

## CHAPTER 17

# TECHNOLOGY IN ELECTIONS

Voting has changed over the years. Whereas Americans once made their selections for office by voice vote, voters today use optical scan and direct recording electronic (DRE) voting systems to cast their ballots. These new voting options provide accessibility, security, and privacy for the voter.

The technology for administering elections outside the physical act of voting has changed as well. States have implemented statewide voter registration databases to manage their voter rolls. Many jurisdictions have incorporated new technologies—such as GIS, GPS, and social media—into their processes and procedures to administer elections more efficiently and affordably.

Election law continues to evolve. For example, some jurisdictions are implementing online voter registration, a technology that allows voters to register and update their registrations on line if they have a valid State identification. Those jurisdictions changed their laws to allow digital or digitized signatures on voter registration forms. Technology to help Americans overseas vote has progressed after the enactment of the Military and Overseas Voter Empowerment (MOVE) Act of 2009, which required changes to State laws concerning the transmission of ballots for Federal elections. In addition, a few States have gone a step further and allowed uniformed and overseas citizens to submit completed absentee ballots via e-mail and facsimile.

The Help America Vote Act (HAVA) of 2002 includes several references to technology. First, HAVA provides funding to States to replace punch-card and lever-voting machines.<sup>1</sup> HAVA requires the U.S. Election Assistance Commission (EAC) to “...make grants to assist entities in carrying out research and development to improve the quality, reliability, accuracy, accessibility, affordability, and security of voting equipment, election systems, and

voting technology.”<sup>2</sup> The act requires all voting systems used in Federal elections to meet minimum requirements for verifying the selections made on the ballot, providing voters the opportunity to change their selections, and notifying the voter about overvotes.<sup>3</sup> Finally, HAVA mandates statewide voter registration databases.<sup>4</sup>

Technological advances can yield great benefits when implemented correctly. Election officials are already using exciting new tools, many of which can be adapted to other jurisdictions with little or no legislative changes. This chapter aims to make election officials across the country aware of the innovative uses for technology in the elections office and the voting process. It also includes tips for how to manage the cost, maintenance, and replacement of technology.

This chapter’s content was developed in collaboration with State and local election officials and other election professionals who have first-hand experience managing elections. The EAC is grateful for their participation, which ensures that the guidelines are practical and applicable for jurisdictions regardless of their size and resources. The *Election Management Guidelines* and the *Quick Start Management Guides* are available on line at [www.eac.gov](http://www.eac.gov).

### IMPORTANT REMINDER ★ ★ ★

Jurisdictions are reminded to implement these voluntary practices only after reviewing State and local laws and regulations. Local election officials should contact their State election officials with questions about the legality of a specific policy or procedure in their State.

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<sup>1</sup> 42 U.S.C. 15302.

<sup>2</sup> 42 U.S.C. 15441.

<sup>3</sup> 42 U.S.C. 15481.

<sup>4</sup> 42 U.S.C. 15483.

## Technology in the Elections Office

New technology and innovative uses for existing technology have increased the efficiency of elections offices across the country. The basic tasks of election administration—voter registration, records and content management, chains of custody, and outreach—are all labor-intensive assignments that can be simplified with technology. This section will provide examples of good practices from across the country to illustrate potential solutions to challenges confronted in all elections offices.

### Voter Registration

Voter registration can affect an elections office's staff resources, and the time constraint for adding and updating registrations to the statewide voter registration database only tightens as the registration deadline nears before each election.

Data entry consumes much of the time involved in adding new registrations or updating existing records. Elections office staff must transfer the data from handwritten paper records to the statewide voter registration database so that the data can be compared for eligibility. To ease the burden of processing paper records, States and local jurisdictions are exploring automatically transferring registration data directly from other State databases, particularly the State's motor vehicle agency, which is consistently one of the largest sources of voter registration applications.<sup>5</sup> Automatic data transfers can result in three major efficiencies: security, time, and accuracy.

