



# Capital Planning and Investment Control

Office of the Chief Information Officer  
Capital Planning and Investment Control Team

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U.S. Nuclear Regulatory Commission  
Capital Planning and Investment Control

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**Revision History**

<b><u>Date</u></b>	<b><u>Version</u></b>	<b><u>Summary of Changes</u></b>	<b><u>Author</u></b>
12/28/2015	1.0	Updated CPIC processes to include new requirements from FITARA and to reflect internal organizational changes. This document supersedes previous CPIC process documentation and supplements the "Capital Planning and Investment Control Policy and Overview" posted on the <a href="#">NRC IT Policy Archive</a> at nrc.gov.  ADAMS Accession No. ML15260A904	Vickie Smith, OCIO/PMPD/IPMB  Approved by Darren Ash, CIO
12/31/2017	2.0	Revised the Capital Planning and Investment Control (CPIC) process to include updates to information technology (IT) governance, a new Select phase, additional Chief Information Officer (CIO) roles and responsibilities in incremental development, various updates from the budget year 2019 IT budget/capital planning guidance, modifications to the CIO evaluation process, updates to the appendix, and other minor updates.  ADAMS Accession No. ML	Leah Kube, OCIO/GEMS/PIMB  Approved by Dave Nelson, CIO



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## Background

Capital Planning and Investment Control (CPIC) for information technology (IT) investments refers to “a decisionmaking process that ensures IT investments integrate strategic planning, budgeting, procurement, and management of IT in support of agency missions and business needs.”<sup>1</sup> The Clinger-Cohen Act (CCA) of 1996 requires Federal agencies to use disciplined CPIC processes to acquire, use, maintain, and dispose of IT assets. Specifically, CCA mandates that an agency’s CPIC processes (1) provide for the selection, control, and evaluation of agency IT investments, (2) integrate with the processes for budget, financial, and programmatic decisionmaking, (3) include minimum criteria for considering whether to undertake an IT investment, (4) identify IT investments that would result in shared benefits or costs for other Federal agencies or State or local governments, (5) provide the means for identifying quantifiable measurements for IT investment net benefits and risks, and (6) provide the means for senior management to obtain timely information regarding an investment’s progress. To meet these requirements, CPIC relies on three distinct, yet interdependent, sets of processes—select, control, and evaluate.

More recently, the Federal Information Technology Acquisition Reform Act (FITARA), enacted on December 19, 2014, established additional requirements. The Office of Management and Budget (OMB) issued guidance on implementing FITARA in Memorandum M-15-14, “Management and Oversight of Federal Information Technology,” on June 10, 2015. FITARA builds upon CCA by empowering Federal Chief Information Officers (CIOs) with increased oversight over the following: (1) budget planning, (2) governance structures, (3) portfolio risk management, (4) hiring practices within the IT offices, (5) data center consolidation planning and execution, and (6) reporting progress and metrics to OMB. To build upon and strengthen the CPIC requirements of CCA, FITARA establishes the *Common Baseline for IT Management*, defining the roles and responsibilities of the CIO and other senior agency officials while ensuring the CIO retains accountability.

To further assist agencies with meeting the requirements set forth in CCA and FITARA, OMB issues its annual IT Budget—Capital Planning Guidance as part of OMB Circular A-11, “Preparation, Submission, and Execution of the Budget,” and maintains its supplement, the “Capital Programming Guide,” to assist agencies with the implementation of CPIC processes. OMB Circular A-130, “Management of Federal Information Resources,” provides additional guidance. OMB updates these circulars based on current, relevant statutes and Executive Orders. CCA, FITARA, and associated OMB guidance serve as the basis for CPIC policy, processes, and procedures at the U.S. Nuclear Regulatory Commission (NRC).

The NRC’s CPIC policy set forth in “Capital Planning and Investment Control Policy and Overview” is available in the [NRC IT Policy Archive](#) at nrc.gov.

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<sup>1</sup> Definition provided by the Office of Management and Budget in the Integrated Data Collection Common Definitions. (See 40 U.S.C. § 11302 for statutory requirements and the Clinger-Cohen Act of 1996.)



## Purpose

This document describes the NRC's CPIC processes and provides an understanding of how they support the NRC's information technology/information management (IT/IM) governance. The descriptions of the NRC's CPIC processes include the flow of inputs and outputs between the three distinct, yet interdependent, sets of CPIC processes—select, control, and evaluate. Towards that end, this document supplements the “Capital Planning and Investment Control Policy and Overview” by describing associated tools, techniques, and artifacts. Individual step-by-step procedures used to implement the processes are working documents developed and maintained by the Capital Planners in the Office of the Chief Information Officer (OCIO).

## The NRC's IT/IM Governance

The NRC's CPIC processes are critical to the management and oversight of the agency's IT/IM resources because they implement the means for providing quality information and recommendations to executive decision makers on IT investments for inclusion in the agency's IT portfolio. IT investment management, comprised of the NRC's CPIC and IT budget processes, is part of the agency's integrated IT/IM governance framework. The NRC's CPIC processes support the CIO's involvement in relevant governance boards and ensure that IT investments integrate and adhere to the framework's other disciplines: (1) strategic planning and enterprise architecture (EA), (2) project management methodology (PMM), and (3) information and records management quality principles.

The NRC's CPIC processes also ensure that IT investments are reviewed for compliance with internal cybersecurity standards set forth by the NRC's Information Security Directorate in the OCIO, as well as external cybersecurity standards mandated by the National Institute of Standards and Technology and U.S. Department of Homeland Security throughout their life cycle.

## The NRC's IT Investment Review Boards

The NRC employs various investment review boards to ensure that IT investments are reviewed at the appropriate levels of the organization. The review boards encompass strategic business planning (which occurs at the executive level), program-level systems planning (which occurs across program offices), and technical architecture review (which occurs within OCIO). These two review boards include the IT/IM Portfolio Executive Council (IPEC) and the IT/IM Board (ITB).

### The IT/IM Portfolio Executive Council

The CIO serves as one of the cochair on the IPEC, along with the Chief Financial Officer (CFO). The IPEC is an executive-level IT governance body established to determine the NRC's strategic direction for IT/IM and to manage the agency's IT portfolio by setting current fiscal year (FY) priorities and determining the funding of IT investments that effectively integrate into the IT portfolio, as required by CCA, OMB Circular A-130, the Federal Information Security Management Act of 2002, and other Government requirements. This executive-level IT governance body has established roles, responsibilities, and processes consistent with those required by FITARA. In addition to the IPEC cochair, voting members include the Chief Acquisition Officer, Chief Human Capital Officer, and Chief Information Security Officer,



collectively referred to as “CXOs”; directors of the major program offices; and a Regional Administrator to represent all NRC regional offices. The directors of the major program offices also serve as business line leads in budget formulation and execution, as well as functional/business sponsors of IT investments. In these roles, the IPEC members provide insight into organizational funding needs and describe impacts on the mission should the required funding not be available. As directors of major programs and as CXOs, IPEC members are able to provide valuable input and advice on the many aspects of the NRC’s mission and business needs. Collaboratively, IPEC members provide an enterprise perspective on what is in the best interest of the agency and its mission. The IPEC’s responsibilities are as follows:

- Decide IT/IM direction, values, information security activities, and the agency’s risk tolerance for IT activities to achieve strategic program objectives.
- Approve major investments that will effectively integrate into the IT portfolio.
- Ensure that the agency’s capital plan supports the NRC’s priorities.
- Review the IT portfolio in the year of execution to address current FY priorities.
- Oversee the execution of the portfolio by reviewing the portfolio health on a quarterly basis against established direction, values, and risk tolerance.
- Communicate IPEC discussion and decisions to other NRC boards and committees.

### **The IT/IM Board (ITB)**

The CIO established the ITB as a management-level review board to review and recommend changes to the agency’s IT portfolio based on the NRC’s mission and business needs. The mission of the ITB is to align IT investments and technology standards with the NRC’s strategic plan and architecture portfolio; provide resource, investment, and priority recommendations to the IPEC; and ensure that IT investments are made according to the agency direction set by the IPEC. The ITB reviews new proposals and current IT investments to ensure the following:

- alignment with the IPEC priorities, agency’s strategic direction, and budget
- ability to integrate into the NRC’s IT architecture
- conformance with technology standards
- identification of potential risks to the NRC environment.

The ITB leverages the expertise of subject matter experts (SMEs) for technical reviews. The ITB reviews are also supported and facilitated by the NRC’s CPIC processes and team. The Capital Planners work closely with the Integrated Program/Project Teams (IPTs) of existing investments to execute Control and Evaluate processes that inform ITB reviews. ITB reviews can result in minor corrective actions or in recommendations to the IPEC for matters warranting executive decision.



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To support ITB reviews of new proposals, the Capital Planners facilitate SME reviews, the Pre-Select process, and the Select process, based on input provided by office-level stakeholders. The Capital Planners will ensure that there is proper facilitation through the entire IT governance process and that the most viable solution to meet the business need is considered for inclusion in the NRC's IT portfolio. As the secretariat of both the IPEC and the ITB, the Capital Planners facilitate the meetings of both boards and acts as a channel for communicating information, recommendations, and decisions between boards and among stakeholders.





## Capital Planning and Investment Control

The NRC recognizes that IT investment management is dynamic. As such, IT investments are selected and continuously monitored and evaluated to ensure that each IT investment in the NRC IT portfolio effectively and efficiently supports the agency's mission and strategic goals. The NRC CPIC is designed to facilitate sound IT governance and the maturation of the agency's IT investment management. The NRC's CPIC model in Figure 1 relies on three distinct, yet interdependent, sets of processes: select, control, and evaluate.

All three are applied concurrently to an IT investment once it becomes part of the NRC IT portfolio. After the IT investment's initial funding in the Select process, it goes through the Control and Evaluate processes for review and re-selection until it is determined that the investment has come to the end of its useful life. Upon this determination, the investment is decommissioned and removed from the portfolio.

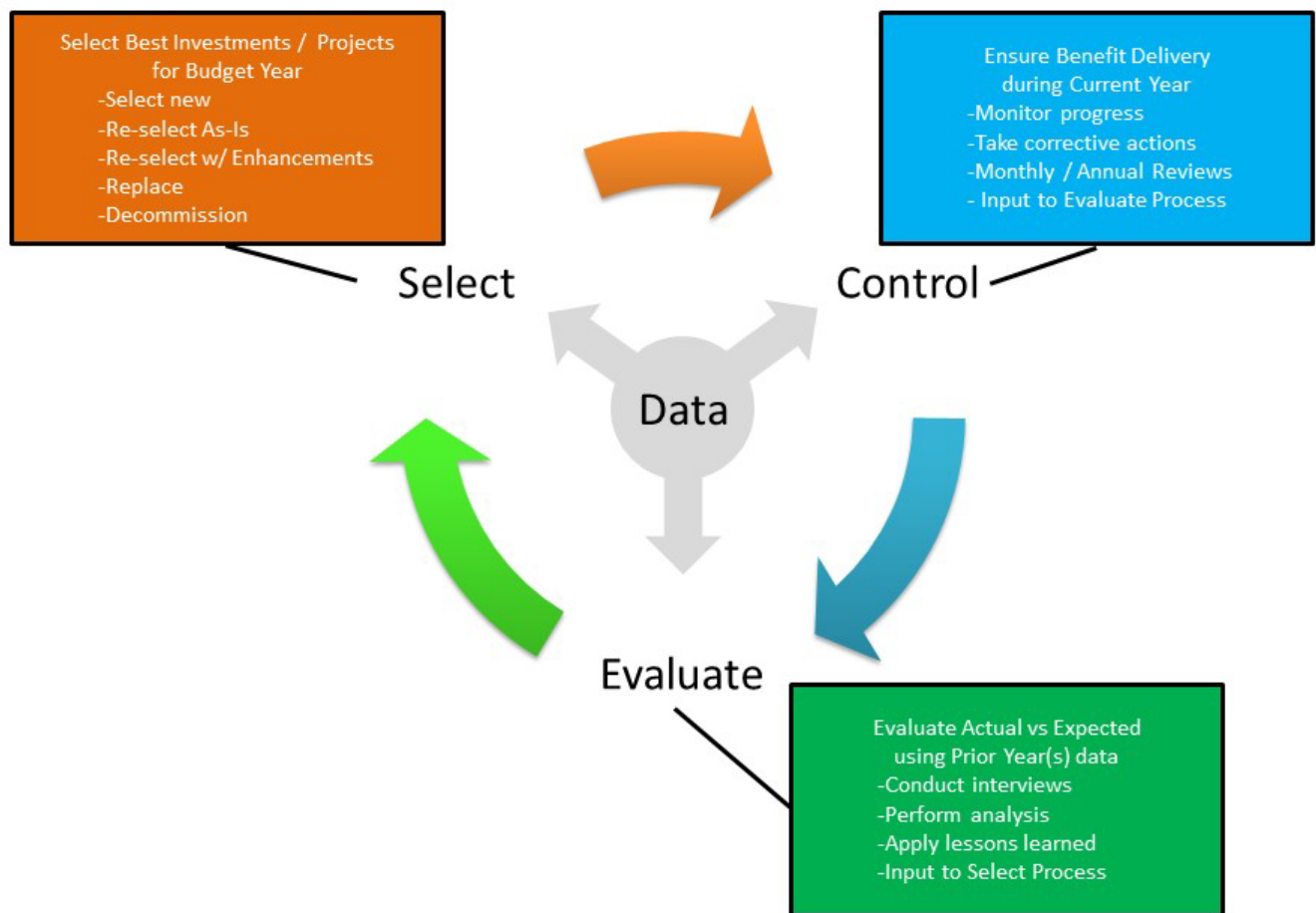


Figure 1 Flow of data between CPIC processes



## Select Process: Screen, Compare, Choose

### Pre-Select and Select Phases

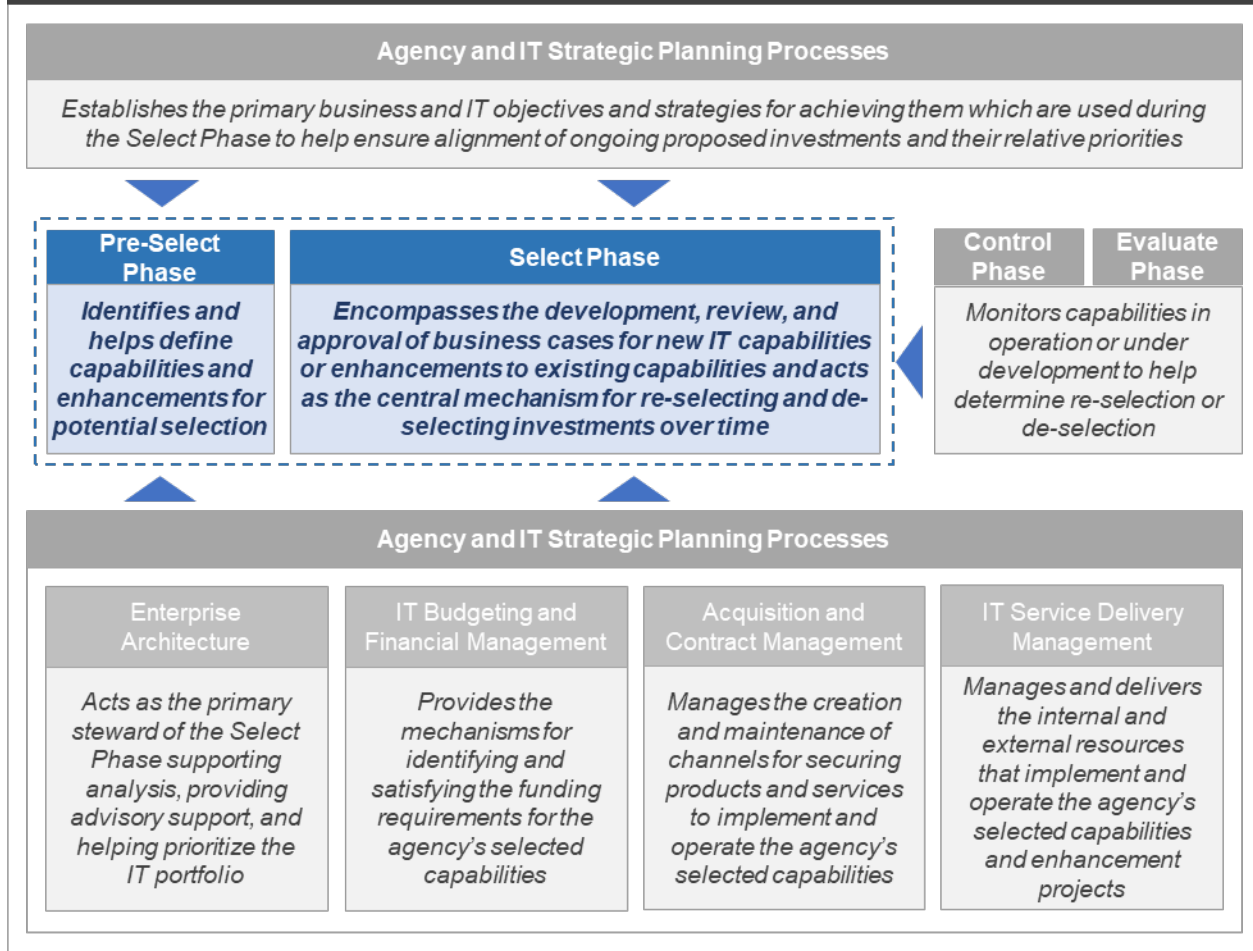
The purpose of the Pre-Select and Select Phases of the NRC's IT investment life cycle is to identify and prioritize requests for new or enhanced IT capabilities that best support the NRC's mission and needs at an acceptable level of risk and cost. Throughout the activities encompassed by these phases, the key objectives include the following:

- identifying and evaluating the efficacy of proposed IT investments relative to the mission of the agency and its strategic plans and priorities
- assessing the risks and returns of each proposed new or enhanced IT capability before committing funds
- validating the proposed investment's alignment with the agency's EA
- selecting those that will best support its mission needs

As illustrated below, the Pre-Select and Select Phases integrate with a wide range of organizational functions and processes designed to ensure the agency leverages its IT funding as effectively as possible.



**Figure: Pre-Select and Select Phase Process Integration Summary**



**Figure 2 Pre-Select and Select Phase process integration summary**

During the Pre-Select and Select Phases, current and potential IT capabilities are evaluated from a business and technical perspective to validate their efficacy and cost relative to potential alternatives. This evaluation represents a critical pillar in conjunction with the agency's Control and Evaluate Phase activities, which support the continuous evolution and optimization of the agency's IT portfolio.

### Key Pre-Select and Select Phase Concepts

Understanding and participating in the agency's Pre-Select and Select Phase processes requires an understanding of several important concepts, including the following:

- (1) the drivers for proposed additions, enhancements, or retirements to the IT portfolio
- (2) phase outcomes, including selection, re-selection, and de-selection of IT capabilities
- (3) portfolio selection versus funding prioritization



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### **Drivers for Proposed Additions, Enhancements, or Retirements to the IT Portfolio**

Proposals for new or enhanced capabilities, as well as retirement of existing capabilities, are driven by several internal and external factors, including the following:

- changes in the agency's broader mission and support objectives
- evolving business and technical strategies
- changes in the agency's required mission capabilities or shifts in priorities
- changes in the agency's regulatory requirements
- new or updated Federal mandates
- trends in the nuclear materials industry
- the evolution of vendor technologies and technical approaches that enable cost reductions or performance improvements
- the sunseting of vendor support for legacy systems or solutions

These factors create a continual requirement for assessment, review, and selection of current and potential IT capabilities, as well as ongoing analysis of new technologies that may increase the efficiency or effectiveness of the agency.

### **Phase Outcomes: Selection, Re-Selection, and De-Selection of IT Capabilities and Enhancements**

The Select Phase results in three primary outcomes for an existing or proposed IT capability or enhancement:

- **Selection.** Approval or disapproval of the addition of a new IT capability or enhancement to an existing capability
- **Re-Selection.** Approval or disapproval for the continued investment and operation of an existing IT capability or ongoing enhancement, which may include one or more additional proposals for desired enhancements to fully realize an IT capabilities benefits
- **De-Selection.** Cancellation or decommissioning of a current capability or ongoing enhancement

Based on the outcome for a given IT capability or enhancement, the agency's IT portfolio is modified to reflect the decision, and funding is adjusted when appropriate.

### **Portfolio Selection Versus Funding Prioritization**

Selection or re-selection of an IT capability or enhancement represents only an initial step in the broader Select Phase. The agency's IT portfolio and its respective funding requirements



generally exceed the funding available; therefore, the agency leverages a prioritization process (described in more detail in Section X) that facilitates the ranking of the NRC's investments within its IT portfolio. This prioritization view of the IT portfolio enables agency leadership to continuously align the NRC's ongoing IT capabilities with the agency's priorities.

### Roles and Responsibilities

To function effectively, the Pre-Select and Select Phases require a multidisciplinary team of functional roles that reside across the agency's mission and corporate support organizations. Table 1 summarizes the primary functional roles associated with the agency's Pre-Select and Select Phase processes.

**Table 1 Primary Functional Roles of Multidisciplinary Team**

<b>Role</b>	<b>Responsibility</b>
<b>Agency IT Budget Lead</b>	<ul style="list-style-type: none"><li>• Supports the assignment and adjustment of funding to selected IT capabilities and enhancements within the IT budget consistent with the agency's budget processes and CIO decisions.</li></ul>
<b>Business Relationship Manager</b>	<ul style="list-style-type: none"><li>• Interfaces with one or more office's business stakeholders and IT project managers (IT PMs)/Leads to help maximize the value of IT to the agency by working with a variety of business and technical SMEs to identify ways to better leverage existing IT capabilities or introduce new capabilities when appropriate.</li><li>• Coordinates and facilitates the execution of enterprise processes by their assigned office(s), including the Pre-Select and Select processes, to ensure activities are executed efficiently and comply with associated policies.</li></ul>
<b>Business Sponsor</b>	<ul style="list-style-type: none"><li>• Serves as manager or executive leader to advocate for and to authorize proposed IT capabilities or enhancements for one or more organizational components.</li><li>• For enterprise technologies, the business sponsor may be the CIO.</li></ul>
<b>Business Stakeholder</b>	<ul style="list-style-type: none"><li>• Uses agency IT capabilities to execute mission or corporate support functions and processes.</li><li>• Identifies current or potential needs, issues, and opportunities that may be addressed through the introduction of new IT capabilities or changes to existing capabilities.</li><li>• Directly or indirectly impacted if a proposed IT investment is accepted and implemented.</li></ul>
<b>Business SME</b>	<ul style="list-style-type: none"><li>• Helps evaluate whether the proposed IT capability or enhancement supports mission objectives without placing undue burden on staff in the completion of their related tasks or will likely result in the expected benefits.</li></ul>



Role	Responsibility
<b>Capital Planner</b>	<ul style="list-style-type: none"> <li>Supports and provides oversight over the end-to-end IT investment lifecycle phases, including selection, control, and evaluation of current and proposed IT capabilities or enhancements.</li> <li>Maintains the IT portfolio to reflect the current and planned IT investments, systems, services, and their associated activities.</li> <li>Facilitates external reporting to OMB as required by Federal mandate.</li> </ul>
<b>CIO</b>	<ul style="list-style-type: none"> <li>Works alongside agency leadership to define the strategic priorities for IT and to formalize assumptions regarding the EA and the availability of financial resources.</li> <li>Serves as the primary approval authority on Select decisions and is accountable for the IT portfolio.</li> </ul>
<b>Contract Specialist</b>	<ul style="list-style-type: none"> <li>Supports the planning and/or identification of acquisition channels using existing or planned contract vehicles.</li> <li>Manages the acquisition processes in conjunction with selection and funding processes.</li> <li>May also act in the capacity of contracting officer for any resulting contract(s).</li> </ul>
<b>Enterprise Architect</b>	<ul style="list-style-type: none"> <li>Helps evaluate whether the proposed capability or enhancement demonstrates a projected best value, based on an analysis of quantifiable and qualitative benefits and costs and projected return on investment, which is equal to or better than alternative uses of available public resources.</li> <li>Helps ensure proposed capabilities and enhancements are consistent with applicable Federal and NRC enterprise and information architectures.</li> <li>Evaluates whether the proposed technologies or methods mitigate risks by employing measures such as avoiding or isolating custom-designed components to minimize the potential adverse consequences on the overall project; using fully tested pilots, simulations, or prototype implementations before going into production; establishing clear measures and accountability for project progress; and securing substantial involvement and buy-in throughout the project from stakeholders.</li> </ul>
<b>IT PM/Lead</b>	<ul style="list-style-type: none"> <li>Acts as a critical liaison between the business organization and OCIO roles and services supporting the process across all aspects of the Select Phase.</li> <li>Develops and/or leads the development of key artifacts associated with the Pre-Select and Select Phases.</li> <li>Supports presentation and discussion of the current or proposed IT capability or enhancement from a functional and technical requirements and solutions perspective.</li> <li>May also perform the role of Office/System IT Budget Lead.</li> </ul>



Role	Responsibility
<b>Information and Records Management Analyst</b>	<ul style="list-style-type: none"><li>• Confirms whether the proposed IT capability or enhancement adheres to records management requirements and standards.</li><li>• Ensures that all required planning artifacts are made available for review and historical records.</li></ul>
<b>Information Security SME</b>	<ul style="list-style-type: none"><li>• Assesses whether the proposed IT capability or enhancement adheres to computer security requirements and standards.</li><li>• Ensures that all required planning artifacts are made available for review and historical records.</li></ul>
<b>ITB</b>	<ul style="list-style-type: none"><li>• Represents the broader agency perspective when contemplating specific IT proposals under consideration.</li><li>• Reviews and provides input into the agency's proposed portfolio selections as a whole.</li></ul>
<b>IPEC</b>	<ul style="list-style-type: none"><li>• Provides executive-level engagement in the management and governance of the IT portfolio through collaboration and feedback with the CIO.</li><li>• Serves as the initial approval authority for the annual agency IT budget submission.</li></ul>
<b>Office IT Budget Lead</b>	<ul style="list-style-type: none"><li>• Manages an office's IT budget processes and acts as a key interface between office leadership and OCIO throughout the budget cycle.</li><li>• Submits budget requests as well as requests for adjustment related to an office's existing and planned IT capability requirements.</li><li>• The role may be performed by an office/functional IT PM/Lead.</li></ul>
<b>Technical SME</b>	<ul style="list-style-type: none"><li>• Provides solution-level input regarding the recommended configuration of IT assets, alignment of the proposed solution to technology and service standards, technical feasibility, and the application of new or specialized technologies.</li><li>• Provides input to the Enterprise Architect regarding proposed and approved changes to the technical architecture.</li></ul>

The specific activities of each of these roles are noted within the process diagrams provided across the Pre-Select and Select Phases.

### Process Mechanisms

Several mechanisms are employed by the NRC to execute the identified steps across the

Pre-Select and Select Phase processes. These mechanisms, as summarized in Table 2, are designed to help facilitate and standardize the process across the agency.





**Table 2 Mechanism Used To Perform the Identified Steps across the Pre-Select and Select Phase Processes**

<b>Mechanism</b>	<b>Description</b>
<b>ADAMS</b>	<ul style="list-style-type: none"> <li>The Agencywide Documents Access and Management System (ADAMS) is the agency's repository for official records and represents the primary mechanism for publishing records to the public.</li> <li>Although not explicitly represented in the processes, all documents used across the Pre-Select and Select Phase processes are filed in ADAMS once processed.</li> </ul>
<b>E-mail</b>	<ul style="list-style-type: none"> <li>E-mail is designated when the primary activity is the transmittal of information and the mechanism for transmittal is via the agency's e-mail system.</li> </ul>
<b>FEDPASS</b>	<ul style="list-style-type: none"> <li>FEDPASS is the agency's Web-based repository of IT portfolio information and helps connect budget information to different dimensions of the portfolio.</li> <li>FEDPASS is also used to automate certain portfolio- and budget-related activities, providing forms for data capture, routing, tracking of approvals, and reporting.</li> </ul>
<b>Microsoft (MS) Word/Excel</b>	<ul style="list-style-type: none"> <li>MS Word/Excel represents a form or worksheet template for populating information, saving, and routing via e-mail or uploading to SharePoint.</li> </ul>
<b>Meeting</b>	<ul style="list-style-type: none"> <li>Meetings represent a live or virtual discussion to convey information, collect feedback, or secure a decision.</li> </ul>
<b>PMM 2.0</b>	<ul style="list-style-type: none"> <li>PMM 2.0 is an agency repository for IT project information that is used for planning and executing IT projects.</li> </ul>
<b>SharePoint</b>	<ul style="list-style-type: none"> <li>SharePoint is a Web-based portal for capturing and transmitting information via Web forms or for uploading documents to a centralized site or repository.</li> </ul>
<b>STAQS</b>	<ul style="list-style-type: none"> <li>STAQS is the agency's centralized procurement system used to execute acquisition and contract processes and manage their associated funding.</li> </ul>

### Pre-Select and Select Phase Artifacts

The Pre-Select and Select Phases create and use a wide range of artifacts including work products, deliverables, and reporting to facilitate processes, establish formal records, and share information internally and externally. The primary artifacts created during these Phases include:

- **Selection Decisions** – The formal decisional outcomes to select, reselect, or deselect specific capabilities established through the agency's governance and executive decision processes
- **The IT Portfolio Summary** – The agency's selection of IT capabilities and enhancements inclusive of all IT related investments as well as documented changes to





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the NRC's IT portfolio structure and/or IT budget to reflect the addition or removal of one or more IT capabilities or enhancements

### **Selection Decisions**

The agency's Pre-Select and Select Phase processes possess several key decision points that are captured and recorded as potential and current IT capabilities and enhancements are reviewed, selected, re-selected, and de-selected, including:

- Business Sponsor approval or denial to proceed with development of a full business case based on an initial evaluation of a potential IT capability or enhancement
- CIO approval or denial of the selection of a business case for a potential IT capability or enhancement
- CIO approval or denial of a re-selection or de-selection of a current IT capability or enhancement into the IT Portfolio

In addition to the key decision points, governance recommendations as well as business and technical analysis are captured to complete the decision record for each potential and ongoing IT investment.

### **The IT Portfolio Summary**

The agency's IT Portfolio Summary provides a description, basic categorization, and budgetary information for all IT investments and is used as a means for budgeting for, and tracking and reporting expenditures on, all agency IT resources, including Full Time Equivalent (FTE) personnel. The agency IT Portfolio Summary is an OMB-required CPIC document submitted with the NRC's overall budget. In addition to providing a means for the NRC to request funding for, and report actual spending on, the agency's IT investments, the agency IT Portfolio Summary data is used by the NRC and OMB for trending and analysis on individual investments and the overall portfolio.

The specific information provided in this artifact is driven by updated guidance in OMB Circular A-11, Section 55 with specific details provided in the annual IT Budget – Capital Planning Guidance. This annual guidance lays out the requirements and data to be reported for each IT investment on NRC's IT Portfolio Summary (formerly known as Exhibit 53).

