

AUDIT TRAIL WITH DIRECT ELECTRONIC SYSTEMS IS FOCUS OF CONTROVERSY AND INNOVATIONS

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The Help America Vote Act provides (Sec. 301), (2) (B)(i) that "The voting system shall produce a permanent paper record with a manual audit capacity for such system." What that audit capacity is for direct recording electronic (DRE) voting devices, however, has been the focal point of much controversy around the country. Nowhere has the argument been more heated than in California.

Reacting to a dispute in Santa Clara County that delayed that county's purchase of a voting system, California's Secretary of State Kevin Shelley named and convened an Ad Hoc Touch Screen Task Force composed of election officials and computer scientists to investigate and offer recommendations relating to the internal production of paper ballots by new electronic voting systems that could be used in the event of a recount.

Shelley said, "Voter confidence -- not technology -- will ultimately determine the future of our electoral system."

David L. Dill, a computer scientist at Stanford University is organizing support among computer scientists for a "Resolution on Electronic Voting," asserting it is crucial that voting equipment provide a voter-verifiable audit trail -- a permanent record of each vote that can be checked for accuracy by the voter before the vote is submitted.

Rebecca T. Mercuri, a computer science professor at Bryn Mawr, has written several articles on this topic. Mercuri, who disputes the effectiveness of current audits, favors a paper trail that provides the voter with a way of validating the vote. Mercuri's article "Security Watch on Auditing Audit Trails," published in the January issue of Communications of the ACM as well as several other of her articles related to this topic are available on the web at www.notablessoftware.com.

When a paper ballot is made available to the voter as part of the direct recording electronic (DRE) voting process there are many potential complications for election administration. Former Ohio election official Chris Wilson writes: "There is much merit in having a system with a verifiable paper ballot. But how you do it is not easy."

In an article on this process published on his web site Wilson identified several potential complications -- the potential for printer breakdowns, voter privacy, ballot security at the polls, ballot security in transfer and storage, methods of counting the paper ballots, and resolutions of conflict in the results between manually counted paper ballots and the electronic count. See: www.votingindustry.com.

Doug Lewis, Executive Director of the Election Center, has provided election officials with a five-page defense of paperless DRE voting. This may be found at the Election Center site: www.electioncenter.org. Computer scientist David Jefferson, a member of the California Secretary of State's Task Force, in a paragraph-by-paragraph commentary on Lewis' paper argues that there are much more serious threats to the integrity of DREs than Lewis acknowledges. For Jefferson's commentary see: <http://verify.stanford.edu/EVOTE/ECresponse.doc>.

Meanwhile, inventors and voting machine companies are developing new technology, or new variations on old technology, to meet HAVA requirements, accommodate the needs of election officials, and satisfy the objections of skeptical computer professionals. Two new approaches involve using touch screens as "pencils" -- devices for marking a ballot. The touch screen unit in these systems is for ease of making choices, but is not a voting device and does not record anything.

In a system developed by Vogue Election Products of Glen Ellyn of Illinois, the voter makes choices on the touch screen but utilizes a ballot that looks like a current optical scan ballot. After the voter completes making choices on the touch screen the ballot is marked automatically, and counted automatically as in an optical scan voting system.

Another offered by the Populex Corporation of Carpentersville, Illinois also allows the voter to use a touch screen only to make choices which are then reproduced in the form of bar codes on a ballot card. The voter is able to privately verify the choices made by placing the card under a reader at the polling place before depositing it in the ballot box. In both situations, the actual ballot exists only in a paper or card form, not in the memory of the touch screen unit.

Lever voting machines may also qualify for use by blind or otherwise disabled voters without assistance. The Voting Machine Service Center of Gerry, New York has developed an option soon to be available that will allow a blind voter to vote unassisted on a lever voting machine by use of bar codes, laser technology and headphones. Moreover, a sample ballot can be read by a blind person, reducing the time required in the voting booth.

Whatever impact they have on the voting process, the HAVA bill mandates appear to be sparking creative solutions for improving and expanding voting options not only for the disabled, but for all voters. ■