RECOMMENDATIONS: AI's Procurement Challenge

The National Artificial Intelligence Advisory Committee (NAIAC)
October 2023

RECOMMENDATIONS

Recommendation 1:
Each federal agency must prioritize AI procurement for realizing its mission and include AI procurement within its Presidential transition plan.

Involvement of senior leadership is necessary to set the strategic direction and determine agency priorities for AI acquisition. Agencies must ensure expertise gained through innovative procurement becomes institutional knowledge and share best practices with other agencies.

Although each agency must think critically about its needs, there are a number of AI procurement techniques that may support strategic planning around AI procurement. The below procurement innovations are by no means an exhaustive list; nor do they suggest that every agency should implement every practice. Instead, they illustrate a range of mechanisms agencies can embed into their processes to improve AI procurement and adoption.

Potential Emerging AI Procurement Practices:

- **Statement of Objective (SOO):** Agencies might instruct each potential vendor to propose tasks and standards to achieve agency-defined objectives in a SOO).[1] This can help ensure that Responsible AI is top-of-mind (e.g., through objectives like bias assessment and mitigation, privacy preservation), while allowing each vendor flexibility in deciding how to meet the standards.

- **QASP:** Through the Quality Assurance Surveillance Plan (QASP), which is a document used to assess contractor performance for performance-based contracts (like for SOOs), the agency and vendor can build in continuous monitoring and embedding of trustworthy AI principles.[2]

- **Teaming Agreements:** Teaming agreements are used when companies decide to collaborate and pool their resources, expertise, and capabilities to jointly pursue and fulfill a procurement contract.[3] For example, through a

[1] "Best Practices for Multiple Award Task and Delivery Order Contracting," Office of Management and Budget, 1999, https://www.gsa.gov/system/files/BestPracticesMultipleAward.pdf.
[2] "Sample Quality Assessment Surveillance Plan (QASP)," GSA 18F, https://derisking-guide.18f.gov/qasp/.
[3] Erin Toomey, "Government Contracts: Teaming Agreements and Other Teaming Arrangements," Thomson Reuters, 2019, https://www.foley.com/-/media/files/insights/publications/2013/10/government-contracts-teaming-agreements-and-other/files/government-contracts-teaming-agreements-and-other/fileattachment/government-contracts-teaming-agreements-and-other.pdf.

teaming agreement, a vendor would be able to engage a third-party Responsible AI expert to engage in the monitoring and evaluation.

- **Work Plan:** Agencies might consider requiring vendors to allocate individuals (who have a relevant background in data science and ethics) to help conduct Responsible AI planning, evaluation, and mitigation.

- **Contractual Terms:** A contract might include language that the agency and the vendor will "partner" to evaluate and monitor AI. This will allow the agency to work with the vendor to set trustworthy AI goals once the project is underway, rather than prematurely locking in evaluation methods proposed by the vendor at the RFP stage.

- **In-Domain Evaluation:** AI products that perform well in one setting may not perform well in another domain. Mechanisms for "in-domain" evaluation and testing can help to ensure that vendors' products actually work to meet the specific task at hand.

Addressing the AI and Technical Expertise Gap:

- **Training:** As contemplated under the Artificial Intelligence Training for the Acquisition Workforce Act (AI Training Act), agencies should ensure that employees are adequately trained in scoping, acquiring, testing and de-biasing AI solutions.[4]

- **Technical Expertise:** Agencies may be able to secure technical expertise through a range of mechanisms, including the Presidential Innovation Fellowship program, GSA's 18F, or under the Intergovernmental Personnel Act. Such expertise complements existing agency expertise on evaluating potential vendor options.[5]

- **Cross-Functional Teams:** Engagement with individuals who have differing areas of expertise (e.g., technical, Responsible AI SME, FAR expert) can be valuable for the procurement process.

Identifying Vendors:

[4] Chloe Autio et al., "A Snapshot of AI Procurement Challenges," The Gov Lab, June 2023: 23-25, https://files.thegovlab.org/a-snapshot-of-ai-procurement-challenges-june2023.pdf.
[5] Adam Patterson, "18F Brings Responsive Approach to Acquisitions, Contracting," Gov CIO Media & Research, January 12, 2021, https://governmentciomedia.com/18f-brings-responsive-approach-acquisitions-contracting.