First, electronic data transfers can be more secure than paper data transfers. Instead of waiting for paper records to be hand-delivered from the external offices that collect voter registration forms, the data can be sent electronically to the elections office. By removing the need to transport paper records, election officials are more confident that all of the data safely arrived at the elections office. Election officials can either make the transfers in real time or by batch transfer. Real-time transfers occur when the data is sent immediately. The more common batch transfer occurs at a set time on a regular schedule. For instance, if the batch transfer occurs after the close of business, the registration data accumulate during the day into a suspense queue. Then all of the data in the 'suspense queue' is transferred to the elections office in one transaction.

The second efficiency is the reduced staff time required for data entry. If the registration information is sent from the motor vehicle agency, the data are already entered in a usable, electronic format for inclusion in the statewide voter registration database. When the agencies electronically transferring the registration data can perform the initial data entry, elections office staff can focus on their other responsibilities as the registration deadline and Election Day near.

Automatic data transfer's third efficiency is accuracy. At times, elections office staff have difficulty understanding the handwritten registration forms. Any data delivered to the elections office in an electronic format could improve the accuracy of the voter registration database and reduce the number of elections office staff needed to manually reenter the data from handwritten forms.

The Internet and online voter registration are the current technological trends. As of August 2010, six States (Arizona, Colorado, Kansas, Louisiana, Oregon, and Washington) offer their citizens the opportunity to register to vote from their personal computers. Arizona started offering online voter registration in 2003. By the 2008 election cycle, more than one-third of Arizona's total registrations received were via the Internet—making it the most popular method of registering to vote in that State.<sup>6</sup>

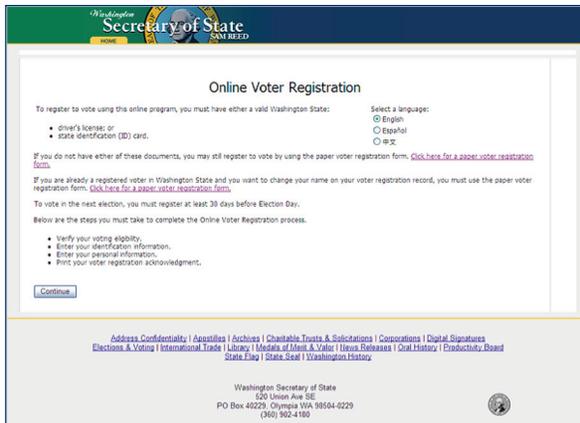
Online voter registration systems in those States that use such technology generally share common requirements. The individual who is registering must have a valid driver license or nondriver State-issued identification card from the State in which they are registering. The digital signature provided by the registrant to the State at the time he or she applies for a license or State-issued identification card is transferred into the statewide voter registration database and serves as the signature for matching purposes. In Arizona, the registrant receives a confirmation number at the end of the registration process that serves as proof of the transaction.<sup>7</sup>

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<sup>5</sup> Impact of the National Voter Registration Act on Federal Elections (various years), available at [www.eac.gov](http://www.eac.gov).

<sup>6</sup> Impact of the National Voter Registration Act on Federal Elections 2007–2008, available at [www.eac.gov](http://www.eac.gov).

<sup>7</sup> [http://www.azsos.gov/election/How\\_to\\_register.htm](http://www.azsos.gov/election/How_to_register.htm) (accessed July 20, 2010).



A screenshot of the Washington State online registration public interface.

These online registration systems also give registered voters the ability to update their addresses.

States and jurisdictions are already saving money by reducing paper expenses and making the entire voter registration process more efficient. For example, Arizona's Maricopa County has noted that paper registrations cost at least \$0.83 to process, and the average online registration costs about \$0.03.<sup>8</sup>

### Washington State's Online Voter Registration

Individuals with Washington State driver licenses or nondriver State-issued identification cards can register to vote or change their addresses via a portal on the Washington Secretary of State's Web site.

