



August 2018

# DHS ACQUISITIONS

## Additional Practices Could Help Components Better Develop Operational Requirements

# GAO Highlights

Highlights of [GAO-18-550](#), a report to congressional requesters

## Why GAO Did This Study

GAO has previously found that DHS's components had acquisition programs that did not meet requirements and that those requirements were, in some cases, poorly defined. Poorly defined requirements increase the risk that acquisitions will not meet the needs of users in the field—for example, border patrol agents or emergency responders.

GAO was asked to examine DHS components' practices for developing requirements. This report addresses the policies, organizations, and workforce that selected DHS components use to develop requirements for their acquisition programs.

GAO selected seven DHS components with significant acquisition programs and a non-generalizable sample of programs—based on cost, component, and acquisition phase—as case studies. GAO analyzed policies and program documentation; and interviewed DHS and component officials, as well as end users of DHS programs. GAO compared components' practices to industry best practices and federal internal control standards.

## What GAO Recommends

GAO is making 25 recommendations, including to individual components to establish policies and independent organizations for requirements development, assess workforce needs, and establish training and certifications. DHS concurred with all the recommendations.

View [GAO-18-550](#). For more information, contact Marie A. Mak at (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov).

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## DHS ACQUISITIONS

### Additional Practices Could Help Components Better Develop Operational Requirements

## What GAO Found

GAO has identified several best practices to ensure that operational requirements for acquisitions are well-defined and found some Department of Homeland Security's (DHS) components met them while others did not. These practices include a formal policy for developing requirements, an independent requirements organization, and an understanding of workforce needs and training. The table below shows GAO's assessment of seven of DHS's components against these practices.

GAO Assessment of Selected DHS Components Requirements Infrastructure				
	Policy	Independent organization	Workforce assessment	Training
Customs and Border Protection	◐	●	◐	◐
Federal Emergency Management Agency	○	○	◐	○
Immigration and Customs Enforcement	○	◐	○	○
National Protection and Programs Directorate	◐	◐	○	○
Transportation Security Administration	◐	●	○	○
U.S. Coast Guard	●	●	○	●
U.S. Citizenship and Immigration Services	◐	◐	○	○

Key: ● Practice is present ◐ Practice is in development or needs updating ○ Practice is not present

Source: GAO assessment of Department of Homeland Security (DHS) data. | GAO-18-550

Establishing a formal policy to guide the process is critical to developing well-defined requirements. However, only the Coast Guard has an approved policy for requirements development among the seven components reviewed. Without well-defined requirements, components are at risk of acquiring capabilities that will not meet mission needs. DHS officials told GAO that components have generally prioritized obtaining funding and starting programs over developing requirements.

Three components have a requirements development organization, separating requirements from acquisition in addressing capability gaps. Officials from components without such organizations told GAO that they have fewer major acquisitions and rely on DHS to assist in requirements development. DHS policy and best practices, however, maintain the importance of this separation regardless of the number of major acquisitions to guard against possible bias by acquisition officials toward a specific materiel solution.

Two components have assessed requirements development workforce needs, but both need to be updated; and one component has provided requirements development training and certification. Other component officials told GAO that they lack the resources necessary to take these steps. Best practices indicate that without an appropriately sized and trained workforce, components remain at risk of acquiring capabilities that fail to meet end user needs.

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## Abbreviations

ADE	Acquisition Decision Event
DHS	Department of Homeland Security
IT	Information Technology
JRC	Joint Requirements Council
JRIMS	Joint Requirements Integration and Management System

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August 8, 2018

The Honorable Claire McCaskill  
Ranking Member  
Committee on Homeland Security and Governmental Affairs  
United States Senate

The Honorable Scott Perry  
Chairman  
The Honorable J. Luis Correa  
Ranking Member  
Subcommittee on Oversight and Management Efficiency  
Committee on Homeland Security  
House of Representatives

The Honorable Bonnie Watson Coleman  
Ranking Member  
Subcommittee on Transportation and Protective Security  
Committee on Homeland Security  
House of Representatives

The Department of Homeland Security (DHS) invests billions of dollars each year in major acquisition programs to assist in executing its many critical missions. In November 2014, in response to a GAO recommendation, the department reestablished the Joint Requirements Council (JRC) that the department had dissolved in 2006, to review requirements submitted by DHS's component agencies (e.g., the Transportation Security Administration).<sup>1</sup> The purpose of the council is to validate and prioritize operational requirements—those capabilities that are necessary to conduct DHS's mission—for all major acquisitions and to ensure that objective, analytical rigor supports these requirements. We subsequently found that several programs did not meet their key performance parameters—the most important requirements a capability must meet—after initial approval by DHS and deployed capabilities prior to meeting all of their key performance parameters, leaving their true

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<sup>1</sup>GAO, *Homeland Security Acquisitions: Joint Requirements Council's Initial Approach Is Generally Sound and It Is Developing a Process to Inform Investment Priorities*, [GAO-17-171](#) (Washington, D.C.: Oct. 24, 2016).

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capabilities in doubt.<sup>2</sup> One reason programs did not achieve their specified key performance parameters was that programs poorly defined them. Poorly defined key performance parameters can increase the risk that end users—such as border patrol agents or first responders in a disaster—receive capabilities that do not meet their missions.

You asked us to examine DHS's components' requirements development practices. This report discusses (1) how often selected programs changed requirements; and assesses the extent to which the selected components have (2) developed policies for requirements development, (3) established independent requirements organizations, and (4) taken steps to assess and train a requirements workforce. Our focus for this report was on the DHS components, as they are responsible for developing the requirements to meet end user needs.<sup>3</sup>

To conduct our work, we reviewed the DHS Master Acquisition Oversight List as of April 2017 and selected seven DHS components with Level 1 and Level 2 major acquisition programs and covered a broad range of missions.<sup>4</sup> The seven components we selected are as follows:

- Customs and Border Protection
- Federal Emergency Management Agency
- Immigration and Customs Enforcement
- National Protection and Programs Directorate
- Transportation Security Administration
- U.S. Coast Guard
- U.S. Citizenship and Immigration Services

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<sup>2</sup>Key performance parameters are designated out of operational requirements and denote the most important and non-negotiable requirements that an acquisition program has to meet to fulfill its fundamental purpose. GAO, *Homeland Security Acquisitions: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress*, [GAO-17-346SP](#) (Washington, D.C.: Apr. 6, 2017); *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, [GAO-16-338SP](#) (Washington, D.C.: Mar. 31, 2016).

<sup>3</sup>While DHS headquarters has an important role to play in validating the requirements—such as the JRC—this report does not examine the department's headquarters role.

<sup>4</sup>DHS policy defines Level 1 major acquisition programs (other than services) as those with life-cycle costs exceeding \$1 billion and Level 2 with life-cycle costs between \$300 million and less than \$1 billion.

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From these seven components, we selected 14 major acquisition programs with DHS-approved key performance parameters to serve as case studies for our review. We selected this non-generalizable sample of programs based on different factors, such as the acquisition phase and component to have a mix of the types of programs that we reviewed. We also reviewed two programs that do not have DHS-approved key performance parameters to understand how requirements are determined before DHS validation.

We focused on the presence of policies for requirements development, independent requirements organizations, and requirements-specific workforce and training in components as our past work on major acquisitions has shown that these are the fundamental building blocks required to develop well-informed operational requirements. This selection was also informed by our standards for internal controls. To inform each of our objectives, we interviewed officials at various levels throughout DHS to understand both their relationship to and role in components' requirements development, including: (1) department-level, (2) component-level, (3) program-level, and (4) program end users.<sup>5</sup> These discussions informed our understanding of the extent to which the components have implemented requirements development policies, organizations, and assessments and training for their components. In addition, we furthered our understanding through reviewing component- and program-level documentation such as guidance manuals, mission needs statements, and operational requirements documents.

To determine the extent to which the selected programs changed requirements, we examined key performance parameters after DHS approval when key performance parameters should be stable. To determine the extent to which DHS components developed requirements development policies, as well as determine the extent to which those components established independent organizations, we reviewed component documentation pertaining to requirements development, such as instruction manuals, mission statements, and capability analyses. To determine assessment, training, and certification standards for DHS's requirements development workforce, we spoke with JRC and U.S. Coast Guard officials regarding the training and certification programs they have in place and reviewed available documentation.

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<sup>5</sup>The end user is the individual or group who will use the acquisition for its intended operational use when deployed.

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We assessed the components' requirements development practices against GAO's standards for internal control and additional supporting criteria as stated in the findings.<sup>6</sup> The standards identify key principles to help entities achieve their objectives, such as delivering capabilities to end users.

See appendix I for a detailed description of our objectives, scope, and methodology. Appendix I also includes a detailed description of the major acquisition programs we reviewed.

We conducted this performance audit from May 2017 to August 2018 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.

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## Background

To help manage its multi-billion dollar acquisition investments across its components, DHS has established policies and organizations for requirements validation, acquisition management, and budgeting. The department uses these to monitor and guide delivery of the acquisition programs the components require to close critical capability needs, enabling DHS to execute its missions and achieve its goals.

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## DHS and Its Components

DHS has 14 components, which, as a part of their operational missions, are responsible for assessing capability needs, developing the requirements to fill these needs, and creating acquisition programs to meet these requirements.<sup>7</sup> The number and cost of acquisition programs vary by component. DHS generally defines a capability as the means to accomplish a mission or objective that may be achieved through materiel and non-materiel solutions. Once the component has a JRC-validated capability gap, and identifies and documents the need for a materiel

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<sup>6</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014).

<sup>7</sup>DHS's components consist of operational components—those that have responsibility for directly achieving one or more of the department's missions or activities—and support components—those that generally provide assistance or guidance to other DHS components or external organizations.

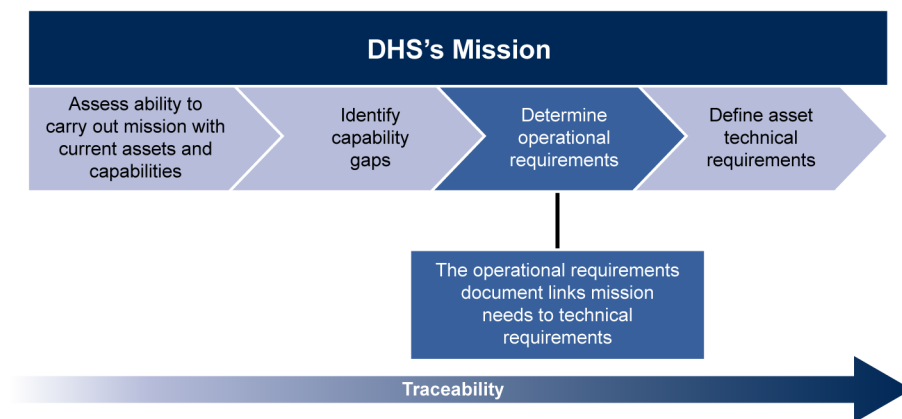


solution, it develops the operational requirements. Requirements can be unique to an individual component, or they can be joint requirements that apply to more than one component. Within the components, program management offices are responsible for planning and executing individual programs within cost, schedule, and performance parameters, and preparing required acquisition documents.

## Tracing Mission Needs to Program Requirements

The DHS requirements process generally starts with the identification of mission needs and broad capability gaps from which components develop a program’s operational requirements, key performance parameters, and more definitive technical requirements. Figure 1 depicts this traceability from mission needs to technical requirements.

