

Contracting Guidance to Support Modular Development



Table of Contents

I.	Purpose and Scope	2
II.	Overview	2
III.	Background	3
IV.	Modular Development: Key Terms, Principles and Risks.....	6
A.	IT Investment.....	6
B.	Projects and activities.....	7
C.	Key Principles.....	9
D.	Risk and Challenges in Modular Development.....	9
V.	Modular Contracting for IT: Tools and Strategies	10
A.	Contracting Approaches Suitable for Modular Development	10
B.	Payment Strategies.....	16
C.	Use of Competition.....	19
D.	Provisions and Clauses	20
E.	Additional Acquisition Considerations.....	21
VI.	Appendix: Sample Performance Work Statement.....	23

I. Purpose and Scope

The purpose of this guidance is to provide agencies with contracting guidance to support modular development, as required by Information Technology (IT) Reform Action 15: *Issue Contracting Guidance and Templates to Support Modular Development, 25 Point Implementation Plan to Reform Federal Information Technology Management*.¹ This guidance presents a variety of factors that contracting officers, in support of IT managers, will need to consider as they plan for modular development efforts, such as whether to award to a single vendor or multiple vendors; how to ensure that there is appropriate competition at various stages in the process; how broad or specific the statements of work should be; when to use fixed-price contracts or rely on other pricing arrangements; and how to promote opportunities for small business.² It also empowers agency leadership and Integrated Project Teams (IPTs)³ with strategies and tools to improve investment manageability and budgetary feasibility, reduce overall risk, and support rapid delivery of workable solutions. This document is not intended to provide comprehensive guidance concerning a development methodology or standards for a modular software development lifecycle; rather, it is primarily focused on outlining acquisition guidance to support modular development approaches.

II. Overview

As outlined in the *25 Point Implementation Plan to Reform Federal Information Technology Management*⁴, Federal agencies have traditionally taken a multi-year “grand design” approach for developing, modernizing, and enhancing investments in IT. This approach is grounded in the common notion that responsible development necessitates a full detailing of requirements before work can start. Although a seemingly reasonable assumption, practical evidence and private sector experience has shown that large and complex IT implementations often encounter cost and schedule overruns, as the painstaking process of requirements gathering too frequently takes years to complete. Subsequently, agencies lose visibility into the performance of these multi-year IT development investments which affects their ability to implement corrective actions that reduce risk or mitigate financial exposure. The Government increases investment risk in these situations because: (1) the IT solutions that had once addressed agency requirements may no longer be pertinent or a priority; (2) substantial funds are allocated towards outdated solutions without any returns on the investments; or (3) agencies encounter budgetary constraints before substantive work is completed.

To help resolve these issues, modular approaches should be used in the development of IT investments, allowing agencies to implement significant capabilities for investments through the use of modular solutions that can be defined, developed, and deployed within months instead of several years. This guidance highlights critical success factors for adopting modular approaches, including the need to strengthen collaboration among agency IT, program, acquisition, and finance offices in order to design, resource, and manage investments in a modular fashion. To ensure successful collaboration across these offices, it is important to have a common and consistent vocabulary for key modular IT and acquisition

¹ 25 Point Implementation Plan to Reform Federal IT Management: <http://www.cio.gov/documents/25-Point-Implementation-Plan-to-Reform-Federal%20IT.pdf>

² Ibid.

³ OMB Capital Programming Guide, June 2006, page 9: http://www.whitehouse.gov/sites/default/files/omb/circulars/a11/current_year/part7.pdf

⁴ 25 Point Implementation Plan to Reform Federal IT Management

terms and concepts, describe how the work of each community fits together, and stress the necessity of having an IPT⁵. This guidance also provides tools and strategies for agencies to employ in the adoption of modular IT development practices. Finally, this guidance provides excerpts from a sample performance-work statement to support modular software development. Agencies are expected to assess and adjust capital planning and investment control and acquisition planning policies and practices to more explicitly incorporate these modular approaches in IT development and acquisition. Using these approaches, agencies can realize faster returns on IT investments and deploy technology solutions that will propel them towards a 21st century digital government, *one that is efficient, effective and focused on improving the delivery of services to the American people*.⁶

III. Background

Modular approaches involve dividing investments into smaller parts in order to reduce investment risk, deliver capabilities more rapidly, and permit easier adoption of newer and emerging technologies. Section 5202 of the Clinger-Cohen Act of 1996 and section 39.103 of the Federal Acquisition Regulations (FAR) each recognize these potential benefits of modular contracting and state that agencies *“should, to the maximum extent practicable, use modular contracting for an acquisition of a major system of information technology.”*⁷ Furthermore, OMB Circulars A-130 and A-11, as well as the Capital Programming Guide, include modular development and contracting approaches for capital asset acquisitions in general, which also readily apply to acquiring and developing investments in IT.

By following a modular approach, agencies can recognize the following benefits:

- Delivery of usable capabilities that provide value to customers more rapidly as agency missions and priorities mature and evolve;
- Increased flexibility to adopt emerging technologies incrementally, reducing the risk of technological obsolescence;
- Decreased overall investment risk as agencies plan for smaller projects and increments versus “grand design” (each project has a greater overall likelihood of achieving cost, schedule, and performance goals than a larger, all-inclusive development effort);
- Creation of new opportunities for small businesses to compete for the work;
- Greater visibility into contractor performance. Tying award of contracts for subsequent Task Orders to the acceptable delivery of prior projects provides agencies better visibility into contractor performance and allows a greater opportunity to implement corrective actions without sacrificing an entire investment;
- An investment can be terminated with fewer sunk costs, capping the risk exposure to the agency when priorities change, a technology decision doesn’t work or the contractor’s performance doesn’t deliver results.

⁵ Guidance On Exhibit 300; —Planning, Budgeting, Acquisition, And Management Of IT Capital Assets, page 4:
http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/fy13_guidance_for_exhibit_300_a-b_20110715.pdf

⁶ Digital Government: Building a 21st Century Digital Platform to better serve the American People, May 23, 2012, page 17:
<http://www.whitehouse.gov/sites/default/files/omb/egov/digital-government/digital-government-strategy.pdf>

⁷ Federal Acquisition Regulation (FAR), Section 39.103 Modular Contracting, (a):
<https://www.acquisition.gov/far/current/html/Subpart%2039.1.html#wp1096819>

Given the imperative that agencies “innovate with less,” it is essential that the IT and acquisition communities take advantage of modular approaches to derive these benefits in the following ways:

- From an IT perspective, modular development allows agencies to test the probability of the successful implementation of solutions in shorter time periods, which better positions agencies to adopt new innovative technologies. Successful organizations use modular approaches to define high-level requirements, and then continue to refine their needs through an iterative process that includes continual engagement and collection of feedback from stakeholders, particularly from customers, until work is completed. To minimize risk and maximize the success of the deployment, major investment enhancements or capabilities are completed incrementally. This includes a prioritization of critical requirements and functionality that will deliver features for customers.
- From an acquisition perspective, a modular approach to contracting balances the Government’s need for fast access to rapidly changing technology and risk management. This approach provides for the incremental delivery, implementation, and testing of an investment. A modular approach is one of many methods that may be used by Federal Agencies to acquire major IT investments. The acquisition may be achieved through a single procurement, or multiple procurements, but should balance the Government's need for fast access to rapidly changing technology and incentivized contractor performance with stability in program management, contract performance and risk management. In addition, it opens new opportunities for small businesses to compete for just a part of the work in the overall investment.