- **Competitions:** Prize competitions allow the agencies to invite industry, including small and minority-owned businesses and nontraditional contractors, to submit ideas and solutions for using AI to address certain topics like employment or equity. Although competitions often include monetary prizes, agencies can invite challenge participants, including winners, to participate in follow-ons that could include awards under the FAR.[6] Such challenge-based acquisitions, where potential vendors are invited to demonstrate technical capabilities to solve a real-life scenario, can streamline the evaluation process by allowing the agency to base acquisition decisions upon evidence-based results.[7]

- **Modular Contracting and Multi-Award Contracts:** Modular contracting[8] allows agencies to break up acquisition into smaller tasks while multi-award contracts, such as multi-award blanket purchase agreements and multi-award indefinite delivery indefinite quantity (IDIQ) contracts, allow the agencies to make multiple awards for recurring or similar tasks to multiple vendors.[9] These contracting vehicles can enable continuous competition that may reduce risk of vendor lock-in and help keep prices down. It also offers the agencies flexibility to quickly procure (among the existing vendor pool) services or tools for new projects as technology evolves. However, there may also be an increased administrative burden that comes with managing multiple contracts and integrating products and services from various vendors.

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[6] "Periodic Table of Acquisition Innovations: Alternative Authorities: Prize Competitions," Federal Acquisition Institute, n.d., https://www.fai.gov/periodic-table; "Welcome to the Challenge and Prize Toolkit!," U.S. General Services Administration, Challenge.Gov, n.d., https://www.challenge.gov/toolkit/; "Find a Challenge," U.S. General Services Administration, Challenge.Gov, n.d., https://www.challenge.gov/#active-challenges. For illustrative examples of AI-related prize challenges at other departments and agencies, *see* "Applied AI Challenge: Large Language Models (LLMs): Improving Federal Government Services through the Use of LLMs," U.S. General Services Administration, Challenge.Gov, June 30, 2023, https://www.challenge.gov/?challenge=appliedaichallengellms&tab=overview; "Passenger Screening Algorithm Challenge: Improve the Accuracy of the Department of Homeland Security's Threat Recognition Algorithms," Department of Homeland Security, 2017, https://www.kaggle.com/c/passenger-screening-algorithm-challenge/overview.

[7] Stephen Roe et al., "Challenge-Based Acquisition: 5th Edition," MITRE, March 25, 2020, 1-2, https://www.mitre.org/news-insights/publication/challenge-based-acquisition-5th-edition; "Periodic Table of Acquisition Innovations: Solicitation: Challenge-Based Acquisitions (ChBA)," Federal Acquisition Institute, n.d., https://www.fai.gov/periodic-table.

[8] Laura Gerhardt and Mark Headd, "Why we love modular contracting," GSA 18F, April 9, 2019, https://18f.gsa.gov/2019/04/09/why-we-love-modular-contracting/.

[9] "Periodic Table of Acquisition Innovations: Solicitation: Modular Contracting," Federal Acquisition Institute, n.d., https://www.fai.gov/periodic-table; "Blanket Purchase Agreements," U.S. General Services Administration, n.d., https://www.gsa.gov/buy-through-us/purchasing-programs/gsa-multiple-award-schedule/schedule-features/blanket-purchase-agreements; "IDIQ (Multiple Award)," DAU Contracting Cone, n.d., https://aaf.dau.edu/aaf/contracting-cone/idiq/multiple-award/; "Federal Supply Schedules – Blanket Purchase Agreements," DAU Contracting Cone, n.d., https://aaf.dau.edu/aaf/contracting-cone/federal-supply-schedules/bpa/.

- **Market Research:** Market research prior to procurement enables agencies to engage in conversations with industry without communication constraints during the procurement process. Market research techniques can assist acquisition planning by increasing transparency between the agency and industry about commercial capabilities and strengthening the agency's ability to clearly articulate its procurement needs and determine evaluation criteria.[10] Although market research does not necessarily result in a solicitation or acquisition process, if the market research goes well, the agency may initiate a full procurement process.

- **Demonstration Days and Presentations:** Agencies might also consider using "reverse demo days," during which industry can share knowledge regarding potential AI use cases and acquisition challenges. Such days also provide opportunities for industry — including companies that do not traditionally contract with the government — to interact with and ask questions of department officials.[11] One-on-one meetings, oral presentations, and interactive Q&As with industry, prior to solicitations, are good opportunities to quickly exchange general information, clarify questions, and uncover potentially unrealistic requirements.