**Figure 1: Traceability from Capabilities to Technical Requirements for Department of Homeland Security (DHS)**



Source: GAO analysis of Department of Homeland Security (DHS) policy. | GAO-18-550

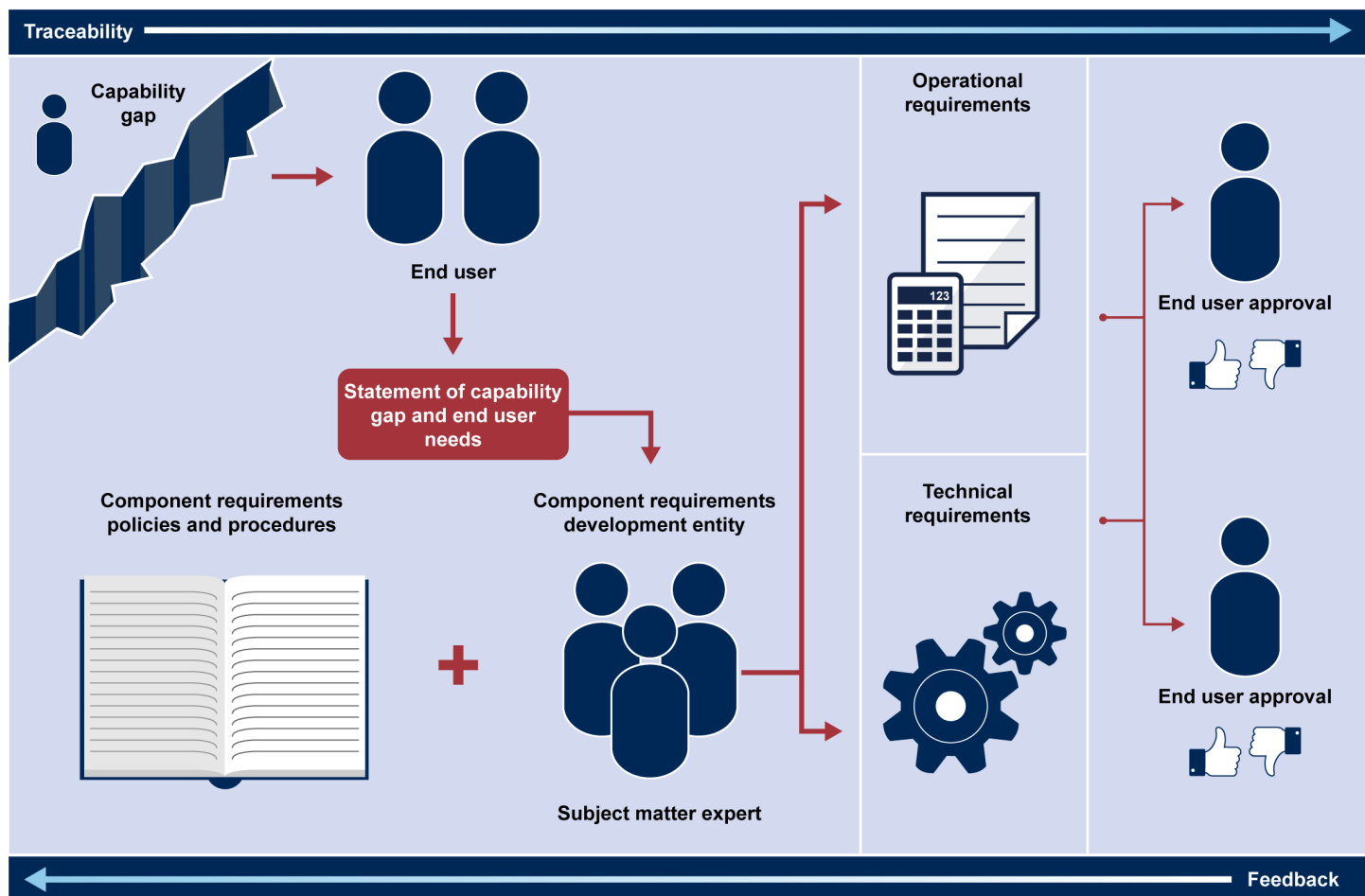
## Types of Requirements

Operational requirements are what the end users need to fill capability gaps and conduct the mission. Operational requirements, in part, define the purpose for the acquisition program and set boundaries for user needs. Subject matter experts, such as system engineers, support development of operational requirements to ensure that they are clearly developed. Well-defined operational requirements trace to one or more of the identified capability gaps.

After components define operational requirements, they identify some as key performance parameters that denote the most important and non-negotiable requirements that the program has to meet to fulfill its

fundamental purpose. According to DHS policy, failure to meet any key performance parameter results in a re-evaluation of a program that may lead to requirements changes or program cancellation. See figure 2 below for an overview of the requirements process.

Figure 2: Operational Requirements Development Process from Capability Gap to End User



Source: GAO presentation of best practices and Department of Homeland Security documents. | GAO-18-550

According to DHS policy on managing acquisition programs, components further decompose operational requirements into technical requirements, such as design or material specifications.<sup>8</sup> For example, an operational

<sup>8</sup>DHS, *Systems Engineering Life Cycle Guidebook*, DHS Guidebook 102-01-103-01 (Apr. 18, 2016).

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requirement may be the ability to detect explosives at the airport. The technical requirement may then be the ability to detect metal or explosive material within certain parameters.

## DHS's Joint Requirements Council and Other Offices

Through the JRC, DHS provides oversight of operational requirements for the acquisition programs developed by its components. The JRC consists of a chair and 14 members, called principals, who are senior executives or officers that represent key DHS headquarters offices and seven of the department's operational components. JRC principals represent the views of both their components and DHS, and validate and prioritize capability needs and operational requirements. Among other responsibilities, the JRC is to provide requirements-related advice and validate key acquisition documentation to prioritize requirements and inform DHS investment decisions for all Level 1 and Level 2 major acquisitions, as well as for programs that are joint interest, regardless of level.

Separate from the JRC, DHS's Office of Program Accountability and Risk Management, which reports directly to the Under Secretary for Management, oversees major acquisitions and guides acquisition policy. DHS also has a separate office for budget management and a planning, programming, budgeting, and execution process to allocate resources, such as funding, to acquisition programs. In addition, the Science and Technology Directorate conducts systems engineering reviews and technology assessments of the technical solutions for major acquisition programs. The Directorate also provides department-level guidance on requirements development in its *Systems Engineering Life Cycle Guidebook*.

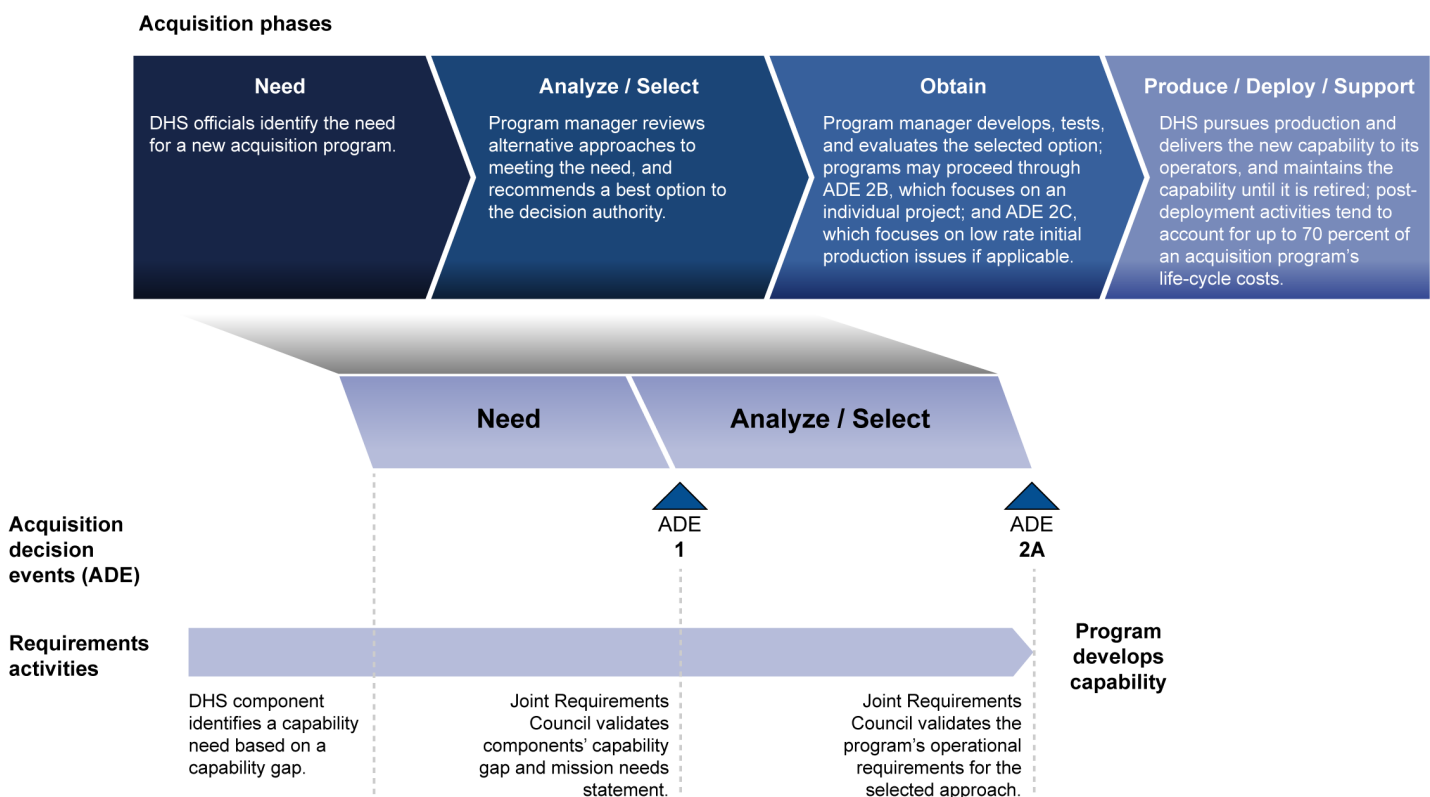
## DHS's Joint Requirements Process

Multiple DHS directives and manuals establish the framework for the department's Joint Requirements Integration and Management System (JRIMS)—a process by which the department reviews and validates capability gaps—and requirements to mitigate those gaps. DHS further clarified its directives in April 2016 through *DHS Instruction Manual 107-01-001-01, Department of Homeland Security Manual for the Operation of the Joint Requirements Integration and Management System*. The JRC also instituted a series of training courses that provide an overview of JRIMS and its core concepts. JRC validation of requirements confirms the requirements are traceable, feasible, and cost-informed.

In addition to validation by the JRC, DHS's Under Secretary for Management approves the operational requirements that the components developed and reviews them at a series of predetermined acquisition decision events. Figure 3 depicts the acquisition life cycle established in

DHS acquisition policy. DHS initially established its acquisition process in policy in November 2008.<sup>9</sup>

**Figure 3: Department of Homeland Security’s (DHS) Acquisition Life Cycle for Major Acquisition Programs**



Source: GAO analysis of Department of Homeland Security (DHS) policy. | GAO-18-550

An important aspect of acquisition decision event 2A, which begins the “Obtain” phase and system development, is the decision authority’s review and approval of key acquisition documents that establish the cost, schedule, and requirements baselines for a program. The operational requirements document and acquisition program baseline are key acquisition documents requiring this approval and include a program’s key performance parameters.<sup>10</sup> DHS also revisits these baselines at

<sup>9</sup>DHS, *Acquisition Management Directive 102-01*, Interim Version 1.9 (Nov. 2008).

<sup>10</sup>An operational requirements document provides a number of performance parameters that a program must meet to provide useful capabilities to the end user by closing identified capability gaps. An acquisition program baseline establishes a program’s critical baseline cost, schedule, and performance parameters.

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subsequent acquisition decision events in order to determine whether the requirements remain achievable.

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## Prior GAO Work on DHS Requirements Development

We have previously reported on the importance of stable requirements and the costs of changing them.