Successful application of modular IT development and contracting also requires a commitment to take advantage of IPTs, and understanding what structures, strengths, and benefits they provide. All IPT members, including those from IT and acquisition offices, should have defined roles and be part of the process, from initiation to completion. The acquisition strategy and the development of the projects should be planned and coordinated closely or the investment will bear unnecessary risk. Each member of the IPT may have slightly different roles in achieving the investment objectives, but will need to collaborate and communicate effectively throughout the process. A sample of key IPT responsibilities in using modular approaches is shown in Table 1.

Table 1: Sample Integrated Program Team Responsibilities for Modular Approaches

Acquisition Step ⁸	Mission Focus	Acquisition Focus	IT Focus	Budget Focus
Describe the problem	Identify congruent problems in agency. Identify foundational elements to the problem. Prioritize the problems. Build the business case.	Identify similar problems in the agency. Identify how other parts of the agency are affected by the problem.	Complete the alternative analysis, cost benefit analysis and capital planning procedures. Identify the projects in the IT Dashboard.	Identify outlays addressing problems in the agency. Look for opportunities to aggregate the buying power.
Examine public-sector and private-sector solutions	Consider how other agencies have addressed this problem. Consider how the industry has addressed this problem.	Collect market research on this problem. Look for opportunities to buy from other agencies instead of making a separate award.	Target “Shared First” and “Future Ready” ⁹ capabilities already in place. Reference the Enterprise Architecture for the range of solutions.	Develop price analysis models for the different types of solutions.
Describe the work	Consider the longer-term strategy. Identify near-term, actionable goals to achieve the strategy. Identify 6-month targets.	Develop an acquisition strategy to support the near and long-term goals using a modular acquisition approach.	Identify the work in a generic manner so that other parts of the agency can leverage it. Plan to develop in projects or increments no longer than 6 months and re-plan.	Reconcile the work with the price model and refine each.
Consider how to measure and manage performance	Make sure the IPT is delivering new features and capabilities.	Tie contractor payment, exercise of options and follow-on orders or contracts with successful contractor performance.	Review this investment’s performance in the agency TechStat process ¹⁰ .	Monitor cost and schedule performance, obligations and actual costs.
Select the right contractor	Develop the Technical Evaluation Report and advise the Contracting Officer.	Make the selection(s).	Validate that the offeror’s approach and experience are likely to deliver in a modular fashion. In the technical evaluation, identify inconsistencies with the agency’s Enterprise Architecture.	Provide price analysis support to the Contracting Officer.
Manage performance	Invest in developing high-performing IPTs. Participate with the developers weekly or daily, and test new features and capabilities consistent with the Acquisition Plan. Plan what is needed in the next project.	Invest in developing high-performing IPTs. Receive performance metrics consistent with every project or increment, take action when necessary.	Invest in developing high-performing IPTs. Push new technology advances into the planning of successive projects.	Invest in developing high-performing IPTs. Consider the balance between capital expenditure and operating expenditure and achieve the mix that is right for the agency.

⁸ Adapted from the Seven Steps to Performance-based contracting: https://www.acquisition.gov/comp/seven_steps/home.html

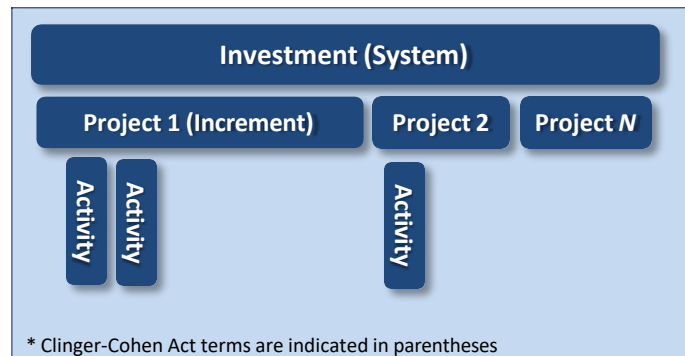
⁹ Federal Information Technology Shared Services Strategy, May 2, 2012: http://www.cio.gov/documents/Shared_Services_Strategy.pdf

¹⁰ 25 Point Implementation Plan to Reform Federal IT Management, December 9, 2010, Point 23

IV. Modular Development: Key Terms, Principles and Risks

The following sections outline key terms, examples, and principles that are important to understand in implementing modular approaches to IT acquisition. Figure 1 establishes a hierarchy of terms for this guidance.

Figure 1: Relationship within an IT Investment¹¹



Modular development focuses on an investment, project, or activity of the overall vision and progressively expands upon the agencies' capabilities, until the overall vision is realized. Investments may be broken down into discrete projects, increments, or useful segments, each of which are undertaken to develop and implement the products and capabilities that the larger investment must deliver. *Projects*, as defined in Exhibit 300 Guidance, *increments* as defined in the Clinger-Cohen Act, and *useful segments* as defined in OMB Circular A-130, are each interchangeable terms. Additionally, there is a subtle difference between the Capital Programming Guide and the Exhibit 300 guidance concerning an IPT. The former refers to Integrated *Project* Teams and the latter identifies Integrated *Program* Teams. The guidance in this document applies to both the project and program levels. For the balance of this guidance the Exhibit 300 terms will be used. Modular development must be viewed within the larger context of capital programming and the different levels at which program development is accomplished.

A. IT Investment

Capital programming begins with the planning and justification of an IT investment that is the expenditure of IT resources to accomplish mission objectives. An IT investment may include *a project or projects for the development, modernization, enhancement, or maintenance of a single IT asset or group of IT assets with related functionality and the subsequent operation of those assets in a production environment*.¹² Agencies invest in current and planned capital IT assets to enable and support the mission and information management needs. Assets are developed, acquired, and managed through the CPIC process. From the perspective of the Clinger-Cohen Act, the IT investment is the "system" that is subdivided into increments.

An IT investment is initiated and authorized by management based on a business case that establishes the need for a new or modernized information system. The business case serves as a decision support document that identifies alternatives and presents business, economic (e.g., cost and benefits), risk, and

¹¹ FY 2013 OMB Exhibit 300 Guidance, page 17

¹² Ibid, page 5

technical arguments for selecting an alternative to achieve organizational or functional missions or goals. The business case also establishes an estimated cost, schedule, and performance baseline prior to acquisition of the IT system, application, or asset. IT investments are reported by agencies to the IT Dashboard, a website enabling federal agencies, industry, the general public and other stakeholders to view details of federal information technology investments.¹³

It is at the investment level that a modular development approach should be carefully considered for IT investments, or other larger or more complex investments with longer development durations. The investment may be divided into several smaller components like projects and activities that will deliver useful functionality and capability to users and are easier to manage than a single, multifaceted and monolithic system.

B. Projects and activities

As defined in OMB guidance for IT Capital Planning and Investment Control, projects are temporary endeavors with a defined start and end point, and may be comprised of lower-level activities at a more granular level of detail.¹⁴ Each project must produce a measurable result toward delivering the investment's functionality or capability. Projects are also reported to the IT Dashboard.

Current guidance, such as OMB Circular A-130, already directs agencies to *structure major information systems into useful segments with a narrow scope and brief duration. This should reduce risk, promote flexibility and interoperability, increase accountability, and better match mission need with current technology and market conditions.*¹⁵ While the terminology may be different, the objective is the same. For IT investments, each project must have its own cost estimate, budget identifying full funding, schedule, performance expectations, and key deliverables for the product or capability it will develop and deliver. Each project should have its own development lifecycle (e.g., planning, acquisition, development, and deployment) and should be scoped in a way that it can be acquired independently. Put another way, the acquisition of any single project should not commit the Government to acquiring any future project.¹⁶ This concept of stand-alone functionality is critical to the Government's ability to effectively manage its investments and to minimize the risk of cost overruns, schedule delays, and performance failures.

