

Industry Response to the Modern Software Development Multiple Award (MSD MA) IDIQ RFI

Submitted to the Army Contracting Command – Aberdeen Proving Ground
(ACC-APG)

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The Alliance for
Commercial
Technology in
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The Alliance
for Digital
Innovation



The Software
in Defense
Coalition



The National
Venture Capital
Association

A coalition of more than 100 commercial companies led by the Alliance for Commercial Technology in Government in partnership with the Alliance for Digital Innovation, the Software in Defense Coalition, and the National Venture Capital Association appreciate the opportunity to respond to the ACC-APG's RFI for a new Multiple Award (MA) Indefinite Quantity Indefinite Delivery (IDIQ) Contract for Modern Software Development (MSD). Members of the responding coalitions are a mix of traditional, non-traditional, and small businesses that have been delivering innovative software solutions to the U.S. Government, Department of Defense (DoD), and the broader commercial industry for combined decades. Members currently support a wide range of modern software programs within the Army. In addition to responding to the 10 RFI questions in the required Excel template, we collectively offer the following feedback and questions for the Army's consideration.

1. IDIQ flexibility to meet mission need: Our interpretation of the RFI is that all software development activity is to occur post-award and in a linear model (i.e., each developer is mapped to at most one task order (TO)). Many vendors do conduct software development in this manner, providing talent and billing by the hour to create software from scratch. Other vendors do self-funded R&D to develop their products ahead of need, sometimes several years in advance, and then offer commercial licenses and commercial configuration services to deliver these products and requisite commercial modifications against specific requirements for integration across a range of customers. For these vendors, the number of developers required to support configuration services often depends on how quickly the customer wants the capability operationally deployed or the complexity of unique constraints imposed by the deployment environment(s). In general, modern software companies are designed around operating incentives that prioritize the automation of routine processes with the express intent to sustain developer efficacy while increasing the scale and complexity of the software systems they build.

Both business models can offer important contributions to modern software development and enablement projects. To maintain maximum flexibility for the Army, we suggest the IDIQ should include the ability for the Army to evaluate existing commercial software products, services, and approaches and be sufficiently broad to allow for both types of vendors and the breadth of the software industry's talent pool in serving the Army's diversity and evolution of missions. The acquisition strategy should be determined at the TO level depending on the type of procurement that is appropriate to meet the mission need.

2. IDIQ scope clarification: The Contracting Strategy (Appendix 1) and Statement of Objectives (Appendix 2) do not currently offer sufficient detail as to the scope of the IDIQ and intended TOs. It would be helpful to industry if the Army could further define:

- **Governance:** What will dictate which Requirements come to this IDIQ vehicle vs. other methods of acquisition? Who or what is the governing body making this determination?
- **Vendor evaluation:** How will the evaluation process work for different types of vendors? Service companies and product companies have different business models and would typically be evaluated in different ways. How will the Government ensure this is not an “apples to oranges” comparison? How will the Government decide between multiple vendors that are similar in evaluation, but have different focus areas, e.g., business software vs. geospatial software solutions vs. mobile application development vs. artificial intelligence specialists?
- **Task orders (TOs):** What is the anticipated TO size and duration? Is there an anticipated limit to TO size?
- **Transition plan:** How does this IDIQ intend to address the “valley of death” challenge for modern software development? Are there specific PEOs or other partnered groups within the Army that are responsible for ensuring the transition for programmed resources to include operations and fielding of developed capability?
- **Color of money:** Is this IDIQ limited to RDT&E funds or will it support the transition of software capability to programs of record or other significant Army investments where Procurement and O&M funds are typically used to support the full lifecycle of the program?
- **Operations:** While we concur with the observation that modern software development is a continuous improvement and continuous development process, the complexity of modern software often requires routine and continuous operations through the lifecycle of a software program (e.g., scaling and capacity planning, cybersecurity monitoring and incident management, performance monitoring and reliability engineering, deployment and release management, system and database migrations, etc.). What is the intended relationship between development TOs and software maintenance and operations TOs?
- **Computation, autonomy, and other direct costs:** Does the Army intend to impose limitations or restrictions on the use of infrastructure to aid the development of specific requirements through non-labor based means? For example, model training and development can require a disproportionate cost for data and computational services that far outweigh costs attributable to engineering talent; modern CI/CD practices typically are enabled through significant and recurring investment and refinement of software autonomy tools and services in addition to the direct software development talent supporting feature delivery for any discrete outcome.
- **Intellectual property rights:** Will capability developed under this IDIQ impose any specific restrictions regarding a performing vendor’s intellectual property (IP) through the use of Government Purpose Rights or other means? How

