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Federal Information Technology (IT) Budgeting Process in the Executive Branch: An Overview

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SUMMARY

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Federal Information Technology (IT) Budgeting Process in the Executive Branch: An Overview

Information technology (IT) systems serve as a means by which federal agencies interact with citizens, other federal agencies, state and local governments, and the private sector (such as contractors providing goods and services to the federal government). In these interactions, IT plays an important role in multiple aspects of government operations, including

- providing services directly to the public,
- running the back-office operations of agencies,
- maintaining records of government activities, and
- providing information to Congress and the public about the activities of agencies and the President.

In recognition of IT's role in sustaining government operations and achieving policy goals, Congress has passed a series of measures that place certain IT planning, budgeting, management, and reporting functions with executive branch agencies, agency chief information officers (CIOs), and the Office of Management and Budget (OMB).

Aspects of these IT functions coincide with the annual executive budget process. Following relevant statutes and OMB guidance, agencies engage in capital planning, which results in decisions about how to invest in current and future IT systems while aiming to make efficient and effective use of taxpayer funds. Capital planning supports agency IT budget proposals that are submitted to OMB and eventually submitted to Congress as a part of the President's annual budget submission.

Information that is associated with agency IT budget submissions and reporting can be broadly divided into two subsets: (1) agency-wide portfolios of IT investments and (2) discrete, individual IT investments or projects. Reporting mechanisms such as the IT Dashboard website provide Congress, taxpayers, and other interested observers with spending data and performance metrics that may be used to help assess the status of agency IT investments.

In considering these and other sources of information during the IT budgeting process and how IT investments affect government operations, Congress may further consider how IT resources are allocated, which IT investment data are most useful to policymakers, and how agencies can most effectively leverage their IT investments to carry out their missions.

This report is intended to assist Members, committees, and congressional staff with questions about selected aspects of IT management in the executive branch. In particular, the report covers key milestones in the executive budget process for IT investments.

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Introduction

Federal spending on information technology (IT) for executive branch agencies and activities totaled an estimated $92 billion in FY2021.[1] The effective and efficient use of IT may play a key role in policy implementation across the federal government's diverse activities. The use of IT as an implementation tool may also inform deliberations on policy design, as Congress, agency officials, and the President consider policy options and corresponding opportunities and risks. IT systems also facilitate congressional oversight of policy areas and executive agencies.

Federal IT Spending at a Glance

- The Department of Defense (DOD) comprised 42% of estimated federal IT spending in FY2021, totaling $38.8 billion.[2]
- Non-DOD agencies (sometimes referred to as "civilian" agencies) comprised the remaining 58% of estimated federal IT spending in FY2021, totaling $53.4 billion. The top three civilian agencies by IT spending in FY2021 were:
  - the Department of Veterans Affairs (VA), with 14.5% of total civilian IT spending;
  - the Department of Homeland Security, with 13.7% of total civilian IT spending; and
  - the Department of Health and Human Services, with 12.0% of total civilian IT spending.[3]

Federal IT has been an area of continuing interest to Congress.[4] Prospectively, IT-related issues may be of particular interest to the House and Senate Appropriations Committees as they consider how to provide resources to agencies and conduct related oversight. Furthermore, IT-related issues may be relevant to almost all of Congress's authorizing committees as agencies seek to maintain and build their capacities to faithfully execute laws. For IT management issues involving the executive branch, the House Committee on Oversight and Reform and the Senate Committee on Homeland Security and Governmental Affairs have taken significant lawmaking and oversight roles.

This report is intended to assist Members, committees, and congressional staff with questions about selected aspects of IT management in the executive branch. In particular, the report covers key milestones in the executive budget process for IT investments. This process typically results in budget requests for congressional consideration. In addition, agency IT projects may involve authorizing legislation to the extent IT-related issues become relevant in policy design, execution, and oversight. To help facilitate informed discussion of the process through which budget proposals take shape, as well as how funded IT projects may be tracked during their development, the report outlines relevant laws, Office of Management and Budget (OMB) guidance, and

[1] Office of Management and Budget (OMB), *Budget of the United States, Fiscal Year 2021: Analytical Perspectives*, February 2020, p. 231, https://www.govinfo.gov/content/pkg/BUDGET-2021-PER/pdf/BUDGET-2021-PER.pdf#page=231. Clinton T. Brass, Specialist in Government Organization and Management, contributed to this introductory section.

The "Information Technology and Cybersecurity Funding" section of the FY2022 *Analytical Perspectives* provided an analysis of agency IT spending but did not include comparable figures for Department of Defense (DOD) IT spending. CRS did not locate an aggregation of DOD's IT spending within the FY2022 President's budget submission. To allow for comparison of non-DOD and defense IT spending, FY2021 figures are provided here.

[2] OMB, *Budget of the United States, Fiscal Year 2021: Analytical Perspectives*, p. 232.

[3] OMB, *Budget of the United States, Fiscal Year 2021: Analytical Perspectives*, p. 232.

[4] For example, see U.S. Congress, House Committee on Oversight and Reform, Subcommittee on Government Operations, *FITARA 10.0*, hearing, 116th Cong., 2nd sess., August 3, 2020, https://oversight.house.gov/legislation/hearings/hybrid-hearing-on-fitara-100.

administrative practices. As an organizing framework, the report uses major stages of the executive budget process to categorize key information flows and reporting mechanisms. This report does not focus on agencies' internal processes related to IT budget formation and project management, because they may vary considerably by agency. The report concludes with a brief discussion of potential issues for Congress.

Background

The current IT budget process is driven by statutory directives, OMB guidance documents, administrative initiatives, and agency practices. In particular, the interaction between the executive budget process and IT-management-related statutes provides the operational framework for IT budgeting activities.

Executive Budget Process Overview

In general, the IT budgeting process follows the schedule of the executive budget process, which is established by statute and specified in greater detail through OMB guidance and agency administrative procedures.[5] The frequency of IT budgetary reporting by agencies and OMB often aligns with corresponding budget process deadlines. Pertinent steps in the budget process—including agency budget preparation and OMB review, the President's budget submission, Mid-Session Review, and budget execution—may be of particular relevance for federal IT projects.

Agency Budget Preparation and OMB Review

Agencies are statutorily required to submit their budget requests to the President, who by law is authorized to determine the form and content of the requests as well as the deadline for submission to OMB.[6] In practice, the President delegates responsibility for this budget coordination to OMB. To facilitate agencies' preparations of their budget requests, OMB provides guidance in the form of circulars, memoranda, and other documents.[7] Among these are two annually issued documents in particular: the OMB *Circular No. A-11*, which provides agencies with detailed instructions and schedules for the submission of budget requests and justifications to OMB, and the *IT Budget—Capital Planning Guidance*, which provides guidance around IT budget submissions and budgetary reporting.[8] (See this report's **Appendix** for a compilation of the annual iterations of the OMB *IT Budget -—Capital Planning Guidance*.) The relevant statute does not require a certain date for submission of these budget requests. OMB has administratively set the annual submission dates for September, which occurs 13 months before the beginning of the forthcoming fiscal year (see **Figure 1**). Agencies also rely on internal processes and analysis to formulate their budget requests,[9] which may vary from agency to agency.

[5] For more information about OMB, see CRS Report RS21665, *Office of Management and Budget (OMB): An Overview*, coordinated by Taylor N. Riccard.