The NRC's IT Portfolio Summary reflects all agency IT resource costs, as well as any breakout of certain costs as dictated by OMB, such as a summary of the NRC's total provisioned IT spending and a summary of the NRC's total infrastructure spending. For every submission, funding levels reported in the NRC's IT Portfolio Summary are consistent with program-level funding and agency summary funding tables, as provided to OMB in the agency's overall Performance Budget submission.

The agency IT Portfolio Summary and required spending summaries are submitted to OMB twice during each fiscal year and include information and funding levels on all IT investments for



the three years in the current budget cycle: prior year (PY), current year (CY), and budget year (BY). The purpose of the first submission in September of each year is to make a preliminary budget request for the BY. The second submission in January of each year reflects changes based on OMB feedback (commonly referred to as “passback”) on the preliminary budget request and includes actual expenditures for the PY.

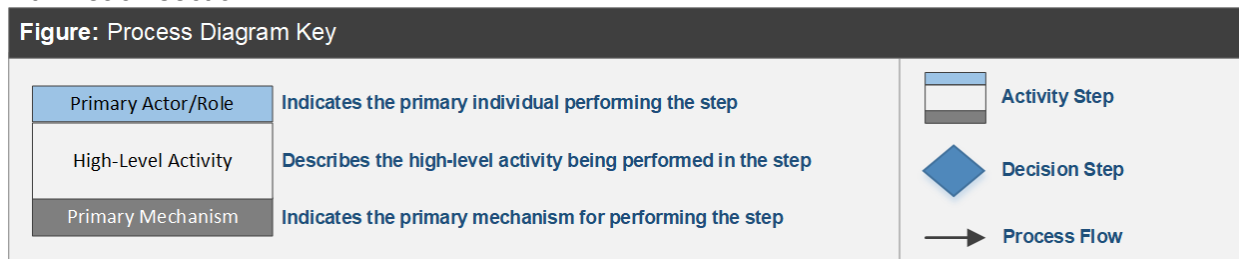
The NRC submits its agency IT Portfolio Summary on the following schedule:

- **Last Week of August:** Draft Agency IT Portfolio Summary submission
- **Early September:** Agency IT Portfolio Summary (including Provisioned IT Spending Summary and IT Infrastructure Spending Summary) submission
- **Early January:** Final President’s Budget Agency IT Portfolio Summary (including Provisioned IT Spending Summary and IT Infrastructure Spending Summary) submission

The NRC’s Capital Planners are responsible for completing and submitting the Agency IT Portfolio Summary and spending summaries to OMB (with CIO concurrence), as well as establishing and maintaining procedures for Agency IT Portfolio Summary submissions. This requires close collaboration and coordination with OCFO to ensure the resultant deliverables align with the overall agency budget process and budget justification materials submitted to OMB by OCFO.

### Process Diagram and Notation Summary

The Pre-Select and Select Phases are segmented into individual processes, as summarized in the following sections. Figure 3 provides a key to assist in understanding the process diagrams within each section.



**Figure 3 Process diagram key**

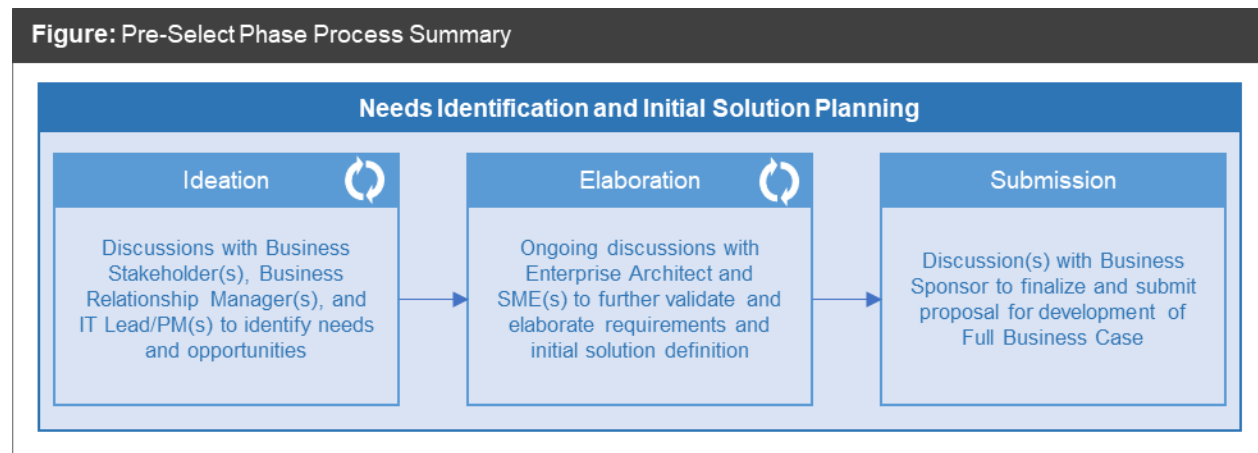
The process diagrams contained within this document are intended to illustrate at a high-level the processes followed by the NRC within the Pre-Select and Select Phases. These processes are further supported by detailed procedural.

### Pre-Select Phase Process Overview

The Pre-Select Phase focuses on the discovery and initial evaluation of potential opportunities to apply IT within the agency to add business value and may or may not result in the development of a proposal for new or enhanced technologies. These processes also help to ensure the NRC is performing appropriate due diligence related to initial documentation and communication of proposals intended to make changes to the IT portfolio.



The Pre-Select Phase, as summarized in Figure 4, may include a number of iterative discussions with a wide range of stakeholders to better define the requirements and identify, at a high level, potential technical capabilities and solution options that could satisfy the requirements.



**Figure 4 Pre-Select Phase process summary**

With support from the agency's Enterprise Architect(s), business needs and potential technology opportunities are further elaborated upon to better define the basic IT capability or enhancement desired by the agency. One output of this Pre-Select Phase is a recommendation to move forward with the development of a full business case for new or enhanced IT capabilities to initiate the Select Phase processes.

#### ***Primary Sources for New IT Capabilities or Enhancements***

Although the introduction and proposal of new or enhanced IT capabilities may arise from a wide range of sources, the primary sources include the following:

- planning for the introduction of new enterprise and infrastructure capabilities  
  
Examples include opportunities to increase efficiency or improve service performance through infrastructure modernization, new security capabilities, or cross-cutting systems such as e-mail or document management.
- mission or support office requirements for new capabilities to address current or anticipated business requirements  
  
Examples include changes to a system to address emerging regulatory needs or an enhancement to unify disparate corporate systems into one application.
- ideas, requests, or feedback captured through customer outreach or service delivery that suggest a change to the system or service portfolio



Example include reviews of service ticket feedback that identifies a need for improved self-service capabilities or new requirements identified through a community of practice meetings.

- technical refreshes or upgrades of hardware and/or software driven by vendor-driven innovations or end-of-life support termination

Regardless of the source, the NRC requires that all recommended changes to the IT portfolio or to the approved architecture be accompanied by a business case that describes (in progressively elaborated detail) the intended value, recommended approach, expected cost, return on investment, and projected risks associated with the proposed change to the IT portfolio.

#### ***Pre-Select Phase Input Types***

Proposals for new or enhanced IT capabilities may come in many forms, including potential reductions in or elimination of existing capabilities, as well as changes in the methods and approaches used to deliver or manage IT services. Table 3 summarizes the various types of requests (inputs) that may ultimately initiate the Select Phase processes.



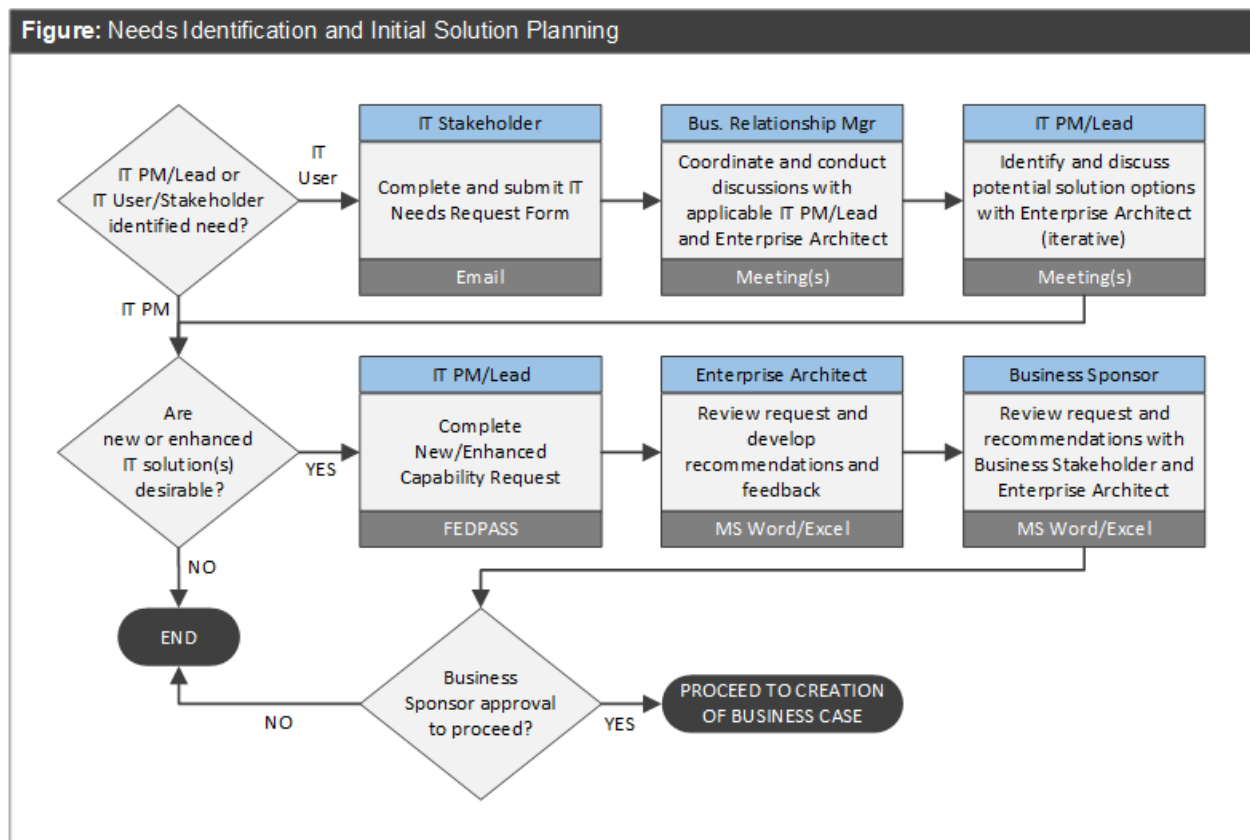
**Table 3 Request Types and Select Phase Processes**

Input Types	
New Systems or Solutions	New Services or Utilities
Functional Enhancements to Existing Systems or Solutions	New or Revised Service Approaches or Methods
System or Solution Retirement/Decommissioning	Termination of Existing Services
Consolidation of Multiple Systems or Solutions	New or Revised Approaches to Maintenance or Warranties
System or Solution Platform Migration	Changes to Agency Data Types, Models, and Sources
IT Asset Refreshes or Upgrades	

Although frequently integral to their eventual delivery, new or revised acquisition or contracting approaches or vehicles are not considered IT capabilities and follow related but separate processes.

#### Pre-Select Phase Process

Figure 5 summarizes the Pre-Select process, which represents both a triage and “screening” process designed to identify, quickly evaluate, and promote for further planning the IT capability or enhancement ideas that represent the greatest value to the agency.



**Figure 5 Needs identification and initial solution planning**



For general IT users or stakeholders, the submission of an initial *IT Needs Request* form initiates internal discussions to evaluate or “triage” whether additional analysis and planning is warranted. If the need is initiated by an agency IT PM/Lead, a *New/Enhanced Capability Request* form is completed and submitted, which describes the general business justification for a new capability or enhancement. The request is expected to provide a clear understanding of the current state, desired future state, and the initial approach recommendations or options for achieving the intended objectives.

This initial request is reviewed by one or more of the agency’s Enterprise Architects to ensure alignment with the agency’s mission and technology objectives and strategies. Additionally, during this phase, a wide range of business and technical stakeholders may be engaged to help better define requirements and potential solution alternatives, including the following:

- executive stakeholders
- external stakeholders
- business process owners
- business architects
- system/solution owners
- system/solution users
- data architects
- system/solution integrated team members
- dependent or parent system/solution integrated team members
- staff members
- infrastructure service users
- infrastructure service integrated team members
- enterprise technology architects
- technology SMEs
- policy SMEs

The type and number of roles involved in the Pre-Select process is contingent on the originator and the nature of the requirement. However, the agency’s Enterprise Architect is responsible for ensuring the appropriate individuals are engaged throughout the process.

#### ***Pre-Select Process Outcomes Summary***

Based on the outcomes of initial reviews and discussions with the primary stakeholders, the Enterprise Architect will submit a recommendation to the CIO that a full business case be developed. If approved by the CIO, the request exits the Pre-Select Phase and advances into the Select Phase. At this time, the requesting business sponsor must sign off on the effort to proceed with the allocation of resources to develop a full business case.

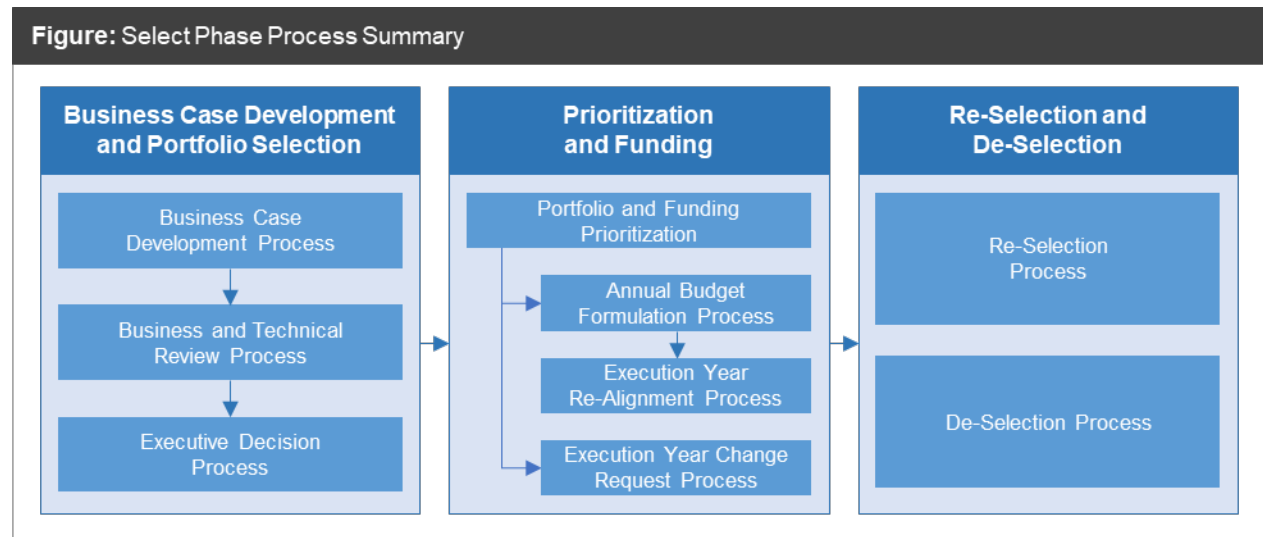
#### ***Select Phase Process Overview***

The agency segments the Select Phase into three primary process groups:

- (1) business case development and selection processes
- (2) prioritization and funding processes
- (3) re-selection and de-selection processes



These processes, as illustrated in Figure 6, are interconnected and work in combination to continuously select, fund, and evolve the NRC's IT portfolio to best address its ongoing mission and corporate support requirements.



