD program drew further authority from [NASA FAR Supplement (NFS) Part 1835](https://www.hq.nasa.gov/office/procurement/regs/1835.htm).

**Case 2: Commercial Orbital Transportation Services (COTS)**

Case study source: [McAlister, P., personal communication to the Office of Science and Technology Policy, February 2016.]

**Summary:** NASA’s Commercial Orbital Transportation Services (COTS) program was designed to stimulate the U.S. private industry development of cargo space transportation capabilities. Using a milestone-based approach, NASA enabled the development of two new Space Station cargo transportation systems, including the SpaceX Falcon 9 and Orbital Sciences Antares rockets. The project was executed through funded Space Act Agreements (i.e. Other Transactions), with specific payment milestones established every few months.  The agreements allowed industry to retain intellectual property, while the agency was assured of only paying for successful contractor performance. [“[Innovation is a Contract Sport](https://ourpublicservice.org/publications/viewcontentdetails.php?id=918),” Partnership for Public Service, Feburary 6, 2016.] The end result was the development of entirely new commercial space capabilities, and NASA received an extraordinarily good return on investment: Milestone-based contracting meant that NASA paid 10 cents on the dollar compared to traditional procurement approaches.  [“[Falcon 9 Launch Vehicle NAFCOM Cost Estimates](https://www.nasa.gov/pdf/586023main_8-3-11_NAFCOM.pdf),” NASA, August 2011.]

"NASA's use of funded Space Act Agreements [e.g. OTA] rather than FAR-based contracts to develop new crew and cargo transportation capabilities has had several benefits,” according to a November 2014 NASA Inspector General report: “First, because the partners share development costs and Space Act Agreements involve fewer regulations and require less oversight by NASA, the Agency spent less to develop these capabilities. For example, in the cargo development program, NASA estimated it saved between $1.4 and $4 billion connection with SpaceX's efforts, with similar savings for the transportation obtained by Orbital. Second, because NASA does not impose specific requirements on the companies as part of the Space Act Agreements, the commercial partners are free to develop spacecraft designs that will support the needs of both NASA and other customers. Finally, NASA officials said they believe the greater flexibility offered by the Space Act Agreements promotes creativity and innovation." [“[NASA’s Top Management and Performance Challenges, November 2014](https://oig.nasa.gov/NASA2014ManagementChallenges.pdf),” p. 5, NASA Office of Inspector General, November 14th, 2014.]

**D7 - Resources:**

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**Read more**:

* [COTS Program Overview](https://www.nasa.gov/commercial-orbital-transportation-services-cots)
* [COTS Final Report](https://www.nasa.gov/sites/default/files/files/SP-2014-617.pdf) (May 2014)
* [Falcon 9 Launch Vehicle NAFCOM Cost Estimates](http://www.nasa.gov/pdf/586023main_8-3-11_NAFCOM.pdf) (August 2011)
* [[Uploaded - Rebecca Keiser paper]]
* “[NASA Analysis: Falcon 9 Much Cheaper Than Traditional Approach](http://www.parabolicarc.com/2011/05/31/nasa-analysis-falcon-9-cheaper-traditional-approach/),” Parabolic Arc. (May 2015)

**Watch**:

[NASA News Conference on Completion of COTS Program](https://www.youtube.com/watch?v=OjpIv4B1W-g) (November 2013)

[COTS Highlights](https://www.youtube.com/watch?v=r2GhWt1chYc) (June 2014)

**D8: Authority**

[National Aeronautics and Space Act of 1958,](https://www.gpo.gov/fdsys/pkg/PLAW-111publ267/html/PLAW-111publ267.htm), Pub. L. No. 85-568, 72 Stat. 426-438 (Jul. 29, 1958)

(NASA’s ability to use Other Transaction Authority (OTA) is granted under the Space Act of 1958 and is referred to as a Space Act Agreement. NASA’s OTA is outlined in Sec. 203 (c) (5).)

**D5: Challenges to deployment**

There are limitations to the applicability of competitive milestone-based contracts. These contracts may not be suitable for the development of complex, incremental systems, such as the engineering of an entire space shuttle. As milestones may rely on previous milestones’ solutions, scenarios of technological incompatibility across contractors or intellectual property rights thickets may arise.

Moreover, if the government agency’s mission includes the public dissemination of knowledge, it may become frustrated by the lack of insight into contractors’ operations and progress. Finally, well-defined milestone requirements may preclude agencies from expanding their scope, although new milestones can be introduced. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Additionally, successful competitive milestone-based contracts should:

* Account for unique implications of flexible contracts
* Manage risk and establish expectations

Account for unique implications of flexible contracts

Flexibility in both funding and solicitation result in unique agency challenges. Government agencies must remain cognizant of contractors’ different development schedules in announcing new, active milestones to maximize competition. Another challenge arises in the delicate balancing of the initial solicitation’s open-ended requirements to foster innovation and providing sufficient information to contractors. This balancing may be an iterative process where agencies publicly post clarifying responses to questions. Contractors may also misrepresent their relationship with the government agency for financial benefit; agencies may consider including language regulating such behavior. After the contract concludes, contractors, especially small businesses, may seek funding from foreign sponsors; agencies should expect such situations. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Manage risk and establish expectations

The key to effectively managing milestone-based projects is to allow the company to manage all execution risk and avoid any dependencies on the government for information, approvals, or other items. Though not as detailed in the initial BAA, task requests for further milestones should clearly articulate the government’s expectations so the company knows what to expect in terms of progress checkpoints, deliverable requirements (e.g., prototype demonstrations), and amount of technical guidance and advice that will be provided. Frequent interactions between the company and government personnel such as participation of government personnel in the company’s daily technical meetings should be avoided to minimize adding too much government bias to the effort and avoid shifting additional risk onto the government. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D6: How to Guidance**

The main objective is to design the competitive milestone-based contract solicitation to result in a large number of good proposals describing innovative technologies, ideas, and approaches relevant to the agency’s requirements. A second, but equally important, objective is to design the RFP so it expedites the overall process by clarifying any areas or issues that could cause delays in understanding specific milestone requirements. The BAA mechanism can serve as the basis of the acquisition effort. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

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| **Competitive Milestone-based Contracts at a Glance: 9 Steps to Deployment**   1. Understand and develop the underlying service requirements, not engineering and design requirements. 2. Perform adequate market research prior to awards to ensure that the private sector is willing to share the financial and technical risk with the government. 3. Make multiple awards to enhance performance and to ensure that the government is not reliant on a single provider. 4. Include pre-negotiated milestones (including date and technical content), which serve as a mechanism to judge technical and programmatic progress and forms the basis of assessing agreement termination, if needed. 5. Distribute funds to the partner only upon successful completion of pre-negotiated technical and programmatic milestones. 6. State clearly detailed entrance and success criteria for all milestones, so all parties understand exactly what is needed to successfully accomplish a milestone. 7. Include terms and conditions that allow all Intellectual Property to stay with the partner. 8. Require partners to self-fund a percentage of the development cost, so the partner has skin-in-the-game. 9. Maintain a big future carrot (e.g. future services contract) sufficient in size to warrant industry self-funding technical progress and skin-in-the-game.   [McAlister, P., personal communication to the Office of Science and Technology Policy, February 2016.] |

**Key steps for deploying milestone-based contracts**

* Identifying the problem and specifying requirements
* Engaging the future end users early-on
* Constraining the solution space
* Identifying participants
* Developing the BAA
  + Common issues with the BAA
  + Sample concept paper outline
  + Sample full proposal outline
* Evaluating proposals and selecting for award
* Executing the award
  + Continue to involve end-users
  + Provide technical guidance and advice
  + Demonstrate and test prototypes
* Coordinating award & deliverable hand-off
* Pursuing follow-on work

**Identifying the problem and specifying requirements**

The problems included in the BAA need to be thought of as “bait” to attract and challenge companies to focus on solutions for these problems. In the initial solicitation to select the pool of contractors, requirements can be high level, allowing applicants to pursue innovative yet technically sound approaches. The key to the problems is to provide enough background information so a company can make an intelligent assessment about what would be required and desired in a solution. Additionally, even if a company decides to not submit a proposal, the background information provided about the problems/requirements can start to educate industry on the agency’s requirements, which assists companies to submit relevant proposals in the future. Milestone requirements, however, must be very specific with a defined result, especially after selection of the competing pool of contractors. Below is an example of a contract milestone in a NASA’s ILDD initial solicitation: [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

*“****CLIN 1: Critical Component Demonstration***

*NASA’s objective is to acquire data as a result of conducting a critical component demonstration test of an item that was one of the top 10 risks as identified in the participant’s SDR data package. The participant will be asked to provide information similar to the following:*

*a. The component should be classified as flight-like with respect to form, fit and function.*

*b. The functional performance parameters should be defined with allowable margins. For example, ‘the temperature sensor shall provide measurement data in the range of -100 deg C up to +100 C with an error of no more than +/- 1 deg C’.*

*c. The component should be tested in an Earth standard laboratory environment. This should be a space-qualification test (full-up) under operational environment conditions (temperature, pressure, vibration, etc.).*

*d. The component should meet the identified functional performance parameters.”*

The expectations for problems/requirements should focus on what can realistically be achieved in the allowed timeframe. If specific requirements or constraints exist for a particular problem and its potential solutions, this information should also be included in the problem description. Some common specific constraints are: minimum performance requirements, the use of certain software or platforms, minimum data amounts, the use of a particular set of test data, etc. Another type of information very useful to companies when crafting their response is a description of approaches or technologies that the agency is not interested in. The “Not Interested In” list could be common approaches which have been tried so often that there is very little value in trying it again. It could also be approaches the agency knows will not work effectively based on internal research. The reasons the agency is not interested do not have to be included with the description of the “Not Interested In” approach/technology.

With a clear articulation of the problems to be addressed, contracts can encourage significant private investment tied to government-established milestones. For example, several NASA ILDD contractors had private investments dependent on the successful completion of NASA milestones, amplifying the incentives to deliver maximum value to government, strengthening the contractors, and recruiting de facto private partners. Moreover, the six teams participating in the NASA ILDD program were all participating in the Google Lunar X PRIZE, which offers a total of $30 million in prizes. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Engaging the future end users early-on**

Potential end users should be engaged as early as possible, and the end users should be the main participants in identifying the problems/requirements. End users should be identified from among the subject matter experts and power users in an office because they are most likely to truly understand where the gaps exist in their technologies and what new capabilities are needed to take their work to the next level. When an office contributes some of its own funding to support the acquisition effort, the office is much more likely to support continued engagement by the end users. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Relating milestone requirements to how end users will use the deliverables towards the agency’s larger mission provides contractors valuable context. For example, the NASA ILDD BAA articulated the purpose of purchasing technical data arising from commercial development of small, robotic lunar landers:

*“The ILDD procurement will allow NASA’s Lunar Lander Project Office to increase its knowledge and understanding of the design, testing, and flight lessons to be learned through the use of these landers.*

*Additionally, this information will enable the Lunar Lander Project Office to quickly and efficiently implement a plan for building and testing relevant components of lander hardware to be utilized in future human and robotic landers. Lunar mission scenarios producing data of interest to NASA may include performing lunar landing using a human mission profile, identification of hazards during landing, precision landing, and extended duration operations.”* [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Constraining the Solution Space**

While it is important to not constrain the ideas, it is very important to constrain the support technologies used to implement the deliverable to give each technology its best chance of being integrated into existing systems if the technology proves successful. Unlike the private sector, the reality of many government systems is they are not going to undergo any large scale replacement and, instead, need to evolve in place to incorporate new technologies and capabilities. This makes it necessary to constrain the solution space so potential new capabilities are designed to facilitate integration with existing systems. For example, if most existing systems at an agency use Linux servers and Windows clients, then this type of architecture should be a requirement for potential new capabilities. If the potential capability does not have the flexibility to use the specified architecture, it likely will not be able to be used regardless of its potential benefit. Thus, it is best to discover this issue early. Some good constraints to consider are:

* A preference for using Open Source software where suitable software is available to minimize licensing costs
* No reliance or dependency on proprietary data formats or data storage mechanisms
* Web-enabled GUIs and user facing applications
* Software developed using a common language such as C, C++, or Java
* Use of specific standards or protocols

Solutions based on commercial products are generally less successful than solutions based on open technologies because commercial products may be less cutting-edge and innovative due to the amount of time it takes to bring a commercial product to market. Additionally, commercial products generally are associated with significant licensing fees that can be unrealistic for widespread government usage. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Identifying participants**

The goal is to have the BAA reach as many suitable companies as possible including a significant number of companies that may be new to Federal contracting. The use of this model, with its shortened timeframe of producing a prototype in 6 months or less, and at a dollar value under the simplified acquisition threshold, should encourage participation by entrepreneurs and innovative small businesses.