- In March 2016, we found that changes to key performance parameters have been common and are likely to continue for several reasons. While some changes may have a valid reason, such as a response to emerging threats, we found that one of the most common reasons programs changed key performance parameters was that the originally approved key performance parameters had been poorly defined. Key performance parameter changes on several programs were associated with schedule slips and cost growth. DHS leadership acknowledged that the department has had difficulty defining key performance parameters, and said that the Office of Program Accountability and Risk Management has improved its ability to help programs define key performance parameters. We recommended, among other things, that DHS should require the components to submit program funding certification memos to aid affordability discussions. DHS concurred and implemented our recommendation.<sup>11</sup>
- In October 2016, we found that the JRC’s structure and management approach—informed by assessments of requirements processes, guidance, and lessons learned from DHS components—are generally consistent with key practices for mergers and organizational transformations. However, we recommended that DHS’s Office of the Chief Information Officer have a more formal and consistent role than that of a non-voting advisor to the JRC, since 24 of 36 major acquisitions were information technology programs, and we previously identified poor requirements definition as a factor in failed information technology programs. DHS concurred with our recommendation and implemented it in November 2016.<sup>12</sup>
- In April 2017, we found that DHS’s acquisition policy was not consistent with acquisition best practices in terms of when to enter the “Obtain” phase depicted in figure 3. Specifically, best practices call for ensuring that a program’s needs are matched with available resources—such as technical and engineering knowledge, time, and

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<sup>11</sup>[GAO-16-338SP](#).

<sup>12</sup>[GAO-17-171](#).

funding—prior to starting product development. We recommended, among other things, that DHS require that major acquisition programs’ technical requirements be well-defined and conduct key technical reviews prior to approving programs to initiate product development, in accordance with acquisition best practices. DHS concurred with our recommendation, but has not yet implemented it.<sup>13</sup>

## Over Half of the Selected Programs Changed Requirements

Our analysis found that 9 of 14 programs from the seven components that we reviewed changed key performance parameters for various reasons after program approval and entry into the “Obtain” phase. DHS had initially approved most programs’ key performance parameters before DHS reestablished the JRC in November 2014.<sup>14</sup> Whether these programs changed DHS-approved key performance parameters is shown in table 1.

**Table 1: Nine of 14 Programs Changed Department of Homeland Security-Approved (DHS) Key Performance Parameters**

Component	Program	Date of initial DHS-approval <sup>a</sup>	Change after DHS-approval?
Customs and Border Protection	Integrated Fixed Towers	March 2012	No
	TECS Modernization <sup>b</sup>	November 2010	Yes
Federal Emergency Management Agency	National Flood Insurance Program PIVOT <sup>b</sup>	September 2016	No
	Risk Mapping, Assessment and Planning	December 2011	No
Immigration and Customs Enforcement	TECS Modernization <sup>b</sup>	October 2011	Yes
National Protection and Programs Directorate	Continuous Diagnostics and Mitigation	June 2013	Yes
	National Cybersecurity Protection System	February 2009	Yes
Transportation Security Administration	Electronic Baggage Screening Program	August 2012	Yes

<sup>13</sup>GAO-17-346SP. GAO, *Best Practices: Using A Knowledge-Based Approach To Improve Weapon Acquisition*, GAO-04-386SP (Jan. 1, 2004). GAO, *Best Practices: Setting Requirements Differently Could Reduce Weapon Systems’ Total Ownership Costs*, GAO-03-57 (Washington, D.C.: Feb. 11, 2003).

<sup>14</sup>We also reviewed two programs that had not progressed to entering the “Obtain” phase with DHS-approved key performance parameters, during which time programs may change requirements and refine key performance parameters. The two programs were Customs and Border Protection’s Cross Border Tunnel Threat and Biometric Entry-Exit Program.

Component	Program	Date of initial DHS-approval <sup>a</sup>	Change after DHS-approval?
U.S. Coast Guard	Passenger Screening Program	January 2012	Yes
	Long Range Surveillance Aircraft	May/June 2009 <sup>c</sup>	No
	Medium Range Surveillance Aircraft	February 2009 / August 2016 <sup>c</sup>	Yes <sup>d</sup>
	National Security Cutter	December 2008	Yes
U.S. Citizenship and Immigration Services	Offshore Patrol Cutter	April 2012	No
	Transformation	July 2011	Yes

Source: GAO analysis of program documents. | GAO-18-550

<sup>a</sup>Based on the acquisition program baselines that DHS leadership initially approved after the department's acquisition management policy went into effect in November 2008.

<sup>b</sup>TECS and PIVOT are not acronyms.

<sup>c</sup>The Long Range Surveillance Aircraft and Medium Range Surveillance Aircraft programs each consist of two aircraft types, for which their respective initial requirements approvals occurred separately.

<sup>d</sup>The change in the Medium Range Surveillance Aircraft program's key performance parameters are associated with the aircraft initially approved in February 2009.

We found that the causes of these changes varied, but included requirements did not accurately describe end user needs, were not achievable given available technologies, or that programs pursued greater capability than originally intended. Further details on the nine programs that changed their requirements are in table 2.

**Table 2: Examples of Reasons That Programs Changed Approved Requirements**

Component	Program	Reasons for requirements changes
Customs and Border Protection	TECS Modernization <sup>a</sup>	This law-enforcement information technology system could not meet its initial operational requirement for response time standards, which ultimately had to be lowered.
Immigration and Customs Enforcement	TECS Modernization <sup>a</sup>	For this law-enforcement case management information technology system, test officials stated that the original operational requirement for the system's capacity of total number of simultaneous users was excessive compared to the number of actual users.
National Protection and Programs Directorate	Continuous Diagnostics and Mitigation	Department of Homeland Security leadership directed consolidation of its key performance parameters into five main functions intended to better align with the National Institute of Standards and Technology's cybersecurity framework.
	National Cybersecurity Protection System	The program pursued greater capability for information sharing and replaced the associated key performance parameter.
Transportation Security Administration	Electronic Baggage Screening Program	The program eliminated three of its initial key performance parameters, such as system safety considerations and scanning cost per bag, noting that those parameters were not the best measures of meeting mission needs.

Component	Program	Reasons for requirements changes
	Passenger Screening Program	The end user determined that throughput was no longer a key performance parameter and it was removed.
U.S. Coast Guard	Medium Range Surveillance Aircraft	The end user determined that high altitude patrol speed was no longer needed as a key performance parameter, and it was removed.
	National Security Cutter	The program revised its original six key performance parameters into 19, including additions for operations, combat systems, and interoperability in an effort to improve clarity and testability.
U.S. Citizenship and Immigration Services	Transformation	The program went from 11 key performance parameters to eight, and refined the ways in which they are measured in order to better align with end user and mission needs.

Source: GAO analysis of program documents. | GAO-18-550

<sup>a</sup>TECS is not an acronym.

To mitigate these types of requirements changes, we identified several principles that are critical as the first steps to successful implementation of programs and the remainder of this report presents examples of when the principles have been implemented and when they have not.

## One of the Seven Selected Components Has a Policy for Requirements Development

Among the seven DHS components we reviewed, each of which is responsible for managing major acquisition programs, only the U.S. Coast Guard has a formalized policy in place for developing requirements. Of the other six components, some are developing such policies and others rely on JRIMS guidance. In the absence of component-level policies, some sub-organizations and programs within the components have developed their own requirements policies.

### U.S. Coast Guard Has an Approved Requirements Policy, While the Other Six DHS Components in Our Review Do Not

The U.S. Coast Guard, which has a long history of managing large acquisition programs, established a requirements policy to assess needs and fill capability gaps in 2009 and updated it in 2017. The most recent version of this requirements policy, the *Coast Guard Operational Requirements Generation Manual*, aligns its policies with DHS's acquisition and requirements policies.<sup>15</sup> The manual contains guidance on requirements development and the analytic efforts used to develop the requirements documents. The manual also describes the personnel that are to be included in requirements development and provides guidance on drafting the necessary documentation, and includes templates to do

<sup>15</sup>U.S. Coast Guard, *Coast Guard Operational Requirements Generation Manual*, COMDTINST M5000.4 (Washington, D.C.: Jun. 23, 2017).



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so. As part of the process, requirements development personnel work with end users to generate requirements, which the U.S. Coast Guard reviews and approves before going to the DHS JRC for validation.

The status of developing a requirements policy across the other six components is as follows:

- Immigration and Customs Enforcement, National Protection and Programs Directorate, Transportation Security Administration, and U.S. Citizenship and Immigration Services officials told us that they are currently developing or considering developing policies. These components have not yet set time frames for approving these policies.
- A Federal Emergency Management Agency official stated that they are planning to develop a formal requirements policy but are waiting for the JRC to clarify JRIMS policy on information technology program reviews and decision authorities before doing so. However, such clarification does not prevent them from drafting an interim policy.
- Customs and Border Protection has a draft requirements development policy but did not provide a definitive timeline for completion.

Although Customs and Border Protection does not yet have a finalized policy, the following sub-component operational organizations have documented their requirements policies. For example:

- Border Patrol finalized a requirements management process policy on June 12, 2018 that defined roles and responsibilities throughout the process. The requirements policy was preceded by an October 18, 2016 policy on the process for identifying capability gaps. GAO previously reported on the Border Patrol's policy in February 2017 and recommended clarifying the roles and responsibilities of the parties involved.<sup>16</sup>

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<sup>16</sup>GAO, *Southwest Border Security: Additional Actions Needed to Better Assess Fencing's Contributions to Operations and Provide Guidance for Identifying Capability Gaps*, [GAO-17-331](#) (Washington, D.C.: Feb. 16, 2017). We recommended that DHS develop and incorporate metrics, and develop written guidance to include roles and responsibilities into Border Patrol's Requirements Management Process. DHS agreed and provided us with documentation on the updated Requirements Management Process in June 2018. GAO, *Southwest Border Security: Border Patrol Is Deploying Surveillance Technologies but Needs to Improve Data Quality and Assess Effectiveness*, [GAO-18-119](#) (Washington, D.C.: Nov. 30, 2017). We recommended that Border Patrol issue guidance to improve the quality and usability of its surveillance information, which Border Patrol implemented in 2018.

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- The Office of Technology Innovation and Acquisition developed a draft requirements handbook in 2011 that provided guidance for the execution of activities within each stage of development, including defining operational requirements.<sup>17</sup>
  - The Passenger Systems Program Office also documented its requirements management policy in 2010 that outlined requirements development at a high level.

While these sub-components have taken the key step of documenting their policies, without a single component policy, Customs and Border Protection may not be efficiently and effectively meeting its mission.

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### Without Requirements Policies, Components Risk Failing to Meet Mission Needs

In the absence of component-level policies, we found that components are less likely to establish the base of knowledge needed for requirements development. Further, we found this contributes to an inability to properly mitigate capability gaps and meet mission and end user needs.

Outcomes for a number of our case study programs illustrate the potential benefits of having component-level requirements development policies in place.

- **National Flood Insurance Program PIVOT (not an acronym):** Federal Emergency Management Agency officials told us that the current attempt is the third effort to modernize its information technology systems after two failed attempts. Program officials said that one of the previous program attempts failed to meet capability gaps and end user needs because of a lack of clear policies for developing requirements. The officials said that failure is less likely as the program currently uses lessons learned from the previous attempts. In addition, the JRC is encouraging the component to adopt rigorous standards for developing requirements. However, without a policy to capture these lessons learned, programs within the Federal Emergency Management Agency are at risk for losing the knowledge.
- **National Security Cutter:** The U.S. Coast Guard began requirements development for the National Security Cutter in the late 1990s, before it had established a documented requirements development policy in 2009. We found in 2010 that the lack of overarching, formalized policy resulted in requirements that were vague, not testable, not prioritized,

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<sup>17</sup>The Office of Technology Innovation and Acquisition is now the Office of Acquisition.

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and not supportable or defensible.<sup>18</sup> In 2014, the National Security Cutter completed initial operational testing but did not fully demonstrate 7 of its 19 key performance parameters, including those related to unmanned aircraft and cutter-boat deployment in rough seas. To meet the cutter-boat deployment parameter, U.S. Coast Guard officials said that the program had to overcome differing interpretations of the parameter between the U.S. Coast Guard and its independent test officials. One key practice for requirements development is assigning roles and responsibilities, such as when and in what capacity test officials should be involved in requirements development, to avoid just such an outcome and the resulting effect on cost and schedule. U.S. Coast Guard officials stated that end users of the National Security Cutter have since demonstrated its key performance parameters during U.S. Coast Guard operations.