**Figure 6 Select Phase process summary**

The NRC's Select Phase processes organize and integrate a range of business and technical functions and roles across the agency to help ensure that the IT portfolio is continuously optimized, appropriate due diligence is applied, and activities comply with agency and Federal standards and requirements.

### **Business Case Development and Portfolio Selection Processes**

Following the approval to exit the Pre-Select Phase, the agency executes three subprocesses for managing formal portfolio selection:

- (1) business case development process
- (2) business and technical review process
- (3) executive decision process

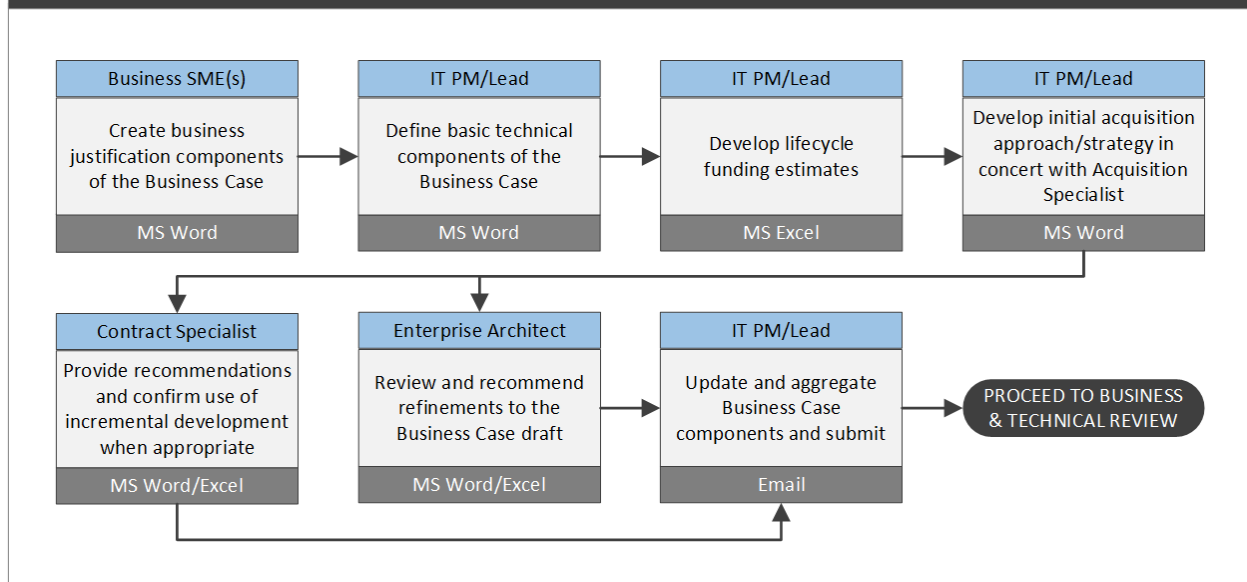
The development of a business case for desired investments in IT capabilities represents an important planning step to help ensure that changes to the IT portfolio are fully documented, vetted, and approved prior to their funding, implementation, and use. The business case also represents an important control to minimize nonauthorized investment or deployment of IT capabilities within the environment. Each process is described in more detail in the following subsections.

### **Business Case Development Process**

The agency's business case development process, as illustrated in Figure 7, encompasses a variety of planning steps focused on helping the NRC's business and technical leadership fully articulate its requirements and proposed solution(s).



**Figure: Business Case Development**



**Figure 7 Business case development**

Although the level of detail required for a business case may vary based on the scale, estimated cost, and expected impact of the investment, each business case is expected to include the following elements:

- a definition of the underlying business requirements
- an analysis of alternatives and their respective return on investment or net present value relative to the selected option
- a description of the proposed IT capability expected to address the business requirements
- expected outcomes, benefits, or returns of the investment in the new or enhanced IT capability
- identified risks across business, technical, implementation, and operational dimensions
- estimated life-cycle costs, including implementation, operation, retirement, and, if applicable, interim operation of legacy systems
- the planned approach for implementation and ongoing operation or delivery
- the general timing of the investment and realization of the expected benefits, inclusive of and compliant with incremental development mandates when appropriate

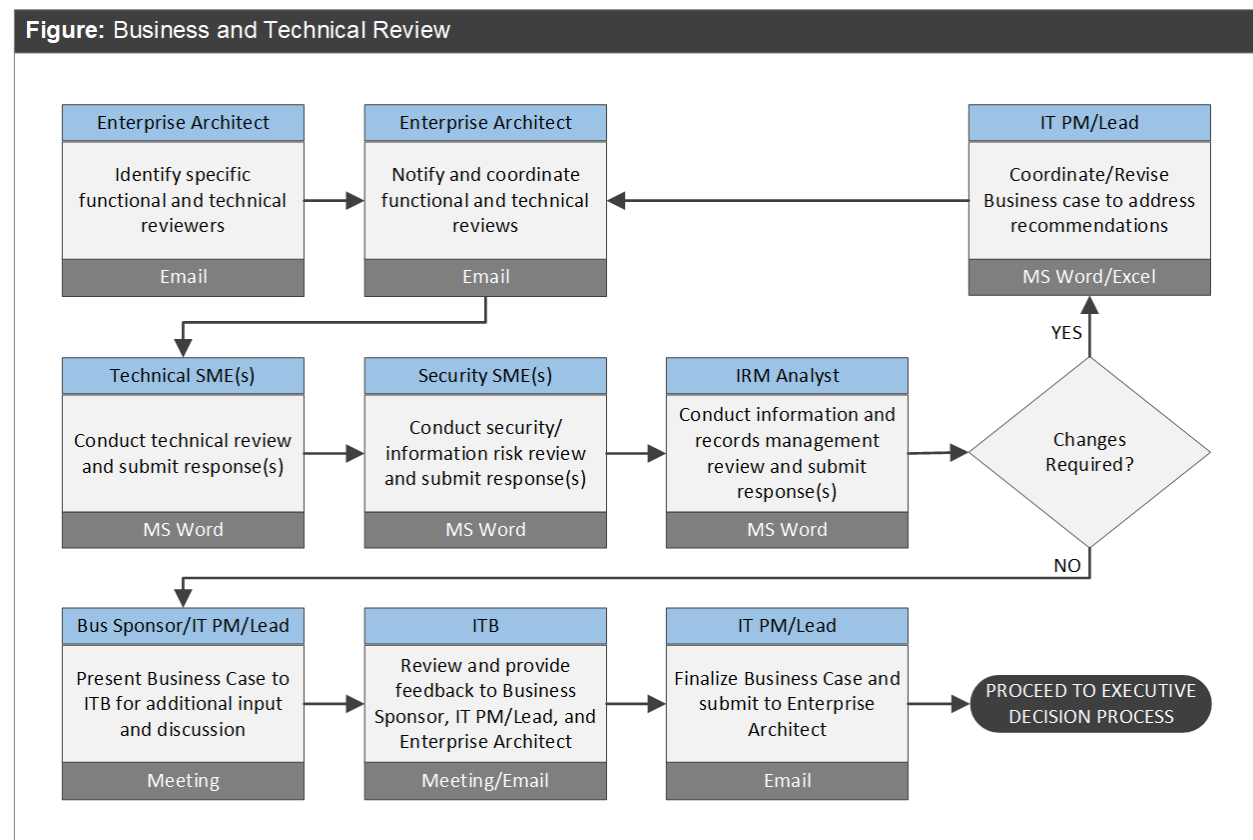
Additional information associated with business case development and its associated components is available.





### Business and Technical Review Process

Once finalized, a business case proceeds through one or more technical, security, and records reviews, as illustrated in Figure 8, to help refine and finalize a business case prior to its review and approval by the CIO.



**Figure 8 Business and technical review**

As previously noted in the section titled “Roles and Responsibilities,” the review is expected to validate whether the new capability or enhancement will do the following:

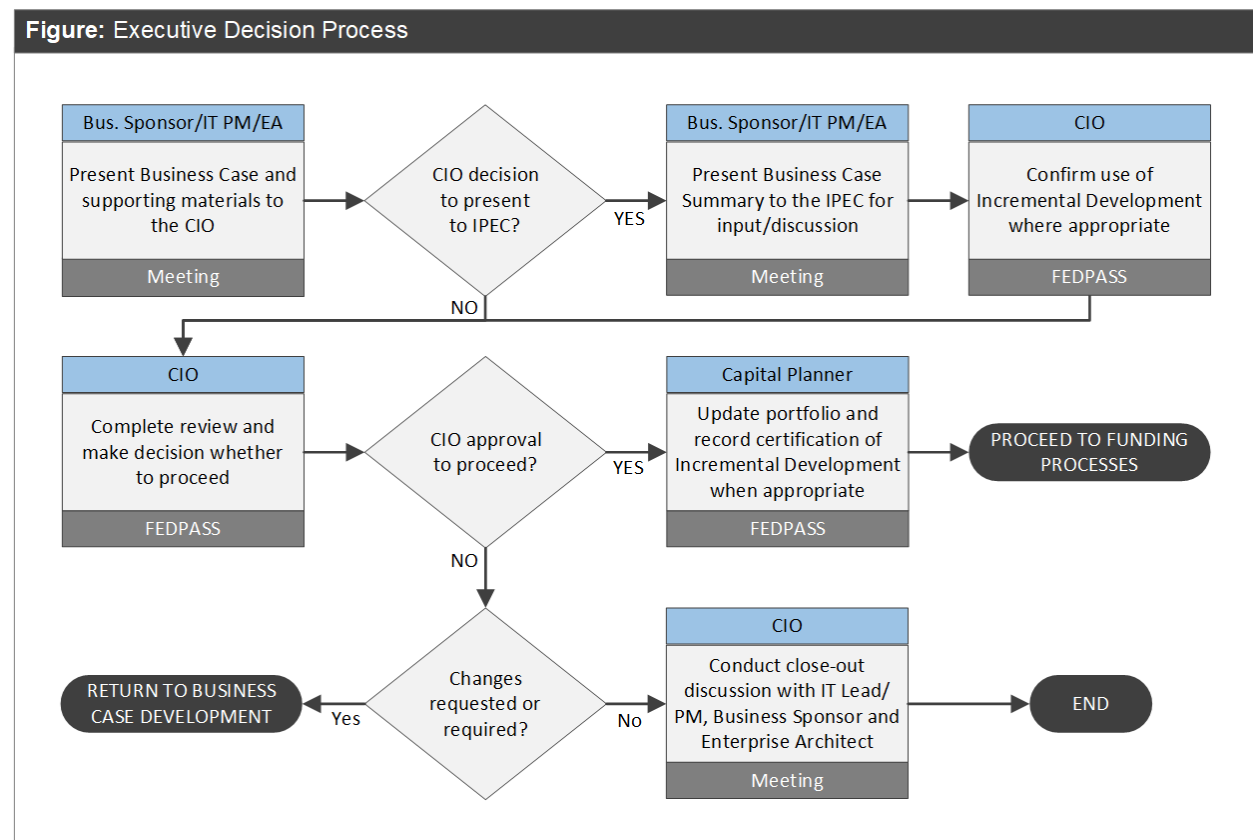
- Adhere to a variety of internal and external policies and regulatory requirements.
- Maintain an acceptable risk profile from a security perspective.
- Adhere to or further evolve the agency’s technical standards and approved technologies.
- Deliver the expected benefits to its intended stakeholders.

The agency’s business case review process is also intended to help validate and provide additional guidance and recommendations associated with the schedule, resource, and funding estimates to help ensure approval is based on sound and experience-driven planning.



### Executive Decision Process

After a business case proceeds through the review process and is updated as required, the business case and any associated recommendations and input resulting from the review process is presented to the CIO for review and approval, as illustrated in Figure 9.



**Figure 9 Executive decision process**

At the CIO's discretion, the CIO may elect to elevate the business case to the IPEC for additional discussion and input prior to making a decision or further review based on the proposed capability or enhancement's potential impact, risk, or cost to the agency. For proposed capabilities or enhancements that include development, the CIO will also confirm and certify the appropriate use of an incremental development approach consistent with the current OMB guidance at the time of the review. The CIO's certification will be recorded by the Capital Planner in the agency's IT Portfolio Management System.

If the proposal requires but does not leverage incremental development, the CIO will request an update and resubmission of the business case consistent with the business case development process. The CIO may also request changes to the business case to address any other perceived weaknesses or opportunities for improvement, thus returning the business case back to the development process.



### ***Business Case Development and Portfolio Selection Outcomes Summary***

The business case expands upon the Pre-Select Phase's New Capability Request by describing the specific performance metrics, potential solution alternatives, projected life cycle costs, estimated return on investment, risks, and assumptions. Evaluation, concurrence, and feedback from reviewers with functional expertise in EA, information security, infrastructure operations, and information management is required to help ensure collective concurrence on the solution approach.

The review process is also used to identify (and document) any required exceptions to existing agency standards, assumptions surrounding solution implementation, and prerequisites and/or dependencies associated with the approach. If approved, the business case is provided a placeholder within the IT portfolio, at which time its future becomes subject to the decisions made during the appropriate funding process.

### ***Prioritization and Funding Processes***

As previously stated, selection of an IT capability or enhancement represents only an opportunity for funding but does not guarantee that funding will be available or approved. In addition to an examination of the relative value of a proposed effort, funding decisions are based on an individual office's as well as the agency's broader priorities. The result of this prioritization, as it pertains to funding, is that some business cases may be required to wait for additional or adjusted funding prior to proceeding.

Prioritization and funding decisions for selected business cases are made through four subprocesses:

- (1) portfolio and funding prioritization process
- (2) annual budget formulation process
- (3) execution year realignment process
- (4) execution year change request process

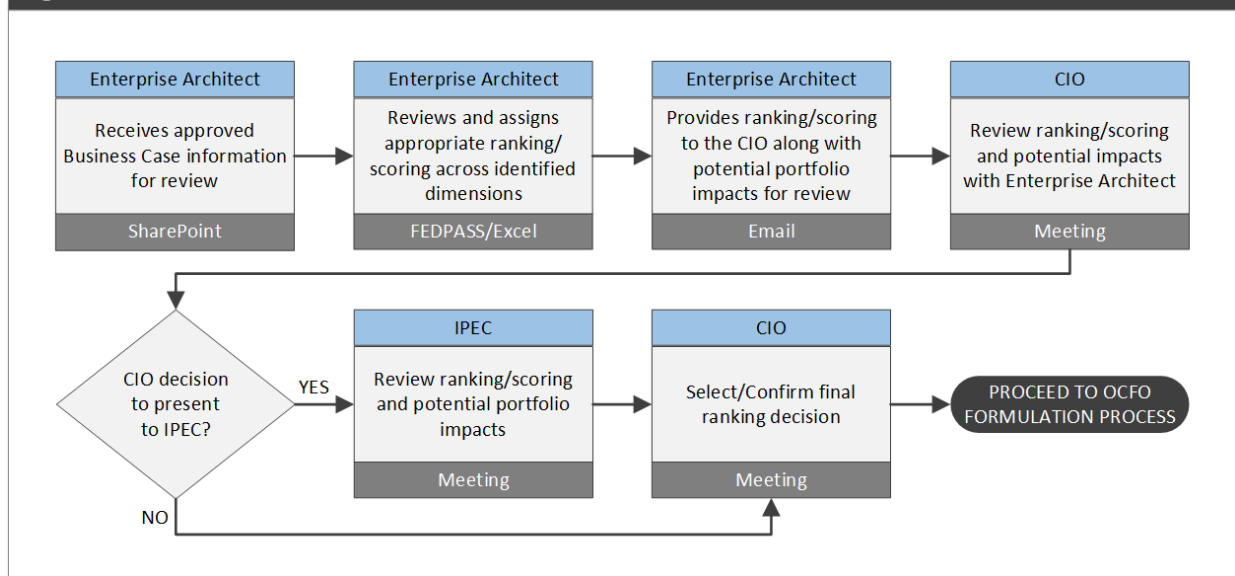
Although these processes represent broader agency functions, understanding their role in the Select Phase is critical for understanding the agency's IT portfolio selection activities. Each of these processes are summarized in the following subsections.