[6] 31 U.S.C. §1108(b)(1).

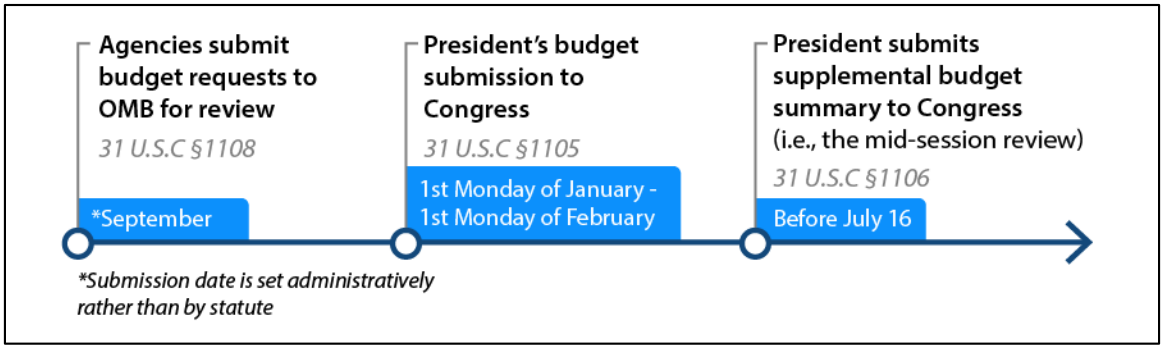
[7] This paragraph draws in part from CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[8] See OMB, *Circular No. A-11*, "Preparation, Submission and Execution of the Budget," April 2021, https://www.whitehouse.gov/wp-content/uploads/2018/06/a11.pdf; and OMB, *FY 2022 IT Budget—Capital Planning Guidance*, November 2020, https://www.whitehouse.gov/wp-content/uploads/2020/11/FY22ITBudget_CapitalPlanningGuidance.pdf.

[9] See CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

After this agency submission in September, OMB's program examiners review agency requests to evaluate their rationales and ensure that they align with the President's policy objectives. Senior OMB officials, the OMB director, and other senior officials may then modify and finalize the agency budget requests. Agencies are notified of these decisions during the "passback" process. These budgetary levels may differ from the agencies' original budget requests. After a potential appeals process, agencies are notified of what will be included in the President's budget submission to Congress early in the next calendar year.[10]

Figure 1. Executive Budget Process Timeline



Sources: CRS analysis of OMB guidance documents, President's budget submissions, and *U.S. Code*.

Note: Relevant statutory requirements are included in *italics*.

President's Budget Submission

The President is required annually to submit a consolidated budget to Congress that must include, in part, estimated receipts, expenditures, and proposed appropriations for the next five fiscal years and actual receipts, expenditures, and appropriations for the previous fiscal year.[11] Account-level information about actual and proposed budgets is included in the budget *Appendix* volume. The *Appendix* contains, for each account, prior-year (actual) appropriations and obligations, current-year (estimated) appropriations and obligations, and proposed appropriations, among other information.[12]

To support this submission, agencies submit more detailed, written justifications of their budget requests to the House and Senate Appropriations Committees and their subcommittees of jurisdiction.[13] The justifications may vary in form and content among agencies and subcommittees, reflecting the informal relationship between agencies and committees as well as congressional direction to receive information in a form that committees may prescribe.[14] In *Circular No. A-11*, OMB instructs agencies to support the President's budget proposals in their interactions with Congress.[15] Additionally, OMB reviews and approves the content of budget

[10] This paragraph draws in part from CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[11] 31 U.S.C. §1105(a).

[12] For further information, see CRS In Focus IF11610, *Federal Financial and Budgetary Reporting: A Primer*, by Dominick A. Fiorentino.

[13] See CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[14] For related statutory language, see 31 U.S.C. §1104(b).

[15] OMB, *Circular No. A-11*, p. 116.

justifications prior to transmittal to Congress.[16] While this is the typical process, some agencies have what is considered "bypass authority," whereby Congress has permitted these agencies to submit budget information directly to Congress, bypassing the President and OMB.[17]

Mid-Session Review

The President is also required to submit annually to Congress a supplemental summary of the budget before July 16, commonly known as the Mid-Session Review.[18] This review includes changes in expenditures and receipts and may reflect changes in economic conditions, actions taken by Congress, or other factors requiring adjustments to the initial budget submission.[19]

Budget Execution

The Constitution provides that federal spending may occur only via appropriations passed by Congress and enacted into law.[20] Accordingly, agencies may begin to execute the budget only after Congress appropriates funds via legislation.[21] The budget execution process is complex across varied appropriations measures and agencies, but some common elements may be grouped into four categories.

1. **Apportionment of funds by OMB.** Appropriations grant agencies budget authority to enter into obligations, but this budget authority may not be immediately available to agencies.[22] A group of statutes referred to as the Antideficiency Act requires that appropriated funds be divided, or apportioned, in legally binding increments "to prevent obligation or expenditure at a rate that would indicate a necessity for a deficiency or supplemental appropriation" or "to achieve the most effective and economical use."[23] OMB apportions funds appropriated to executive branch agencies.[24] Funds may be apportioned by fiscal year quarter or another increment of time; by program, project, or activity; or by a combination of time period and program, project, or activity.[25]

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[16] For related statutory language, see 31 U.S.C. §1108(b)(1).

[17] See CRS Insight IN10715, *When an Agency's Budget Request Does Not Match the President's Request: The FY2018 CFTC Request and "Budget Bypass,"* by Jim Monke, Rena S. Miller, and Clinton T. Brass (available to congressional clients upon request).

[18] 31 U.S.C. §1106(a).

[19] See CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[20] U.S. Const., art. I, §9, cl. 7 (known as the appropriations clause), https://constitution.congress.gov/browse/article-1/.

[21] In the event that an agency's regular appropriations act has not become law prior to the start of the fiscal year, a temporary continuing appropriations act (i.e., a continuing resolution or CR) may be enacted. This allows the agency to continue operating for the period of time covered by the CR. See CRS Report R46595, *Continuing Resolutions: Overview of Components and Practices*, coordinated by Kevin P. McNellis.

[22] See CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[23] The collection of statutes commonly referred to as the Antideficiency Act have been codified in multiple sections of Title 31 (31 U.S.C. §§1341-1342, 1349-1350, 1511-1519).

[24] The President is statutorily responsible for apportioning funds for executive branch agencies (31 U.S.C. §1513(b)(1)). This responsibility has been delegated to OMB.

[25] These "programs, projects and activities" for purposes of apportionment may differ from programs, projects, and activities (oftentimes abbreviated as PPAs) that the House and Senate Appropriations Committees identify in their reports that accompany appropriations bills in the legislative process. Generally speaking, funds apportioned by fiscal quarter are referred to as category A, funds apportioned by PPA are referred to as category B, and funds apportioned by a combination of fiscal quarter and PPA are referred to as category AB. See OMB, *Circular No. A-11*, p. 428.

