Testimony

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AVIATION CERTIFICATION

FAA Has Made Continued Progress in Improving Its Processes for U.S. Aviation Products

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Why GAO Did This Study

FAA issues certificates approving new U.S.-manufactured aviation products, such as new aircraft, engines, and propellers. GAO has previously reviewed the efficiency of FAA's certification process and the consistency of its regulatory interpretations. As required by the 2012 FAA Modernization and Reform Act, FAA chartered two aviation rulemaking committees—one to improve certification processes and another to address regulatory consistency—that recommended improvements in 2012. FAA also assists U.S. aviation companies seeking approval of their FAA-certificated products in foreign markets. FAA has negotiated agreements with many of its counterparts in other countries to provide a framework for the reciprocal approval of aviation products. However, GAO testified in April 2015 that selected U.S. aviation companies reported challenges in obtaining such approvals, citing delays and cost.

This testimony discusses (1) the status of FAA's progress in implementing the aviation rulemaking committees' 2012 recommendations and (2) FAA's responses to the challenges that selected U.S. companies reported in 2015 that they faced when attempting to obtain foreign approvals of their products. It is based on GAO products issued from 2010 to 2015, selectively updated in March 2017 based on FAA documents and information from FAA officials and three key industry stakeholder organizations.

What GAO Found

The Federal Aviation Administration (FAA) has made progress in addressing two rulemaking committees' recommendations regarding its certification process and the consistency of its regulatory interpretations.

- FAA has completed 13 of 14 initiatives for addressing the 6 *certification process* recommendations. For example, 5 of the 13 completed initiatives involved improving and expanding its program that authorizes other organizations to act on its behalf in issuing certificates. The remaining initiative—issuing a final rule on regulations dealing with the certification of aircraft products—will likely not be issued this calendar year due to internal delays and the administration's efforts to review agencies' rules and regulations. FAA's Aircraft Certification Service (AIR) is responsible for implementing the certification process initiatives and the outcomes of the 14 initiatives are intended to be rolled into a larger organizational transformation concept. The initial phase involves restructuring AIR's organization, shifting its structure from a product-based focus to a function-based focus, with a new division responsible for monitoring and managing performance. FAA expects to complete this realignment in 2017, and noted that the overall aim of this transformation is to create a process that is more responsive to stakeholder expectations and more efficient and effective.

- FAA has completed efforts to address 2 of the 6 *regulatory consistency* recommendations, has efforts underway to address three, and is not planning to implement one. Completed efforts include ensuring better clarity in final rules and improvements in regulatory training for FAA personnel and industry. FAA is continuing work on an electronic platform to allow agency and industry users to access consolidated information on regulations and on creation of a consistency board to provide clarification on regulation-related questions from FAA and industry stakeholders. FAA did not establish a centralized support center to provide guidance to FAA personnel and industry, noting the consistency board would do this.

FAA has also made progress in developing measures for assessing the outcomes of the actions being taken for most of the initiatives. In addition, industry stakeholders GAO spoke to indicated a better sense of progress being achieved by FAA and better communication and collaboration from FAA.

FAA has continued efforts to address challenges that selected U.S. aviation companies reported facing when seeking foreign approval of their products. In April 2015, GAO testified on these challenges, which included the length and uncertainty of some approval processes, difficulty with communications, and high fees. FAA's efforts to address these challenges include working with its counterpart in the European Union to develop a "roadmap," approved in February 2016, of various initiatives aimed at reducing the time and costs of European approval of U.S. aviation products. According to FAA, completed changes have already eliminated approval and associated fees for all approved aircraft parts and reduced the approval time for simple low-risk modifications of product design from weeks to days. FAA plans to use this roadmap as a template for working with other countries on these issues.