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[10] *See, e.g.*, 48 CFR Part 10 - Market Research; "Market Research," TechFAR Hub, U.S. Digital Service, n.d., https://techfarhub.usds.gov/pre-solicitation/market-research/; "Acquisition Process: Market Research," AcqNotes LLC, n.d., https://acqnotes.com/acqnote/acquisitions/market-research; "Deciding What to Buy," 18F De-Risking Guide, blog, n.d., https://derisking-guide.18f.gov/federal-field-guide/deciding-what-to-buy/; "SD-5: Market Research Gathering Information about Commercial Products and Services," U.S. Department of Defense, Defense Standardization Program Office, December 2018, https://www.coursehero.com/file/147703042/Guidance-SD-5-121818pdf/; "Department of Labor Vendor Communication Plan," U.S. Department of Labor, https://www.dol.gov/agencies/oasam/centers-offices/office-of-the-senior-procurement-executive/office-of-small-and-disadvantaged-business-utilization/vendor-communication-plan.

[11] "Reverse Industry Day," Federal Acquisition Institute, April 23, 2011, https://www.fai.gov/content/reverse-industry-day; "'Myth-Busting #4' - Strengthening Engagement with Industry Partners through Innovative Business Practices," 14; "Periodic Table of Acquisition Innovations: Market Research: Reverse Industry Day," Federal Acquisition Institute, n.d., https://www.fai.gov/periodic-table. For examples of AI- and technology-related reverse industry days organized by other departments or agencies, *see* Dave Nyczepir, "GSA Wants Public Recommendations on Future Workforce Policies and Initiatives," *FedScoop*, January 6, 2022, https://fedscoop.com/gsa-workforce-recommendations-rfi/; Lisa Sodders, "Space Systems Command to Host Reverse Industry Event Focused on Artificial Intelligence and Machine Learning Applications and Innovations for Space," U.S. Space Force, Space Systems Command, May 10, 2023, https://www.ssc.spaceforce.mil/Newsroom/Article-Display/Article/3391853/space-systems-command-to-host-reverse-industry-event-focused-on-artificial-inte. For examples of agency-prepared reverse industry day materials, *see* "IRS Reverse Industry Day Planning Guide," Federal Acquisition Institute, May 2018, https://www.fai.gov/sites/default/files/periodic_table/IRS_Reverse_Industry_Day_Materials.pdf.

CONTEXT

The U.S. federal government is one of the largest purchasers of AI systems. In 2022 alone, the U.S. federal government spent an estimated $3.3 billion on AI-related contracts, approximately 2.5 times more than in 2017.[12] The reach of AI procurement is also large, with the federal government buying AI from hundreds of vendors.[13] Procurement is thus a powerful policy lever for catalyzing AI innovation and ensuring AI is accountable, responsible, and trustworthy.[14]

Getting AI procurement right is also essential for the federal government to serve the American people in the 21st century. Over half of the AI used by the federal government was procured by commercial vendors.[15] Acquisition and contracting officials thus serve one of the most important roles in ensuring the federal government captures the benefits of, and mitigates the risk posed by, using AI.[16] However, these officials and executive branch agencies face a range of challenges when attempting to procure AI.

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[12] "2023 AI Index Report," Stanford University HAI, April 2023: 288, https://aiindex.stanford.edu/wp-content/uploads/2023/04/HAI_AI-Index-Report_2023.pdf (citing Govini research); Nihal Krishna, "Federal gov spending on AI hit $3.3B in fiscal 2022: study," *FedScoop*, April 17, 2023, https://fedscoop.com/us-spending-on-ai-hit-3-3b-in-fiscal-2022/.

[13] One study of the federal government's AI-related procurement found that "[t]here are a total of 307 different vendors with 474 contracts. No vendor deals with more than three funding agencies, which reflects a very niche approach for the vendor community." Gregory S. Dawson, Kevin C. Desouza, and James S. Denford, "Understanding artificial intelligence spending by the U.S. federal government," Brookings, September 22, 2022, https://www.brookings.edu/articles/understanding-artificial-intelligence-spending-by-the-u-s-federal-government/.

