

Voters trust touch-screen machines, studies show

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March 26, 2008 (Computerworld) Eight years after the "hanging chads" and other voting problems in Florida threw the 2000 presidential election into an uproar, U.S. voters have come to trust touch-screen electronic voting machines. In fact, they prefer them to paper-based optical scanning machines, according to new research on e-voting technologies.

A study by the Brookings Institution, a centrist think tank, found that voters were generally most comfortable with some models of touch-screen machines, often called direct recording electronic (DRE) machines, when compared with paper ballots and machines using buttons and dials. The Brookings study has been published in a new book, [Voting Technology: The Not-So-Simple Act of Casting a Ballot](#) and is based on the input of 1,536 voters in Maryland, Michigan and New York.

A separate study, "Trends in American Trust in Voting Technology" ([download PDF](#)), conducted by independent IT consulting company InfoSentry Services Inc. in Raleigh, N.C., found that public trust in DREs is about the same as in 2004, when the group's annual studies began. Sixty-seven percent of the 1,000 respondents to the telephone survey this year trust DREs; 68% held that view four years ago.

The Brookings researchers tested five DRE systems and found that the error rate of the worst-performing machines could be 3% in a presidential race. In more-complex races, the rate at which voters voted for the wrong candidate was even higher.

"You might think, 'Hey, a 3% error rate, that's pretty good,'" said Paul Herrnson, a political science professor at the University of Maryland and lead author of the study. "But ... 3% is not good enough in an election, because it can change the outcome. This shows us quite clearly that there's room for improvement." The researchers tested DREs from five companies, including Premier Election Solutions Inc., Election Systems & Software Inc. and Hart InterCivic Inc.

In addition, voters appeared to approve of verification systems such as printouts that accompany some DREs -- even though the verification systems didn't significantly cut the error rate of DREs, often caused confusion and prompted voters to seek help from poll workers, according to the study. The research was conducted by political science and computer science professors from the University of Maryland, the University of Rochester in New York and the University of Michigan.

Some of the study's results were surprising, said co-author Richard Niemi, a political science professor at the University of Rochester. Niemi expected volunteer voters who took part in the research to favor paper ballots because they're familiar with them. Instead, the top-rated DREs got higher marks from voters based on ease of use and confidence that their votes would be recorded as cast. "I certainly expected ... that the paper ballot would be the standard by which everything else would be compared," Niemi said.

In addition to finding high levels of trust in DRE systems, the InfoSentry study found Americans less enthused about holding elections over the Internet, while their trust in mail-based voting is growing.

The study shows that voters are interested in both convenience and accuracy, said M. Glenn Newkirk, president of InfoSentry. "Actually, I was a little surprised that Internet voting actually declined [among respondents], because it's convenient," he said.

E-voting critics, however, argued that the studies only looked at convenience, usability and voter opinions regarding their trust levels. As a result, the research falls short of analyzing the actual reliability, trustworthiness and accuracy of e-voting systems.

Avi Rubin, a computer science professor at Johns Hopkins University in Baltimore and an e-voting activist,

said the studies are flawed because they study only voters beliefs and feelings, rather than hard facts. "The perceptions that people have are important, but it's not necessarily accurate," Rubin said. "You usually want to consult experts on whether things are trusted and not ask for people's opinions.

"I don't see the value in asking people if they trust something to determine whether it's accurate or not," he said.

Scientific studies in California and Ohio have concluded that there are security problems with some e-voting machines, he said. "If people in studies say they trust them, then it's just a matter that these [critical scientific] studies aren't getting enough publicity," Rubin said.

Pamela Smith, president of San Francisco-based group VerifiedVoting.org, agreed, saying that if voters "knew some of the risks ... they might have a different opinion. I think people's trust is one thing, but a lot of it has to do with how much they know, and that's my concern. We don't want people to have a lack of trust in their voting systems, but we want them to know about them and make their own decisions. The more they know, the more they'll want a verifiable system."

The problem with the Brookings research, she said, is that it can't be looked at without regard to security and accuracy issues. "If [any e-voting system] can't count the votes accurately, who cares?" she asked.

Brookings researcher Herrnsen said he's concerned with security, but he added that voting fraud has long been a problem in the U.S., no matter what kind of ballots are used. The paper ballot problems in Florida in 2000 didn't involve security issues, he added. "We chose not to study [security], because that wasn't the problem the United States faced in 2000," Herrnsen said. "The problem our country has faced is usability -- the problem of folks being able to cast their votes as intended."

Newkirk said he believes that much of the opposition of e-voting critics is based on anecdotes, not large trends. "If somebody comes in and says, 'Gee, I pressed this button, and I don't think it registered my vote right,' then all of a sudden, you think everyone who went in to vote that day had the same experience.

"The image that is seared in everybody's minds in the 2000 Florida election is that election worker with his glasses on his head looking at a punch-card ballot trying to determine a voter's intent" from the hanging chad on the card, Newkirk said. "Is that what we want to go back to?"

"It makes no difference whatsoever what technology you're using," he said. "Ultimately, it comes down to the people and the processes."

What's needed, he said, is continued innovation by e-voting system vendors and better processes to make the systems work better. "There is no mass uprising or crisis of confidence" in the systems, he said.

Decades ago, election officials moved to the then-new lever-based mechanical machines because people didn't trust paper ballots, which could be faked or manipulated, he said. "What I believe has occurred is that the focus on paper, the heavy push to have paper, has literally stifled election reform on the technological innovation side in the U.S. That's the real sad part of it, I think. What innovations can come out of it, what vendor is going to go out and sink a lot of money ... and do whatever is necessary to bring out a new voting system if it doesn't deal with paper?"

Representatives of e-voting machine manufacturers praised the Brookings study. Sequoia Voting Systems Inc.'s experience with voters mirrors the study's suggestion that they approve of DREs, said Michelle Shafer, the company's vice president for communications and external affairs. "When you speak with voters, by and large, they are comfortable with electronic voting, especially when they have been given a chance to use the equipment for several election cycles," she said. "Anytime change takes place, it must be accompanied with proper training in order to be successful."

Shafer also agreed that ballot design and usability are important. "Equipment manufacturers and election officials are constantly making improvements in this area and focusing more on training and education of poll workers and voters, in addition to continued enhancements to our voting equipment in these areas," she said.

DRE manufacturers have generally found lower error rates than the study suggests, added David Beirne, executive director of the Election Technology Council, a trade group. DREs also prevent voters from the common mistake of overvoting, he said.

The study's suggestion that voters are comfortable with DREs matches the manufacturers' expectations, he added. "The use of DREs during the voting process is more indicative of the way technology has entered everyone's daily lives, so the overall positive trend in the experience is expected," Beirne said.