### ***Portfolio and Funding Prioritization Process***

To ensure that the NRC's strategic mission and IT priorities are met in accordance with their relative importance to agency mission functions, the NRC leverages an IT portfolio prioritization process to rank order the business cases that comprise the IT portfolio. This process, as illustrated in Figure 10, is continuous and provides input into agency IT funding, strategic planning, and portfolio analysis.



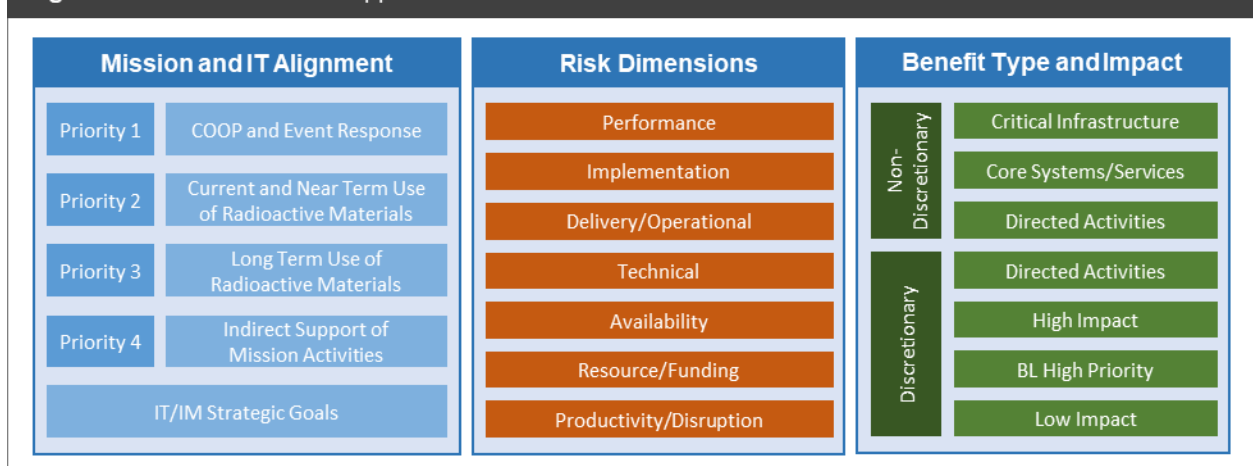
**Figure: IT Portfolio Prioritization**



**Figure 10 IT portfolio prioritization**

This process is facilitated by an analysis of the strategic alignment to agency objectives, alignment with IT/IM strategic goals, assessment of risk to agency operations, and relative criticality (benefit) to agency operations, as summarized in Figure 11.

**Figure: Portfolio Prioritization Approach**



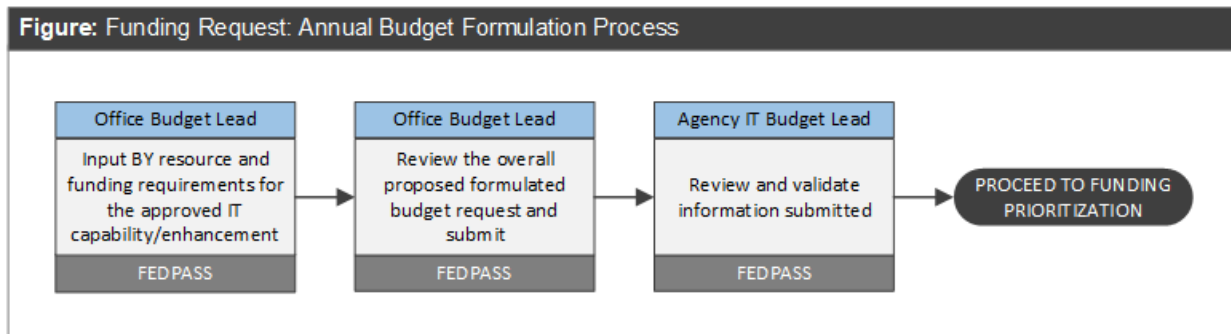
**Figure 11 Portfolio prioritization approach**

Throughout the year, as input to the various funding processes and as an element of the continual evaluation of the portfolio, the relative priorities of the items within the IT portfolio are reassessed via the IT portfolio prioritization process.



### ***Funding Selected Capabilities: Annual Budget Formulation Process***

Once a business case is approved, the newly approved IT capability, enhancement, or activity is available for funding through one or more funding processes, including the agency's annual budget formulation process. As summarized in Figure 12, during this period agency, offices, including OCIO, may request funding for the approved items within the portfolio (internally described as "budget items").



**Figure 12 Funding request: Annual budget formulation process**

The annual budget formulation process is intended to define the required resources (full-time equivalent and contract dollars) for the operations, maintenance, development, modernization, and enhancement of IT capabilities during the agency's budget year (BY), which is typically two future periods (years) from the present period. For example, budgeting for FY 2020 is expected to take place during FY 2018.

When resources are required sooner, offices may request funding using the agency's execution year realignment process or execution year change request process, as described in the following sections. Additional detailed descriptions and guidance associated with the agency's budget formulation process is available.

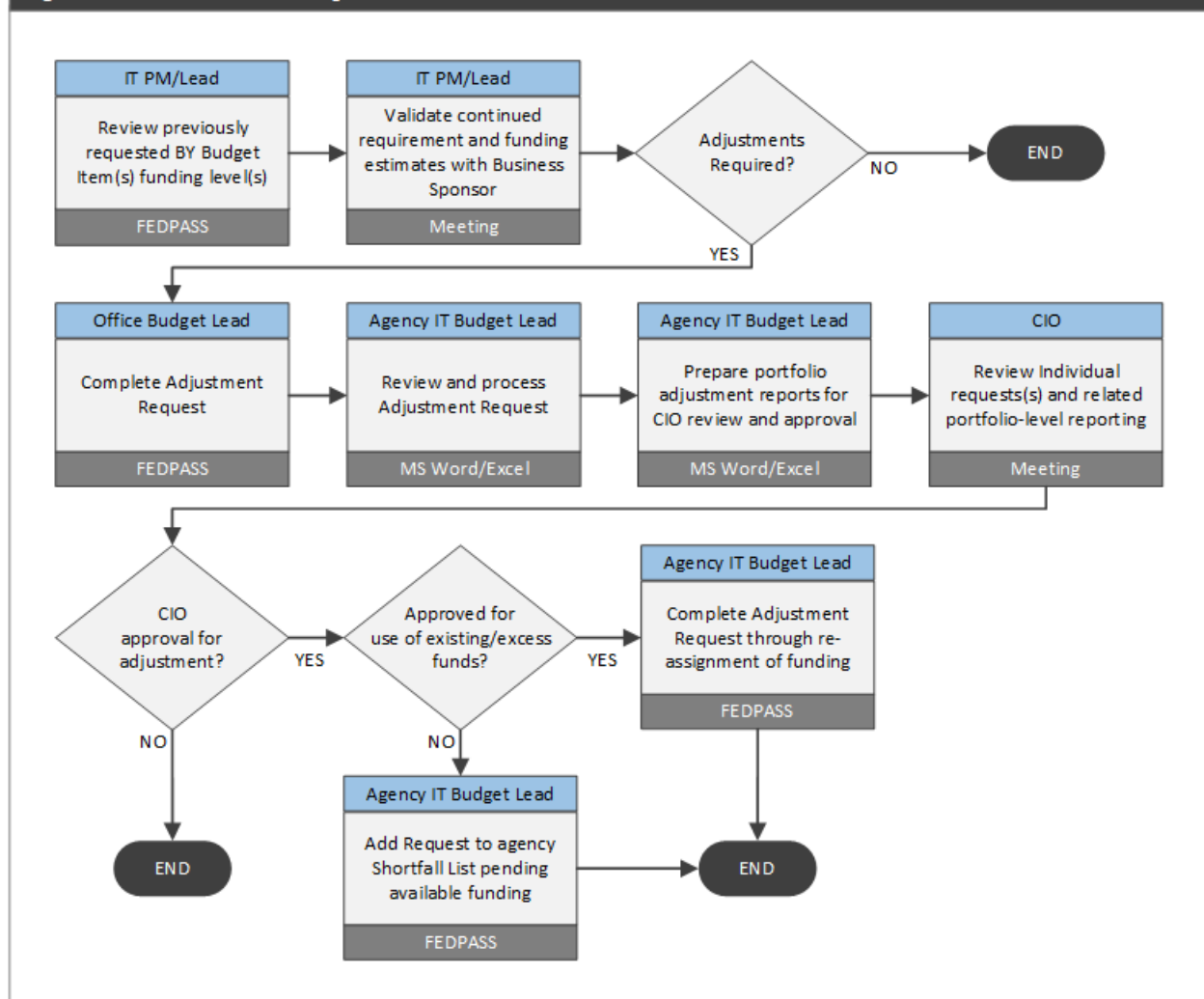
### ***Funding Selected Capabilities: Execution Year Realignment Process***

The execution year realignment process is carried out as a means of right-sizing the resource needs related to funding requests for the upcoming FY. This process, as illustrated in Figure 13, enables authorized IT stakeholders to reexamine and, where necessary, request adjustments based on changes to previously held expectations, requirements, needs, and assumptions in an effort to enable the optimal use of IT resources in the year of execution.

If new or additional funding is required, the agency's IT Budget Lead works with the CIO to reallocate excess funding identified in other areas. If unsuccessful, the request is placed on a funding "shortfall list" that captures the agency's selected but unfunded IT capabilities or initiatives. As new (not previously earmarked) funding is made available by the agency's Office of the Chief Financial Officer (OCFO), the funding may be released for use on the selected IT capability or initiative, consistent with the agency's funding prioritization process, previously summarized in the section titled "Portfolio and Funding Prioritization Process."



**Figure:** Execution Year Re-Alignment Process

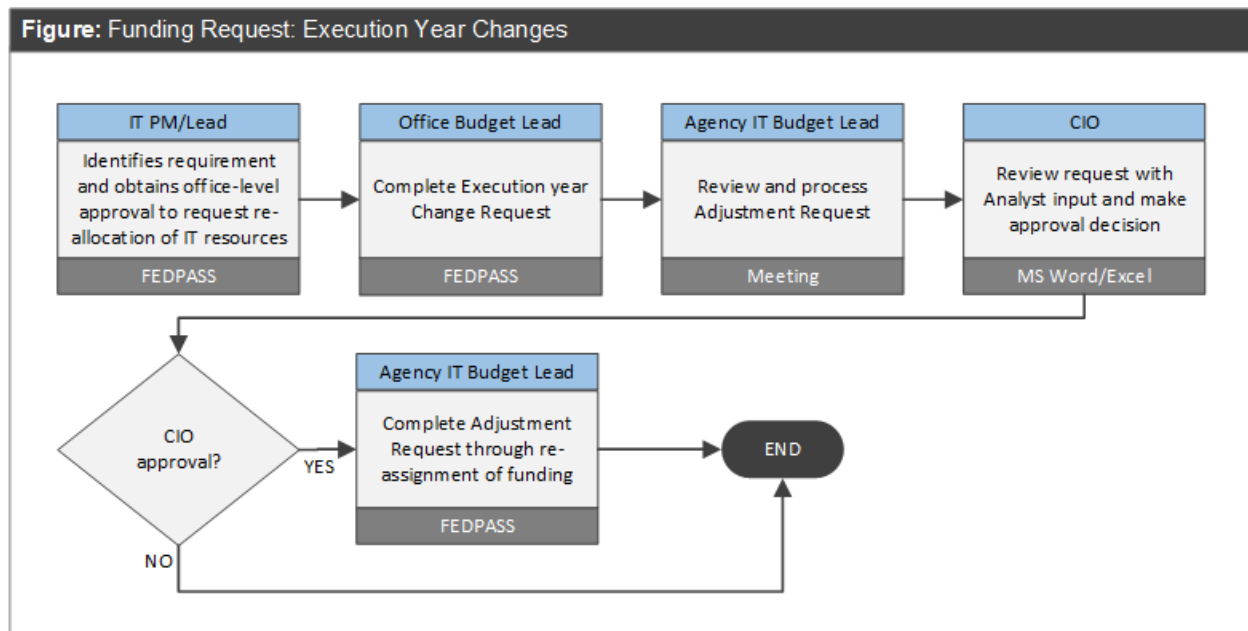


**Figure 13 Execution year realignment process**

At its core, this process represents an opportunity to identify potential shortfall allocation at the CIO's discretion. It is expected that as the agency moves into the execution year, it possesses improved and more accurate resource and funding estimates that may enable adjustments in the execution year's funding assignments. However, this process does not represent an opportunity to reintroduce proposals that have been subsequently denied for selection into the portfolio.

#### ***Funding Selected Capabilities: Execution Year Change Request Process***

For selected IT capabilities and enhancements, the opportunity also exists to initiate or implement a selected capability or enhancement in the near term by requesting IT funding or adjustments to funding during the execution year, as illustrated in Figure 14.



**Figure 14 Funding request: execution year changes**

In some cases, an office may wish to shift funding from an existing activity to another to accelerate its delivery and the realization of its expected benefits. Office requests and/or excesses available for a shift in existing funding may also be necessitated by a fact-of-life change or more urgent requirements that emerge during the current year. An office may also request a shift of non-IT funding into the IT budget for a selected IT capability or enhancement. Regardless of the driver or request type, the CIO will review each request consistent with the previously described executive decision process.

This process and the budget formulation and realignment processes do not replace or bypass the requirement for offices to propose new IT capabilities or enhancements through the agency's Pre-Select and business case development and portfolio selection processes, which must occur before any associated funding decisions.

#### **Prioritization and Funding Outcome Summary**

The overarching purpose of the agency's prioritization and funding processes is to ensure that the agency directs its resources to meet its most critical IT requirements. To this end, the agency facilitates integrated funding processes to help ensure the agency can effectively connect its available but limited IT resources to meet its business requirements across planning and execution of the IT portfolio. When funding is not available, proposed investments remain on a shortfall list and are eligible for funding as new funding is made available consistent with their priority relative to other unfunded but selected IT portfolio capabilities or enhancements.