Projects can be built sequentially or in parallel, depending on the programmatic needs, priorities, resources and management capacity of the organization. They can be designed so that subsequent projects add capabilities incrementally. Stages of iterative or "agile" development of subsequent increments refine and improve upon the initial capability. Other projects can be integrated so that, when brought together, they expand the capabilities to meet a wider range of the agency's requirements. Investments, projects and activities (see Table 2) can span fiscal years. Investment data is submitted and reported to OMB with the agency annual budget request and periodically through the budget formulation process. Cost and schedule performance for projects and activities beginning or

¹³ A website to view details of federal information technology investments: <http://www.itdashboard.gov/>

¹⁴ FY 2013 OMB Exhibit 300 A-B Guidance, page 6

¹⁵ Circular Number A-130 Revised: http://www.whitehouse.gov/omb/circulars_a130_a130trans4/

¹⁶ The Clinger-Cohen Act and FAR 39.103(b)(3) state that when using modular contracting, an acquisition of a system of information technology may be divided into several smaller acquisition increments that "provide for delivery, implementation, and testing of workable systems or solutions in discrete increments, each of which comprises a system or solution that is not dependent on any subsequent increment in order to perform its principal functions."

completing in any given budget execution year are reported to OMB on an ongoing basis as required by OMB Circular A-11, Exhibit 300.

Table 2: Characteristics of IT Investment Levels

Level	Characteristics	Typical Duration
Investment	Can be a major or a non-major IT investment, but size, scope and cost will vary. Also called a system in the Clinger Cohen Act.	Variable
Project	Each investment may be broken down into one or more projects, increments or useful segments, each of which produces a measurable result towards delivering the functionality or capability identified in the investment's business case. Projects produce a useable system or functionality that can be implemented and used effectively independent of future projects.	Projects should aim to deliver functional value frequently, producing functionality in as little as six months. ¹⁷
Activity	Activities are tasks within a project, each of which are necessary for the project to be successful.	Ideally 90 days or less.

Table 3 provides an example of how an IT investment could be structured using a modular development approach. In this case, the first project plans the roadmap, and additional projects can subsequently deliver additional capability and interfaces.

Table 3: Sample IT Investment Structure

Investment: System N		
Project	Activities	Functionality
Planning	Overall high-level requirements for investment or program	Roadmap of investment or program
Base System	Requirements and Design	
	Release 1	Base functionality: front-end and back-end, authentication
	Migration of legacy data and disposition of System Y	Application X takes over operations from the legacy system
	Release 2	Additional functionality
	Release 3	Additional functionality
Reports	Requirements and Design	
	Canned Reports – Release 1	Users can produce canned reports
	Ad-Hoc Reports – Release 2	Users can create ad-hoc reports
Application Interfaces	Requirements and Design	
	Interface 1 – Release 1	Application X can interact with system A
	Interface 2 – Release 2	Application X can interact with system B
	Interface 3 – Release 3	Application X can interact with system Z
Enhancements to Application Z	Requirements and Design	
	Release 1	Base functionality
	Release 2	Additional functionality
Interface Between Application X and Application Z	Requirements and Design	
	Interface 1 – Release 1	
	Simultaneous with Release 3 of Application X	Application X can interact with Application Z

¹⁷ Pursuant to FAR 39.103, to the maximum extent practicable, deliveries under the contract should be scheduled to occur within 18 months after issuance of the solicitation. (Modular contracts for IT should, to the maximum extent practicable, be awarded within 180 days after the date on which the solicitation is issued. If award cannot be made within 180 days, agencies should consider cancelling the solicitation.)

C. Key Principles

There are several general principles agencies should apply to realize the intended benefits of modular development:

- Agencies should share-first, focus on reusability and leverage projects across the organization;
- IPTs should be formed to identify the functional, technical and other capabilities and characteristics required to make each project's product or deliverable viable and useful;
- End users should be involved early and throughout the development process. Requirements and designs may mature as the understanding of the users' needs matures;
- The IT Project Manager's team and the Contracting Officer's team should collaborate early in the requirements definition process. It is especially important for the teams to collaborate on the design of the modular development approach and to develop the acquisition strategy that can best be applied to deliver the intended results;
- The IT Project Manager should use the input from the IPT, end users, and Contracting Officer in the development of the Exhibit 300, which explains the agency's justification for the investment;
- Proper governance should be provided to oversee the investments' and projects' progress and results. Agencies are required to establish cost, schedule and measurable performance goals for all major acquisition programs, and achieve, on average 90 percent of those goals;¹⁸
- Cost and schedules should be managed at the project and activity levels, and cost and schedule targets should be developed for each activity;
- Performance measures and outcomes should be defined early in the process, and should be monitored throughout the process through the established governance structure.

D. Risk and Challenges in Modular Development

Modular development is not a one-size-fits-all strategy. While a modular approach addresses many risks, it also creates certain predictable challenges that should be anticipated in evaluating whether it is suitable for a given investment. Table 4 identifies some of the challenges agencies can expect to face when using modular development strategies. If a decision is made to proceed with a modular approach, these challenges should be addressed by the IPT in the Risk Management Plans at the investment and project levels.

Table 4: Challenges in Modular Development

Challenge	Description
Outdated risk management process	Risk management processes may be aligned to the traditional waterfall approach and may require updating.
Integration	The more projects, the greater the potential challenge to integrate the parts (and the contractors if there are different contractors performing different parts); gaps may develop in responsibility and accountability.
Communication	Compartmentalized work may introduce complexity in communications without a strong IPT.
Acquisition workload and schedule	Each project potentially creates additional workload for the acquisition workforce (e.g., such as awards of iterations in a short time frame) and can add to the total time required to deliver a capability.

¹⁸ Federal Acquisition Streamlining Act of 1994, Title V (FASA V) and Clinger-Cohen Act Sec. 5122.

While a modular development approach can allow agencies to implement new technologies within an investment, agencies cannot operate outside of the enterprise architecture. The decision to implement a new technology must be right for the agency and incorporated into the agency's future architecture, as reflected in project documentation and the agency's annual Enterprise Roadmap.

V. Modular Contracting for IT: Tools and Strategies

Modular development is designed to help position an agency's customers, also known as end users, to realize usable capabilities more rapidly. However, achieving timely results requires the contracting cycle to be in alignment with the technology cycle of modular development, which may range from 3 months to 18 months, as described in Table 2. Use of modular contracting practices (see Figure 3) can help an agency achieve these timeframes and eliminate the costly lag between the time when the Government defines its requirements and when the contract begins delivering workable solutions.

Modular contracting is defined in the FAR as the *"use of one or more contracts to acquire information technology systems in successive, interoperable increments."*¹⁹ This section of the guidance discusses the strategies and practices that are best suited to support the high level of responsiveness that agencies need for modular development of IT requirements.

The acquisition concepts listed below, and described in greater detail in the balance of the document, are first steps an agency can take to support an organization's adoption of modular IT development principles. These concepts may be applied not only to individual projects (e.g., base system, reporting module, system interface) but also activities within projects (e.g., migration of legacy data, ad-hoc reports).

A. Contracting Approaches Suitable for Modular Development

There are a variety of ways in which agencies can structure their acquisition strategy to effectively support modular development. These include indefinite-delivery indefinite quality (IDIQ) contracts, a single contract with options, successive contracts, and performance-based work statements. Each type of contract has benefits and limitations unique to modular development, as described in the sections below.

