The BAS Program Needs to Increase Attention to Business Process Reengineering and Improve Program Management Practices

U.S. Department of Commerce
Office of Inspector General
Office of Audit and Evaluation

July 7, 2022

MEMORANDUM FOR: Jeremy Pelter
Acting Chief Financial Officer and Assistant Secretary for
  Administration, Office of the Chief Financial Officer
U.S. Department of Commerce

FROM: Frederick J. Meny, Jr.
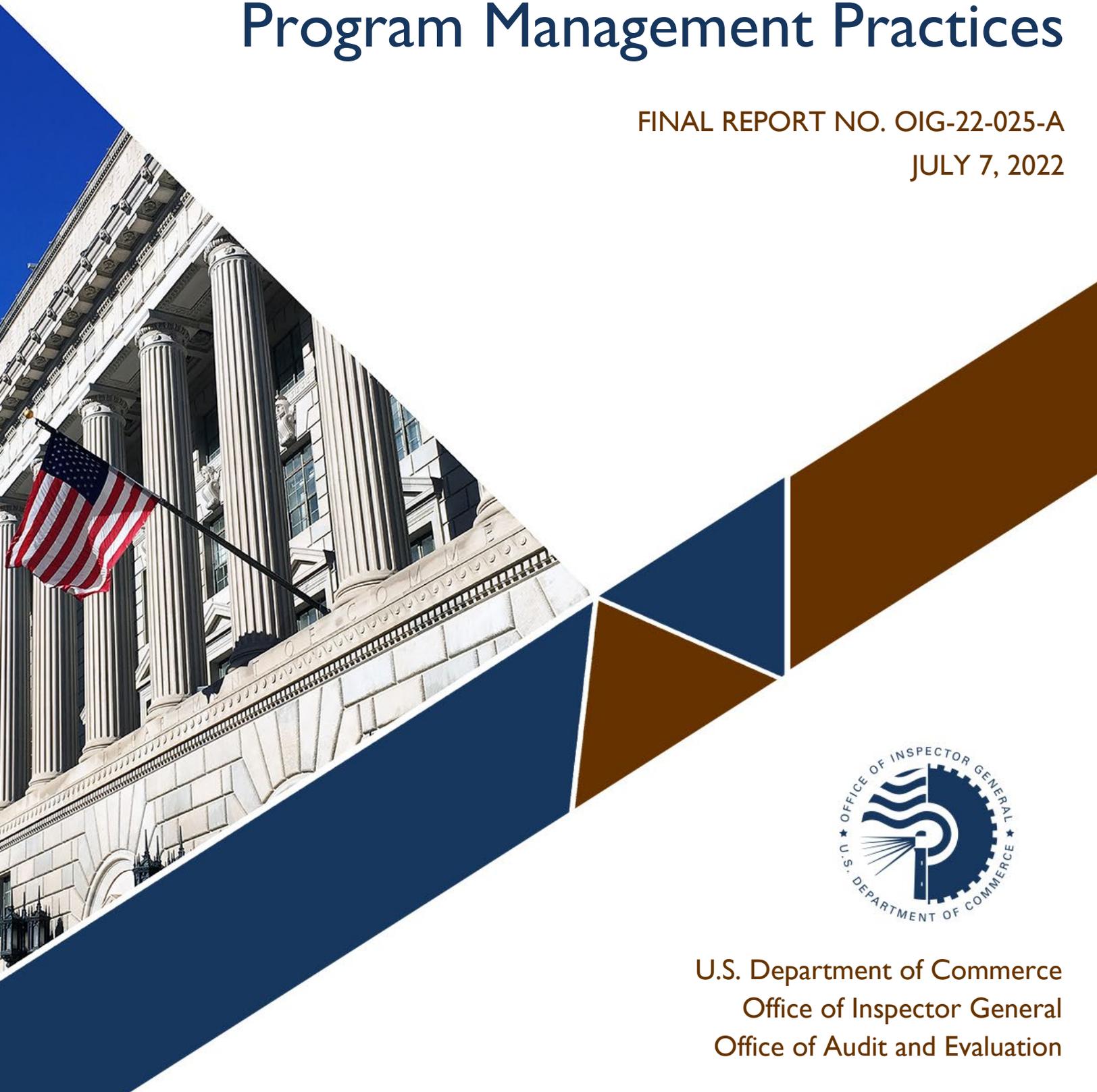Assistant Inspector General for Audit and Evaluation

SUBJECT: *The BAS Program Needs to Increase Attention to Business Process*
Reengineering and Improve Program Management Practices
Final Report No. OIG-22-025-A

Attached is our final report on our audit of the U.S. Department of Commerce's (the Department's) Business Applications Solution program (the Program). Our objective was to assess the Department's management and implementation of the Program.

We found the following:

    I. The Program continues to lack a sound business process reengineering plan.

   II. The Program should address weaknesses in its requirements management plans and processes.

  III. The Program should enhance its risk management practices.

In response to our draft report, the Program, on behalf of the Department, concurred with four of our recommendations, did not concur with one, and partially concurred with another. After considering the Program's response, we reaffirm our recommendations. We have summarized the Program's response and provided our comments in the report. The Program's complete response is included in appendix D.

Pursuant to Department Administrative Order 213-5, please submit to us an action plan that addresses the recommendations in this report within 60 calendar days. This final report will be posted on OIG's website pursuant to sections 4 and 8M of the Inspector General Act of 1978, as amended (5 U.S.C. App., §§ 4 & 8M).

We appreciate the cooperation and courtesies extended to us by your staff during our audit. If you have any questions or concerns about this report, please contact me at (202) 793-2938 or Kevin Ryan, Director for Audit and Evaluation, at (202) 695-0791.

Attachment

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Background

The U.S. Department of Commerce (the Department) currently maintains a suite of aging, expensive, and highly customized financial systems across three of its finance bureaus' disparate information technology (IT) infrastructures. The Business Applications Solution (BAS) Program (BAS program or Program), which will cost about $341 million, will replace these legacy systems to save money and create a new agency-wide financial system consisting mainly of commercial off the shelf applications. The Program office is configuring the applications and revising processes to meet Department-wide and bureau-specific needs.

We conducted this audit due to the investment's critical nature and potential management challenges. The Department identified the BAS program as a top-priority IT investment under Strategic Objective 5.2, *Accelerate Information Technology Modernization*, within its 2018-2022 strategic plan. In our FY 2022 *Top Management and Performance Challenges* report, we noted that the BAS program must overcome challenges in managing requirements and reengineering business processes, among others, as it consolidates business functions currently supported by disparate legacy systems.

Why We Did This Review

Our audit objective was to assess the Department's management and implementation of the BAS program.

OFFICE OF THE SECRETARY

The BAS Program Needs to Increase Attention to Business Process Reengineering and Improve Program Management Practices

OIG-22-025-A

WHAT WE FOUND

We found the following:

I. The Program continues to lack a sound business process reengineering plan.

II. The Program should address weaknesses in its requirements management plans and processes.

III. The Program should enhance its risk management practices.

WHAT WE RECOMMEND

We recommend that the Department's Chief Financial Officer do the following:

1. Ensure that the Program revises its business process reengineering plan to be more consistent with best practices by including assumptions, skills, and needed resources; documents existing financial management processes; and identifies performance improvement goals.

2. Ensure that the Program sufficiently defines target processes to include details of information flows, interconnections, and potential problem areas and assesses expected performance.

3. Ensure the Program updates its requirements management plans and processes to include how it will add, refine, prioritize, and establish bidirectional traceability among its requirements and between requirements and ongoing work.

4. Ensure that the Program manages requirements according to the updated requirements management plans and processes.

5. Update the Program's risk management plan to ensure that it documents, on an ongoing basis, all information and details necessary to manage its risks, including risk trigger dates, risk mitigation plans, and risk descriptions.

6. Ensure that the Program updates its risk register with all information and details necessary to manage its risks, consistent with the updated risk management plan.

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Cover: Herbert C. Hoover Building main entrance at 14th Street Northwest in Washington, DC. Completed in 1932, the building is named after the former Secretary of Commerce and 31st President of the United States.

Introduction

The U.S. Department of Commerce (the Department) currently maintains a suite of aging (legacy), expensive, and highly customized financial systems across three of its finance bureaus' disparate information technology (IT) infrastructures.[1] The Business Applications Solution (BAS) program (BAS program or Program), which will cost about $341 million, will replace these legacy systems to save money[2] and create a new agency-wide financial system consisting mainly of commercial off the shelf (COTS) applications.[3] The Program office is configuring the applications and revising processes to meet Department-wide and bureau-specific needs.

