Agile Services for the Enterprise

Statement of Work Template

Created by members of the GSA Alliant Shared Interest Group (SIG)

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Introduction

Agile has emerged as the leading industry software development approach, and has seen growing adoption across the federal government. Agile development practices can help government to transform IT acquisitions by delivering capabilities faster and responding more effectively to changes in business priorities, operations, technology, and budgets. Agile practices emphasize the following principles:

- Deliver more value, quicker
- Focusing on small, frequent capability releases
- Enhancing communication and transparency
- Valuing working software over comprehensive documentation
- Responding rapidly to changes in priorities, operations, technology, and budgets
- Actively involving users throughout development to ensure high operational value

Approaching any program in an "Agile" fashion is as much about attitudes and behavioral patterns as about methodologies or toolsets - it is immersion and adoption of an Agile mindset and culture. This mindset can apply to the development of relatively simple and targeted IT projects and capabilities, as well as to much larger and more complex, integrated programs.

The GSA Alliant Program Office and the 58 industry partners comprising the Alliant Shared Industry Group (SIG), recognize the power and effectiveness of agile IT acquisition and have created the following Statement of Work (SoW) template as a tool for both program managers and acquisition executives to more quickly and easily acquire Agile Services for the Enterprise on either new or existing contract vehicles such as the GSA Alliant GWAC.

Included here are guidelines/considerations for the type of contract to use, typical tasks and related deliverables and more. The content of this document is intended to be a starting point for agile acquisition efforts and is not intended to be used verbatim. Additional information and resources regarding program level Agile practices can be found using the links at the end of this document. Of particular interest is the "Defense Agile Acquisition Guide" published by Mitre and the TechFAR: Handbook for Procuring Digital Services Using Agile Processes by the U.S. Digital Service.

Agile and Government Contracting

Implementing every principle of an Agile framework in federal contracts can be a challenge due to government policies and procedures such as the need to obtain and

maintain Assessment and Authorization or Authorization to Operate certificates. However, Agile principles and methodologies can be successfully implemented in government environments. Key among these is the approach, which delivers software capabilities in smaller, more frequent deployment packages. The approach also enables the flexibility to quickly adjust as needed as requirements, designs, and capabilities change during the program lifecycle.

Agile Development requires a degree of flexibility which must be planned for in the development of a solicitation and award. Unlike contracting for traditional Waterfall development, the success of Agile in government requires constant Government participation in the on-going planning, which is at the core of Agile. Failure of any party to live up to their Agile roles and responsibilities and adjust to an Agile way of planning and managing will significantly diminish the benefits of the Agile framework.

Remember, it is important to preserve and maintain software and data rights for the government. With Agile, the government can gain incremental value on a development project vs waiting (usually years) to get the final product as the government can implement portions of functionality much earlier, gaining value for themselves and their constituents. Additionally, the government should be able to more easily transition between contractors (since it is difficult to transition in the middle of a Waterfall project, which could span years, and the time box for Agile product increments may be much more frequent).

Contracting for Agile Services

The sections below provide considerations the acquisition executive should determine prior to release of the solicitation. This includes 1) determining how requirements are to be communicated regardless of who is performing the work, and 2) various contracting models that require different government and vendor behavior to achieve program success.

As with any acquisition, a decision is required on whether to solicit via a Statement of Work (SOW), Performance Work Statement (PWS) or a Statement of Objectives (SOO).

1. Statement of Work (SOW) must clearly define the work to be performed and is the most prescriptive of the three options. Being prescriptive is best suited to Agile where the government is contracting for pure labor to be used under a government led Agile project/program.

2. Performance Work Statement (PWS) requires that agencies, to the maximum extent practicable:

- Describe work in terms of required results rather than "how" the work is to be accomplished or the number of hours to be provided.
- Enable assessment of work performance against measurable performance standards.
- Rely on measurable performance standards and financial incentives in a competitive environment to encourage innovation and cost effective methods of performing the work.

3. The Statement of Objectives (SOO) approach is the least restrictive of the three and may be the best suited for contractor led individual Agile software projects where requirements are expressed in terms of outcomes or results. Offerors propose the solution they determine is best suited. FAR Part 37.602(c) suggests the following:

- Purpose
- Scope or mission
- Period and place of performance
- Background
- Performance objectives, (i.e., required results)
- Any operating constraints

Requirements for Agile Services Types

Agile service requirements often fall into one of two categories: 1) a need for technical services under a government led Agile team/program or 2) a need for a contractor led Agile project/program including both Agile leadership and technical services where the government provides oversite.

Agile Software development is a commercial practice utilizing commercially created code bases (Java, Ruby, Apex, Drupal etc.) A Government specific project such as the IT system for a Weapons platform is a Government "problem" but the development services and code used to create the solution are commercial.

