

Why GAO Did This Study

The Federal Aviation Administration (FAA) is developing and implementing a broad transformation of the national airspace system known as the Next Generation Air Transportation System (NextGen). NextGen is a complex undertaking that requires new technologies and supporting infrastructure and involves the activities of several agencies as well as private industry.

This report provides information on the effectiveness of (1) FAA's and the federal partner agencies' mechanisms for collaborating and leveraging resources to develop and implement NextGen, and (2) FAA's mechanisms for working with and transferring technology to or from private industry. To do this, we assessed FAA and partner agency mechanisms against applicable agreements, the agencies' own guidance for these activities, as well as applicable key practices that GAO has reported can enhance federal collaborative efforts.

What GAO Recommends

GAO recommends that FAA and the Departments of Defense (DOD) and Homeland Security (DHS) work together to develop mechanisms that will enhance collaboration and technology transfer between the agencies. GAO and others have outstanding recommendations related to interaction with industry that FAA has begun to address and GAO makes no further recommendations in this report. DOD and DHS concurred with the recommendation, while FAA did not comment on whether or not it agreed.

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NEXTGEN AIR TRANSPORTATION SYSTEM

Mechanisms for Collaboration and Technology Transfer Could Be Further Enhanced to More Fully Leverage Partner Agency and Industry Resources

What GAO Found

Some mechanisms for FAA and partner agency collaboration are effective, though others fail to ensure research and technology from the partner agencies and industry are fully used by FAA. Some mechanisms used by FAA and the National Aeronautics and Space Administration (NASA) for coordinating research and transferring technology are consistent with several key practices in interagency coordination. For instance, FAA and NASA use research transition teams to coordinate research and transfer technologies from NASA to FAA. The design of these teams is consistent with several key practices GAO has identified in previous work that can enhance interagency coordination, such as identifying common outcomes, establishing a joint strategy to achieve that outcome, and defining each agency's role and responsibilities. This allows the agencies to overcome differences in mission, culture, and ways of doing business. However mechanisms for collaborating with other partner agencies do not always ensure that FAA effectively leverages agency resources. For example, the mechanisms used by FAA, DOD, and DHS have not yet resulted in a full determination of what research, technology, or expertise FAA can leverage to benefit NextGen. Further, collaboration between FAA, DOD, and DHS may be limited by differing priorities. Finally, FAA and the Joint Planning and Development Office—an interagency organization created to plan and coordinate research for NextGen—have not fully coordinated the partner agencies' research efforts, though they are working to address research gaps. A lack of coordination could result in a duplication of research or an inefficient use of resources.

Numerous mechanisms are available to FAA to collaborate with industry to identify and transfer technology to advance NextGen, but some lack flexibility and outcomes can be unclear. Within its Acquisition Management System (AMS), FAA may use several mechanisms at various stages to conduct outreach, collaborate with private-sector firms, or transfer technology. In particular, FAA may use several types of research and development agreements between itself and the private sector as mechanisms to facilitate technology transfer. However, stakeholders said that the system can lack flexibility, in some circumstances, to consider alternative technologies or new ideas once the process is underway. GAO has made recommendations in the past to improve FAA's AMS system. FAA has begun to implement these recommendations. FAA is beginning to use a new, possibly more flexible, contracting vehicle—Systems Engineering 2020—to acquire the research, development, and systems engineering support to integrate NextGen concepts. FAA also reviews unsolicited proposals as a mechanism for private industry to offer unique ideas or approaches outside of the competitive procurement process. However, FAA's unsolicited proposal process is not a significant source of new technology for FAA. Other mechanisms such as outreach events with private industry and NextGen test facilities might enhance knowledge and result in technology transfer, but outcomes, such as specific benefits, from some of these mechanisms can be unclear.