



ELECTIONS

Electronic Voting Offers Opportunities and Presents Challenges

Highlights of [GAO-04-766T](#), a testimony before the Subcommittee on Technology, Information Policy, Intergovernmental Relations and the Census, Committee on Government Reform, House of Representatives

Why GAO Did This Study

The technology used to cast and count votes is one aspect of the multifaceted U.S. election process. GAO examined voting technology, among other things, in a series of reports that it issued in 2001 following the problems encountered in the 2000 election. In October 2002, the Congress enacted the Help America Vote Act, which, among other things, established the Election Assistance Commission (EAC) to assist in the administration of federal elections. The act also established a program to provide funds to states to replace older punch card and lever machine voting equipment. As this older voting equipment has been replaced with newer electronic voting systems over the last 2 years, concerns have been raised about the vulnerabilities associated with certain electronic voting systems.

Among other things, GAO's testimony focuses on attributes on which electronic voting systems can be assessed, as well as design and implementation factors affecting their performance. GAO also describes the immediate and longer term challenges confronting local jurisdictions in using any type of voting equipment, particularly electronic voting systems.

www.gao.gov/cgi-bin/getrpt?GAO-04-766T.

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

An electronic voting system, like other automated information systems, can be judged on several bases, including how well its design provides for security, accuracy, ease of use, and efficiency, as well as its cost. For example, direct recording electronic systems offer advantages in ease of use because they can have features that accommodate voters with various disabilities, and they protect against common voter errors, such as overvoting (voting for more candidates than is permissible); a disadvantage of such systems is their capital cost and frequent lack of an independent paper audit trail. Advantages of optical scan voting equipment (another type of electronic voting system) include capital cost and the enhanced security associated with having a paper audit trail; disadvantages include lower ease of use, such as their limited ability to accommodate voters with disabilities.

One important determinant of voting system performance is how it is designed and developed, including the testing that determines whether the developed system performs as designed. In the design and development process, a critical factor is the quality of the specified system requirements as embodied in applicable standards or guidance. For voting technology, these voluntary standards have historically been problematic; the EAC has now been given responsibility for voting system guidelines, and it intends to update them. The EAC also intends to strengthen the process for testing voting system hardware and software. A second determinant of performance is how the system is implemented. In implementing a system, it is critical to have people with the requisite knowledge and skills to operate it according to well-defined and understood processes. The EAC also intends to focus on these people and process factors in its role of assisting in the administration of elections.

In the upcoming 2004 national election and beyond, the challenges confronting local jurisdictions in using electronic voting systems are similar to those facing any technology user. These challenges include both immediate and more long term challenges, as shown in the table.

Challenges in Using Electronic Voting Systems	
Time frame	Challenge
Near term	<ul style="list-style-type: none"> Performing those security, testing, and maintenance activities needed to adequately ensure that the system operates as intended. Managing the system, the people who interact with the system, and the processes that govern this interaction as interrelated and interdependent parts.
Long term	<ul style="list-style-type: none"> Having reliable measures and objective data to know whether the system is meeting the needs of the user community (both voters and those who administer the elections). Making choices about future system changes in light of whether a given system will provide benefits over its useful life that are commensurate with life cycle costs, and ensuring that these costs are affordable.

Source: GAO.