Below are two figures which illustrate one way to determine a cost estimate for a FFP contract based on cost per iteration. The end deliverable for this type of contract will be the repeated delivery of functional code that can be placed into production. Under Agile, the government should not specify a fully defined "end state" of any given system based on a fully fleshed out system requirements document (as per waterfall), rather they should set a vision that can be altered based upon what is discovered in attempting to

fulfill that vision. The government is contracting for a capacity to build or configure a system that solves a problem.

Example: Calculating Firm Fixed Price per Iteration

Pricing an Iteration:

Size of Team: Range 4-10 FTE
# of Teams: based on need and scaling
Type of Iterations included: Development, Discovery, Envisioning, Hybrid
User Story Size: T-Shirt Sizes/ Fibonacci / Planning Poker
Method of Estimation: Fibonacci/ Planning Poker/ #NoEstimation
Weeks of Iteration: 2-5 typical
Metrics: # of Story Points per Iteration / Throughput/ Velocity/ Time to Market
Period of Performance: 12 months

Iteration	Factor		Labor Category	Hr Rate	Hrs	Price
			Project Manager	$150.00	45	$6750
Size of Team	7		Scrum Master	$147.00	1920	$282240
			Business Analyst	$120.00	940	$112800
# of Teams	1		Developer (2)	$140.00	3840	$537600
Type of Iteration	Hybrid + Development		Technical Architect/Sr. Developer	$167.00	940	$156980
Weeks of Iteration	3		Designer	$156.00	1000	$156000
Metrics	15-17 Story Points AQL 19+ Excellent		Total			$1,252,370

Example: Calculating Firm Fixed Price/Iteration

Price Per Iteration ✕ Iteration Weeks = Total Price of Order

• 52 weeks/ 3 week iterations = 17 Iterations/Year
• Labor Total / Number of Iterations = Price Per Iteration

$73,669 ✕ 17 Iterations = $1,252,370

The period of performance of the order, divided by the number of iterations and the weeks in the iterations is how you develop how many iterations you can have in a period of performance.

The contract type decision should be based upon:

• The vision for the product
• The specific solution set
• Organizational constraints

In doing a D&F for T&M/Labor Hour, where feasible, it is recommended that CO's strategically consider how to move future procurement actions to FFP. In many instances this will decrease the cost risk to the government, as the FAR advocates.

Government Led with Contracted Technical Expertise

The government performs Agile leadership roles beyond the Product Owner and manages the program and the development relying on contractor solely for technical expertise. Contracting for technical expertise in a government led Agile project or program is no different than any standard acquisition for technical services. Technical expertise can be procured through Fixed Firm Price (FFP), Labor-Hours (LH) or a combination of the two.

Contractor Led with Government Oversight

The government relies on the contractor to fill the majority of Agile roles. A Task Order must clearly identify break points for assessment of smaller, more frequent deployment packages (e.g., User Acceptance Test (UAT)). The process must also allow for the reassessment and reprioritization of the portfolio of projects in the Agile Release Train (ART) or equivalent. Finally, the process must define the processes for payment and termination in this fluid contracting environment. The contractor should identify government responsibilities and the ramifications and costs which may result from the failure of the government to fulfill their responsibilities.

Contractor Led Individual Agile Development Requirement

Any individually contracted Agile requirement should have, at a minimum, a Statement of Objectives with a set of minimal features and acceptance criteria. In this scenario an offeror could provide elements for evaluation such as:

1. A proposed PWS in response to the SOO which clearly identifies:
    a. Incremental Functional Capabilities and their schedule
        i. Acceptance criteria for these Incremental Functional Capabilities
        ii. Progress payments based on accepted Incremental Functional Capabilities or other proposed milestones
    b. A Government Participation Plan which clearly identifies:
        i. The government's responsibilities
        ii. Identify impact and costs incurred should the government fail to meet these responsibilities
2. A Product Development Roadmap
3. An Agile Methodology Plan

      a. A Quality Assurance Plan (QAP) that factors in the Agile Methodology Plan (*if the government seeks a separate QAP in order to help develop the Quality Assurance Surveillance Plan (QASP)* (http://goo.gl/yGmSzd to download a QASP Template)

4. A Contract Line Item Number (CLIN) structure and ceilings

      a. A single contractor led requirement may be a good fit to FFP; however, the contractor may propose another structure or non-FFP CLINs

5. Staffing Plan

Contractor Led Enterprise Agile Program

A contractor led Enterprise Agile program relies on the contractor to fill most, if not all, roles which are not inherently governmental. The contractor may provide the methodology, process, development environment, and staff to do the development, testing, required security assessments and deployment while working with the government Product Owner and Portfolio Manager, who identifies and prioritizes features to be addressed while maintaining the integrity of the Enterprise Architecture. The government maintains oversight of the contractor's performance and the government will manage the overall portfolio vision and system architecture direction to determine prioritization of capability.