On the "My Vote" portal, a registered voter can see upcoming elections, information about voter assistance offices, voter history, etc. The State maintains this database. Voter history and upcoming elections data are transferred from each county's voter database each night. If a voter changes his or her address at a motor vehicles agency office, the address is automatically changed in the statewide voter registration database as well. However, changes made to the voter record, however, do not get transferred to the motor vehicles agency's database.

After registering on line, the registrant receives a confirmation screen explaining that he or she is not yet officially registered. Verifying eligibility for voter registration can take up to 14 days, at which time the voter should visit the My Vote portal to check on the progress.

The trend of States providing online voter registration is likely to continue. At least five States have mentioned publicly that they are working to implement the process. However, other States interested in providing this option to voters might need to change State requirements for voter signatures on paper registration forms. State law must allow digital signatures for online voter registration systems to be feasible.

Jurisdictions that cannot accept digital signatures for registration purposes can still use technology to improve their voter registration processes. All States offer voter registration information and forms on line. Except in the six States mentioned previously, however, the voter must download the form and sign it before sending it back to the elections office for processing. An elections office staffer still needs to transcribe the data from the paper-based form into the statewide voter registration database.

Florida offers a downloadable registration form that can be filled out on line. However, the downloadable form includes a unique feature that benefits both election officials and the voters. The voter inputs his or her information into the form electronically. The registration form must still be printed, signed, and returned to the elections office by the voter, but the form completed on line by the voter is encoded with a tracking number. Once the printed and signed form arrives at the elections office by mail, an elections office staff member can input the form's tracking number and retrieve all the electronic data that the voter input on line. The elections office does not have to duplicate the data entry because all of the data that appear on the paper-based voter registration form match the electronic data. This technology allows Florida elections offices to cut down on the time it takes to enter data and reduces the number of transcription mistakes that occur in the process.

### Records Management

Some jurisdictions have started comprehensive programs to digitize all of their paper records and to link those to specific voter files. In these programs, elections office staff use electronic

<sup>8</sup> Pew Center on the States, *The Real Cost of Voter Registration*, Revised March 2010.

scanners to capture and digitize voter signatures, paper correspondence, and voter registration forms, all of which can then be linked to individual voter files for quick reference. This technology, however, may be prohibitively expensive for many small jurisdictions.

Digitizing paper records can help election officials manage the piles of paper records they maintain for all of their voters. Fewer paper records require less warehouse space, and digitized records can be saved on redundant memory in the event that the primary document is unavailable or destroyed.

Since 2007, election officials in Louisiana's Orleans Parish have been working to digitize all of the paper records for which they are responsible. Maintaining the paper files is expensive and the current filing systems are out of date. It can take a considerable amount of time for elections office staff to locate the correct paper file when it is needed. If the elections office scans all incoming correspondence as it arrives, the elections office will have a digital image of all records. Elections office staff can then attach these records to individual voter files for quick reference.

Digitizing paper records is not a new concept, however. Election officials in Kansas' Johnson County have been digitizing voter registration cards for years. Before scan technology, election officials needed to alphabetize all paper-based voter cards by hand. When trying to locate a specific voter card, elections office staff hoped that the card was filed properly the previous time it was used. In a jurisdiction with over 300,000 registered voters, some filing mistakes are inevitable. Once the voter cards were digitized and linked to specific voter files, however, all of the information was instantly accessible to all elections office staff. In addition, election officials instituted new procedures to scan all new voter cards as they were received and to enter data from the scanned image. The new procedures expedited the data entry process.

### **Content Management Systems (CMS)**

Election officials manage employees and coordinate all activities in their elections offices. Any efficiency that election officials find in these management processes can result in an improvement of services for all voters. The content management system (CMS) helps the election

official manage all work flows in the elections office. In managing work flows, inexpensive solutions can maximize staff effectiveness.