However, recognize that if the agency decides to go into production of the prototype, some of the companies may lack adequate cash flow management or have difficulties adjusting to the government’s sometimes lengthy payment schedule, complex Federal Acquisition Regulation (FAR) and Defense Federal Acquisition Regulation (DFAR) contract clauses, and lengthy government acquisition cycles. Therefore, it may be beneficial to prescreen companies for interest using a market survey or some other advance notice of the upcoming acquisition to ensure they understand the requirements of a Federal acquisition. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Developing the BAA**

There are two goals for the BAA: (1) Design the BAA to eliminate as many delays and obstacles as possible and automatically mitigate what cannot be eliminated; and (2) Have the proposals responding to the BAA include sufficient information to support comprehensive evaluations. Competitive milestone-based contract BAAs need only contain the statement of objectives, baseline milestone requirements, and intellectual property and government rights; the details of individual milestones can be augmented with greater specificity later, once the contractor pool is established. If the resulting proposals are complete, comprehensive, and contain all information necessary to support proposal evaluation and contract award, the acquisition process can be expedited because the Contracting Officer will not have to hold discussions with the company to resolve areas that are unclear or are contrary to the Government’s requirements. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The delays and obstacles encountered when awarding a contract for technical work will be specific to each agency but here are some common issues that can be designed out of the BAA:

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| **Common delays and obstacles that can be mitigated with BAA specifications**  1. ***IT Governance* –** If an agency has IT Governance requirements dictating or forbidding the use of specific hardware or software, this information should be included in the BAA as requirements for all resulting projects. For example, many agencies standardized on the use of the Windows operating system for client applications and on the use of the Linux operating system for back end server applications. If this is the case, then this information should be a requirement in the BAA. If there are two possible technical options for supporting potential solutions and additional approvals are required for one option but not the other option, consider limiting the company’s IT choices for their deliverable to the option that does not require the additional approvals.  2. ***Intellectual Property and Government Rights* –** The BAA needs to clearly state the conditions that will apply to all Intellectual Property developed under any contracts resulting from the project and whether the FAR/DFAR (or other agency specific) clauses regarding intellectual property will apply. Additionally, the BAA should state the minimum level of rights the agency is willing to accept, for example, Government Purpose rights, for all work developed under resulting contracts. Companies should also be informed in the BAA that offering to provide property rights less than the minimum level the agency is willing to accept may negatively impact their proposal evaluation.  3. ***Payments***– The BAA should clearly establish the total value of the contracts, the maximum award to any one offeror, and the minimum order. For example, the NASA ILDD BAA established $30.1 million as the total value, with a maximum of $10 million award to any one offeror. Additionally, the BAA mandated all offerors submit a written System Definition Review (SDR) data package within 21 days of contract award, which would satisfy the $10,000 minimum order, and before competition for milestones. The SDR provided vital information on the selected offeror’s proposed system architecture/design and the flowdown to all functional elements of the system. Beyond this SDR, offerors selected to be in the IDIQ pool were not obligated to compete/bid on every milestone and were not guaranteed to receive any additional task orders or payments as agencies may choose which milestones to put in play and withhold others depending on the financing available.  4. ***Deliverables*** – The BAA needs to clearly define what deliverables are associated with the minimum order and the milestones. If there are requirements for a deliverable that are beyond what is described in the Contract Line Item Numbers (CLINs) for that deliverable, these additional requirements need to be clearly noted in the BAA. The BAA should specify that each CLIN will be competed in an IDIQ fashion with the government evaluating proposals based on criteria specified in the associated request for a task plan. The BAA should also specify the deadline and submission requirements for the minimum order.  5. ***Proposal Content and Format*–** If the BAA provides specific instructions on the content and format of the proposals, it will expedite evaluation of the proposals and make it more likely that companies will include all necessary and relevant information in their proposals.  [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

For example, the BAA could request the proposal to include the following content:

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| Sample BAA Response  The BAA should specify page limits for the Technical and Management proposals. For milestone-based contracts, a 10 page Technical Approach; 10 page Business Model, with business strategy and financial plan; and 5 page value proposal should be sufficient. This length is sufficient to provide a comprehensive description of the work and it can still support relatively rapid proposal evaluations.   1. Executive Summary – Intended to provide an overview of the salient features of the entire proposal. 2. Technical Approach – A description of the offeror’s technical approach with sufficient detail for the government agency to evaluate its reasonableness and innovativeness, as well as the offeror’s performance on previous, relevant projects. For example, the NASA ILDD BAA requested the technical documents: Concept of Operations, Conceptual Vehicle Design, and Demonstrated Performance with Relevant Technical Endeavors. Respectively, these documents described the general description of the proposed lunar mission, major components of the proposed vehicle, and performance on past endeavors and their relation to the BAA. These requirements were relatively open-ended, purposefully crafted to elicit innovative approaches. 3. Business Model — A description of the offeror’s business strategy for successful completion of the proposed technical approach. Important information includes: the company’s relevant experience, availability of adequate financial resources and financial commitments, access to technical equipment and facilities, and team members with relevant experience along with organizational structure. The business model should also require a financial plan, describing the funding available by government fiscal year that will enable the successful completion of the proposed technical approach as well as potential threats to the plan. 4. Value Proposal — A description of the intellectual property rights the offerors propose to confer beyond internal government use, and a complementary written justification that the government is receiving products of value commensurate with the financial award of each milestone. 5. Sub-Contracts or Relevant Collaborations – A description of any proposed sub-contracts or relevant collaborations planned or already in place with industry, government organizations, universities, or other institutions. Collaborations with foreign entities must be clearly identified so the government agency can arrange with sponsoring foreign agencies for the proposed participation on a no-exchange-of-funds basis. 6. Other Parties – Identification of other parties to whom the proposal has been or will be sent, in compliance with U.S. export control laws and regulations. 7. Deliverables – A detailed description of all deliverables to be provided to the government as a result of the work and in accordance with the requirements in the Contract Data Requirements List. 8. Past Performance in similar R&D work.   [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.] |

**Evaluating Proposals and Selecting for Award**

The proposal evaluation plan should reserve the right to fund all, some, or none of the proposals received under the BAA solicitation in order to retain the greatest flexibility for the government. The plan should also specify that all proposals are treated as sensitive competitive information with disclosure only for purposes of evaluation, and that no funding is available for direct reimbursement of proposal development costs. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The proposal evaluation criteria should be simple and straightforward. Three evaluation criteria that work effectively for milestone-based contracts are:

Technical Approach

* Scientific and technical merit
* Innovativeness and reasonableness
* Viability and practicality of technical approach
* Previously demonstrated performance

Business Merit

* Realistic and reasonable business strategy
* Funding profile, with identified threats and mitigation
* Applicability and validity to proposal

Value Merit

* Government property/data rights
* Risk Management
* Cost Realism [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

A two phase evaluation process works well for milestone-based contracts. If many proposals are received or if different proposals require different technical expertise, then different reviewers could be assigned to each proposal so the same three people do not have to evaluate each proposal. In phase 1 for each proposal, an assembled peer review team could assign a rating to each evaluation criteria using confidence level ratings: high, medium, and low confidence:

* **High confidence** proposals are of exceptional merit in the specific evaluation factor, are likely to satisfy requirements identified in the solicitation, and any unfavorable observations are minor.
* **Medium confidence** proposals are of appreciable merit, provide a reasonable likelihood of satisfying requirements, and unfavorable observations moderately detract from the proposal.
* **Low confidence** proposals fail to demonstrate appreciable merit, are not likely to satisfy requirements, and unfavorable observations are significant. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Confidence ratings assigned to each proposal’s evaluation criteria can then be aggregated into an overall rating for the proposal. Each proposal could receive one of three category ratings: category I, II, or III:

* **Category I** proposals are recommended for acceptance; they are well-conceived, offer scientific innovation and sound strategy, supported by responsible contractors and sufficient resources, and confer desired property/data rights.
* **Category II** proposals are recommended for acceptance, but at a lower priority than Category I proposals; they are scientifically innovative, supported by a responsible contractor and adequate resources, confer acceptable property/data rights, but require further development technically.
* **Category III** proposals are not recommended for acceptance; they are not technically sound or do not meet agency needs. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

In phase 2, a technical peer review is conducted by a small group of stakeholders to consider the evaluation information provided by the previous peer review team and to determine which of the specific proposals recommended for acceptance into the competitive milestone-based contract represent the best value to the government. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Executing the award**

The main objective of milestone-based contracts is to encourage innovation satisfying government requirements at much lower government cost, risk, and liability. As contractors are incentivized to produce maximum value for agencies under strict timelines, agencies avoid intensive, hands-on work throughout. Moreover, milestone-based contracts’ flexibility in financing and requirements allows agencies to adapt milestones while executing the program. Contractors that fail to meet milestone requirements incur minimal, defined agency costs, allowing agencies to only reward success. However, the success of milestone-based contracts still depends on agency coordination of contractors and deliverables transfer, management of remaining risk, and provision of technical guidance. Promising contractors may be selected for follow-on work under standard acquisition processes or other innovative contracting approaches. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Continuing to involve end users**

Government agencies participating in milestone-based payment systems will find their greatest challenges in coordinating contractors, especially with the limited insight into their progress. In order to ensure the maximum level of competition among contractors for each task request, agencies must be cognizant of each contractor’s development schedule and find a juncture in time attractive to most contractors for announcing new requests. Competition can be further fostered through informal communications and technical guidance. Another unique problem may arise when contractors misrepresent their relationship with the government agency as advertisement for their goods or services. Agencies should clearly outline policies regulating such practices to curb public misunderstanding of milestone-based payment’s hands-off nature as a formal endorsement. While milestone-based contracts provide agencies financial flexibility through sequestration, agencies should establish and communicate expectations on which milestones have secured funding and which have not. Finally, agencies should coordinate with contractors should new requirements be introduced to downstream milestones. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Providing technical guidance and advice**

Because of the open-ended nature of the initial BAA, there should be regular opportunities throughout the execution of milestones for the contractors to ask questions of the government agency. To address these questions and gain insight into the contractors’ progress, agencies could establish mini-milestones or progress checkpoints, with no additional funding involved. Informal communication should be encouraged, with all questions and responses posted for all contractors to see to avoid duplication and ensure a fair playing field. Teleconferences can easily take the place of face-to-face meetings, especially when time or location considerations apply to the personnel participating in these meetings. The objective is to provide the company with sufficient information about the government’s needs that the company can be comfortable in its understanding of the deliverable’s nature and scope.

