



TECHNOLOGY BUSINESS MANAGEMENT

OMB and GSA Need to Strengthen Efforts to Lead Federal Adoption

Accessible Version

September 2022

GAO Highlights

Highlights of [GAO-22-104393](#), a report to congressional committees

Why GAO Did This Study

The government has faced longstanding challenges in IT management and spending transparency. In 2017, OMB announced its intention to improve insights into IT spending through government-wide adoption of the Technology Business Management Council's framework.

This framework provides a standard taxonomy that is organized into four layers (cost pools, IT towers, products and services, and business units and capabilities) intended to show an organization's total IT spending from different perspectives. These four layers are comprised of spending categories and subcategories.

GAO was asked to report on Technology Business Management implementation. GAO's objective was to identify progress OMB and GSA have made in the government-wide adoption effort. To do so, GAO analyzed and compared plans against relevant criteria, such as Technology Business Management Council guidance. It also analyzed data, as reported by agencies for fiscal years 2021 and 2022, and interviewed relevant officials.

What GAO Recommends

GAO is making seven recommendations to OMB and GSA, including establishing requirements for completing the remainder of the taxonomy, assessing maturity of agencies' implementation, and addressing benchmarking use. As discussed in the report, GAO incorporated suggested OMB and GSA revisions for two of the seven recommendations; the agencies had no comments on the remaining five.

View [GAO-22-104393](#). For more information, contact Carol C. Harris at (202) 512-4456 or harriscc@gao.gov.

September 2022

TECHNOLOGY BUSINESS MANAGEMENT

OMB and GSA Need to Strengthen Efforts to Lead Federal Adoption

What GAO Found

The Office of Management and Budget (OMB) and General Services Administration (GSA) have taken steps to lead government-wide Technology Business Management adoption, but progress and results are limited.

- OMB's initial 2017 plans for government-wide adoption required agencies to report IT spending using categories in the first two layers. OMB continued to require reporting of these two layers in subsequent plans. However, 5 years after establishing initial plans, OMB had not expanded on requirements to include the rest of the taxonomy—the categories in layers 3 and 4, and subcategories for all layers (see figure).

Extent That the Office of Management and Budget's (OMB) Plans Addressed Elements of the Technology Business Management Taxonomy Version 3.0

| | | |
|---|--|---|
| Layer 4: Business units and capabilities | Categories and subcategories in this layer are not defined by the TBM Council because they are intended to be industry-specific and, therefore, defined by organizations to reflect their respective business units and capabilities | |
| Layer 3: Products and services | 26 categories (e.g., finance services, manufacturing and delivery, and vendor and procurement services) | 119 subcategories (e.g., application hosting, business continuity and disaster recovery, contract review, and payroll and time reporting) |
| Layer 2: IT towers | 11 categories (e.g., application, data center, network, security and compliance, and storage) | 41 subcategories (e.g., business software, client management, high performance computing, and mobile devices) |
| Layer 1: Cost pools | 9 categories (e.g., facilities and power, hardware, internal labor, software, and telecom) | 30 subcategories (e.g., cloud service providers, licensing, maintenance and support, and managed service providers) |

Hashed shading represents elements that were not addressed in OMB's plans.

Source: GAO analysis of OMB guidance and *Technology Business Management Taxonomy, Version 3.0*. Copyright © 2020 Technology Business Management Council (November 2018). | [GAO-22-104393](#)

- OMB and GSA assisted agency efforts to implement the Technology Business Management framework by, for example, developing implementation guidance and a maturity model assessment tool. However, OMB and GSA have not assessed agency maturity. Further, they have not analyzed the quality of agencies' data reported in the first two layers.
- OMB and GSA released agency-reported data on the federal government's IT Dashboard (layers 1 and 2), but did not disclose that about \$31 billion in fiscal year 2021 investments were excluded. Further, they have not analyzed inconsistencies in fiscal year 2022 data, or addressed use of benchmarking that would enable spending comparisons to organizations of similar size or mission.

OMB and GSA officials maintain that Technology Business Management implementation continues to be a priority. Nevertheless, until OMB establishes documented plans and agency expectations for the remainder of the taxonomy, uncertainty will cloud agency efforts. Further, the continuing absence of OMB direction could prevent the federal government from fully achieving intended benefits such as optimizing IT spending.

Contents

| | |
|--|----|
| GAO Highlights | ii |
| Why GAO Did This Study | ii |
| What GAO Recommends | ii |
| What GAO Found | ii |
| Letter | 1 |
| Background | 3 |
| Progress and Results of Government-wide TBM Adoption Are Limited | 11 |
| Conclusions | 26 |
| Recommendations for Executive Action | 27 |
| Agency Comments and Our Evaluation | 28 |
| Appendix I: Objective, Scope, and Methodology | 30 |
| Appendix II: Comments from the General Services Administration | 32 |
| Accessible Text for Appendix II: Comments from the General Services Administration | 34 |
| Appendix III: GAO Contact and Staff Acknowledgments | 36 |
| GAO Contact | 36 |
| Staff Acknowledgments | 36 |
| Figures | |
| Figure 1: Overview of the Technology Business Management (TBM) Taxonomy Version 3.0 | 6 |
| Figure 2: The Office of Management and Budget's Phased Implementation Plan for Technology Business Management Version 3.0 Cost Pools and IT Towers Layers | 12 |
| Figure 3: Extent That the Office of Management and Budget's (OMB) Plans Addressed Elements of the Technology Business Management Taxonomy Version 3.0 | 13 |
| Figure 4: Comparison of Total Technology Business Management (TBM) and IT Portfolio Spending Reported by Agencies on the IT Dashboard for Fiscal Years 2021 and 2022 | 22 |
| Accessible Data for Figure 4: Comparison of Total Technology Business Management (TBM) and IT Portfolio Spending | |

| | |
|--|----|
| Reported by Agencies on the IT Dashboard for Fiscal Years 2021 and 2022 | 22 |
| Figure 5: Screenshot of Technology Business Management Visualization on the IT Dashboard | 25 |
| 33 | |

Abbreviations

| | |
|-----|---------------------------------|
| CFO | Chief Financial Officer |
| CIO | Chief Information Officer |
| GSA | General Services Administration |
| IT | information technology |
| OMB | Office of Management and Budget |
| TBM | Technology Business Management |

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



September 29, 2022

The Honorable Carolyn B. Maloney
Chairwoman
The Honorable James Comer
Ranking Member
Committee on Oversight and Reform
United States House of Representatives
The Honorable Gerald E. Connolly
Chairman
The Honorable Jody Hice
Ranking Member
Subcommittee on Government Operations
Committee on Oversight and Reform
United States House of Representatives

The federal government spends more than \$100 billion annually on information technology (IT). However, federal IT investments have too frequently failed or incurred cost overruns and schedule slippages while contributing little to mission-related outcomes. We have also reported on agencies' aging systems that are becoming more costly to maintain, less effective, and exposed to cybersecurity risks.¹ In addition, we have previously reported on issues with the Chief Information Officer's (CIO) authority over and visibility into IT in their agency's acquisition and budgeting processes across the government.² Accordingly, since 2015 we

¹GAO, *Information Technology: Agencies Need to Develop Modernization Plans for Critical Legacy Systems*, [GAO-19-471](#) (Washington, D.C.: June 11, 2019); and *Information Technology: Federal Agencies Need to Address Aging Legacy Systems*, [GAO-16-468](#) (Washington, D.C.: May 25, 2016).

²GAO, *Information Technology: Departments Need to Improve Chief Information Officers' Review and Approval of IT Budgets*, [GAO-19-49](#) (Washington, D.C.: Nov. 13, 2018); *Federal Chief Information Officers: Critical Actions Needed to Address Shortcomings and Challenges in Implementing Responsibilities*, [GAO-18-93](#) (Washington, D.C.: Aug. 2, 2018); and *Information Technology: Agencies Need to Involve Chief Information Officers in Reviewing Billions of Dollars in Acquisitions*, [GAO-18-42](#) (Washington, D.C.: Jan. 10, 2018).

have included improving the management of IT acquisitions and operations on our High-Risk List.³

In August 2017, the Office of Management and Budget (OMB) announced its intention to improve insights into IT spending through the government-wide adoption of Technology Business Management (TBM).⁴ OMB guidance stated that TBM was to help agencies manage the cost, quality, and value of their IT resources, using standards established by the TBM Council. In addition, TBM was intended to increase the granularity in reporting of agency IT budget and spending data by grouping related costs together. Further, OMB designated itself and the General Services Administration (GSA) as responsible for leading the government-wide adoption of TBM.

You requested that we review TBM implementation. Our objective was to identify progress OMB and GSA made in the government-wide effort to adopt TBM.

To address our objective, we reviewed OMB's and GSA's plans and guidance for TBM implementation, such as IT capital planning guidance, and artifacts from completed projects intended to help agencies implement and mature TBM, such as pilot results and TBM implementation guidance. In addition, we observed meetings held by GSA and the CIO Council's Federal Technology Investment Management Community of Practice with agency officials on TBM and IT capital planning and portfolio management topics. We compared the plans and progress made against applicable guidance.