does the scope intend to address capability that is developed at private or mixed expense? Does this IDIQ contemplate the use of specially negotiated rights? What is the plan to address any claims to IP for capability developed that transitions across multiple vendors due to Sprint hand-offs, particularly where there is a claim to mixed expense funding?

3. IDIQ application within Army: The RFI does not clarify whether this IDIQ will be available to a single Army PEO or whether it is intended to be used service wide. Having only 10 contract holders might be appropriate for a single PEO; each PEO could have a similar vehicle to focus on a geographic area or subject matter. However, for a service-wide vehicle, 10 contract holders would be far too low. To provide an example, the Advanced Battle Management System (ABMS), an Air Force IDIQ, has hundreds of contract holders for a narrower scope than that contemplated for this MSD IDIQ. It would be helpful to industry if the Army could clarify where the IDIQ will apply; i.e., which PEOs, which types of programs and operational workloads, etc. If the Army intends for this vehicle to be available service wide, we would strongly recommend that all vendors who meet the evaluation criteria be granted a contract with determinations made on a TO basis. This would help to ensure an adequate number of options to compete for TOs and meet the Army's mission requirements without compromising the Army's ability to move at the pace of software innovation through the use of a multiple award IDIQ.

4. Incorporation of commercial items: The RFI does not specify at what step in the acquisition strategy the Army will conduct market research to determine the availability of commercial services and commercial products to meet the objectives of this procurement, nor does it specify when the Army will make a Commercial Item Determination for these requirements. Most, if not all, of the example Programs and Projects listed in Appendix 2 could be fulfilled in whole or in part by existing commercial solutions using standard commercial service modifications. How will this IDIQ allow for commercial services and commercial products to be procured to the maximum extent practicable, as required by 10 U.S.C. 3453?

We thank you for your time and consideration of our feedback.

The Alliance for Commercial Technology in Government
The Alliance for Digital Innovation
The Software in Defense Coalition
The National Venture Capital Association

Question 1

The Army is considering a multi-phased source selection approach, with the first phase focused on corporate experience and/or past performance executing modern software development efforts. What key discriminators should the Army evaluate in order to identify the vendors best suited to proceed to phase 2?

We agree that the Army should evaluate vendors' past performance executing modern software development efforts. Key discriminators should include:

- Experience with continuous software delivery. For example, the Government could request case studies of how the vendor has implemented continuous software delivery/deployment for either existing customers or for their own internal R&D practice.
- Experience with Agile processes. For example, the Government could request a description of the vendor's internal DevSecOps process along with DevOps Research and Assessment (DORA) metrics to support a quantitative assessment across their software projects and customers.
- Experience producing fielded and scaled software vs. only performing R&D. For example, the Government could request evidence of ATOs on existing networks; FedRAMP or DISA Impact Level certifications; or aggregate statistics outlining the years of support, number of environments, number of users, or global reach of existing software programs. This should be appropriately balanced for emergent firms and small businesses that provide technology discriminators aligned to Government-defined critical technology areas, where these providers may require additional maturation and mentorship to support fielding and scaling.
- Experience developing open, extensible, and interoperable software solutions. For example, the Government could request the vendor's interoperability certifications or case studies outlining successful development of solutions that support enterprise integration and interoperability in production at existing customers.
- Experience operating software; e.g., managing complex migrations, deploying upgrades over time and while in production, etc. The Government could request that potential software vendors provide and demonstrate an action plan for internal software operations and/or systems reliability engineering.
- Experience scaling software solutions across customers, verticals, and markets. This experience should be directly relevant to meeting the scale requirements of the project under scope.
- The vendor's approach to talent management. For example, the Government could request the vendor's metrics on employee tenure and retention to help evaluate the vendor's ability to deploy experienced teams. The Government should also evaluate the vendor's ability to stay viable in the competitive software development market by reviewing the vendor's overhead rates and