2. **Entering into obligations.** Agencies enter into obligations when they incur legal liability for the payment of goods and services.[26] In the context of IT budgeting, examples of obligations include awarding contracts for the provision of IT goods or services and hiring IT personnel.
3. **Reporting of obligations.** Congress has also passed statutory provisions resulting in reporting on budget execution at the account level. In 2014, Congress mandated account-level reporting on appropriated amounts and obligations.[27] This account-level view of budget execution is made publicly available at the Spending Explorer portal on USAspending.gov.[28] Separately, OMB has long maintained the *SF-133 Report on Budget Execution and Budgetary Resources* to fulfill a statutory requirement that the President review the pace of obligations at least four times annually.[29] *SF-133*s have historically provided quarterly snapshots of appropriations and obligations at the account level.[30] Additionally, agencies report certain spending data related to IT investments on the IT Dashboard website.[31] The IT Dashboard will be discussed in further detail in subsequent sections of this report.
4. **Outlay of funds.** Outlays occur when an agency disburses funds to liquidate an obligation. In a given fiscal year, outlays may pay for obligations incurred within the same fiscal year or during a prior fiscal year.[32]

IT Funding Mechanisms

Congress provides several mechanisms that agencies can use to fund IT investments. The mechanisms operate differently from each other in some respects, which may have implications for Congress's lawmaking and oversight relating to IT investments.

- **Funds appropriated for an account, with spending on IT.** Congress appropriates funds at the budget account level. Depending on the structure of a given agency's accounts, an agency may then use these funds to pay for IT goods and services. The budget account may be directly related to IT, or IT may support the purpose of budget account (e.g., IT spending may be intended to be included as an overhead expense in support of a program or policy).
- **Nonrecurring expenses funds (NEFs).** Congress has granted to certain agencies, via statute, the ability to transfer unobligated balances of expired

[26] Government Accountability Office (GAO), *Glossary of Terms Used in the Federal Budget Process*, GAO-05-734SP, September 2005, p. 74, at https://www.gao.gov/assets/gao-05-734sp.pdf#page=74.

[27] Federal Funding Accountability and Transparency Act of 2006, as amended by the Digital Accountability and Transparency Act of 2014. See 31 U.S.C. §6101 note.

[28] The USA Spending "Spending Explorer" portal can be found at https://www.usaspending.gov/#/federal_account.

[29] 31 U.S.C. §1512(d). See https://portal.max.gov/portal/document/SF133/Budget/FACTS%20II%20-%20SF%20133%20Report%20on%20Budget%20Execution%20and%20Budgetary%20Resources.html.

[30] For further information, see CRS In Focus IF11610, *Federal Financial and Budgetary Reporting: A Primer*, by Dominick A. Fiorentino.

[31] The IT Dashboard website is located at https://itdashboard.gov/. OMB created the IT Dashboard website in 2009 to increase transparency of agency IT investments.

[32] GAO, *Glossary of Terms*, p. 77.

discretionary funds to an NEF. NEFs may then be used for certain purposes including IT systems investments and modernization.[33]

- **Working Capital Funds (WCFs).** According to the Government Accountability Office (GAO), WCFs are a "type of intragovernmental revolving fund that operates as a self-supporting entity that conducts a regular cycle of businesslike activities. These funds function entirely from the fees charged for the services they provide consistent with their statutory authority."[34] Inter- and intra-agency functions that require the use of IT—such as human resources, payroll, or other shared services—are often funded via a WCF model.[35]
- **Technology Modernization Fund (TMF).** The TMF is overseen by the Technology Modernization Board, consisting of seven voting members.[36] Agencies submit IT-related project proposals for the TMF Board to review and consider for funding. The board has said it intends to use TMF funding in the American Rescue Plan Act to prioritize projects that pertain to modernizing high priority systems, cybersecurity, public-facing digital services, and cross-government collaboration services.[37] Agencies awarded funding by the TMF make repayments according to the project written agreement. Agencies may submit proposals that project full, partial (75%, 50%, or 25%), or minimal repayment.[38]
- **United States Digital Service (USDS).** The USDS is a technology unit housed within the Executive Office of the President that employs designers, engineers, and product managers for tours of service lasting up to four years. These experts supplement the capacity of government agencies to make websites more consumer friendly, to identify and fix problems, and to help upgrade the government's technology infrastructure, among other services.[39] USDS has been

[33] For example, there are currently NEFs for the Department of Agriculture (USDA, see 7 U.S.C. §2250b); the Department of Commerce (15 U.S.C. §1521a); the Department of Education (20 U.S.C. §3483a); and the Department of Health and Human Services (42 U.S.C. §3514a). Of these, the latter three are permitted to use NEF funds for IT investments and modernization. USDA NEF funds may be used only on facility capital investments. In these illustrative examples, NEF funds may, by statute only, be obligated after OMB approval and after notifying the relevant House and Senate appropriations committees.

[34] GAO, *Glossary of Terms*, p. 105.

[35] One example of a WCF exists at the USDA. According to a description by OMB, "This fund finances, by advances or reimbursements, certain central services in the Department of Agriculture, including supply, mail, and reproduction services; financial, procurement, and other administrative systems; telecommunications and network services; mainframe computer processing and hosting services; correspondence management services; payroll, financial management, and human resources services; and video production, conferencing, design, and Web support services." See OMB, *Budget of the United States Government, Appendix*, May 2021, https://www.whitehouse.gov/wp-content/uploads/2021/05/appendix_fy22.pdf#page=71.

[36] U.S. Chief Information Officers (CIO) Council, "Technology Modernization Fund Board," https://tmf.cio.gov/board/.

The TMF was established by statutory provisions that are frequently referred to as the Modernizing Government Technology Act. See the National Defense Authorization Act for Fiscal Year 2018, Title X, Subtitle G, "Modernizing Government Technology" (P.L. 115-91; 131 Stat. 1283, at 1589; 40 U.S.C. 11301 note; see https://www.congress.gov/115/plaws/publ91/PLAW-115publ91.pdf#page=307). This subtitle of the act was named after an earlier, stand-alone version of the legislation (H.R. 2227, 115th Cong.).

[37] CIO Council, "American Rescue Plan," https://tmf.cio.gov/arp/.

[38] CIO Council, "Funding Guidelines for Agencies Receiving Disbursements from the Technology Modernization Fund," https://tmf.cio.gov/documents/funding-guidelines/.

[39] USDS, "Our Mission," https://www.usds.gov/mission.

funded through annual appropriations in the Financial Services and General Government Appropriations Act.

- **18F.** Located within the General Services Administration (GSA), 18F "collaborates with other agencies to fix technical problems, build products, and improve how government serves the public through technology."[40] Congress does not annually appropriate funds to 18F. Instead, it charges partner agencies for services rendered. Charges are recovered under Acquisition Services Fund reimbursement authority and Economy Act reimbursement authority.[41]

Related IT Budgeting Statutes

Several key pieces of legislation have shaped the IT budgeting process. Practitioners often refer to these statutes by their original short titles, even though many of the statutory provisions are now located in different parts of the *U.S. Code*. In 2002, Congress codified many elements of the legislation described below into positive law.[42]

Clinger-Cohen Act of 1996

The Clinger-Cohen Act emerged as a result of growing concern about the federal government's ability to develop and maintain IT infrastructure and personnel.[43] In 1994, a subcommittee of the Senate Committee on Governmental Affairs[44] produced an investigative report that detailed what it described as systemic problems in federal IT procurement as well as ineffective oversight of IT programs.[45] The Clinger-Cohen Act extensively modified federal IT acquisition policy and procurement management.[46] Some of the provisions pertinent to IT budgeting included

- repealing the GSA's centralized role in federal IT procurement and, instead, delegating these responsibilities to agencies;

[40] 18F, "About," https://18f.gsa.gov/about/.