In addition, we analyzed TBM data reported by agencies on GSA's IT Dashboard for fiscal years 2021 and 2022.⁵ We also evaluated any TBM-related content found on the dashboard against OMB reporting requirements in IT capital planning guidance and leading practices.

³GAO, *High-Risk Series: Dedicated Leadership Needed to Address Limited Progress in Most High-Risk Areas*, [GAO-21-119SP](#) (Washington, D.C.: Mar. 2, 2021).

⁴OMB, *Fiscal Year 2019 IT Budget – Capital Planning Guidance* (Washington, D.C.: Aug. 1, 2017).

⁵OMB launched the IT Dashboard website in 2009 to provide federal agencies, the public, and other stakeholders the ability to view details of federal IT investments and track their progress over time. OMB requires agencies to report their IT budget data to OMB, which releases certain IT budget data publicly on GSA's dashboard. GSA's Office of Government-wide Policy took over management of the federal IT Dashboard, including the collection, analysis, and presentation of IT budget and performance data from OMB on March 21, 2022.

To assess the reliability of the TBM data from the dashboard, we discussed with OMB staff from the Office of the Federal CIO and GSA officials from the TBM program management office the steps they took or had implemented in the dashboard to ensure the accuracy and completeness of TBM data on it. We also discussed reasons for inconsistencies between agency-reported TBM and IT portfolio spending data. We determined that the data were sufficiently reliable for the purpose of evaluating OMB and GSA progress in leading government-wide efforts to adopt TBM.

Further, we interviewed relevant officials in OMB's Office of the Federal CIO and Office of Federal Financial Management, and GSA's Office of Government-wide Policy TBM program management office on their planned and completed efforts to lead TBM adoption. In addition, we interviewed representatives from councils that are to serve as advisors to OMB and GSA on TBM efforts, including the CIO Council and the Chief Financial Officers (CFO) Council. In doing so, we obtained their views on plans and progress toward government-wide TBM implementation. Further details on our objective, scope, and methodology are included in appendix I.

We conducted this performance audit from June 2020 to September 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

In August 2017, OMB's IT capital planning guidance noted a continued focus on, and commitment to, strengthening the management of federal IT resources.⁶ To that end, OMB's guidance introduced plans for the government-wide implementation of TBM, a data-driven framework focused on connecting IT spending to business goals. According to the guidance, OMB planned to modernize the federal IT budgeting process into a TBM-based approach that would require agencies to use the TBM

⁶OMB, *Circular No. A-11: Preparation, Submission, and Execution of the Budget, Section 55—Information Technology Investments, Fiscal Year 2019 IT Budget – Capital Planning Guidance* (Washington, D.C.: Aug. 1, 2017).

Council's taxonomy to categorize and report spending on IT investments as part of their annual budget requests.

According to OMB, the TBM framework would provide agencies with the data they needed to obtain greater insight into the cost, quality, and value of their IT investments. With greater insights, agency leaders could then make data-driven decisions that better supported agencies' missions. Additionally, the framework would enable government-wide comparisons and improve benchmarking of federal IT spending.

TBM Framework

Established by the TBM Council, TBM is a framework focused on providing technology, finance, and business leaders with standards for managing the value that IT brings to their organizations. The TBM Council is a nonprofit professional organization established in 2012 that is dedicated to advancing the discipline of TBM.⁷ According to the council, the practices and principles of the TBM framework promote IT value management by enabling organizations to gain an accurate view of the following relative to their technologies:

- Cost (e.g., assets, facilities, labor, and vendor services)
- Consumption (e.g., by applications and services, business units, individuals, and projects)
- Performance (e.g., capacity, features, risk, security, and utility)

Also, according to the council, organizational leaders can leverage TBM to understand trade-offs between specific IT investment decisions, such as the extent to which consuming more of a particular technology will increase cost or reduce performance. With these insights, the council says that leaders could make collaborative, data-driven decisions that improve their fiscal management, and increase the extent to which IT investment decisions align with business objectives. Additionally, the council states that organizations could use these insights to accelerate initiatives such as consolidating storage, servers, data centers, and vendors; transitioning applications to cloud services; and retiring legacy applications.

⁷According to the TBM Council, as of August 2022, it had more than 10,000 global members and was governed by an independent board of directors comprised of 23 CIO executive directors.

TBM Taxonomy

The TBM framework includes a taxonomy that, according to the TBM Council, provides a common language for categorizing, comparing, and reporting IT spending. For example, the taxonomy defines terms such as “server” and “compute” so that leaders from across organizations, including those who are less familiar with IT terms, understand the cost and consumption associated with them. The taxonomy is organized into four layers that are intended to show an organization’s total IT spending from different perspectives.

- **Cost pools.** Describe IT spending using terms that are often closely aligned to an organization’s general ledger accounts, which capture expenditures and expenses for financial reporting.
- **IT towers.** Describe IT spending in terms of the assets and technologies that an organization typically uses to develop and support products and services.
- **Products and services.** Describe IT spending in terms of the technology solutions that the organization provides to its internal and external users (e.g., computing devices and software, infrastructure services such as facilities and networks, and shared services for core operating capabilities).
- **Business units and capabilities.** Describe IT spending in terms of how products and services support the organization’s business units, customers, and business partners. This layer also describes IT spending in terms of the capabilities and processes that enable business outcomes.

As shown in figure 1, the four layers of the TBM taxonomy are comprised of higher-level IT spending categories, which are then decomposed into more specific subcategories. The majority of the categories and subcategories have been defined and standardized by the TBM Council. The council has not defined the categories and subcategories in the fourth layer of the framework because this layer is intended to be industry-specific and reflect the business units and capabilities of each organization.

Figure 1: Overview of the Technology Business Management (TBM) Taxonomy Version 3.0

| | | |
|---|---|---|
| Layer 4: Business units and capabilities | Categories and subcategories in this layer are not defined by the TBM Council because they are intended to be industry-specific and, therefore, defined by organizations to reflect their respective business units and capabilities | |
| Layer 3: Products and services | 26 categories (e.g., finance services, manufacturing and delivery, and vendor and procurement services) | 119 subcategories (e.g., application hosting, business continuity and disaster recovery, contract review, and payroll and time reporting) |
| Layer 2: IT towers | 11 categories (e.g., application, data center, network, security and compliance, and storage) | 41 subcategories (e.g., business software, client management, high performance computing, and mobile devices) |
| Layer 1: Cost pools | 9 categories (e.g., facilities and power, hardware, internal labor, software, and telecom) | 30 subcategories (e.g., cloud service providers, licensing, maintenance and support, and managed service providers) |

Source: GAO analysis of *TBM Taxonomy, Version 3.0*. Copyright © 2020 Technology Business Management Council (November 2018). | GAO-22-104393

Note: The TBM Council's most current version of the taxonomy is version 4.0. We used version 3.0 because OMB's requirements for TBM referenced version 3.0.

The TBM Council supports industry- or organization-specific extensions to the taxonomy. The council stated that acceptable extensions include the addition of new categories or subcategories that do not conflict with the taxonomy's standard definitions and meaning. This approach is intended to allow organizations to isolate costs for any unique technology, such as medical devices in health care or automated teller machines in banking. The council does not support splitting up or consolidating any categories and subcategories that have been defined and standardized by the council.

Data Allocation and Quality

According to the TBM Council, to establish each layer, organizations need to allocate their IT cost and consumption data up through the taxonomy, layer by layer, beginning with the cost pools (layer 1). To accurately allocate their cost and consumption data to the taxonomy, organizations may need to collect different types of data across functional areas and systems, including

- general ledger (actual costs),
- human resources (employees' unique identifiers and roles),
- projects (names, staff, and spending),
- services (service catalogues and descriptions),
- service desk (incidents and requests by user, priority, and impact); and
- vendors (names and billing data).

The TBM Council stated that when organizations allocate their cost and consumption data to the taxonomy, they are ideally able to capture the same amount of total IT spending in each layer. According to the TBM Council, instances in which an organization's IT spending totals are inconsistent among layers of the taxonomy can be useful for identifying data gaps and irregularities. For example, because financial systems are intended to capture all IT spending, data inconsistencies could help organizations to uncover spending on "shadow IT" (i.e., technologies that were purchased or built without the knowledge of the CIO's organization). According to the council, unsanctioned technologies not only represent compliance and security risks to the enterprise, but they also make it difficult to understand actual investment and spending on technologies.

The council also stated that, as organizations begin to adopt the TBM framework, they are often challenged to obtain the quality cost and consumption data that they need to accurately allocate their IT spending to the taxonomy. The council stated that low-quality data (e.g., data that are inaccurate, incomplete, or not current) can result in inaccurate allocations and reporting and, ultimately, impede organizations' decision-making abilities. However, the council stresses that organizations will never have perfect data and, therefore, they should start with what is available and work toward obtaining better data over time. Thus, the council recognizes that successful TBM programs often take an iterative approach to adopting the framework, with an emphasis on maturing over time.