associated benefits, given that high performing companies generally have higher overhead to train and retain high performing developers.

- Initial vendors should have experience with government customers to establish the success of the program and create an ecosystem that can be supportive of on-boarding non-traditional entities without government experience. Alternatively, vendors could outline a proposed partnership model where an experienced defense software firm will aid in the transition and expansion of critical, emerging commercial technology into Army-specific requirements.

Question 2

The Army is considering a flexible contract vehicle utilizing multiple contract types to best execute this mission. What contract types would you recommend the Government utilize and/or not consider utilizing?

It will be beneficial for industry to understand the motivating criteria for each contract type and for the Government to explain when and how it will perform that assessment. We agree that the Army should implement a maximally flexible contract vehicle that can utilize multiple contract types to facilitate the greatest access to American and Partner software talent and resources. The acquisition strategy should be determined at the TO level depending on the type of procurement that is appropriate to meet the need.

For example, if the Army concludes from its required market research that a commercial item can be procured or reasonably configured or modified to meet the requirements of a given TO, a Firm Fixed Price contract would be appropriate based on FAR Part 12. If market research determines that configurable commercial products and services are not available to meet the requirements of a given TO, then custom software development efforts could be procured with other contract types. These contracts could still include Firm Fixed Priced milestone deliverables for demonstrated and validated capability in order to incentivize the incorporation of commercial items to the greatest extent possible, reducing cost and delivery time. In the absence of the above options, contracts for service hours or time and materials could be appropriate.

As a general observation, we recommend the Government use – to the maximum extent possible – outcome-based contracting that defines payments, incentives, and contract structures on the basis of capability intent rather than the underlying development process. This will better promote efficiency, innovation, and alignment of vendor goals and incentives with the objective of the Army for each TO while maximizing the unique discriminators each vendor brings to the Army. This can be achieved through statements of work with clear milestones that outline required deliverables, performance metrics, and fielding objectives. The “as-a-service” model further enables the Government to ensure they are responsible for funding a

software vendor only so long as the vendor is performing adequately against the Government's stated objectives, while the vendor's responsibilities and risk extend to the full software development lifecycle and non-attributable costs beyond standard development labor.

Question 3

The Army is strongly considering tech challenges over demonstrations as the focus of the phase 2 evaluation for the IDIQ award. What information/process would you recommend the Army utilize to determine the contractors best suited for an IDIQ award?

We recommend that the Army focus on demonstration of mature software solutions rather than tech challenges for individual software developers. Small tech challenges only measure the ability for a single developer to solve a small, discrete problem rather than the contribution of the aggregate software team. The Army should instead evaluate vendors' ability to provide a robust and enduring software solution to an Army mission need, while requiring that each vendor be independently responsible for assessing individual talent and fit within their company.

Demonstrations can require the rapid configuration of a solution in real or simulated environments, on real or simulated data, to show how the solution would actually operate in practice and how it could adapt to real-time feedback. Demonstrations also allow the Government to implicitly assess a wider breadth of skill embedded within the vendor company, such as front-end development, back-end development, security engineering, reliability engineering, software deployment and operations, performance management, incident response, and software testing. To meet the Army's modern software needs, demonstrated software should be, at minimum, containerized, deployable to a cloud environment, and have clearly defined APIs for interoperability and extensibility. Additional requirements should be noted and levied where applicable to meet more specific requirements (e.g., edge delivery, tactical data link integration, network constrained operations, etc.).