Certain elements of a contractor led Enterprise Agile program are suitable for FFP; however, given the nature of a flexible Agile environment, it may be advisable to allow an offeror to propose additional Labor-Hour (LH) or Time-and-Materials (T&M) CLINs which may be called upon. These are priced by labor category by the hour and a ceiling is proposed. These CLINs need not be funded until or unless needed.

Time-and-Materials (T&M) and Labor-Hour are covered in FAR Part 16.6 and are best suited for requirements and/or CLINs covering uncertain elements such as potential but unscheduled events, repairs, surge support, or the need for technical expertise in areas and quantities not yet identified. If a contractor is required to submit a FFP offer which covers every potential uncertainty, the contractor may pass this uncertainty cost to the government in the FFP offer or more probable, not factor the uncertainty cost into the offer and once awarded and encountering the unexpected, submit a Request for an Equitable Adjustment (REA).

The government may choose to give guidance on the number of and composition of Agile teams or let the contractor propose them based on anticipated work load. Teams may be bid as an overall capability and priced as a per unit item for a set duration or event. The solicitation or contractor proposal may provide for the increase or decrease in the number of teams in per unit pricing grouping as either option points or optional FFP CLINs.

The government may require the contractor to provide Agile training to the government at the start of a task. This training could be used to not only cover the general concepts of Agile but could also prepare for a successful partnership and set expectations based on the awarded contractors Product Development Roadmap.

Sample Solicitation Language

Below is a list of Tasks which may be included in a PWS or SOW for an Enterprise capability or drawn from in order to aid the development of a SOO. Not all tasks may apply to every requirement and these are presented as buffet of potential Tasks which may be selected, modified, ignored or added to as appropriate for your requirement. **The descriptions are merely illustrative and should be taken and modified as appropriate.**

1. Assessment of current Agile capabilities
2. Agile Coaching and training to Government
3. Management
4. Tracking and analysis of organization's Agile investment
5. Create and maintain the development environment
6. Establish Agile Development Plan and processes
7. Pilot implementation of Agile development processes and Agile capabilities
8. Implementation of Agile development processes and Agile capabilities
9. User Acceptance Testing (UAT)
10. Certification and Accreditation (C&A)
11. Software deployment(s)
12. End-user training of applications
13. Operations support
14. OPTIONAL TASK: Provide additional Agile teams
15. OPTIONAL TASK: Provide additional Agile technical capabilities for technology not identified (unfunded CLIN with ceiling)

Illustrative Tasks - Use, Modify or Discard as Appropriate based on your Requirement

1.0 **Assessment of Current Agile Capabilities**

    1.1   Conduct a formal Agile assessment of the workforce in coordination with leadership to include:

        1.1.1 At least a X full day assessment review with leadership

        1.1.2 Define the current state of Agile adoption within the organization and determine the readiness for additional Agile adoption activities.

        1.1.3 Deliver an Agile transformation roadmap to move from current state to a desired state. Plan shall include tangible steps to move from the current state to the desired state. This task also includes:

  1.1.3.1 Conduct meetings with the government Agile team to ensure an understanding of current practices and methods used

  1.1.3.2 Perform assessment and report on how to improve current organizational program

  1.1.3.3 Aid the implementation and facilitate use of Agile tools, guidelines and metrics seeking to achieve a standardized approach to Agile team project execution

  1.1.3.4 Deliverables: Organizational Assessment, Implementation Plan/Roadmap

  1.1.3.5 Performance Standard: Documents and submittals shall be on schedule and free of errors in content, spelling and grammar. Reports must be delivered within timeframes stated in the X (wherever this is located, proposal etc.) in order to meet the standard Agile Coaching and Training to Government Management

2.0 **Agile Coaching and Training to Government Management** (Coaching is often to management while training is often to staff)

    2.1   Agile Coaching

        2.1.1 Provide Program level coaching on Agile principles and practices: Identify appropriate Agile tools, guidelines and metrics to better establish and improve use of Agile teams. Support should include identifying standards and practices for a Program to manage individual Agile teams and standards for individual Agile teams to follow.

        2.1.2 Provide Agile Coaching as needed (for example, in meeting(s) (bi-weekly): The contractor shall participate in bi-weekly meetings where the vendor will facilitate a discussion of problems or issues with current Agile team(s) and offer advice and counsel on ways to improve project

performance. The contractor shall thereafter aid in implementing suggested advice with the team(s).

Performance Standard: Timeliness of reports. Reports must be delivered within timeframes stated in the proposal and accepted by the government.

On-site certified trainers, provided by the vendor, to provide training on Agile methodologies. The contractor shall determine the amount of time needed to cover the learning objectives specified in Section 2.2.1 of this Statement of Work.