The Program office planned to design, implement, and migrate the BAS system into operation in three phases, with most of the design occurring in two subactivities during the first phase (April 2020 through September 2021). The Department's three finance bureaus will migrate finance operations to BAS during Phases 1, 2, and 3—one bureau per fiscal year (FY) from FY 2022 to FY 2024. Figure 1 depicts the phases of the Program from FY 2020 to FY 2024. For additional background information on the legacy financial systems, the Program, and its activities, see appendix B.

Figure 1. The Three Phases of the BAS Program (FY 2020 to FY 2024)
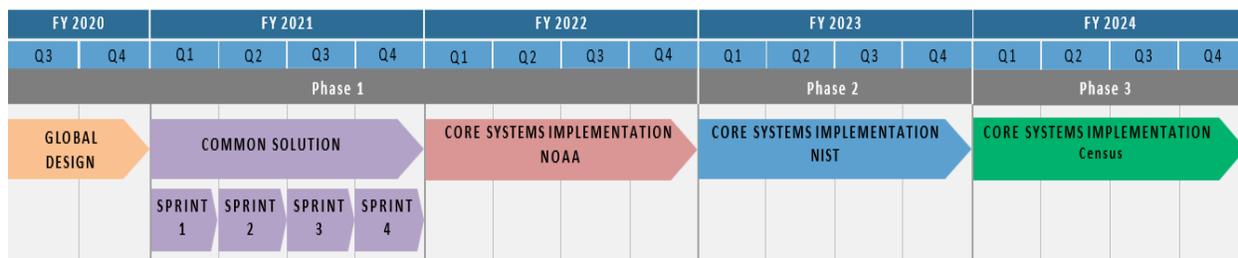
Source: Office of Inspector General adaptation of BAS program documentation

BAS is serving as a pilot program for the U.S. Department of the Treasury's quality service management office, which is responsible for federal financial system modernizations. The U.S. Department of the Treasury currently collects BAS information—such as commercial acquisition, project implementation tasks, operations support planning, and project management governance—and will use it during this pilot to inform and create new government-wide standards that will apply to other agencies starting financial systems modernizations.

We conducted this audit due to the investment's critical nature and potential management challenges. The Department identified the BAS program as a top-priority IT investment under

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[1] The Department's three finance bureaus are the National Oceanic and Atmospheric Administration, the National Institute for Standards and Technology, and the U.S. Census Bureau.

[2] The Department estimates that BAS has the potential to save about $234 million in continued operations and maintenance costs for its legacy systems through FY 2030.

[3] This new financial system is comprised of three main financial software applications, an enterprise data warehouse, and a business intelligence reporting capability. For more details on this system's specifics, see appendix B.

Strategic Objective 5.2, *Accelerate Information Technology Modernization*, within its 2018-2022 strategic plan.[4] In our FY 2022 *Top Management and Performance Challenges* report, we noted that the BAS program must overcome challenges in managing requirements and reengineering business processes, among others, as it consolidates business functions currently supported by disparate legacy systems.[5]

Business Process Reengineering (BPR)

BPR is a method to improve the way agencies accomplish work. BPR starts with an overall assessment of how well the organization's business processes fulfill mission and strategic goals while also meeting customer and stakeholder needs. Once the organization identifies potential improvement areas, it can then decide if it should invest time and resources toward improving its business processes to achieve better results. If so, it begins to plan out what it should do to improve how it meets customer and stakeholder needs and how best to redesign its business processes. These planning activities largely center on identifying, analyzing, redesigning, or eliminating processes, according to a methodology, such that new processes meet performance improvement measures (e.g., cost, quality, service, and speed). Generally, BPR efforts should begin before organizations make significant IT investments.

The U.S. Government Accountability Office's (GAO's) *Business Process Reengineering Assessment Guide*[6] establishes a framework of best practices for agencies to plan and select, reengineer, and implement improved business processes. Key practices in BPR include (1) developing a BPR plan with improvement goals and (2) defining target business processes.

Requirements Management

Effective management of IT requirements involves an ongoing series of activities designed to align work with plans and ensure all work comes from a valid requirement. Such activities mean a program can maintain, prioritize, and trace requirements and work across all lifecycle phases (e.g., planning, design, implementation, and operations). Iterative acquisition and development methodologies, such as Agile,[7] require programs to keep planned work as closely aligned to changing priorities as feasible across their lifecycles. With successful requirements management, a program can ensure that ongoing work contributes to cost, schedule, and system performance objectives.

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[4] U.S. Department of Commerce. *2018-2022 Strategic Plan: Helping The American Economy Grow*. Washington, DC: DOC, 25–28. Available online at
https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf (accessed February 8, 2021).

[5] DOC Office of Inspector General, October 14, 2021. *Top Management and Performance Challenges Facing the Department of Commerce in Fiscal Year 2022*, OIG-22-001. Washington, DC: DOC OIG.

[6] U.S. Government Accountability Office, May 1997. *Business Process Reengineering Assessment Guide (Version 3)*. Washington, DC: GAO. Available online at https://www.gao.gov/assets/aimd-10.1.15.pdf (accessed April 14, 2021).

[7] In Agile, a program accomplishes work—planned in advance and prioritized by customer feedback—within a predefined, time-boxed, and recurring period, or *sprint*. During the common solution phase, the BAS program's sprints for core applications are 3-month periods.

Program Monitoring and Risk Management

Programs periodically review progress against plans to identify performance slips (i.e., missing cost, schedule, and/or scope goals). Once they identify these slips, programs can then take appropriate corrective actions to address them. In addition, programs periodically monitor risks[8] to identify and prevent potential problems. Implementing regular and effective program monitoring and risk management activities means a program is well positioned to (1) identify current and future adverse program performance and impacts and (2) take the appropriate actions to ensure it can meet its original goals and objectives.

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[8] A risk is a conditional and probable event that, if realized, will adversely impact a program's ability to meet its objectives (e.g., cost, schedule, and/or scope).

Objective, Findings, and Recommendations

Our audit objective was to assess the Department's management and implementation of the BAS program. To meet our objective, we determined the extent to which the Program implemented four selected best practice areas—BPR, requirements management, program monitoring, and risk management—and identified opportunities for improvement. See appendix A for a more detailed description of our scope and methodology.

We did not find weaknesses with respect to program monitoring. However, to ensure the Department realizes the full benefits of its investment, we found that the Program should increase attention to BPR, address weaknesses in its requirements management plans and processes, and enhance its risk management practices. A lack of attention to BPR before acquiring IT means the Department will be overly dependent upon the new system as a complete solution for financial management and misses an opportunity to improve efficiency and effectiveness. Without addressing requirements management weaknesses, the Program will be challenged to provide needed system functionality as requirements evolve. Weaknesses in risk management hinder the Program's ability to avoid cost, schedule, and performance delays.

I. The Program Continues to Lack a Sound Business Process Reengineering Plan

The GAO *Business Process Reengineering Assessment Guide* places heavy emphasis on planning an effort from beginning to end to ensure (1) agency staff adopt new processes, (2) the agency realizes performance improvements, and (3) new IT systems adequately support processes and the mission. GAO developed its guide, in part, from the requirements of the Clinger-Cohen Act,[9] which emphasizes achieving program benefits and meeting agency goals through the effective use of IT. Specifically, one such requirement of the Clinger-Cohen Act states the head of an agency shall analyze agency missions and, based on that analysis, revise mission-related and administrative processes as appropriate *before* making significant IT investments.[10] A root cause of bad investments is the belief that the mere practice of acquiring technology will somehow lead to process innovation.[11]

On April 19, 2021, we issued a management alert[12] to the Department (see appendix C for details) and reported that the BAS program lacked a BPR plan and its process change efforts were not consistent with best practices for federal agencies. Since the management alert, we also found that the Program has not sufficiently defined target business processes. The

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[9] *See* Pub. L. No. 104-106, Division E, Information Technology Management Reform Act of 1996, §§ 5123 and 5126. The Clinger-Cohen Act was initially passed into law through two divisions of the National Defense Authorization Act for Fiscal Year 1996, Pub. L. No. 104-106: Division E, the Information Technology Management Reform Act of 1996 and Division D, the Federal Acquisition Reform Act of 1996. These two sections were subsequently renamed as the Clinger-Cohen Act of 1996 by the Federal Financial Management Improvement Act of 1996, § 808, of the Omnibus Consolidated Appropriations Act, 1997, Pub. L. No. 104-208.