¹⁹ Federal Acquisition Regulations, 39.002 Definitions: https://www.acquisition.gov/far/html/Subpart%2039_1.html

Figure 2: Checklist for Aligning Contracting Practices and Modular Strategies for IT Development

- ❑ Structure contracts to support the level of responsiveness that agencies require for a given project or activity.
- ❑ Describe work in a manner that allows contractors to perform due diligence and agencies to take advantage of the expertise and innovation that contractors can provide to support agencies as they meet mission needs.
- ❑ Use payment strategies that effectively incentivize contractors to provide the best value for a given project or activity.
- ❑ Take advantage of competition on contracts and task orders to generate alternative solutions from which the agency may select the best value.
- ❑ Include contract terms and conditions that effectively protect the Government's interest, including appropriate data rights.
- ❑ Take advantage of existing contract vehicles before looking to create new ones and consider providing capacity for other agencies when creating new vehicles.
- ❑ Provide maximum, practicable opportunities for small businesses and other targeted socio-economic groups (e.g. small disadvantaged businesses, women-owned small businesses, veteran-owned small businesses, service-disabled veteran-owned small businesses, and small businesses in historically underutilized business zones).

1. Indefinite-delivery indefinite-quantity (IDIQ) task and delivery order contracts

IDIQ contracts are likely to be the most popular contracting form as agencies migrate to modular development approaches. Under an IDIQ contract, the agency awards an “umbrella” contract to one or more contractors with a statement of work that describes the general scope, nature, complexity and purposes of the goods or services to be procured. The agency then places orders for specific goods or services within this general scope of work as needs arise. IDIQ contracts may be particularly advantageous when the scope of all subsequent projects cannot be clearly defined when the contract is first awarded.

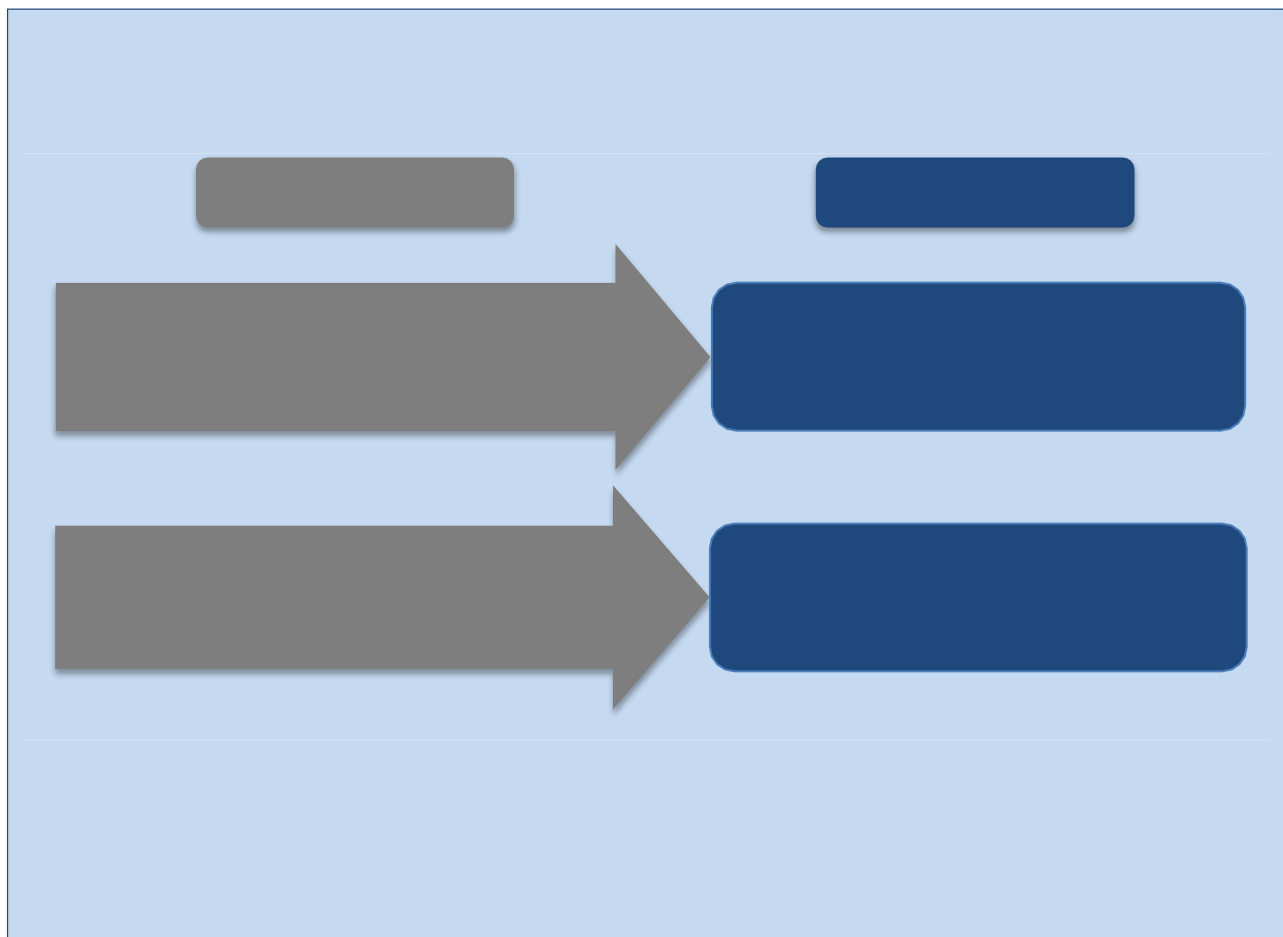
Using IDIQ contracts in modular development can:

- Allow the agency to issue small orders for short time periods to fulfill specific project development needs within six month intervals as well as rapid response activities in 90 day periods (e.g., one release every 90 days rather than two releases together after six months). An order may provide for delivery of an individual project, negotiated with or competitively awarded to a qualified vendor or group of qualified vendors on the contract;
- Provide a high level of acquisition responsiveness, as agencies avoid the time and expense of having to compete and award a series of successive, stand-alone contracts (e.g., each with their own terms and conditions, pricing, and contractor qualification requirements);
- Accommodate the full spectrum of the system lifecycle with multiple contract line items (CLINs) that provide both development and operational products and services. Development activities may include requirements specification, architectural design, and software design and development;

- Mitigate the agency’s legal and financial exposure, as the Government is only obligated for a stated minimum. Future obligations may be made when requirements are clearer or when the agency has resources to acquire additional functionality;
- Increase opportunities to set aside orders for small businesses;
- Provide maximum flexibility and increased competition when using multiple award and hybrid-type IDIQ contracts (discussed below).

In 1994, the Federal Acquisition Streamlining Act modified procurement laws to clarify that agencies may make multiple awards under the same solicitation for more than one IDIQ contract, known as multiple award contracts. Multiple award contracts allow agencies to conduct streamlined mini- competitions between contract holders who must be given a “fair opportunity to be considered” for each order over the micro-purchase threshold, currently \$3,000. This authority has significantly enhanced the utility of IDIQ contracts, both by giving agencies a means to generate efficient competition and by allowing agencies to consider a broader range of market-based solutions under one vehicle for each identified increment of work without being forced to negotiate on a sole source basis for technology refreshment and other needs. It has also made it easier to facilitate interagency acquisition through Government-wide acquisition contracts (GWACs), multi-agency contracts, and the Federal Supply Schedules managed by the General Services Administration (GSA). (See Subsection E for additional discussion.)

Figure 3: Moving from a Traditional to Modular Approach



2. Single contract with options

Award of a single contract with options may be beneficial when the integration effort will involve unique skills obtainable only through the success of previous projects. Agencies must take care to ensure that competition among all potential bidders is fair and that all options are priced with the proposal. Providing that the industry is able to identify prices and the Government is able to effectively evaluate them, a single contract can be a good tool to support modular acquisition.

