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The FBI's Trilogy Information Technology Modernization Program—*Summary*

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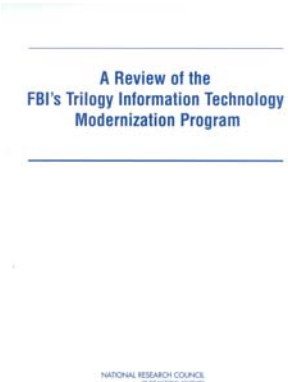
Background



The Federal Bureau of Investigation (FBI) is in the process of developing a modern information technology (IT) system—the Trilogy program— that is designed to provide a high-speed network, modern workstations and software, and an application—the Virtual Case File (VCF)—to enhance the ability of agents to organize, access, and analyze information. Implementation of this system has encountered substantial difficulties, however, and has been the subject of much investigation and congressional concern. To help address these problems, the FBI asked the National Research Council (NRC) to undertake a quick review of the program and the progress that has been made to date. Thus, the NRC committee probed selected IT programs of the FBI, based primarily on FBI briefings to the committee in October and December 2003.

Findings

The Situation Today. The FBI is undergoing a significant expansion of its responsibilities as a result of the nation's increased emphasis on counterterrorism. It has been given a major counterterrorist mission to go along with its important criminal investigation mission. The FBI recognizes that its success will depend heavily on a greatly expanded role for IT. Given the complexity of its traditional and new activities, however, the FBI has found introduction of new IT technologies to be very challenging.

Information technology's inherent capabilities must be fully exploited efforts if the FBI is to use IT to help meet its operational needs. At this point, however, the FBI is not on a path to success in doing so. An issue of immediate and urgent concern is that the impending rollout of the VCF is being planned without a validated contingency plan for reverting completely or partially to the existing automated case support (ACS) system. In the absence of such a plan, the FBI runs a very high risk that its planned "flash cutover" from the old ACS system to the VCF will cause mission-disruptive failures and further delays. In addition, significant issues in four areas remain: enterprise architecture, system design, management, and human resources.

Enterprise Architecture. The most significant concern is that the FBI's technology efforts do not appear to be driven in a coherent manner by a strategic view of its mission and operational

needs. The highest priority to address this problem is to formulate an enterprise architecture incorporating a detailed characterization of the Bureau's goals, tasks, and strategies. The FBI's efforts to do so, however, are late, limited, and far short of what is needed. Senior FBI leadership has been too far removed from this effort. Only it can establish the key policies and set the priorities that must be part of the design.

System Design. The VCF application, which is the first of the Trilogy project, has many positive attributes and should significantly enhance the information management capabilities of FBI agents. Nevertheless, there are many concerns about it. For example, the VCF was designed to support the FBI's investigative function. The recently added intelligence mission has significantly different IT requirements and the VCF should not be used as the platform to build those capabilities. An entirely new architecture is needed for this counterterrorism mission. Also, the current approach for VCF implementation does not allow for adequate testing and is highly risky.

Another application, the Integrated Data Warehouse (IDW), also suffers from a lack of serious consideration about how data is used by the different operations within the FBI. In particular it is designed to hold only the most recent copy of data. While appropriate for investigative functions, this feature might not be for intelligence operations.

Management. The FBI does not appear to use prototypes in its application development process. Because all requirements and specifications of an application cannot be anticipated in advance, the FBI should change to an approach of extensive prototype development and usability testing with actual users. Such a process will increase the chances the ultimate system will meet users needs.

Current FBI contract and program management for this project are inadequate. This problem is exacerbated by frequent staff turnover. In addition, the FBI appears to be too dependent on outside contractors for essential tasks. Senior FBI management should be defining the key elements and making the major tradeoffs for the project.

Human Resources and External Constraints. The FBI does not have the human resource and skill base to carry out adequately with this project. It does, however, have the authority to hire such personnel at adequate salaries or to borrow them from other agencies. The hiring of an acting chief information officer is a positive step in this direction. The FBI also operates under a number of external constraints that limit its flexibility, such as a requirement for congressional approval for reprogramming amounts of more than $500,000.

Recommendations

First and most critical, in light of the impending rollout of the virtual case file (VCF) application, the FBI should not proceed with deployment of the VCF until it has a validated contingency plan for reverting completely or partially to the automated case support (ACS) system, if necessary, together with clear and measurable criteria to determine when the ACS can safely be turned off.

Enterprise Architecture

- The FBI should establish a small team, consisting of senior operational managers, to develop the broad outlines of the enterprise architecture. The team should have direct access to the FBI Director and Deputy Director, and the creation of a complete enterprise architecture needs to be a top priority of the FBI's top leadership.
- Independent external review of the FBI's enterprise architecture by a panel of outside experts is necessary.

System Design and Planning

- The FBI should refrain from developing any application other than the VCF until a complete enterprise architecture is in place.
- The FBI should develop a process map for information sharing so that the numerous information sharing initiatives can be coordinated and properly monitored and managed.
- The FBI should immediately develop plans that address recovery of data and functionality in the event that essential technology services come under denial-of-service attacks (e.g., from viruses and pervasively replicated software bugs).

Program and Contract Management

- The FBI should allow adequate time for testing application procurements even if dates of initial operational capability are delayed.
- The FBI should premise procurement contracts on the development of prototypes before committing to large-scale development.
- The FBI should use proven methodologies of contracting and contract management.

Human Resources

- The FBI should develop its own expertise in IT and IT contract management as soon as possible.
- The FBI should permanently fill the positions of chief information officer and chief enterprise architect as quickly as possible.
- The FBI should develop an improved system of internal review of IT program progress, and communicate findings to key stakeholders.

Conclusion

In some areas in its IT effort, the FBI has made significant progress, although it still has a long way to go. The FBI's IT infrastructure was rather inadequate in the past and, while some of the progress is encouraging with useful results within reach, a major effort is needed for the Bureau to become an effective user of information technology. The recommendations above can

greatly increase the likelihood of success for the Trilogy program, but only if FBI senior management is truly committed to that success.

For additional information;

Copies of *The FBI's Trilogy Information Technology Modernization Program* are available from the National Academies Press; call (800) 624-6242 or (202) 334-3314 (in the Washington metropolitan area), or visit the NAP Web site at

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