A CMS is a database that contains information on voter history, polling places, candidates, poll workers, provisional ballots, absentee ballots, early voting, etc. The amount of information that can be contained in the CMS varies by jurisdiction. The system can be a paper-based manual or computer-based software program like the project management systems described in chapter 18 of the Election Management Guidelines, *Elections Office Administration*. It is designed to do the following:

1. Allow elections office staff to contribute to and share stored data;
2. Control the information each elections office staff member can view or edit;
3. Aid in easy storage and retrieval of data;
4. Reduce duplicate input;
5. Improve the ease of report writing; and,
6. Improve communication among office staff.

A software-based CMS can be built in house, purchased off the shelf, or contracted out to a vendor depending on the staff and monetary resources available in the jurisdiction. If a jurisdiction decides to contract out for a content management system, most vendors offer a CMS built on a standard platform that is transferrable to other vendors if the election official switches vendors in the future.

### **Geographical Information System (GIS)**

GIS technology has been used for years by agencies such as the U.S. Census Bureau to present information in a geographically specific format. Election officials might have used GIS technology in the past during the redistricting process. It can also be used to update the voter registration software street index and precinct information for different voters. There are other uses for GIS that election officials can leverage for increased efficiency in election administration.

For instance, the technology can be used to track from where voters are traveling to vote during early voting and/or in the case of vote centers on Election Day. This tracking capacity allows election officials to efficiently place early voting sites and vote centers in the jurisdiction. If voters are primarily using one centrally located early voting site or vote center, the

election official knows to allocate more resources to expanding that site. Moreover, any disparities about where voters from across the jurisdiction are choosing to vote might become evident to the election official. Finally, the technology might help consolidate polling places, if necessary.

### **Internet**

Many technological solutions are available to election officials via the Internet. Election officials can use the Internet as an inexpensive tool to reach out to voters, and it is particularly effective for reaching out to younger voters who receive the majority of their information on line. Internet efficiencies include Web sites, eNewsletters, social media, podcasts, and Web-based poll worker supplemental training.

The Internet is especially useful for voter outreach. Election officials might consider publishing an electronic newsletter to disseminate election-related information. In addition, giving an elections office staff member the responsibility of coordinating social media will put the elections office on the forefront of technology.

It is also essential that Internet-based applications be accessible. For more information about creating accessible election Web sites, see chapter 19 of the Election Management Guidelines, *Accessibility*. Moreover, when designing Web-based information systems, election officials should keep in mind that many voters either do not have access to the Internet or are not skilled in using the Internet. Any information available via the Internet should also be available via other means. For additional information and suggestions see chapter 14 of the Election Management Guidelines, *Communicating with the Public*.

### **Technology in Voting**

Election officials are increasingly using technology to improve election administration during early and absentee voting and throughout Election Day. For example, election officials across the country use different types of technological solutions to aid in the labor intensive process of administering absentee voting by implementing absentee ballot tracking technology and ballot sorters. Similarly, concerns about providing sufficient time for uniformed and overseas citizens to vote in elections

have spurred technological advancements for voters covered by the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA), who are now allowed to receive election materials electronically and, in a growing number of States, are able to return voted materials electronically. To improve Election Day operations, election officials are using Geographical Information System (GIS), Global Positioning System (GPS), and Radio Frequency Identification (RFID) chip technologies. Finally, this section will discuss electronic poll books used in jurisdictions nationwide.

### **Technology in Absentee Ballots**

Some States and individual jurisdictions have begun tracking absentee ballots electronically. The barcode on the absentee ballot is scanned at various points during the process, resulting in a record of where the absentee ballot has been. For additional information and suggestions about absentee voting, see chapter 7 of the Election Management Guidelines, *Absentee Ballots*.

This tracking technology yields at least two benefits. First, the election official is able to provide a much more accurate answer to the voter who inquires about the status of his or her absentee ballot. The election official using even the most basic absentee ballot tracking technology will likely know exactly when the ballot was mailed and returned to the elections office much more quickly than would have been possible in the past. More advanced tracking solutions can include barcode scanning throughout the U.S. Postal System, which allows the election official to know when the ballot was received by the voter and when it was mailed back. Absentee ballot tracking solutions can be built in house or contracted out to a vendor.