2.2.1 Learning Objectives:

- Review the differences between Agile delivery and traditional Project Management

- Describe the philosophy and framework of Agile development focusing on a shared set of terms, terminology and roles and responsibilities

- Examine the principles and practices of Agile Project Management including Scrum, Kanban and SAFe

- Understand the challenges of implementing Agile within the working environment and why the success of Agile projects not only depends on the skills and experience of the project team members, including the government Product Owner roles, but it also depends on the Agile understanding and awareness of all involved in the project

- Determine what is needed to initiate an Agile project

- Demonstrate what is involved in planning an Agile project

- Examine what is involved when executing an Agile project

- Practice approaches for monitoring and controlling an Agile project

- Explain the steps involved in closing out an Agile project

- Discuss how to implement Agile delivery in any organization

2.2.2 Deliverables:

Provide training for up to X participants on Agile delivery methodologies focusing on software development, information technology projects (non-development), and Program Management.

Contractor shall ensure that at minimum the learning objectives outlined under Section 2.2.1 of this Statement of Work are covered.

Contractor shall submit a class evaluation form to the COR to be approved by X date of award.

2.2.3 Performance Standards:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar.

Deliverables must be delivered within timeframes stated in the X.

A score of X (example 4.0 out of 5) will be achieved on the approved class evaluation form

2.3   Agile Delivery Training

The contactor must demonstrate expert knowledge of Agile implementations to potentially include Lean/SAFe. Training and Agile Coaching will be held at X in a room to be determined.

The contractor shall hold an approved on-site training class that will be at least X hours long. The training course, through lectures, dialog and exercises, must discuss at least the following:

- Introduction to Scrum
- Introduction to Kanban
- Introduction to SAFe
- Roles
- Benefits of each method
- Best uses of each method
- Where they can fit in our organization?
- Visualizing workflow
- How to use a Storyboard/Task Board
- Setting Work In Progress (WIP) limits
- Metrics and measurements and how to make them visible
- Estimating using Story Points

2.3.1   Deliverables:

The contractor shall provide the COR with an electronic copy and a printed copy of English language course training materials and examples.

The contractor shall submit a class evaluation form to the COR to be approved by X date of award.

The contractor shall be responsible for providing attendees with an electronic copy and a printed copy of English language course training materials and examples.

The contractor shall provide on-site Agile Coaching for X period of time. Potential coaching topics will be determined by need and may include items such as:

- The basics of Scrum, Kanban, SAFe
- Why Scrum, Kanban, SAFe works, and all the reasons why each practice is useful
- Removing impediments
- Writing User Stories
- Breaking down User Stories
- Understanding Story Point sizing
- Better release planning
- Too many projects at once
- Other problems or impediments, as identified by the attendees
- Taking meetings to the next level
- Taking the artifacts to the next level
- Managers and metrics
- Knowledge workers and motivation

2.3.2 Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X.

A score of X (example 4.0 out of 5) will be achieved on the approved class evaluation form

3.0 **Management** (Standard management requirements not exclusive to Agile projects)

3.1 Participate in a Post-Award Conference

This meeting shall provide an introduction between the contractor personnel and government personnel who will be involved with the contract. The meeting shall provide the opportunity to discuss technical, management and security issues. The Post Award Conference will aid both the government and contractor in achieving a clear and mutual understanding of all requirements and identify and resolve any potential issues. The contractor shall be prepared to discuss any items requiring clarification and gather information as necessary to support each deliverable. The contractor shall provide a written summary of the Post-Award Conference.

3.2 General Management Activities

The contractor shall provide contract administration and management oversight necessary in support of this contract. Lean management oversight is preferable with technical skills taking precedence. The contractor shall be responsible for overall responsiveness, cost control, adherence to schedules, and technical quality of work.

3.3 Furnish Services and Equipment

The contractor shall furnish everything needed to perform this contract, except for those items specifically stated as *Government-Furnished Equipment* (GFE) in X of the PWS.

3.4 Use Development Standards and Practices

The contractor shall use software development industry standards and industry Agile best-practices for providing the products and services required by the contract in the absence of specific contract requirements.

3.5 Conduct Discussions

The contractor shall propose and conduct periodic discussions (both formal and informal, telecom and face-to-face) with AGENCY X stakeholders (and/or delegates) in the form of Technical Exchange Meetings (TEMs), collaborative development sessions, program reviews, design reviews, etc., as required. The contractor shall create meeting minutes summarizing the discussions held in the meetings.

3.6   Create Technical Analysis Reports

The contractor shall prepare and provide Technical Analysis Reports as directed by the government to support discussions.

3.7   External Organization Coordination

Upon approval by the government, the contractor shall coordinate with external organizations, as necessary, to support their development activities.