[10] 40 U.S.C. § 11313(5).

[11] GAO, *Business Process Reengineering Assessment Guide*, 9.

[12] DOC OIG, April 19, 2021. *Management Alert: BAS Program's Focus on Technology May Overlook Risks Related to Business Processes*, OIG-21-023-M. Washington, DC: DOC OIG.

lack of an adequate BPR plan, documentation of existing processes, performance improvement goals, and sufficiently defined target processes puts the Department at risk of not having suitably streamlined, efficient, widely adopted business processes well supported by the new IT system.

A. The Program lacks adequate plans for BPR, documentation of existing financial management processes, and performance improvement goals

As we reported in our management alert, the Program did not have a BPR plan despite undertaking process change activities during the common solution design subactivity. In fact, in August 2019, the Program office did not submit a required analysis of its BPR plan for a milestone 2 review by the Department's acquisition milestone review board. The Deputy Secretary then directed the Program to include this analysis for its milestone 3 review.[13]

In response to our management alert, the Program updated its organizational change management plan to include a chapter on BPR. However, while the new chapter summarized BPR activities, it still lacked critical details of an effective BPR plan, such as assumptions, skills, and resources needed.

In addition, we reported the Program had not documented existing financial management processes (i.e., processes in use with the legacy systems). According to officials, BAS resources were better spent on configuring software to provide the same business outcomes and training staff. As of November 2021, the Program still had not documented any of the Department's existing processes. Lastly, the Program has not identified any business performance improvement goals.

The lack of a detailed BPR plan, documentation of existing processes, and performance improvement goals hinders the Program's ability to understand and sufficiently reengineer financial management processes. The Program's current approach risks introducing inefficiencies in bureaus' financial management processes that may not be overcome by the new system.

B. The Program has not sufficiently defined target business processes

An organization conducting BPR should develop a deep understanding of its target environment—such as new information flows, interconnections, and potential problem areas—and assess the expected performance of new processes. As a result, the organization will be well prepared to communicate a common vision of the target environment, including critical details such as what will change and whom the reengineering will affect.

The Program increased its understanding of the target environment, including documenting BAS processes and supporting software configurations by conducting

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[13] A date for milestone 3 has not been determined.

workshops, detailed "deep dive" sessions, and validating system design with stakeholders across global and common solution design activities.

However, we were not able to identify essential details from the Program's documentation of target processes—including information flows, interconnections, and potential problem areas—or expected performance metrics. Program documentation of the target environment, such as the draft standard operating procedures (SOPs), did not include what will change or which stakeholders will be affected when moving from legacy to new processes.

The Program plans to leverage a contractor-led fit gap analysis of existing processes and the new software, which is to be completed by April 2022. The intent of this analysis is to determine how well BAS applications support existing processes. When gaps are identified, the analysis recommends revised (target) processes. However, the fit-gap analysis will not result in sufficient understanding of the target environment if it is focused on the adequacy of the configured applications without giving attention to defining target processes that the Department will follow under BAS.

Knowledge of information flows, interconnections, potential problem areas, and expected performance is key for communicating what will change to the affected users. Communicating this information is critical to ensuring successful adoption of the new system and its efficient use. Delay in adequately defining target business processes also risks cost increases and schedule slips needed to accommodate significant rework due to gaps between system capabilities, processes, and critical financial management functions.

Recommendations

We recommend that the Department's Chief Financial Officer do the following:

1. Ensure that the Program revises its BPR plan to be more consistent with best practices by including assumptions, skills, and needed resources; documents existing financial management processes; and identifies performance improvement goals.

2. Ensure that the Program sufficiently defines target processes to include details of information flows, interconnections, and potential problem areas and assesses expected performance.

II. The Program Should Address Weaknesses in its Requirements Management Plans and Processes

We assessed the Program's plans and processes against the selected best practices for requirements management.[14] We determined that the Program did document and obtain stakeholder commitment to its requirements baseline, but it did not periodically refine or

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[14] See appendix A for a full description of our methodology.

prioritize its requirements and did not ensure traceability between its requirements and from requirements to ongoing work.

A.   *The Program does not periodically add, refine, or prioritize requirements*

Best practices establish that effective requirements management includes the ongoing addition, refinement, and prioritization of program requirements.[15] Agile programs can also further prioritize a subset of requirements to demonstrate key aspects of the developing solution, known as the *minimum viable product* (MVP).[16] Such activities ensure that a program adapts to new needs; remains aligned to changing agency, user, and technological priorities; and maximizes the value of planned and ongoing work.

We found that the Program does not add, change, or otherwise refine the requirements in its baseline. Instead, the Program has a fixed baseline and defers newly identified needs for later development. We also found that the Program does not prioritize its requirements and has not defined the MVP.

In managing its requirements and work, the Program adopted some Agile practices and terms to organize global and common solution activities into three-month sprints. Each sprint examined a set of requirements and the needed software configurations to implement them. At the end of each sprint, the Program office verified the configurations met stakeholders' needs, resulting in standard software configurations. The Program plans to further modify these configurations to meet bureau-specific needs during each implementation phase.

We observed that a number of stakeholders identified unmet needs to the Program during its common solution design. However, the Program did not add these to its requirements baseline. Instead, the Program recorded them in a post-deployment requirements repository, which the Program will address in the FY 2025 timeframe. For example, one BAS stakeholder identified that its existing process under the legacy financial system can use budget data to automatically allocate money by quarter and by month for programs. Instead of adding a new requirement to meet this need, Program officials stated that bureaus would have to switch to a manual process with BAS. Program officials told us that the reason they defer newly identified needs is to maintain a fixed requirements baseline. The only updates to requirements the Program performed were to note when a requirement was discussed during a common solution design activity. According to Program officials as of January 2021, the contractor expected to meet 99.5 percent of requirements (all but about 9 of the 1,684) by simply configuring the new software applications.

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[15] See appendix A for identified best practices.

[16] According to GAO's *Agile Assessment Guide*, an MVP is "[t]he simplest version of a product that can be released" and "should have enough value that it is still usable, demonstrates future benefit early on to retain customer buy in, and provides a feedback loop to help guide future development." *See* GAO, September 2020. *Agile Assessment Guide: Best Practices for Agile Adoption and Implementation*, GAO-20-590G. Washington, DC: GAO, p. 174. Available online at https://www.gao.gov/assets/gao-20-590g.pdf (accessed December 20, 2021).

However, this approach does not meet best practices for IT requirements management since it does not afford the Program the ability to dynamically manage its scope by adding, refining, or prioritizing requirements over time.[17] Specifically, Agile IT programs should continuously refine their scope by updating requirements to reflect lessons learned and changing needs. By fostering frequent coordination between users and developers, Agile programs better understand the value of work planned and current priorities.

With its approach of maintaining a fixed requirements baseline, the Program will be challenged to manage potentially important tradeoffs in scope and will be at risk for delays, cost growth, missed system functionality, and wasted efforts.

B. *The Program lacks clear traceability among requirements and between requirements and ongoing work*

Best practices state that programs should create and maintain links—or bidirectional traceability[18]—between requirements to ensure that there are no inconsistencies between plans, requirements, and ongoing work.[19] Establishing clear traceability ensures that work flows from approved source requirements and contributes to all levels of program goals and objectives.

The Program developed one requirements traceability matrix (RTM) that contains the Program's 1,696 baseline requirements. However, we found that the Program's requirements management plan does not require—and the RTM itself does not establish—bidirectional traceability. In one example, six program requirements in the RTM ask that the future contracting system be capable of supporting file attachments in various formats. However, we were not able to determine the source of these requirements or what lower-level requirements derived from them.

In addition, we were unable to determine how the contractor's work products, such as its draft target business process SOPs or its software configuration repository, clearly linked to source requirements.

Until the Program creates clear traceability among its requirements, it will struggle to ensure plans and work remain consistent with needs. It will also be at risk for future scope creep and wasted efforts that contribute little or nothing to actual Departmental

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[17] Traditional IT program management methodologies typically establish a universe of requirements at the beginning of an effort, manage changes to their baseline, and may only obtain a fully functioning product near the end of the lifecycle (e.g., after design, development, and testing). In contrast, Agile IT program management focuses on the early and continuous delivery of working software through iterative requirements identification, design, development, testing, and integration across a program's lifecycle.