Absentee ballot tracking also provides benefits for the voter. Most of the absentee ballot tracking solutions include an interface with the jurisdiction's public portal, which allows the voter to check the status of his or her own absentee ballot. For example, in Virginia a voter can use the Virginia Election and Registration Information System (VERIS)<sup>9</sup> to find answers to many questions including where is the polling place, which offices

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<sup>9</sup> <https://www.voterinfo.sbe.virginia.gov/PublicSite/PublicMain.aspx> (accessed July 20, 2010).

are on the ballot, what is the status of a provisional ballot, and what is the status of the absentee ballot.



A screenshot of the Virginia Election and Registration Information System (VERIS).

Other technological solutions for absentee voting include signature matching for election eligibility verification. If elections offices have access to digitized records or digital signatures, they use them to verify the eligibility of the absentee voter. This low-tech matching process is inexpensive. Some jurisdictions with high rates of absentee voting use ballot sorting machines to aid their signature match processes. Although these solutions include high up-front costs, they might be very useful to jurisdictions with high rates of absentee voting by mail or those considering moving exclusively to vote-by-mail elections.

Spokane, Washington uses ballot sorters to group the 300–450 ballot styles per election for easier counting. In 2002, about one-quarter of the registered voters chose to cast their ballots via absentee voting. Two years later, the percentage was up to about one-half of all voters and, today, all elections are conducted exclusively by vote-by-mail.

Spokane sorts all returned ballots and conducts signature verification in house. The ballot sorter takes a picture of each absentee ballot return envelope as it is processed through the machine and grouped into its appropriate ballot style for counting. This is done for two reasons. First, the returned ballot is either recorded as returned by the voter or it is flagged for further review if the voter had previously returned a ballot to the elections office. Second, the ballot groupings expedite the counting of the many ballot styles.

All absentee and vote-by-mail systems rely on a signature match to the voter's signature on file for identification purposes. In Spokane, the image of the signature on the return envelope is uploaded to a server and a team of elections office staff reviews the signatures for election eligibility. The initial reviewer can accept the signature as proof of identification for election eligibility or flag it for further inspection. The second review is done by a more experienced signature reviewer. If the second reviewer cannot make a determination or chooses to reject the ballot, a team of staff reviews the original paper-based ballot to determine if the signature matches and, thus, assess the ballot's eligibility. The State police train all signature reviewers, many of whom have been conducting signature matches for the jurisdiction for numerous election cycles. The election official can review each of the reviewers' records for anomalies (such as inordinately high rejection or acceptance rates) to ensure that they are accurately completing their jobs.

If a problem exists with the signature match, the voter has up to 14 days after the election to provide supporting documentation. Certification of the election occurs 21 days after Election Day.

### Technology in UOCAVA Voting

The Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) of 1986 guarantees absent uniformed services voters and overseas voters the right to register to vote and to cast absentee ballots for Federal offices. Recent updates to the act require jurisdictions to send ballots to UOCAVA voters at least 45 days before Election Day to provide the UOCAVA voter sufficient time to return his or her voted ballot.

Some States are going even further than providing a 45-day window for voting. Through the use of electronic transmission options and an overseas kiosk system used by a jurisdiction during the 2008 Presidential election, UOCAVA voters have seen a marked improvement in their ability to cast a ballot from abroad and have it counted. For additional information and suggestions about absentee voting see chapter 8 of the Election Management Guidelines, *Uniformed and Overseas Citizens*.

<sup>10</sup> [www.fvap.gov](http://www.fvap.gov) (accessed July 20, 2010).

The Department of Defense's Federal Voting Assistance Program (FVAP)<sup>10</sup> has Federal responsibility for UOCAVA voting. The agency has produced a number of step-by-step solutions to aid UOCAVA voters. When a voter first enters the FVAP Web site, he or she is asked which type of UOCAVA voter he or she is because State laws may differ slightly for military and civilian UOCAVA voters. Selecting the appropriate designation leads the voter to several more options including a registration and ballot request form (also known as the Federal Post Card Application (FPCA)), a back-up ballot (also called the Federal Write-In Absentee Ballot (FWAB)), or information about where to send election materials. The Web site provides State-specific instructions for completing these Federal forms.