Further, the council stated that organizations typically rely on software to support their TBM processes. For example, software tools could automate the collection of cost data from a variety of sources, identify and fix errors, and allocate data to the taxonomy's categories and subcategories using defined rules. The council stated that automated tools, as opposed to manual approaches, could allow organizations to create interactive dashboards and regularly produce meaningful reports that facilitate detailed analyses of their TBM data. Because organizations

cannot predict all of their reporting needs, automated tools could also provide users with the ability to more quickly access and manipulate TBM data and create their own reports.⁸

TBM Can Be Used to Benchmark Federal IT Spending

The TBM Council established the Federal Commission on IT Cost, Opportunity, Strategy, and Transparency, which released a report in 2016 on applying TBM best practices to the federal government.⁹ According to the report, agencies could use their TBM data to benchmark IT spending to a peer group, a standard, or over time to analyze trends. For example, agencies could compare the unit costs of their technologies (e.g., cost per server or terabyte of storage) from one data center, organization, or vendor to another. Agencies could also compare costs using ratios, such as IT cost per employee or storage cost as a percentage of total IT spending. According to the council, such comparisons can lead to insights such as which investments should be maintained because they are performing at or above expectations compared to their peers, and which investments should be reduced because they are performing below expectations.

In addition, benchmarking can lead to insights regarding the cost-effectiveness of an organization's vendors—insight that could be used to renegotiate with vendors and bring their rates in line with peers. The council noted that federal agencies should ensure that their benchmarking efforts are focused on achieving the best cost-for-performance ratio, not just the best cost (or the best performance). For example, an agency's spending could be higher than its peer group because it is unique in some way compared to its peers or the data supporting the benchmark could have errors. In contrast, an agency's IT costs could be well below the average for its peer group because it has

⁸According to GSA officials, they conducted market research in 2019 to determine the availability and maturity of TBM tools and services. They concluded that they should not purchase a government-wide tool or service because agencies vary in the systems they use to collect IT spending data and what additional solutions they would need to implement TBM.

⁹The Federal Commission on IT Cost, Opportunity, Strategy, and Transparency was established by the TBM Council in 2015 and is comprised of agency CIOs and representatives from the council, OMB, and private sector entities. TBM Council, *The Federal IT COST Commission Report*, Copyright © 2016 Technology Business Management Council.

inadequate resources and is delaying important hardware updates to save money.

The American Council for Technology-Industry Advisory Council released a report on TBM benchmarking in 2020, which emphasized the importance of establishing a federal benchmarking program as part of government-wide TBM adoption efforts.¹⁰ Specifically, the report stated that without a federal benchmarking effort, TBM adoption could become focused on compliance instead of IT value management (i.e., compliance with OMB's requirements for agencies to use a portion of the TBM taxonomy to report their IT spending as part of the annual budget submission). The report also emphasized the importance of graphic visualizations to make benchmarking data more accessible, and associated narratives to provide context for interpreting the comparisons.

Federal Entities Responsible for TBM Adoption

In March 2018, the Director of OMB designated the following responsibilities for leading TBM efforts:

- **OMB:** The Office of the Federal CIO is to provide leadership for the policy, planning, and budgeting aspects of TBM adoption in order to ensure success; and develop strong data standards and implementation guidance.
- **GSA:** The Office of Government-wide Policy is to serve as a central program management office to integrate TBM efforts, coordinate acquisition efforts with GSA's Federal Acquisition Service, assist with OMB's strategy and implementation efforts for all agencies, and support a TBM community of practice.¹¹

OMB also outlined the following responsibilities for other entities supporting TBM adoption:

¹⁰The American Council for Technology-Industry Advisory Council is a nonprofit educational organization that provides opportunities for government and industry executives to collaborate to improve public services and agency operations through technology. According to the council, its membership includes thousands of government leaders and industry executives from over 400 member companies. American Council for Technology-Industry Advisory Council, *Benchmarking—TBM's Next Frontier* (Mar. 1, 2021) Copyright © American Council for Technology, 2020.

¹¹GSA's TBM program management office resides in the Office of Government-wide Policy's Office of Information, Integrity, and Access, IT Data Transparency Division. The program management office is led by the Director of the IT Data Transparency Division and consists of three federal employees. As of August 2022, there was one vacancy in the TBM office.

-
- **Executive councils:** Relevant councils, such as the CIO Council and CFO Council were to provide input and support on OMB and GSA strategy and implementation efforts to ensure they are attainable and consistent with other federal and agency goals.
 - **Federal Technology Investment Management Community of Practice:** In July 2019, the CIO Council's Enterprise Operations Committee merged the TBM and capital planning and investment control communities of practice into a single group, called the Federal Technology Investment Management Community of Practice. According to its charter, this group is intended to create a cross-agency community of federal partners that provide feedback to OMB's Office of the Federal CIO; and mature the integration of TBM, IT capital planning and investment control, and portfolio management practices in the federal government through the sharing of best practices and lessons learned. The group is led by a steering committee, comprised of five elected members.¹² GSA's Office of Government-wide Policy is to provide guidance and assistance to the group, to meet the evolving needs of its members and stakeholders. According to GSA officials in the TBM program management office, the group consists of over 650 participants representing numerous executive and legislative branch agencies.
 - **Federal agencies:** Implement and mature TBM within the agency; and serve on both the TBM and capital planning and investment control communities of practice to provide ongoing input and insights into capital planning and investment control reform and strategy development and implementation efforts.¹³

¹²According to GSA officials in the TBM program management office, as of March 2022, five agencies volunteered to serve on the steering committee, including the Departments of Commerce, Energy, Homeland Security, and Veterans Affairs, and the Federal Bureau of Investigation.

¹³The 26 agencies that must adhere to TBM reporting requirements are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, the Interior, Justice, Labor, State, Transportation, the Treasury, and Veterans Affairs; and the Environmental Protection Agency, General Services Administration, National Aeronautics and Space Administration, National Archives and Records Administration, National Science Foundation, Nuclear Regulatory Commission, Office of Personnel Management, Small Business Administration, Social Security Administration, U.S. Agency for International Development, and U.S. Army Corps of Engineers.

Progress and Results of Government-wide TBM Adoption Are Limited

OMB and GSA have taken steps to lead government-wide TBM adoption, but progress and results are limited. Specifically:

- OMB's plans for government-wide TBM adoption stalled and did not include the entire taxonomy;
- both agencies assisted agency efforts to implement and mature TBM, but they did not assess government-wide TBM maturity, such as the quality of agencies' data reported in the first two layers and the extent that additional layers are being implemented; and
- they released agency-reported TBM data on the IT Dashboard, but did not take additional steps to enhance the usefulness of that data for benchmarking efforts.

OMB's Plans for Government-wide TBM Adoption Stalled and Did Not Include the Entire Taxonomy

According to its fiscal year 2019 IT capital planning guidance, OMB planned to shift toward an IT budgeting process that was based on the TBM Council's taxonomy.¹⁴ As introduced earlier in figure 1, the TBM Council's taxonomy consists of four layers that are comprised of higher-level IT spending categories, which are then decomposed into more specific subcategories.¹⁵ To make this shift, OMB planned to use a phased, multi-year approach. OMB expected that this gradual approach would provide agencies with an extended period of time to understand and implement the new requirements, and to ease the eventual transition to incorporating the entire TBM taxonomy into the IT budgeting process. By integrating TBM into the IT budgeting process, OMB expected to increase transparency into federal IT spending, enable benchmarking, and enhance investment decision making.