[41] 18F, "About."

[42] In 2002, P.L. 107-217 codified Title 40 of the *U.S. Code* ("Public Buildings, Property, and Works"), which included Subtitle III ("Information Technology Management"), into positive law. Positive law codification refers to the process of preparing and enacting a bill to restate existing law—for example, provisions in stand-alone laws that have not been enacted yet into the *U.S. Code*—as a "positive law" title of the *U.S. Code*. For discussion, see U.S. Congress, House of Representatives, Office of the Law Revision Counsel, "Positive Law Codification," http://uscode.house.gov/codification/legislation.shtml.

[43] The law, as subsequently retitled by P.L. 104-208 (110 Stat. 3009-393), comprised Divisions D (110 Stat. 642) and E (110 Stat. 679) of P.L. 104-106 (110 Stat. 186), at https://www.gpo.gov/fdsys/pkg/PLAW-104publ106/pdf/PLAW-104publ106.pdf. For discussion of the original IT-related provisions as of 2004, see "Clinger-Cohen Act of 1996," by Jeffrey W. Seifert, in CRS Report RL30795, *General Management Laws: A Compendium*, by Clinton T. Brass et al. (available to congressional clients upon request).

[44] The Senate Committee on Governmental Affairs is the predecessor to the current Senate Committee on Homeland Security and Governmental Affairs.

[45] As the ranking minority member of the Subcommittee on Oversight of Government Management of the Committee on Governmental Affairs, Senator William Cohen directed a staff study of major government IT integration and modernization efforts in progress. See U.S. Senator William S. Cohen, *Computer Chaos: Billions Wasted Buying Federal Computer Systems, Investigative Report*, report from minority staff of the Senate Subcommittee on Oversight of Government Management (Washington: October 12, 1994).

[46] Statutory provisions that are associated with the Clinger-Cohen Act of 1996 have been amended and codified into Title 40, Subtitle III, of the *U.S. Code* (40 U.S.C. §§11101-11703) and relate to multiple aspects of IT management and acquisition.

- establishing the role of chief information officers (CIOs) within agencies to develop and maintain IT systems as well as evaluate, assess, and report on IT improvements; and
- establishing a new federal IT capital planning and investment control process, with prominent roles for OMB and agencies.[47]

E-Government Act of 2002

Building on the provisions enacted under the Clinger-Cohen Act, the E-Government Act of 2002 sought to improve federal IT investment and management.[48] The E-Government Act enacted into law several provisions related to IT management.[49] Perhaps the provision most relevant to federal IT budgeting was the creation of the Office of Electronic Government (E-Gov) within OMB.[50] In practice, OMB often refers to the organization as the Office of E-Government and Information Technology.[51] E-Gov is responsible for providing overall leadership for the executive branch on electronic government and setting IT standards and guidelines for executive branch agencies.[52] To implement these statutory requirements, E-Gov helps develop OMB memoranda, circulars, and strategy documents guiding executive branch agencies on IT standards, IT workforce planning, and IT capital planning, among other policy areas.[53]

Federal Information Technology Acquisition Reform Act (2014)

Multiple provisions that have been informally referred to as the Federal Information Technology Acquisition Reform Act (FITARA) built upon the Clinger-Cohen Act to establish a framework for tracking, assessing, and managing federal IT investments.[54] FITARA addresses several matters that affect how federal agencies purchase and manage their IT assets.[55] Provisions related to IT budgeting include

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[47] See CRS Report RL30661, *Government Information Technology Management: Past and Future Issues (The Clinger-Cohen Act)*, by Jeffrey W. Seifert (available to congressional clients upon request).

[48] See "E-Government Act of 2002," by Harold C. Relyea and Jeffrey W. Seifert, in CRS Report RL30795, *General Management Laws: A Compendium*, by Clinton T. Brass et al. (available to congressional clients upon request).

[49] Some of the provisions associated with the E-Government Act are free-standing statutory provisions (e.g., §§213 and 216 of the act; 44 U.S.C. §3501 note) and others are incorporated into Title 44, Chapter 36, of the *U.S. Code* (44 U.S.C. §§3601-3606). In general, the provisions relate to IT service delivery, establishment in law of a council of agency CIOs, and establishment of the Office of Electronic Government within OMB.

[50] P.L. 107-347, December 17, 2002; 116 Stat. 2899, at 2902. Relevant provisions are codified at Title 44, Section 3602, of the *U.S. Code* at https://www.congress.gov/107/plaws/publ347/PLAW-107publ347.pdf. Prior to this law's enactment, the Office of Information and Regulatory Affairs had a branch that focused on both information policy and IT issues. After the E-Government Act became law, the name of this branch dropped *information technology* from its name and became the OMB's Information Policy Branch.

[51] OMB, "Office of Management and Budget Office of E-Government & Information Technology," https://www.whitehouse.gov/omb/management/egov/.

[52] 44 U.S.C. §3602.

[53] OMB, "Office of Management and Budget Office of E-Government & Information Technology," https://www.whitehouse.gov/omb/management/egov/#A1.

[54] P.L. 113-291, Title VIII, Subtitle D, of the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015; 128 Stat. 3438. Not all federal agencies are subject to the requirements of FITARA. Generally, agencies identified in the Chief Financial Officers (CFO) Act of 1990, as well as their subordinate components, are subject to the requirements of FITARA. DOD, the intelligence community, and portions of other agencies that operate systems related to national security are subject to only certain portions of FITARA.

[55] Provisions associated with FITARA amended and supplemented provisions in Title 40, Subtitle III, of the *U.S. Code*

- increasing transparency of IT investments;[56]
- establishing requirements for categorizing IT investments according to risk;[57] and
- establishing requirements for an agency IT portfolio review process, where individual investments are viewed in the context of the agency's broader set of projects.[58]

Enactment of FITARA followed in the wake of several administrative initiatives undertaken by OMB during the Obama Administration.[59] Among other things, OMB created the IT Dashboard website in 2009 to increase transparency of agency IT investments.[60] In 2014, FITARA made aspects of this administrative practice into a statutory requirement.[61] The resulting publicly accessible website displays data from 26 agencies on the cost, schedule, and performance of more than 7,000 IT investments, with detailed data for more than 700 investments classified as "major."[62] Agency CIOs are responsible for regularly evaluating and updating the data on the IT Dashboard.[63]

Statutory Requirements Related to IT Budgeting

Current law covers several aspects of IT-related budgeting and assigns responsibility for compliance with these statutes to either OMB or covered executive branch agencies. Many of these provisions may be found in Titles 40 and 44 of the *U.S. Code*. Some IT-related subject areas that OMB and agencies include as parts of the budget formulation and submission process are discussed below.

Chief Information Officers' Budgetary Roles and Functions

Current law establishes the role of CIO at "Chief Financial Officer (CFO) Act agencies"—24 large agencies in the executive branch[64]—with the primary duty of managing information

(40 U.S.C. §§11302, 11319) that were originally associated with the Clinger-Cohen Act. FITARA's provisions relate more specifically to CIO authorities and, in addition, planning, risk management, and oversight of IT acquisition and investment management.

[56] 40 U.S.C. §11302(c)(3)(A).

[57] 40 U.S.C. §11302(c)(3)(C).