**Coordinating award & deliverable hand-off**

Comprehensive vetting of the deliverable should occur prior to selection and award for each milestone.

There will be variation in vetting and hand-off depending on each milestone’s requirements (e.g., data formatting) and deliverable (e.g., prototype, data, etc.). Prototypes should be subjected to a demonstration to provide an effective assessment of the work that has been done and should clearly illustrate how the technology could potentially be applied to mission requirements. The demonstration should be held under pseudo-operational conditions as determined by the technical end users. Data collected should be evaluated to comply with all specified requirements. Government agencies should not hesitate in asking clarifying questions based on observed results, even if the results comply with requirements or threaten to reasonably postpone the delivery date. If questions are asked post-award, responses to these questions should not affect the rating of the contractor’s overall performance for future milestones. These clarifications inform government use of the deliverable and promote future communication. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Pursuing follow-on work**

Given the milestone-based contract’s rewarding of defined, stand-alone deliverables, follow-on work is not expected. However, if additional, related work is sought, the agency should evaluate the proposed deliverable’s risk and complexity. As detailed earlier, if the follow-on work involves complex or incremental systems unsuitable for milestone-based contracts, agencies should consider standard acquisition processes or other innovative contracting approaches, such as incentive prizes. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Under standard acquisition processes, end users of the deliverable within the agency—and in other agencies or private firms (with rights from the contractor)—are likely candidates for sponsoring the follow-on work. Solicitations for follow-on work could involve only the current pool of milestone-based payment contractors, a subset of the pool, the public, or a set of prescreened companies. Given milestone-based contracting’s attractiveness to small businesses, agencies should expect and consider situations where supported businesses later seek foreign funding. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D8: Authorities**

The authority to solicit Broad Agency Announcements (BAA) for competitive milestone-based contracts is allowed by Federal Acquisition Regulation (FAR) [Part 35](http://www.ecfr.gov/cgi-bin/text-idx?SID=68c66ee95a646848dc7dd770230ee55c&mc=true&tpl=/ecfrbrowse/Title48/48cfr35_main_02.tpl). Milestone-based competition BAAs are furthermore only an expression of interest and thus do not commit the government to make an award or pay proposal preparation costs. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Important note:

As of December 26, 2014, changes made in [2 CFR 200](http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr200_main_02.tpl) effectively limit the use of fixed amount sub-awards (including milestone based payments) on new U.S.-based procurements to a threshold of $150,000. Agencies can request waivers on an agency level. Work with your procurement office to learn more. [Kutnick, A., personal communication with Policy Design Lab, January 10, 2017.]

#### Incentive Prizes *(placeholder only – crosslink)*

An incentive prize is a contracting model that promotes innovation by offering a reward upon completion of a specific objective task. Prizes enable the Federal government to pay only for success, establish an ambitious goal, and reach beyond the “usual suspects” to increase the number of minds tackling a problem without having to predict which team or approach is most likely to succeed. Many well-known incentive prizes have focused on catalyzing technology R&D, though prize administrators are increasingly using incentive prizes to drive behavior change, market adoption of existing solutions and interventions, and progress in areas of social policy such as health, energy use, and education. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

[[Crosslink/embed Incentive prize toolkit content]]

#### Challenge Based Acquisitions: Break the Entry Barrier for new actors

Challenge-based acquisitions (ChBAs) are a “try before you buy” approach. They provide for the small-scale introduction of innovative and cost-saving technologies into existing acquisition programs through “challenge” proposals. Challenge-based acquisition limits the government’s risk by requiring the government to express its needs in terms of concrete challenges. This type of acquisition encourages new players to participate and creates a level playing field for all involved. It provides a path to obtaining superior solutions to vexing, time-critical problems. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Note that ChBAs are distinct from the “challenges” listed on Challenge.gov, which are incentive prizes.[[crosslink]]) Challenges (or incentive prizes) are often used to spur the engagement of new communities of solvers for well-designed problems in a time-limited engagement. In contrast, “challenge-based acquisition takes the challenge concept a step further by making it part of the procurement process, bringing the innovation opportunity of a challenge into the procurement framework of the Federal Acquisition Regulation (FAR). This allows the government to use challenges as the core of its evaluations, pay vendors for participation, and most importantly, test and purchase quantities beyond simply prototypes.

It is a mechanism to:

* Communicate needed capability,
* Encourage innovation in a minimally prescriptive environment,
* Assess candidate offerings, and
* Purchase proven solutions.”

[“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.]

Why:

Challenge-based acquisition is based on the premise that acquisitions are best performed if the solution sought is framed as a need (the challenge) and potential providers are free to respond with unconstrained solutions that fill that need. [“[Challenge-Based Acquisition Handbook,”](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf) 2nd Edition, Mitre, September 30, 2015.] With a challenge-based acquisition, an agency can incentivize private-sector entities to develop and demonstrate their solutions in real-world conditions as a source selection mechanism for the award of contracts or task orders for additional testing, refinement, or production of their proposed solution. The award of contracts and task orders occurs if, and only if, the private-sector entity successfully meets the real-world requirements of the challenge. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

How:

With a challenge-based acquisition, an agency can incentivize private-sector entities to develop and demonstrate their solutions in real-world conditions as a source selection mechanism for the award of contracts or task orders for additional testing, refinement, or production of their proposed solution. The award of contracts and task orders occurs if, and only if, the private-sector entity successfully meets the real-world requirements of the challenge. As a result, challenge-based acquisition helps ensure that the government buys the right thing, buys it the right way, and does this the first time by minimizing investment of major resources upfront before a solution has proven itself. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

“A well-crafted challenge, accompanied by clear and effective assessment methodologies and appropriate contracting vehicles, leads to sound and effective acquisitions.” [“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.] With challenge-based acquisitions, agencies should consider:

* *Determine the user’s need and decompose complex requirements****.*** The government must first determine the user’s need, and then interpret this need into a series of requirements which can be translated into meaningful challenge events. This provides industry with the maximum opportunity to develop and propose an innovative solution.
* *Communicate user experience and needs to industry.* The government must explain the scope of the challenge to industry by describing how it will evaluate challenge event participation in the same or similar environment for which the solution will ultimately be used.
* *Design and execute the challenge event.* The government must design the challenge event, including the plan on how the challenge event will be executed contractually, specific requirements for challenge participation, and detailed evaluation criteria for successful performance and award of follow-on contracts or task orders.
* *Analyze the challenge results and provide contract or task order awards.* The government must use quantitative and qualitative measurements to evaluate challenge results during or immediately after the challenge, and/or over a longer term, as defined by the initial challenge description contained in the Request for Proposal (RFP). These results are then used to determine follow-on contract or task-order awards. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D2 – Benefits**

Challenge-based acquisitions allow for the evaluation of a solution in a similar environment to the user, thus permitting major investment decisions of government resources to be results-driven. This can significantly reduce the cost, schedule, and performance risks for the technology being acquired.

Using challenges as a source selection mechanism and part of a larger acquisition framework allows maximum flexibility for industry to innovate. Challenge-based acquisition does not ask industry to respond to a prescriptive specification or presupposed solution. Instead, industry is free to propose any solution they believe will meet the challenge criteria. The government will then use the challenge event to assess proven performance before a major commitment of resources is made (e.g. production level buy). [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D3:**

D3: ChBAs are appropriate to consider when an agency has an urgent and time-sensitive need, when existing solutions do not seem viable, or when emerging technologies suggest potential promise for providing novel, more effective solutions. [“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.] The approach is not appropriate for major, multi-year major system acquisitions, although challenge-based acquisition may be a viable route of obtaining subsystem or components for those types of programs. [“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.]

ChBA can considered for both unclassified and classified challenges; agencies may employ challenge-based acquisition to identify solutions to classified requirements by using unclassified challenge analogues. ChBA thus can be a powerful tool for expanding the ability of innovative small businesses to contribute potential solutions, as it provides an avenue for participation for vendors who do not have appropriate security clearances and facilities. In these situations, participating challengers need only know the general performance objectives to be met. They may not know the details of the particular setting in which a solution may be deployed. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

It is important to determine whether a challenge-based acquisition approach is appropriate to address an agency’s needs. The acquisition team should evaluate the current state of its program against the characteristics listed below:

* Has rapid schedule demands or is responding to an urgent requirement,
* Responds to incremental capability needs,
* Is a sub-system or component of a larger system or acquisition,
* Is small from an Acquisition Category (ACAT) perspective or is not a program of record,
* Depends on emerging or uncertain technology,
* Seeks attention of non-traditional innovation sources,
* Expects a short product life cycle or rapid refresh rate,
* Has a clear acquisition quantity and price,
* Requires simultaneous industry and Government solution discovery, or
* Wishes to pay only for results.

**D4. Case snapshots**

[Directly sourced from internal communications provided by Correa, D., Office of Science and Technology Policy, September 20, 2016.]

**Culvert Denial Challenge**

In August 2014, the Joint Improvised Explosive Device Defeat Organization (JIEDDO) (now called the Joint Improvised-Threat Defeat Agency (JIDA)), sought technologies to improve the speed of inspection of culverts and surveillance for nefarious activity in their vicinity. This was motivated by lessons learned in Afghanistan and a desire for readily available technology to mitigate the effectiveness of culverts as a location for IED emplacement. JIEDDO used a Challenge-Based Acquisition (ChBA) for this need and devised the Culvert Denial Challenge. JIEDDO, in coordination with Army Research Lab (ARL), Adelphi, MD, established a Multiple Award Indefinite Delivery/Indefinite Quantity (IDIQ) contract. The first IDIQ task order, challenge participation, was awarded to 20 vendors in August 2014. The challengers were current IDIQ holders and represented a mix of both small and large businesses. Subsequent task orders will allow JIEDDO and ARL to iterate on the challenges and/or further test, refine, evaluate, and produce, in limited quantity, solutions capable of meeting the Government’s objectives.

In coordination with ARL and the Maneuver Center of Excellence, JIEDDO conducted the Culvert Denial Challenge at Ft. Benning, Georgia in October, 2014. The challenge event had two parts, an inspection challenge and a surveillance challenge, each with 10 challengers. The inspection challenge, comprised of Culvert Clearance and a Culvert Investigation, assessed the challenger’s technologies and its ability to remotely detect and identify objects of interest, specifically IEDs and paraphernalia, within and around a culvert. The surveillance challenge assessed the challenger’s technologies and ability to remotely monitor a culvert in near real-time and detect and identify nefarious activities with a minimal amount of human interaction.