- **Electronic Baggage Screening Program:** Without a finalized requirements development policy, the Transportation Security Administration’s program developed requirements that focused on how the system functioned as opposed to the capability that it would provide. Program officials said that neither the Transportation Security Administration nor the program office had a documented policy for requirements development when the program began in 2004. In this environment, the program adopted an informal approach to develop operational requirements by collecting end user input. However, officials noted that end users listed technical requirements rather than broader operational requirements. Officials told us that the program “backed into” operational requirements using these technical requirements, resulting in a system more focused on function and less on capability. Without a focus on the capability, the program risked not meeting the capability gap and end user need.

We also found an example of where a component’s policy was beneficial to a program developing requirements:

- **Offshore Patrol Cutter:** The U.S. Coast Guard has matured its requirements development policies since the National Security Cutter program as described above. For the Offshore Patrol Cutter, the U.S. Coast Guard has six DHS-approved key performance parameters, such as operating range and duration. The U.S. Coast Guard plans to use engineering reviews and developmental and operational tests

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<sup>18</sup>GAO, *Coast Guard: Deepwater Requirements, Quantities, and Cost Require Revalidation to Reflect Knowledge Gained*, [GAO-10-790](#) (Washington, D.C.: July 27, 2010).

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throughout the acquisition to refine and demonstrate requirements. For example, to refine the requirements and ensure end user input, the U.S. Coast Guard had an early operational assessment of the cutter's key performance parameters and associated lower level technical requirements. According to officials, specific policies guided the assessment to, in part, ensure that the program refined key performance parameters before progressing through the remaining acquisition phases.

DHS's JRIMS directive and manual are not designed to provide the level of specificity for component-level requirements development. JRIMS encourages components to elicit end user needs and translate them into requirements. It also authorizes the components to develop their own policies consistent with the intent of and required capability documentation in the JRIMS manual and DHS Instruction Manual.<sup>19</sup>

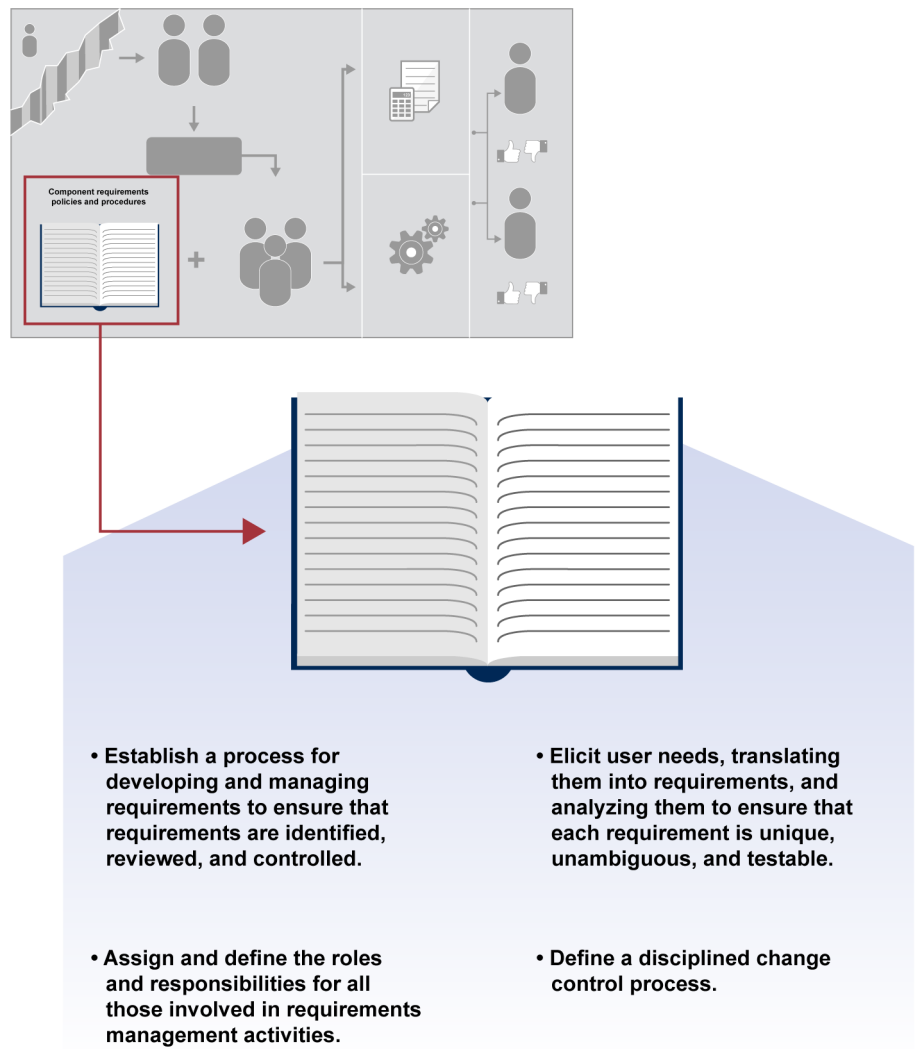
Federal standards for internal control and key practices for requirements development, such as those in Carnegie Mellon University's Capability Maturity Model Integration for Development, state that organizations should establish responsibility and authority by having documentation that communicates the "who, what, when, where, and why" of achieving their missions. A policy also provides a means to retain organizational knowledge and mitigate the risk of having that knowledge limited to a few personnel.<sup>20</sup> Such a policy should include a documented process for developing and managing requirements which can help reduce the risk of developing a system that does not meet end user needs, cannot be adequately tested, and does not perform or function as intended. We depict four key practices for requirements management in figure 4.

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<sup>19</sup>DHS, Under Secretary for Management, *Joint Requirements Integration and Management System*, DHS Directive 107-01, Revision 00 (Mar. 8, 2016). *DHS Instruction Manual 107-01-001-01*, Revision 00.

<sup>20</sup>[GAO-14-704G](#). GAO, *Border Security: DHS's Efforts to Modernize Key Enforcement Systems Could Be Strengthened*, [GAO-14-62](#) (Washington, D.C.: Dec. 5, 2013). Carnegie Mellon University's Software Engineering Institute, *Capability Maturity Model Integration for Development, Version 1.3 (CMMI-Dev, V1.3)* (November 2010).

**Figure 4: Key Practices for Documented Requirements Policies**



Source: GAO presentation of key practices based on Carnegie Mellon University Capability Maturity Model. | GAO-18-550

DHS officials indicated to us that one factor which contributes to a component’s lack of finalized requirements policies is the prioritization of starting an acquisition over developing requirements. This situation reflects what we have found over many years at the Department of Defense. Undesirable program outcomes share a common origin; decisions are made to move forward with programs before the knowledge needed to reduce risk and support those decisions is sufficient. There are strong incentives within the acquisition culture to overpromise

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performance while understating cost and schedule. A key enabler of successful programs is firm, feasible requirements that are clearly defined, affordable, and clearly informed. Once programs begin, requirements should not change without assessing their potential disruption to the program.<sup>21</sup>

Of note, DHS established its formal acquisition process in 2008, and did not have a similar emphasis on requirements development until 2016, when the JRIMS process was set forth. DHS requirements officials said that the renewed emphasis on requirements development at DHS requires a significant culture change among the components, pushing the components away from previous practices that undervalued well-defined requirements. They said that the components generally completed the necessary requirements documents to comply with department guidance and formats rather than to ensure that the components identified the needed capabilities and generated the correct requirements.

DHS officials said that in the past, some program offices would contract out the capability assessment and requirements development, have them approved by DHS, but not use the resulting documentation to guide the acquisition. Two component requirements officials told us that their components' previous acquisition and requirements processes focused on obtaining funding before developing requirements.

Most components indicated that they are planning on drafting a requirements development policy. However, without specific timeframes for completing their efforts, there is a risk that management attention will not be sustained and planned actions will not be implemented. Without component-level requirements policies that are aligned with the JRC and JRIMS standards, DHS is missing an opportunity to help ensure that components' programs are set-up from the beginning to meet end user needs and close capability gaps.

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<sup>21</sup>GAO, *Defense Acquisitions: Joint Action Needed by DOD and Congress to Improve Outcomes*, [GAO-16-187T](#) (Washington, D.C.: Oct. 27, 2015). *Ford Class Aircraft Carrier: Poor Outcomes Are the Predictable Consequences of the Prevalent Acquisition Culture*, [GAO-16-84T](#) (Washington, D.C.: Oct. 1, 2015). *Defense Acquisitions: Assessments of Selected Weapon Programs [Reissued on April 9, 2015]*, [GAO-15-342SP](#) (Washington, D.C.: Mar. 12, 2015). *High-Risk Series: An Update*, [GAO-15-290](#) (Washington, D.C.: Feb. 11, 2015).

**Utilization of an Independent Requirements Organization Inconsistent Across Selected Components**

Three of the seven DHS components in our review have established requirements development organizations, such as offices or directorates independent of the acquisition function. Among the reasons cited by these components' officials was recognition of the importance of the operational requirements development function for addressing capability gaps. Those that do not have separate requirements organizations cited, among other things, the smaller size of their components. However, according to key principles, independent lines of authority should develop operational requirements and manage acquisitions separately, regardless of size.

**Three Components Have Independent Requirements Development Organizations but Remaining Four Components Do Not**

Three of the seven DHS components in our review have established independent requirements development organizations that are separate from acquisition offices, as shown in table 3.

**Table 3: Status of Requirements Organizations at the Department of Homeland Security's Components**

<b>Component</b>	<b>Established independent requirements organization (and when)?</b>
Customs and Border Protection	Yes (2016)
Federal Emergency Management Agency	No
Immigration and Customs Enforcement	No
National Protection and Programs Directorate	No
Transportation Security Administration	Yes (2017)
U.S. Coast Guard	Yes (2009)
U.S. Citizenship and Immigration Services	No

Source: GAO analysis of components' documents and interviews with officials. | GAO-18-550

The three components that established requirements organizations did so at various times.

- In 2009, the U.S. Coast Guard formally placed responsibility for its requirements development policy in its capabilities directorate under the Assistant Commandant for Capability, who reports to the Deputy Commandant for Operations, one level below the Vice Commandant of the Coast Guard. The capabilities directorate, which is separate from the acquisitions directorate, provides oversight and management of its requirements development process. This directorate provides

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expertise as well as an independent quality review of the requirements documents generated for approval.

- Customs and Border Protection officials noted that they created a requirements organization in 2010 in the Office of Technology Innovation and Acquisition. In 2016, through an organizational realignment, Customs and Border Protection separated the requirements organization and established the Planning, Analysis, and Requirements Evaluation Directorate. The officials stated that due to concerns about independence from the acquisitions office, Customs and Border Protection placed this Directorate in the Operations Support office.
- The Transportation Security Administration established the Office of Requirements and Capabilities Analysis in 2017, in part, because officials told us they recognized that prior requirements development efforts were not being done the right way. This new office, which is separate from the Office of Acquisition Management, reports directly to the Executive Assistant Administrator of Operations Support.

The remaining four components that we reviewed did not have separate, independent requirements development organizations. Officials from Immigration and Customs Enforcement, National Protection and Programs Directorate, and U.S. Citizenship and Immigration Services noted that they are planning on developing such organizations but have not provided specific time frames for doing so. An official from the National Protection and Programs Directorate told us that although an independent office has not been established, he serves as an independent requirements official, separate from acquisitions. Among the reasons cited by components' officials for not having a requirements organization at the time of our review was a primary focus on the acquisition function, associated funding issues, and reliance on the JRC to help refine their requirements.

Officials also noted the smaller size of their respective components and the fewer number of major acquisitions as reasons for not having an independent requirements organization. Regardless of size, components need to ensure that requirements development is independent of acquisitions in order to guard against possible bias by acquisition officials toward a specific materiel solution.