Software vendors should also outline a rapid pathway to an ATO with the Army and the vendor should provide credibility by producing cybersecurity scans and reports that demonstrate a level of maturity required to securely process sensitive Government data. This is important even where a vendor is only responsible for development subroutines or individual micro-services that are part of a broader software ecosystem, as isolated vulnerabilities can still have a significant impact on the overall information assurance of a larger system.

The key is to ensure that demonstrations provide the vendor community with an understanding of how the IDIQ is relevant to them and relates to future TOs so they can (1) be properly motivated to compete and (2) optimally display their qualifications and capabilities. Currently, the IDIQ is too broad in scope for vendors

to understand how a demonstration would be relevant to the IDIQ evaluation process or applicable across many types of vendors, without greater specificity of TO scope or project domain. Lessons could be learned from the Consortium OT model, and the Army may consider leveraging a consortium to execute the requirements of this IDIQ.

Question 4

Do you have recommendations for innovative on-ramping procedures for the Government to consider?

We recommend a more expansive model with a wider range of vendors to enable breadth and depth of software vendors to support the Army mission. In addition to the criteria outlined above, we recommend that the Army look to existing and mature software vendors to provide a foundation of proven performers that can serve as a scaling factor and mentorship force to enable a more rapid maturation of emerging technology providers. Any software company on an active Army contract that has an “exceptional” rating on CPARS within the past year should be eligible for inclusion in the IDIQ. Further, we suggest that any vendor that is currently supporting an approved Army data platform should be awarded a contract on the IDIQ.

As part of on-ramping to the IDIQ, all vendors should have a rapid pathway to an ATO with the Army or DoD if they do not already have one. The Army should consider implementing multi-vendor solutions that lower the barrier to entry for on-ramping new vendors with emerging critical technologies or expertise where their experience navigating the Army/DoD compliance and cybersecurity programs is limited. Such programs can enable a diverse software ecosystem that will encourage more participation at a lower cost to emerging software entities.

We also recommend that all TOs under the IDIQ be published publicly (e.g., on sam.gov) so that industry can have visibility into the work being solicited under the IDIQ. This transparency will encourage more vendors to apply for on-ramp if they find that TOs are relevant to them. It will also encourage IDIQ awardees to perform subsequent market research for commercial items relevant to TOs from vendors not currently in the ecosystem.

Question 5

Would your company have the ability to set up or conduct development in a Government Owned, Contractor Operated Development Ecosystem that includes a CI/CD pipeline comprised of a Government customized list of tools and test bed capability of employ robust test automation?

Yes. The respondents can deploy and configure software in a Government Owned, Contractor Operated Development Ecosystem. However, we would encourage the Army to consider a variety of development ecosystems, including privately developed

and managed CI/CD pipelines, rather than stipulating this as a requirement at the outset, to allow for industry partners to suggest approaches that would meet the Army's ultimate goals for this IDIQ.

Many software companies invest heavily in refining their internal tools for software delivery and these tools may offer additional benefits compared to the Government Owned Ecosystem, such as faster deployment speeds, enhanced security throughout the DevSecOps process, a more transparent software supply chain, and others. Software companies typically design and maintain their own CI/CD pipelines and DevSecOps tooling to serve a large range of customers, and these pipelines are specific to that entity's development practices and unique developer training.