**2012 Counter-IED Robotics Challenge**

The JIEDDO Counter-IED Robotics Challenge was held in June, 2012, at Fort Benning, GA. The challenge had four independent events: Endurance, Reconnaissance, Detect, and Disrupt. The Endurance Challenge assessed the speed and endurance of mounted, dismounted, and portable unmanned ground vehicles over an improved road. Reconnaissance assessed sensor acuity, platform mobility and spatial accuracy of small robots required to locate objects in a tactical environment. The Detect Challenge assessed robotic ability to locate simulated pressure-actuated, low and non-metallic IED trigger switches buried at hidden locations along a route. Finally, Disrupt Challenge assessed the effectiveness of robotic vehicles to disrupt the operation of IEDs and their triggers buried at various depths along a roadway representative of one in theater. The two-week event drew participation from 26 vendors. The demonstration/validation part of the challenge provided additional insight that helped both applicants and government discover additional user needs (for instance, the challenge illuminated the need for vertical surveillance/detection).[ [Directly sourced from internal communications provided by Correa, D., Office of Science and Technology Policy, September 20, 2016; “[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D5: Challenges to deployment**

Designing and deploying a challenge-based acquisition requires developing the required skillsets. Take a team-based approach to program design, involving both legal and contracting offices at the outset. Leverage Federal resources and infrastructure (such as Challenge.gov) to assist in challenge design and challenge management.

**D6: How to steps**

[“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

* **Understand Acquisition Objectives**
* **Design the Challenge**
* **Plan the Contract**
* **Communicate Capability Needs**
* **Establish an Initial Pool**
* **Conduct the Challenge Event**
* **Reduce the Challenger Pool**
* **Procure Solutions**

**Understand Acquisition Objectives**

First, understand what is needed in terms of a missing capability or an unsatisfied gap in a current capability. Convey this understanding using concepts and terms from the capability domain, and focus on what is needed, *not* how the need should be resolved. This is not a license to be vague; expressions of a sought capability may be very detailed and specific. The important thing is that expressions avoid specifying a solution. When statements of sought capability detail the specifications of a solution, that can unnecessarily limit what industry proposes as a solution. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Design the Challenge**

The challenge parameters should be transparent and understandable, and allow challengers to prove that their solution is the capability sought by the government. Design challenge-specific execution and evaluation processes that include:

* A plan for communicating challenges to industry,
* A plan detailing how the challenge will be executed contractually,
* Specific requirements for challenge participation, and
* Detailed evaluation criteria to ensure the challenge evaluation is fair to all participants.

[“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

Two distinct approaches – iterative and graduated -- may be useful frameworks for a challenge design.

Under an iterative approach, a task order is run repeatedly. At the end of each round, both the government and challengers gain valuable insight into the solving the problem. These learnings can help guide future task orders, for example, by further refining requirements. [Internal communications provided by Correa, D., Office of Science and Technology Policy, September 20, 2016.]

Under a graduated or “winnowing” approach, applicants are narrowed through multiple task orders. (Example: Ten partners may be selected in the initial task order; in the following task-order, 3 challengers may be selected. Two winning solutions may be selected, and then further refined with input from the Federal buyer.) [Internal communications provided by Correa, D., Office of Science and Technology Policy, September 20, 2016.]

**Plan the Contract**

The purpose of challenge-based acquisition is to acquire a solution that provides a needed capability.

Evidence gained from a challenge is part of a source-selection process or part of an evaluation process leading to a production buy. This requires rigor and thoughtful contract planning so that fairness and transparency are maintained. Industry will be incentivized to participate so long as the potential to win a production contract award is present. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Communicate Capability Needs**

A challenge in support of acquisition fails if potential challengers are unaware of it. The government can use a wealth of outlets to advertise its intent to hold a challenge, including social media outreach. Messaging should emphasize the challenge description in such a way that industry learns what capability is sought and is stimulated to devise innovative solutions. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Establish an Initial Pool**

Determine how many challengers will be invited to participate in the first challenge event. In setting the initial pool size, balance the goal of maximizing the number of challengers against the cost of challenge execution. Qualification for initial pool admission may be as simple as a white paper that demonstrates challengers have relevant experience, understand the problem, and may know how to solve it. [“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.]

**Conduct the Challenge Event**

Challenge events should be conducted with scientific rigor. Evidence collected at an event should be of sufficient quality to inform acquisition decisions. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Evaluate Challenge Results**

Use rigorous quantitative and qualitative measurements to evaluate challenge results. Evaluate the evidence collected during challenge event against the criteria from the challenge planning process to determine whether the needed capability was demonstrated. Past performance on previous task orders may also factor into evaluation. [“[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.]This is not necessarily a discrete decision; the field of challengers may show progress in the direction of capability satisfaction without fully meeting the stated evaluation criteria. If that occurs, the government may choose to offer the challenge again, modify the challenge, or stop the process. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Reduce the Challenger Pool**

Contracting strategies for a challenge-based acquisition should include provisions to off-ramp non-performers. If it can be determined that a particular challenger is not likely to benefit from further participation in the challenge and that their prospective solution does not or will not fulfill the capability need, that challenger should be eliminated from further consideration. Such a decision can save money for both government and industry. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**Procure Solutions**

If the evaluation of evidence from one or more challengers is satisfactory and proper contracting procedures were observed, the government can and should purchase the winning solution. If the challenge results did not inspire confidence that any of the products would meet government needs, there is no obligation to procure a product. If results show promise but not fully meet the criteria set, consider refining and reissuing the challenge based on lessons learned during challenge performance. This can become part of an incremental government strategy that includes challenge-based research projects. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

**D7:** To learn more about challenge-based acquisitions:

* Contact The MITRE Corporation ([www.mitre.org](http://www.mitre.org))
* Read “[Challenge-Based Acquisition Handbook](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” 2nd Edition, Mitre, September 30, 2015.]

**D8: Authorities**

Challenge-based acquisitions use the authority of [FAR Parts 15](https://www.acquisition.gov/far/html/FARTOCP15.html) and [35,](https://www.acquisition.gov/far/html/FARTOCP35.html) which provide for the competitive selection of proposals submitted in response to a competitive solicitation or BAA. Accordingly, selection of proposals for award via a Challenge-Based Acquisition approach must be considered to be the result of full and open competition. [“[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf),” White House Office of Science and Technology Policy (OSTP), 2014.]

The FAR permits challenge-based acquisition as a type of business process innovation:

*The absence of direction should be interpreted as permitting the team to innovate and use sound business judgment that is otherwise consistent with law and within the limits of their authority.*

*Contracting officers should take the lead in encouraging business process innovations and ensuring that business decisions are sound.*

Note that challenge-based acquisition encourages industry to dedicate its own IR&D funds, defined in [FAR 31.001 and 31.205-18(a](https://www.acquisition.gov/far/html/FARTOCP31.html)), to develop solutions that meet challenge performance criteria.

As ChBA is a federal contracting vehicle subject to FAR guidelines, all federal acquisition specialists are authorized to use ChBA.

#### Non-binding purchase commitments

Non-binding commitments to purchase products can create demand for new, more effective solutions where market requirements remain unmet. Frequently developed in partnership between Federal and private sector partners, commitments can catalyze the voluntary market introduction of cost-effective solutions that advance everyone’s best interests. Non-binding purchase commitments work best when there is both a clearly defined performance specification and a strong expression of interest from potential buyers. [Rand, D., “Summary of Pull Mechanisms”, Unpublished, May 17, 2016.]

**Why**

Non-binding purchase commitments act as a strong signal to spur industry innovation without requiring a formally commit of funds to support additional research and development. They’re often launched in conjunction with private or public sector partners in order to increase the strength of the market demand signal. They represent a win-win-win scenario for government, private sector partners, and solution offerors: the former can save money and gain greater performance, while the latter receive a strong market signal for a common set of advanced equipment requirements coupled with purchasing power across major potential purchasers. [“[DOE and Private Sector Partners Introduce a New Money-Saving Specification for Commercial Air Conditioners](https://www1.eere.energy.gov/buildings/publications/pdfs/alliances/techspec_rtus.pdf),” US Department of Energy Building Technologies Program, April, 2012.]

**How**

Non-binding purchase agreements are frequently cross-sector partnership between Federal and private sector partners to create a marketplace for solutions that advance everyone’s best interests. They can be implemented through signed letters of intent that demonstrate (non-obligated) commitment to purchase, followed by a carefully designed challenge to solicit solutions that address clearly defined market-based requirements. Finally, third party testing and evaluation can validate that submitted solutions meet specifications.

**D2: Benefits of non-binding purchase agreements**

Non-binding purchase agreements spur the voluntary development of buyer-driven, innovative solutions that are more efficient and meet market-based requirements. Non-binding purchase commitments help provide a clear signal from large purchasing partners. Vendors and manufacturers take notice when large purchasers send signals to the market that they want to invest but cannot find a product that meets requirements. Agencies who act as major potential purchasers may partner with industry to send such a clear market signal.

**D3 – Users**

Non-binding purchase commitments work best when agencies work together, or work with commercial partners, to generate a strong market pull signal to attract manufacturers or vendors. In addition to demonstrating significant market need for the technology or product sought, the effective deployment of non-binding purchase agreements require agencies to dedicate adequate funding to support the development of specifications and follow-on testing and verification.

**Case snapshots: Wireless Sub-meter Challenge and Rooftop Unit Challenge (Department of Energy)**

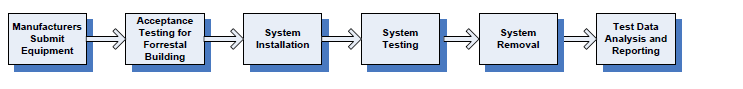
**Wireless Sub-meter Challenge:**

[**“**[Federal and Industry Partners Issue Challenge to Manufacturers](https://energy.gov/articles/federal-and-industry-partners-issue-challenge-manufacturers),” Energy.gov, June 6, 2013.]

In 2013, the U.S. Department of Energy along with a coalition of over 200 major commercial building partners, issued a challenge to U.S. manufacturers: “If you can build wireless sub-meters that cost less than $100 apiece and enable us to identify opportunities to save money by saving energy, we will buy them.” [Rung, A. and Scott, T., “[Memorandum to Chief Acquisition Officers, Senior Procurement Executives, Chief Information Officers on Acquisition Innovation Labs & Pilot for Digital Acquisition Innovation Lab](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-innovation-labs-and-pilot-for-digital-acquisition-innovation-lab-memorandum.pdf),” Office of Management and Budget, March 9th, 2016.] At least 18 manufacturers responded through a signed letter of intent, agreeing to produce devices that met specifications outlined by DOE and its participating partners in the [Commercial Building Energy Alliance](https://www1.eere.energy.gov/buildings/alliances/).

At the time of the challenge call, sub-meter prices were approximately $1,000, leading to limited market penetration. The challenge from DOE was to bring down the unit cost by 90% while still meeting building operator requirements. DOE and its coalition of commercial partners signed letters of intent demonstrating the need for low-cost sub-meters to research and development community. “This is a perfect example of how government can team up with industry to identify a problem and promote the innovation needed to solve it,” said former U.S. Energy Secretary Ernest Moniz. [“[Federal and Industry Partners Issue Challenge to Manufacturers](https://energy.gov/articles/federal-and-industry-partners-issue-challenge-manufacturers),” Energy.gov, June 6, 2013.])

The Energy Department worked with National Laboratories, a coalition of building owners, and other Federal agencies to develop a clear [**performance-based specification**](http://apps1.eere.energy.gov/buildings/publications/pdfs/alliances/wireless_energy_meter_specification.pdf). Compliance with the specifications was set to be verified through performance testing in an operational, occupied building.