[18] Bidirectional traceability refers to a discernible association in either direction between different levels of requirements (i.e., between "parent and child," high and low, or source and derived), as well as between requirements and work products.

[19] See appendix A for additional details on these best practices.

needs. As such, requirements traceability is critical to ensure the Program can reliably meet cost, schedule, and system performance targets.

Recommendations

We recommend that the Department's Chief Financial Officer do the following:

3. Ensure the Program updates its requirements management plans and processes to include how it will add, refine, prioritize, and establish bidirectional traceability among its requirements and between requirements and ongoing work.

4. Ensure that the Program manages requirements according to the updated requirements management plans and processes.

III. The Program Should Enhance its Risk Management Practices

Best practices and the BAS risk management plan both establish that the Program should, among other key practices, (1) review risk triggers and update risks as needed on a weekly basis and (2) review and update all program risks on a monthly basis. In addition, the Program should document all relevant risk information, such as the context, conditions, potential consequences, and mitigation plans.[20] Well-implemented risk management activities ensure that programs have up-to-date information critical for management of both internal and external risks.

The Program has a dedicated risk manager who developed one risk register with 92 open risks (as of July 2021) and officials indicated that they review and update this register according to the BAS risk management plan (i.e., weekly and monthly). However, we found that the Program's risk register did not reflect updates consistent with weekly or even monthly reviews by Program staff. For example, of 12 risks that had passed their trigger dates,[21] 11 had not had their status updated in more than 3 months. In addition, the Program had not created any mitigations for one risk. The Program failed to include additional details—as required by its own risk management plan and best practices—for risk mitigation activities and risk descriptions for a majority of its risks.

As a result, the Program's processes do not generate sufficient or current information necessary to manage risk. Until the Program improves its processes, it will be unable to identify, prioritize, and determine effective strategies to manage risks before they become issues. Once realized, program risks negatively impact a program's cost, schedule, and ability to meet its other performance objectives.

Recommendations

We recommend that the Department's Chief Financial Officer do the following:

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[20] See appendix A for additional details on these best practices.

[21] The Program defines the trigger date as the date the risk impact could materialize from a risk into an issue.

5. Update the Program's risk management plan to ensure that it documents, on an ongoing basis, all information and details necessary to manage its risks, including risk trigger dates, risk mitigation plans, and risk descriptions.

6. Ensure that the Program updates its risk register with all information and details necessary to manage its risks, consistent with the updated risk management plan.

Summary of Agency Response and OIG Comments

In response to our draft report, the BAS program, on behalf of the Department, indicated that it concurred with four of our recommendations but did not concur with recommendation 1 and only partially concurred with recommendation 3. In addition, the Program provided comments on "OIG Sourcing," which discussed its approach as a pilot program for software management and IT systems implementation and called into question the currency of best practices we used in our assessment. The Program's full response is included in appendix D.

Department Response. Regarding recommendation 1 (to revise the BPR plan to be more consistent with best practices by including assumptions, skills, and needed resources; documents existing financial management processes; and identifies performance improvement goals), the Program stated that its approach to "Business Process Development" does not include formal documentation of the full end-to-end existing business processes used throughout the Department with its legacy systems. Rather, it is focused on developing and documenting end-state, target business processes to be used with the new system. Its "discussions of legacy business processes serve as the foundation" for building a common configuration for the new system. In April 2022, the Program started a "comprehensive business development strategy" in this regard.

OIG Comment. The Program's non-concurrence with recommendation 1 largely stems from its objection to the part of the recommendation related to documenting existing financial management practices. However, the other actions it has either taken or plans to take appear to be generally consistent with the recommendation. And with regard to its approach to existing processes, the Program stated that "legacy business processes are consistently discussed and reviewed as inputs to" various system development activities that have occurred since the conclusion of our fieldwork. As we emphasized in both our management alert and this audit report, sufficient understanding of existing processes is needed to identify a performance baseline from which to measure improvements, and the Program's current approach risks introducing inefficiencies in bureaus' financial management processes that may not be overcome by the new system. As such, we reaffirm our recommendation.

Department Response. Regarding recommendation 3 (to update requirements management plans and processes to include how the Program will add, refine, prioritize, and establish bidirectional traceability among its requirements and between requirements and ongoing work), the Program stated that the BAS contract is firm fixed price and "the scope of the implementation . . . was baselined at the time of contract award." Because of its goal to maintain a single configuration of the new system, the Program does not add new requirements to its baseline, which would require contract modifications and additional funding. However, requirements can be modified "to include additional functionality, updates to the configuration, and bureau scenarios that require a unique solution." The Program has developed a change control process to evaluate potential requirement modifications and clearly document them in the RTM. The Program will provide updated requirements management documentation to us

with "greater traceability and documentation related to the history of the requirement and its translation to an end state solution."

OIG Comment. The Program's partial concurrence with recommendation 3 is because it "does not ***add*** new requirements to the baseline" in order to control scope and avoid contract modifications. However, our recommendation does not state that the Program *should* add requirements, but rather that its plans and processes be updated to ensure adequate management of requirements—including adding (when warranted), refining, prioritizing, and tracing them. Further, while the Program will not add requirements now, it has "a separate, documented list of enhancements that will be addressed after the full system implementation is completed and the viable product has been deployed." Again, we reaffirm our recommendation.

Regarding the Program's comments related to "OIG Sourcing," the Program's role as a pilot project is described in the Introduction. We also maintain that the best practices we used to assess the Program remain relevant and are a sound basis for identifying opportunities for improvement in the Program's efforts.

Appendix A: Objectives, Scope, and Methodology

Our objective was to assess the Department's management and implementation of the BAS program. To meet this objective, we assessed the Department's effectiveness in four best practice areas: BPR, program monitoring, requirements management, and risk management. We announced this audit on November 12, 2020, and completed our fieldwork on November 17, 2021. We discussed our tentative findings with the auditee on November 1, 2021, and held an exit conference on April 12, 2022.

To assess the Program's BPR efforts, we reviewed GAO's *Business Process Reengineering Assessment Guide* to identify practices associated with BPR. We then selected three practices—executive involvement, existing and target processes, and organizational change management—that, in our professional judgment, represented foundational practices of particular importance to the successful implementation of an IT modernization effort undertaking BPR. We reviewed BAS program documents, interviewed Department and Program officials and stakeholders, and observed BAS working groups, including a requirements-gathering session. We then assessed each practice area based on the amount of evidence.

To assess executive involvement, we interviewed Program officials and reviewed Program documentation such as the BAS Executive Board charter to understand the roles, responsibilities, and membership of the BAS executive committee. We also reviewed Program documents submitted to the Commerce Information Technology Review Board to understand the roles of the various advisory and oversight groups. We interviewed officials from the Department's Office of Acquisition Management to understand the planned timeframe and review process for milestone 3 review.

To assess existing and target processes, we reviewed the draft BAS SOPs document containing the target process configurations to understand the BAS BPR activities coverage of target processes. We reviewed criteria in GAO's *Business Process Reengineering Assessment Guide* and assessed it against Program documentation, such as the draft *Organizational Change Management (OCM) Plan with Training Plan* and draft *OCM Plan with Communications Plan*. We also interviewed Program officials to understand how the Program's BPR plan would be a subcomponent of the OCM plan and its reengineering methodology. We reviewed the BAS *Performance Work Statement*, a contract pricing document, a BAS Project Monthly Executive Council report, and the draft BAS SOPs to understand the fit gap analysis and timeframe, and how the Program will incorporate lessons learned during the NOAA implementation phase.

To assess organizational change management, we reviewed the Program's activities related to organizational change management and assessed them against criteria in GAO's *Business Process Reengineering Assessment Guide*. Specifically, we reviewed the BAS *Performance Work Statement* to determine how the Program defined change management and who is responsible for developing the OCM plan. We reviewed the May 2021 Program schedule and common solution kick-off documentation to determine the timeframe and how the Program will engage stakeholders regarding change management during the common solution phase. We reviewed

the draft *OCM Plan with Training Plan*, draft *OCM Plan with Communications Plan*, and written responses from the Program to determine how the Program will obtain consensus regarding the OCM plan among bureaus.

To address the Program's efforts in program monitoring, requirements management, and risk management, we reviewed the Software Engineering Institute's *Capability Maturity Model for Integration for Acquisition* (version 1.3) and GAO's *Agile Assessment Guide* to identify key program monitoring, requirements management, and risk management best practices for programs using Agile methodologies. We used our professional judgment to select practices particularly important to the successful implementation of an IT modernization using Agile. We then assessed the Program's processes against each selected practice area based on the amount of evidence.

