



Moving Toward Paperless Voting

by Jeff Goldman
jeff@jeffgoldman.com

A number of studies show that voting by mobile phone would significantly increase voter turnout. So what's holding it back?

In 1996, only 12,800 of Arizona's registered Democrats showed up to vote in the US presidential primary. Last year, however, things improved a bit: 86,559 voted.

The difference? Internet voting.

Through a contract with the New York-based Election.com (www.election.com), the Arizona Democratic Party opened the primary up to Internet voting for the first time. The results were dramatic, with voter turnout increasing by 676 percent compared to the previous presidential primary.

And despite a lawsuit by the Voting Integrity Project (www.voting-integrity.org), which sought to block the arrangement because they feared it would unfairly discriminate against minority voters, minority turnout was equally impressive. Hispanic turnout increased by over 900 percent, while Native American turnout rose by 515 percent.

Mark Fleisher, Chairman of the Arizona Democratic Party, was thrilled at the popularity of the new process. "The results show that, if implemented responsibly, an election that includes Internet voting can be used to improve voter access," he said.

Still, both mobile and online voting continue to be complex and embattled issues.

The Attention Span Factor

Prior to the UK general election in June, the British mobile companies Orange, One 2 One and Boltblue all studied the effect that voting over mobile phones might have on turnout. One 2 One (www.one2one.co.uk) sponsored a study of younger voters conducted by BMRB International (www.bmr.co.uk), and the results were striking—particularly since the turnout in the election itself turned out to be the lowest since 1918.

In BMRB's study, 44 percent of 18-24 year olds who weren't planning to vote in the general election said they would change their minds if they could vote by mobile phone; and 62 percent who were planning to vote said they would prefer to do so by mobile phone.

There is a downside: the popularity of voting by phone decreased significantly with age. While 59 percent of 25-34 year olds said they'd prefer to vote by mobile phone,

just 46 percent of those under 55 and only 21 percent of those over 55 said they'd prefer to do so.

Both Orange (www.orange.co.uk) and Boltblue (www.boltblue.co.uk) held mobile phone polls prior to the general election. Michael Brown, Boltblue's CEO, is enthusiastic about the experiment, particularly since Boltblue's poll received the support of both the Liberal Democrat and Conservative parties.

"Our users tend to be between 15 and 32 years old," Brown said. "Voter turnout is quite low, particularly in that age group. What we were interested in doing was showing that this is a viable alternative to people taking the afternoon off from work to cast a vote."

Simply by allowing each mobile phone number to cast only one vote, Boltblue was able to minimize the chances of fraud—and Brown suggests that security for an actual election might not need to be much more complicated than that. "The phone number acts as a wonderful proxy for the individual, because it needs to be able to handle that from a fraud perspective for the mobile phone operator," he said. "They use PKI to make that happen, and it's great proxy for doing things like voting."

A Sense of Security

Still, security fears, real or imagined, comprise the greatest roadblock to changing the way people vote. Rebecca Mercuri, Visiting Lecturer in Computer Science at Pennsylvania's Bryn Mawr College (www.brynmawr.edu) and an expert in electronic voting systems, has long been a vocal opponent of any system that doesn't produce a physical paper ballot. At the National Press Club in January, Mercuri described computerized voting systems as "a nicely packaged Pandora's Box of unverified software."

"The system may show you how you think you voted, but there is no way to know that this ballot is ever stored or counted properly," Mercuri said. "Vendors insist that they have provided fail-safe mechanisms, including audit trails, encryption, double or triple redundant storage and so on, but in fact these mechanisms are not sufficient and the machines can and do fail."

Boltblue's Brown contends, however, that any concerns about security are simply a matter of public perception. "Here in the UK, it's possible to order two voting certificates by mail, because the rules aren't strong enough—so it's actually more secure to vote via SMS than it is to vote by mail," he said. "And they specifically don't ask for any identification when you show up to the voting booth; as long as you know your name and address, you can show up and vote. The reality of it is that voting via SMS can take place today."

Alexander Knapp, Senior Operations Officer at the International Foundation for Election Systems, or IFES (www.ifes.org), agrees. "In terms of actual security of the transmission of results, we've gotten to a point with today's technology where, frankly, they'd be secure," Knapp said. "If people are confident enough to send their credit card over the Internet, you can send a vote over the Internet. That really isn't the issue."

The real challenge, Knapp says, lies in giving people enough of an understanding of the how things work that they'll trust their votes are being counted. "People will

need to know how their votes are transmitted: from the moment they click on 'Cast Vote,' what happens to it, where it goes," he said. "There has to be a public confidence developed that the machine actually works, because you're not going to be able to go back and trace the electrons through the circuits."