[Image: Steps for in-building test verification. “[Low Cost Wireless Electric Energy Meter Specification Version 2.6](https://www1.eere.energy.gov/buildings/publications/pdfs/alliances/wireless_energy_meter_specification.pdf),” Energy.gov, May 16, 2013.]

**Rooftop Unit Challenge:**

[“[Install the highest efficiency units that meet the High Performance Rooftop Unit Challenge](https://www6.eere.energy.gov/alliance/activities/technology-solutions-teams/space-conditioning/rtu)”, US Department of Energy Better Buildings Alliance, 2011.]

In January 2011, the Department of Energy launched a challenge to urge U.S. manufacturers to build and deliver innovative energy-saving rooftop air conditioning units. Working with industry partners and building owners and operators, DOE released a design specification for 10-ton capacity commercial air conditioners known as rooftop units (RTUs), and participating private sector partners jointly announced they would strongly consider purchasing units that met the performance specification. [“[DOE and Private Sector Partners Introduce a New Money-Saving Specification for Commercial Air Conditioners](https://www1.eere.energy.gov/buildings/publications/pdfs/alliances/techspec_rtus.pdf),” US Department of Energy Building Technologies Program, April, 2012.] Led by DOE’s Building Technologies Office, with help from National Laboratories and the interested building owners and operators, coordinated the development of RTU Challenge specification. [“[RTY Suite of Projects](https://energy.gov/sites/prod/files/2013/12/f5/commlbldgs16_brambley_040413.pdf),” US Department of Energy, 2013.] The goal of the specification was to encourage industry to develop a high performance, high-efficiency RTU. [“[RTY Suite of Projects](https://energy.gov/sites/prod/files/2013/12/f5/commlbldgs16_brambley_040413.pdf),” US Department of Energy, 2013.] In addition, DOE provided technical support to manufacturers and analyzed test data. [“[RTY Suite of Projects](https://energy.gov/sites/prod/files/2013/12/f5/commlbldgs16_brambley_040413.pdf),” US Department of Energy, 2013.]

Fourteen months later, in [May 2012](https://energy.gov/articles/department-energy-announces-first-entry-market-driven-high-efficiency-commercial-air), DOE verified through laboratory testing that the first manufacturer met the challenge specification. Today, there are a total of five companies offering 195 RTU models that meet the RTU Challenge performance specification, which is 60 percent more efficient than the current building code requirement. [“[RTY Suite of Projects](https://energy.gov/sites/prod/files/2013/12/f5/commlbldgs16_brambley_040413.pdf),” US Department of Energy, 2013.]

**Read more:**

[DOE rooftop challenge winners offer energy, cost savings](http://www.pnnl.gov/news/release.aspx?id=1017)

[Part-Load Performance Characterization and Energy Savings Potential of the RTU Challenge Unit: Daikin Rebel](http://www.pnl.gov/main/publications/external/technical_reports/PNNL-22720.pdf)

[High Performance Rooftop Unit Specification](http://apps1.eere.energy.gov/buildings/publications/pdfs/alliances/cbea_rtu_spec_long.pdf)

[High Performance Rooftop Unit Fact Sheet](http://apps1.eere.energy.gov/buildings/publications/pdfs/alliances/techspec_rtus.pdf)

For more on the DOE’s rooftop chiller challenge and wireless sub-meter challenge, contact Amy Jiron at [Amy.Jiron@EE.Doe.Gov](mailto:Amy.Jiron@EE.Doe.Gov)

**D5 – Challenges**

**Key ingredients for success:**

* Craft a coalition of partners to maximize impact
* Clearly communicate with industry partners
* Invest significant time develop clear but broadly applicable design specifications
* Plan ahead for possible future acquisitions

**Craft a coalition of partners to maximize impact**

The potential impact of using non-binding purchase agreements is must fully leveraged with agencies collaborate jointly with industry. For collaboration, it’s key to develop a basis of agreement between public and private stakeholders that balances all parties’ goals. [Kochan, J., phone interview with Policy Design Lab, August 16, 2016] For additional guidance on collaborating with private sector partners to develop non-binding commitments that strategically align with all parties’ interests, see [[Crosslink to V5 content – Aligned Strategic Commitments]].

**Clearly communicate to industry partners**

For agencies already working with industry on various levels, it can be important to distinguish messaging and clearly communicate the difference between funded and voluntary opportunities. DOE works with industry on many levels, including through funding agreements and prize authority -- which are often confused with this type of market-based voluntary challenge, Amy Jiron shares. DOE has found it’s important to separate messaging on different types of opportunities, as well as to clearly state the incentive for industry for nonbinding purchase commitments, which offer potential customers rather than complicated Federal funding. [Jiron, A., personal communication with Policy Design Lab, January 10, 2017.]

**Invest significant time develop clear but broadly applicable design specifications**

With purchasing partners and the manufacturing community, develop [clear performance-based specifications](https://www1.eere.energy.gov/buildings/publications/pdfs/alliances/wireless_energy_meter_specification.pdf). Clear specifications are important for ensuring that resulting outputs align with an agency’s intended goals; they also provide confidence to manufacturers by setting clear targets to achieve. For instance, for the wireless submeter challenge, prospective manufacturers had the following clear requirements identified:

* The submeter must collect watt-hour energy for a three-phase circuit.
* Data measurement, transmission and collection must be open protocol.
* The communications must be wireless, although the type of wireless is unspecified. Communications cannot leverage the building’s other communication systems.
* The submeter must be self-contained.
* The submeter must draw power from the power panel the submeter connects to, or from the system being monitored.
* The $100 price point must include the device, sensor, any base station or repeater, and software; it does not have to include design or installation costs.
* The user is assumed to have internet access, but no additional software should be required by the user.
* Two-way communication is not required.

[Tweed, K. “[DOE Launches $100 Electric Submeter Challenge](https://www.greentechmedia.com/articles/read/doe-launches-challenge-for-100-electric-submeter),” Greentech Media, May 3, 2013.]

At the same time, specifications should not be so narrow that they are tailored towards a particular party. DOE deliberately facilitated a specification hat was sufficiently broad and achievable by multiple vendors, shares Amy Jiron. [Jiron, A., personal communication with Policy Design Lab, January 10, 2017.] The specification incorporated detailed input from partners and notice was provided to all manufacturers, to ensure DOE was not effectively selecting one product over another just by issuing the challenge. [Jiron, A., personal communication with Policy Design Lab, January 10, 2017.]

**Plan ahead for possible future acquisitions**

Voluntary challenges issued by Federal agencies need to be well-thought out based on the reality of Federal purchasing and acquisition requirements. As part of the development process, agencies may wish to consider ways to facilitate streamlined on-ramping into agency procurement processes, which could provide additional incentive for manufacturers or vendors to voluntarily participate.  A relevant consideration early-on on the design of non-binding purchase commitments is that Federal acquisition requirements can prevent the actual and final purchase of challenge-winning products if there isn’t enough competition within the product area.

**D6 – Steps to Deployment:**

* Develop a coalition of interested partners: manufacturers, other purchasing entities and organizations with targeted interest in more efficient products (for example trade associations).
* Issue a clear market requirements-based performance specification including a phased third party verification plan
* Issue letters signaling intent to purchase
* Develop phased submittal requirements:
  + 1) initial interest
  + 2) cut sheets and other documentation of performance and/or cost
  + 3) product for verification testing.
* Provide third party technical evaluation to determine if submittals meet specification requirements.
* Conduct initial paper reviews to assess whether the product would meet specification requirements.
* Provide third party laboratory verification to demonstrate that the product meets specification requirements.
* Recognize winning units at key industry events.
* Continue support through third party demonstration in building sites: Site Evaluation and Selection, Baseline Measurement, Instrumentation and third party Verification of Performance
* Conduct demonstration and deploy results broadly to key industry groups and utilities.

[Jiron, A., personal communication with Policy Design Lab, January 10, 2017.]

Private sector partners issue letters of intent:

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| **Sample letter of intent language**  It’s important to help industry partners understand the legal implications of non-binding purchase commitments. Letters of intent are not firm or binding commitments; they are just simply documentation of an unmet market need. They signal to the manufacturing/vending community there is a significant market opportunity worth pursuing.  As a signal of their support for the RTU Challenge, participating CBEA members issued the following statement:  "We will strongly consider purchasing units that meet the specification, are consistent with our cost-effectiveness criteria, and align with our procurement timeframes. We look forward to working with the manufacturers and DOE to factory witness tests of prototype units that meet this specification. We understand that DOE has committed resources and technical assistance to help U.S. manufacturers design and develop products to meet this specification. We look forward to the near-term market introduction of reliable, energy-efficient and competitively priced rooftop units which increase the energy efficiency of the sector."  [“[High Performance Rooftop Unit Specification](http://apps1.eere.energy.gov/buildings/publications/pdfs/alliances/cbea_rtu_spec_long.pdf),” DOE.] |

For more on how to develop and implement non-binding purchase agreements, contact Amy Jiron at [Amy.Jiron@EE.Doe.Gov](mailto:Amy.Jiron@EE.Doe.Gov).

**D8: Authorities**

DOE reports that no specific legislation or policy guidance guided the development of their non-binding purchase agreements. Agencies should work with their general counsel to craft appropriate language for engaging with industry.

#### Advance Market Commitments

**Snapshot: Advance Market Commitments (AMCs)**

Advance Market Commitments (AMCs) are binding commitments to purchase (or to subsidize purchase) of a certain volume of a product at a fixed price, if the product meets pre-defined performance characteristics. [Rand, D., “Summary of Pull Mechanisms”, Unpublished, May 17, 2016.] AMCs incentivize R&D efforts (for example, for finding a vaccine) by providing firm confidence to industry that a market will exist for the product they develop.

This innovative financing mechanism is an example of “demand pull” writ large. The Global Alliance for Vaccine and Immunization’s development of a pneumococcal vaccine is the canonical example of advance market commitments in action. In this instance, a global public-private consortium has worked to induce a market for an annual production of 200 million vaccine doses. [“[Supplies and Logistics: AMC for Pneumococcal,”](https://www.unicef.org/supply/index_60990.html) UNICEF, February 16, 2016.]

**D2: Benefits**

Advance market commitments can be effective because they represent a “win-win” for industry and the public sector. Government benefits from spurring the development of new solutions. In addition, the legal mechanisms for putting an advance market commitment in place provide both a guaranteed revenue stream for industry and lock in long-term pricing for the buyer.

**D3: When to use:**

Pilots of advance market commitments to date have been complex, involving multiple national governments. Nonetheless, agencies may find it useful to assess what’s possible with an AMC model. While some level of scale and firm authorization for financing are necessary, agencies may consider using an AMC in cross-agency collaborations.

**D4: Case snapshot: Pneumococcal Vaccine AMC (GAVI)**

**Summary:** The development of the vaccine to prevent deaths from pneumococcal diseases was accelerated by a $1.5 billion advance market commitment backed by five governments and a private foundation. [Rand, D., “Summary of Pull Mechanisms”, Unpublished, May 17, 2016.]