3. Successive contracts

Successive contracts may be appropriate when there is sufficient time to award successful individual contracts, the administrative cost is outweighed by the potential cost/technical benefits derived from the competitive marketplace, and where contractor continuity is not a predominant concern. This approach allows the agency to distribute risk among multiple contracts.

Figure 4: Distributing Risk Between Multiple Contractors to Support Modular Development

The Veterans Benefits Management System (VBMS) is improving service to Veterans by migrating from a paper-intensive process to an entirely electronic system for processing disability claims from submission to payment. VBMS was designed to provide a stable, scalable technology infrastructure and a business process that empowers Regional Offices to process even the most complex claims more efficiently. In developing VBMS, a large and complex system, VA decided to break the scope into pieces that were more easily managed individually allowing the agency to focus its attention on the specific outcome assigned to each of the contracted project. This allowed industry partners to bid on work with particular specialization and core competencies. Once the system projects were defined, the VA competitively awarded individual stand-alone contracts to eight different vendors to provide the various functionalities required for the system. The chart below shows the various projects and the functionality provided by each project. Other contracts were included for services and projects that did not provide direct user functionality, such as for architectural, security, documentation, program management, and deployment support services applicable to all projects.

#	Project	Functionality	Contractor
1	Systems Engineering, Integration, & Test Support (SEITS)	Provide systems engineering (SE), integration, and test support	A
2	Virtual Regional Office (VRO) Application Development	Develop customer interface screens and claims processing management software application	A
3	Scanning Prototype	Develop initial document scanning capability	B
4	Scanning System Development	Develop high-volume scanning capability	C
5	Correspondence System	Develop application for communicating (via messages) a claim's status at various stages	D
6	Rating Board Automation (RBA) Modernization	Develop software application for assessing ratings to be applied to disability claims	E
7	VBMS Phase 2 (P2) Development	Provide P2 development engineering services	A
8	VBMS Phase 3 (P3) Development	Provide P3 development engineering services	C

This approach requires an IPT in which all the members understand the overall investment strategy and how each of the modular acquisitions fit into that strategy. It also may be more complicated to administer this number of acquisitions for one investment, but it provides opportunities for the agency in terms of quality, cost, schedule and other factors that may be equally important.

4. Performance-based Work Statements

An agency faced with a complex system development effort will typically find that it initially can describe only the high level goals and desired outcomes of the overall investment and requires the near immediate expertise of a contractor to help the agency in gaining a better understanding of the types of solutions that can best address its challenges. To support modular software development, for example, an agency may need contractor support to build prototypes, analyze feedback from customer focus groups, and develop system documentation. An agency can improve its ability to acquire the best support and smartest solutions by using a performance-based statement of work, also known as a performance work statement (PWS), that describes desired mission-related outcomes,²⁰ rather than how the work is to be performed. Further, by tying payment to the contractor's successful achievement of measurable performance standards, it incentivizes the contractor to be efficient and effective.

The PWS used to support award of the underlying contract and initial project can be refined to reflect advances in thinking by program and IT personnel that is gained from customer feedback on early development work and analyses from the contractor. If an IDIQ contract or BPA is used, the PWS for the individual order would be finalized just before the requirement was issued to the vendor community, allowing maximum refinement. This approach allows the Government customer to identify course corrections in a more timely manner and obtain software that meets the customer's requirements in a shorter timeframe.

If modular development is being used to replace a legacy system, a PWS may be especially helpful to support a project under the investment for acquiring services associated with development of the base system, or initial capability. However, a PWS may be less suitable for a follow-on project on the same investment if end users wish to be more prescriptive in their depiction of work. Based on experience, for example, end users may be able to describe the desired design for canned reports and ad-hoc reports, which would be activities or releases under the reporting project.

A number of agencies have successfully used PWS's to support agile software development. The appendix includes a sample PWS. Figure 5 illustrates how one agency successfully used a PWS to support the agile development of a tool to monitor grantee performance.

Figure 5: Using a Performance Work Statement to Support Modular Development

The Department of Agriculture (USDA) created a tool to assist the agency with monitoring grantee performance in the Women, Infants and Children (WIC) program. USDA took advantage of agile development techniques and modular contracting to support the rapid development and delivery of this software. These techniques were facilitated through a PWS.

Instead of laying out a detailed prescription of technical requirements, the agency:

- Identified the goals and the desired outcomes of the development effort;
- Outlined the expected performance standards;
- Requested a certain number of requirements sessions and focus group sessions with the customer;
- Received system documentation as deliverables for fixed price payments; and
- Requested five "build iterations" of software development.

²⁰ FY 2013 Exhibit 300 A-B Guidance, page 5

The agency used focus group sessions to develop the broad scope of the program. Requirements gathering sessions allowed the agency to learn from end users and map out use cases. The agency used quality assurance sessions for final development based on customer feedback. Customers provided feedback through the development of software iterations, functional “builds” of the software.

Based on these cycles of information gathering and feedback from end-users, the contractor developed the details that comprise the finished product and allowed the agency to avoid some of the potential shortcomings of a traditional approach, which would have involved agency experts developing detailed requirements based on their program needs, without the benefit of a contractor’s technical expertise – a process that can lead to long delays and increased costs if the generated requirements are not technologically feasible. Instead, the two groups collaborated to ensure that program needs were met in the most technologically appropriate, cost-effective manner.

The agency successfully deployed a Management Evaluation Tool in the first year, which was expanded the subsequent year to meet requirements from the Summer Food Service Program and the Financial Management Review process. Each deployment was a successive project or increment to build momentum, and was deployed in 6 months or less.

Irrespective of whether the agency is using a performance-based acquisition, agencies should consider whether the magnitude of changes to a work statement require them to reach out to the industry to have additional competition. Specifically, competition would be required if changes to the work statement were so substantial as to exceed what unsuccessful bidders to the initial solicitation could have anticipated. In this case, they may have submitted different technical and cost proposals to satisfy the requirement. Of course, competition would also be required if a change is outside the scope of the original contract.

To ensure the contractor does not perform inherently governmental work, the agency should carefully delineate the roles and responsibilities of the contractor in the solicitation. It may identify the types of decisions expected to be made and ensure that Federal employees oversee and make final decisions regarding the disposition of the requirements. These actions will ensure the contractor’s work does not become so extensive or close to the final agency product as to effectively preempt the Government officials’ decision-making process, discretion, or authority.

The contract administration team must also watch for “scope creep” where work is added to the contract that is not necessarily related to the program’s requirements. Such augmentation can lead to wasteful cost overruns and unnecessary delay in work schedule.

The agency should also be mindful of potential organizational conflicts of interest (OCIs). If a vendor helps to develop or draft the specification for a future procurement (e.g., a software project developed as part of a larger enterprise-wide architectural effort), the agency must consider whether OCI rules prohibit that vendor from competing for that future procurement to ensure the contractor’s advice in shaping the requirements document remains impartial and does not provide an unfair competitive advantage during competition.

Finally, service level agreements (SLAs) or other performance metrics should be used to spell out specific levels of service (e.g., minimum acceptable service level, target service level); performance standards applicable to each level of service; how service will be measured; the weight assigned to each measure; the frequency of measurement; and the office responsible for measurement. The sample in Figure 6 illustrates how an SLA could be used to support testing and integration.

Figure 6: Sample Service Level Agreement

Service Description: This SLA measures performance for integration and test timeliness, and the quality of commercial off-the-shelf (COTS) hardware and software.

Performance Measure Description: Provision of test networks, platforms, software, databases, and simulation software with sufficient capacity to model the agency's production and user workload.