For the program monitoring and control process assessment, we interviewed BAS program officials and reviewed Program documents, such as the integrated master schedule, organizational charts, and the Program operations guide, to understand how the Program organized itself, established plans for work, monitored work, and communicated with stakeholders. We reviewed the BAS performance work statement, monthly progress reports from the contractor, and BAS Executive Board and Chief Financial Officer Council slides.

To assess the requirements management process, we interviewed Program officials and reviewed key program documents, such as the BAS RTM, to understand the number and kind of requirements within the Program's baseline scope. We also reviewed updated versions of the BAS RTM; BAS outcome tracker; BAS financial, nonfinancial, and technical requirements; BAS configuration master validation spreadsheet; and BAS *Performance Work Statement.*

To assess the risk management process, we interviewed Program officials and reviewed Program documents, such as the Program risk register and risk management plan, to understand how the Program conducted its risk management activities. In addition, we reviewed updated versions of the Program risk register, the BAS issue log, and BAS Executive Board slides to understand how the Program maintained its risks over time.

In addition, we assessed internal control significant within the context of our objective. As part of this audit, we examined management controls as documented in management control plans, such as the BAS Executive Board charter, risk management plan, OCM Plan, final project management plan, project management office operations guide, and other documents. We assessed the implementation of internal control through document reviews and interviews to determine adherence to procedures and plans. In satisfying our objective, we did not rely on computer-processed data; therefore, we did not test the reliability of BAS IT systems. The findings and recommendations in this report resulted from our assessments of internal control.

Although we could not independently verify the reliability of all the information we collected, we compared it with other available supporting documents to determine data consistency and reasonableness. Based on these efforts, we believe the information we obtained is sufficiently reliable for this report.

We conducted our review from November 2020 through November 2021 under the authority of the Inspector General Act of 1978, as amended (5 U.S.C. App.), and Department Organization Order 10-13, dated October 21, 2020. We performed our fieldwork remotely from Colorado, Maryland, and New York.

We conducted this performance audit in accordance with generally accepted government auditing standards. These 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 objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Appendix B: Background on Department Legacy Financial Systems and BAS

The Department first implemented its existing financial systems between 1999 and 2003 by creating a highly customized and integrated solution[22] for each of its three finance bureaus. Though the finance bureaus maintained these financial systems on separately run IT infrastructures for the next two decades, the aging and complex systems now present the Department and its bureaus with additional operation and maintenance challenges. Three such challenges are (1) updating the customized systems to be compliant with evolving financial system requirements,[23] (2) aligning to government-wide IT initiatives,[24] and (3) attaining lowered operations and maintenance costs for financial systems by eliminating duplicative IT infrastructure. In addition, legacy systems are more expensive and more exposed to cybersecurity risks, and can be less effective in accomplishing their intended purpose than a modernized system.[25]

Given these and other challenges, the Department estimates that it will cost about $584 million to continue operating and maintaining its legacy financial systems through FY 2030. In addition to the higher maintenance costs for a legacy system, these financial systems serve a critical mission support function for the Department's regular operations. Collectively, these legacy systems and their data integrations and processes enable the Department to, among other functions, plan and budget; award contracts and grants; and manage government property, including laptops, vehicles, ships, and even satellites.

An agency looking to modernize a legacy system will often consider how critical the system is to its mission, in addition to other factors like risks, costs, and the legacy system's operational performance.[26] BAS seeks to modernize the Department's financial management mission support area, which makes it one of the Department's most critical investments.

BAS Program

The BAS program began around 2009 with the goal of identifying the successor to the legacy financial systems. The Office of Management and Budget Memorandum M-13-08 required the Department to consider a federal shared service provider.[27] However, the Department

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[22] At present, the financial systems consist of Commerce Business System, Comprizon Suite, Federal Real Property Management, and Hyperion.

[23] For example, IT security and accessibility standards, among others.

[24] For example, cloud computing strategy and data center consolidation.

[25] GAO, April 27, 2021. *Agencies Need to Develop and Implement Modernization Plans for Critical Legacy Systems*, Washington, DC: GAO. Available online at from https://www.gao.gov/assets/gao-21-524t.pdf (accessed February 24, 2022), p. 2-5.

[26] *Ibid*, p. 4-5.

[27] Office of Management and Budget, March 25, 2013. *Improving Financial Systems Through Shared Services*, M-13-08. Washington, DC: OMB.

determined that federal providers were not able to meet its specific needs and/or capacity requirements and paused the BAS program for five years, from 2013 until 2018.

In March 2019, the Program obtained a waiver from the Office of Management and Budget requirement and began soliciting bids for a private-sector enterprise solution in September 2019. On April 24, 2020, the Department awarded a firm, fixed-price contract to Accenture Federal Services (Accenture) to acquire the BAS system and related services for about $341 million through FY 2040.

The Department is working with Accenture to acquire a cloud-hosted and agency-wide financial system, which consists of new financial software applications, an enterprise data warehouse (EDW), and a business intelligence reporting capability. This new system will replace multiple legacy systems and their disparate, bureau-level IT infrastructure, data, software, and reporting systems. The contract for the new system includes licensing and hosting services for the three new COTS financial software applications: (1) Oracle Electronic Business Suite for financial management, (2) PRISM acquisition management solution, and (3) Sunflower for property management. The BAS program will also consolidate and incorporate Department-wide administrative data (e.g., travel, human resources, and payroll data) into the EDW and, with the addition of business intelligence reporting software, will be an enterprise-wide reporting solution.

Related to legacy system challenge 1, maintaining the Department's highly customized software means it is difficult to update, and maintaining older technology requires a shrinking availability of specialized staff with the necessary experience, knowledge, and skills.[28] Rather than customizing its applications, the BAS solution will use a combination of standard software configurations and BPR to address bureau-specific needs. In support of this outcome, the BAS contract includes services in business process analysis, reengineering, and design to ensure program process change efforts occur where a standard configuration change cannot meet a need by itself.

BAS Activities and Requirements

Each phase will migrate BAS to one of the three finance bureaus and their respective client bureaus.[29] During each of these phases, the Program will configure the BAS system and reengineer processes to address any remaining, bureau-specific requirements.

The Program concluded the first design subactivity of Phase 1, known as global design, in October 2020. The Program concluded the second subactivity of Phase 1 to design the

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[28] *GAO, Agencies Need to Develop and Implement Modernization Plans for Critical Legacy Systems*, p. 3.

[29] All Department bureaus are included within the scope of this modernization effort, except for the United States Patent and Trademark Office (USPTO). USPTO is not included in the system scope of BAS, but will be included in the scope of the EDW. NOAA's client bureaus are the Bureau of Industry and Security and the Economic Development Administration. The National Institute for Standards and Technology's clients are the National Telecommunications and Information Administration, Office of the Secretary, International Trade Administration, First Responder Network Authority, Office of Inspector General, National Technical Information Service, Bureau of Economic Analysis, and Minority Business Development Agency. The U.S. Census Bureau does not support any clients.

common solution in October 2021. The Program moved to the NOAA implementation phase and conference room pilots, followed by user acceptance testing and then training before final implementation of the full system at the end of FY 2022.

During the common solution phase, the Program utilized an Agile methodology to verify the new software met existing processes' needs through working group meetings with stakeholders across four sprints. In each sprint, the Program met with stakeholders and collected their input on processes that inform configurations of BAS applications. Then the Program analyzed an application's ability to produce needed business outcomes and collected additional data from stakeholders. At the end of the sprint, the Program conducted validation sessions to obtain stakeholder commitment to report back on how well the application, as configured, fulfilled business outcomes.

Since its inception around 2014, the Program has created and maintained a requirements traceability matrix or RTM. The Program updated the RTM in 2018 and during global design. As of December 2021, this RTM contains 1,696 system requirements and is intended to reflect the baseline of its contractor and acquired system capabilities. The Program validated this RTM internally with stakeholders before releasing for bids and continues to validate it through Program activities. The BAS RTM also assigns each requirement to a major functional area, such as processes within software applications, and is tracking the assignment of requirements to conference room pilots planned for the NOAA implementation phase.