“The AMC provides a crucial platform for strengthening vaccine delivery because it binds all parties – donors, developing country governments, GAVI and industry – together in a long-term partnership,” said Andrew Witty, CEO of GlaxoSmithKline. ["[AMC changes mindset of pharmaceutical industry](http://www.gavi.org/library/news/roi/2009/amc-changes-mindset-of-pharmaceutical-industry/)," GAVI, November 24, 2009]

**Background:**

Conversations regarding the idea of advance market commitments for vaccines began in 2005, with GAVI officially launching the pneumococcal AMC in 2009. By December 2010, vaccines began in-country roll-out. [“[Pneumococcal AMC Timeline](http://www.gavi.org/funding/pneumococcal-amc/timeline/),” GAVI.] The overarching goal of the pilot AMC was to reduce morbidity and mortality from pneumococcal diseases, but additional goals include:

* Accelerating vaccine development for developing country needs
* Scaling up production capacity for effective vaccines
* Accelerating the rate of vaccine uptake by providing predictable vaccine pricing for countries and manufacturers;
* Testing the AMC concept for potential future applications.

[“[About the Pneumococcal AMC](http://www.gavi.org/funding/pneumococcal-amc/about/),” GAVI.]

**How it works:**

The pneumococcal AMC was developed to provide a predictable finance mechanism to provide pharmaceutical companies the “to invest in the capacity to manufacture pneumococcal vaccines that include the additional serotypes required to combat the most common and fatal strains of pneumococcus in low-income countries.” [“GAVI’s Business Model: Securing Predictable Financing,” GAVI.]

“In this pilot AMC, donors commit funds to guarantee the price of vaccines once they have been developed. These financial commitments provide vaccine manufacturers with the incentive they need to invest in vaccine research and development, and to expand manufacturing capacity. In exchange, companies sign a legally-binding commitment to provide the vaccines at a price affordable to developing countries in the long term.” [“[How the Pneumococcal AMC Works](http://www.gavi.org/funding/pneumococcal-amc/how-the-pneumococcal-amc-works/),” GAVI.]

“In exchange for the certainty provided by the commitment to purchase, participating firms signed legally binding agreements to supply the vaccine at a maximum price of US$ 3.50 a dose. This allows developing country governments to budget and plan for their immunization programs, safe in the knowledge that vaccines will be available in sufficient quantity and at a predictable price.” [[“GAVI’s Business Model: Securing Predictable Financing,”](http://www.gavi.org/about/gavis-business-model/securing-predictable-financing/) GAVI.]

**Accomplishments:**

Pharmaceutical companies that have agreed to provide the vaccine at $3.50 per dose to low-income countries for the next 10 years will receive additional payments from the $1.5 billion in donor commitments. The AMC increased the size and predictability of the market for pneumococcal vaccines, which increased the willingness of companies to invest in high-volume production of these vaccines for developing country markets. Experts predict that this AMC will save 7 million lives over the next 20 years. [Rand, D., “Summary of Pull Mechanisms”, Unpublished, May 17, 2016.] An outcome and impact evaluation study confirmed that the AMC pilot stimulated demand and created additional vaccine supply in developing countries. [“[The Advance Market Commitment Pilot for Pneumococcal Vaccines: Outcomes and impact evaluation](http://www.gavi.org/results/evaluations/pneumococcal-amc-outcomes-and-impact-evaluation/),” GAVI.]

**D5: Limitations to deployment**

While the GAVI case was the first and largest proof-of-concept, there’s no rule that says AMCs must inherently involve billions of dollars and multiple governments. USAID’s partnering role in AgResults [crosslink D3 case study] demonstrate how advance market commitments can function in on a less complex scale with a smaller dollar commitment. Agencies considering how to incent large demand shifts in the marketplace should consider the advance market commitment model, and consider cross-agency collaborations for implementation.

Outcome and impact evaluation studies from GAVI have found that the AMC was not as successful in accelerating R&D timelines – either because existing industry actors were far along in the process, or because early-stage candidates encountered significant technical and regulatory barriers. [“[The Advance Market Commitment Pilot for Pneumococcal Vaccines: Outcomes and impact evaluation](http://www.gavi.org/results/evaluations/pneumococcal-amc-outcomes-and-impact-evaluation/),” GAVI.] Agencies that pursue advanced market commitments should incorporate the regulatory context for the solution being sought into their expectations for the timeline for implementation.

**D6:** **How to** steps

GAVI provides a wealth of public documentation that outlines the history and execution steps taken to develop the pneumococcal vaccine. While not all guidance is relevant for agencies, those interested in pursuing this model will find helpful guidance about issues to consider and a basic roadmap of design steps to consider, even when pursuing a smaller-scale implementation of the concept.

For the pneumococcal AMC, a simplified process entails:

1. Suppliers must sign a registration agreement relating to the AMC terms and conditions.
2. Calls for Supply Offers are issued, following the publication of a strategic demand forecast.
3. All received offers are assessed, and UNICEF enters into supply agreements with manufacturers whose products are deemed AMC eligible.
4. An independent committee verifies that products developed meet the established target profile.
5. GAVI and governments contribute financing.
6. UNICEF procures vaccine supply, and delivers to country.

[“[How the pneumococcal AMC works](http://www.gavi.org/funding/pneumococcal-amc/how-the-pneumococcal-amc-works/),” GAVI.]

Agencies may wish to directly reveal technical documentation, available here:

* [Manufacturers registration](http://www.gavi.org/funding/pneumococcal-amc/manufacturers/registration/)
* [UNICEF call for supply offers](http://www.gavi.org/funding/pneumococcal-amc/manufacturers/unicef-call-for-supply-offers/)
* [Supply agreements](http://www.gavi.org/funding/pneumococcal-amc/manufacturers/supply-agreements/)

The objectives, terms and conditions, and other core elements of the AMC are enumerated here:

* [AMC Legal Agreements: detailed list of modifications](http://www.gavi.org/library/gavi-documents/amc/amc-legal-agreements--detailed-list-of-modifications/)
* [Revised AMC Offer Agreement](http://www.gavi.org/library/gavi-documents/amc/revised-amc-offer-agreement/)
* [AMC Deed of Amendment and Restatement](http://www.gavi.org/library/gavi-documents/amc/amc-deed-of-amendment-and-restatement/)
* [Revised AMC Procedures Memorandum](http://www.gavi.org/library/gavi-documents/amc/revised-amc-procedures-memorandum/)
* [Revised Independent Assessment Committee Charter and Bylaws](http://www.gavi.org/library/gavi-documents/amc/revised-independent-assessment-committee-charter-and-bylaws/)

**D7: Resources**

**Read more:**

* [Pneumococcal AMC Timeline](http://www.gavi.org/funding/pneumococcal-amc/timeline/)
* The [2015 Pneumococcal AMC Annual Report](http://www.gavi.org/library/gavi-documents/amc/2015-pneumococcal-amc-annual-report/) gives an overview of the activities linked to the implementation of the pilot Advance Market Commitment in 2015.
* [Making Markets for Vaccines: Ideas to Action,](http://www.cgdev.org/content/publications/detail/2869/) Center for Global Development – landmark April 2005 report sparked genesis of AMC approach

## Deliverable 4 (Broad): Case study on HHS Buyers Club

**HHS Buyers Club**

**Background**

The Department of Health and Human Services launched the HHS Buyers Club in 2014 to educate, test, and operationalize new acquisition methods that are approved under federal regulations to mitigate risk and increase success. [“[Innovation as a Problem Solving Tool in Government](https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf),” Department of Health and Human Services IDEA Lab, 2016.] After a successful pilot, Buyers Club has taken a short pause in 2016; however, its early results in disseminating new acquisition practices within HHS remain deeply informative for other agencies seeking to initiate a transformational shift in their acquisition culture.

Housed within the HHS IDEA Lab [crosslink Labs], Buyers Club was a sponsored project focused on addressing a critical problem in government: modernizing federal acquisition of information technology (IT) and related services. [“[Innovation as a Problem Solving Tool in Government](https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf),” Department of Health and Human Services IDEA Lab, 2016.]] The Buyers Club worked directly with HHS employees to guide them through novel acquisition methods. The initiative’s goal was to educate and build a network of innovators across HHS and the Federal government interested in applying creative techniques to achieve more effective and efficient IT acquisitions. [“[Innovation as a Problem Solving Tool in Government](https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf),” Department of Health and Human Services IDEA Lab, 2016.]

IT service and consulting firms have evolved significantly in recent years to support client needs for continuous digital transformation and iteration in a rapidly-evolving market. However, within the confines of traditional Federal procurement practices, change has been slower. Procurement approaches have historically been risk-averse, and governing regulations have evolved more slowly than rapidly-changing market conditions. There is ample opportunity to address and modernize existing practices in ways that mitigate risk but also achieving better outcomes. The HHS Buyers Club has proven this can be successfully done. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017.]

**How it works**

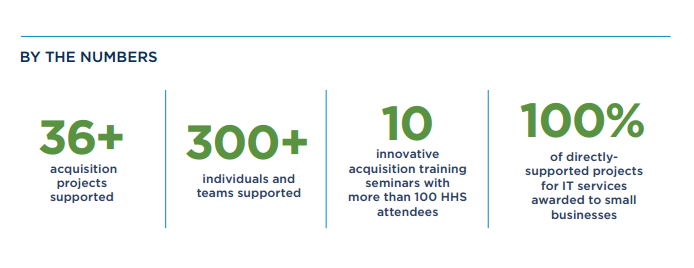
The Buyers Club was essentially an innovative digital acquisition practice internal to HHS. HHS Buyers Club capitalized on the idea that emphasizing new strategies allowed under the FAR or other approved legislation is a powerful means towards modernizing federal acquisition of information technology (IT) and related services. Historically, the proposal processes placed heavy emphasis on contractors’ proposals for future work, as opposed to evaluating what bidders had actually done in the past. The goal of the approach was to move the process of selecting contractors from one based on their professional writing skills on grants and contracts to evaluating based on their previous performance and tangible skills in real time.

Projects would initiate with a “customer” consultation to understand their needs, history, and desired outcomes. “It’s critical to understand the customer’s objectives while explaining our approach in order for everyone to be comfortable and get on the same page,” Mark Naggar explains. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017] This process also entailed developing an understanding and documentation of the underlying problems, needs, and objectives in a manner accessible to vendors. From there, Buyers Club would make a preliminary decision regarding which acquisition method and strategy to use. A Statement of Objectives, inclusive of all required materials (i.e. analytics, history, and anything a vendor could use or need) would be drafted, along with preliminary instructions and evaluation criteria. Evaluation criteria are critical and should be adjusted for each requirement in order to determine which vendor is the most capable (and provides the best value) to achieve the specified objectives, notes Naggar. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017] Award and implementation details are just as critical, but the largest investment of time and effort is in the iterative pre-award stage.

Acquisition methods used included, but were not limited to: Multi-stage acquisitions, purchase card utilization to support incentive-based competition, and other advisory methods:

* The Two-Stage (or multi-stage), Down-Select Approach for acquisitions has been replicated throughout HHS and throughout the Federal government dozens of times, notes Naggar. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017.] He explains that like a funnel, the process would winnow the field of offerors in a multi-stage qualification process. This approach lowers the acquisition burden on industry (especially small businesses), government end users/programmatic evaluators, and procurement officials.
* Another approach used was Acquisition 360. Begun at HHS, it’s a non-traditional method of surveying the three primary stakeholders in an acquisition in order to improve/iterate for future acquisitions. Typically, industry, programmatic end users, and/or procurement officials do not go through an acquisition debrief to better understand what areas worked or could use improvement. Historically, only industry asks procurement officials about why they won or lost the acquisition. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017.]