Timely completion of COTS hardware, software, and system integration testing.

Timely completion of application release testing for normal and emergency releases. Test completion is either validating that the application meets test requirements or returning the application with an analysis of problems that prevent system acceptance.

Who: Computer and Systems Management Organization Group

Frequency: Monthly

Where Measured: Agency Headquarters

How Measured: Service Level reporting will be derived from the integration, test and acceptance activities; the approved change management request; Enterprise Test Center (ETC) logs; and summaries of the number of applications or systems received for testing, the number of applications or systems tested, the number accepted, and the number returned for rework. This will be reported on a monthly basis. A comparison of the integration, test and acceptance activities, the approved change management request and any resulting problem ticket will be used to identify a negative impact to the agency processing environment. Statistics for release tests will be provided in weekly status reports and in monthly Contract Data Requirements Lists (CDRLs).

Performance Standard Applicable to Each Level of Service: Prime Hours 0700 to 1800 daily, Monday to Friday and 0800 to 1700 Saturday.

Level of Service: Committed Level is Completion of 93% of regular application release testing within two weeks of submission and 93% of emergency release testing within 4 days of submission.

Incentive/Disincentive: Incentive applies if 95% of regular system and application release testing is completed within two weeks of submission and release is successfully introduced in the production environment as measured by a Severity 1 or 2, and if 95% of system and emergency release testing is completed within 3 days of submission, or by the scheduled completion date, and the release is successfully introduced in the production environment as measured by a Severity 1 or 2.

Disincentive applies if committed level is not met, or if any release that is approved by the Enterprise Test Center (ETC) causes a Severity 1 or 2 outage as a result of inadequate testing through the release process in the ETC.

B. Payment Strategies

Agencies should select a payment strategy that effectively incentivizes the contractor to provide the best value for a given project or activity. To do so, agencies must give careful consideration to the level of uncertainty regarding their requirements. The greater the certainty, the more likely an agency can successfully use a *fixed-price arrangement* where payment is tied to the delivery of a completed product or service. The greater the uncertainty, the more likely an agency may need to consider a *cost-reimbursement* or *time-and-materials* arrangement where payment is tied to costs incurred and more risk is assumed by the Government. As explained below, these different strategies may be combined in a "hybrid" contract that supports a particular project so that agencies have access to different payment strategies that match the level of uncertainty associated with different projects and activities.

Whenever possible, agencies should employ strategies that encourage up front due diligence so that vendors can come up with lower risk solutions that can be met with fixed-price contracts at the earliest feasible point in the acquisition lifecycle, thereby limiting the need to resort to riskier contracting forms.

1. Fixed-price contracts and task orders

In fixed-price contracts and task orders, price is negotiated before award and payment is tied to the delivery of a completed product or services. Fixed-price arrangements should be used for the acquisition of COTS and development services for software projects or increments where the Government knows the specific functional characteristics that will satisfy its objectives. In these situations, fixed-price contracts provide the greatest incentive for the contractor to control costs and perform effectively.

2. Cost-reimbursement contracts

Cost-reimbursement contracts are appropriate when uncertainty in the requirement and the risk of failure cannot be managed by the contractor within economically reasonable bounds. This uncertainty may be due to lack of knowledge regarding the effort needed to meet a defined requirement, including the Government's and industry's lack of cost experience in performing the work. Alternatively, the uncertainty may be due more fundamentally to a lack of knowledge about what is possible and practical, as is often the case with research or leading-edge innovation.

In recognition of the risk associated with paying an agency for its best efforts rather than delivery of a completed product or service, the FAR now requires, if a cost-reimbursement contract is used, that documentation in the acquisition plan or contract file explain why the particular contract type was selected; how the Government will manage and mitigate risk; and how the Government will minimize the use of other than firm-fixed-price contracts on future acquisitions for the same requirement and transition to firm-fixed-price contracts to the maximum extent practicable. The rule also requires approval of the acquisition plan (e.g., where one is required) for other than firm-fixed-price contracts at least one level above the contracting officer and designation of a properly trained contracting officer's representative prior to award of the contract or order.²¹

3. Time-and-materials and labor-hour contracts

Time-and-materials (T&M) and labor-hour (LH) contracts may help agencies accomplish tasks for a reasonable cost where the needed amount of labor effort cannot be specified in advance, such as when an IT office must diagnose the cause of a system failure or an agency is reacting to an emergency. Before an agency uses a T&M or LH contract, or places a T&M or LH order (e.g., including under GSI's Federal Supply Schedules), it must make a determination that it is not possible at the time of placing the contract or order to accurately estimate the extent or duration of the work to anticipate costs with any reasonable degree of certainty and no other authorized contract type is suitable.²² Because a T&M or LH contract provides no positive profit incentive to the contractor for cost control or labor efficiency, appropriate Government surveillance of contractor performance is required to give reasonable assurance that efficient methods and effective cost controls are being used.

Over time, experience should generally enable the agency to address these uncertainties, making it possible to convert to a fixed-price contract that creates a better incentive to provide the desired products or services within time and on budget

4. Incentive contracts

²¹ See FAR Case 2008-030, available at <http://www.gpo.gov/fdsys/pkg/FR-2012-03-02/html/2012-4481.htm>

²² FAR 8.404(h)(3) (for acquisitions under the Federal Supply Schedules), 12.207(b)(1) (for acquisitions of commercial items), and 16.601(d) (for non-commercial item acquisitions).

Consistent with the December 2007 Memorandum concerning the *Appropriate Use of Incentive Contracts*,²³ agencies have the authority to use different types of incentives (e.g., both cost and non-cost) in conjunction with fixed-price and cost-type contracts to motivate greater cost control and better performance. There are three main types of fees: (1) incentive fees; (2) award fees; and (3) fixed fees. An agency might use an objective incentive fee when cost and performance targets can be predetermined and a formula can be used to adjust the negotiated fee based on variations relative to objective targets. If it is neither feasible nor effective to devise predetermined objective incentives for cost, technical, performance, or schedule, an agency might consider an award fee or a fixed fee. In an award fee contract, the amount of fee earned is commensurate with the contractor's overall cost, schedule, and technical performance, as measured against contract requirements in accordance with the criteria stated in an award-fee plan (e.g., fee goes down proportionate to delay of code delivery). Agencies must take appropriate cautions to ensure that no fee is paid if overall performance is below the satisfactory level and that contractors are not given a second chance to earn fees in a subsequent performance period that was not earned initially (a practice known as "roll over"). Fixed fees are negotiated at the inception of the contract, do not vary with actual costs, and leave most of the risk with the Government.

5. Hybrid contracts

An agency undertaking a large-scale IT project should be able to reduce inefficiency and waste by using a "hybrid" contract that allows the agency to achieve a better match between the requirement and how the work is priced. Work for which there is a basis for firm pricing can be awarded for a firm-fixed price while requirements for which there remains considerable uncertainty can be acquired on a cost, T&M or LH basis. IDIQ contracts can be structured as hybrid contracts to allow the agency to choose between a fixed-price, cost-reimbursement, T&M or LH basis for the payment of different increments or activities within increments. As illustrated in Table 5, an acquisition office could use a hybrid contracting model to include contract line items with different pricing strategies so that an agency could, for example, buy studies of early design on a cost or T&M or LH basis, later design and initial development using a cost-plus incentive fee arrangement, and initial and full scale production for a firm-fixed price.