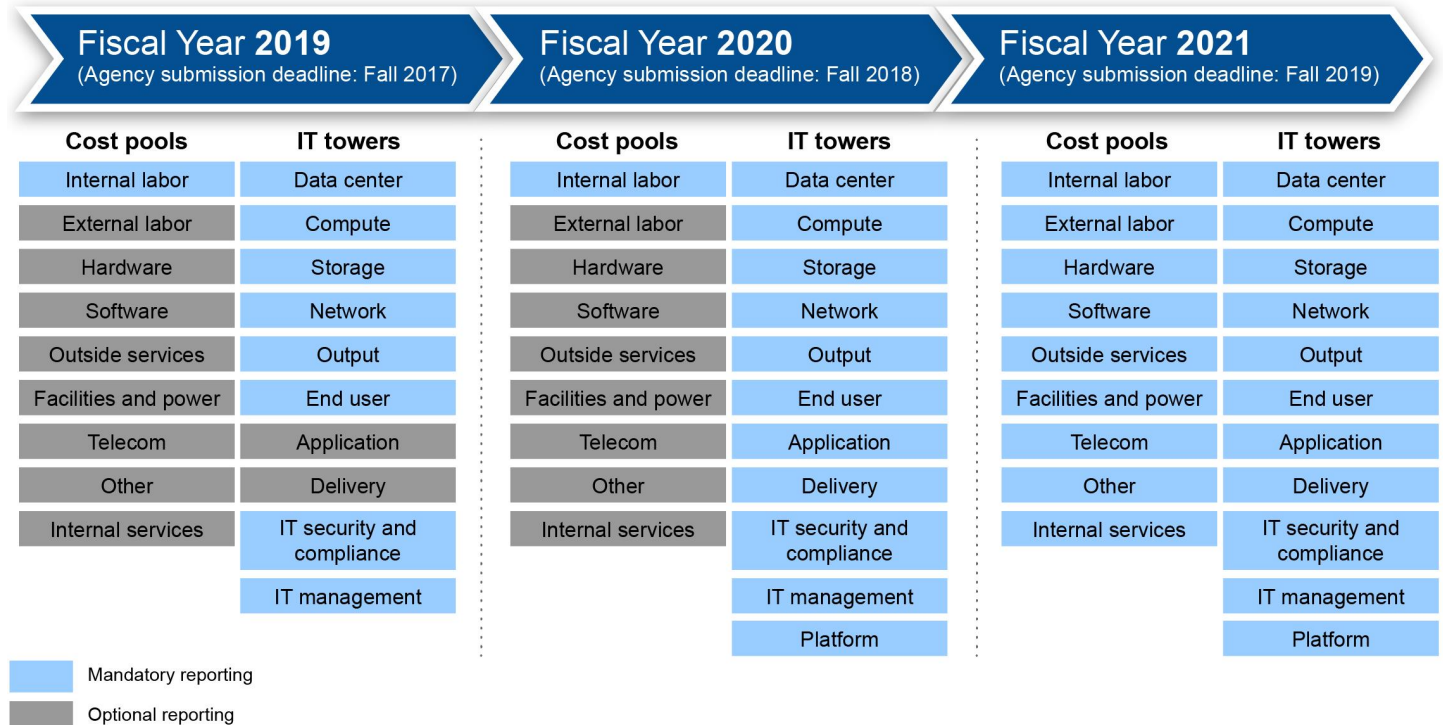
OMB's initial plans for fiscal years 2019 through 2021 required agencies to begin incrementally reporting the first two layers (cost pools and IT

¹⁴OMB, *Fiscal Year 2019 IT Budget - Capital Planning Guidance* (Washington, D.C.: Aug. 1, 2017).

¹⁵TBM Council, *TBM Taxonomy, Version 3.0*. Copyright © 2020 Technology Business Management Council (Nov. 2018).

towers) as part of their annual IT budget requests, as shown in figure 2. After 2021, OMB continued to require TBM reporting of the cost pools and IT towers layers for fiscal years 2022 through 2023.¹⁶

Figure 2: The Office of Management and Budget’s Phased Implementation Plan for Technology Business Management Version 3.0 Cost Pools and IT Towers Layers



Source: Office of Management and Budget’s *IT Budget - Capital Planning Guidance* (fiscal years 2019-2021). | GAO-22-104393

Note: OMB’s plans for fiscal year 2020 added the “platform” category to the IT towers layer which is aligned with version 3.0 of the TBM Council’s taxonomy (compared to version 2.0).

However, since the August 2017 guidance, OMB has not expanded on the requirements to include the rest of the taxonomy—the products and services layer, the business units and capabilities layer, and subcategories for all four layers. As a result, OMB’s requirements for government-wide TBM adoption have thus far addressed only 20 of at

¹⁶For fiscal year 2023, OMB did not release a separate IT capital planning guidance document and instead incorporated the guidance into OMB Circular No. A-11, Section 55.

least 46 categories, and 0 of over 190 subcategories of the taxonomy.¹⁷ Figure 3 shows the extent that OMB's plans addressed elements of the TBM taxonomy.

Figure 3: Extent That the Office of Management and Budget's (OMB) Plans Addressed Elements of the Technology Business Management Taxonomy Version 3.0

| | | |
|---|---|---|
| Layer 4: Business units and capabilities | Categories and subcategories in this layer are not defined by the TBM Council because they are intended to be industry-specific and, therefore, defined by organizations to reflect their respective business units and capabilities | |
| Layer 3: Products and services | 26 categories (e.g., finance services, manufacturing and delivery, and vendor and procurement services) | 119 subcategories (e.g., application hosting, business continuity and disaster recovery, contract review, and payroll and time reporting) |
| Layer 2: IT towers | 11 categories (e.g., application, data center, network, security and compliance, and storage) | 41 subcategories (e.g., business software, client management, high performance computing, and mobile devices) |
| Layer 1: Cost pools | 9 categories (e.g., facilities and power, hardware, internal labor, software, and telecom) | 30 subcategories (e.g., cloud service providers, licensing, maintenance and support, and managed service providers) |

Hashed shading represents elements that were not addressed in OMB's plans.

Source: GAO analysis of OMB guidance and *Technology Business Management Taxonomy, Version 3.0*. Copyright © 2020 Technology Business Management Council (November 2018). | GAO-22-104393

According to staff from OMB's Office of the Federal CIO in June 2022, they planned to begin adopting the third layer of the taxonomy, but they still had not documented this intention in relevant plans.¹⁸ OMB staff also stated that they intended to incorporate the fourth layer and the subcategories in the future, but, as of July 2022, they did not have time frames for doing so. OMB staff said they were considering how to implement the remaining elements in light of resource constraints facing

¹⁷This number does not include the categories and subcategories in the business layer of the taxonomy, which can vary by organization because it is intended to be industry-specific and therefore is not defined by the TBM Council.

¹⁸OMB staff said they plan to adopt the third layer using version 4.0 of the TBM taxonomy. In version 4.0, the third layer is called "solutions" instead of "products and services."

agencies (e.g., ongoing issues with the quality of agencies' data). They also stated that it would be more difficult for agencies to implement the fourth layer because of the complex and diverse missions across the federal enterprise. In the meantime, OMB staff said that they encouraged agencies to continue to mature their TBM implementations beyond what is required.

Although OMB has not issued guidance since 2017 on implementing additional layers, OMB staff from the Office of the Federal CIO said they intend to move forward with implementing the rest of the TBM framework. Moreover, the office has identified TBM as a priority initiative for the CIO Council. Further, the office has been regularly engaged with GSA's TBM program management office on TBM efforts. OMB and GSA officials told us they meet with each other at least weekly to discuss a number of IT transparency issues, including TBM, and we have observed OMB's presence and involvement at the monthly community of practice meetings.

Nevertheless, until OMB establishes documented plans and agency expectations for the remainder of the TBM taxonomy, uncertainty will cloud agency TBM efforts. Further, the continuing absence of OMB direction will contribute to a lack of assurance that agencies will still pursue the TBM initiative. Incomplete implementation of the taxonomy would in turn prevent the federal government from fully achieving the intended benefits of TBM, such as optimizing IT spending.

OMB and GSA Assisted Agencies with TBM, but Did Not Assess Government-wide Maturity

According to the TBM Council, successful TBM programs often take an iterative approach to adopting the framework, with an emphasis on maturing over time.¹⁹ Additionally, the American Council for Technology-Industry Advisory Council states that a key component of TBM implementation includes assessing the organization's current maturity level. By doing so, organizations can gain insights into current progress and identify appropriate next steps.²⁰

¹⁹TBM Council, *The Federal IT COST Commission Report*, Copyright © 2016 Technology Business Management Council.

²⁰American Council for Technology-Industry Advisory Council, *Benchmarking—TBM's Next Frontier* (Mar. 1, 2021) Copyright © American Council for Technology, 2020.

OMB's IT capital planning guidance recognized that each agency has a different level of maturity, capability, and resources to address the changes needed for TBM. For example, some agencies have already been working to achieve a capability like TBM. However, OMB stated that agencies that lack the capabilities or resources to deliver the data needed to align their reporting with TBM should consider what changes are necessary and take steps to achieve it.

OMB and GSA have worked closely with the Federal Technology Investment Management Community of Practice—a large community that convenes at least monthly to discuss agency challenges and lessons learned regarding TBM adoption—to complete projects intended to help agencies implement and mature TBM.²¹ These projects include the following:

- **Conducting pilots with agencies on implementing two TBM layers.** In 2018 and 2020, GSA and the CIO Council conducted pilots on federal adoption of the cost pools layer and IT towers layer, respectively. The cost pools pilot involved four agencies, and identified key activities needed to adopt the layer, such as engaging key stakeholders (e.g., CFO, CIO, and Chief Acquisition Officer), identifying valid data sources and improving data quality, providing training materials, developing approaches for allocating, analyzing, and reporting cost pools data, and maturing processes.²² The IT towers pilot involved six agencies and identified key takeaways (e.g., the importance of engaging key stakeholders, and developing specific processes and tools for maturing TBM), recommendations (e.g., using a variety of data analysis and visualization tools), and success stories (e.g., reducing duplicative contracts and products).²³ According to OMB staff from the Office of the Federal CIO and GSA officials from

²¹The Federal Technology Investment Management community's projects are typically carried out by volunteers from various agencies that serve on the project teams. For example, GSA reported for seven projects from 2020-2022, they had received support from 8-30 volunteers representing 6-19 different agencies. In addition to the completed projects, OMB and GSA had a number of TBM-related projects underway, as of April 2022, such as cybersecurity reporting and cloud financial management.