In order to build that kind of confidence, any move towards voting by mobile phone will have to be gradual—and an Internet Voting Task Force convened in California last January (www.ss.ca.gov/executive/ivote) recommended just that. "To achieve the goal of providing voters with the opportunity to cast their ballots at any time from any place via the Internet, this task force believes that the elections process would be best served by a strategy of evolutionary rather than revolutionary change," the report stated.

The first steps in that evolutionary change will likely be made with the kind of computerized and online voting products that a number of companies like Election.com are already offering worldwide.

Working Towards Wireless

VoteHere (www.votehere.net), based in Bellevue, Washington, offers a patented Internet voting solution with a focus on cryptographic security. The company's founder and CEO, Jim Adler, suggests that the current offering is part of the kind of gradual progression the California task force recommended: attended pollsite voting, then unattended kiosk voting, and finally, remote voting on any device anywhere in the world.

"Our vision is voting on any device, anywhere," Adler said. "Our technology can live inside a phone or inside a handheld device. You're going to see people voting on their handhelds and on their phones, and we're already starting to see some call for that. A voting engine could very well live inside your cell phone in several years—or live inside a handheld within a year or so."

The security of VoteHere's system is based on a distributed trust mechanism, the same concept used to protect the launching of a nuclear missile. Just as two different individuals have to turn keys at the same time before a missile can be launched, no single individual is empowered to make any changes to any part of the VoteHere system.

And like IFES' Knapp, Adler stresses the importance of transparency in the process. "Before we got into this business, election companies did not patent their underlying procedures," he said. "The reason we did that was so that we could publish them and not hide behind trade secrets." The more people know about the system they're using to vote, he says, the more they're likely to trust it.

In a similar vein, another Internet voting company held a five-day challenge in October of last year, during which it invited hackers to attempt to break into its voting system; it even published basic technical details about the system in order to assist them. And the California-based Safevote (www.safevote.com) made it through the test without a breach.

"One of our challenges in having Internet voting become legal and accepted is public perception of its safety," said Safevote's CEO, Ed Gerck. "I think we've begun to demonstrate that it can be made safe."

Gradually, it's starting to happen. Soon after Election.com's effort in Arizona last year, Brazil held the first nationwide election in history to allow Internet voting, using Safevote's technology. In last year's contested US presidential election, the Department of Defense allowed about 200 military personnel stationed overseas to vote online. And a number of other countries are working towards implementation of Internet voting in the near future.

Still, VoteHere's Adler is frustrated by the slow pace. "It's just paralysis," he said. "We don't want to make a move because we don't want to do too much damage? Well, we're already damaged. Florida brazenly showed how damaged we are, and that almost precipitated a constitutional crisis. How much more broken do we need to get before we start to institute real reforms?"

Another Digital Divide?

A demo (<https://votehere.net/elections/vhgold/goldwebdemo/1/login.asp>) on VoteHere's web site clearly shows one powerful advantage of online voting. In the demo, a hyperlink under the name of each candidate reads "View Candidate's Platform." Click on that link, and a new window opens with information on that candidate's positions. Close the window, and you're back at the ballot.

Internet-based and mobile voting can provide an impressive amount of functionality, from online position papers to ballots that can change from English to Spanish at the click of a button. What's more, IFES' Knapp suggests that each of these developments, from SMS polling to online voting, stands to give the electorate more influence in government.

"It's going to be easy to run referenda," he said. "If you want to know what the population thinks about issue x, y, or z, you could hold an election on it. So the idea of more direct democracy does have some real future when it comes to Internet voting."

Still, as ballots become more technologically advanced, a significant downside threatens to appear. Knapp admits that even if more traditional voting booths remain available at polling places, the systems are likely to become increasingly confusing for specific parts of the population.

"People who have never used computers before, senior citizens among them, are going to have to understand the basics of how this is working," Knapp said. "In a positive sense, though, it's going to bring people into the electorate who have felt disenfranchised, who have felt that the old system doesn't speak to their needs. It's really going to change the landscape of the electorate."

But Mercuri is concerned that in that changed electoral landscape, large parts of the population may get left behind. "Internet voting may make it easier for the techno-savvy elite to cast ballots, while potentially disenfranchising or at least creating a digital divide for the poor, elderly, rural, and disabled voters who do not have equal access to the Web," she said.

As online and mobile voting become increasingly widespread options, accessibility and education will have to be taken seriously into account. Still, as VoteHere's Adler notes, the potential is too great to ignore.

"Anyone who says technology will not solve this problem is at some point going to look silly," he said. "Before the naysayers say it can't be done and it won't be done, it's important for everyone to take a really close look at this technology. Because it is going to transform the way the world votes."