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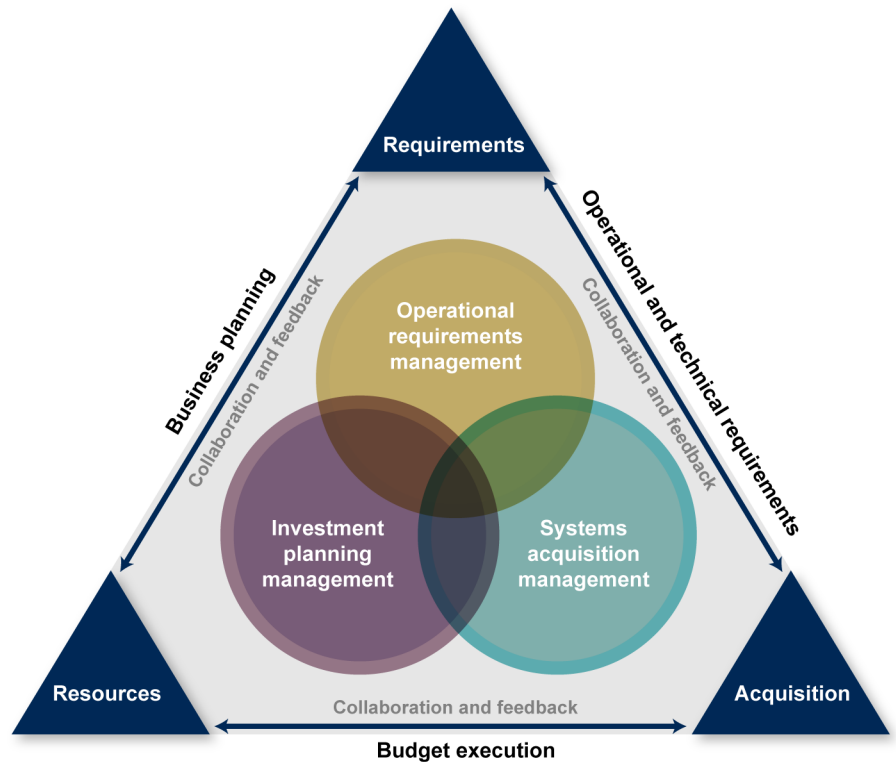
**A Separate, Independent  
Requirements  
Organization Is Critical to  
Addressing Capability  
Gaps**

According to federal standards for internal controls, independent lines of authority should develop requirements and manage acquisitions separately. These standards state that management should design control activities to achieve objectives and respond to risks. In addition, authorities should segregate incompatible duties to prevent risks such as management override.<sup>22</sup> For example, if requirements developers were part of the acquisition function, management could tailor operational requirements to satisfy preferred acquisition outcomes, increasing the risk that capability gaps will not be addressed. The absence of an independent requirements organization hampers the components' ability to remove biases and identify crosscutting opportunities and investments. See figure 5 for a notional example of organizations with separate functions.

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<sup>22</sup>[GAO-14-704G](#).

**Figure 5: Separation of Requirements Development Organization from Acquisition and Resource Organizations**



Source: GAO analysis of GAO best practices and Department of Homeland Security documents. | GAO-18-550

In accordance with these standards, DHS, at the department level, has separate requirements, acquisitions, and resourcing organizations—each with its own governance structure. In addition, U.S. Coast Guard policy notes that requirements development, when separated from acquisition organizations, results in an operational requirements document that conveys the user’s true needs. The policy goes on to state that the requirements development organization informs the acquisition process by ensuring requirements are traceable to strategic objectives and recommended courses of action to address capability gaps are cost informed and assessed for feasibility. According to GAO’s best practices, while these organizations should be separate, there should be consistent collaboration and feedback throughout the process.<sup>23</sup>

<sup>23</sup>GAO-03-57.

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We found examples of programs in our review that would have benefited from an independent organization at the component level.

- **Immigration and Customs Enforcement, TECS Modernization (not an acronym):** The acquisition program office set the requirements without an understanding of the capability gaps it was trying to close. Without a requirements development office to guide development, program officials stated that they generated approximately 25,000 requirements, which consisted of both technical and operational requirements to address the capability gaps that they were unable to prioritize. The program revised its operational requirements a few times and went through a replanning initiative that included a full review of all the requirements to ensure completeness and accuracy to determine the program's operational requirements. Immigration and Customs Enforcement officials stated that they recognize the importance of requirements development and are in the process of establishing a requirements organization.
- **U.S. Citizenship and Immigration Services, Transformation:** The program began requirements development in 2006 in the absence of an independent organization for requirements development and has subsequently generated three operational requirements documents over a six-year period. Our review showed that the key performance parameters from the oldest document to the most recent one changed significantly. For example, the operational requirements document from 2009 had a key performance parameter called "account hardening," which involved gathering identity and biometric evidence. The document from 2015 did not contain this parameter. In April 2015, nine years after starting requirements development, DHS leadership finalized a revised set of operational requirements after the program struggled again to meet its previous requirements.

We also found an example of where a component's requirements organization was beneficial to a program developing requirements:

- **Customs and Border Protection, Cross Border Tunnel Threat:** This program is analyzing alternative capabilities as it moves toward the JRC's validation of its requirements. To aid in developing the operational requirements, Border Patrol, a sub-component of Customs and Border Protection, has its own Operational Requirements Management Division. In addition, Customs and Border Protection officials noted that its Planning, Analysis, and Requirements Evaluation Directorate is coordinating, guiding, and providing oversight to ensure the operational requirements address the capability gaps. In doing so, these requirements organizations

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facilitate input from subject matter experts on tunnel threats and from end user agents who have to mitigate these threats.

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## Majority of Selected Components Have Not Assessed Workforce Needs or Established Training for Requirements Development

We found that two components have assessed requirements workforce needs, and one has provided requirements specific training. Components gave different reasons why they have not yet taken one or more of these steps, including a lack of resources.

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## Two Components Have Assessed Requirements Workforce Needs, and One Has Provided Requirements Specific Training

Two of the seven components we reviewed, Federal Emergency Management Agency and Customs and Border Protection, performed assessments of workforce needs for requirements development. The Federal Emergency Management Agency assessed its requirements workforce needs in 2016 and found, among other things, that it does not have the capacity to identify and analyze capability gaps or accurately trace operational requirements to capability needs. As a result of the assessment, the agency requested additional requirements personnel in the fiscal year 2019–2023 budget cycle.

Customs and Border Protection requirements officials stated that they last conducted an assessment in 2013. They stated that the assessment identified the appropriate number and types of personnel necessary to conduct requirements development through an analysis of historical requirements workloads. In addition, Customs and Border Protection officials said that they are currently performing an assessment as part of their Acquisition Management Performance Improvement initiative. The initiative assesses training needs and availability and is due at the end of fiscal year 2018.

Requirements officials from Immigration and Customs Enforcement, National Protection and Programs Directorate, Transportation Security Administration, and U.S. Citizenship and Immigration Services told us that they have not assessed their requirements workforce needs and have no plans to do so. U.S. Coast Guard requirements officials told us that although they have not conducted a formal assessment of their workforce

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needs, they informally assess those needs and would like to increase the personnel who have requirements training across the organization.

Although the U.S. Coast Guard has not conducted an assessment of its workforce needs, it is the only component that has an established requirements training process. Requirements officials told us that the U.S. Coast Guard initially established training and training-related certification standards in 2007 to emulate similar changes taking place at the Department of Defense and address previous U.S. Coast Guard acquisition challenges.<sup>24</sup> Specifically, the U.S. Coast Guard requirements development organization assigns end users for a two to three year rotation and provides them training and certification on requirements development. The requirements development certification program is two levels and requires both classroom-based training and on-the-job experience. The U.S. Coast Guard assigns those who complete a higher level of certification to develop requirements for more complex and costly programs. This helps to ensure that requirements personnel can give timely, relevant end user input but also differentiate between operational and technical requirements. U.S. Coast Guard requirements officials told us that the training and certification standardizes the proficiency of the requirements workforce across the component. In addition, Customs and Border Protection officials told us that they are in the process of training their personnel on operational requirements development as part of a larger training program implemented through their Acquisition Management Performance Improvement effort.

Components provided multiple reasons why they have not assessed their requirements workforce development needs or implemented a requirements training program. Specifically:

- Federal Emergency Management Agency is waiting on resources to build a requirements organization and provide component-specific training.
- Immigration and Customs Enforcement officials stated that they are standing up a requirements development organization and have requested additional personnel. However, they have not done a

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<sup>24</sup>We reported on these challenges in April 2006. GAO, *Coast Guard: Changes to Deepwater Plan Appear Sound, and Program Management Has Improved, but Continued Monitoring Is Warranted*, [GAO-06-546](#) (Washington, D.C.: Apr. 28, 2006).

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comprehensive assessment of their workforce needs nor established additional training as a result of resource constraints.

- National Protection and Programs Directorate requirements officials told us that they do not currently have plans to assess the sufficiency of requirements development personnel and do not have component-specific requirements training.
- Transportation Security Administration has recently established a requirements development organization but has not yet assessed its workforce needs or established component-specific training.
- U.S. Citizenship and Immigration Services requirements officials told us that they have not assessed their workforce and training needs, as they are more focused on processes supporting information technology programs rather than requirements overall.

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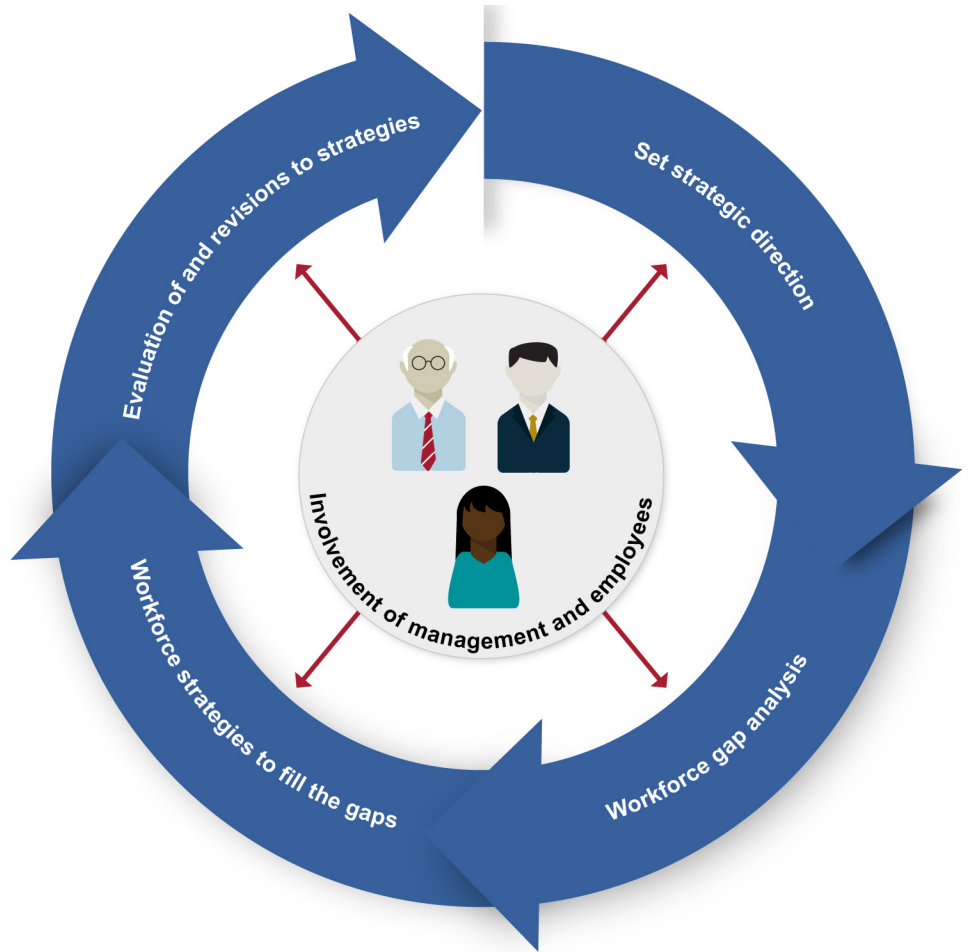
## Acquisition Programs Benefit from an Adequately Staffed and Trained Requirements Workforce

Assessment and training—according to GAO’s internal controls, workforce development key principles, and DHS’s workforce guidance—are two key steps in workforce planning to ensure that the right numbers of people with the right skills are available at the right time.<sup>25</sup> Specifically, an assessment should include an understanding of the goals and objectives of the component, the workforce needed to achieve the goals, and the capacity and capabilities needed to support workforce strategies. With a better understanding of the needs and current capabilities of the workforce, management can develop specific strategies to better educate the workforce and standardize skill levels. Organizations can then develop specific training to develop the workforce and fill areas of identified need with involvement of management and employees. Organizations can use a variety of instruction approaches for training—for example, classroom based learning; distance learning; or structured on-the-job training. When warranted, organizations should consider blending learning methods (such as web-based and instructor-led) within the same training effort to leverage resources in the most efficient way possible. See figure 6 for a notional workforce planning process that matches workforce needs with the goals of the organization.