²²Agencies that participated in the cost pools pilot included the Department of Health and Human Services, Department of Homeland Security, Federal Aviation Administration, and Nuclear Regulatory Commission.

²³Agencies that participated in the IT towers pilot included the Department of Homeland Security, Department of Veterans Affairs, Federal Bureau of Investigation, Nuclear Regulatory Commission, Patent and Trademark Office, and Small Business Administration.

the TBM program management office, these pilots were successful in showcasing a proof of concept utilizing best practices and the results of the pilots informed TBM implementation guidance.

- **Analyzing government-wide data sources.** In 2019, OMB and GSA commissioned a study focused on determining the extent to which agencies could rely on five government-wide systems to obtain the data they would need to gain insights into specific areas of IT spending.²⁴ GSA expected that using these systems could reduce the burden to agencies of relying on various internal data sources. The study found that government-wide systems could provide agencies with approximately 33 percent (98 of 297 data elements) of the data they would need, while the remaining data would need to be collected from agencies' internal sources. The study also identified opportunities to improve the government-wide data sources, which were not always complete, consistent, or detailed enough for TBM.
- **Developing federal TBM implementation guidance.** In 2019, GSA developed a playbook and implementation guide to help agencies meet and expand on OMB's requirements for government-wide TBM adoption. The playbook was developed based on GSA's and the Department of Education's experiences and lessons learned from implementing TBM. The playbook included seven actions that agencies could adapt as needed to achieve a specific goal or objective, such as establishing a dedicated TBM team; defining desired short- and long-term outcomes of implementation; and increasing organizational awareness of achievements, goals, and terminology.

The implementation guidance provided additional information on implementing the seven actions identified in the playbook, and included more than 60 supplemental materials, such as templates and tools to help inform and mature agencies' approaches to TBM. For example, there were templates and tools intended to help agencies with increasing stakeholder engagement (e.g., CIOs, CFOs, and program managers), identifying authoritative sources of IT spending data, allocating spending to TBM cost categories, and managing organizational change. According to GSA officials, the TBM program management office continually reviews project outputs and updates

²⁴The government-wide data sources are the federal IT Dashboard, Federal Procurement Data System, DATA Act Information Model Schema, Data Center Optimization Initiative, and FedSCOPE. The specific areas of IT spending included labor costs for each business unit; spending on data centers, service desks, and storage infrastructure; and investments that support business initiatives.

the guidance, as appropriate, to ensure that this growing body of knowledge continues to be an active resource for agencies.

- **Defining federal-specific TBM cost categories.** Beginning in 2020, OMB and GSA took steps to assist any agencies that independently sought to mature their TBM implementations by adopting the products and services, and business units and capabilities layers of the TBM taxonomy (as previously discussed, these layers have not yet been addressed in OMB's plans for TBM). Specifically, GSA developed a public sector extension to the products and services layer that included cost categories focused on federal-specific business services (e.g., atomic energy defense; consumer and occupational health and safety; and space flight, aeronautics, and research).

According to GSA officials from the TBM program management office, the categories were approved by OMB's Office of the Federal CIO, and then provided to agencies for use in August 2020. These officials stated that the categories were also accepted by the TBM Council and shared with its community in May 2021. Subsequently, the TBM program management office worked with agencies to define federal-specific categories for the business units and capabilities layer (e.g., federal government-wide buying and selling, granting U.S. patents and registering trademarks, and supporting global food security). GSA officials from the TBM program management office said that the current version of these categories was completed and made available to agencies for use in January 2022.

- **Aligning existing federal IT acquisition codes with TBM.** In 2020, GSA's TBM program management office worked with GSA's IT Category Management Office and OMB's Office of Federal Procurement Policy to modernize the IT portion of the product and service codes that agencies must use to identify the type of product or service associated with a contract award in the Federal Procurement Data System.²⁵ Specifically, GSA replaced 71 legacy product and service codes with 40 new codes that allow agencies to allocate items more directly to cost categories in the IT towers layer of the TBM taxonomy. According to GSA officials, this was a significant achievement because the product and service codes were outdated and the updates would provide better data and enhance decision-making. The modernized codes were approved by OMB in June 2020 and made available to agencies for use in October 2020.

²⁵The Federal Procurement Data System is the federal government's database that collects information on contract actions.

-
- **Aligning existing federal IT budget codes with TBM.** In 2020, GSA led a project to examine how federal IT budget codes could be better aligned with the TBM taxonomy, which officials said could help automate the collection of more consistent TBM data. Specifically, GSA worked with members of the CFO Council, through OMB's Office of Federal Financial Management, to develop proposed updates to the IT portion of budget object classification codes, which are used within agencies' financial management systems. The proposed updates were to align the codes more directly with categories in the cost pools layer of the TBM taxonomy.²⁶

However, OMB staff and GSA officials acknowledged there was a misunderstanding on the status of the proposed budget object classification code updates. GSA officials in the TBM program management office said they had submitted the proposed updates to OMB for approval in August 2020 and were still awaiting approval for agencies to use the updated codes, as of March 2022. In contrast, OMB staff from the Office of Federal Financial Management and the Budget Review Division stated in September 2022 that they had not received this proposal for approval. Instead, OMB staff said GSA had presented a proposal to OMB in July 2021, but that OMB informed GSA that additional work was required before approval could be granted. For example, they said GSA's initial proposal raised significant concerns from agency budget officers that needed to be addressed related to cost, implementation, and data quality challenges. They added that the proposal did not account for mitigating or avoiding potential adverse effects on the presentation of agency financial data. In contrast, according to GSA officials, they did not receive any specific feedback from OMB on what additional work was needed on the proposal. GSA officials further stated they had attempted to obtain assistance from OMB's Office of Federal Financial Management on how to proceed with the proposal, but did not receive a response. Accordingly, they believed that the OMB office had deprioritized this effort.

Given that TBM is aimed at improving financial IT data, ensuring that the budget object classification codes used in financial management systems align with the TBM taxonomy is a critical first step that could also help ensure the collection and allocation of data are accurate and repeatable. Further, OMB's IT capital planning guidance stated that

²⁶31 U.S.C. § 1104(b) requires that the President's budget presents proposed appropriations by object class.

the TBM concept closely resembles budget object classification codes and will be a rationalizing point for the CIO and CFO organizations. Therefore, the shift to TBM will enable the budget identified by the CIO to be reconciled with the budget submitted by the CFO.²⁷ As a result of the misunderstanding, the proposal to better align federal IT budget codes with TBM did not progress for the past 2 years.

- **Developing a TBM maturity model assessment for agencies.** GSA worked with the CIO Council and the American Council for Technology-Industry Advisory Council to develop a TBM maturity model assessment tool, which was released in September 2020.²⁸ The assessment tool included 70 criteria for organizations to assess the current and desired state of their TBM implementations across six dimensions: engagement, taxonomy, data, automation, reporting and metrics, and value.

For example, for the data dimension, the model stated that data are continually changing but are key to a successful TBM implementation and established processes assure that data integrity, completeness, and tagging are maintained. A criterion within the data dimension is “data are regularly refreshed on a monthly or quarterly basis using a largely automated workflow for cleansing, enrichment, and mapping and allocation rules.” The tool quantifies agency responses into an overall score that characterizes the organization’s maturity (e.g., “ad hoc,” “repeatable,” and “optimized”). According to the CIO Council and American Council for Technology-Industry Advisory Council, the maturity model uses commercial and government best practices to help agencies to measure progress in adopting the TBM methodology and data standards and to mature over time, as data quality improves and the metrics that drive decisions are developed and utilized.²⁹

However, OMB and GSA have not assessed agencies’ maturity in their implementation of TBM government-wide. For example, OMB staff from the Office of the Federal CIO and GSA officials from the TBM program

²⁷We previously reported that selected departments lacked quality assurance processes over their IT budgets, such as not using budget object class data to help ensure all IT programs were captured in the budget because their financial system reporting structures were not aligned with their IT portfolio reporting structures. Thus, the departments did not have processes in place to cross-walk IT data between the CFO’s financial system and the CIO’s IT portfolio management system. See [GAO-19-49](#).

²⁸The maturity model can be accessed at <https://www.cio.gov/2020-09-30-New-Maturity-Model-Increases-IT-Spending-Transparency>.

²⁹Federal CIO Council and American Council for Technology-Industry Advisory Council, *IT Spending Transparency Maturity Model Whitepaper* (Sept. 30, 2020).

management office said that all agencies were reporting values in the two required taxonomy layers (cost pools and IT towers), but the maturity of the data can vary among agencies, and they did not know which agencies had better quality data.

Additionally, OMB staff from the Office of the Federal CIO and GSA officials from the TBM program management office said they have encouraged agencies to mature their TBM implementations beyond the first two layers. However, they could not identify the extent to which agencies have taken such additional steps of implementing the remaining two layers or the subcategories. Further, when asked about agency progress and next steps, both OMB staff and GSA officials referred to the TBM maturity model assessment as a tool that could be leveraged to help agencies measure and improve their implementations. However, the model was an optional tool for agencies to use, and OMB and GSA were not collecting completed assessments from agencies or tracking which agencies were using the tool.