Appendix C: Management Alert Memorandum OIG-21-023-M

UNITED STATES DEPARTMENT OF COMMERCE
Office of Inspector General
Washington, D.C. 20230

April 19, 2021

MEMORANDUM FOR: Stephen Kunze
Deputy Chief Financial Officer and Director for Financial
  Management, Office of Financial Management
U.S. Department of Commerce

FROM: Frederick J. Meny, Jr.
Assistant Inspector General for Audit and Evaluation

SUBJECT: *Management Alert: BAS Program's Focus on Technology May Overlook*
Risks Related to Business Processes
Final Memorandum No. OIG-21-023-M

Attached is a management alert on the Business Applications Solution (BAS) program's approach to business process reengineering, which requires immediate attention, given that the program is in a crucial design phase of the overall effort. The BAS program seeks to modernize the U.S. Department of Commerce's (the Department's) legacy financial applications and processes by acquiring commercial off-the-shelf software supported by cloud-based infrastructure. In April 2020, the Department awarded a contract to Accenture Federal Services worth approximately $341 million for fiscal years 2020 through 2040 for services in designing, implementing, migrating, and maintaining a BAS system under a Software-as-a-Service model.

The objective of our ongoing audit is to assess the Department's management and implementation of the BAS program.[1] We are conducting this audit because the BAS program is linked to a Department strategic objective[2] and there are challenges inherent to a large modernization effort.

During our fieldwork, we observed that the BAS program lacks plans for business process reengineering and its ongoing process change efforts are not consistent with best practices. These conditions present risk that financial management processes may not be adequately

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[1] *See* U.S. Department of Commerce Office of Inspector General, November 12, 2020. *Audit of the Business Applications Solution Program*, #2021-390. Washington, DC: DOC OIG. Available at https://www.oig.doc.gov/OIGPublications/Audit-of-the-Business-Applications-Solution-Program.pdf (accessed March 24, 2021).

[2] U.S. Department of Commerce. *2018–2022 Strategic Plan: Helping The American Economy Grow*. Washington, DC: DOC, 25–28. Available at https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf (accessed February 8, 2021). Strategic Objective 5.2: Accelerate Information Technology Modernization.

supported by the new BAS system, which could ultimately lead to schedule delays and cost increases. This approach may also miss an opportunity to fundamentally improve how the Department conducts its financial business.

Consistent with the Inspector General Act of 1978, as amended (IG Act),[3] we are notifying the Department's leadership of the potential risks that could affect the Department and its bureaus.

We are not requesting a formal response to this management alert, as the key issues discussed in it were briefed to cognizant Department officials in advance of issuance. This management alert will be posted to our public website.

We plan to include information from this management alert in an audit report to be issued at a later date. The planned subsequent report will comment on the actions taken by your office to address the issues identified here, and a final version of that report will be posted in accordance with sections 4 and 8M of the IG Act.

If you have any questions or concerns about this management alert, please contact me at (202) 482-1931 or Kevin Ryan, Director for Audit and Evaluation, at (202) 695-0791.

Attachment

cc: MaryAnn Mausser, Audit Liaison, Office of the Secretary
    Albert Moesle, Director of Enterprise Risk Management and Deputy Chief Risk Officer, Office of the Secretary
    Rehana Mwalimu, Risk Management Officer and Primary Alternate Department GAO/OIG Liaison, Office of the Secretary
    Teresa Coppolino, Director, Office of Financial Management Systems, Office of the Secretary
    Jon Alexander, Deputy Director, Office of Financial Management Systems, Office of the Secretary
    Lindsay Hochberg, Program Analyst and BAS Project Manager, Office of Financial Management, Office of the Secretary

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[3] The IG Act establishes that offices of inspectors general will "provide a means for keeping the head of the establishment and the Congress fully and currently informed about problems and deficiencies relating to the administration of such programs and operations and the necessity for and progress of corrective action[.]" 5 U.S.C. App., § 2(3).

Management Alert

BAS Program's Focus on Technology May Overlook Risks Related to Business Processes

April 19, 2021   Final Memorandum No. OIG-21-023-M

Key Issue(s)

The Business Applications Solution (BAS) program lacks a business process reengineering plan and its process change efforts are not consistent with best practices for federal agencies.

Proposed Action(s) for Change

To ensure the U.S. Department of Commerce's (the Department's) ongoing BAS program efforts are most effective, the program should develop a BAS business process reengineering plan and align process change efforts with best practices.

Background

Program Information

The BAS program is modernizing the Department's legacy financial systems and processes by acquiring a new system containing financial software, an enterprise data warehouse (EDW), and a business intelligence reporting capability. This new Department-wide system, which will be cloud-based and supported under a Software-as-a-Service model, will replace disparate, bureau-level information technology (IT) infrastructure, data, software, and reporting systems. The program is a top priority IT investment and its business case links to Strategic Objective 5.2, "Accelerate Information Technology Modernization" in the Department's *2018–2022 Strategic Plan: Helping The American Economy Grow.*[4]

On April 24, 2020, the Department awarded a firm, fixed-price contract to Accenture Federal Services (Accenture) for the BAS system and related services worth about $341 million through fiscal year (FY) 2040. Through this contract, the Department will acquire licensing and hosting services for the BAS system's three new software applications: (1) Oracle Electronic Business Suite for financial management, (2) Procurement Request Information System Management for acquisition management, and (3) Sunflower for property management. BAS will also consolidate and incorporate Department-wide administrative data into EDW and business intelligence systems to provide an enterprise-wide reporting solution for the entire agency.

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[4] U.S. Department of Commerce. *2018–2022 Strategic Plan: Helping The American Economy Grow.* Washington, DC: DOC, 25–28. Available at https://www.commerce.gov/sites/default/files/us_department_of_commerce_2018-2022_strategic_plan.pdf (accessed February 8, 2021).

In addition, Accenture is providing services in business process analysis, reengineering, and design to assist the BAS program in its process change efforts. The Department is requiring each bureau to adopt standardized business processes that leverage the BAS applications. The program intends to reengineer processes when necessary to avoid customizing these applications.

The BAS system's design, implementation, and migration will happen across three phases. Each phase will migrate BAS to one of the three main finance bureaus and their respective client bureaus.[5] During each of these three phases, the program will configure the BAS system to any remaining, bureau-specific requirements. Figure 1 depicts the phases of the program from FY 2020 to FY 2024.

Currently, the program is undertaking a sub-activity of Phase 1 to design the "common solution."[6]

Figure 1. BAS Program Three Phases from FY 2020 to FY 2024
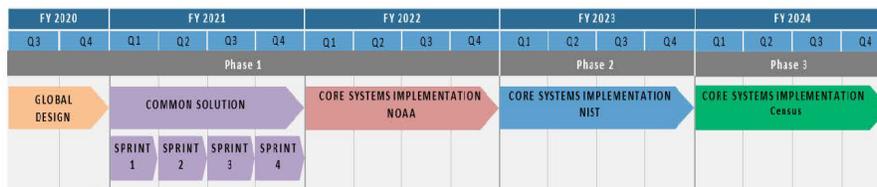
Source: OIG adaptation of BAS program documentation

To complete its design of the common solution, the program is utilizing an Agile methodology to examine existing processes through working group meetings with stakeholders across four sprints.[7] In each sprint, the program meets with stakeholders and collects their input on processes that inform configurations of BAS applications. Then the program analyzes an application's ability to produce needed business outcomes and collects additional data from stakeholders. At the end of the sprint, the program conducts validation sessions to obtain commitment from stakeholders on how well the application fulfills business outcomes.

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[5] All Department bureaus are included within the scope of this modernization effort, except for the United States Patent and Trademark Office (USPTO). USPTO is not included in the system scope of BAS, but will be included in the scope of the EDW. The Department's three finance bureaus are National Oceanic and Atmospheric Administration (NOAA), National Institute for Standards and Technology (NIST), and U.S. Census Bureau. NOAA's client bureaus are Bureau of Industry and Security and Economic Development Administration. NIST's clients are National Telecommunications and Information Administration, Office of the Secretary, International Trade Administration, First Responder Network Authority, Office of Inspector General, National Technical Information Service, Bureau of Economic Analysis, Economics and Statistics Administration, and Minority Business Development Agency. U.S. Census Bureau does not support any clients.

[6] The program will leverage this common solution system design and transition NOAA and its client bureaus to the new system by the end of Phase 1 in October 2022. The program will transition NIST and its clients in Phase 2, ending October 2023, and transition the U.S. Census Bureau in Phase 3, ending in October 2024.

[7] In Agile, a program accomplishes work—planned in advance and prioritized by customer feedback—within a predefined, time boxed, and recurring period or sprint. During common solution, the BAS program's sprints for core applications are 3-month periods.