Table 5: Example of the Type of Pricing Flexibility a Hybrid Contract Might Authorize

Contract Line Item Number (CLIN)	Pricing Strategies
System Design	Cost-plus-fixed fee (CPFF), Cost-plus-award fee (CPAF), T&M, or LH
System Requirements Analysis	CPFF or CPAF
Software Coding	Fixed-price or Cost Plus Incentive Fee (CPIF)
Software Testing	Fixed-price or CPIF

In the case of the hypothetical example in which the agency is replacing a legacy system discussed in the section above, base functionality, migration of legacy data, and systems interface activities might be paid for on a T&M, LH, CPFF, or CPAF basis, whereas the development of canned and ad hoc reports might be paid for using a fixed-price arrangement.

²³ Appropriate Use of Incentive Contracts, December 4, 2007:

http://www.whitehouse.gov/sites/default/files/omb/assets/omb/procurement/memo/incentive_contracts_120407.pdf

A hybrid contract may require additional monitoring to ensure payment is made in accordance with agreed-upon terms (e.g., overruns created by performance inefficiencies on work awarded for a firm-fixed price must not be charged to a cost-reimbursement line item).

C. Use of Competition

Available contracting tools offer a number of ways to take advantage of marketplace competition.

1. Multiple award contracts

As explained above, multiple award contracts allow agencies to conduct streamlined mini-competitions between contract holders who must be given a “fair opportunity to be considered” for each order.

Multiple award contracts may be structured to support awards under the same umbrella contract for different projects and/or activities. For example, one competition could be conducted for design, training, and testing while another is conducted for development. Making awards to different vendors may introduce some creative tension within the project and eliminate the possibility that any vendor would have a continuing monopoly with any application or system. Similarly, competitions for different types of projects or activities may emphasize different values. For example, quality may be identified as the most important factor in a competition for architectural design, while price might be identified as being of equal or greater value for independent verification and validation services.

In a multiple award IDIQ the “contracting officer *may exercise broad discretion in developing appropriate order placement procedures/ Contracting officers may use streamlined procedures, including oral presentations. If the order does not exceed the simplified acquisition threshold, the contracting officer need not contact each of the multiple awardees under the contract before selecting an order awardee if the contracting officer has information available to ensure that each awardee is provided a fair opportunity to be considered for each order.*²⁴

Contracting officers should consider including on-ramp and off-ramps in their contracts to ensure adequate competition for requirements, increase available alternatives, and encourage the best price proposals. On-ramps would allow the Government to have an open season to attract new contractors and capabilities to the contract. Off-ramps would allow the Government to remove contractors that have not been successful in securing work or performing at a satisfactory level.

2. Single award contracts

While competition saves money for the taxpayer and improves contractor performance, ongoing competitions can create burden for an agency and can also serve as a disincentive for a contractor to invest seriously in a project for the long-haul. There are a number of situations where a single award “soup to nuts” IDIQ contract (or single award BP!) will be preferred to a multiple award approach, such as where the expected cost of administration of multiple contracts outweighs the expected benefits of making multiple awards, the projected orders are so integrally related that only a single contractor can reasonably perform the work, or, based on the contracting officer’s knowledge of the market, more favorable terms and conditions, including pricing, will be provided if a single award is made.²⁵ Where a single award task order contract is established, the project can still be sub-divided into sub-projects. By

²⁴ FAR 16.505(b)(ii).)

²⁵ FAR 16.505(c)(1)(ii)(B).)

issuing an order for each sub-project, the contractor can be held to meeting minimum performance standards before being allowed to move forward to the next sub-project.

Pursuant to law and regulation, a single award IDIQ contract cannot have a ceiling that exceeds \$103 million (including all options) unless the head of the agency determines in writing that: (i) the task or delivery orders expected under the contract are so integrally related that only a single source can reasonably perform the work; (ii) the contract provides only for fixed-price task or delivery orders for products for which unit prices are established in the contract for the specific tasks to be performed; (iii) only one source is qualified and capable of performing the work at a reasonable price to the Government; or (iv) it is necessary, in the public interest, to award the contract to a single source due to exceptional circumstances.²⁶

D. Provisions and Clauses

When awarding a modular contract, agencies should include provisions in their solicitations and clauses in their contracts that reinforce modular principles, such as a requirement to provide specific functionality that delivers value to the customer within a specified period of time after a work order is issued, and a requirement that ties subsequent work to the acceptable delivery of prior releases. The Appendix includes sample language that might be included in a statement of work addressing a variety of issues associated with either developing the current requirement (e.g., focus groups) or ensuring that the current requirement will work with future requirements (e.g., scalability, interfacing). In addition, the FAR provides guidance for when and how to use provisions and clauses to address a number of issues regarding the resulting business relationship (e.g., use of incentive or award fees to motivate greater cost control and better performance).

Figure 7 provides a sample checklist of issues for agencies to consider as they develop terms and conditions for their solicitations and contracts. If modular contracting or streamlined development methodologies are new to the agency or the requiring office, early vendor engagement is strongly encouraged.

Figure 7: Terms and Conditions - Sample Checklist

Issue	Language and/or Guidance Source
<input type="checkbox"/> Focus groups	<i>See Appendix</i>
<input type="checkbox"/> Requirements gathering sessions	<i>See Appendix</i>
<input type="checkbox"/> Quality assurance sessions	<i>See Appendix</i>
<input type="checkbox"/> Build projects	<i>See Appendix</i>
<input type="checkbox"/> User acceptance testing	<i>See Appendix</i>
<input type="checkbox"/> Data portability	<i>See Appendix</i>
<input type="checkbox"/> Modular interface capability (e.g., application protocol interfaces, etc.)	<i>See Appendix</i>
<input type="checkbox"/> Content segregation	<i>See Appendix</i>
<input type="checkbox"/> Scalability	<i>See Appendix</i>

²⁶ FAR 16.505(c)(1)(ii)(D).

❑ Incentive and fee arrangements	See FAR 16.204 – Fixed-price Incentive Contracts See FAR 16.304 – Cost-plus-incentive-fee Contracts See FAR 16.4 – Incentive Contracts
❑ Conflicts of interest	See FAR 3.11 – Preventing Personal Conflicts of Interest for Contractor Employees Performing Acquisition Functions See FAR 9.5 – Organizational and Consultant Conflicts of Interest
❑ Ownership of software developed under contract	See FAR 27 – Patents, Data, and Copyrights
❑ Ownership of data developed or derived from the effort of the contractor	See FAR 27.4 – Rights in Data and Copyrights

Contract clauses are only effective if used in conjunction with a sound contract management approach. Contracts for modular development require the Contracting Officer, Contract Specialists, and Contracting Officer Representatives to ensure that contractors perform to established cost, schedule, and performance goals for each project. When a contractor misses deliverables – or performs well – the contractor’s performance must be documented in the Contract Performance Assessment Reporting System (CPARS) for storage in the Past Performance Information Retrieval System (PPIRS) where contracting officers may access and consider it in future contract award decisions. In the case of multiple award contracts, contractor performance may be considered in determining award of subsequent orders under the contract.

E. Additional Acquisition Considerations

1. Using established intra-agency or interagency contract vehicles

A number of agencies manage large interagency contracts for IT products and services that are available for use by other agencies. By considering the suitability of existing intra-agency and interagency vehicles before creating new ones, an agency can avoid the unnecessary expense of redundant planning and administration of separate stand-alone contracts, and also reap the benefits of the Government’s buying leverage, especially for commodities.

Interagency vehicles that should be considered before awarding a new contract include the following:

- General Services Administration (GSA) Federal Supply Schedules;
- Government-wide Acquisition Contracts (GWACs);
- Multi-Agency Contracts.

In terms of GWACs, the GSA, National Aeronautics and Space Administration (NASA) and National Institute of Health (NIH) each have awarded GWACs that may be able to support modular development of agency requirements.