3.8   Deliverable(s): Meeting Minutes, Technical Analysis Report

3.9   Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X.

4.0   **Tracking and Analysis of Organization's Agile Investment**

4.1   Agile Investment and Impact Report

The contractor working with the government shall draft an Agile Investment and Impact Report that describes the actual outcomes of the Government's Agile Program effort to include the outcomes against the approved plan, goals and objectives. This report will also identify and recommend candidate improvement objectives and activities for each of the projects to support continuation of the Agile effort.

4.2   Agile Maturity Assessment

Using an industry proven approach, the contractor shall review and report on the Agile program and process to determine the current state of Agile maturity within the organization. This review shall specifically address the project and program teams; Integrated Program Teams (IPTs); stakeholders' involvement; organization, processes and organizational structure; and tools at both the Project and Program Office levels. The contractor shall document their findings and the current state of Agile maturity of the organization. Following completion of the Agile maturity review and assessment, the contractor shall draft an Agile Assessment Report that outlines findings in terms of people, processes, tools and technology portfolio, to include identification of strengths, weaknesses, and recommendation for further improvement to the Project and Program

Team levels.

4.3   Deliverables: Agile Assessment Report

4.4   Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X

5.0   **Create and Maintain the Development Environment**

5.1   Isolated Development Environment (Not needed on all implementations)

Software development and testing shall be conducted within the contractor's isolated development facility and within the government's protected development and testing & integration facilities (when available). The contractor's isolated development environment shall contain all developmental products and services necessary to conduct development activities within the isolated environment, including source code library management, Project Management, team collaboration, testing, and development tools and applications; no reliance on external developmental systems or services shall exist, unless specifically approved by the government.

5.2   Establish and Follow Written Procedures

The contractor shall establish written procedures for the purpose of ensuring that individual developer workstations and servers remain isolated from corporate and internet network access. The contractor shall abide by these written procedures. The contractor shall maintain inspection records supporting assurance that the development systems comply with the isolated environment requirements presented herein.

5.3   Maintain Control and Documentation

The contractor shall assist the government in maintaining configuration control of source code and related documents within the protected development environment.

5.4   Document Environment Guidelines

Security Program guidelines for the environment shall be documented and

provided to the government for review/approval before development starts.

Deliverable(s): Security Program Guidelines

5.5 Security Controls

The Security Program implemented shall use the security controls described in *National Institute of Standards and Technology (NIST), Special Publication 800-53, Recommended Security Controls for Federal Information Systems and Organizations* as a guide.

5.6 Provide Firewall Protection

The contractor shall establish and maintain an isolated development environment protected via government approved firewall technology from the contractor's corporate (and other) network and, if accessed remotely, using an encrypted connection from government compliant dedicated workstations. The contractor's desktop development environments shall be prevented from accessing any network other than that of the isolated development environment, including the contractor's corporate network and the internet.

5.7 Access to Logs

The contractor shall establish and maintain "on demand" logs recording access to the contractor's development environment. The logs are required to permit the government the ability to monitor and analyze cyber threats and risks, especially in the advent of a cyber-attack and/or malware discovery.

Deliverable(s): Log Files

6.0 **Establish Agile Delivery Plan and Processes**

6.1 Release Plan

The contractor shall define a viable Release Plan for implementing the features of the software product using industry best business practices for projects. The Release Plan will be developed using industry best practices and from other organizations within the government. The Release Plan should be flexible enough to respond to government feedback and be subject to defined governance processes. The Release Plan shall be overarching in its approach, defining the features that will be delivered over the life of the contract. The Release Plan should be a living document with adjustments made on a no less than annual basis. These

adjustments are in place to benefit from the experience obtained by delivering product and to enable response to evolving customer needs. The contractor shall present the Release Plan to the COR for review and approval.

 Deliverables: Release Plan

6.2   Strategic Agile Implementation Plan (If done at program level substitute Program for Strategic)

If required, the contractor shall define a Strategic Agile Implementation Plan (SAIP) for transforming AGENCY X to an organization capable of applying Agile software development methods to their projects as appropriate.

A. Deliverables: Project Strategic Agile Implementation Plan

7.0   **Pilot Implementation of Agile Development Processes and Agile Capabilities** (if needed)

7.1   Upon the acceptance of the Project Strategic Agile Implementation Plan, the contractor shall implement said plan specified in Section 6.2 of this SOW.

7.2   A Pilot Implementation of Agile Development Processes and Agile Capabilities *MAY* be requested prior to full deployment in Section 8.0 of this SOW.

8.0   **Implementation of Agile Development Processes and Agile Capabilities**

8.1   Unless the pilot implementation envisioned by Section 7.0 in this SOW is exercised, upon acceptance of Project Strategic Agile Implementation Plan, the contractor shall implement the approved plan from Section 6.2 of this SOW.

