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INFORMATION TECHNOLOGY

Architecture Needed to Guide NASA's Financial Management Modernization

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Highlights

Highlights of GAO-04-43, a report to congressional committees

Why GAO Did This Study

The National Aeronautics and Space Administration (NASA) is in the process of modernizing its financial management operations and supporting information technology systems. This modernization, known as the Integrated Financial Management Program (IFMP), is intended to provide NASA with an agencywide, integrated approach to performing critical business functions, such as contract management—an area that GAO first designated as high risk in 1990 and continues to do so today. GAO was requested to review various aspects of IFMP, and this report is one in a series on the program. The objective of this review was to determine whether NASA has been acquiring and implementing IFMP in the context of an enterprise architecture.

What GAO Recommends

GAO is making recommendations to the NASA Administrator for establishing an effective enterprise architecture management capability, ensuring the completeness of future releases of NASA's enterprise architecture, and minimizing its exposure to risk on IFMP caused by system component acquisition and implementation efforts that have proceeded to date in the absence of an enterprise architecture. NASA concurred with GAO's recommendations and described completed, ongoing, and planned actions to address them.

www.gao.gov/cgi-bin/getrpt?GAO-04-43.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Randolph C. Hite at (202) 512-3439 or hiter@gao.gov.

What GAO Found

To date, NASA has acquired and implemented significant components of IFMP without an enterprise architecture to guide and constrain the program. An enterprise architecture is an organizational blueprint that defines—in both business and technology terms—how an organization operates today and how it intends to operate in the future; it also provides a plan for transitioning to this future state. Using an enterprise architecture to guide and constrain systems modernization programs is a federal requirement and a recognized best practice of successful public and private organizations. In addition, GAO's research has shown that attempting major modernization programs such as IFMP without a well-defined enterprise architecture risks, among other things, building systems that are duplicative, are not interoperable, and do not effectively and efficiently support mission operations and performance.

During the course of GAO's work, NASA recognized the need for an enterprise architecture and has taken steps to develop one. For example, it has established an architecture program office, designated a chief architect, and selected an architecture framework to use. In addition, after GAO completed its audit work, NASA released an initial version of an enterprise architecture, which the chief technology officer stated was not yet complete and would be improved upon in future versions. However, the agency has yet to establish other key architecture management capabilities, such as designating an accountable corporate entity to lead the architecture effort, having an approved policy for developing and maintaining the architecture, and implementing an independent verification and validation function to provide needed assurance that architecture products and architecture management processes are effective. Moreover, the architecture products used to date to manage NASA's investment in IFMP did not provide sufficient context (depth and scope of agencywide operational and technical requirements) to effectively guide and constrain the program.

The chief technology officer agreed that NASA needs an effective enterprise architecture program and stated that efforts are under way to establish one. GAO's experience in reviewing other agencies has shown that not having an effective enterprise architecture program can be attributed to, among other things, an absence of senior management understanding and support, as well as cultural resistance.

NASA's current approach to acquiring and implementing IFMP outside the context of an architecture unnecessarily increases the risk that the program's system components will not effectively and efficiently support agencywide operations. The result will be costly system rework. It is critical for NASA to discontinue this approach and adopt the best practice of managing its IFMP system investments within the context of a well-defined enterprise architecture.