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<sup>25</sup>GAO-14-704G. GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003). DHS, Office of the Chief Human Capital Officer, *DHS Workforce Planning Guide* (July 2015).

Figure 6: Workforce Development Strategies Align with Organizational Goals



Source: GAO. | GAO-18-550

The JRC approved a DHS-wide Requirements Specialization as a part of the Technology Manager Certification on June 21, 2018. In addition, JRC officials stated that they are expanding requirements development training and determining course content for the certification. We have previously found the importance of having the appropriate workforce as a factor in meeting an agency's mission.<sup>26</sup> Until the components assess their needs and take appropriate action, acquisition programs may

<sup>26</sup>GAO, *Federal Emergency Management Agency: Workforce Planning and Training Could Be Enhanced by Incorporating Strategic Management Principles*, [GAO-12-487](#) (Washington, D.C.: Apr. 26, 2012).

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continue to be at risk of not meeting end user needs, as they will not have a trained workforce to develop requirements.

Selected case study acquisition programs further illustrate the effect of a trained requirements development workforce.

- **Customs and Border Protection and Immigration and Customs Enforcement, TECS Modernization (not an acronym) programs:** These programs illustrate the effect that knowledgeable requirements officials can have. Customs and Border Protection's TECS program had an engineer with requirements development experience. According to this official, TECS Modernization traced all program requirements from the operational to the technical level in a matrix to ensure that they were valid and understood. A trained workforce, however, is one principle among many needed to provide a program with a sound start. In this case, a trained requirements official took the critical step of tracing the requirements to the gap, but his involvement cannot address the requirements and program executing issues that may arise throughout the life of a program. In fact, TECS Modernization later experienced changes to requirements and schedule.

In contrast, Immigration and Customs Enforcement's TECS Modernization program officials told us that the program initially utilized contractors for requirements development. Rather than develop operational requirements to close the capability gap, development started with thousands of technical requirements. The program could not trace these requirements back to the capability gap, and could not implement the proposed solution. Immigration and Customs Enforcement re-started the program by bringing in trained requirements development personnel who worked with the end users to determine the appropriate operational requirements. Current Immigration and Customs Enforcement officials acknowledged the problems of the past but indicated that with the operational requirements now in place, they have a greater likelihood of success.

- **Transportation Security Administration, Electronic Baggage Screening and Passenger Screening Programs:** End users of the screening units at an airport told us they are not aware of anyone, such as a requirements development official, with whom they can communicate emerging threats or problems with the screening units. They also said that some of the key performance parameters, such as the number of bags processed per hour, are not based on current data. In their experience, the volume of travelers and bags has increased significantly. Without a trained requirements development



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official with whom end users can provide input, the program risks not meeting end user needs.

- **U.S. Coast Guard, Offshore Patrol Cutter:** Requirements officials told us that they continue to mature their requirements workforce to ensure the appropriate requirements for programs. The U.S. Coast Guard's requirements workforce, as stated previously, utilizes an end user with requirements training as a subject matter expert on requirements development. These end users with requirements training work together with end users currently using the assets to ensure that requirements are well-defined. For this program, the U.S. Coast Guard recently held an assessment of the draft requirements for the cutter that solicited input from users across the organization. The trained requirements personnel facilitated the assessment and gathered the input to refine the requirements. While it is too early to determine how this acquisition program will perform against baselines, this initial focus on requirements is positive.

As most components recognize the need for requirements development, it is important that they assess their needs for a workforce and align those needs with training to develop a workforce that can help ensure that requirements match end user needs. DHS is taking steps to standardize training and certification across its requirements workforce to ensure that the workforce across all levels implements requirements development in accordance with JRIMS. However, DHS remains at risk until such training and certification are fully implemented throughout DHS and its components.

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## Conclusions

While DHS now has the JRIMS in place, which authorizes the components to create their own internal requirements development organizations, the components lag in creating the means to develop requirements and close identified capability gaps. While DHS components generally are working toward developing their own requirements policies, they have not yet established timeframes for completing this effort. Without specific timeframes, there is the risk that management attention will be lost. Further, some components do not have in place independent requirements development organizations, separate from their acquisition functions. The overlap in these responsibilities does not comport with best practices and engenders a risk that acquisition officials may override requirements developers to procure a preferred solution as opposed to the one needed by the end user.

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Further, most of the components in our review have not taken steps to assess their requirements workforces and provide training. Compounding this problem is a lack of training and certification standards for requirements personnel at the agency level. Rather, components have prioritized obtaining funding and starting acquisition programs over requirements development. Not giving requirements development adequate priority is likely to contribute to poorly defined requirements and delays in achieving—or failure to achieve—the capabilities necessary to perform components’ missions.

DHS, at a department level, has recognized the importance of having a requirements policy, an independent requirements organization, and a trained workforce by establishing JRIMS, the JRC, and associated training. While the components vary in acquisition activity, it is incumbent on them to recognize the importance of these critical elements. Past acquisitions have demonstrated the need to do so.

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## Recommendations for Executive Action

We are making a total of 25 recommendations to the Secretary of DHS. Specifically, that the Secretary of DHS ensures that:

The Commissioner of Customs and Border Protection through the Executive Assistant Commissioner for Operations Support finalizes and promulgates the Customs and Border Protection’s draft policy for requirements development. (Recommendation 1)

The Commissioner of Customs and Border Protection through the Executive Assistant Commissioner for Operations Support updates the 2013 workforce assessment to account for the independent requirements organization’s current workforce needs. (Recommendation 2)

The Commissioner of Customs and Border Protection through the Executive Assistant Commissioner for Operations Support establishes component specific training for requirements development. (Recommendation 3)

The Administrator of the Federal Emergency Management Agency establishes a policy for requirements development. (Recommendation 4)

The Administrator of the Federal Emergency Management Agency establishes an independent requirements development organization within the Federal Emergency Management Agency. (Recommendation 5)

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The Administrator of the Federal Emergency Management Agency updates the 2016 workforce assessment to account for an independent requirements organization's workforce needs. (Recommendation 6)

The Administrator of the Federal Emergency Management Agency establishes component specific training for requirements development. (Recommendation 7)

The Director of Immigration and Customs Enforcement establishes a policy for requirements development. (Recommendation 8)

The Director of Immigration and Customs Enforcement establishes the planned independent requirements development organization within Immigration and Customs Enforcement. (Recommendation 9)

The Director of Immigration and Customs Enforcement conducts a workforce assessment to account for an independent requirements organization's workforce needs. (Recommendation 10)

The Director of Immigration and Customs Enforcement establishes component specific training for requirements development. (Recommendation 11)

The Under Secretary of Homeland Security for the National Protection and Programs Directorate finalizes and promulgates the National Protection and Programs Directorate's draft policy for requirements development. (Recommendation 12)

The Under Secretary of Homeland Security for the National Protection and Programs Directorate establishes the planned independent requirements development organization within the National Protection and Programs Directorate. (Recommendation 13)

The Under Secretary of Homeland Security for the National Protection and Programs Directorate conducts a workforce assessment to account for an independent requirements organization's workforce needs. (Recommendation 14)

The Under Secretary of Homeland Security for the National Protection and Programs Directorate establishes component specific training for requirements development. (Recommendation 15)

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The Administrator of the Transportation Security Administration through the Executive Assistant Administrator of Operations Support finalizes and promulgates the Transportation Security Administration's draft policy for requirements development. (Recommendation 16)

The Administrator of the Transportation Security Administration through the Executive Assistant Administrator of Operations Support conducts a workforce assessment to account for an independent requirements organization's workforce needs. (Recommendation 17)

The Administrator of the Transportation Security Administration through the Executive Assistant Administrator of Operations Support establishes component specific training for requirements development. (Recommendation 18)

The Commandant of the U.S. Coast Guard through the Assistant Commandant for Capability conducts a workforce assessment of the U.S. Coast Guard's capabilities directorate. (Recommendation 19)

The Director of the U.S. Citizenship and Immigration Services finalizes and promulgates the U.S. Citizenship and Immigration Services's draft policy for requirements development. (Recommendation 20)

The Director of the U.S. Citizenship and Immigration Services establishes the planned independent requirements development organization within U.S. Citizenship and Immigration Services. (Recommendation 21)

The Director of the U.S. Citizenship and Immigration Services conducts a workforce assessment to account for an independent requirements organization's workforce needs. (Recommendation 22)

The Director of the U.S. Citizenship and Immigration Services establishes component specific training for requirements development. (Recommendation 23)

The JRC collaborate with components on their requirements development policies and, in partnership with the Under Secretary for Management, provide oversight to promote consistency across the components. (Recommendation 24)

In addition, the Secretary of DHS should ensure that training for requirements development is consistent by establishing training and

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certification standards for DHS and the components' requirements development workforces. (Recommendation 25)

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## Agency Comments and Our Evaluation

We provided a draft of this report for review and comment to DHS.

DHS provided written comments, which are reproduced in appendix II. In its comments, DHS concurred with all 25 of our recommendations and identified actions it plans to take to address them. DHS also provided technical comments, which we incorporated as appropriate.

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We are sending copies of this report to the appropriate congressional committees and the Secretary of Homeland Security. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4841 or [makm@gao.gov](mailto:makm@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 key contributions to this report are listed in appendix III.



Marie A. Mak  
Director, Contracting and National Security Acquisitions

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# Appendix I: Objectives, Scope, and Methodology

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This report discusses (1) how often selected Department of Homeland Security (DHS) programs changed requirements; and assesses the extent to which the selected components have (2) developed policies for requirements development, (3) established independent requirements organizations, and (4) taken steps to assess and train a requirements workforce. Our focus for this report was on the DHS components, as they are responsible for developing the requirements to meet end user needs.<sup>1</sup>

To conduct our work, we reviewed the DHS Master Acquisition Oversight List as of April 2017 and selected seven DHS components with Level 1 and Level 2 major acquisition programs and cover a broad range of missions.<sup>2</sup> The seven components are as follows:

- Customs and Border Protection
- Federal Emergency Management Agency
- Immigration and Customs Enforcement
- National Protection and Programs Directorate
- Transportation Security Administration
- U.S. Coast Guard
- U.S. Citizenship and Immigration Services

From these seven components, we selected 14 major acquisition programs with DHS-approved key performance parameters to serve as case studies for our review. We selected a non-generalizable sample of programs based on different factors, including their acquisition phase, component, acquisition level, and whether they were information technology (IT) or non-IT. We selected the programs on these factors to reflect the broad spectrum of DHS components' operations. In addition, we coordinated our program selection with the DHS Office of Inspector General due to its ongoing audit on the implementation of Joint Requirements Council (JRC) policies in DHS acquisition programs. See table 4 below for a description of the programs.