8.1.1   Deliverables:

A. Implementation Kick-Off Meeting Agenda and Materials
B. Updated Library of Tools and Templates
C. Risk Management Report
D. Project Specific Summary
E. Strategic Agile Implementation Outcome Report

8.1.2 Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X

8.2 Technical Support

The contractor shall provide technical and Agile development expertise to government/contractor teams as they are defining artifacts, data models, services, system specifications and architectures. The contractor shall participate in peer-to-peer collaboration with the AGENCY X Release Management team to provide technical guidance, and assist with the refinement and prioritization of previously developed user stories/features, and create new user stories/features, in cooperation with the government.

8.2.1 Deliverables:

A. Documentation emphasizing other project artifacts (e.g. working software) over authored deliverable documentation to the extent possible
B. Develop & Deliver Plans & Designs
C. Deliver generated execution metrics (project, testing, and security compliance)

8.2.2 Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X

8.3 Provide Analysis and Recommendations

The contractor shall provide analysis and recommendations for re-prioritizing the portfolio.

8.3.1 Deliverables:

Written analysis and recommendations for re-prioritizing both old and new user stories/features

8.3.2 Performance Measures:

Documents and submittals shall be on schedule and free of errors in content, spelling and grammar

Deliverables must be delivered within timeframes stated in the X

8.4   Software Conformance

The contractor shall design and develop applications to meet existing and planned AGENCY X Enterprise Architecture and deployment requirements and conform to AGENCY X application technical requirements. The contractor's input into the direction of the enterprise architecture and application technical requirements is expected.

8.5   Agile Teams (If multiple Agile Teams are required)

The contractor may establish several Agile development teams working in parallel to accomplish Agile development efforts. Each Agile team will be composed of a mix of skilled individuals (development, testing, etc.) with ready access to appropriate architecture, security, Configuration Management, story boarding and other technical expertise as needed. Initially the contractor shall provide X# teams working in parallel projects.

8.6   Software Requirements Management

The contractor shall establish and maintain an Agile software backlog process.

8.7   Feature Definition

The contractor shall work with and support government representatives (and designated contractor personnel serving as project support) to define the vision for the software product and the features to be delivered. The contractor shall also work with the Government and their representatives to define the features to be delivered in any particular program increment and the decomposition of those features into Epics and User Stories.

8.8   Release Planning

The contractor shall participate in the Release Planning process, including feature selection, with other AGENCY X directed representatives. Release Planning and final determination of release content is the responsibility of the government; although, the contractor shall provide knowledge and input that is deemed critical by the government to the planning process. The contractor shall conduct the Release Planning sessions.

8.9   Software Development Iteration/Sprints

The contractor shall establish and follow Agile development best practices using short duration development cycles, known as Iterations or Sprints, that produce demonstrable "interim deliveries" of software. As determined by the customer [Product Owner(s)], these deliveries of capabilities may or may not be fielded to the operational community. Each iteration/sprint should be time boxed, that is the iteration/sprint should have a fixed duration. When doing Agile at scale it is best that parallel development team have the same duration for each iteration across teams and they should all start and stop iterations at the same time. This is known as having a regular cadence (same duration) and being in synchronicity (starting and stopping at the same time). Operating in cadence and with synchronicity helps to simplify the job of coordination between teams. The contractor shall have an automated tool for sprint team management and have that tool accessible to authorized users within the government. The contractor tool shall develop a schedule of software Iterations/Sprints based on the user stories and complexity of features to be developed.

Deliverable(s): automated tool for sprint team management available to the government

8.9.1 Sign off on "Interim Deliveries"

Following each short "interim deliveries", the collective team, including the government representative, must sign-off on the deliverable as the best working solution of the currently understood and scheduled story requirement.

8.10   Product Testing

The contractor shall establish and maintain processes ensuring all products are thoroughly tested to demonstrate that (prior to delivery to the government) the products provide the required capabilities. Automated testing should be utilized to the maximum extent possible. The contractor shall use automated regression testing techniques and where applicable, test documentation should be generated by automated testing tools.

8.12   Continuous Integration (CI)

The contractor shall employ Continuous Integration (CI). The contractor will integrate code into a shared repository at least once per day. Each code check-in will trigger the build process. Upon the completion of the build all automated tests shall be run. The results of automated tests will be provided to the respective developer(s) who worked on the software code that comprised the build for remediation of any identified coding defects.

8.13   Secure Software Design

The contractor shall establish processes and procedures to ensure and demonstrate that developed applications are devoid of security flaws. The contractor shall institute secure coding practices into all phases of the software development lifecycle, including initial design activities, using OWASP.org and CERT.org as guides. All Category 1 (CAT 1) security findings must be resolved prior to product deployment.