According to OMB staff from the Office of the Federal CIO and GSA officials from the TBM program management office, they were taking a consensus-driven approach to encouraging government-wide TBM maturity. GSA officials said the government-wide TBM program management office did not have the authority to compel agencies to report their TBM implementation maturity to GSA.³⁰ Therefore, they stated that the role of the office was to provide a forum to share best practice resources and generally assist agencies in maturing their TBM implementations on a case-by-case basis.

Nevertheless, by not assessing agency maturity, OMB and GSA have limited insights into government-wide progress and the extent that it is providing benefits to agencies that implement TBM. Further, the use of an existing tool like the TBM maturity model assessment could provide a consistent method for measuring progress across agencies.

³⁰OMB implemented the collection of TBM data through the capital planning and investment control process. As defined in 40 U.S.C. §§ 11302 and 11319, the Director of OMB is granted the authority to require federal executive agencies to report IT budget and management data through the capital planning and investment control process.

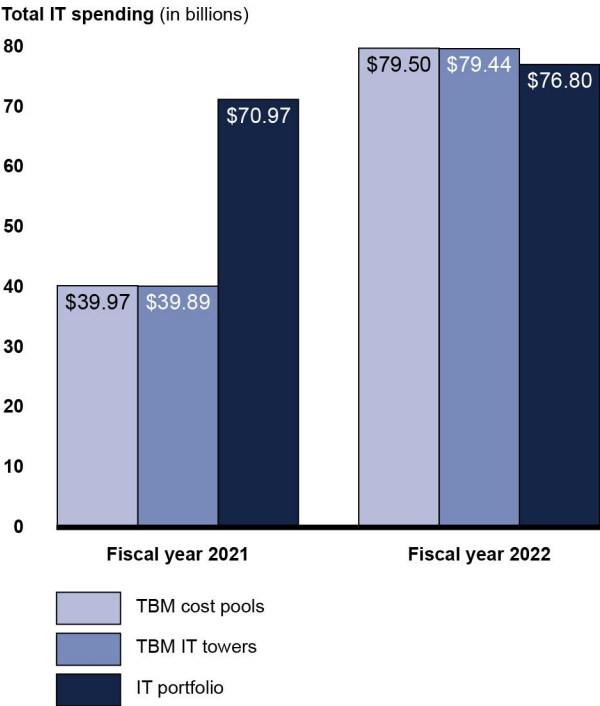
OMB and GSA Did Not Enhance the Usefulness of TBM Data for Benchmarking

OMB guidance stated that, beginning with the fiscal year 2021 federal IT budget process, it planned to make agencies' TBM data available to the public through the IT Dashboard for the first time.³¹ With the public display of TBM data on the dashboard, OMB intended to provide agencies with access to more granular federal IT spending data that could be used for benchmarking against their peers in both the public and private sectors. In addition, OMB intended to increase accountability for and transparency into federal IT spending, thereby providing Congress and taxpayers with better information on how federal dollars are spent and the return on that investment.

As planned, OMB provided the public with access to agencies' TBM data, following the fiscal year 2021 federal IT budget process. Specifically, OMB provided access to TBM data reported by the 26 federal agencies via the dashboard. Figure 4 shows the total agency-reported IT portfolio spending and total TBM cost pools and IT towers layers for fiscal years 2021 and 2022.

³¹OMB, *Fiscal Year 2021 IT Budget - Capital Planning Guidance* (Washington, D.C.: June 28, 2019).

Figure 4: Comparison of Total Technology Business Management (TBM) and IT Portfolio Spending Reported by Agencies on the IT Dashboard for Fiscal Years 2021 and 2022



Source: GAO analysis of Federal IT Dashboard data for fiscal years 2021-2022. | GAO-22-104393

Accessible Data for Figure 4: Comparison of Total Technology Business Management (TBM) and IT Portfolio Spending Reported by Agencies on the IT Dashboard for Fiscal Years 2021 and 2022

| Category | Cost Pool | IT Towers | IT Portfolio |
|------------------|-----------|-----------|--------------|
| Fiscal Year 2021 | 39.97 | 39.89 | 70.97 |
| Fiscal Year 2022 | 79.5 | 79.44 | 76.8 |

However, OMB and GSA did not take additional steps to enhance the usefulness of TBM data for benchmarking efforts. For example:

- **OMB did not publicly disclose that approximately \$31 billion of investments were excluded from the TBM data on the IT Dashboard.** We have previously reported that disclosure of known data issues and limitations is a key practice for transparently reporting

government data.³² We also stated that disclosing data quality issues and limitations can help users make informed decisions about whether and how to use the data. Examples of data quality issues and limitations can include descriptions of the completeness, timeliness, or accuracy of the data, such as an explanation of why certain data were not disseminated.

Nevertheless, for fiscal year 2021, OMB did not publicly release a significant portion of agency-reported TBM data. Specifically, OMB did not release data on standard IT infrastructure investment types (e.g., cloud computing, data centers, and IT security),³³ which constituted approximately \$31 billion of \$71 billion in federal IT spending reported on the dashboard.

According to OMB staff from the Office of the Federal CIO, they held back the public release of standard IT infrastructure investment types until fiscal year 2022, as part of their phased approach to TBM adoption. However as of June 2022, OMB had not publicly disclosed the limitations in TBM data for fiscal year 2021 on the dashboard website. Given that an important component of TBM is benchmarking, users of the dashboard website would be unable to analyze the fiscal year 2021 TBM data for trends in IT spending over time. Additionally, without proper disclosure of known data limitations in the fiscal year 2021 TBM data on the dashboard, users are at risk of drawing inaccurate conclusions from the data.

- **OMB did not analyze inconsistencies in agency-reported TBM data on the IT Dashboard.** OMB's guidance called for agency-reported TBM data to be generally consistent with their total reported IT portfolio spending—which is comprised of all the investments that make up the agency's IT budget.³⁴ However, the agency-reported TBM data on the IT Dashboard for fiscal year 2022 showed that 18 of 26 agencies had reported total IT spending using TBM that was

³²GAO, *Data Act: Quality of Data Submissions Has Improved but Further Action Is Needed to Disclose Known Data Limitations*, [GAO-20-75](#) (Washington, D.C.: Nov. 08, 2019); and *Open Data: Treasury Could Better Align USAspending.gov with Key Practices and Search Requirements*, [GAO-19-72](#) (Washington, D.C.: Dec. 13, 2018).

³³According to OMB guidance, agencies were required to assign one of five investment types to each of their IT investments—major, non-major, migration, funding transfer, or standard IT infrastructure. Standard IT infrastructure investments are IT goods and services that are common to all agencies and not mission-specific, such as IT security and compliance, networks, data centers, and cloud computing.

³⁴OMB, *Fiscal Year 2021 IT Budget - Capital Planning Guidance* (Washington, D.C.: June 28, 2019).

higher or lower than their reported total IT portfolio spending. For example, one agency reported over \$900 million more in TBM data compared to its total IT portfolio, while another agency reported approximately \$60 thousand less in TBM data compared to its IT portfolio.

Regarding such inconsistencies, OMB staff from the Office of the Federal CIO said that TBM adoption is an ongoing process and agencies vary in their mission, size, and are at different starting points in terms of data availability and quality. OMB staff also stated that desk officers review the quality of TBM reporting with agency leadership during recurring portfolio reviews.

However, OMB staff did not provide any artifacts from these reviews and were unable to provide details on how they review the quality of TBM data. OMB staff also did not know the specific reasons why agencies' reported TBM data were inconsistent with their total IT portfolio spending. Until OMB examines these inconsistencies, it will lack insights into why agencies are reporting differences between their TBM and IT portfolio spending data, and what actions could be taken to address this.