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United States Government Accountability Office

Chairman Blunt, Ranking Member Cantwell, and Members of the Subcommittee:

I am pleased to be here today to testify on the status of the Federal Aviation Administration's (FAA) efforts to improve its processes for certifying new aviation products for domestic use, and the challenges faced by U.S. aviation companies seeking product approvals in foreign countries. Studies published since 1980,[1] our prior work,[2] industry stakeholders, and experts have long raised questions about the efficiency of FAA's certification processes and varying interpretations and applications of its regulations in making compliance decisions during certification. The 2012 FAA Modernization and Reform Act required FAA to work with industry to resolve issues related to the efficiency of its certification processes and varying interpretations and applications of its regulations in making compliance decisions during certification.[3] In response, FAA chartered two aviation rulemaking committees—one to address *certification process* issues (the Certification Process Committee) and another to address *regulatory consistency* issues (the Regulatory Consistency Committee)—which recommended improvements in 2012. FAA also assists U.S. aviation companies in getting their U.S.-certificated products approved for sale and export to foreign countries. However, in a January 2015 testimony, we noted that representatives of 15 selected U.S. aviation companies we interviewed reported that their companies faced challenges related to process, communications, and cost in obtaining such approvals.[4] For example, some raised concerns that some

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[1]See National Academy of Sciences, *Improving Aircraft Safety: FAA Certification of Commercial Passenger Aircraft*, National Research Council, Committee on FAA Airworthiness Certification Procedures (Washington, D.C.: June 1980); Booz Allen & Hamilton, *Challenge 1000: Recommendations for Future Aviation Safety Regulations* (McLean, VA: Apr. 19, 1996); RTCA Task Force 4, *Final Report of the RTCA Task Force 4 "Certification"* (Washington, D.C.: Feb. 26, 1999; and Independent Review Team Appointed by Secretary of Transportation Mary E. Peters, *Managing Risks in Civil Aviation: A Review of FAA's Approach to Safety* (Washington, D.C.: Sept. 2, 2008).

[2]GAO, *Aviation Safety: Certification and Approval Processes Are Generally Viewed as Working Well, but Better Evaluative Information Needed to Improve Efficiency*, GAO-11-14 (Washington, D.C.: Oct. 7, 2010); and GAO, *Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology*, GAO/RCED-93-155 (Washington, D.C.: Sept. 16, 1993).

[3]FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95, §§ 312, 313, 126 Stat. 11, 66, 67 (2012).

[4]GAO, *Aviation Safety: Issues Related to Domestic Certification and Foreign Approval of U.S. Aviation Products*, GAO-15-327T (Washington, D.C.: Jan. 21, 2015).

countries do not accept the FAA certification and conduct their own approval processes for U.S. products, which they said can be lengthy and provide no additional safety benefit.

My statement today discusses (1) the status of FAA's progress in implementing the aviation rulemaking committees' 2012 recommendations regarding its certification process and the consistency of its regulatory interpretations and (2) FAA's responses to the challenges that selected U.S. companies reported to us in 2015 that they faced when attempting to obtain foreign approvals of their products. This testimony is based on several GAO products issued from 2010 through 2015[5]and selected updates of this work conducted in March 2017. These updates are based on FAA documents and information from FAA officials and selected industry stakeholders, including the Aerospace Industries Association, Aeronautical Repair Station Association, and General Aviation Manufacturers Association.[6] Each of these products contains detailed information on our objectives, scope, and methodology for performing this work. The work on which this statement is based was performed 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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[5]GAO, *Aviation Certification: Issues Related to Domestic and Foreign Approval of U.S. Aviation Products*, GAO-15-550T (Washington, D.C.: Apr. 21, 2015); GAO-15-327T; *Aviation Manufacturing: Status of FAA's Efforts to Improve Certification and Regulatory Consistency*, GAO-14-829T (Washington, D.C.: July 31, 2014); *Aviation Safety: FAA's Efforts to Implement Recommendations to Improve Certification and Regulatory Consistency Face Some Challenges*, GAO-14-728T (Washington, D.C.: July 23, 2014); *Aviation Safety: Status of Recommendations to Improve FAA's Certification and Approval Processes,* GAO-14-142T (Washington, D.C.: Oct. 30, 2013); GAO-11-14.

[6]The Aerospace Industries Association represents the U.S. aerospace and defense industry. The Aeronautical Repair Station Association is the international trade group that represents certificated repair stations and the global civil aviation maintenance industry. The General Aviation Manufacturers Association represents leading global manufacturers of general aviation airplanes and rotorcraft, engines, avionics, and components.