[58] 40 U.S.C. §11319.

[59] For an overview of these administrative initiatives, see Vivek Kundra, U.S. Chief Information Officer, OMB, *25 Point Implementation Plan to Reform Federal Information Technology Management*, December 9, 2010, https://www.whitehouse.gov/omb/management/egov/.

[60] The IT Dashboard website is located at https://itdashboard.gov/.

[61] 40 U.S.C. §11302(c)(3)(A).

[62] OMB has defined a major IT investment as

> an IT investment requiring special management attention because of its importance to the mission or function of 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 CPIC process. 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 (RMOs) regarding which Investments are considered major.

See OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 10.

[63] OMB, "IT Dashboard Frequently Asked Questions," https://itdashboard.gov/drupal/frequently-asked-questions.

[64] The CFO Act of 1990 (31 U.S.C. §901(b), P.L. 101-576, 104 Stat. 2838) enacted into law a financial management and reporting framework in the executive branch. The legislation also created the role of CFO and deputy CFO at large

resources.[65] These duties include, but are not limited to, IT-related topics. Among other things, CIOs have explicit planning, programming, budgeting, and execution authorities. Agency CIOs, aside from DOD, must review and approve the agency IT budget requests before the agencies submit their requests for OMB review.[66] In the case of DOD, the DOD CIO must review and provide recommendations to the Secretary of Defense on the IT budget request.[67] All CIOs are required to certify that IT investments are implementing "incremental development," as defined by OMB.[68]

Office of Electronic Government (E-Gov)

E-Gov and its presidentially appointed administrator are responsible for providing overall IT leadership and direction to the executive branch on "electronic government."[69] Among several statutory duties, E-Gov is required to

- oversee capital planning and investment control for information technology,[70]
- assist the OMB director in setting federal IT system standards,[71] and
- annually review the technology portfolio of executive branch agencies.[72]

Capital Planning and Investment Control

CFO Act agencies are required to use a capital planning and investment control (CPIC) process to acquire, use, maintain, and dispose of IT.[73] CPIC processes include all stages of the IT asset lifecycle including planning, budgeting, procurement, management, and assessment.[74]

As part of the budget process, the OMB director is required to develop a process for analyzing, tracking, and evaluating the investment risks associated with agency information systems.[75] The process must cover the entire asset lifecycle and include criteria for assessing the costs, benefits, and risks associated with each investment. Additionally, OMB must make selected budgetary,

executive agencies who have certain statutory responsibilities related to financial management and reporting. The agencies subject to these requirements are commonly referred to as the "CFO Act agencies," of which there are currently 24.

[65] 40 U.S.C. §11315(c).

[66] 40 U.S.C. §11319(b)(1)(B)(i).

[67] 40 U.S.C. §11319(b)(1)(B)(i).

[68] 40 U.S.C. §11319(b)(1)(B)(ii). OMB defines *incremental development* as "development of software or services, planned and actual delivery of new or modified technical functionality to users occurs at least every six (6) months." See OMB, *Memorandum M-15-14*, "Management and Oversight of Federal Information Technology," June 2015, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2015/m-15-14.pdf#page=18.

[69] 44 U.S.C. §3602. *Electronic government* is defined as "the use by the Government of web-based Internet applications and other information technologies, combined with processes that implement these technologies, to enhance the access to and delivery of Government information and services to the public, other agencies, and other Government entities; or bring about improvements in Government operations that may include effectiveness, efficiency, service quality, or transformation" (44 U.S.C. §3601(3)).

[70] 44 U.S.C. §3602(e)(1).

[71] 44 U.S.C. §3602(f)(8).

[72] 40 U.S.C. §11319(d)(3).

[73] 40 U.S.C. §11302.

[74] CIO Council, "Policies and Priorities: Capital Planning and Investment Control (CPIC)," https://www.cio.gov/policies-and-priorities/cpic/.

[75] 40 U.S.C. §11302(c)(2).

schedule, and performance data about "major" IT investments—as determined by agencies in coordination with OMB—publicly available.[76]

For each "major" IT investment, OMB and agencies are required to assign a risk level based on OMB-issued guidance.[77] For any investments categorized as high-risk, the agency CIO, the program director of IT investment within the agency, and the OMB E-Gov administrator must perform a root cause analysis to determine the cause of the high-risk rating, whether these root causes can be remediated, and the probability that the IT investment will succeed.[78]

IT Budgeting Information Flows and Sources

As a part of the executive budget process, as well as at specified frequencies throughout the fiscal year, both current law and OMB direct agencies to report information about their IT investments. When OMB produces the President's budget, a team of analysts at the OMB Office of the Federal Chief Information Officer may review an agency's overall list of IT investments and their detailed business cases. This requirement is communicated to agencies through the annual updates to OMB *Circular No. A-11*, Section 55, as well as the supplemental, annually issued *IT Budget—Capital Planning Guidance* document.[79]

Several statutes authorize OMB officials to set strategic direction and oversee implementation of agency IT governance activities.[80] Using these authorities, OMB issues *Circular No. A-11*, Section 55, to provide general policy and requirements for agency IT budget requests, investments, and portfolio management. The annual *IT Budget—Capital Planning Guidance* includes more detailed information on the technical requirements and submissions outlined in *Circular No. A-11*.

OMB *Circular No. A-11* also contains a supplemental "Capital Programming Guide." This guide assists agencies in planning for, procuring (including decisions whether to make or buy), and disposing of capital assets, including certain IT assets, in an efficient manner.[81] Capital asset planning culminates in an "Agency Capital Plan" that supports agency budget proposals, aspects of which may be included in an agency's annual submission to OMB or congressional budget justifications.[82]

Agency IT budgetary reporting can be broadly divided into two subsets: (1) agency-wide portfolios of IT investments and (2) discrete, individual IT investments. Generally, the frequency of reporting and the level of required detail differ between these two categories. See **Table 1** for an overview of the level of detail included for agency-wide IT portfolio reporting compared to individual IT investment reporting.

[76] 40 U.S.C. §11302(c)(3).

[77] 40 U.S.C. §11302(c)(3)(C). The term *major IT investment* refers to "an investment within a covered agency information technology investment portfolio that is designated by the covered agency as major, in accordance with capital planning guidance issued by the Director [of OMB]" (40 U.S.C. §11302(c)(1)(B)).

[78] 40 U.S.C. §11302(c)(4).

[79] OMB, *Circular No. A-11*; OMB, *FY 2022 IT Budget—Capital Planning Guidance*.

[80] 44 U.S.C. §3602.

[81] OMB, *Circular No. A-11*, p. 951. Make/buy refers to agencies choosing to either produce a product or service in-house or to contract it to an external provider.

[82] OMB, *Circular No. A-11*, p. 971.

Table 1. Agency IT Investment Budgetary Information Flows and Sources

Timing of submission is included in the top row in *italics*.