Best Practices for Business Process Reengineering

Two key practices in business process reengineering include (1) developing a business process reengineering plan and (2) leveraging a proven process improvement methodology.[8] These two foundational practices are particularly relevant to the BAS program given that it is early in the process reengineering lifecycle.

Our Observations to Date

During our fieldwork, we reviewed BAS program documents, interviewed Department and program officials and stakeholders, and observed BAS working groups, including a requirements gathering session. We found that the BAS program has not developed plans for business process reengineering and the process change efforts underway are not consistent with federal best practices.

I. Program Lacks Plans for Business Process Reengineering

Business process reengineering (BPR) is a method for redesigning how organizations do work to better support the mission and reduce costs.[9] Best practice calls for agencies to develop a BPR plan to outline key reengineering activities and timelines and establish a common understanding among stakeholders of the BPR's scope.[10] Without defined plans and key reengineering project details, the program may not apply the necessary discipline to sufficiently reengineer business processes.

Program officials told us they expect to conduct BPR activities after the completion of the common solution design as the program implements the BAS system at finance bureaus (see figure 1). However, the program does not currently have a BPR plan. Program officials expect Accenture to develop and deliver plans related to BPR within its organizational change management (OCM) plan. We determined, however, that the program's draft OCM plan does not contain key elements of a BPR plan, such as methodology, tasks, and deliverables for identifying existing processes and analyzing potential alternatives. When we pointed this out, program officials told us that an update to the OCM plan would include BPR plans.

II. Program's Ongoing Process Change Efforts Are Not Consistent with Best Practices

We determined that the BAS program has not documented existing financial management processes and its ongoing change efforts are not leveraging a proven process improvement methodology, including documenting existing processes and conducting process analysis to identify alternatives ahead of acquiring supporting IT.

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[8] U.S. Government Accountability Office, May 1997. *Business Process Reengineering Assessment Guide*, AIMD-10.1.15 (Version 3). Washington, DC: GAO. Available at https://www.gao.gov/products/aimd-10.1.15 (accessed April 14, 2021), p. 18-19, 38, and 40-46. The U.S. Government Accountability Office's *Business Process Reengineering Assessment Guide* (*BPR Guide*) establishes a framework of best practices for agencies electing to plan and select, reengineer, and implement new or redesigned business processes.

[9] *Ibid*, p. 5.

[10] *Ibid*, p. 38.

A. BAS program has not documented existing financial management processes

The BAS program does not have or plan to create documentation of the Department's existing financial management processes. The program identified 10 processes affected by its systems modernization and, during common solution design, is conducting working group meetings with stakeholders to understand how well the three BAS applications can support existing business outcomes.

Program officials stated that they were confident that their numerous, involved, and vocal stakeholders would describe existing processes and business outcomes in sufficient detail and identify potential gaps in their needs during the common solution design working groups. In addition, the program's requirements traceability matrix contains 1,684 functional requirements and, as of January 2021, program officials stated that the BAS system would meet 99.5 percent—all but about 9 of the 1,684 requirements—without customizing the new applications.[11]

Program officials also stated that instead of documenting existing processes, the program's resources were better spent on configuring BAS applications to provide the same business outcomes and training staff to use them.

However, documenting existing processes with appropriate details early in a reengineering project is a significant factor for success when an agency implements new or reengineered business processes.[12] Best practices require at least a high-level mapping of affected processes to obtain a common understanding, among program staff and its stakeholders, of how the Department conducts financial business. The lack of such documentation means that the program may not fully understand affected processes, identify baseline performance data for processes, and manage potential impacts of changed processes, including impacts to processes not within program scope.

For example, the program has excluded most budgeting activities (except budget execution) from its scope, and plans to import budget data into Oracle from various software programs across the current budget formulation process. Without sufficiently documenting existing financial management processes, the program risks adding inefficiencies to bureaus' budget planning and execution activities. During our fieldwork, some line-office stakeholders expressed concern with the program's lack of attention to budget planning activities thus far.

Until the program documents existing financial management processes with appropriate details, it will remain uncertain about the steps within a process that should be considered in common solution design's discussion workshops. Further, the program will be unable to identify the process performance baseline from which the program could measure both process and program-wide performance improvements. As such, the program may learn too late that additional process steps or performance outcomes are critical. Ultimately, this could lead to schedule delays and cost increases stemming from the need to adjust plans and program scope.

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[11] BAS defined its users' business needs in its functional requirements traceability matrix. The BAS system must fulfill each functional requirement through a combination of methods, such as configuring the applications and implementing new or reengineered business processes.

[12] U.S. Government Accountability Office, *BPR Guide*, p. 18.

B. *BAS program is focused on replicating business outcomes rather than optimizing business processes*

Program officials told us their goal is to replace, rather than reengineer, existing processes with new ones, based on the acquired applications' available configurations, in order to achieve the same process outcomes. Specifically, program officials said they did not believe there was value in spending resources and time on documenting, analyzing, and redesigning existing processes. Instead, they would spend these resources on executing the OCM plan and training staff.

However, "acquiring technology in the belief that its mere presence will somehow lead to process innovation is a root cause of bad investments in information systems."[13] By allowing IT to drive change without analyzing and reengineering processes in advance, the program risks wasting resources and automating inherently inefficient processes. This approach may also miss an opportunity to fundamentally improve how the Department conducts its financial business.

Instead of developing alternatives from an analysis of existing processes, the BAS program is deriving new processes from the features and configurations of the newly procured applications to meet stakeholders' existing business outcomes. However, this software-first approach is likely to force bureaus to change their processes within the limits imposed by the delivered system, rather than an approach that optimizes process alternatives—independent of technology—to be more efficient or effective.

Our Future Work

The concerns presented in this memorandum and any action taken by the Department as a result of this management alert will be considered in our ongoing audit of the Department-wide BAS program.

We are not requesting a formal response to this management alert, as the key issues discussed in it were briefed to cognizant Department officials in advance of issuance. This management alert will be posted to our public website.

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[13] *Ibid*, p. 9.

Appendix D: Agency Response

May 5, 2022

Stephen M. Kunze
Deputy Chief Financial Officer
US Department of Commerce
Office of Financial Management
1401 Constitution Ave NW
Washington, DC 20230

Dear Mr. Meny,

This memorandum transmits the Department's response to the Office of the Inspector General (OIG) draft report entitled *The BAS Program Needs to Increase Attention to Business Process Reengineering and Improve Program Management Practices.*

The Department's responses are attached for the OIG's consideration. We look forward to working with you as we continue to address the recommendations in this report.

Thank you for the opportunity to review this draft. Should you have questions, please contact Lindsay Hochberg (BAS Project Manager) at lhochberg@doc.gov or 301-355-5517.

Sincerely,

STEPHEN KUNZE

Digitally signed by
STEPHEN KUNZE
Date: 2022.05.13
15:43:35 -04'00'

Stephen M. Kunze
Deputy Chief Financial Officer and Director of Office of Financial Management
skunze@doc.gov

<u>**Business Applications Solution (BAS) Program**</u>
OIG Draft Audit Report – Program Response
Report Title: *The BAS Program Needs to Increase Attention to Business Process Reengineering and Improve Program Management Practices*

<u>**Comments on Recommendations:**</u>

Recommendation 1:

Ensure that the Program revises its BPR plan to be more consistent with best practices by including assumptions, skills, and needed resources; documents existing financial management processes; and identifies performance improvement goals.

BAS Response to Recommendation 1:

The BAS Program does not concur with the OIG on Recommendation #1. The BAS Program has taken an approach towards Business Process Development (BPD), focusing on the end state, target environment and developing processes and training materials consistent with the outcomes provided by the BAS Program and the core application configurations. The BAS systems will be largely different from the legacy applications and those legacy business processes are consistently discussed and reviewed as inputs to common solution workshops, conference room pilot activities, dedicated demonstrations, configuration workshops, system integration testing (SIT) and user acceptance testing (UAT).

The full end to end legacy business processes will not be formally documented as part of the BAS program. Rather, in accordance with the "Software as a Service" approach the BAS program has adopted (and in contrast more traditional yet costly waterfall approaches), our discussions of legacy business processes serve as the foundation of the BAS consensus building conversations toward a common configuration (dependent activities using the inputs listed above). Those consensus conversations result in configuration choices in the end state product and those configuration decisions are then translated into the target business process. The final, target processes will be documented in the BAS Process Guidebook, inclusive of all core applications processes, production support processes, and application management processes. The target process will also be discussed and reviewed extensively as part of the BAS training that is provided prior to each phased deployment.