It is unlikely that the Government will receive any cost benefit from providing software companies with an alternative pipeline, and in fact this may increase overall software development costs as these vendors will be required to bifurcate their development practice to support the unique requirements of the Government, including additional training, support, operations, integration, and administrative overhead – not to mention the additional requirements that may be imposed on the Government Owned, Contractor Operated development ecosystem to satisfy the unique and specific needs for specialized, domain specific development practices (e.g., in AI training, multi-cloud/highly distributed systems development, mobile development, virtual/constructed testing for hardware integration, cloud based computing including quantum computing, etc.). Vendors should be permitted to use their own CI/CD tooling when it presents the best option for meeting the Government's needs.

Question 6

The Governments intent is to establish Labor Category pricing on the base IDIQ to expedite the TO award process. Please provide the list of labor categories including certifications / qualifications that your company believes to be necessary.

If Labor Categories are to be used for the base IDIQ, different labor categories will be necessary for different types of software development, configuration, deployment, operation, reliability engineering, information security, data engineering, AI specialization, mobile development, etc. and will depend on the work contemplated for each TO. Some of the coalition members responding to this RFI offer labor categories on the GSA Schedule for various types of engineering and implementation services, as well as CONUS and OCONUS Field Service Representatives (FSRs).

However, as a coalition of modern commercial software companies, we encourage the Army to consider that most commercial software companies build teams of talented engineers that are focused on building commercial products or innovating on generalized tools and automation to better enable the company to scale to meet

a broader range of users, customers, and mission scope. Outside of boutique software development firms, much of the commercial software development talent is managed under commercial software company R&D units with development effort spread across the technology domain serving the companies' specialties to support a breadth of customers. This model tends to be incongruent with traditional labor categories and rates. Instead, much of the software industry and commercial customer base uses software licensing or "as-a-service" models to deliver modern software to modern enterprises.

To maintain this talent, commercial software companies offer commercial rate salaries and benefits while forward investing in their product lines, oftentimes with investment from the venture capital community to supplement that forward investment. Commercial software companies develop their products in this way and then sell to their customers via a negotiated flat-rate model akin to Firm Fixed Price – even where, in most cases, additional commercial software modifications, configurations, and development are required to integrate against the specific requirements of each end customer or user community. Commercial software engineers typically do not log labor hours when developing or modifying commercial products. We encourage the Army to consider that some of the very best software talent in the world exists in the commercial sector. Excluding this talent pool would put the Army at a technological disadvantage with respect to our adversaries who do not put such exclusionary restrictions on their industrial base.

Question 7

As an alternative to certifications and proposals do you have experience with utilizing coding challenges to establish employee qualifications? If so, can you provide examples or recommendations?

Yes. Candidates for many technical roles at coalition members' companies are required to demonstrate their skills and expertise via a series of coding challenges. There are dozens of coding challenges used by industry, all tailored to the type of development under evaluation; e.g., database administration, user interface/user experience (UI/UX), AI model development, quantum computing algorithm development, etc. These types of coding challenges could be relevant to TOs for services contracts focused on very specific types of development, but they would not be relevant or appropriate for vetting entire companies; for example, product vendors who manage talent internally and who already have a product or specialty to offer.

We recommend that the Army consider evaluating positively those vendors who utilize coding challenges and other vocational/applied evaluation criteria to assess the quality and experience of talent supporting in technical roles at their firm. However, for those vendors who successfully graduate onto the IDIQ and where this technique is established, we do not recommend that the Government further impose additional coding challenges as this introduces unnecessary cost, resource,

and administrative overhead for limited gain. Rather, the Government should prefer assessing the efficacy of the proposed team and development plan through software demonstrations that meet the requirements unique to each individual TO.

Question 8

The Government's expectation that Task Order execution under the IDIQ results in expedited staffing so projects can begin quickly.

Part 1- What time do you anticipate being necessary to fully staff a team to begin executing a Program Increment (PI)?

Part 2- If you had the ability to obtain Army CACs and/or GFE VDI/laptops in advance of a TO award, how would that change your timeline to fully staff?