[14] *E.g.*, "Responsible Federal acquisitions and procurement have the true potential to set the norms for AI development and ultimately shape the field of responsible AI more immediately and directly than any future regulation that may or may not come from this Congress." Fei-Fei Li, "Hearing on Governing AI Through Acquisition and Procurement before the Senate Committee on Homeland Security and Governmental Affairs," September 14, 2023, https://www.hsgac.senate.gov/hearings/governing-ai-through-acquisition-and-procurement-2/; Lisbeth Perez, "Lawmakers Urged to Press on With AI Procurement Policy Work," MeriTalk, September 15, 2023, https://www.meritalk.com/articles/lawmakers-urged-to-press-on-with-ai-procurement-policy-work/.

[15] "Chairman Peters Opening Statement As Prepared for Delivery Full Committee Hearing: Governing AI Through Acquisition and Procurement," September 14, 2023, https://www.hsgac.senate.gov/wp-content/uploads/Opening-Statement-Peters-2023-09-14.pdf.

[16] *E.g.*, "As I will be repeating throughout my testimony, my time in this space instilled a strong belief that the Acquisition Professional - particularly the Contracting Officer - serves one of the most important roles in navigating how the Government will harness AI for the welfare and defense of this nation." "Written Testimony of Will Roberts, Director of Emerging Technologies, ASI Government, LLC, Before the U.S. Senate Committee on Homeland Security and Governmental Affairs," September 14, 2023, https://www.hsgac.senate.gov/wp-content/uploads/Testimony-Roberts-2023-09-14.pdf.

First, acquisition of AI is particularly difficult given the pace of AI innovation and the often lengthy, complex, and rigid policies and procedures mandated by law.[17] The Federal Acquisition Regulation (FAR), which provides a standardized set of rules for government procurement, was codified in 1984 without AI procurement in mind.[18] As acquisition of AI increasingly requires customization, contracting must be flexible to enable the iteration and re-scoping necessary for successful procurement and to avoid unnecessary vendor lock-in.[19] Furthermore, misconceptions about the FAR's requirements for government agencies' communications with companies bidding on procurement opportunities, and the associated risk of protest by vendors or other parties (i.e., on the grounds of unfair evaluation), can undermine successful procurement. Government-bidder communication can become cumbersome, with agencies asking every company that is bidding the same set of questions, no matter the strength of the company's proposal.[20] With limits around engagement, fully evaluating and understanding each bidding company's AI product or service can be challenging.

Second, the federal government's challenge to attract, retain, and build AI talent further complicates AI procurement. Many acquisition officials and business units lack specific expertise in AI and AI procurement.[21] Information asymmetries — about both the unique challenges and risks posed by AI and details about a company's capabilities or product — can make it difficult for acquisition officials to articulate the technical capabilities desired, determine and articulate eligibility criteria, and identify misleading claims. What's more, there is very little in the FAR to guide how agencies should address unique challenges to acquiring AI (e.g., how agencies and vendors should collaborate to build AI responsibly, determining data ownership and evaluation rights, and developing metrics to guide performance-based procurement). Successful AI acquisition also requires close collaboration between acquisition officials and the government end-users of the AI tool, because insufficient

[17] Molly Weisner, "FAR too complicated? Procurement rules hurt contracting, report says," Federal Times, Nov. 28, 2022, https://www.federaltimes.com/acquisition/regulations/2022/11/28/far-too-complicated-procurement-rules-hurt-contracting-report-says/.
[18] Carter Price and Heidi Peters, "How Should the U.S. Government Buy AI Tools?," RAND, June 20, 2023, https://www.rand.org/blog/2023/06/how-should-the-us-government-buy-ai-tools.html; "Federal Acquisition Regulation, Volume I-Parts 1 to 51," U.S. General Services Administration, Department of Defense, and National Aeronautics and Space Administration, 2019: 5.
[19] *E.g.*, "Written Testimony of Will Roberts."
[20] *See, e.g.*, "'Myth-Busting': Addressing Misconceptions to Improve Communication with Industry during the Acquisition Process," Office of Federal Procurement Policy, Office of Management and Budget, February 2, 2011, https://obamawhitehouse.archives.gov/sites/default/files/omb/procurement/memo/Myth-Busting.pdf; "'Myth-Busting #4' - Strengthening Engagement with Industry Partners through Innovative Business Practices," Office of Federal Procurement Policy, Office of Management and Budget, April 30, 2019, https://www.whitehouse.gov/wp-content/uploads/2019/05/SIGNED-Myth-Busting-4-Strenthening-Engagement-with-Industry-Partners-through-Innovative-Business-Practices.pdf.
[21] Price and Peters; Chloe Autio et al., 15-16.