In addition, please note that the Oracle COTS solution that the BAS program is implementing was certified by the Joint Financial Management Improvement Program

(JFMIP) and has been built upon standard business processes defined by OMB's Financial Management Line of Business (FMLOB). The BAS program also continues to have formal checkpoints to confirm continued alignment with Treasury's Quality Service Management Office (QSMO) financial management and business process framework principles.

In accordance with our Integration Management Schedule (IMS), the BAS Program has kicked off as planned a comprehensive business process development strategy to identify and complete all necessary target business processes necessary for successful operations and support of the BAS program (April 2022). The strategy for the BAS business process development will be provided as to the OIG as part of the upcoming action plan response and the schedule for this effort has been incorporated into the BAS Organizational Change Management Plan and the Organizational Change Management sections in the BAS integrated master schedule. The first collaboration phase with the DOC customer bureaus on targeted business process inventory starts in June 2022.

Recommendation 2:

Ensure that the Program sufficiently defines target processes to include details of information flows, interconnections, and potential problem areas and assesses expected performance.

BAS Response to Recommendation 2:

The BAS Program is in concurrence with the OIG on Recommendation #2. The BAS Program has provided documentation on the BAS Business Process Development strategy which documents the process and procedures that will be utilized to identify, track, and publish all target business processes for the BAS environments and production support procedures. This strategy is in sync with the overall BAS program schedule and has completion of the BAS Process Guidebook (outcome of the BPD effort detailed above) targeted for the end of Q3 in FY23. The plan also ensures synergy with the BAS Training strategy and ensures that the training materials provided in Q2, Q3, and Q4 correspond to the final, published BAS program guidebook. In addition, as noted above, our software solutions were selected in part because they were inherently built, certified, and implemented on proven federal financial management processes across the federal marketplace.

Recommendation 3:

> Ensure the Program updates its requirements management plans and processes to include how it will add, refine, prioritize, and establish bidirectional traceability among its requirements and between requirements and ongoing work.

BAS Response to Recommendation 3:

> The BAS Program is in partial concurrence with the OIG on Recommendation #3. The BAS Program maintains a bi-directional requirements traceability matrix (RTM) for all of the baselined program requirements. The BAS contract is a firm fixed price (FFP) contract; the scope for the implementation of BAS (5.5 years, system requirements, program management requirements) was baselined at the time of contract award. The BAS RTM captured this baseline (defined by Department and Bureau representatives over a multi-year pre-RFP requirements definition initiative) and tracks updates to the baseline throughout program implementation. Regular updates to the RTM are provided to the full stakeholder community through the BAS portal and the RTM serves as the foundation for scenarios and scripts utilized as part of system integration testing (SIT), user acceptance testing (UAT), and conference room pilot (CRP) activities. Prior to SIT and UAT execution, the DOC bureau customers have the opportunity to augment RTM derived scripts and scenarios with complex, bureau specific scenarios they would like to have tested and documented.

> That said, the BAS Program, to maintain the goal of single configuration / single instance, does not *add* new requirements to the baseline. Because of the contract structure, adding new requirements results in a change in scope which drives a contract modification action and a requirement for additional funding. Requirements can and have been *modified* throughout implementation to include additional functionality, updates to the configuration, and bureau scenarios that require a unique solution. Further, the BAS program has pursued several customizations in the Oracle environment (financial management) to accommodate modifications to the baselined requirements. We have developed a formal Change Control Process (CCP) to evaluate these modification requests, adjudicate them in accordance with the program guiding principles and then, if accepted, clearly document them in the RTM for traceability to the end state solution.

> To control scope and to ensure that custom solutions are not developed in flight that could jeopardize the single configuration, the BAS Program maintains a separate, documented list of enhancements that will be addressed after the full system

implementation is completed and the viable product has been deployed. During operations and maintenance (O&M), the BAS program will convene a customer control board (CCB) to discuss the inventory of updates, collectively prioritize the items, gain consensus on a future state solution, and schedule new items for a release.

In the forthcoming action plan for the OIG, the BAS Program will provide updated requirements management documentation and the most recent RTM to support the recommendation for greater traceability and documentation related to the history of the requirement and its translation to an end state solution.

Recommendation 4:

Ensure that the Program manages requirements according to the updated requirements management plans and processes

BAS Response to Recommendation 4:

The BAS Program is in concurrence with the OIG on Recommendation #4. Please see the comments above on Recommendation 3 related to the BAS program's approach to requirements management. As stated above, the BAS Program will be providing as part of the action plan response updated requirements documentation for ongoing implementation action.

Recommendation 5:

Update the Program's risk management plan to ensure that it documents, on an ongoing basis, all information and details necessary to manage its risks, including risk trigger dates, risk mitigation plans, and risk descriptions

BAS Response to Recommendation 5:

The BAS Program is in concurrence with the OIG on Recommendation #5. The BAS Program understands this recommendation and will be providing updated risk management plans and procedures (to address the finding details concerning the timeliness of updates to those detailed fields) as part of the action plan response to the final OIG report.

Recommendation 6:

Ensure that the Program updates its risk register with all information and details necessary to manage its risks, consistent with the updated risk management plan

BAS Response to Recommendation 6:

The BAS Program is in concurrence with the OIG on Recommendation #6. The BAS Program understands this recommendation and will be providing updated risk management plans and procedures (to address the finding details) as part of the action plan response to the final OIG report.

General Comments on OIG Sourcing:

The BAS Program has been tasked with implementing modernized systems at the Department of Commerce in a single instance / single configuration. The current legacy environment is non-standard, decentralized, and custom developed. The DOC financial management, asset management, and acquisitions management customers have had the ability to customize and update their system autonomously for over 20 years of being production. Rather than adjusting business processes to meet new needs, the systems have been customized to support a change. This has resulted in a complex legacy environment including:

- Multiple system configurations
- Custom integration and bolt on development to support operation
- Differences in operating approach for similar issues (i.e. multiple ways of projecting labor across the different DOC bureaus)
- Custom bolt on systems to support down stream processing (databases, reporting tools, RPA, BOTS, etc)
- High total cost of operations for systems, hardware / infrastructure, and systems support

BAS is seeking to change this software management space at DOC. The provision of mission support services will vary based on the end user need in the mission; but there are opportunities for standardization and modernization as DOC transitions from custom products to Commercial off the Shelf (COTS) products in a Software as a Service (SaaS) environment.

Implementations across the federal government seeking to change this type of legacy environment are historically very expensive and take a significant amount of time to transition to a new future state.

The BAS program has been tasked by internal leadership and external leadership (OMB, Treasury, Congress) to conduct this modernization differently, leveraging lessons learned from previous federal implementations and the issues experienced with high budgets and long timelines. The BAS Program primary goal is a single instance / single configuration of systems and our guiding principles (agreed to between the program and all internal / external stakeholders) are as follows:

1. Leverage out of the box (OOTB) functionality as much as possible to meet operational needs
2. Customization of the core applications only if they do not meet a core federal policy / process requirement
3. Adjustment of internal business processes to meet OOTB functionality
4. Single configuration of core Oracle, Prism, and Sunflower
5. Standard integration method and formats for connecting feeder systems
6. Centralized, SaaS system support including (but not limited to) production support / help desk, release management, change control board, configuration management, data management, reporting, and application management.

The BAS Program is a pilot program for the new direction the federal government is taking in software management and IT systems implementation. The Quality Service Management Office (QSMO) initiative establishes shared services offices at various federal agencies to guide programs through efficient and effective deployments. DOC is partnered closely (at the request of OMB and our Congressional appropriators) with the Financial Management QSMO managed at the Treasury Department; our partnership is geared towards innovative solutions to implementation issues that have plagued federal agencies for the past two decades.

The three best practices utilized by the OIG to assess the BAS program were published on the following dates:

- GAO BPR Guide: Published 1997
- CMMI ACQ Guide: Published 2010
- GAO Agile Guide: Published Sept 2020

Two of the three sources were published at a time when federal implementations of modern, mission support systems were decentralized and custom. Today, through the BAS partnership with the QSMO initiative, the program has been tasked implementing differently and piloting a new standard approach to implementations. Best practices published several decades before the program started are incongruent with program's methods to reach the desired objectives.

Further, the GAO Agile guide was published when the BAS program was already 6 months into the implementation phase. At that time, the BAS contract had already been awarded and the implementation methodology put into practice.

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