- **GSA provided TBM data summaries and visualizations on the IT Dashboard, but did not provide benchmarking functionality.** The American Council for Technology-Industry Advisory Council emphasizes the importance of establishing graphic visualizations that make benchmarking TBM data more accessible. The council also recommends including associated narratives to provide context for interpreting the comparisons.³⁵ In addition, we have previously reported that agencies should provide data in a way that enables users to easily explore and interpret the information, such as summaries and visualizations, to ensure transparent reporting of government data.³⁶

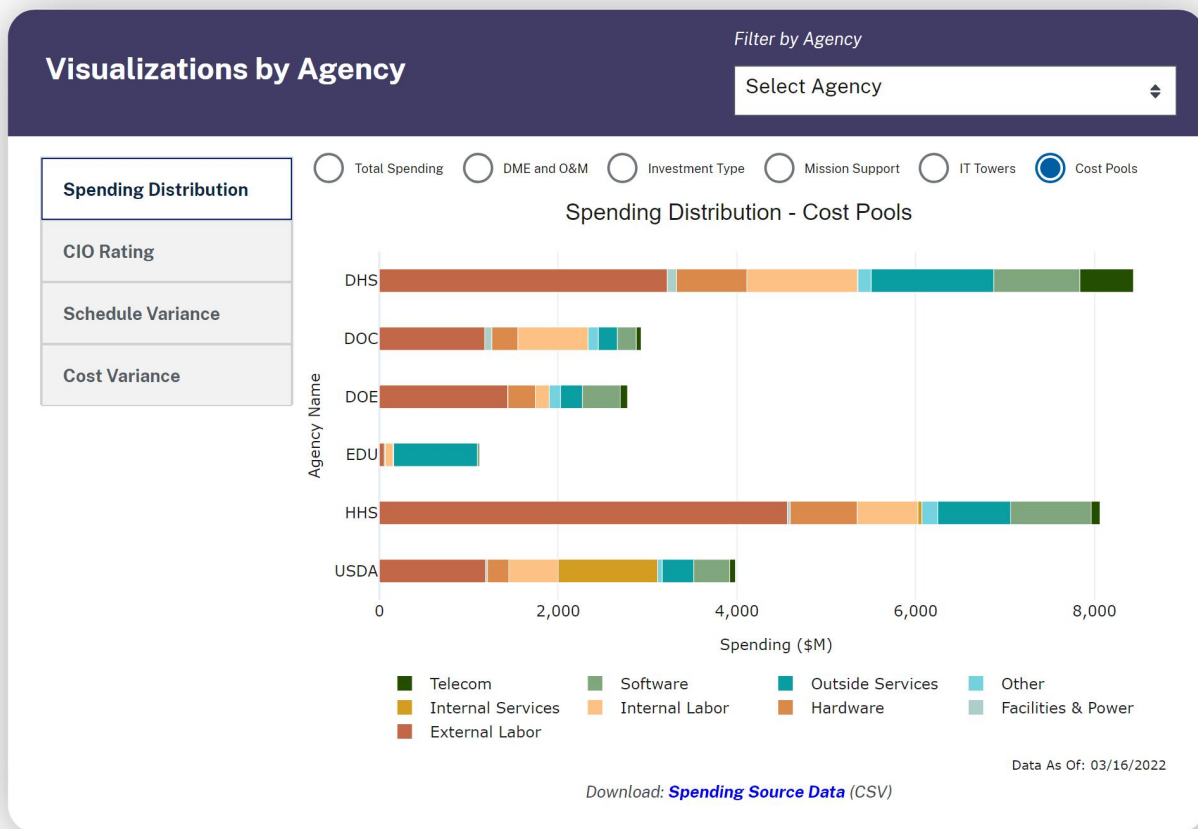
In March 2022, GSA began providing summaries and visualizations of TBM data on the IT Dashboard. For example, with input from OMB, GSA developed features that allow users to select up to six agencies and view graphical comparisons of their reported IT towers or cost pools data. Figure 5 provides a screenshot of the dashboard's fiscal

³⁵American Council for Technology-Industry Advisory Council, *Benchmarking—TBM's Next Frontier* (Mar. 1, 2021) Copyright © American Council for Technology, 2020.

³⁶[GAO-19-72](#).

year 2022 cost pools data for the first six agencies that appeared on the list, as of May 2022.

Figure 5: Screenshot of Technology Business Management Visualization on the IT Dashboard



Source: Federal IT Dashboard, www.itdashboard.gov. | GAO-22-104393

However, GSA did not provide any other functionality on the dashboard to summarize TBM data, such as comparing an agency's IT towers and cost pools with each other, comparing IT towers or cost pools to the agency's IT portfolio, or providing a government-wide view of reported TBM data. Additionally, GSA did not include narratives on the dashboard to provide context for interpreting agencies' cost pools and IT towers data.

In March 2022, GSA officials said they were working on developing these types of additional features, as well as benchmarking functionality. They said the benchmarking functionality would allow

users to see, for example, what a specific agency is spending in a particular cost pool or IT tower category against a government-wide average or by comparing agencies that share similar characteristics (e.g., mission or size). These officials also said that while they expected new functionality to be included on the dashboard by September 2022, they were still determining which data and associated features would be included. These types of additional features could offer valuable insights into the cost effectiveness of IT spend within and among federal agencies across the government. Until GSA completes the benchmarking functionality, agencies and oversight entities will not be able to easily explore and interpret the TBM data that are available on the IT Dashboard.

Conclusions

Given the magnitude of federal IT spending, actions to improve longstanding challenges with IT spending transparency are essential. To address this challenge, OMB established initial plans for adopting TBM, and worked with GSA to help agencies implement and mature their TBM implementations.

However, progress on the TBM taxonomy has stalled. Five years after establishing initial plans, OMB has not provided additional guidance on implementing most of the taxonomy. Accordingly, while OMB staff maintain that TBM is a priority, the lack of accompanying action on the taxonomy increases uncertainty about agency TBM efforts. Until OMB establishes documented plans and agency expectations for the remainder of the TBM taxonomy, the federal government will not be able to fully achieve the intended benefits of TBM.

Also, a misunderstanding between OMB's Office of Federal Financial Management and GSA's TBM program management office resulted in limited progress on updating relevant budget codes to better align agencies' financial management systems with the TBM taxonomy. In addition, OMB and GSA are not assessing agency maturity in implementing TBM. Without this assessment, there are limited insights into government-wide progress in implementing TBM and the extent that the use of TBM is providing benefits to agencies.

Further, when assessing agency maturity, the use of an existing tool like the TBM maturity model assessment could provide OMB and GSA a consistent method for measuring agency progress across the government. Finally, the data that OMB and GSA released on the IT

Dashboard for the first two layers had limited usefulness because significant data limitations were not publicly disclosed, inconsistencies in agency-reported data were not analyzed, and benchmarking functionality was not developed.

Recommendations for Executive Action

We are making a total of seven recommendations, including six to OMB and one to GSA. Specifically:

The Director of OMB should direct the Federal CIO to establish plans and time frames for government-wide TBM adoption that address the remaining elements of the taxonomy (third layer, fourth layer, and subcategories). (Recommendation 1)

The Director of OMB should direct the Office of Federal Financial Management and Budget Review Division to work with GSA's TBM program management office to determine appropriate next steps for updating budget object classification codes to better align agencies' financial management systems with the TBM taxonomy. (Recommendation 2)

The Director of OMB should direct the Federal CIO to work with GSA to establish an approach for assessing the maturity of agencies' TBM implementation. (Recommendation 3)

The Director of OMB should direct the Federal CIO to require all agencies to complete and submit the TBM maturity model assessment tool to OMB and GSA. (Recommendation 4)

The Director of OMB should direct the Federal CIO to ensure that known limitations in the TBM data for fiscal year 2021 are publicly disclosed on the IT Dashboard. (Recommendation 5)

The Director of OMB should direct the Federal CIO to analyze inconsistencies in agency-reported TBM data to determine why agencies are reporting differences between their TBM and IT portfolio spending data. (Recommendation 6)

The Administrator of General Services should direct the Office of Government-wide Policy's Director of IT Data Transparency to ensure that TBM benchmarking functionality is developed for the IT Dashboard. (Recommendation 7)

Agency Comments and Our Evaluation

We provided a draft of this report to OMB and GSA for review and comment. We received comments via email from OMB and written comments from GSA, which are summarized below.

In an email, an Assistant General Counsel transmitted comments from staff in OMB's Office of the Federal CIO and Office of Federal Financial Management. OMB neither agreed nor disagreed with our recommendations and stated it did not have comments on the five recommendations made to the Office of the Federal CIO. However, regarding our recommendation to the Office of Federal Financial Management to allow budget object classification code updates that better align with TBM, the office suggested revisions to more accurately reflect the current status and preliminary nature of GSA's proposed budget object code changes. OMB clarified that it did not receive a proposal from GSA in August 2020. Instead, OMB stated that GSA presented a proposal in July 2021, and OMB had informed GSA that additional work was required on the proposal, and to date, OMB had not yet received a revised proposal. Given the preliminary nature of GSA's ideas for making changes to budget object codes, OMB suggested that we revise our recommendation to provide a more flexible path forward, in which OMB and GSA work together to determine appropriate next steps.

In response to OMB's comments regarding the budget object code proposal, GSA officials from the TBM program management office stated that they did not receive any specific feedback from OMB on what additional work was needed on the proposal. GSA officials also stated they had attempted to obtain assistance from OMB's Office of Federal Financial Management on how to proceed with the proposal, but had not received a response and, thus, believed that the OMB office had deprioritized this effort. We revised the report to reflect OMB's and GSA's comments about the status of the budget object code proposal. Further, in light of the misunderstanding between OMB and GSA officials on the status of the proposal, these offices should work together to determine appropriate next steps. Therefore, we revised the recommendation to OMB to work with GSA's TBM program management office to determine appropriate next steps for updating budget object classification codes to better align with the TBM taxonomy.