FAA Has Made Continued Progress in Addressing the Certification Process and Regulatory Consistency Committees' Recommendations

FAA Has Completed All But One of the Initiatives to Improve Its Aircraft Certification Processes and Has Implemented a Tool to Help Measure the Outcomes of Some Initiatives

As you know, among its responsibilities for aviation safety, FAA's Aircraft Certification Service (AIR) grants approvals (called type certificates) for new aircraft, engines, and propellers. Certification projects, which involve the activities to determine compliance of new products with applicable regulatory standards and to approve products for certificates, are typically managed by one of AIR's local offices (generally known as aircraft certification offices).[7]

In 2012, the Certification Process Committee made six recommendations. As of March 2017, FAA has made significant progress in addressing these recommendations, but as we testified in April 2015, challenges remain that could affect their successful implementation.[8] AIR has been primarily responsible for addressing these recommendations. FAA's plan for addressing them involves completing 14 initiatives. According to a March 2017 update that FAA provided to us, 13 initiatives have been completed. These initiatives included developing a roadmap for change initiatives and a tracking system for certification initiatives, improving and expanding FAA's organization designation authorization (ODA) program,[9] improving the project sequencing process, improving the validation

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[7]AIR has local offices that serve geographic areas across the United States for aircraft certification-related activities: Anchorage, AK, Atlanta, GA; Boston, MA; Chicago, IL; Denver, CO; Fort Worth, TX; Los Angeles, CA; New York, NY; Seattle, WA; and Wichita, KS.

[8]GAO-15-550T.

[9]FAA's ODA process is used to authorize organizations (designees) to act on behalf of FAA in conducting some safety certification work. 14 C.F.R. § 183.41(a).

process,[10] expediting the rulemaking process, and reorganizing the regulations for the certification of small airplanes.[11] The one initiative that is not complete involves a revision of regulations dealing with the certification of aircraft products and parts to include a systems safety approach.[12] FAA had planned to issue a final rule with these revisions in June 2017. However, FAA officials told us that given internal delays and the administration's efforts to review agencies' rules and regulations, the notice of proposed rulemaking will not be issued in the 2017 calendar year.

Five of the completed certification process initiatives were related to ODA. In January 2015, we noted that industry stakeholders favored expanding the ODA program, while the employee unions were concerned about FAA resources to effectively expand it.[13] With completion of all five ODA-related initiatives, FAA has completed all items in its ODA action plan, deployed specialized audit training for personnel conducting supervision of ODA inspections, and expanded delegation to authorize designees to approve instructions for continued airworthiness,[14] emissions data, and noise certification.

Based on an update from FAA in March 2017, FAA also developed an ODA scorecard as a measure of the outcome of all of the ODA-related initiatives. The scorecard was developed in collaboration with industry and to determine how well the ODA program is doing. Specifically, the scorecard is used to monitor performance metrics for both manufacturer compliance to the standards related to delegated activities, and FAA utilization and delegation oversight. FAA created a prototype of the scorecard, with consultation with industry stakeholders, and conducted a

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[10]The approval (i.e., validation) process is a form of certification to establish compliance for aviation products designed outside the country for which the products are being developed in order to issue a type certificate for these products.
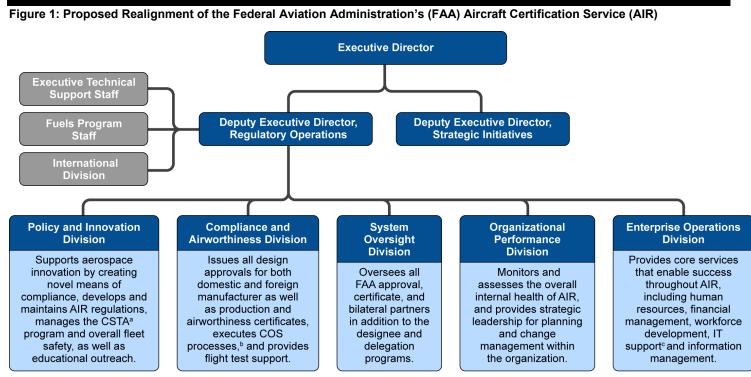
[11]Small airplanes are certificated under 14 C.F.R. Part 23.