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<sup>1</sup>While DHS headquarters has an important role to play in validating requirements—such as the JRC—this report does not examine the department's headquarters role.

<sup>2</sup>DHS policy defines Level 1 major acquisition programs (other than services) as those with life-cycle costs exceeding \$1 billion and Level 2 with life-cycle costs between \$300 million and less than \$1 billion.

**Table 4: Selected Department of Homeland Security (DHS) Major Acquisition Programs**

<b>Component</b>	<b>Program</b>	<b>Description</b>
Customs and Border Protection	Biometric Entry-Exit Program <sup>a</sup>	This program is developing capabilities to enhance traveler identification upon departure from the U.S. at air, land, and sea ports of entries by collecting biometric data.
	Cross Border Tunnel Threat <sup>a</sup>	This program intends to provide detection and mapping of cross-border tunnel activity, as well as prediction capability for where tunnel activity is most likely to occur.
	Integrated Fixed Towers	This program consists of fixed surveillance tower systems equipped with ground surveillance radar, daylight and infrared cameras, and communications systems to help the Border Patrol detect, track, identify, and classify illegal entries in remote areas.
	TECS Modernization <sup>b</sup>	TECS is a law-enforcement information system that helps officials determine the admissibility of persons wanting to enter the United States at border crossings, ports of entry, and prescreening sites located abroad.
Federal Emergency Management Agency	National Flood Insurance Program PIVOT <sup>b</sup>	This program plans to allow National Flood Insurance Program policy and claims information to be processed in near real-time, as well as financial reporting and actuarial analysis.
	Risk Mapping, Assessment and Planning	This program assesses flood risk and uses the information to both increase public awareness of and track progress of reducing that risk.
Immigration and Customs Enforcement	TECS Modernization <sup>b</sup>	This legacy TECS system has provided case management, intelligence reporting, and information sharing capabilities. The modernization program will provide end users with additional functionality to meet mission needs.
National Protection and Programs Directorate	Continuous Diagnostics and Mitigation	This program aims to strengthen the cybersecurity of the federal government's networks by providing tools and dashboards that continually monitor and report on network vulnerabilities.
	National Cybersecurity Protection System	This program is intended to defend the federal civilian government from cyber threats through intrusion-detection and analytic capabilities.
Transportation Security Administration	Electronic Baggage Screening Program	This program tests, procures, and deploys transportation security equipment across U.S. airports to ensure 100 percent of checked baggage is screened for explosives.
	Passenger Screening Program	This program tests, procures, and deploys transportation security equipment across U.S. airports to help officers identify threats concealed on people and in their carry-on items.
U.S. Coast Guard	Long Range Surveillance Aircraft	The U.S. Coast Guard uses HC-130H and HC-130J aircraft to conduct search and rescue missions, transport cargo and personnel, support law enforcement, and execute other operations.
	Medium Range Surveillance Aircraft	The U.S. Coast Guard uses HC-144A and C-27J aircraft to conduct all types of missions, including search and rescue and disaster response.

**Appendix I: Objectives, Scope, and Methodology**

<b>Component</b>	<b>Program</b>	<b>Description</b>
	National Security Cutter	These cutters are replacing High Endurance Cutters and will conduct a range of missions, including search and rescue, migrant and drug interdiction, and environmental protection.
	Offshore Patrol Cutter	These cutters are replacing Medium Endurance Cutters and will conduct patrols for homeland security, law enforcement, and search and rescue operations.
U.S. Citizenship and Immigration Services	Transformation	This program is to transition the component from a fragmented, paper-based method of filing immigration and citizenship applications to a consolidated and paperless one.

Source: GAO analysis of DHS documents. | GAO-18-550

<sup>a</sup>These programs did not have DHS-approved key performance parameters at the time of our review.

<sup>b</sup>TECS and PIVOT are not acronyms.

We also reviewed two programs that did not have DHS-approved key performance parameters at the time of our review to understand how requirements are determined before DHS validation. The two programs were Customs and Border Protection’s Cross Border Tunnel Threat and Biometric Entry-Exit Program.

To determine the extent to which the selected programs changed operational requirements, we examined key performance parameters, which the programs document in requirements and acquisitions documents, before and after DHS approval when key performance parameters should be stable. Such program documents include the operational requirements documents and acquisition program baselines. In certain cases, programs had multiple iterations of these documents. We then compared the extent to which key performance parameters changed between documents. We selected operational requirements documents and acquisition program baselines because these are the key requirements documents validated by DHS management in order for programs to begin development.

We focused on the presence of policies for requirements development, independent requirements organizations, and requirements specific workforce and training in components as our past work on major acquisitions has shown that these are the fundamental building blocks required to develop well-informed operational requirements. This selection was also informed by our standards for internal controls.

To determine the extent to which DHS components’ requirements development policies exist, as well as determine the extent to which those components established independent organizations, we reviewed component documentation pertaining to requirements development, such



as instruction manuals, mission statements, and capability analyses. We also reviewed DHS documentation such as the Joint Requirements Integration and Management System Instruction Manual and the Acquisition Management Instruction to determine the requirements development guidance provided to the components. We also reviewed program-level documents such as mission need statements and operational requirements documents to determine the capability gaps that respective programs were intended to mitigate, and the programs' key performance parameters.

To help determine assessment, training, and certification standards for DHS's requirements development workforce, we spoke with officials from Defense Acquisition University regarding comparable standards that apply to the Department of Defense's requirements workforce. We also reviewed training standards materials provided by these officials. In addition, we spoke with JRC and U.S. Coast Guard officials regarding their requirements development training and certification standards and reviewed available documentation.

To inform each of our objectives, we interviewed officials at various levels throughout DHS to understand their relationship to requirements development. We interviewed JRC officials to determine their interaction with components for requirements development, policies, training, and organizational standards. We also interviewed component-level officials to understand the extent to which they have implemented requirements development policies, organizations, and training for their components. We then interviewed both program officials and program end users to understand their roles in requirements development, the extent to which their feedback is incorporated into the requirements development process, and then the extent to which they receive requirements development training. In addition, we furthered this understanding through reviewing component- and program-level documentation including guidance manuals, mission needs statements, and operational requirements documents.

We assessed the components' requirements development practices against GAO's standards for internal control and additional supporting criteria. The standards identify key principles to help entities achieve their objectives, such as delivering capabilities to end users. Specifically, management should establish structure, responsibility, and authority

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including developing an organizational structure and documentation.<sup>3</sup> In addition, management should have a commitment to competence by developing individuals, such as through training.<sup>4</sup>

We conducted this performance audit from May 2017 to August 2018 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.

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<sup>3</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014). DHS, Under Secretary for Management, *Joint Requirements and Integration System, DHS Directive 107-01*, Revision 00 (Washington, D.C.: Mar. 8, 2016). DHS, Department of Homeland Security Manual for the Operation of the Joint Requirements Integration and Management System, *DHS Instruction Manual 107-01-001-01*, Revision 00 (Washington, D.C.: Apr. 21, 2016). GAO, *Border Security: DHS's Efforts to Modernize Key Enforcement Systems Could Be Strengthened*, [GAO-14-62](#) (Washington, D.C.: Dec. 5, 2013). Carnegie Mellon University's Software Engineering Institute, *Capability Maturity Model Integration for Development*, Version 1.3 (CMMI-Dev, V1.3) (November 2010).

<sup>4</sup>[GAO-14-704G](#). GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003). DHS, Office of the Chief Human Capital Officer, *DHS Workforce Planning Guide* (Washington, D.C.: July 2015).

# Appendix II: Comments from the Department of Homeland Security

U.S. Department of Homeland Security  
Washington, DC 20528



**Homeland  
Security**

July 20, 2018

Marie A. Mak  
Director, Contracting and National Security Acquisitions  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Re: Management's Response to Draft Report GAO-18-550, "DHS ACQUISITIONS:  
Additional Practices Could Help Components Better Develop Operational Requirements"

Dear Ms. Mak:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

DHS is pleased to note GAO's positive recognition of the Joint Requirement Council's (JRC) ongoing maturation of its requirements process, as well as efforts to strengthen its requirements professionals through various training courses and the Joint Requirements Integration and Management System (JRIMS) process. In addition, the JRC is developing a DHS Requirements Specialization Certification, which will build upon the knowledge base of our community of practice and establish a requirements development competency baseline. DHS is committed to continuing to improve delivery to the Department of the right capabilities at the right time to perform the Department's missions safely and effectively.

The draft report contained 25 recommendations with which the Department concurs. Attached find our detailed response to each recommendation. Technical comments were provided under separate cover.

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim H. Crumpacker".

for JIM H. CRUMPACKER, CIA, CFE  
Director  
Departmental GAO-OIG Liaison Office

Attachment

**Attachment: Management Response to Recommendations  
Contained in GAO-18-550**

GAO recommended that the Secretary of DHS ensure:

**Recommendation 1:** The Commissioner of Customs and Border Protection [CBP] through the Executive Assistant Commissioner for Operations Support finalizes and promulgates the Customs and Border Protection's draft policy for requirements development.

**Response:** Concur. CBP Operations Support's (OS) Capabilities and Requirements Division's (CRD) internal review of the draft Requirements Directive is being finalized. Once completed, the Requirements Directive will be provided to impacted CBP offices for review and comment; and changes, if any, will be made. Estimated Completion Date (ECD): October 31, 2018.

**Recommendation 2:** The Commissioner of CBP through the Executive Assistant Commissioner for OS updates the 2010 workforce assessment to account for the independent requirements organization's current workforce needs.

**Response:** Concur. CBP's CRD, under OS, is in the midst of a workforce assessment for it requirements function. The assessment is expected to be completed within the month. ECD: August 31, 2018.

**Recommendation 3:** The Commissioner of CBP through the Executive Assistant Commissioner for OS establishes component specific training for requirements development.

**Response:** Concur. CBP's CRD completed the first working-level training course on March 12-16, 2018, the second on April 30-May 4, 2018, and the third on June 18-22, 2018. A fourth course is proposed for mid-August 2018. CRD is also currently condensing the curriculum for delivery at the Executive Level. We request that GAO consider this recommendation resolved and closed, as implemented.

**Recommendation 4:** The Administrator of the Federal Emergency Management Agency [FEMA] establishes a policy for requirements development.

**Response:** Concur. FEMA's Office of Policy and Program Analysis (OPPA) has drafted a component level requirements document that is currently in staff review. The directive titled, "FEMA Components Requirements Identification, Analysis, Programming, and Execution Process," will serve as the base of knowledge needed for requirements development within FEMA and a support document to previously published DHS guidance. It is important to note that a directive is a signed, authoritative statement that sets requirements for FEMA staff in at least two or more Associate Administrator level offices. This directive will serve to establish the Agency wide requirements policy and assign responsibilities. FEMA's Offices of Chief Procurement and Chief Information Officer will assist and provide necessary support. ECD: December 30, 2018.

**Recommendation 5:** The Administrator of FEMA establishes an independent requirements development organization within FEMA.

**Response:** Concur. OPPA has completed a Statement of Work for the Federally Funded Research and Development Center (FFRDC) Homeland Security Operational Analysis Center (HSOAC) to provide analytic support to develop requirements specifications and documentation. FEMA will work with components to elicit, develop, and capture the results of capabilities analysis in FEMA requirements documents that will be provided to the JRC for approval ultimately enabling the closure of FEMA capability gaps. ECD: September 30, 2018.

**Recommendation 6:** The Administrator of FEMA updates the 2016 workforce assessment to account for an independent requirements organization's workforce needs.

**Response:** Concur. OPPA will work with FEMA Office of Chief Human Capital Officer to provide an updated workforce assessment. Until that is complete, FEMA is continuing to work toward funding a contract with FFRDC HSOAC to provide analytic support to develop requirements specifications and documentation. ECD: January 30, 2019

**Recommendation 7:** The Administrator of FEMA establishes component specific training for requirements development.

**Response:** Concur. Since the JRC is currently establishing training and certifications for the requirements development workforce, FEMA will defer developing component-level training and certification until after the DHS process is completed. ECD: To Be Determined (TBD).

