

## **Audit Trail or “New-fangled” Chad? The Phenomenon of Unintended Consequences**

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In the political environment that has existed since the 2000 Presidential Election, there is an unwillingness in the media, the public and by elected officials to accept as legitimate anything less than an antiseptically “perfect” election. Such an expectation *is not reasonable* for a number of reasons. First, voting is a most human activity and as such is subject to all the vagaries and ambiguity present in all human behavior. Second, there is not nor will there ever be a perfect voting system whether it be as simple as a “show of hands” or as complex as computerized voting. What *is reasonable* are auditing procedures and operational safeguards sufficient to verify the intent of the voter and the accuracy of the election. A thoughtfully developed Voter Verified Paper Audit Trail (VVPAT) could be a powerful tool, not presently available, to meet this need for electronic voting systems.

There are several advantages of a true paper audit. At the time of voting, each individual voter “audits” the paper record of his or her votes before committing the electronic ballot to computer memory by casting the ballot. Although at the present time voters perform the same “audit” on the voting screen there is no independent means of verification that the vote was recorded correctly. Having the voter verify the paper record and subsequently auditing these records against the vote totals reported by the machine is a powerful means of determining the security and accuracy of election results. This type of auditing can be extremely effective when applied on a random percentage of voting machines; the audit does not have to be of 100% of the machines to be conclusive.

From a practical perspective, it is extremely unlikely that the paper record would ever disagree with the electronic record. However, if an audit revealed such a discrepancy, one would have to consider, first, the likelihood of a mechanical malfunction in the creation of the paper record before leaping to the extreme conclusion of fraudulent or malicious tampering with the computer. Shy of fraud or a metaphysical preference for paper, there is no reason to place more confidence in the paper record than the electronic one as every possible reason for the discrepancy lies in the inherent vulnerabilities of the paper record. If fraud or tampering is indicated, then the entire election, paper records and all, must be called into question. The issue of what should control, paper or electronic, becomes moot

until the source and scope of the fraud is discovered and resolved by the Election Official and/or the criminal justice system.

Similarly, the use of the paper record as the basis of a recount is meaningless for all of the reasons just discussed. In fact, the entire notion of a recount is inappropriate to direct recording electronic technology. Any variance between the two counts brings the accuracy of the recounting into question not the accuracy of the machines. A complete recount of the paper record of votes or audit trail proves nothing more than what can be determined by a random audit of electronic results against the voter verified paper record. On the other hand, paper based absentee ballot systems are appropriate to be recounted in close contests as they are subject to faulty translation of voter responses on a paper medium to a digital medium for a number of reasons such as machine sensitivity, calibration, incorrect marks, operator error and the machine reader's inability to decipher voter intent outside of very narrow parameters.

The logic of the various proposals for a VVAPT has a tendency to be disingenuous and contradictory. First and foremost, the proposals, particularly the present version of the "California Draft Standards for the AVVPAT", do not describe how existing certified voting systems may increase or improve their auditability; rather they mandate the creation of additional voting systems to be appended to the existing systems. Second, the "audit trail" in the proposals mysteriously becomes a paper ballot and the official record of the vote instead of serving the supposed auditing function the term implies. This metamorphosis from audit trail to ballot creates dramatic, new points of failure in accurately interpreting the intent of the voters and producing unambiguous election returns.

In sum, the methodology and operating parameters of current VVPAT proposals are superfluous to the alleged, but undefined, objective of enhancing confidence in the accuracy of electronic voting systems. A requirement to treat the paper record as a ballot does not enhance, but rather degrades, the paper audit trails's utility as an effective auditing tool. Such a requirement will actually disenfranchise many voters and result in ballots and votes that should be counted not being counted. It is inevitable that votes will be successfully recorded electronically yet fail to be legibly recorded on paper due to a lack of ink or toner, lack of paper, a paper jam, machine malfunction or the loss or destruction of the paper record. Under this framework, the voter would be categorically disenfranchised even though the intent of the voter was clearly known and recorded electronically (but not

in duplicate on paper). This reality will reduce this paper ballot to the status of punchcard “chad”, adding only ambiguity to election results. An electronic voting machine with a malfunctioning ballot printing unit would necessarily need to be taken out of service even though the electronics are fully functional. In some situations, this loss of otherwise operational machines will have the effect of channelizing voters to fewer machines, creating long lines and preventing a percentage of voters from voting because of delays. It is not hard to imagine the adverse impact on a voter’s confidence in seeing rows of machines taken out of service at the polling place on election day due to some type of printer malfunction.

