Response to:

“American Attitudes about Electronic Voting” Survey
By Thad Hall and Michael Alvarez
http://www.vote.caltech.edu/Reports/fall04survey.pdf

And Advice for Utah’s Voting Equipment Selection

TO:
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Lt. Governor Gayle McKeachnie
Amy Naccarato, Utah State Election Office
Utah Procurement
Val Oveson, CIO of the State of Utah
New York Times re: “Electronic Voting Steps onto the National Stage” news (article Sept. 19)

FROM:
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Utah has the time to do the right thing and benefit from other states’ collective experience and research. Expert computer scientists should help to create specific criteria for all aspects of our voting systems. Utah can join multi-state open source development efforts and write a more specific RFP next spring that details the State’s real requirements, including a VVPB, and allow sufficient time for a thorough review, including outside experts, to ensure that Utah’s voting system is the most secure and trustworthy in America.

We are writing this letter because we are concerned by the interpretations presented in the “American Attitudes about Electronic Voting” Survey, co-authored by Professors Thad Hall and Michael Alvarez. Furthermore, the interpretations in the study can do significant harm because the State of Utah is in the process of purchasing new voting machines, and this study could
have a major impact on that decision. "Would they ask questions about the safety of a medical procedure of patients or of doctors?" asked Professor Avi Rubin of Johns Hopkins in a recent Computerworld interview. "They should ask computer security experts about computer security questions, not end users, who may like the look and feel of the machines but have no way of knowing if they are really secure."

In this letter, we have detailed some of our concerns and made our suggestions. We would be delighted to discuss any of the specifics with you.

Our Response to “American Attitudes about Electronic Voting” Survey

We feel that it is critical that voters have the opportunity to vote and that their votes be accurately counted. A voter-verifiable paper ballot is necessary to ensure the integrity of our elections.

The American Attitudes Survey’s executive summary states “If ... voters lack confidence in electronic voting systems ... the basic integrity of our democratic system could be in jeopardy.”

We concur. However, the integrity of voting systems is not determined solely by public perception. As much as we would like to believe that computerized systems are less prone to problems than their non-computerized counterparts, the Caltech-MIT Voting Technology project found that electronic voting machines’ rates of unmarked, uncounted, or spoiled ballots are among the highest rates of any voting technology. Hand-counted paper ballots and optically scanned paper have the lowest error rates.

Key findings of the “American Attitudes about Electronic Voting” survey are not substantiated by its own data. For example:

The American Attitudes Survey’s key finding #1 says “American registered voters are largely comfortable with the two predominant voting technologies: electronic and optical scan machines.” In the NY Times “Electronic Voting Steps onto the National Stage” (news article Sept. 19), this finding is further repeated: “Despite Concerns, Americans Are Comfortable with Electronic Voting” above a chart labeled “Which of the following ways to cast your vote are you most comfortable with?”

Unfortunately, the survey question upon which this statement and the chart are based is flawed. We believe that no such conclusions can be fairly drawn from the data.

The survey question asked by the American Attitudes Survey was:

“Regardless of whether or not you have voted in the past, which of the following ways to cast your vote are you most comfortable with? Electronically, like on new touchscreen machines, marking a paper ballot with a pen, by punchcards, or by some other method?”

First, Optical scan machines were not explicitly mentioned in the survey question and since optical scan ballots can be created either electronically or by marking a paper ballot with a pen,
people who prefer optical scan systems might have selected “new touch screen machines”, “marking a paper ballot with a pen”, or “some other method”. (E.g. Voters were not presented with an option that allowed for electronic optical scan technologies such as an electronic voting interface that generates an optically scan-able ballot or an optical scan vote that is scanned at the precinct level and reported electronically).

Second, no selection for “hand-counted paper ballots” was offered. Persons who prefer hand-counted paper ballots would most likely select “marking a paper ballot with a pen”, the same category that the authors attribute to “optical scan” machines.