**Key accomplishments**



[Image source: “[Innovation as a Problem Solving Tool in Government](https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf),” Department of Health and Human Services IDEA Lab, 2016.]

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In less than two years, the Buyer’s Club gained in recognition because it offered relevant solutions developed to be easily absorbed for others with limited time.[Naggar, M., phone interview with Policy Design Lab, December 2, 2016.] Buyers Club supported several dozen acquisition projects, with 100% of directly supported projects for IT services awarded to small businesses. [“[Innovation as a Problem Solving Tool in Government](https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf),” Department of Health and Human Services IDEA Lab, 2016.] In one instance, the Buyers Club advised and guided two associated requirements for publication layout and graphic design services utilizing a purchase card, resulting in at least 75% cost savings, at least 65% in time savings, while maximizing competition. Utilizing [99 Designs](https://99designs.com/), the world’s largest graphic design crowdsourcing platform enabled significant end-user interaction and collaboration with the graphic designers throughout the acquisition, design, and publication process from start to finish. [Naggar, M., personal communication with Policy Design Lab, January 18, 2017.]

**Key learning insights** [Naggar, M., personal communication with Policy Design Lab, January 18, 2017.]

* Start small and interact with all stakeholders (internal & external) in a continuous 360-degree manner to understand their problems and/or needs associated with procurement in order to stay engaged.
* Continuous engagement, whether for addressing individual requirements or a historic account, can reveal trends and common problems, raising the likelihood that desired outcomes are achieved.
* Develop a coalition of support as well as ambassadors who’ve realized savings: Repeat business is based on referral. Early wins bring supporters, which helps to reach a broader audience that can benefit from these new approaches.

**Future Practices**

After a successful pilot to educate and implement these methods, the Buyers Club has taken a strategic pause. Continuation of the pilot, in whatever form, will require additional resources and active, cross-functional leadership support. While Buyers Club pilot did have support, the act of further scaling any innovative acquisitions vehicles will require robust investment in collaborative effort.

**To Learn More:**

* [HHS Buyers Club](http://www.hhs.gov/idealab/what-we-do/hhs-buyers-club/)
* [Digital Acquisition Playbook case study on the Buyers Club](https://pages.18f.gov/digital-acquisition-playbook/case-study/)
* [Innovation as a Problem-Solving Tool in Government](file:///C:\Users\Caraleigh\Downloads\•%09https:\www.hhs.gov\idealab\wp-content\uploads\2017\01\Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf)

**Deliverable 5: Challenges to deployment / approach limitations (inc. lessons learned from agencies where implemented)**

**Key ingredients for success:**

* **Provide (or receive) cover to be innovative**
* **Reframe how to identify the problem set and solutions**.
* **Take a team-based approach**
* **Remember that people – not contracts—manage projects**

**Provide (or receive) cover to be innovative**

While 91% of Federal contracting professionals actively look for ways to do their job better, only 37% feel that creativity and innovation are rewarded, according to FY15 Federal Employee Viewpoint Survey data. [“[2015 Federal Employee Viewpoint Survey](https://www.fedview.opm.gov/2015/Reports/),” Office of Personnel Management, 2015.] Providing institutional cover and empowering contracting officers to take risks will help remove the incentive for procurement staff to select established companies for contracts that are well-known, and encourage procurement officers to engage new actors that provide even better solutions.

**Reframe how to identify the problem set and solutions**.

At the outset of each new project using innovative acquisition model, create and use Concept of Need/Statement of Objectives that are based on collaboration between old and new adopters. Plan for an iterative, agile process to update it with all collaborators involved. [Naggar, M., phone interviews with Policy Design Lab, December 2, 2016 and December 22, 2016.]

**Take a team-based approach**

Agencies should build cross-functional teams to allow for the most innovative solutions possible. [“[Innovation is a Contract Sport](https://ourpublicservice.org/publications/viewcontentdetails.php?id=918),” Partnership for Public Service, February 6, 2016.] Acquisitions entail more than just buying. Early in the process, it’s important to bring to the table all relevant expertise, like policy, legal, engineering, design, and security; leveraging the expertise of a cross-functional team will help make sure your agency is solving the problems for your end users. [“[Digital Acquisition Playbook](https://pages.18f.gov/digital-acquisition-playbook/),” 18F, 2016.]

**Remember that people – not contracts—manage projects**

It’s important to promote a process that features frequent collaboration between the end user and the vendor until the period of performance is complete. Frequently, a contracting officer may work diligently to ensure that all possible contingencies are addressed with clauses within a contract. This approach can overlook the reality that over the life of the contract, conditions may change. Agencies benefit from close communication with vendors, as it helps vendors quickly make decisions that remain aligned to an agency’s goals. “Relying too heavily on contract clauses to solve every problem that may arise over the period of performance is an untenable expectation. It’s important that you’re allotting time for a resource in your agency to be a product owner to ensure the outcome has a greater chance of success,” notes 18F’s Digital Acquisition Playbook. [“[Digital Acquisition Playbook](https://pages.18f.gov/digital-acquisition-playbook/),” 18F, 2016.]

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| **Five Steps for Transforming Your Agency’s Acquisition Culture:**  2. **Follow the law instead of tradition**  Agencies at times impose restrictions that are traditional rather than black letter law. One of the first steps to streamlining procurement is to differentiate recommendations from regulations. Indeed, the [HHS Buyer’s Club](https://www.hhs.gov/idealab/buyers-club/) recognizes this and seeks to find innovative strategies to find new ways to use existing regulations and laws, rather than assume there is an essential problem within those laws. As the new practices are validated, they can be disseminated internally through informational webinars and then circulated more widely through training courses offered by entities like the [Federal Acquisition Institute](https://www.fai.gov/).  3. **Express needs in the form of problems/outcomes instead of solutions/requirements**  The usual process of procurement is to define the solicitation by the solution requested and the related requirements. By design, the wording of the solicitation is typically narrow such that only a handful of suppliers are eligible, and typically there is a bias against small businesses. If instead solicitations specify the problems to be solved and the outcomes expected, smaller companies will not be immediately disqualified. Additionally, small companies will gain the impression that the government sees them as valuable partners and may be more willing to apply.  4. **Leverage existing training resources and requirements**  The [Defense Acquisition University](http://www.dau.mil) and [Federal Acquisition Institute](http://www.fai.gov) have a number of courses aimed toward enabling the inclusion of small businesses and implementation of agile practices. The procurement lessons learned should be shared, when applicable, through these platforms to maximize impact. Civilian contracting officers are required to take 40 hours of training every 2 years; progress can be made by encouraging staff to take the most innovative courses.  5. **Bring together contracting officers to consolidate steps**  The [GSA FASt Lane](https://www.gsa.gov/portal/content/122754) approach to reducing processing time was to catalog all potential scenarios and consolidate each into 7 standardized steps. This process effectively cut the time to add a new supplier from 110 to 45 days, modify contracts in 24 hours instead of 2 weeks, and finalize awards in 30-45 days. Similar progress is possible by dedicating resources and time to streamlining processes.  6. **Start small, gain quick wins, and scale fast**  Any change takes time and resources. Agile and lean perspectives can be applied to making changes to government procurement. Many small pilots can try out new ideas and quick wins can help convince any skeptics. The pilots that are successful can then be scaled appropriately.  [Directly sourced from Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.] |

**Deliverable 6:  How-To: Steps for deploying, practices for adapting**

Each specific approach contains detailed information for executing a particular contracting tool. For more broadly deploying innovative acquisitions, pair communication strategies that win allies with structural changes to empower innovation acquisitions advocates to create the strongest impact possible:

* **3 ways to garner support**
* **6 recommendations for standing up an effective acquisition innovation lab**
* **6 types of assistance acquisition labs should offer agencies**

**Three ways to garner support:**

1. **Make it relevant, make it easy**. Focus on developing smaller modules to teach people within the larger contracting umbrella and emphasize information that’s actionable for frontline employees.
2. **Find allies**: Seek out allies by having conversations with larger CIO Council, Procurement Council. OMB/OSTP can help stand up new initiatives. Talk to agencies that have not stood up programs to identify their needs and find out what would be helpful to them. Identify agencies, offices, individuals who are in the middle of the bell-curve; that is, they’re able and willing to adopt, but would benefit from support in navigating the “how.”
3. **Educate the community you are targeting**. Share the value of your approach. For example, Broad Agency Announcements (BAA’s) are known to procurement community, but not all approaches are as diffused. Identify successful rapid prototyping communities such as NSA, DIA and share what works. There is lots of existing flexibility within FAR, but many in procurement are not aware.

[Naggar, M., phone interviews with Policy Design Lab, December 2, 2016 and December 22, 2016.]

**Six recommendations for standing up an effective acquisition innovation lab:**

The Office of Federal Procurement Policy offers six recommendations for creating effective acquisition innovation labs and can support agencies in their efforts:

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| Agencies should consider the following principles in standing up an acquisition innovation lab or similar mechanism or reviewing the effectiveness of existing programs or approaches:  1. **Promote meaningful collaboration:** Make the lab open to all members of the integrated product team—e.g., program, acquisition, IT, legal, finance—so that appropriate attention may be given to the full range of activities, including requirements development, that impact acquisition outcomes. Where possible, support the lab’s activities with a multi-functional team.  2. **Make information technology (IT) a focus area**: An acquisition innovation lab can help to accelerate the development of digital acquisition capabilities within the agency.  3. **Start small when first getting started:** For IT activities, consider engaging on projects or modules that can be delivered within a three to six month period of performance, quickly learn and iterate, document lessons learned and effective practices for knowledge sharing and informing policy, and then scale.  4. **Encourage but do not mandate use of the lab by the workforce at large**: Focus on members of the workforce who express an interest and are managed risk takers. Take steps to ensure the workforce is aware of the lab and encourage employees to take advantage of the lab, but, in doing so, make clear that interactions are strictly voluntary (e.g., do not create negative incentives for employees who seek to “wait and see”).  5. **Obtain vendor input:** Seek feedback from vendors on pilots and related efforts in order to gauge industry’s perspective.  6. **Recognize contributions**: Recognize meaningful contributions by members of the workforce to further promote innovative thinking (e.g., Secretarial recognition awards, documentation of participation in a pilot in employee’s personnel file, nomination for the Chief Acquisition Officers Council Acquisition Innovation Award or American Council for technology—Industry Advisory Council Igniting Innovation Award).  [Rung, A. and Scott, T., “[Memorandum to Chief Acquisition Officers, Senior Procurement Executives, Chief Information Officers on Acquisition Innovation Labs & Pilot for Digital Acquisition Innovation Lab](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-innovation-labs-and-pilot-for-digital-acquisition-innovation-lab-memorandum.pdf),” Office of Management and Budget, March 9th, 2016.] |