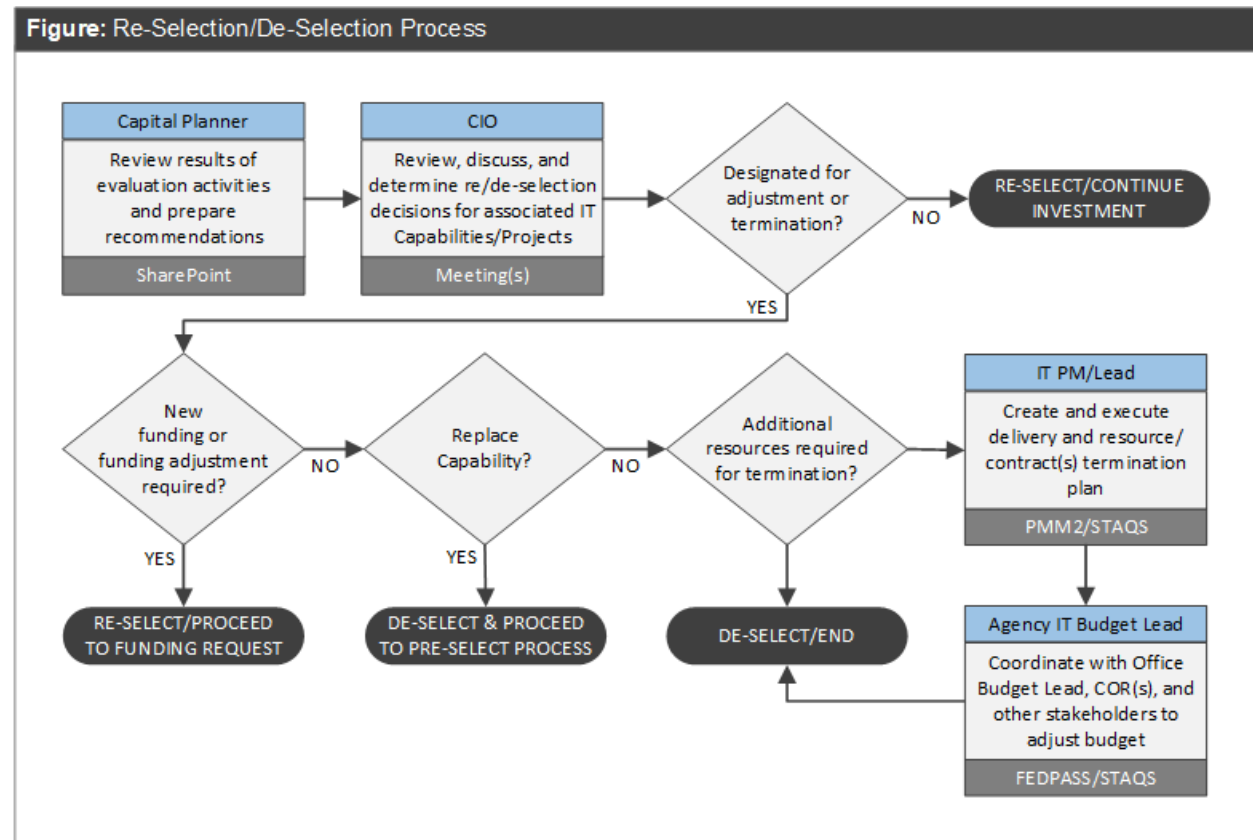
#### **Re-Selection and De-Selection Processes**

Throughout the year, selected IT capabilities and projects are reviewed and evaluated during the Control and Evaluate Phases based on information collected through their operation or execution. This information is used to assist the agency, as summarized in Figure 15, in





determining whether to “re-select” the capability or project for continued investment or “de-select” (terminate) the capability or project.



**Figure 15 Re-selection and de-selection processes**

Based on the results of the review and evaluation, delivery or management approaches may be adjusted to improve the expected results of the effort. In these cases, the capability is considered re-selected for continued investment, and any suggested changes to delivery or management are communicated to the appropriate business and technical personnel. In some cases, the evaluation may indicate that one or more enhancements to a capability are necessary to fully realize the investment’s expected benefits. In these cases, the capability is considered re-selected pending the approval of the enhancement(s) through the previously described business case development and portfolio selection processes. In other cases, the project may require only new or adjusted funding, which follows the previously described IT prioritization- and funding-related processes.

The agency may also examine and identify alternatives to an existing capability that potentially represent a better value to the agency from a cost, benefits, and/or risk perspective. If identified and desired, a proposal for the replacement capability would proceed through the agency’s Pre-Select and business case development processes, inclusive of any decommissioning requirements.





A capability or ongoing enhancement project under evaluation may also be selected for termination, resulting in a “de-selection” of the IT capability or enhancement. In this case, additional termination planning and execution activities will be performed and will commonly rely on the effort’s existing funding source(s) to perform closeout activities.

The re-selection and de-selection processes represent only those activities within the Select Phase related to the Control and Evaluate Phase processes and are not intended to encompass or describe all activities within those phases. Additional information associated with the agency’s Control and Evaluate Phase processes is provided in their respective sections in this document.

### ***Re-Select and De-Select Outcomes Summary***

The NRC’s Control and Evaluate processes work in tandem to help the agency determine whether selected capabilities or enhancements will meet or continue to meet the following criteria for re-selection and funding:

- continues to, or is expected to once complete, meet the business needs and defined performance goals
- can meet business needs and expected performance goals with enhancements or modifications and is more cost-effective than replacing the investment (re-selection with enhancements)
- mitigates business, technical, security, delivery, and other risks effectively according to its current risk management activities
- adheres to projected costs and expected benefits throughout the IT investment’s lifecycle.

Should an IT capability require a change or enhancement in order to be re-selected, the recommended change will follow the agency’s business case development and portfolio selection processes.

### **Control Process Versus Evaluate Process**

As previously mentioned, CPIC comprises three distinct yet interdependent sets of processes that provide continuous management and oversight for individual investments and for the agency’s IT portfolio as a whole. At any given time, CPIC processes are being simultaneously performed for four different FYs:

- the PY for which actuals must be reported
- the calendar year (CY) that is being executed
- the BY for which a budget request has been submitted
- the BY+1 for which the next budget request is being formulated

The main distinction between the Control and the Evaluate processes is that the primary objective of the Control process is to monitor and inform as the CY is being executed to quickly



take corrective actions to prevent larger issues and ensure investment health. A midyear assessment of major investments in the form of a control review may provide information for certain select process activities such as restacking or reprioritization, but most outputs are to inform evaluation processes. The Control processes gather data throughout each FY that serve as input to the evaluation of investments and support the evaluation of the overall portfolio. The Evaluate processes use the data to perform post implementation reviews and operational analyses, which includes evaluating such factors as trends over multiple years of an investment's life cycle, end-of-life planning, dependencies among investments, opportunities for innovation, and efficiencies. The findings and recommendations from post implementation reviews and operational analyses serve as input to the select processes.

Table 4 illustrates the distinctions between the Control and Evaluate processes by FY.

**Table 4 Control and Evaluate Process Distinctions**

<b>FY</b>	<b>Control Processes</b>	<b>Evaluate Processes</b>
PY	Gathers and records actuals (final costs, schedule dates, metrics results) to provide an input to Evaluate processes and to report to OMB	Analyzes data outputs from Control processes and other sources to perform post implementation reviews and annual operational analyses for the prior FY
CY	Monitors investments (monthly or quarterly), keeps IT governance boards informed, and takes minor corrective actions when necessary  Larger or more complex issues are escalated to the Evaluate process.	Uses data from the Control process to evaluate the current health of investments and identify investments in need of deeper analysis and/or executive-level visibility  Perform a TechStat Accountability Session (TechStat) <sup>2</sup> on investments with issues that need executive direction and decision-making
BY	Helps gather and record data needed for CPIC documents and submits artifacts to OMB	Continuously evaluates changing business needs, agency priorities, and investment health to inform the Select process and budget requests
BY+1	Helps gather and records data needed for the CPIC documents to be submitted to OMB	Continuously evaluates changing business needs, agency priorities, and investment health to inform the Select process and budget formulation

### Control Process: Monitor, Inform, Correct

The purpose of the Control processes is to ensure, as projects develop and investment expenditures are incurred, that the investment and its associated projects and activities continue to meet mission or business needs at the expected levels of cost and risk. The key objectives are (1) to ensure that corrective actions are taken quickly to address any deficiencies in project or operational components and (2) to enable the NRC to adjust its objectives for an investment and appropriately modify expected outcomes if its mission or business needs have changed.

<sup>2</sup> The NRC's "TechStat Policy and Process Overview," issued November 2015, is available through the NRC's IT Policy Archive at <http://www.nrc.gov/public-involve/open/digital-government/policy-archive.html>.



The Control processes are key to providing the data needed to monitor the status of project costs and schedules, status of risks (including the plan of actions and milestones), and performance of investments to inform decisions on changes to investments, projects, or the portfolio. It encompasses various tools and techniques to monitor and report on the performance and risks associated with IT investments and includes the following:

- Major IT Business Case submissions
- major IT investment monthly reviews and CIO evaluations
- nonmajor investment quarterly reviews
- major IT investments control reviews
- CIO TouchPoints

Data and information collected during the monitoring of investments provide input into the evaluation of investments, support executive decisionmaking, and ensure compliance with OMB reporting requirements.

Capital Planners are responsible for executing all Control processes. One Capital Planner is designated as the CPIC Lead to serve as the SME on capital planning guidance, major IT business case requirements, Control processes and procedures, and Federal IT Dashboard (ITDB) submissions. The CPIC Lead ensures that Control processes and procedures are documented, implemented, enforced, updated, and continuously enhanced.

## Major IT Business Case Submissions

### Purpose

The Major IT Business Cases (formerly Exhibit 300As) and Major IT Business Case Details (formerly Exhibit 300Bs) are companion exhibits to the Agency IT Portfolio Summary. Together, the Major IT Business Cases and Major IT Business Case Details provide the budgetary and management information necessary for sound planning, management, and governance of major IT investments. Throughout the implementation of major IT investments, CPIC processes are to be continuously applied, and actual outputs, project schedules, expenditures, and operational performance are tracked against established baselines. The Major IT Business Cases and Major IT Business Case Details provide the budgetary and management information necessary for sound planning and management. They provide a means to monitor and report on the performance and risks associated with major IT investments, as well as a baseline for identifying when immediate corrective actions may be needed.

### Description

OMB guidance on control planning, budgeting, procuring, and managing major IT investments is provided in the OMB Circular A-11 supplement, "Capital Programming Guide." In addition, OMB's annual IT Budget—Capital Planning Guidance provides specific requirements for the current budget cycle with detailed requirements for major IT investments to be followed during the CY. The Major IT Business Case must capture general investment data, IPT information, investment life-cycle costs, and acquisition data. The Major IT Business Case Details must capture projects and activities, project and operational risks, and operational performance metrics.



The full Major IT Business Cases and Major IT Business Case Details must be submitted twice a year as supplements to the Agency IT Portfolio Summary. In addition, updates to the Major IT Business Case Details must be submitted when new data become available or at least monthly, as described later in this document.

The CIO, via the Major IT Business Case approval process, will certify that all software development projects utilize incremental development practices. The CIO may request additional artifacts from the IT PMs to support the incremental development implementation.

#### Inputs

Once OMB issues the annual IT Budget—Capital Planning Guidance, the Capital Planners provide the IT investment program manager and IT PMs with the instructions for preparing and updating Major IT Business Cases and Major IT Business Case Details. For new major IT investments, the CIO-approved PMM business cases and budgetary decisions made by the IPEC become the main input for preparing the Major IT Business Cases and Major IT Business Case Details to be submitted to OMB. For existing major IT investments, updates to the previous Major IT Business Cases and Major IT Business Case Details submitted to OMB will be based on CIO direction provided through the various Control and Evaluate processes (as described later in this document) and budgetary decisions made by IPEC.

The Capital Planners provide OCFO with the information needed for the IT table in the agency's budget justification materials and work with OCFO to keep informed of any budgetary changes resulting from EDO, Chairman, and Commission decisions throughout the budget formulation process. The CIO is included in decisions affecting the IT budget to advise on potential impacts. After making any necessary changes to the Major IT Business Cases and Major IT Business Case Details based on the Commission-approved budget, the Capital Planners submit the final versions to the CIO for final review and approval. Once the CIO approves the Major IT Business Cases and Major IT Business Case Details, the Capital Planners submit them to the ITDB.

OMB reviews the Major IT Business Case and Major IT Business Case Details and provides feedback to the NRC Capital Planners in December. At this time, the NRC also receives the OMB budget passback and revises the agency budget request to be included in the NRC Performance Budget (or what OMB refers to as the President's Budget Request). The Capital Planners work with the IT investment program managers and IT PMs to address OMB's feedback and to update Major IT Business Cases and Major IT Business Case Details to reflect the final budget funding levels for the President's Budget Request. The Capital Planners submit the final versions to the CIO for final review and approval. Once the CIO approves the Major IT Business Cases and Major IT Business Case Details, the Capital Planners submit them to the ITDB.

#### Deliverables and Timeline

The Major IT Business Cases and Major IT Business Case Details must be submitted for each major IT investment twice a year using the schedule provided by OMB in the annual IT Budget—Capital Planning Guidance:

- Agency Budget Request Major IT Business Case/Detail: *due in mid-September*



- 
- President's Budget Request Major IT Business Case/Detail: *due in early February*
  - Initial/updated documents and artifacts: *submit within 5 business days upon OMB request*
    - risk management plan
    - investment charter, including IPT charter
    - investment-level alternative analysis and benefit-cost analysis
    - operational analysis (OA) (for operational or mixed life-cycle systems)
    - post implementation review results (investment level or project specific)
    - documentation of investment rebaseline management approval(s)
    - acquisition strategy
    - release plan with budget baseline
    - product backlog
    - sprint plan with backlog and burndown chart

Note that OMB may request additional supporting information from agencies as necessary.

## Major IT Investment Monthly Reviews and CIO Evaluations

### Purpose

The Major IT Investment Monthly Reviews and CIO Evaluations are performed to actively monitor and assess the health of the NRC's major IT investments throughout the year of execution. The key objectives are (1) to ensure that corrective actions are taken quickly to address any deficiencies in project or operational components and (2) to enable the NRC to adjust its objectives for an investment and appropriately modify expected outcomes if mission or business needs have changed.

### Description

The approved Major IT Business Cases and Major IT Business Case Details provide the baseline for monthly reviews and CIO evaluations. The major IT investments are carefully monitored on a monthly basis throughout the year of execution, with the focus on tracking progress on project cost and schedules, risk mitigation, and operational performance. This helps identify concerns early on so corrective actions can be implemented and risks mitigated. It also provides a means for meeting reporting requirements. OMB requires the Major IT Business Case Detail to be updated on the ITDB as new information becomes available or at least monthly. Even though it is only required that the full Major IT Business Case be submitted semiannually (during annual and passback submissions), updates to IPT contacts, life-cycle costs, and acquisition data should be made whenever new information becomes available and can be submitted during a monthly submission.

During the first week of each month, the Capital Planners perform monthly reviews of their assigned major IT investments to track and monitor progress, performance, and risk. The Capital Planners must review the Major IT Business Case and Major IT Business Case Detail and identify data that need to be updated, areas for improvement, and potential areas of concern (e.g., delays in project schedules, increases in cost, failure to meet performance metrics).



Key areas deserving review and monitoring are as follows:

- any updates to the IPT
- contract end dates
- addition of new contracts
- modifications to existing contracts
- contract information alignment with the [Federal Procurement Data System](#)
- project activity projected start date (evolving date)
- project activity projected completion date (evolving date)
- project activity projected total cost (evolving cost)
- project activity actual start date (coming up, past due, delayed)
- project activity actual completion date (coming up, past due, delayed)
- project activity actual total cost (coming up, past due, delayed)
- operational/performance metrics actuals
- operational/risk information

After this initial review, the Capital Planners provide an initial assessment and inquiries to the investment program managers, requesting responses and new or updated data within 3 business days of receiving monthly invoices, which are due to the investment program managers by the 15th of each month, as are the results of performance metrics. Once the Capital Planners receive the new or updated data and responses to any inquiries, they enter the data into the portfolio management and submission tool, validate the data, run a comparison report, and submit the data to the ITDB. The Capital Planners will send the comparison report and a submission confirmation report to the CIO. In the e-mail, the Capital Planner is to highlight any significant changes; propose an updated rating and comment, if appropriate; and request approval to submit the updates to OMB. Once the CIO provides a final evaluation and approves the updates, the Capital Planners will finalize the data in the CPIC tool and submit the updates to the ITDB.