8.10.1 Security Findings

If a security audit (e.g., Security Testing & Evaluation (ST&E)) determines that software delivered under this task order is non-secure, the government will provide written notice of each non-conformity. Software shall be "non-secure" under this task order if it contains a programming error listed on the current version of the Common Weakness Enumeration (CWE)/SANS Top 25.

8.10.2 Security Remediation

There is thirty (30) days after receipt of such notice (Remedy Period) to remedy the security findings by modifying/replacing and redelivering the software. If a fix is not possible within 30 days, the team will notify the security auditor within fifteen (15) days as to why the remedy cannot be implemented during the Remedy Period, and propose a timeline for correction.

If the security auditor determines, after a security audit following a mutually agreed upon Remedy Period, that the redelivered software is non-secure, and thus non-conforming, equitable consideration may be applied

(If the task involves operations and maintenance this must be expanded to include security responsibilities with an ongoing operations and maintenance environment as vulnerabilities are discovered after initial deployment)

8.11   Malicious Code Warranty

The contractor represents and warrants that the software shall be free from harmful or malicious code intended to, or which may, damage, disrupt, inconvenience or permit access to the software user's or another's software, hardware, networks, data. (Often references used here are software shall be delivered on Day One free of known vulnerabilities listed at https://nvd.nist.gov/ or http://www.cve.mitre.org/index.html such as is listed in 8.11 and 8.12 above where they use SAN top 25. Your security

9.0   User Acceptance Testing (UAT)

The contractor shall establish and maintain processes ensuring all products are thoroughly tested by users to demonstrate their suitability, in accordance with UAT processes defined by the government.

10.0   Certification and Accreditation (C&A)

10.1   Application Certification and Accreditation (C&A) Packages

The contractor shall support preparation of C&A packages by providing the COR, as directed by the government, with information about the software developed by the contractor.

10.2   C&A Participation

The contractor shall participate in the C&A process as directed by the government.

10.2.1 Deliverables: C&A Package Support Information

11.0   Software Deployments

11.1   Deployment Instructions

The contractor shall prepare and deliver software deployment instructions to X (this is up to the requiring agency to state who these should be sent to if deployment is not covered under the task).

11.1.1 Deliverables: Deployment Instructions

11.2   Deployment Support of Releases

The contractor shall support deployment of software releases as required and directed by the government.

11.3   Patch Development

The contractor shall, at the direction of the government, develop and test urgent changes (patches) to fielded software in order to meet new security issues and/or external interface changes.

11.4   Modify Software

The contractor shall modify and test existing software, as necessary, to support deployment.

11.5   Delivery Contents

The contractor shall deliver to X an executable software application, a virtual machine image, the installation kits, all related source code, software build scripts and instructions, associated design, development, and testing artifacts.

11.6   Government Duplication of Contractor Development Environment

The contractor shall provide schematics, topologies, descriptions (to include all government, commercial, or open source items), and bill of materials/equipment necessary for the government to approve and duplicate the contractor's development and testing environments.

11.6.1 Deliverables: Computer Software and Source Code, Installation Instructions, and Build Scripts/Utilities

12.0   **End-User Training of Applications**

12.1   Develop, utilize and maintain process flow diagrams, guidelines and other reference materials to assist in troubleshooting problems and resolving outages quickly.

12.2   Provide role-based training solutions for users to become proficient in the business applications, including content creation, content maintenance, review, and approval processes.

12.3   Provide "train-the-trainer" solutions.

12.4   Create, update, or revise and review Knowledge Management practices, procedures, or documents.

12.5   Deliverables:

A. Process flow diagrams, guidelines and other reference materials to assist in troubleshooting problems
B. Role-based training solutions
C. "Train-the-trainer" solutions
D. Knowledge Management practices, procedures, or documents

13.0 Operations Support

Post-implementation operational and maintenance support of production applications on the Enterprise Collaboration platform.

13.1 Level I and II Support Desk: Provide Support Desk functions for software development support. The support shall be X hours on-call support, X-days a week, with response time within X minutes of first contact.

13.1.1 The contractor shall utilize a centralized bug and issue tracking system designated and hosted by the government, unless otherwise proposed and provided by the contractor.

13.1.2 The contractor shall provide weekly reporting and metrics on bug and issue tracking and resolution.

13.1.3 The Support Desk will act as an escalation point for Tier-II+ break/fix items as reported by the government. This may require working with end-users and the platform vendor, as necessary, to define, document, test, and address incidents.

13.2 The contractor shall provide Level III customer technical and functional cell support for fielded applications. This function supports problems of a technical nature beyond the capabilities of Levels I and II Operations or Level III Engineering. The support shall be X hours on-call support, X-days a week, with response time within X minutes of first contact. Each agile delivery team can be called upon to provide Level III support. This ensures that the team with the most knowledge of the software and associated business process provides the support,

13.3 The contractor shall identify usability issues and craft solutions to resolve bug fixes or other performance problems.