[12]Certification Procedures for Products and Articles, 14 C.F.R. pt. 21 (2017). A system safety approach is an organizational oversight philosophy to identify and control the hazards and risks associated with the various elements of a system on an individual and system level.

[13]GAO-15-550T.

[14]Instructions for continued airworthiness include such things as maintenance manuals and inspection programs for maintaining operational safety of aviation products.

test trial with industry volunteers in 2015. The trial led to several national level improvement initiatives. For example, the scorecard revealed that FAA policy required its staff to review low-risk design changes and mandated that project notification letters be created for almost all ODA project activity. FAA issued a policy amendment to eliminate the letters, where appropriate; this should result in reducing FAA involvement. By the end of 2016, FAA had implemented the scorecard across all ODAs that have design approval authorization.

According to FAA officials, they chartered an ODA Scorecard Continuous Improvement Team comprised of FAA and industry representatives to conduct analyses of the ODA scorecard data across each year, and to jointly consider recommendations and options for continually improving areas of the certification process.

AIR Is in the Process of a Major Transformation, Including an Organizational Realignment, to Improve Its Certification Process

Based on an update from FAA in March 2017, AIR has initiated the AIR Transformation, envisioned as a holistic approach to creating a certification process that is more responsive to stakeholder expectations and changes in the environment and that increases efficiency and effectiveness. AIR plans that this transformation concept will include the 14 certification process initiatives discussed above, as well as take into account a variety of other sources affecting this process—such as previous GAO work, congressional hearings, industry and market drivers of change, and international commitments. According to FAA, the transformation seeks to focus AIR's contributions to safety in ways that will be more effective for achieving safety improvements, such as supporting industry's innovation by engaging companies early to understand new concepts and ensure a viable path to compliance. FAA expects benefits from the transformation to include a more agile and adaptable AIR organization as well as a streamlined certification process and improvements to consistency in how the process is carried out.

According to FAA's plans, the key enabler of the reorganization is the organizational realignment and it will initially involve AIR shifting from its product-based structure to one that is functionally aligned. For example, the current directorates (e.g., small airplane, rotorcraft) will be replaced by five functional divisions (see fig. 1). Three of the divisions—policy and innovation, compliance and airworthiness, and system oversight—will perform essential regulatory functions. Two other divisions— organizational performance and enterprise operations—will provide strategic leadership for planning and change management and core services to the organization, respectively. Specifically, the organizational performance division will be tasked with establishing practices for

monitoring and managing the performance of AIR. AIR plans to complete the realignment process in calendar year 2017. In March 2017, AIR published its AIR Blueprint that outlined the strategic vision for the AIR transformation and included 8 vision elements, and which was reviewed by industry in draft. AIR has begun working with industry in developing a Comprehensive Strategic Plan (the what). Also, AIR has begun working with industry in developing a *Comprehensive Strategic Plan* for the entire transformation. Industry participants are co-leading 4 of the 8 elements to further develop what is needed to be achieved for each of those vision elements. AIR officials told us that until the strategic plan has been completed, they cannot estimate when the transformation will be expected to be completed. They noted that the strategic plan will allow them to determine the needed implementation steps (the how) and time frames, which they intend to document in an implementation plan.

Figure 1: Proposed Realignment of the Federal Aviation Administration's (FAA) Aircraft Certification Service (AIR)

Source: FAA. | GAO-17-508T

[a]Chief Scientific and Technical Advisors. This program consists of a cadre of specialized technical experts involved in certification, research & development, education & training, and technical advising.
[b]Continued operational safety (COS). COS processes refer to oversight of the people and products already operating within the national airspace system.
[c]Information technology.