	Agency Annual Submission to OMB ***(12 Months Prior to Start of Fiscal Year (FY))***	**President's Budget Submission to Congress** ***(8 Months Prior to FY)***	**Agency Congressional Budget Justification** ***(8 Months Prior to FY)***	**IT Dashboard Website** ***(Monthly and Real-Time)***	**Internal Agency Project Management / Tracking** ***(Continuous)***
Agency-Wide IT Portfolio	An agency submits agency-wide IT investment information in the form of an Agency IT Portfolio Summary, which has several components: • Agency IT Investment Portfolio Summary • Budget Account Summary • CIO Evaluation Report • Submission Confirmation.	The President's budget *Appendix* contains account-level information for an agency. IT spending is not broken out at the level of individual investments.	Agency congressional budget justifications include detailed account-level information, which may include details about IT funded by a particular account. The account-level information matches what is contained in the President's budget *Appendix*. The budget justification may also include the proposed appropriations language.	Total IT spending along with high-level performance metrics are provided for each agency including • Total IT spending on major investments • Total IT spending on nonmajor investments • Percentage of projects on schedule • Percentage of projects within budget.	Agencies' institutions, processes, and norms may vary considerably. Nevertheless, agency-specific factors may be significant in how agencies plan and implement capital investments.
Discrete IT Investments	An agency submits an Agency IT Portfolio Detail, which has several components: • System Inventory List • Contracts Report • Major IT Business Case • Standard IT Investment Reports • Submission Confirmation.	The President's budget *Appendix* contains account-level information for an agency. IT spending is not broken out at the level of individual investments.	Includes detailed information about individual IT investments, with varying levels of aggregation. The form will vary by agency, but this section includes, at minimum, the following: • Prior year budget actuals • Current year budget enacted • Budget request for future year.	Performance metrics are included for individual investments in a color-coded dashboard, listed by Unique Investment Identification. Investment details include • Schedule status • Cost variances • CIO risk ratings.	Agencies' institutions, processes, and norms may vary considerably. Nevertheless, agency-specific factors may be significant in how agencies plan and implement capital investments.

Sources: CRS analysis of OMB guidance documents, President's budget submissions, and the IT Dashboard website located at https://itdashboard.gov/.

Agency-Wide IT Investment Portfolio Budgeting and Reporting

Budgetary reporting that encompasses an agency's entire IT investment portfolio includes several components that align with different stages of the executive budget process cycle. The sections below describe four general reporting mechanisms and the information they include.[83]

Agency IT Portfolio Summary

When an agency formulates its budget request, it is required to complete a draft IT Investment Portfolio Summary and submit it to OMB via the OMB MAX.gov submission page.[84] This draft, due in September to coincide with OMB review of agency budget submissions, constitutes the agency's IT budget proposal to OMB. OMB then consolidates the individual agencies' IT Portfolio Summary submissions into the Federal IT Portfolio, which is published as part of the President's budget submission.[85]

OMB instructs agencies to make subsequent updates to the portfolio summary on the IT Dashboard in January and June to align with the President's budget submission and the Mid-Session Review, respectively.[86] The IT Portfolio Summary includes all IT investments. For each investment, the agency must identify the associated funding source and budgetary resources.[87] The agency's initial submission of information for the portfolio summary includes the sections listed below:[88]

- **Budget Accounts Summary.** This section includes a summary of agency-wide IT funding levels aggregated from the agency's budget accounts, and it is derived from the Funding Sources table located in the IT Portfolio Summary.[89] This summary allows an agency's CFO and CIO to jointly review and certify the agency's IT budget submissions.[90]
- **CIO Evaluation Report.** CIOs provide a numeric risk evaluation (1 through 5, from highest to lowest risk) for all major IT investments and certain additional categories of investments.[91] This risk rating aligns with part of a CIO's CPIC statutory responsibilities.[92]

[83] Congress may establish other requirements that apply to specific agencies or circumstances. These may be included in appropriations measures or may take the form of directives in report language.

[84] Most of the information on the OMB MAX.gov portal is not publicly accessible and requires an OMB MAX login account. See OMB, "OMB MAX.gov Login Page," https://login.max.gov/cas/login?service=https%3A%2F%2Fcommunity.max.gov%2Flogin.action%3Fos_destination%3D%252Fpages%252Ftinyurl.action%253FurlIdentifier%253DoWB2Yg.

[85] OMB, *Circular No. A-11*, p. 171.

[86] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 6.

[87] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 12.

[88] OMB, *Circular No. A-11*, p. 167.

[89] OMB, *Circular No. A-11*, p. 167.

[90] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 9.

[91] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 18.

[92] 40 U.S.C. §11315(c)(2).

- **Submission Confirmation.** This confirmation includes validation of the completeness of the investment data submitted and closes the reporting window in OMB's MAX system.[93]

President's Budget *Appendix*

Account-level information about actual and proposed budgets is included in the budget *Appendix* volume, a part of the President's budget submission. The *Appendix* contains, for each account, prior year obligations, current year appropriations, and proposed appropriations, among other information. Agency-wide IT funding levels documented in the Budget Accounts Summary, as approved by OMB, may be reflected in disaggregated fashion at the account level in the *Appendix*. For example, the VA section includes spending on development, operations and maintenance, and "administrative and salaries," but does not include details of discrete IT investments.[94]

Agency Congressional Budget Justification

By early February, agencies submit detailed, written justifications of their budget requests to the appropriations committees and related subcommittees of jurisdiction. The form of these budget justifications may vary by agency. For example, VA submits its budget justification for its "Information Technology Systems" account as part of one of several volumes that comprise the total budget justification.[95] The budget justification includes account-level information, which may include details about IT investments funded by a particular account. The account-level information matches what is contained in the President's budget *Appendix*. The budget justification may also include the President's proposed appropriations language.[96]

IT Dashboard Website

Agencies update their budgets on the IT Dashboard website to coincide with the President's budget submission, congressional budget justifications, and Mid-Session Review. Agencies are also required to update certain reporting metrics monthly and are encouraged to make additional updates to the Dashboard as necessary.[97] Total IT spending along with high-level performance metrics are provided for each agency, including

- total IT spending on major investments,
- total IT spending on nonmajor investments,
- percentage of projects on schedule, and
- percentage of projects within budget.[98]

[93] OMB, *Circular No. A-11*, p. 172.

[94] OMB, *Budget of the United States Government Appendix*, May 2021, p. 1105.

[95] VA, *FY2022 Budget Submission*, "Medical Programs and Information Technology Programs Volume 2 of 4," May 2021, https://www.va.gov/budget/docs/summary/fy2022VAbudgetVolumeIImedicalProgramsAndInformationTechnology.pdf.

[96] VA, *FY2022 Budget Submission*, p. 639.

[97] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 7.

[98] OMB, IT Dashboard, "Department of Veterans Affairs Information Technology Summary," https://itdashboard.gov/drupal/frequently-asked-questions.

Discrete IT Investment Budgeting and Reporting

Agencies are also required to submit additional information pertaining to individual IT investments. The level of required detail varies depending on the category of the investment as well as whether or not it is considered to be major. There are three IT investment categories:

- **Part 1:** Mission Delivery (IT investments that directly support an agency's mission),
- **Part 2:** Mission Support Services (activities that are common across all agencies such as human resources and financial management), and
- **Part 3:** Standard IT Investments (IT goods and services common to all agencies such as IT security and IT network infrastructure).[99]

Additionally, OMB directs agencies to break down IT investment costs into two buckets:[100]

1. **Operations and Maintenance (O&M):** O&M costs refer to operating and maintaining existing IT assets.[101]
2. **Development, Modernization, and Enhancement (DME):** DME costs result in new IT assets or the modification of existing IT assets to substantively improve capability or performance.[102]

Like agency-wide IT budget portfolios, information about discrete IT investments is reported via several different mechanisms.