Part 1: This question is challenging to answer without knowing more about the type of software development necessary to execute a given Program Increment (PI) – including any additional geographic restrictions, clearances, or specializations unique to the TO requirements. In general, our coalition members would expect to be able to staff a team within roughly 60 days on average based on the talent pools they currently employ. However, we would note that vendors that incorporate commercial products into their software solutions typically have a head start over custom development projects and require fewer staff members for implementation, so teams can begin executing more quickly. This is because commercial software companies keep a talent pool of engineers dedicated to R&D efforts to further refine and expand product lines as part of the natural scaling process that commercial businesses go through agnostic of specific contract actions. Those resources can then be reallocated to support the customization of commercial products for government use as required by a TO.

Part 2: If we could obtain Army CACs and/or GFE VDI/laptops in advance of a TO award, we estimate that the time required to begin executing a PI would decrease from 60 to roughly 14 days. This would be very helpful in getting moving faster on execution.

Question 9

Are there additional areas of Modern Software Development that should be considered as part of this IDIQ?

First, given the breadth of the IDIQ as currently written, it will be necessary to bring in a wide range of companies in order to meet future TO requirements. Companies could specialize in areas such as Computer Vision, Large Language Models (LLMs) and Natural Language Processing (NLP), Robotic Process Automation (RPA), Digital Engineering (DE), Autonomy, Internet of Things (IoT) and sensors, synthetic and simulated environments, quantum computing, or geospatial products, to name a few. Having a variety of vendor types and specializations will ensure there are sufficient

options to compete for TOs and meet the Army's to-be-determined and evolving needs.

Second, the Army should consider how companies that offer software as a commercial product or commercial service can fit into the IDIQ framework. That way, if a Commercial Item Determination positively concludes that a commercial product already exists in the market that can or, with commercial adaptation and integration to align with the end-users' needs, could meet its needs for a particular TO, the Army will already have a built-in pathway for acquiring that product rather than paying for duplicative development services that will take longer to deliver results.

Third, we recommend that the Government address the need for operational responsibility of software developed within the IDIQ framework. Complex software cannot be built in a vacuum without considering its continuous operational needs. The skills required to write new code are often different than the skills required to sustain it over many years – but as software systems grow in complexity, there is typically an inherent and necessary relationship between the software development and the continuous operations and operational complexity that, if not appropriately managed, can slow down software development efficacy over time. Further, Industry will need the Government to create a set of conditions for things like software supply chain security and ensure that all vendors participate.

Question 10

The Government is intending to use Agile Performance metrics as a means of performance feedback (CPARS-like) and as an evaluation point for continued work. Which agile performance metrics, in lieu of or in addition to the ones identified, should be used as a basis for this IDIQ?

The type of performance metrics will depend on the type of software development. For example, metrics will be different for back-end vs. front-end development, or different for algorithm development depending on the type and technique of the algorithm or model architecture. Generally speaking, while we agree that the Agile Performance Metrics outlined in Appendix 2 can be useful to maintain – and are consistent with industry-standard approaches like DORA – we would argue they are too generic and will not be (1) equally applicable to all types of development projects or (2) sufficiently detailed to evaluate performance for most types of development when considering the diversity and specificity of the unique Army outcomes and capabilities intended for each TO. Instead, these quantitative assessments should be balanced with metrics for the specific Army outcomes a TO is aiming to achieve (e.g., successful unit fielding, Soldier feedback, etc.). This will ensure that vendors are properly incentivized and accountable to meet the outcomes for which they are responsible. A vendor can have a fast, efficient, and high-quality process – while building the wrong thing. Outcome-oriented metrics would allow the Government to

more accurately assess and align a vendor's incentives with operational requirements when considering a continuation of their work.

We also recommend that the Government utilize performance criteria to determine the ongoing eligibility of vendors to hold contracts on the MSD IDIQ. If a contract holder is rated poorly on these criteria for a certain number of TOs, they should be eligible for read-off at the Government's discretion. This is the best mechanism the Government has for controlling contract performance, irrespective of contract type.