2. Taking full advantage of small businesses

Because the key to modular development is in scoping the projects into smaller, self-contained pieces, the opportunity to award that work to one or more small businesses increases. Modular development and acquisition approaches can help agencies meet small business contracting goals by identifying opportunities for small businesses in the Federal marketplace. Many small businesses in this field have the expertise and capacity to perform individual projects, either as a prime contractor or as a subcontractor. For example, small businesses may be well suited to provide services for independent verification and validation of work performed under projects, security configuration, database tuning, and training, among other things. Contracting officers, small business technical advisors, and the Small Business Administration's Procurement Center Representatives can assist in maximizing the use of small business concerns through full and open competition, set-asides (e.g., where there is a reasonable expectation of obtaining offers from two or more responsible small business concerns that are competitive in terms of market prices, quality, and delivery) and under subcontracting plans submitted by a large business prime contractor.

A number of GWACs have been set-aside for small businesses, including one for small disadvantaged businesses participating in SBI's section 8(a) business development program, and one for service-disabled veteran-owned small businesses. IPTs should consider them when developing the acquisition strategy.

In the fall of 2011, OMB directed agencies to begin accelerating payments to small business contractors.²⁷ Specifically, agencies were instructed to make their payments to small business contractors as soon as practicable, with the goal of making payments within 15 days of such receipt. This policy is reducing the time in which agencies pay small businesses – by up to half in many cases. This is getting money back in the hands of small businesses faster, improving their cash flow and allowing them to reinvest funds in their business.

²⁷ OMB Memorandum M-11-32, Accelerating Payments to Small Businesses for Goods and Services, (September 15, 2011): <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2011/m11-32.pdf>

VI. Appendix: Sample Performance Work Statement

Focus Groups

The focus group will consist of **[Relevant Stakeholders]**. The group will concentrate on capturing the business needs for the **[Project Name]**. **[Number]** focus group sessions will be conducted to obtain the inputs for determining the scope of the project.

Each meeting will include an Agenda as well as a Read-Ahead Package (RAP) to ensure efficient progress. Each meeting will finish with the delivery of meeting notes identifying discussions that transpired during the meeting and assigning any action items to people. There will also be a focus group survey and focus group summary report to be completed for each focus group session. The contractor is required to provide administrative meeting support during the sessions including facilitating the meetings.

Requirements Gathering Sessions

Requirements Gathering Sessions (RGS) are the building blocks for success in this type of project. It is vital that the right stakeholders participate in the RGS and it is equally important that momentum is sustained throughout the overall process. Each **[Stakeholder Category]** will be able to participate in at least **[Number]** RGS.

The objective of the RGSs is to obtain inputs from stakeholders pertaining to the determination and construction of **[Project Features]**. It is imperative that the RGS achieve consensus in the **[Essential Project Features]**. To achieve this, the contractor should focus on using activity diagrams, use case models and use case narratives to identify the normal flow and as many as is reasonable alternate flows.

The contractor shall update and revise the **[Project Status Document]** to reflect the changing state of the application and the business needs.

Quality Assurance Sessions

Quality assurance (QA) sessions are where requirements turn into detailed design. It is in this phase that the pro-forma workflows will be identified and reviewed. Essentially all information that is necessary to build the product is captured in this phase and it is reflected to the stakeholder team for verification. As part of these QA sessions, each **[Stakeholder]** will be required to verify and sign-off on the **[Project Features]** determined in the previous RGSs. The requirements documents will also be verified as part of these sessions.

It is important that the contractor use the information gathered from these sessions to identify the **[Important Project Element]**. It is also important that the workflow for standard correspondence is documented in Microsoft Visio or another standard modeling tool. Finally the **[Contract Deliverable]** shall be delivered and marked as final.

Various test plans suitable to test the application functionality (e.g. for unit test, detailed application test and user acceptance tests) shall also be developed and delivered by the contractor and approved by **[Agency]** prior to the next phase. The test plans shall clearly indicate the timeline and responsibility for various test phases.

Build Projects

Projects are fully functional iterations of an application that allow the contractor and the Government to refine their functions as they perform it and grow more efficient at it. There will be **[Number]** project(s) in which it would have full capability for 25 percent of the **[Customer Population]** in each project. The first project release will need additional time, but subsequent release should be at 35-40 day turnover.

For each release, the contractor shall facilitate a walkthrough meeting in which the functionality that has been delivered is demonstrated to the user community. All **[Stakeholder Group]** are invited to the walkthrough meeting. For each release, the contractor shall invite **[Relevant Customer Population]** to test the application. Customer testing will require a minimum response threshold of **[Percentage]** of the invited population. The contractor will also deliver the release test plan which is a step by step walkthrough of the functionality in the release and allows the user community to make notes and comments regarding how that functionality can be improved and made more useable or error-free. The contractor shall work to correct all errors and increase usability. Comments that are delivered within 5 business days of the release walkthrough shall be included in the subsequent release or the product delivered for **[Agency]** in the event it is the final release.

Each meeting will include an agenda as well as a read-ahead package (RAP) to ensure efficient progress. Each meeting will finish with the delivery of meeting notes identifying discussions that transpired during the meeting and assigning any action items to people. The contractor will facilitate these meetings.

User Acceptance Testing

User Acceptance Testing (UAT) is the final point in which the Government makes the decision regarding whether the functionality that has been delivered is able to be placed in the production environment. All outstanding comments to iterations shall be addressed in the functionality delivered for UAT. The criteria for making this decision with respect to the binary decision about passing UAT will be the agreement that the **[Requirement Standard]** for each requirement in the **[Requirements Document]** has been satisfied, the functionality is consistent with the templates and workflows documented in the QA Sessions and the application has no significant vulnerabilities as identified by the Information Security Office.

A walkthrough, facilitated by the contractor, for the entire user base shall be required. The testing period will commence with no less than **[Timeframe]** for functional testing by the user community. Following the successful completion of functional testing the application will undergo full penetration testing. Provided that has been successfully completed the contractor shall deliver an Installation and Configuration Guide that shall be a very detailed document including screen shots of each step in the process to build and configure the application in the **[Agency]** production environment.

Data Portability

The data must be portable to other systems to facilitate future systems upgrades and changes. Portability does not include alternative operating system platforms. While these changes are not known at this time, the developer is expected to keep data in a format that may be accessed by known components today for export/import into future systems.

Project Interface Capability

The application shall provide notifications of **[User Activity]** to affected users using standard email delivery. Additionally, the application shall send **[Software Prompt]** to reviewers using an Application

Programming Interface (API) set compatible with **[Existing Software Package]** so **[User Activities]** can be automatically recorded in existing configurations.

The application shall interface with existing **[Access Management System]** resources for the purpose of user validation and role identification. The application shall access this resource as a read-only entity.

The application will have access to database resources as needed. The application may use the database for data storage and retrieval and may add appropriate database related controls (e.g., triggers, jobs and stored procedures).

Content Segregation

The **[Agency]** may deploy record management systems around this application in the future. The application is a process management system that maintains status information and work product to support the production of **[Application Output]**. The resulting **[Application Output]** (as well as the incoming **[Application Input]**) may need to be drawn from and saved to a third party record management system. To facilitate this, the system shall be capable of supporting an API set for data inputs (**[Specific Examples]**) and outputs (**[Specific Examples]**). These will not be a part of the initial deployment. The developer shall document these APIs for the **[Agency]**.

Scalability

It is expected that the initial application will be deployed to the current staff for an undetermined trial period. Based on the success of the trial period, the application may be deployed for a larger user base. This level of expansion will require the application to be scalable beyond a single **[Branch]** organizational structure. The software and final detailed design will need to detail and provide for this potential expansion.