Agency IT Portfolio Detail

Concurrent with the IT Portfolio Summary, agencies also submit IT Portfolio Details as a part of their September budget submissions to OMB.[103] This documentation contains data related to individual IT investments and includes the components listed below:[104]

- **Systems Inventory List:** This report lists all information systems funded by a particular IT investment. Systems and investments may have a many-to-many relationship in that a single system may be funded by multiple investments or a single investment may fund multiple systems.[105] Agencies must determine how to appropriately allocate costs across systems.
- **Contracts Report:** This report contains all contracts that directly support a given IT investment and aligns investment data with Federal Procurement Data System data.[106]

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[99] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 7.

[100] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 31.

[101] GAO, *Federal Agencies Need to Address Aging Legacy Systems*, GAO-16-468, May 2016, p. 12, https://www.gao.gov/assets/680/677574.pdf#page=12.

[102] GAO, *Federal Agencies Need to Address Aging Legacy Systems*, p. 12.

[103] GAO, *Federal Agencies Need to Address Aging Legacy Systems*, p. 6.

[104] OMB, *Circular No. A-11*, p. 172.

[105] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 20.

[106] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 22. Data from legacy acquisition systems, including the Federal Procurement Data System, is currently being migrated to beta.sam.gov. See https://beta.sam.gov/help/award-data.

- **Major IT Business Case:** OMB uses data reported in the business case to determine if budgetary resources align with an Administration's programmatic priorities.[107]
- **Standard IT Investment Reports:** These reports contain detailed and relevant IT investment budget and management information for certain standard investments categorized as Part 3. In contrast to major investments, not all standard investments are required to be reported.[108]
- **Submission Confirmation:** This confirmation includes validation of the completeness of the individual investment data submitted and closes the reporting window.[109]

Agency Congressional Budget Justification

Agency congressional budget justifications also include detailed information for discrete IT investments, with varying levels of detail and degrees of aggregation by agency. Using VA as an example, individual IT investments are grouped by initiative and mission support activity.[110] Along with a brief explanation of the project goals, this section includes prior fiscal year budget actuals, current year enacted appropriations, and the requested appropriations for the next fiscal year.

IT Dashboard Website

After the initial budget submission, agencies make subsequent IT budget updates via the IT Dashboard.[111] Individual IT investment spending and detailed performance metrics are included in a color-coded dashboard, listed by Unique Investment Identification. Similar to agency-wide portfolio reporting, agencies are required to update certain reporting metrics for individual investments on a monthly basis and are encouraged to make additional updates to the Dashboard as necessary.[112] Investment details include

- schedule status,
- schedule variances,
- spending totals,
- personnel full-time equivalents,
- cost variances,
- CIO risk ratings,
- investment goals, and
- investment contracts.[113]

[107] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 23.

[108] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 40.

[109] OMB, *Circular No. A-11*, p. 172.

[110] VA, *FY2022 Budget Submission*, "Medical Programs and Information Technology Programs Volume 2 of 4," p. 637.

[111] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 6.

[112] OMB, *FY 2022 IT Budget—Capital Planning Guidance*, p. 7.

[113] OMB, IT Dashboard, "Department of Veterans Affairs Information Technology Summary."

Potential Issues for Congress

Given IT's continuing importance to government operations, Congress may consider issues surrounding IT budgeting and related oversight via statute. Since the 1990s, Congress has enacted a series of laws that have served to

- decentralize and delegate authority at the agency level to make and manage IT investments,
- standardize various aspects of the IT budget formation and reporting process across the executive branch,
- formalize the role of agency CIOs in the IT budgeting process,
- centralize several federal IT policy and oversight duties within OMB, and
- make agency-wide and investment-level IT data available to Congress and the general public.

Given that IT systems may play important functions in supporting policy initiatives, Congress may further consider how IT resources are allocated, which IT investment data are most useful to decisionmakers, and how agencies can most effectively leverage their IT investments to carry out their diverse missions. Effective processes for investment management and budgeting may, furthermore, depend on other capacities, such as the IT workforce. For these reasons, the following IT-related issues may be of interest to Congress.

Accuracy of IT Dashboard Metrics

The IT Dashboard website was created to bring more transparency to the performance and cost of IT investments across the federal government. Across each agency, and for each IT project within agencies, the IT Dashboard reports various performance metrics related to schedule, cost, and investment risk. These metrics, however, may be only as accurate as the assumptions that underlie them. In a 2016 study, GAO found that some CIOs inconsistently assessed investment risks, underrated risks, and failed to make monthly updates to the IT Dashboard.[114] Congress might consider how metrics are constructed, which metrics might be most useful for decisionmaking, and how to achieve consistency in the way metrics are reported.

Budgetary Uncertainty Created by Continuing Resolutions

The budget process is highly complex, involving constitutional procedures, statutory provisions, House and Senate rules, and many actors such as Congress, OMB, agency officials, and external stakeholders.[115] Despite the time and resources committed to budget preparation, in all but four of the past 40 years, Congress has passed continuing resolutions (CRs) to keep the government funded.[116] In 2018, GAO testified before Congress on the effects of CRs on agency operations.

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[114] GAO, *IT Dashboard: Agencies Need to Fully Consider Risks When Rating Their Major Investments*, GAO-16-494, June 2, 2016, https://www.gao.gov/products/gao-16-494.

[115] See CRS Testimony TE10024, *Terrible, No Good, Very Bad Ways of Funding Government: Exploring the Cost to Taxpayers of Spending Uncertainty Caused by Governing Through Continuing Resolutions, Giant Omnibus Spending Bills, and Shutdown Crises*, by Clinton T. Brass.

[116] CRS Testimony TE10024, *Terrible, No Good, Very Bad Ways of Funding Government: Exploring the Cost to Taxpayers of Spending Uncertainty Caused by Governing Through Continuing Resolutions, Giant Omnibus Spending Bills, and Shutdown Crises*, by Clinton T. Brass.

GAO found that CRs cause agencies to delay contracts and hiring, distort agencies' rates of spending, and impose administrative burdens.[117] These disruptions and uncertainties may affect agencies' ability to plan for and effectively implement IT investments that support agency missions.

IT Budgeting and Iterative Development

Agencies typically begin their budget formulation processes in the spring—approximately 18 months prior to the beginning of the fiscal year on October 1—upon receipt of the OMB "Spring Guidance."[118] Consequently, agencies may experience a gap of at least a year and a half between budget planning and the receipt of appropriated funds, with an even longer gap in the case of a CR. According to GSA's 18F, this budgetary lead time often fails to align with the shorter timelines associated with iterative or incremental software development.[119] Additionally, GAO found that existing IT reporting metrics—including cost, schedule, and performance—were designed around the more linear, less iterative "waterfall" model of IT investment and have not been modified to reflect the more frequent reporting and feedback cycles associated with agile development. As a result, agile development resulted in some IT Dashboard metrics appearing as negative.[120] Congress might consider how IT reporting metrics might better align with an agile approach to software and systems budgeting and development.