13.4 The contractor shall work with the government and advise and provide recommendations of how manufacturer-driven updates of platforms will affect software.

13.5 Performance Measures:

(You would place the response and repair metrics you want to hold the contractor to here. Generally it is an average or not to exceed NTE)

14.0 OPTIONAL TASK: Provide Additional Agile Teams (Unfunded FFP

15.0 **OPTIONAL TASK: Provide Additional Agile Technical Capabilities for Technology Not Identified (Unfunded CLIN with Ceiling and set Labor-Hour Rates)**

Using the Scaled Agile Framework

The success of any Agile program starts with procurement actions that demonstrate general understanding of Agile practices and methods. To that end, this section describes the Scaled Agile Framework (SAFE) in high level terms and is intended to provide a contracting office with enough Agile perspective to craft a solicitation set up for success. The Scaled Agile Framework approach is tailorable to meet specific program sizes. At the largest scale, the organization should include three levels.

The top level is the Program Management or portfolio level. This level includes:

- Portfolio Managers
- Enterprise Architect
- Senior Product Managers

Portfolio Managers prioritize portfolio backlog items (epics) by level of effort required and business value obtained and define portfolio metrics used and process for measuring them (continuous improvement process).

The Enterprise Architect maintains consistency across the multiple Sprint teams and with the organization's technology strategy.

Senior Product Managers identify epics for inclusion in the enterprise portfolio and are responsible for achieving the business value. If this is not a government role, it must at the very least be tightly connected to business requirements.

The next level is the program infrastructure. This includes:

- DevOps
- Release Management
- System Architect

The DevOps Team, responsibilities include:

1. Develop and maintain a production-equivalent staging area
2. Maintain development and test environments so they better match the production environment

3. Develop and maintain/support Automated Testing, Continuous Feedback
4. Deploy to staging area every Sprint and deploy to production frequently
5. Place every aspect of the environment under version control (this includes COTS items, the "infrastructure as code" concept)
6. Create the ability to automatically build environments
7. Automate the deployment process

Release Management creates the Release Train through which value is incrementally delivered to the organization. Based upon assignments from Program Management, Release Management breaks the business epics into more manageable product increments for periodic delivery.

The System Architect:

- Is responsible for Non-Functional Requirements (NFRs) of the system
- Evaluates design alternatives
- Works with Release Management to split top level epics into features for the release train

Scaled Agile requires:

- Regular releases (based on delivery needs of the organization, recommended quarterly)
- Regular planning meetings to divide the program backlog to the backlog of each parallel Agile team. (recommend quarterly)

Sample Agile Team Composition

The below is an example of the roles expected in an Agile Team:

- Product Owner represents the customer and ensures that the team understands the business value of each backlog item assigned to the team during the group planning sessions. The Product Owner also ensures that delivered products meet customer requirements.
- Scrum Master (depending upon scope may also be software architect or else you need a software architect) (facilitates Agile ceremonies and removes impediments.
- Software Architect (architects the scope of the solutions and defines the technologies employed and ensures the project is following the Enterprise Architecture)

- Front-End Developer (in an ideal world, the front-end developer would create the user experience (UX) test cases first. This is the essence of Test Driven Development (TDD)
- Business Analyst (translates user epics from the team's backlog into individual user stories and works closely with the Product Owner to refine the Product Backlog. Also validates proposed test cases)
- Back-End Developer (connects databases to middleware, typically through microservices. Uses a service bus to combine microservices and logic to ease the tasks of front-end developers)
- Test Engineer (create and maintain the automated test suite and work with developers to create test cases for test driven development)

Additional resources:

The TechFAR Handbook for Procuring Digital Services Using Agile Processes
https://playbook.cio.gov/assets/TechFAR%20Handbook_2014-08-07.pdf

Defense Agile Acquisition Guide: Tailoring DoD IT Acquisition Program Structures and Processes to Rapidly Deliver Capabilities
http://www.mitre.org/publications/technical-papers/defense-agile-acquisition-guide-tailoring-dod-it-acquisition-program

On Metrics and Agile:
https://resources.sei.cmu.edu/asset_files/TechnicalNote/2014_004_001_77799.pdf

The Agile Manifesto:
http://agilemanifesto.org/principles.html

Agile Glossary Definitions:
http://www.innolution.com/resources/glossary

Tools which may be useful:
http://opensource.com/business/14/1/top-project-management-tools-2014

http://opensource.com/business/15/1/top-project-management-tools-2015

Article about fixed price Agile projects in industry:

http://www.agilistapm.com/fixed-price-contracts/