As part of the transformation, FAA, in conjunction with industry, has also revised and updated the Certification Process Improvement guide, which would be the first revision since 2004. The updated guide will contain a description of the purpose and vision of the certification process and also includes an overview of the phases for product certification. The revised guide will also include the ODA Program, including the roles related to expanded delegation authority from FAA to ODA holders. According to FAA, this tool will help to improve the efficiency and effectiveness of the product certification process by establishing a clear, up-front understanding of the needs and expectations of all parties involved in the product certification process. The revised guide is currently out for comment.

The three aviation industry groups we contacted recently to discuss FAA's progress in implementing the certification process initiatives recognized FAA's success in completing the bulk of the initiatives, and in general, its efforts to remain transparent while doing so. However, one group was concerned that "completion" meant that a task had been completed, not necessarily that the actions taken to complete the initiative produced observable benefits to FAA or industry. For instance, even though FAA developed its roadmap for the change initiatives, it is difficult to determine what has been achieved and whether or not the initiatives are efficient and effective. However, FAA officials said the AIR realignment and transformation efforts will help address these concerns. For instance, the AIR organizational performance division was put in place last year and will monitor and assess the overall internal health of AIR and provide strategic leadership for planning and change management—including implementation of the certification process initiatives—within the organization. Regarding the AIR transformation, the groups had mixed reactions. Two groups were generally supportive, but cautiously skeptical, of the forthcoming functional organizational structure. One group was concerned that it would spread responsibility and accountability across newly-created function offices, which they said could present challenges for companies to resolve certification problems with FAA when they arise. This group was also concerned that there was little industry engagement before the plan for the transformation was unveiled. However, FAA officials told us they had been engaging with industry all along on AIR Transformation and a potential reorganization of AIR. FAA officials also noted that the new organizational structure is changing the reporting hierarchy, and allowing AIR to provide more consistent responses to companies during the certification process. In addition, they said companies would maintain the same points of contact for undergoing certification of their aviation products.

FAA Has Made Progress in Addressing the Remaining Recommendations to Improve the Consistency of Its Regulatory Interpretations

In 2012, the Regulatory Consistency Committee made six recommendations to address issues it had found related to FAA's consistency in interpreting and applying its regulations when making decisions during certification regarding compliance with these regulations. As of March 2017, FAA has made progress in addressing these recommendations. FAA's Flight Standards Service (AFS) has been primarily responsible for addressing them. As you know, AFS issues certificates and approvals allowing individuals and entities to operate in the national airspace system. Based on our previous work[15] and an update that FAA provided to us in March 2017, FAA has completed efforts to address two of the six recommendations, has efforts underway to address three, and is not planning to implement one, as discussed below:

Completed FAA Efforts

- **Clarity of final rules**. The Regulatory Consistency Committee had recommended that FAA ensure that each final rule includes a comprehensive explanation of the rule's purpose and how it will increase safety. In response, FAA implemented a rulemaking prioritization process and tool in 2013. FAA officials told us in 2015 that they considered this recommendation addressed through those efforts as well as other process elements already in place to ensure clarity in final rules.

- **FAA and Industry Training Priorities and Curriculums.** The Regulatory Committee had recommended that FAA, in consultation with industry stakeholders, review and revise its regulatory training for applicable agency personnel and make the curriculum available to industry. According to an update provided to us by FAA in March 2017, it had addressed this recommendation through a number of course requirement and programmatic changes made by AFS and AIR that will enable them to continually evaluate, improve, and align course content with workforce needs. Specifically, over the past 2 years, they have created a more agile course development and management system by introducing new course development and revision request procedures, adding needs analyses requirements, and expanding course offering assessments. FAA also reported that it had received concurrence from the committee members on July 1, 2015 that this recommendation was addressed.

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[15]GAO-15-550T.

Ongoing FAA Efforts	• **Master Source Guidance System**. The Regulatory Consistency Committee had recommended that FAA develop a master system that would consolidate rules and guidance to improve access to them by FAA and industry users. In response, FAA is developing the Dynamic Regulatory System (DRS), an electronic platform that will allow users to search the content of various sources—such as the Code of Federal Regulations and FAA's internal systems dealing with regulations and guidance, FAA legal interpretations, and exemptions, through a single interface. The DRS is currently being tested by internal and external stakeholders, including the Aeronautical Repair Station Association and the General Aviation Manufacturers Association. FAA plans to roll it out in phases with an initial roll out to internal users to be completed by the end fiscal year 2018. The rollout for external users has not yet been determined.