Categorization of IT Spending

Generally, OMB has directed that IT spending be grouped into one of two categories: O&M and DME (see discussion in this report's section titled "Discrete IT Investment Budgeting and Reporting"). GSA's 18F has observed that in some cases, "agencies cannot spend appropriated funds intended for one category on a different category."[121] When using an iterative development approach, which results in frequent functionality changes and improvements to IT systems, the distinction between O&M and DME may become unclear. A GAO report found several situations where agencies were unsure how to report costs and defaulted to O&M.[122] According to the same report, OMB stated to GAO that "agencies tend to categorize investments as O&M because they attract less oversight, require reduced documentation, and have a lower risk of losing funding."[123] The potential for miscategorization of IT costs—or growing recognition that IT investments may not always clearly be classifiable in one category or the other—may result in inaccurate or

[117] GAO, *Budget Issues: Continuing Resolutions and Other Budget Uncertainties Present Management Challenges*, GAO-18-368T, February 6, 2018, https://www.gao.gov/products/GAO-18-368T.

[118] See CRS Report R42633, *The Executive Budget Process: An Overview*, by Michelle D. Christensen.

[119] 18F, "De-Risking Guide," https://derisking-guide.18f.gov/federal-field-guide/planning/#invest-in-technology-incrementally-and-budget-for-risk-mitigation-prototyping.

Iterative development approaches typically fall under the term *agile*, which GAO has defined as "an approach to software development that encourages collaboration across an organization and allows requirements to evolve as a program progresses. Agile software development emphasizes iterative delivery; that is, the development of software in short, incremental stages. See GAO, *Science and Tech Spotlight: Agile Software Development*, GAO-20-713SP, September 2020, p. 1, https://www.gao.gov/assets/gao-20-713sp.pdf.

[120] GAO, *Agile Assessment Guide: Best Practices for Agile Adoption and Implementation*, GAO-20-590G, September 2020, p. 25, https://www.gao.gov/assets/gao-20-590g.pdf#page=25.

[121] 18F, "De-Risking Guide." It is not clear to CRS if the 18F document is referring to instances of restrictive appropriations language or restrictive apportionment by OMB.

[122] GAO, *Federal Agencies Need to Address Aging Legacy Systems*, p. 26.

[123] GAO, *Federal Agencies Need to Address Aging Legacy Systems*, p. 26.

inconsistent reporting of IT project status and performance. Congress may consider how IT budgeting practices align with the nature of incremental IT development and more frequent updates.

Centralization vs. Decentralization of IT Management and Budgetary Roles

Congress has passed a series of statutes that have served at times to both centralize and decentralize certain IT functions, including functions related to IT budgeting and related oversight. The Automatic Data Processing Act of 1965 (commonly known as the Brooks Act) centralized IT purchasing authority within the GSA and tasked OMB with oversight of agency IT spending, among other provisions.[124] The Clinger-Cohen Act of 1996, by contrast, eliminated GSA's centralized role in IT purchasing and assigned these responsibilities to agencies. Additionally, Clinger-Cohen established agency CIOs. Subsequently, the E-Government Act of 2002 established the position of administrator of the Office of E-Government.[125] The centralization and decentralization of IT functions appear to reflect, in part, shifts in technology as highly centralized mainframe-based systems transitioned to decentralized personal computer and server-based systems. Congress may consider how to balance the goals of efficiency, standardization, and flexibility when centralizing or decentralizing certain federal IT functions and budgeting responsibilities. Additionally, subscription-based software pricing models and cloud deployment may result in further updates to federal IT management statutes, OMB guidance, and agency practices, with corresponding implications for IT-related budgeting and spending.

Recruitment and Retention of IT Personnel

The requirements of the IT investment and budgeting process rely on the expertise and professional judgment of IT personnel in the executive branch, particularly the CIO. In 2020, the CIO Council reported that federal agencies have difficulties recruiting and retaining IT talent due to uncompetitive pay, outdated hiring criteria, restrictions on telework, and average time-to-hire of 106 days (compared to 23 days in the private sector).[126] To the extent that the reported phenomena hold across agencies' diverse circumstances, these and other factors may limit agencies' ability to retain the IT expertise needed to effectively execute the complexities of the IT budgeting and investment management processes.

[124] 79 Stat. 1127, https://www.govinfo.gov/content/pkg/STATUTE-79/pdf/STATUTE-79-Pg1127.pdf; CRS Report RL30661, *Government Information Technology Management: Past and Future Issues (The Clinger-Cohen Act)*, by Jeffrey W. Seifert (available to congressional clients upon request).

[125] P.L. 107-347, December 17, 2002; 116 Stat. 2899, at 2902. Relevant provisions are codified at Title 44, Section 3602, of the *U.S. Code* at https://www.congress.gov/107/plaws/publ347/PLAW-107publ347.pdf.

[126] The CIO Council was established by the E-Government Act of 2002. This council has several statutory responsibilities, including dissemination of IT best practices among executive agencies. See 44 U.S.C. §3603; CIO Council, "Future of the IT Federal Workforce Update," May 2020, https://www.cio.gov/assets/resources/Future_of_Federal_IT_Workforce_Update_Public_Version.pdf.

Appendix. OMB *IT Budget—Capital Planning Guidance* Compilation (FY2013-FY2022)

Fiscal Year	Document Name(s)	Published Date	Hyperlink(s)
FY2022	FY 22 IT Budget—Capital Planning Guidance	November 16, 2020	https://www.whitehouse.gov/wp-content/uploads/2020/11/FY22ITBudget_CapitalPlanningGuidance.pdf
FY2021	FY 21 IT Budget—Capital Planning Guidance	June 28, 2019	https://www.whitehouse.gov/wp-content/uploads/2019/07/FY-2021-IT-Budget-Guidance.pdf
FY2020	FY 20 IT Budget—Capital Planning Guidance	June 29, 2018	https://www.whitehouse.gov/wp-content/uploads/2018/06/fy-2020-it-budget-guidance.pdf
FY2019	FY 19 IT Budget—Capital Planning Guidance	August 1, 2017	https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/egov_docs/fy19_it_budget_guidance.pdf
FY2018	FY 18 IT Budget—Capital Planning Guidance	June 30, 2016	https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/egov_docs/fy18_it_budget_guidance.pdf
FY2017	FY 17 IT Budget—Capital Planning Guidance	June 22, 2015	https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/egov_docs/fy17_it_budget_guidance_6_22_2015.pdf
FY2016	FY 16 IT Budget—Capital Planning Guidance	June 27, 2014	https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/fy_2016_guidance_06272014.pdf
FY2015	FY15 Guidance on Exhibits 53 and 300	July 1, 2013	https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/fy2015_e53_and_300_guidance_final_july2013.pdf

FY2014	FY14 Guidance on Exhibits 53 and 300	August 3, 2012	https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/fy14_guidance_on_exhibits_53_and_300.pdf
FY2013	FY13 Guidance for Exhibit 300 A-B FY13 Guidance for Exhibit 53 A-B	The published date was not provided aside from the year (2011).	https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/fy13_guidance_for_exhibit_300_a-b_20110715.pdf https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/egov_docs/fy13_guidance_for_exhibit_53-a-b_20110805.pdf

Sources: OMB website of the Biden Administration as well as archived versions of the Trump Administration and Obama Administration OMB websites.

Notes: Prior to FY2013, budget justification and reporting requirements for an agency's IT Investment Portfolio and for major IT investments were located in Sections 300 and 53, respectively, of OMB *Circular No. A-11*. In FY2013, additional guidance was provided in two separate documents. In FY2016, the consolidated IT budget justification and reporting guidance was renamed *IT Budget—Capital Planning Guidance*.

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