The CIO Evaluations are updated as new information becomes available or at least quarterly. The CIO Evaluation criteria is a set of CIO-approved questions that cover risk management; requirements management; contracts; performance management; human capital; other areas (e.g., EA, CPIC, records management); and cybersecurity. During the last month of each FY quarter, the Capital Planner will schedule a meeting with IT PMs to discuss the CIO Evaluation questions. Additionally, the Capital Planner will reach out to cybersecurity, EA, CPIC, and records management SMEs to discuss their respective focus area questions within the CIO Evaluation process. All responses are entered in the CPIC tool, and each focus area is given a rating. The CPIC tool automatically provides a suggested rating for each investment, and a variance report is produced. All findings and proposed ratings are presented to the CIO the first month of each FY quarter. Upon CIO approval of the CIO Evaluations, the Capital Planner will submit the investment-level ratings and comments to the ITDB.

#### Inputs

The IPTs, primarily the IT PMs, are responsible for providing the most current information about the investment, including, but not limited to, the current data on the following:





- IPT members
- contracts
- projects
- activities
- operational/performance metrics
- operational risks
- corrective actions
- action items (such as ITB, IPEC, or TechStat action items)

The IPTs and IT PMs are also responsible for responding to any specific questions from the Capital Planners in a timely manner.

Additional input can also come from the CIO as a result of his or her review of the reports, such as an adjusted CIO evaluation.

#### Deliverables and Timeline

The following are the deliverables of the Major IT Investment Monthly Reviews:

- Updates to the Major IT Business Case should be made and submitted when new information becomes available or at least monthly.
- CIO evaluations should be updated and submitted when new information becomes available or at least quarterly.

See the NRC's TechStat Policy in the [NRC IT Policy Archive](#) to learn more about how CIO evaluations can trigger and inform TechStat reviews.

### **Quarterly Investment and Portfolio Reviews**

#### Purpose

This process allows the CIO to see planned expenditures for IT investments at the contract and task order levels and at all levels of the NRC's budget structure throughout the year of execution.

#### Description

Quarterly reports are generated using authoritative data from the following systems:

- The Spend Plan module within the NRC's Budget Formulation System (BFS) tracks contract costs and projected funding needs based on planned spending, combined with financial and contract information. The Spend Plan is a centralized, standardized tool that increases efficiency in budget execution planning and management.
- The Financial Accounting and Integrated Management Information System (FAIMIS) is the NRC's core financial accounting system and the authoritative source for budget execution and fees for reimbursable work. FAIMIS also supports accounting for assets, liabilities, fund balances, revenues, and expenses in accordance with Federal standards.



- The Human Resources Management System supports the submission, approval, and adjustment of employees' hours, as well as management of time, attendance, leave, and payroll processing.

OCFO requires contracting officer representatives (CORs) in all offices to update their spending plans for active contracts on a quarterly basis for the upcoming 12 months. During FY 2015, the OCIO CPIC and IT budget staff, with OCFO support, piloted a process to compare spend plans, aggregated at office or product levels, or both, to the enacted budget to identify significant anomalies. Identified discrepancies were communicated to the responsible ITB representative who was then tasked to work with the COR(s) to validate and explain the anomaly using contract-level and task-order-level reports. ITB representatives were asked to assess whether the anomaly was a short- or long-term deviation and determine whether the discrepancy resulted in projected excess funds that could be reallocated to other agency priorities or represented an unfunded need that could be met by rebalancing the IT portfolio or reallocating other non-IT agency resources. The collective findings of the ITB representatives were then presented to the CIO, CFO, and IPEC to facilitate FY 2015 rebalancing decisions. In FY 2016, the CIO refined and formalized the process to facilitate a repeatable, quarterly review of the execution of the IT budget, with excess funds and unfunded needs presented to the IPEC to facilitate rebalancing decisions, as appropriate. As implemented in FY 2017, these quarterly reviews provide visibility into all investments (major and nonmajor), as well as the overall health of the IT portfolio.

#### Inputs

Quarterly investment and portfolio reviews are developed using the following inputs:

- BFS spend plan reports
- summary- and detail-level forward funding information and comparisons of IT budgets against actual expenditures generated using the FAIMIS Financial Analysis Reporting Suite
- OCIO approvals and explanations regarding reallocations and emergent needs affecting the IT portfolio
- BFS and/or Human Resources Management System reports capturing full-time equivalent budgets and actual utilization during the year of execution
- input from ITB representatives and CORs regarding identified anomalies

#### Deliverables and Timeline

As implemented in FY 2017, the quarterly investment and portfolio review process yields the following deliverables on a quarterly basis:

- summary- and detail-level reports to facilitate rebalancing decisions to accommodate assessment of emergent needs and reallocation requests during the subsequent quarter
- documented explanations and decisions relating to discrepancies or anomalies identified during the quarterly review and assessed by both ITB and IPEC





OCIO conducts this review and presents the findings and recommendations to the IPEC on a quarterly basis.

See the NRC's TechStat Policy in the [NRC IT Policy Archive](#) to learn more about how quarterly investment and portfolio reviews can trigger and inform TechStat reviews.

## Major IT Investment Control Reviews

### Purpose

Control reviews are used to identify and address issues early. As a result of these reviews, the ITB can issue minor corrective actions to IPTs or make recommendations to IPEC for matters warranting executive decision. The ITB can also assign action items, as appropriate (e.g., action to update documentation or respond to requests for additional information). Results from control reviews are used as input into the annual OA and can be used to inform CY budget reprioritization and reallocations.

### Description

During each year of execution, the Capital Planners are required to conduct a thorough review of all major IT investments based on data sources such as monthly reviews and any post implementation reviews, as well as any findings from the annual OA performed on the PY data. This review is to be done in collaboration with the respective IPTs, with the full engagement of any IT PMs executing and managing projects within the investment. Together they present the control review findings to the ITB. The control reviews help identify and address issues early and monitor and identify issues with performance, risk mitigation, cost and schedule, and current contracting plans or strategies. Although the focus is on the execution of any current projects and the associated cost, schedule, and milestones, as well as the current burn rate for operations and maintenance, it is also important to present any significant findings from the previous year's OA and any post implementation reviews of functionality implemented during the previous or current FY.

Once all of the data have been compiled and analyzed, all significant findings will be presented to the ITB. This will increase the transparency of major IT investments; bring awareness to all ITB members; provide a collaborative and open forum to discuss successes, risks, budgetary issues, and corrective actions; and implement governance over IT investments. The Capital Planner compiles and edits all significant findings with input from, and in conjunction with, the appropriate investment program managers. Subsequently, the Capital Planner facilitates, and the IT PMs present the data to the ITB.

### Inputs

The deliverables from the following processes provide inputs into the control reviews:

- Major IT Investment Monthly Reviews and CIO evaluations
- post implementation reviews
- OA

Additional sources of information include the following:



- current risk logs and progress on the plan of actions and milestones
- customer satisfaction surveys, if applicable

#### Deliverables and Timeline

The Major IT Investment control reviews before the ITB will occur during the second and third quarter of each FY. Ideally, holding them early enough in the FY to take corrective actions, if needed, would support improved CY execution, as well as support the next business case updates that take place annually with the release of OMB's BY guidance in June/July.

### **CIO TouchPoints**

#### Purpose

CIO TouchPoints keep the CIO well informed and provide the opportunity for early mitigation or corrective actions, as appropriate. These discussions support risk categorization and CIO evaluations of major IT investments, as required by FITARA. CIO TouchPoints also provide an additional opportunity for the CIO to maintain involvement with major programs and to influence future planning and set the direction of the IT portion of major programs.

#### Description

CIO TouchPoints are direct one-on-one discussions between the NRC's CIO and a major IT investment's IPT, especially IT PMs executing projects under the investment. Each CIO TouchPoint is a 30-minute session that provides the opportunity for open, candid discussion on items such as the status of milestones and deliverables, changes in cost and schedule, open risks, major accomplishments, investment challenges, future planning (CY, BY, and BY+1), and changes in business needs or acquisition strategies. At a minimum, the CIO will hold one CIO TouchPoint session a year with each major IT investment. Additional CIO TouchPoints may be scheduled at the CIO's discretion.

#### Inputs

The basis or starting point for these discussions will be the authoritative data captured in the CPIC tool, especially as contained in the current Major IT Business Case, Major IT Business Case Detail, CIO Evaluations, OA, and the most current version of the investment's required artifacts. The CIO provides the Capital Planner with the main interest or topics of discussion for each investment, as appropriate.

#### Deliverables and Timeline

The CIO holds one CIO TouchPoint a year for each major investment but can request additional TouchPoints for any investment (major or nonmajor) at any time. CIO TouchPoints are scheduled around such factors as the timing of major milestones, deliverables, and corrective actions.

### **Evaluate Process: Learn, Recommend, Adjust**

The purpose of the Evaluate processes is to compare actual versus expected benefits and costs of IT investments and projects to assess return on investment, customer satisfaction, and value to the NRC in meeting mission and business needs. The key objectives are as follows:



- Assess the capacity of a project or investment to meet performance expectations within cost and schedule thresholds and in compliance with IT policies.
- Identify any needed changes or modifications to an investment (including associated projects or activities).
- Update IT investment management policies, processes, and procedures based on lessons learned.

The Evaluate processes are used to analyze IT investment data to support the decisionmaking required to maximize the value of IT investments and the maturation of the IT portfolio and IT management practices. This entails performing annual operational analyses, post implementation reviews, and, as needed, TechStats. (See the NRC's TechStat Policy and Process Overview in the [NRC IT Policy Archive](#) for more information on TechStats.) Although each helps inform the selection, re-selection, and de-selection of projects and investments within the IT portfolio, the OA is paramount. The NRC has based its OA on the requirements set forth in the "Capital Programming Guide," Section III, "Management In-Use." It provides a periodic, structured assessment of the cost, performance, and risk trends over time to help determine when cost and risk associated with an investment are no longer reasonable and outweigh the value received from the investment.

Capital Planners are responsible for executing all Evaluate processes and facilitating the select processes. One investment analyst is designated as the CPIC Lead, and one is designated as the CPIC Lead. The CPIC Lead serves as the SME on relevant Federal mandates, Executive Orders, OMB guidance, and agency policy and ensures that Evaluate processes and procedures are documented, implemented, enforced, updated, and continuously enhanced. The CPIC Lead serves as the SME on select criteria and ensures that the select processes and procedures are documented, implemented, enforced, updated, and continuously enhanced.

## Post Implementation Reviews

### Purpose

The post implementation review is used to evaluate stakeholder and customer/user satisfaction with the end product, mission/program impact, and technical capability, as well as to provide decisionmakers with lessons learned so they can improve investment management and decisionmaking processes.

### Description

The post implementation review is an IT investment project evaluation tool. The post implementation review is conducted once a system, service, or new functionality has been operational for 6–12 months. The post implementation review is designed to achieve the following objectives:

- Validate estimated project benefits and costs.
- Evaluate stakeholder and customer/user satisfaction with the end product, mission/program impact, and technical capability.



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- Determine whether additional actions, modifications, or enhancements are needed.
  - Document effective management practices for broader use.

In an effort to maximize the value of the post implementation review process and minimize oversight costs, post implementation reviews are only required for projects within major IT investments. However, the CPIC team and the IT governance boards will reserve the right to initiate a post implementation review on projects within nonmajor investments to assess lessons learned or identify areas of concern.

For more information on post implementation reviews, see the “Capital Programming Guide,” Section III.

#### Inputs

Each post implementation review will contain business case data that provide an overview of the project to be evaluated. The CPIC staff will interview the IT PM to complete the post implementation review, which includes the following seven assessment areas.

- (1) schedule assessment (PM input required)
- (2) cost assessment (PM input required)
- (3) scope assessment (PM input required)
- (4) strategic alignment (PM input required)
- (5) cost savings assessment (PM input required)
- (6) customer value assessment (customer input required)
- (7) risk assessment (PM input required)

In addition, the PM should provide any lessons learned or best practices that can be applied to other projects. These lessons learned should be communicated throughout the investment portfolio as a method of knowledge sharing. They should also be shared with executive management in an effort to highlight and assist in enforcing the use of best practices. Lessons learned should be communicated using the following methods:

- communications to all IT PMs, IPTs, and PMM
- PM community of practice
- IPEC meetings
- ITB meetings
- updated policy/process documentation
- training

The lessons learned from post implementation review should also be housed in a central repository for future reference by project teams.

#### Deliverables and Timeline

The Capital Planners will use the data from the assessments to determine whether there are areas of critical concern that require additional action. The Capital Planners will make recommendations as to which areas should be addressed and, where appropriate, recommend



specific actions to be taken. All findings and recommendations will be discussed with the IT PM and IPT to gain alignment and agree upon next steps.

Once an action plan has been defined, the Capital Planners and IT PM will take the following actions:

- The IT PM will communicate this action plan to the investment owner for awareness.
- Through the facilitation of the Capital Planners, the IT PM will present findings, recommendations, and action plans to the ITB as a separate agenda item or as part of a control review.
- The Capital Planners will track all post implementation review action plans.
- The IT PM and Capital Planners will incorporate lessons learned into the appropriate business processes.

## Operational Analysis

### Purpose

The OA examines the ongoing performance of an operating component under an IT investment and measures that performance against established cost, schedule, and performance goals. The purpose is to determine how the investment's objectives could be better met, how costs could be reduced, and whether the agency should continue performing a certain function.

### Description

During the requirements, design, development, test, and implementation phases of an investment's life cycle, great emphasis is often placed on meeting the budget, scope, and schedule to ensure the desired functionality is delivered on time and according to requirements; however, these costs are only a fraction of the asset's total life-cycle costs. Ownership costs, such as operations and maintenance, including service contracts and disposition, can easily consume as much as 80 percent of the total life-cycle costs. As such, the periodic, structured assessment of the cost, performance, and risk trends over time is essential to minimizing costs in the operational life of the asset.

The OA is conducted annually to evaluate the cost of continued maintenance support; manage risk, assess technology opportunities, determine an investment's continued effectiveness in supporting mission and stakeholder requirements, identify gaps and determine whether enhancements should be made, and consider potential retirement or replacement. The results of this analysis are used to provide recommendations as to the asset's continued use, modification, or termination/replacement.



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In accordance with requirements set forth in the “Capital Programming Guide,” Section III, the OA must report performance in four specific areas:

- (1) **Customer satisfaction** measures performance in terms of the extent to which the investment supports customer processes as designed. The focus is on how well the investment delivers the services it was funded to deliver (i.e., effectiveness) and considers stakeholder perception on whether the costs associated with providing the service are as low to the customer as they could be. Customer satisfaction data are typically collected in surveys and measured using both quantitative and qualitative metrics.
- (2) **Strategic and business results** measure the investment’s impact on the performance of the NRC. These results provide a measure of how well the investment is meeting business needs, whether it is contributing to the achievement of the NRC’s strategic goals, and whether it continues to be aligned with the NRC’s strategic direction. Strategic and business results should be unique to an operational domain. For example, performance metrics associated with paying vendor invoices are relevant to the finance operational domain. On the other hand, performance metrics associated with processing and managing grant applications are relevant to a research-oriented operational domain. Strategic and business result metrics must be designed to measure *the investment’s* contribution to mission processes, independent of other aspects of the process, such as the individual competencies of the people performing the process.
- (3) **Financial performance** measures and compares current cost-related performance with the preestablished cost baseline. It also includes efficiency measures such as tracking actual costs of work performed against budgeted costs. Although financial performance is typically reported as a quantitative measure, the investment should also be subjected to regular reviews for cost effectiveness and efficiency.
- (4) **Innovation**, when reviewed, provides an opportunity to conduct a qualitative analysis of the investment’s performance in terms of the three previously mentioned areas—customer satisfaction, strategic and business results, and financial performance. It should demonstrate the extent to which the project team is tracking emerging technologies and performing ongoing analyses of alternatives for achieving the same or better customer results and strategic goals at better cost, performance, and risk levels than the current solution. This qualitative assessment should also demonstrate the investment’s ability to meet emerging requirements and support long-term strategic objectives given its engagement with strategic planning activities and its technical architecture.