• **Develop instructions for FAA personnel with policy development responsibilities.** The Regulatory Consistency Committee had recommended that FAA ensure consistency in the interpretation and application of regulations by developing a standardized method for developing policy and guidance documents based on them. In response, in January 2016, FAA issued an order on guidance document development.[16] This order outlines the role and correct usage of guidance documents within a regulatory schema. According to FAA, the Regulatory Consistency Committee members concurred that the order was responsive to the recommendation.

• **Regulatory Consistency Communications Board (RCCB).** The Regulatory Consistency Committee had recommended that FAA establish such a board comprising various FAA representatives that would provide clarification on questions from FAA and industry stakeholders on the application of regulations. The RCCB consists of a chair, liaison, and points of contact—who are staff from each AFS and AIR policy office, each Aircraft Evaluation Group, and the Regulations Division. The RCCB also includes subject matter experts to support resolution of the issues. The RCCB process was introduced with an initial submission of 12 issues in 2015 for the RCCB to consider. The RCCB has addressed all but one of the

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[16]FAA Order 8000.96, *Flight Standards Service Guidance Document Development*, January 2016.

issues. FAA expects the RCCB process to complement other issue resolution mechanisms, such as the Consistency and Standardization Initiative,[17] and the RCCB does not replace this internal process or other issue-resolution processes available to internal and external stakeholders. FAA finalized an order establishing the RCCB on March 9, 2017.[18]

Not Implemented

- **Regulatory Operations Communication Center.** The Regulatory Consistency Committee had recommended that FAA determine the feasibility of establishing a full-time Regulatory Operations Communication Center as a centralized support center to provide real-time guidance to FAA personnel and industry certificate and approval holders and applicants. Based on an update from FAA in March 2017, FAA chose not to address this recommendation because, according to FAA officials, the agency has addressed the intent of this recommendation with its plan to establish the RCCB, as described above.

FAA Has Taken Steps to Address Challenges to Implementaton of the Committees' Recommendations

While FAA has continued to make progress in addressing the committees' recommendations, it is still too soon for us to determine whether the recommendations have been adequately addressed. Challenges that could affect the successful implementation of FAA's planned actions remain, and FAA has taken steps to address them. Industry stakeholders we interviewed remained concerned about FAA's ability to measure the benefits and effectiveness of the actions being taken as a whole. Though most of the initiatives have been noted as completed by FAA, stakeholders raised concerns that completion, in many cases, means that a document or process was completed and not whether the outcome of its efforts will successfully address the committees' recommendations. FAA officials acknowledged that there are challenges ahead that could affect the successful outcomes of its planned actions, but said they had begun to put measures in place to monitor potential outcomes. FAA's implementation plans for addressing the

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[17]The FAA Office of Aviation Safety implemented the Consistency and Standardization Initiative in 2004 to provide industry stakeholders with a mechanism for appealing certification and other decisions. For more information, see GAO-11-14.

[18]FAA Order 8000.70, *Regulatory Consistency Communication Board (RCCB)*, March 2017. FAA indicated on March 20, 2017 that this order had been signed by FAA's Aviation Safety Organization, which houses AFS and AIR, but that permission to post it on the FAA website had not yet been granted.

recommendations include "measures of effectiveness" for most of the initiatives, and according to FAA, will to be used for measuring the outcomes of FAA's efforts. Also, to its credit, FAA has been more active in communicating its work on these initiatives. FAA has held regular meetings with industry representatives and has kept the committees' members apprised of their accomplishments.