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| **Six types of assistance acquisition labs should offer agencies**  1. **Informal business advice:** The lab should be a recognized place where agency personnel may go, on a voluntary basis, to brainstorm and flesh out their ideas, whether it is piloting new ideas or taking a fresh look at an existing practice for the purpose of enhancing the value it achieves. This exchange/consultation is, as a general matter, most useful if done before establishing an acquisition strategy or any significant acquisition planning. An agency’s acquisition innovation lab is not expected to take the place of agency management, nor to supplant the advice provided by support organizations, such as an agency’s Office of General Counsel (OGC). However, lab sponsors may wish to consider conferring with their OGC and determine if it is appropriate to identify an attorney or attorneys who could serve as legal advisor(s) to the agency’s lab and, if feasible, provide support for projects that the lab is providing assistance on.  2. **Networking:** Whether approached individually or by a team of acquisition, IT, program, legal and other personnel, the lab should help to facilitate collaboration within the agency with others that may be working to solve similar problems.  3. **Access to talent & expertise:** Whenever possible, use the lab as a talent accelerator, helping the workforce to leverage existing and newly gained expertise. For initiatives involving digital services, for example, this could mean helping the workforce tap into skills learned through the agency’s participation in the Digital Service Contracting Professional Training and Development Program (e.g., to develop digital service procurement experts and business advisors), working with GSA’s 18F Consulting (e.g., on “discovery sprints” or workshops to support transitioning or modernizing legacy systems through incremental/modular contracting, agile development, and user-driven design) and consultations with the Office of the Federal Chief Information Officer’s U.S. Digital Service (e.g., on application of strategies discussed in the Digital Services Playbook).  4. **Shadowing:** Whenever possible, the lab should help to arrange opportunities for in-house personnel to shadow internal or external experts with expertise in applying established and emerging best practices, to supplement training opportunities and accelerate the agency’s capability to achieve better results.  5. Information sharing: The lab should encourage information sharing and documentation of processes (through actual documents used and/or descriptions), including through the development of case studies, where feasible, to enable review and replication by others, as appropriate. In addition, information should be shared with other agencies by posting it on the Innovation Hallway of GSA’s Acquisition Gateway.  6. **Event sponsorship:** Events that promote intra- and interagency brainstorming and information sharing can help to increase awareness of successes and teachable moments and adoption of promising ideas.  [Rung, A. and Scott, T., “[Memorandum to Chief Acquisition Officers, Senior Procurement Executives, Chief Information Officers on Acquisition Innovation Labs & Pilot for Digital Acquisition Innovation Lab](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-innovation-labs-and-pilot-for-digital-acquisition-innovation-lab-memorandum.pdf),” Office of Management and Budget, March 9th, 2016.] |

**Deliverable 9:  Future directions (“next practices as opposed to best practices”)**

The deployment of acquisition innovation labs are a promising step forward for helping agencies to capitalize on the potential benefits of innovative contracting methods, but more collaborative efforts in parallel across the acquisition community will be essential for further supporting the diffusion of innovative contracting techniques across agencies.

A centralized repository of contracting vehicles could provide useful information – both for agencies’ contracting offices and for small businesses. “Some innovation hubs are informally acting as contract gurus (e.g. DoD’s DIUx, or GSA’s 18F), not only advising about good vehicles, but also helping provide the tech savvy to help non-savvy program managers and contract officers through advanced procurement processes.” [Ansari, S., Krieger, B., and Siboni, R., “Buying What Works Memo,” Unpublished, August 25, 2016.] A centralized repository is the next step to help ensure all agencies are benefiting and sharing in the knowledge gained in recent years.

**Deliverable 8: Examples of policy that have enabled or encouraged approach (legislation, exec order)**

*For guidance specific to each contracting tool, refer to sections for each method’s relevant authorities.*

**Legislation pertaining to authorities:**

Other Transaction Authority: [10 USC §2371a](https://www.gpo.gov/fdsys/granule/USCODE-2010-title10/USCODE-2010-title10-subtitleA-partIV-chap139-sec2371)

[2010 America COMPETES Reauthorization Act](https://www.gpo.gov/fdsys/pkg/PLAW-111publ358/html/PLAW-111publ358.htm)

[**The Stevenson*-*Wydler Technology Innovation Act of 1980**](https://www.gpo.gov/fdsys/pkg/STATUTE-94/pdf/STATUTE-94-Pg2311.pdf) (Pub.L. 96–480), as amended (codified at Title 15 of the United States Code (U.S.C.), Section 3701 *et seq*.) ([94 Stat. 2311](https://www.gpo.gov/fdsys/pkg/STATUTE-94/pdf/STATUTE-94-Pg2311.pdf))

[National Aeronautics and Space Act of 1958,](https://www.gpo.gov/fdsys/pkg/PLAW-111publ267/html/PLAW-111publ267.htm) Pub. L. No. 85-568, 72 Stat. 426-438 (Jul. 29, 1958)

FAR Subpart 1.102-4(e) specifically encourages contracting officers to evaluate business process innovations when appropriate:

“If a policy or procedure, or a particular strategy or practice, is in the best interest of the Government and is not specifically addressed in the FAR, nor prohibited bylaw (statute or case law), Executive order or other regulation, Government members of the Team should not assume it is prohibited [...] Contracting officers should take the lead in encouraging business process innovations and ensuring that business decisions are sound.” [Federal Acquisition Regulation, 48 C.F.R §1.102.](https://www.acquisition.gov/sites/default/files/current/far/pdf/FAR.pdf)

Selected Policy Memoranda from the [Office of Federal Procurement Policy](https://www.whitehouse.gov/omb/procurement_index_memo):

* “[Transforming the Marketplace: Simplifying Federal Procurement to Improve Performance, Drive Innovation, and Increase Savings](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/simplifying-federal-procurement-to-improve-performance-drive-innovation-increase-savings.pdf),” OMB, Dec 4 2014.
* “[Acquisition Innovation Labs & Pilot for Digital Acquisition Innovation Lab](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-innovation-labs-and-pilot-for-digital-acquisition-innovation-lab-memorandum.pdf),” OMB, Mar 9 2016.
* “[Acquisition 360 – Improving the Acquisition Process through Timely Feedback from External and Internal Stakeholders](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/acquisition-360-improving-acquisition-process-timely-feedback-external-internal-stakeholders.pdf),” OMB, Mar 18 2015.
* “[Increasing Efficiencies in the Training, Development, and Management of the Acquisition Workforce](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/increasing-efficiencies-in-the-training-development-and-management-of-the-acquisition-workforce.pdf) ,” OMB, Sept 3 2013.
* “[Memorandum: Contracting Guidance to Support Modular Development](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/contracting-guidance-to-support-modular-development.pdf),” OMB, June 14 2012.
* “[Increasing Small Business Participation in Federal Contracting](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/increasing-small-business-participation-in-federal-contracting.pdf)” OMB, Feb 11, 2011.
* “[Attracting Talent to the Acquisition Workforce](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/AttractingTalent_02042011.pdf),” OMB, Feb 4, 2011.
* “["Myth-Busting":  Addressing Misconceptions to Improve Communication with Industry during the Acquisition Process](https://www.whitehouse.gov/sites/default/files/omb/procurement/memo/Myth-Busting.pdf)” OMB, Feb 2 2011.
* “[Achieving Better Value From Our Acquisitions](https://www.whitehouse.gov/sites/default/files/omb/assets/procurement_memo/Achieving_Better_Value_from_Acquisitions.pdf),” OMB, Dec 22 2009.
* “[Performance-Based Service Acquisition, Contracting for the Future](https://www.whitehouse.gov/sites/default/files/omb/assets/procurement_guides/0703pbsat.pdf),” OMB, July 2003.

**Deliverable 7:  Online inventory of resources**

**Contact**

For assistance on setting acquisition labs and more deeply infusing innovative contracting into your agency’s work, contact Mathew Blum, Associate Administrator for Federal Procurement Policy, OMB, at mblum@omb.eop.gov.

For insights on applying OTA and other innovative contracting models, contact Lauren Schmidt, at lauren@diux.mil

**Federal Resources**

* [Acquisition.Gov](https://www.acquisition.gov/)
* [**Acquisition Gateway**](https://hallways.cap.gsa.gov/homepage/welcome.php): GSA’s Acquisition Gateway helps Federal buyers from all agencies act as one acquisition community: “The Acquisition Gateway is a workspace that provides accurate, useful, and unbiased advice. It helps Federal acquisition professionals learn what they need to know, connect with others to collaborate and communicate, and act to accomplish their tasks effectively. “ [[Source](https://interact.gsa.gov/sites/default/files/Introducing%20the%20Acquisition%20Gateway.pdf)]
* [TechFAR Playbook](https://playbook.cio.gov/techfar/) highlights flexibilities in the Federal Acquisition Regulation (FAR) that can offers guidance on working with contractors in an iterative, customer-driven software development process
* [TechFAR Hub](https://techfarhub.cio.gov/): The TechFAR Hub provides resources to apply industry best practices to the world of digital service acquisition across the Federal government.
* [Digital Services Playbook](http://playbook.cio.gov/) offers private sector best practices to help agencies successfully deliver digital services.
* [Defense Acquisition University (DAU)](http://www.dau.mil/)

**Other Federal resources from the** [**Federal Acquisition Institute**](http://www.fai.gov) **and** [**OFPP**](https://www.whitehouse.gov/omb/procurement_default) **include:**

* [Inaugural Conference for Innovative Acquisitions (Federal-wide Buyers Club)](https://www.fai.gov/media_library/exhibits/show/federalwidebuyersclub)
  + “[Change Management in an Evolving Acquisition Landscape” Moderated Panel](https://www.fai.gov/media_library/items/show/30)
* [Acquisition Seminars](file:///C:\Users\Caraleigh\Documents\•%09https:\www.fai.gov\media_library\exhibits\show\acquisition-seminar)

**Further reading:**

* "[Innovative Contracting Case Studies](https://www.whitehouse.gov/sites/default/files/microsites/ostp/innovative_contracting_case_studies_2014_-_august.pdf)," August 2014, White House Office of Science and Technology Policy.
* “[Innovation is a Contract Sport: Ways that agencies can achieve innovative outcomes through acquisitions](https://ourpublicservice.org/publications/viewcontentdetails.php?id=918)” February 2016, Booz Allen Hamilton and Partnership for Public Service.
* “[Challenge-Based Acquisition: Using challenges to communicate needed capability, encourage innovation in a minimally prescriptive environment, assess candidate offerings, and purchase solutions](https://www.mitre.org/sites/default/files/publications/pr-13-3525-challenge-based-acquisition-handbook-2nd-ed-9-30-2015.pdf),” September 2015, MITRE Corporation.
* “[Simplifying Federal Acquisition: Conversation with Anne Rung, Administrator, Office of Federal Procurement Policy, OMB,”](http://www.businessofgovernment.org/blog/business-government/simplifying-federal-acquisition-conversation-anne-rung-administrator-office) IBM Center for the Business of Government, May 2016
* [Healthy Markets For Global Health: A Market Shaping Primer](https://www.usaid.gov/sites/default/files/documents/1864/healthymarkets_primer_0.pdf) USAID, Fall 2014
* “Helping the Federal Government Buy from Start-ups: Cutting out Tolls, Fear, and Mistrust,” August 2016, Saad Ansari, Brenna Krieger, and Ruth Siboni. [Unpublished memo]

**Outside actors:**

* American Council for Technology and Industry Advisory Council’s Acquisition Shared Interest group ([www.actiac.org](http://www.actiac.org)),
* Professional Services Council ([www.pscouncil.org](http://www.pscouncil.org))
* Acquisition of the Future ([www.acquisitionofthefuture.org](http://www.acquisitionofthefuture.org)) – government and industry leaders working together to reform acquisition processes to meet the needs of 21st century government

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