For more information on OA, see the “Capital Programming Guide,” Section III.

#### Inputs

In addition to the Major IT Business Case and Major IT Business Case Detail, all the data collected and outputs of the Control processes are used to perform the OA. For example, the outcomes of an investment’s control review, CIO TouchPoint, CIO Evaluations, and the



monitoring of the progress of any assigned corrective actions would be used. In addition, the results of any customer surveys and interviews would be a valuable input.

#### Deliverables and Timeline

During the first quarter of each FY, the Capital Planners will work with the Customer Service Branch, Enterprise Architecture Branch, the OCIO financial management team, and the appropriate IPT members to conduct the OA based on all the information collected, the investment's performance during the FY that just ended, in addition to past operational data. The OA must look at the entire operational history and any trends.

Once the OA has been completed, the Capital Planners will take the following actions:

- In collaboration with the Customer Service Branch, EA Branch, and financial management team, present the findings, analysis, and recommendations of the OA to the ITB and the CIO.
- Ensure that any corrective actions and actions items are recorded and tracked.





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## Appendix A: The U.S. Nuclear Regulatory Commission's Information Technology Portfolio Structure

The terms defined below explain how the information technology (IT) portfolio is organized and structured. "Part" refers to the section of the Agency IT Portfolio Summary where agencies are to list investments according to their purpose. The Office of Management and Budget (OMB) requires agencies to report investments individually within the following parts:

- Part 1: IT Investments for Mission Delivery
- Part 2: IT Investments for Administrative Services and Support Systems
- Part 3: IT Investments for IT Infrastructure, IT Security, and IT Management

"Program area" refers to the mission delivery and management support areas within an agency. The U.S. Nuclear Regulatory Commission (NRC) has four program areas: (1) Nuclear Reactor Safety, (2) Nuclear Materials and Waste Safety, (3) Financial Management, and (4) Corporate Support.

"IT investment" refers to the expenditure of IT resources to enable core functions and processes that support the agency's mission and operational business requirements. An IT investment may include one or more 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 the asset(s) in a production environment. All investments should have a defined life cycle with start and end dates. The end date should represent the end of the currently estimated useful life of the investment based on its assets' most current alternative analyses or the results of the investment's most current OA summarizing the operational performance of its assets and the investment's ability to deliver required functionality. There are different types of investments:

- "Major IT investment" refers to an IT investment in Part 1 or Part 2 of the IT portfolio requiring special management attention because of its importance to the mission or function to the Government; significant program or policy implications; high executive visibility; high development, operating, or maintenance costs; unusual funding mechanism; or definition as major by the agency's Chief Information Officer (CIO) or the Capital Planning and Investment Control process. A Major IT Business Case must be submitted for each major IT investment in an agency's IT portfolio to provide detailed justification for the associated IT budget request in the Agency IT Portfolio Summary and to provide supplemental data for monitoring the investment's performance and risk throughout the calendar year execution. Major IT investments are continuously monitored and updates provided to the CIO and OMB on a monthly basis.
- "Funding transfer investment" refers to the portion of funding a partner agency provides funding contributions to another investment managed by another agency. The NRC is a partner agency to a number of shared services (e.g., e-Gov initiatives, line of business solutions) operated and maintained by other agencies. Each managing partner lists the shared services as a major IT investment in Part 1 or Part 2, as appropriate, on its Agency IT Portfolio Summary. The NRC reports funding contributions to the managing





partner by including its portion of the funding on the NRC's Agency IT Portfolio Summary in Part 1 or Part 2, as appropriate.

- "IT migration investment" refers to the migration costs associated with systems in a shared service partner agency that are not captured by the managing partner during the partner agency migration to the shared service. The investment's life cycle is for the duration of the migration. Once the migration is complete, the investment is retired, and the partner agency begins reporting the funding contributions to the managing partner of the shared service, as a funding transfer investment, described above.
- "Nonmajor IT investment" refers to any IT investment in Part 1 or Part 2 of the agency's IT Portfolio that does not meet the definition of a major IT investment, funding transfer investment, or IT migration investment.
- "Standard IT investment" refers to a Part 3 investment that has been disaggregated to its discrete components and managed separately. Standard investments draw clear delineation between the types of IT investments needed by every agency to deliver the same basic IT services upon which the entire agency's mission and business capabilities depend. The standard investments across the Government are Application, Data Center and Cloud, Delivery, End User, IT Management, IT Security and Compliance, Network, and Output.

(Note: Each Investment is assigned a unique investment identifier for tracking, budgeting, and reporting purposes, both internally to the CIO and Information Technology/Information Management Portfolio Executive Council (IPEC) and externally to OMB.)

**Component** refers to any IT-related items (tangible or intangible) that have value to an organization, including, but not limited to, an IT system; service; function; network/circuit; hardware; software (either an installed instance or a physical instance); virtual computing platform (common in cloud and virtualized computing); or related hardware (e.g., cables, racks, servers). It also refers to people and intellectual property. Components have associated budget items, the lowest level at which IT is planned, acquired, implemented, and operated. Budgeting at this level provides the IT cost transparency required by the CIO, Chief Financial Officer, and IPEC for decisionmaking and for compliance with multiple relevant authorities. A complete list of legal regulatory authorities is provided in Appendix A, "Legal Regulatory Authorities."

(Note: Each IT component is assigned a component identifier to assist with internal tracking, budgeting, and reporting activities and to facilitate the necessary rollup to meet OMB tracking and reporting requirements.)

**Budget item** (formerly referred to as "Activity") refers to planned and approved expenses, projects, and full-time equivalent allocations that constitute the costs and resources associated with a given IT component. Funding for budget items is categorized as either operations and maintenance (O&M) or development, modernization, and enhancement (DME):

- O&M refers to the expenses required to operate and maintain an IT asset that is operating in a production environment. O&M includes costs associated with operations,



maintenance activities, and maintenance projects needed to sustain the IT asset at the current capability and performance levels. It includes Federal and contracted labor costs, corrective hardware and software maintenance, voice and data communications maintenance and service, replacement of broken or obsolete IT equipment, overhead costs, and costs for disposal of an asset. O&M is also commonly referred to as “steady state.”

- DME refers to projects and activities leading to new IT assets, as well as projects and activities that change or modify existing IT assets to substantively improve capability or performance, implement legislative or regulatory requirements, or implement an agency executive leadership decision. A DME activity may occur at any time during a program’s life cycle. As part of DME, capital costs can include hardware, software development and acquisition costs, commercial off-the-shelf acquisition costs; Government labor costs; and contracted labor costs for planning, development, acquisition, system integration, and direct project management and overhead support.

Starting in FY 2018, the NRC will also break investment costs into IT Towers and IT Cost Pools at the Budget Item level to ensure the CIO has the visibility needed during budget execution and to collect data that will better inform strategic planning, decisionmaking, and future budget formulation.

- IT Towers refer to a set of defined IT categories that provides a means for categorizing the total cost for an IT investment into standard IT costs (i.e., common to all agencies). The categories are Application, Compute, Data Center, Delivery, End User, IT Management, IT Security and Compliance, Network, Output, and Storage. Breaking the total cost of each investment into these categories provides a “CIO view” or technical view of the IT costs associated with an investment. This view can be used to explain or justify the spend by tying the cost directly to the mission and business capabilities being supported. The IT towers are based on the technology business management (TBM) taxonomy. See Appendix B, “Technology Business Management IT Cost Pools and IT Tower Definitions,” for the IT tower definitions.
- IT Cost Pools refer to a standard set of IT costs associated with each investment that provides a “CFO view” or financial view that can be mapped to the general ledger. Like the CIO view, this view provides a direct line of sight between IT costs and the mission and business capabilities being support. It is intended to provide the ability to determine the cost per user by program area. The standardized IT cost pools are External Labor, Facilities and Power, Hardware, Internal Labor, Internal Services, Outside Services, Software, Telecom, and Other. The IT cost pools are based on the TBM taxonomy. See Appendix B for the IT cost pool definitions.

(Note: There are numerous Budget Items associated with the IT portfolio; therefore, they are not lists in this document. Budget Items associated with each component under every investment can be viewed in the agency’s capital planning and portfolio management tool.)



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## Appendix B: Information Technology Budget Certification and Approval

Once investments and projects are selected for inclusion in the information technology (IT) portfolio, IT resources must be included in the budget. As the secretariat for the IT governance boards, the Capital Planners are responsible for ensuring selected investments, components, and projects are incorporated in the IT budget formulation process for funding. In addition, the Federal Information Technology Acquisition Reform Act (FITARA) requires that the Capital Planners facilitate the certification and approval of the IT budget. The IT budget staff within Office of the Chief Information Officer work closely with a liaison from the Office of the Chief Financial Officer (OCFO) to ensure proper timing and alignment with the overall budget formulation process and to develop IT/information management budget instructions. The initial analysis and prioritization allows for proper timing for the IT governance boards to begin their reviews, recommendations, and approvals of the IT budget to be included in the overall agency budget.

Once the Commission approves the final IT budget, the IT budget staff provide the resultant IT budget request to the Capital Planners for use in finalizing the IT Capital Planning and Investment Control (CPIC) documents. The Capital Planners will enter the data into the IT portfolio management and submission tool to update the Agency IT Portfolio Summary and Major IT Business Cases and work with OCFO to ensure that the "IT Table" and "IT Statements" are included in the U.S. Nuclear Regulatory Commission's (NRC's) overall Performance Budget submission to the Office of Management and Budget (OMB), as required by FITARA and described in the Common Baseline, annual OMB Circular A-11, "Preparation, Submission, and Execution of the Budget," Section 51.3, and the IT Budget—Capital Planning Guidance. The agency's budget justification materials in the initial budget submission to OMB must include the following affirmation statements:

- The NRC's Chief Information Officer (CIO) affirms that he or she has reviewed and approved the major IT investments portion of the budget request.
- The NRC's Chief Financial Officer (CFO) and CIO affirm that the agency's CIO had a significant role in reviewing planned IT support for major program objectives and significant increases and decreases in IT resources.
- The NRC's CFO and CIO affirm that the IT portfolio includes appropriate estimates of all IT resources included in the budget request.
- The CIO's current common baseline rating for Element D, Item D1, "CIO Reviews and Approves Major IT Investment Portion of Budget Request," is "fully implemented." The NRC has developed and implemented its plan to ensure that the necessary processes and procedures are in place to fulfill these common baseline FITARA responsibilities.



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- The CIO can certify that the use of modular approaches and/or incremental development practices for contracts and projects associated with the major IT investment portion of the NRC's IT budget request.



## Appendix C: Related Definitions

Below are Office of Management and Budget (OMB) definitions useful for understanding the Capital Planning and Investment Control processes. For a complete list of related OMB definitions, see the current version of “Integrated Data Collection Common Definitions” posted on [MAX.gov](https://www.max.gov).

**Adequate Incremental Development** means that planned and actual delivery of new or modified technical functionality to users occurs at least every 6 months during the development of software or services.

**Capital Programming** refers to an integrated process within an agency that focuses on the planning, budgeting, procurement, and management of the agency’s portfolio of capital investments to achieve the agency’s strategic goals and objectives with the lowest overall cost and risk.

**Cost Avoidance** means an action taken in the immediate timeframe that will decrease costs in the future. For example, an engineering improvement that increases the mean time between failures and thereby decreases operation and maintenance costs is a cost avoidance action (as defined in OMB Circular A-131, “Value Engineering,” dated December 26, 2013).

**Cost Savings** refers to the reduction in actual expenditures to achieve a specific objective (as defined in OMB Circular A-131).

**Digital Services** means the software and related technology the Federal Government provides for the public to access a service of the Federal Government, or software and technology that is custom built on behalf of the Federal Government to directly support the delivery of a service of the Federal Government to the public.

**Information Life Cycle** means the stages through which information passes, typically characterized as creation or collection, processing, dissemination, use, storage, and disposition (including destruction and deletion).

**Information Management** means the planning, budgeting, manipulating, controlling, and processing of information throughout the information life cycle.

**Information Resources** means information and related resources, such as personnel, equipment, funds, and information technology (IT) (44 U.S.C. § 3502).

**Information System** refers to a discrete set of IT, data, and related resources (such as personnel, hardware, software, and associated IT services) organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information, in accordance with defined procedures, whether automated or manual (see OMB Circular A-130, “Managing Information as a Strategic Resource,” dated July 27, 2015, and 44 U.S.C. § 3502).



**Information System Life Cycle** means all phases in the useful life of an information system, including planning, acquiring, operating, maintaining, and disposing/decommissioning.

**Information Technology (IT)** is defined as follows:

- IT includes any services or equipment, or interconnected system(s) or subsystem(s) of equipment, that are used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency, where such services or equipment are “used by an Agency” if used by the Agency directly or if used by a contractor under a contract with the agency that requires either use of the services or equipment or requires either use of the services or equipment to a significant extent in the performance of a service or the furnishing of a product.
- IT includes computers; ancillary equipment (including imaging peripherals, input, output, and storage devices necessary for security and surveillance); peripheral equipment designed to be controlled by the central processing unit of a computer; software; firmware and similar procedures; services (including provisioned services such as cloud computing and support services that support any point of the life cycle of the equipment or service); and related resources.
- IT includes high-performance computing capabilities, including capabilities that are not commodity in nature.
- IT does not include any equipment that is acquired by a contractor incidental to a contract that does not require use of the equipment.

**IT Asset** refers to any IT-related items (tangible or intangible) that have value to an organization, including, but not limited to, a computing device; IT system; IT network; IT circuit; software (both an installed instance and a physical instance); virtual computing platform (common in cloud and virtualized computing); related hardware (e.g., locks, cabinets, keyboards); as well as people and intellectual property (including software). Assets are the lowest level at which IT is planned, acquired, implemented, and operated.

**IT Investment** refers to the expenditure of IT resources to address mission delivery and management support. 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. All IT investments should have a defined life cycle with start and end dates, with the end date representing the end of the currently estimated useful life of the investment, consistent with the investment’s most current alternatives analysis, if applicable. *When an asset is essentially replaced by a new system or technology, the replacement should be reported as a new, distinct investment, with its own defined life-cycle information.*

**IT Resources** are defined as (1) all agency budgetary resources, personnel, equipment, facilities, or services that are primarily used in the management, operation, acquisition, disposition, and transformation or other activity related to the life cycle of IT and (2) acquisitions



or interagency agreements that include IT and the services or equipment provided by such acquisitions or interagency agreements. IT resources do not include grants to third parties that establish or support IT not operated directly by the Federal Government.

**IT System** refers to a discrete set of information resources organized for the collection, processing, maintenance, transmission, and dissemination of information, in accordance with defined procedures, whether automated or manual.

**Interagency Agreement** means, for the purposes of this document, a written agreement entered into between two Federal agencies that specifies the goods to be furnished or tasks to be accomplished by one agency (the servicing agency) in support of the other (the requesting agency), including assisted acquisitions as described in OMB's guidance on "Improving the Management and Use of Interagency Acquisitions," dated June 6, 2008, and other cases described in Part 17, "Special Contracting Methods," of the Federal Acquisition Regulation.

**Major IT Investment** means an IT investment in Part 1 and Part 2 of the IT portfolio that requires special management attention because of its importance to the mission or function to the Government; significant program or policy implications; high executive visibility; high development, operating, or maintenance costs; unusual funding mechanism; or definition as major by the agency's Capital Planning and Investment Control process. Agencies should also include all "major automated information systems," as defined in 10 U.S.C. § 2445, and all "major acquisitions," as defined in the OMB Circular A-11 supplement "Capital Programming Guide," which includes information resources. OMB may work with the agency to declare IT investments as major IT investments. Agencies must consult with assigned OMB desk officers and resource management offices on which investments are considered "major." Investments not considered "major" are "nonmajor."