Further, this survey question asks about “casting” votes, not about counting votes. While a voter might be comfortable casting their vote (purely) electronically, many of us would be extremely uncomfortable having our votes counted and reported purely electronically. A voter’s comfort voting with a particular technology does not imply that they are comfortable with their vote being counted with that same technology.

In addition, other survey data indicates that almost 40% more people agree than disagree with the statement that "Electronic voting systems increase the potential for fraud" AND almost twice as many agreed than disagreed with the statement that "Electronic voting systems are prone to unintentional failures."

In general, the raw data reported as part of the survey does not support the author’s claim that "American registered voters are largely comfortable the two predominant voting technologies: electronic and optical scan machines."

*In their introduction Professors Hall and Alvarez say “… there have been cases of electronic voting machines… lowering the number of uncounted ballots.”*

While that is true, in 2000, electronic voting machines’ rates of spoiled, uncounted, or unmarked ballots were only less than the rates of mechanical lever machines and the most error-prone type of punch card machines according to the MIT/Caltech Voting Technology Project. Utah punch card error rates have been lower than the national average due to intelligent election procedures involving thorough testing of ballot definitions, inspection and cleaning of ballots prior to counting, and routine cleaning and emptying of our punch card machines. Errors of (purely) electronic voting machines may often be undetectable and there are many instances of (purely) electronic voting systems reporting highly improbable outcomes, forcing the relevant voting officials to explain the seemingly impossible results with comments that boil down to “the computer says its true, so it must be.”

Proponents of paperless electronic voting systems, such as Dr. Hall, cite the “chaos” of adding printing systems to voting equipment and call critics of purely electronic voting “political elites” who raise doomsday scenarios. Unfortunately, these scenarios are neither unlikely, nor do they require vast conspiracies. Problems as simple as a computer bug or configuration error by election workers can and have caused serious errors in recording votes. Over 2000 technologists have endorsed Verified Voting Foundation’s resolution saying “Computerized voting equipment is inherently subject to programming error, equipment malfunction, and malicious tampering…”
The current generation of electronic voting machines are not secure, do not provide voters with a way to know that their votes are being tabulated correctly, and do not provide a mechanism for effective recounts when errors arise. As such, they represent an unacceptable technical risk, regardless of how people feel about them. The only way to effectively guard against errors is to have a redundant system for counting votes. The authors of this response strongly feel that the only technology currently available that provides this necessary redundancy is Voter Verifiable Paper Ballots (VVPB).

Recommendations to the State of Utah on Voting Equipment Selection

The State of Utah has roughly $20 million to spend on the research and development or purchase of new voting systems. The State’s Voting Equipment Selection Committee recently issued a request for proposal (RFP) for voting equipment.

Fifteen Computer Science professors and voting experts sent a response to the Utah Voting Equipment Selection Committee citing significant problems with Utah’s RFP. (See http://www.UtahCountVotes.org/response.pdf) The problem with the State’s current RFP is that it contains almost no specific requirements about what the State needs. As written, the RFP is an invitation for vendors to tell the State what it needs. That is a poor way to do purchasing in general, but in the case of something as important as voting equipment, it is downright dangerous.

Utah’s current RFP does not appear to allow sufficient time to conduct proper security reviews of the proposed systems. Further, Utah’s RFP does not require electronic voting machines to issue a voter verifiable paper ballot (VVPB). A VVPB records the voter’s intentions and allows the voter to verify that the ballot has correctly printed those intentions. The VVPB is then stored separate from the voting machine to allow an independent recount of the election results. An overwhelming majority (over 95%) of computer professionals who participated in a survey conducted by the Association for Computing Machinery (acm.org) agreed that electronic voting systems should “provide a physical record so voters can inspect permanent records of their ballots before they are cast and so meaningful recounts may be conducted”!

We applaud the voting equipment selection committee’s efforts to improve Utah’s voting system. We simply want the result to really be an improvement.