In our July 2014 statement, we noted that for organizational transformations, implementing large-scale change management initiatives—like those the committees tasked FAA with—are not simple endeavors and require the concentrated efforts of both leadership and employees to realize intended synergies and accomplish new organizational goals.[19] The best approach for these types of initiatives depends upon a variety of factors specific to each context, but there has been some general agreement on a number of key practices that have consistently been found at the center of successful change management initiatives. These include, among other things, securing organizational support at all levels, developing clear principles and priorities to help change the culture, communicating frequently with partners, and setting performance measures to evaluate progress. Based on our prior work and updates from FAA in March 2017, FAA has taken some necessary steps to address these additional challenges to successfully implementing the committees' recommendations.

- **Organizational support**. We have previously found that successful organizational transformations and cultural changes require several years of focused attention from the agency's senior leadership.[20] Top leadership's clear and personal involvement in the transformation represents stability for both the organization's employees and its external partners. According to one stakeholder group we interviewed in March 2017 and updates from FAA, it is clear that FAA's senior leadership has been focused on the transformations and cultural changes emanating from the certification process and regulatory consistency initiatives.

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[19]GAO-14-728T.

[20]GAO, *National Airspace System: Transformation Will Require Cultural Change, Balanced Funding Priorities, and Use of All Available Management Tools*, GAO-06-154 (Washington, D.C.: Oct. 14, 2005).

- **Commitment to cultural change**. We previously found that FAA's organizational culture was a primary challenge for successfully implementing the initiatives and cultural shifts were necessary for FAA staff in how regulations, policy, and guidance are applied, and ultimately how certification and approval decisions are made. AIR established the organizational performance division with dedicated staff to facilitate change management and the cultural shift. In March 2017, FAA officials emphasized that for the AIR transformation to succeed, industry has to forgo past perceptions about negative experiences with FAA inspectors and engineers on certification issues. They told us that success of the transformation will depend, in part, on industry's buy-in, engagement, and recognition that they are a key part of the cultural shift. FAA officials emphasized that for the AIR transformation to succeed industry also has to commit to change. However, FAA and industry must hold themselves accountable to building a compliance culture within their organizations and to engage in constructive dialogue to resolve issues at the lowest level possible.

- **Communication with stakeholders**. We have previously found that successful agencies we have studied based their strategic planning, to a large extent, on the interests and expectations of their stakeholders, and that stakeholder involvement is important to ensure agencies' efforts and resources are targeted at the highest priorities.[21] In March 2017, industry representatives we spoke to indicated that communication has been a higher priority for FAA as it has kept the industry and committees apprised of the progress of its initiatives. According to FAA officials, they have conducted numerous briefings to industry stakeholders on the status of the certification process initiatives and the realignment/transformation, as well as to congressional committees and subcommittees.

- **Setting performance measures**. We found in 2014 that FAA had not fully developed performance metrics to ensure the initiatives are achieving their intended outcomes. For this statement, we observed that AIR and AFS are developing such outcome-based performance measures. For instance, AIR has consulted a report by a leading expert in organizational performance metrics—as we suggested to

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[21]GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington, D.C.: June 1, 1996).

them. The officials told us that the realignment and transformation efforts are an opportunity for AIR to incorporate outcome-based performance measures intended to better align resources, address industry needs, and ensure staff accountability and consistency for decisions being made across the group functions. The organizational performance division is to monitor and assess the operational performance of AIR to ensure continuous improvement within the organization. As we have noted since 2014, it is critically important that FAA develop outcome-based performance measures to determine what is actually being achieved through the current and future initiatives.

FAA Has Taken Additional Steps to Address Challenges U.S. Companies Face Obtaining Foreign Approvals of Their Aviation Products

As counterparts to FAA, other countries' foreign civil aviation authorities (FCAA) approve U.S.-manufactured aviation products for use in their respective countries. These approvals (known as "validation") are typically conducted within the parameters of bilateral aviation safety agreements (BASA), which are negotiated between FAA and other FCAAs. As we testified in April 2015, some countries accept the FAA approval outright as evidence that the product is safe for use in their country.[22] Some countries, however, do not accept the FAA certification and conduct their own approval processes for U.S. products, which can be lengthy, according to some U.S. industry stakeholders. Specifically, at that time, we identified several challenges related to FCAAs' approval processes that selected aviation companies had reported to us. These challenges included (1) the length of and uncertainty about some FCAA approval processes, (2) the lack of specificity and flexibility in some of the BASAs negotiated between FAA and FCAAs, (3) difficulty with or lack of FCAA communications, and (4) high fees charged by some FCAAs.