**Recommendation 8:** The Director of Immigrations and Customs Enforcement [ICE] establishes a policy for requirements development.

**Response:** Concur. To ensure ICE properly generates, validates, and prioritizes capability gaps, the ICE Office of Policy will draft a policy that formalizes our requirements development process. This policy will apply to all Level 1 and 2 acquisitions and all Information Technology acquisitions that exceed a \$50M acquisition lifecycle. ICE will ensure these actions follow the processes established by the JRIMS. ECD: September 30, 2019.

**Recommendation 9:** The Director of ICE establishes the planned independent requirements development organization within ICE.

**Response:** Concur. To lay the foundation for the ICE Component Requirements Executive (CRE) portfolio, the ICE Office of Policy is in the process of developing a strategic plan that will outline the mission, objectives, and management approach for the requirements process within the component. ICE will work to temporarily staff an independent requirements development organization until additional personnel can be obtained to permanently support the organization. The ECD for this recommendation is contingent on ICE CRE receiving the personnel needed to implement the recommendation. ECD: September 30, 2019.



**Recommendation 10:** The Director of ICE conducts a workforce assessment to account for an independent requirements organization's workforce needs.

**Response:** Concur. ICE CRE will coordinate with the ICE Office of the Chief Financial Officer to begin a current workforce assessment to determine the optimal configuration for a requirements organization, be it either a centralized function or one embedded within each ICE program. The workforce assessment will help to identify a realistic number of FTEs to execute the CRE function within ICE. ECD: July 31, 2019.

**Recommendation 11:** The Director of ICE establishes component specific training for requirements development.

**Response:** Concur. ICE personnel involved with requirements development currently take the DHS level JRIMS related training. ICE's Office of Policy will develop and execute an outreach plan to ensure all ICE business owners and program management offices are aware of the JRIMS related training on an on-going basis. ECD: July 31, 2019.

**Recommendation 12:** The Under Secretary of Homeland Security for National Protection and Programs finalizes and promulgates the National Protection and Programs Directorate's [NPPD] draft policy for requirements development.

**Response:** Concur. The development of a comprehensive NPPD Requirements Management Instruction is an on-going activity in FY 2018 that is managed by NPPD's Requirements Lead within the Office of Management. While NPPD does not have formal policies in place, its programs have followed the procedures outlined in the JRIMS manual and is regularly engaged with the DHS JRC through its JRC Principal and requirements personnel.

The Instruction will formalize a framework that fulfill NPPD's statutory responsibilities to the JRC through alignment to JRIMS. It will also provide information regarding requirements management activities, to include the identification of capability requirements and associated capability gaps; development of capability requirements documents; document review and validation procedures; capability requirement portfolio management; linking operational capability requirements to the resource allocation process; and minimum training standards for personnel engaged in the requirements processes.

The new policies and procedures contained in the Instruction will be reviewed by the NPPD Office of Management prior to a period for NPPD subcomponents and mission support offices to comment by September 30, 2018. Following comment adjudication, we expect that NPPD leadership will be able to review and approve the Instruction no later than early FY 2019. ECD: December 31, 2018.

**Recommendation 13:** The Under Secretary of Homeland Security for National Protection and Programs establishes the planned independent requirements development organization within the NPPD.

**Response:** Concur. NPPD recognizes the importance of having an independent requirements organization that supports mission capability delivery and interfaces with the strategy, acquisition,

and budget communities. While NPPD has created a requirements function that is independent of acquisitions, the establishment of a more comprehensive requirements capability will be informed by a planned workforce assessment (see response to Recommendation 14). The outcome of that assessment will also support organizational resource requests (e.g. personnel requirements) to be included in the FY 2022 budget cycle. ECD: December 31, 2019.

**Recommendation 14:** The Under Secretary of Homeland Security for National Protection and Programs conducts a workforce assessment to account for an independent requirements organization's workforce needs.

**Response:** Concur. While NPPD has not previously conducted a workforce assessment to determine the needs of an independent requirements organization, discussions concerning requirements workforce shortfalls have occurred at the senior leadership level. In response to this audit, an assessment will be initiated by NPPD's Office of Management in coordination with the Office of Human Capital. Research will focus on DHS and Interagency organizations of similar size to determine benchmarks for an NPPD requirements organization. ECD: March 31, 2019.

**Recommendation 15:** The Under Secretary of Homeland Security for National Protection and Programs establishes component specific training for requirements development.

**Response:** Concur. NPPD's Requirements Lead within the Office of Management is currently engaged in the JRC's effort to establish DHS requirements certification standards. These standards will help formalize the training standards for NPPD requirements professionals and expand the community of practice across NPPD and DHS. They will also be supplemented by the informal requirements training and information sessions that are already occurring across NPPD, as conducted by NPPD Requirements personnel.

Engagement in this JRC-led effort, in conjunction with the NPPD/Management/Office of Human Capital's Office of Professional Development and Training, will ensure that NPPD-specific training needs are considered as part of the overall curriculum. The certification standards that are formalized will serve as an interim guide for NPPD requirements professionals, and will also inform the minimum training requirements in the NPPD Requirements Management Instruction referenced in response to Recommendation 12. As these certification standards are implemented, feedback will be collected to determine the sufficiency of the training provided and curriculum improvements where necessary. ECD: December 31, 2018.

**Recommendation 16:** The Administrator of the Transportation Security Administration [TSA] through the Chief of Operations finalizes and promulgates the TSA's draft policy for requirements development.

**Response:** Concur. One of TSA's Requirements and Capabilities Analysis (RCA) initiatives for 2018-2019 is to develop an updated manual currently being called "Requirements Engineering Integrated Process Manual" (RE IPM). The intent of this manual is to establish clear guidance on the requirements development process including stakeholder engagement, requirements writing, development of required DHS artifacts, and change management. This manual will provide updated guidance based on recent DHS JRC instructions and an understanding of stakeholder interaction

points within TSA following the multiple restructuring efforts at TSA. The RE IPM will be developed in sections with an anticipated completion during the first half of FY 2019.

Recently, TSA underwent a reorganization. The Chief of Operations position has been re-organized and certain functions previously under that position have been aligned under the new position of Executive Assistant Administrator (EAA) of Operations Support. The Office of Requirements and Capabilities Analysis (RCA) is aligned under Operations Support. ECD: April 30, 2019.

**Recommendation 17:** The Administrator of the TSA through the Chief of Operations conducts a workforce assessment to account for an independent requirements organization's workforce needs.

**Response:** Concur. In the fall of 2016 an initial workforce assessment was conducted and the RCA was stood up based on available full time equivalent at the time. A follow-on assessment will be conducted based on lessons learned during the first 18 months of RCA implementation. ECD: January 31, 2019.

**Recommendation 18:** The Administrator of TSA through the Chief of Operations establishes component specific training for requirements development.

**Response:** Concur. The JRC will continue to lead the training for requirements development, and through that process, where appropriate, TSA will finalize any necessary, component specific training. In partnership with the JRC, TSA RCA representatives will participate in the effort by JRC to develop a requirements specialization. As part of this effort the TSA RCA representatives will identify key areas where TSA specific content will need to be developed. Prior to the establishment of RCA and Acquisition Program Management, the Component Acquisition Executive (CAE) support staff developed and conducted training on key requirement documents. This included general best practices in addition to tips on developing the DHS required artifacts. In addition to coordinating with the JRC on Requirements Engineering Specialization Training, RCA will coordinate with the CAE support staff to update and provide training regarding requirements development. ECD: TBD.

**Recommendation 19:** The Commandant of the Coast Guard through the Assistant Commandant for Capability conducts a workforce assessment of the Coast Guard's capabilities directorate.

**Response:** Concur. The Coast Guard Capabilities Directorate will meet the intent of this recommendation by completing an internal assessment of our requirements workforce. ECD: September 30, 2019.

**Recommendation 20:** The Director of the United States Citizenship and Immigration Services [USCIS] finalizes and promulgates the USCIS' draft policy for requirements development

**Response:** Concur. USCIS recognizes the need to have a Component specific policy to complement the Department's policies that established the JRC and JRIMS. The USCIS Component Requirements Executive (CRE) will have the lead for promulgating the new policy for developing and managing operational requirements. ECD: February 28, 2019.



**Recommendation 21:** The Director of USCIS establishes the planned independent requirements development organization within USCIS.

**Response:** Concur. The CRE, with support from the Associate Director for Management, will have the lead for establishing a requirements organization. The organization will be based on mature requirements organizations in other DHS components and tailored specifically for USCIS. Mission ultimately will dictate the size and scope of the requirements organization which will be anchored by one or more staff who will manage USCIS engagement with the JRC Portfolio Teams and lead internal working groups with our operational directorates that develop requirements. The personnel, who have direct experience with USCIS programs, will also work on Recommendations 22 and 23, which will help determine the depth and breadth of the organization. ECD: December 31, 2018.

**Recommendation 22:** The Director of USCIS conducts a workforce assessment to account for an independent requirements organization's workforce needs.

**Response:** Concur. The CRE, with support from the Associate Director for Management, will have the lead for conducting a workforce assessment. This assessment will be conducted in conjunction with the implementation of Recommendations 20 and 23. ECD: May 31, 2019.

**Recommendation 23:** The Director of USCIS establishes component specific training for requirements development.

**Response:** Concur. The CRE, with support from the Associate Director for Management, will have the lead for establishing component specific training. The JRC is working with the DHS Homeland Security Acquisition Institute (HSAI) to develop a DHS Requirements Certification/Specialization Curriculum. USCIS has assigned a representative to that working group. We expect this will provide a substantial basis for general requirements training. We also plan to address this in the new policy (Recommendation 20) by establishing any specific training requirements beyond the DHS Certification/Specialization. This is the same approach we used with the other Acquisition disciplines that we documented in our Acquisition and Acquisition Workforce policies. ECD: February 28, 2019.

**Recommendation 24:** The JRC collaborate with components on their requirements development policies and in partnership with the Under Secretary for Management, provide oversight to promote consistency across the components.

**Response:** Concur. The mission of the JRC is to advance the goals and objectives set forth by the Secretary of Homeland Security toward building a more unified and efficient organization through the creation of component-driven joint requirements processes. Working in concert with the Office of the Under Secretary for Management, the JRC will assist and support components on their requirements development and on ways to improve their effectiveness and proficiency of requirements operations. Ensuring policies are consistent with the JRIMS process will create accountable governance. This partnership will be leveraged to inform the Department's main investment pillars, program and budget review as well as the acquisition review process. ECD: December 31, 2019.

**Recommendation 25:** The consistency of training for requirements development by establishing training and certification standards for DHS and the components' requirements development workforces.

**Response:** Concur. On June 21, 2018, the JRC Principals endorsed a proposed plan to develop a requirements specialization within the Technology Manager certification program. The purpose of this credential is to expand the knowledge base of the DHS requirements community of practice, establish a competency baseline, and continue the maturation of the DHS requirements process. Requirements specialization training will build upon the foundation of existing courses, including JRIMS Overview, Core Concepts, and Knowledge Management/Decision Support. The JRC has formed an advisory body composed of component level acquisition and requirements professionals to further develop and finalize the curriculum and course content. The JRC is working with HSAI on the requirements specialization training program. When these are finalized, the JRC will promulgate guidance and add the specialization to the Federal Acquisition Institute Training Application System (FAITAS). ECD: December 31, 2019.

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# Appendix III: GAO Contact and Staff Acknowledgments

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## GAO Contact

Marie A. Mak, (202) 512-4841, or [makm@gao.gov](mailto:makm@gao.gov).

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## Staff Acknowledgments

In addition to the contact named above, J. Kristopher Keener, Assistant Director; James Kim; Stephen V. Marchesani; Cody Knudsen; Claire McGillem; Pete Anderson; Roxanna Sun; and Sylvia Schatz made key contributions to this report.

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