A requirement to have a new, secondary vote tabulation machine (a feature of several proposals) read and count the paper record as a ballot offers no value to auditing electronic election returns. It only adds cost, expense, new potential points of failure and the same ambiguity (and need to be recounted) inherent in optical scan ballots. The inclusion of an optically readable paper ballot as a requirement is unnecessary and is based upon self-serving and deterministic assumptions rather than on objective reasoning.

The net effect of such proposals is the dismantling of existing and proven electronic voting systems to the detriment of all voters, parties and candidates. Most paper proponents propose to hastily replace these systems with untested “Rube Goldberg” inventions. The rationalizations for this are clothed in intellectually dishonest arguments and the zealotry of true believers. The VVPAT and other audit trails are needed. However, a poorly conceived methodology for accomplishing these goals threatens American democracy. Any proposal that advocates an elaborate duplicate paper ballot adds unnecessary complexity and risk to elections without offering any corresponding advantages that could not be realized by an actual audit trail.

The argument has been made that hasty and dramatic change in the design and operation of current voting systems is needed to prevent a “Florida” type situation from recurring. It is too late. The present situation in California is worse than the ambiguity that characterized the 2000 election, not because of a failure of any voting system or election but because of the delays and foot-dragging of policy makers and the knee-jerk, over-reaction of elected officials and the media to self-appointed election experts and interest groups that are disgruntled with state and federal election law and standards or the outcome of the 2000 Presidential Election.

Further, the comparisons of California with Florida have gained additional fodder by the California Secretary of State's intent to discuss the immediate decertification of electronic voting systems at the April 2004 meeting of the Voting Systems Panel and the introduction in the California legislature of Senate Bill 1723 which would ban the use of electronic voting systems in the November 2004 election. Only three years ago, in another somewhat hasty decision, the Secretary of State decertified the punchcard voting systems widely used throughout the state. This decertification caused counties to engage in a long and expensive search for new and acceptable voting systems. After many months and years, the largest counties in the state spent hundreds of millions of dollars to involuntarily convert to state and federally certified electronic voting systems. Now, with a new decertification or ban looming, these same counties are left "holding the bag" for the costs of new voting systems that they cannot use and no suitable voting system alternatives. What makes the situation worse than "Florida," is that only months away from the presidential election, such measures are being proposed and actually considered by elected officials as preferable to using time-tested and certified voting systems. Compounding the unflattering comparisons, these officials are ignoring the reality that the same systems subject to any ban or decertification in California will be used throughout the rest of the country in November, and ironically, many of these officials were elected on such systems.

There is no large scale "hew and cry" by the voting public to reform electronic voting systems. There is no crisis of voter confidence. A recent survey of 70% of the voters casting votes on electronic voting machines in San Bernardino County, California, for the presidential primary election (nearly 130,000 respondents) provides empirical evidence that voters do trust electronic voting systems. In this survey, 99% of the voters indicated that the equipment was easy or extremely easy to use. 92% indicated that they had confidence or a high degree of confidence that their votes were accurately recorded. Another overwhelming 98% of the voters consider the electronic voting system superior or very superior to any voting system they have ever used before. This demonstrates quantitatively that there is only a tiny vocal minority that is sowing fear, uncertainty and doubt in the minds of elected officials and the media.

There is no threat to modern voting systems of sufficient magnitude to justify the proposed hasty and precipitous changes in voting system standards and operation. In fact,

my 10 years experience as a Registrar and my 15 years experience as an Army Counter-intelligence/Counter-terrorism expert tell me that if there were to be a deliberate attack against electronic voting technology and the November election, one would have to consider the zealous voting reform advocates as the prime suspects. These advocates claim to have the knowledge and expertise required to compromise these systems. Several of them have made threats on the Web to take down the November election. Candidly, as we review our security and operational procedures, these advocates represent the threat against which we measure the effectiveness of our counter-measures. While I fear that some advocates pose a direct threat to voting systems, many advocates pose an unintended threat to the tools of democracy that they sincerely seek to protect by proposing immediate and poorly considered reforms.

Changes and improvements to current voting technology, to include a VVPAT feature, are certainly warranted, however; only as a part of an evolutionary process not a reactionary or revolutionary process. Electronic voting systems, as presently designed and operated, are safe and secure. Improvements to these systems, such as a VVPAT, are part of the research and development cycle of voting technology and are implemented when they have been fully developed, tested and certified. Haste and a truncated development and testing cycle will inevitably lead to disastrous and dangerous unintended consequences.