business and domain expertise can cripple AI acquisition and undermine an agency's strategic use of AI.[22]

While some government agencies benefit from non-FAR based contracting authorities, the majority of agencies must use authorities under the FAR.[23] Some agencies have already begun to pair authorities under the FAR to make federal procurement more agile.[24] Yet, these innovations are not widely shared and cannot be applied universally as no AI procurement is one-size-fits-all.[25]

Before each federal presidential election, the Presidential Transition Act of 1963 requires the White House and agencies to begin planning for a new presidential term and transition — either to a new presidential administration or for a second term.[26] Under the Act, agencies must designate a senior career official to lead transition planning, including the preparation of succession plans and transition briefing materials.[27] Because presidential transitions have become increasingly more complex[28] and personnel turnover is high even where an incumbent wins reelection,[29] such processes are critical to ensuring that institutional knowledge and long-standing strategic objectives do not get lost in the shuffle. Transition planning is also an important opportunity for evaluating policy priorities and is thus an important tool even for second-term presidential transitions.[30]

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[22] *E.g.*, "Written Testimony of Will Roberts," 4 ("It not only takes knowledge of the underlying technology (technical knowledge) to navigate these waters, it takes knowledge of the market (business knowledge) and adequate knowledge of tailorable IP language (domain expertise). The AI Training Act tackled the technical knowledge for the civilian agencies. The reality is that all three areas of knowledge (technology, business, and contract domain) are missing and are not treated as a priority.").
[23] Bridget Johnson, "Pilot IRS Expedites Path for Emerging Innovation to Enter Federal Arena," Homeland Security Today, March 6, 2022, https://www.hstoday.us/industry/industry-news/pilot-irs-expedites-path-for-emerging-innovation-to-enter-federal-arena/.
[24] For example, the IRS has been lauded for its pairing of different FAR authorities. *E.g.*, "Pilot IRS, Timothy Cooke, Procurement Officials Are Leading Federal AI Adoption," The Regulatory Review, July 5, 2022, https://www.theregreview.org/2022/07/05/cooke-procurement-officials-are-leading-federal-ai-adoption/; Dave Nyczepir, "As Pilot IRS program expands, agency looks for more ways to 'buy like a venture capitalist,'" *FedScoop*, January 24, 2022, https://fedscoop.com/pilot-irs-digitalization-issues/.
[25] *E.g.*, "Written Testimony of Will Roberts."
[26] "Presidential Transition Act Summary," Center for Presidential Transition, March 10, 2020, https://presidentialtransition.org/publications/presidential-transition-act-summary/; "The Basics: Frequently Asked Questions about Presidential Transitions," Center for Presidential Transition, visited Sept. 25, 2023, https://presidentialtransition.org/faq/.
[27] *Id.*; "Presidential Transition Act: Provisions and Funding," Cong. Rsch. Serv., Nov. 13, 2020, https://crsreports.congress.gov/product/pdf/R/R46602.
[28] *Id.*
[29] "Effective Transition Planning Can Help Presidents Have a Successful Year One and Year Five," Center for Presidential Transition, April 2020, https://presidentialtransition.org/wp-content/uploads/sites/6/2020/04/Year-1-Year-5-Issue-Brief-FINAL-pdf.pdf.
[30] *Id.*; "The Basics: Frequently Asked Questions about Presidential Transitions."

ABOUT NAIAC

The National Artificial Intelligence Advisory Committee (NAIAC) advises the President and the White House National AI Initiative Office (NAIIO) on the intersection of AI and innovation, competition, societal issues, the economy, law, international relations, and other areas that can and will be impacted by AI in the near and long term. Their work guides the U.S. government in leveraging AI in a uniquely American way — one that prioritizes democratic values and civil liberties, while also increasing opportunity.

NAIAC was established in April 2022 by the William M. (Mac) Thornberry National Defense Authorization Act. It first convened in May 2022. It consists of leading experts in AI across a wide range of domains, from industry to academia to civil society.

https://www.ai.gov/naiac/

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