We testified in April 2015 that FAA had taken some actions to address these challenges. Since we last testified, FAA has taken further actions to address them. Most notably, FAA has worked with the FCAA for the European Union, the European Aviation Safety Agency (EASA), to improve the process for EASA approval of U.S. aviation products. One key outcome of this effort was the development of a "roadmap" for improving the validation process. This roadmap, which was approved in February 2016, aims to reduce the time and costs of EASA approval of U.S. aviation products by 20 percent compared to a 2011 agreement

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[22]GAO-15-550T.

under the BASA. The roadmap includes a number of initiatives, including the release of the revised implementation procedures that are planned for completion in April 2017, and extend through the 2022 timeframe established by the roadmap. According to FAA, changes completed to date have already eliminated approval and associated fees for all approved aircraft parts and reduced the approval time for simple low-risk modifications of product design from weeks to days.

Based on an update from FAA in March 2017, the agency plans to use this roadmap as a template for working with other countries on these issues. FAA is planning to work with Canada and Brazil to reduce validation approval time, and is working with other partners to incorporate a risk-based approach to validation into BASAs to promote streamlined validation of approvals. FAA is also engaging with the International Civil Aviation Organization[23] on specific validation initiatives to gain global recognition of its best practices. One industry group that we recently spoke to indicated that FAA should focus its efforts on countries with less mature civil aviation authorities, and ensure that FAA resources are spent on high-risk and new technology and innovative products.

FAA provides assistance to U.S. companies by facilitating the application process for foreign approvals of aviation products. In April 2015, we also testified on several challenges related to FAA's role in this process that selected aviation companies had reported to us. These challenges involved (1) FAA's process for facilitating validation approval applications, which sometimes delayed the submission of applications to FCAAs; (2) limited availability of FAA staff for facilitating approval of applications; and (3) lack of FAA staff expertise in issues unique to foreign approvals, such as intellectual property concerns and export control laws. We testified that FAA's efforts to increase the efficiency of its foreign approval process could help address reported challenges related to FAA's process and its limited staff and financial resources. Since that time, FAA has made further progress in addressing these types of challenges. Specifically, in

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[23]ICAO was formed following the 1944 Convention on International Civil Aviation, and in 1947 it became a specialized agency of the United Nations. A primary objective of ICAO is to provide for the safe, orderly, and efficient development of international civil aviation. There are currently 191 signatory nations to the Chicago convention, including the United States. ICAO members, including the United States, are not legally bound to act in accordance with ICAO standards and recommended practices. Nations that are signatories to the Chicago convention, however, agree to cooperate with other member countries to meet standardized international aviation measures.

September 15, 2015, FAA signed agreements with EASA and Transport Canada Civil Aviation (Canada's FCAA), that allow the authorities to rely on each other's regulatory systems to approve products. The new safety agreements allow reciprocal acceptance of the majority of Technical Standard Order (TSO)-approved articles. According to FAA, this change benefits the U.S., Canadian, and European aerospace industries by eliminating fees and time required to get the other authorities' approval. FAA has also continued efforts to improve the robustness of its data on foreign approvals, to further improve the efficiency of its process for supporting these approvals. FAA officials reported in March 2017 that they have established basic performance metrics, such as acknowledging receipt of validation applications and identifying missing information within a specific time period.

We plan to continue to monitor FAA's progress, highlight the key challenges that remain, and identify potential steps that FAA and industry can take to find a way forward on the issues covered in this statement as well as other issues facing the industry. Some initiatives will likely take years to implement and, therefore, will require FAA's sustained commitment as well as congressional oversight.

Chairman Blunt, Ranking Member Cantwell, and Members of the Subcommittee, this concludes my prepared remarks. I would be happy to answer any questions you or other members of the Subcommittee may have.

GAO Contact and Staff Acknowledgments

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