In written comments, reproduced in appendix II, GSA concurred with recommendation 7 and stated it is currently working on TBM benchmarking functionality, with an initial release planned for the end of

fiscal year 2022. However, GSA also stated that its role in the capital planning and investment control process does not include making the TBM benchmarking data and visualizations publicly available on the IT Dashboard (that is OMB's purview). As such, we clarified the recommendation to better align with GSA's role, which is to develop the functionality for the IT Dashboard, but not to ensure that it is made available on the dashboard.

We are sending copies of this report to the appropriate congressional committees, the Director of OMB, and the Administrator of GSA. In addition, the report will be available at no charge on GAO's website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4456 or harriscc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

A handwritten signature in black ink, appearing to read 'C. Harris', with a stylized, flowing script.

Carol C. Harris
Director, Information Technology Management Issues

Appendix I: Objective, Scope, and Methodology

Our objective for this engagement was to identify progress the Office of Management and Budget (OMB) and General Services Administration (GSA) have made in the government-wide effort to adopt Technology Business Management (TBM).

To address our objective, we reviewed OMB's and GSA's plans and guidance for TBM implementation, such as IT capital planning guidance for fiscal years 2019 through 2023. We also reviewed OMB and GSA artifacts from completed projects intended to help agencies implement and mature TBM, such as pilot results, TBM implementation guidance, and the maturity model assessment tool. In addition, we observed meetings held by GSA and the Chief Information Officer (CIO) Council's Federal Technology Investment Management Community of Practice with agency officials on TBM and IT capital planning and portfolio management topics. We observed TBM-related information and resource sharing in these monthly meetings between June 2020 and July 2022. We compared the plans and progress made against relevant guidance developed by the TBM Council and American Council for Technology-Industry Advisory Council.¹ We focused on version 3.0 of the TBM Council's taxonomy, rather than the most current version 4.0, because OMB's requirements for TBM referenced version 3.0 (which was the most current version at the time).

We also analyzed TBM data reported by agencies on the IT Dashboard for fiscal years 2021 and 2022. Specifically, we used these data to summarize total agency-reported spending in TBM categories against their total IT portfolio spending. We also evaluated any TBM-related content found on the dashboard and the TBM data for fiscal years 2021 and 2022 against OMB reporting requirements in IT capital planning

¹TBM Council, *TBM Taxonomy, Version 3.0*. Copyright © 2020 Technology Business Management Council (Nov. 2018); *The Federal IT COST Commission Report*, Copyright © 2016 Technology Business Management Council; and American Council for Technology-Industry Advisory Council, *Benchmarking—TBM's Next Frontier* (Mar. 1, 2021) Copyright © American Council for Technology, 2020.

guidance and leading practices we have identified in our prior work on transparent reporting of government data.²

To assess the reliability of the TBM data from the dashboard, we discussed with OMB staff from the Office of the Federal CIO and GSA officials from the TBM program management office the steps they took or had implemented in the dashboard to ensure the accuracy and completeness of TBM data on it. We also discussed reasons for inconsistencies between agency-reported TBM and IT portfolio spending data. We determined that the data were sufficiently reliable for the purpose of evaluating OMB and GSA progress in leading government-wide efforts to adopt TBM.

Further, we interviewed relevant officials in OMB's Office of the Federal CIO and Office of Federal Financial Management, and GSA's Office of Government-wide Policy TBM program management office on their planned and completed efforts to lead TBM adoption. In addition, we interviewed representatives from councils that are to serve as advisors to OMB and GSA on TBM efforts, including the CIO Council and the Chief Financial Officers Council. In doing so, we obtained their views on plans and progress toward government-wide TBM implementation.

We conducted this performance audit from June 2020 to September 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

²GAO, *Data Act: Quality of Data Submissions Has Improved but Further Action Is Needed to Disclose Known Data Limitations*, [GAO-20-75](#) (Washington, D.C.: Nov. 08, 2019); and *Open Data: Treasury Could Better Align USAspending.gov with Key Practices and Search Requirements*, [GAO-19-72](#) (Washington, D.C.: Dec. 13, 2018).

Appendix II: Comments from the General Services Administration

Appendix II: Comments from the General
Services Administration

DocuSign Envelope ID: DF395A1C-1CF1-4A8E-8750-A1F7C31082BB



The Administrator

September 13, 2022

The Honorable Gene L. Dodaro
Comptroller General of the United States
U.S. Government Accountability Office
Washington, DC 20548

Dear Comptroller General Dodaro:

The U.S. General Services Administration (GSA) appreciates the opportunity to review and comment on the U.S. Government Accountability Office (GAO) draft report, TECHNOLOGY BUSINESS MANAGEMENT: OMB and GSA Need to Strengthen Efforts to Lead Federal Adoption. (GAO-22-104393)

GAO recommended that the Administrator of GSA should direct the Office of Government-wide Policy's Director of IT Data Transparency to ensure that Technology Business Management (TBM) benchmarking functionality is developed and made available on the IT Dashboard.

GSA agrees with the recommendation to ensure TBM benchmarking functionality is made available on the Federal IT Dashboard (<https://www.itdashboard.gov>). GSA is currently engaged in working on this effort and the initial minimally viable product is scheduled to be released by the end of this fiscal year. It is, however, ultimately within the Office of Management and Budget's purview to make TBM Benchmarking data/visualizations publicly available in accordance with 40 U.S. Code § 11302. Furthermore, GSA does not have the authority to compel Federal executive agencies to report their TBM implementation maturity.

For the purpose of clarifying GSA's role in the capital planning and investment control process, GSA suggests the recommendation mentioned above be reworded to say the following:

"The Administrator of GSA should direct the Office of Government-wide Policy's Director of IT Data Transparency to ensure that Technology Business Management benchmarking functionality is developed for the IT Dashboard."

If you have any questions or concerns, please contact me or Gianelle Rivera, Associate Administrator, Office of Congressional and Intergovernmental Affairs, at (202) 501-0563.

Sincerely,

A handwritten signature in blue ink, appearing to read "Robin Carnahan".

Robin Carnahan
Administrator

cc: Jill Naamane, Acting Director, Physical Infrastructure Issues, GAO

U.S. General Services Administration
1800 F Street NW
Washington DC 20405-0002
www.gsa.gov

Accessible Text for Appendix II: Comments from the General Services Administration

September 13, 2022

The Honorable Gene L. Dodaro
Comptroller General of the United States
U.S. Government Accountability Office
Washington, DC 20548

Dear Comptroller General Dodaro:

The U.S. General Services Administration (GSA) appreciates the opportunity to review and comment on the U.S. Government Accountability Office (GAO) draft report, TECHNOLOGY BUSINESS MANAGEMENT: OMB and GSA Need to Strengthen Efforts to Lead Federal Adoption. (GAO-22-104393)

GAO recommended that the Administrator of GSA should direct the Office of Government- wide Policy's Director of IT Data Transparency to ensure that Technology Business Management (TBM) benchmarking functionality is developed and made available on the IT Dashboard.

GSA agrees with the recommendation to ensure TBM benchmarking functionality is made available on the Federal IT Dashboard (<https://www.itdashboard.gov>). GSA is currently engaged in working on this effort and the initial minimally viable product is scheduled to be released by the end of this fiscal year. It is, however, ultimately within the Office of Management and Budget's purview to make TBM Benchmarking data/visualizations publicly available in accordance with 40 U.S. Code § 11302. Furthermore, GSA does not have the authority to compel Federal executive agencies to report their TBM implementation maturity.

For the purpose of clarifying GSA's role in the capital planning and investment control process, GSA suggests the recommendation mentioned above be reworded to say the following:

“The Administrator of GSA should direct the Office of Government-wide Policy's Director of IT Data Transparency to ensure that Technology Business Management benchmarking functionality is developed for the IT Dashboard.”

If you have any questions or concerns, please contact me or Gianelle Rivera, Associate Administrator, Office of Congressional and Intergovernmental Affairs, at (202) 501-0563.

Sincerely,

Robin Carnahan
Administrator

cc: Jill Naamane, Acting Director, Physical Infrastructure Issues, GAO

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Carol C. Harris, (202) 512-4456 or harriscc@gao.gov

Staff Acknowledgments

In addition to the individual named above, Jeanne Sung (Assistant Director), Donald Baca (Analyst in Charge), Chris Businsky, Rebecca Eyler, David Matcham, Scott Pettis, and Cassaundra Pham made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through our website. Each weekday afternoon, GAO posts on its [website](#) newly released reports, testimony, and correspondence. You can also [subscribe](#) to GAO's email updates to receive notification of newly posted products.

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <https://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#).
Subscribe to our [RSS Feeds](#) or [Email Updates](#). Listen to our [Podcasts](#).
Visit GAO on the web at <https://www.gao.gov>.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact FraudNet:

Website: <https://www.gao.gov/about/what-gao-does/fraudnet>

Automated answering system: (800) 424-5454 or (202) 512-7700

Congressional Relations

A. Nicole Clowers, Managing Director, ClowersA@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548

Strategic Planning and External Liaison

Stephen J. Sanford, Managing Director, spel@gao.gov, (202) 512-4707
U.S. Government Accountability Office, 441 G Street NW, Room 7814,
Washington, DC 20548



Please Print on Recycled Paper.