Election officials can use some information included on the FPCA and FWAB to improve the voter experience for UOCAVA voters. Box "J" of the FPCA and FWAB is an area in which the voter can provide an e-mail address to the election official. Election officials can use these e-mail addresses to establish further connection with UOCAVA voters. Some election officials attempt to contact UOCAVA voters from previous election cycles to update their addresses so that the election official does not send a ballot to an incorrect address.

### tip

Election officials can use e-mail addresses to distribute election information such as the election calendars, sample ballots, and the voting materials to UOCAVA voters.

States have implemented different ways to transmit voting materials electronically. For years, it has been common to provide and receive election materials via fax transmission. More recently, States have been more willing to transmit election materials and ballots electronically. It should be noted, however, that EAC has not adopted standards or guidelines for the electronic transmission of completed ballots.

Arizona electronically transmits its election materials in an innovative way. It uses a secure online system to upload and download voting materials and blank ballots to a government server to ensure the security and confidentiality of the ballot. The State elected not to receive completed

ballots via e-mail because of its own security concerns. To participate in Arizona's secure ballot upload system, each UOCAVA voter must first obtain a unique username and password. Arizona's UOCAVA voters can request a ballot via mail, fax, e-mail, or secure ballot upload and download.

The options for returning the ballot are the most notable innovations. Once a ballot is completed, the UOCAVA voter may scan it and upload it to the secure upload system using his or her unique username and password. The ballot may be uploaded up until the time that the polls close on Election Day, which gives the voter as much time as possible to cast a ballot.



A screenshot of the Operation BRAVO homepage. Visit the Operation BRAVO Web site to learn more about the 2008 Okaloosa (FL) Distance Balloting project and other pilot projects.

### Election Day Operations

Election officials are responsible for all activities that occur on Election Day. The frenzied pace of Election Day can be a challenge, but technology exists to ease this burden on elections office staff while implementing a chain of custody in the ballot review process, if necessary. The elections office in Long Beach, California is a leader in using technology to improve Election Day operations with its use of RFID chips, GPS, and GIS to improve election administration.

### Radio-frequency identification (RFID) chips

Election officials have long used checklists to track outgoing and incoming supplies on Election Day. However, even with checklists, tracking voting equipment on Election Day can be a daunting task. Elections office staff and poll workers are exhausted after a long day, and mistakes can be made that would hold up the quick election night tallies on

which the media relies. Moreover, strong chain of custody documentation can prove particularly important in the event of a contested election.

The elections office in Long Beach uses RFID technology in place of equipment checklists. First, the elections office built a special tunnel with RFID readers through which all equipment boxes pass during the outgoing and incoming processes. A unique RFID chip is embedded in each equipment box. The RFID readers recognize the chip in the equipment boxes, which are preassigned to each precinct, and electronically record outgoing and incoming information. This technology makes it easier for election officials to know which precincts have not yet returned their materials on election night and to address the problem.

### Global Positioning System (GPS)

Many jurisdictions use either vendors or other governmental agencies to deploy and retrieve the voting equipment for Election Day. The security of the voting technology is of great concern, and election officials take significant steps to secure the equipment when it is in their warehouses. GPS technology allows them to maintain the chain of custody on the voting systems after they leave the warehouse.

GPS technology can also be used to track drivers as they deliver equipment and supplies to the polling places or transport election results from the precincts to the central office. In Long Beach, the delivery truck drivers are required to wear the GPS tracking unit around their necks while they are transporting the voting equipment or election results. This tracking information allows the election official to document the time at which the voting technology left the central warehouse, when it arrived at the polls, and when it was returned to the central warehouse. Drivers are given a specific set of directions to follow, and using the GPS technology, any deviation from the predetermined path alerts the elections office. All chain of custody information can be recorded and maintained as part of the election audit material.

### Geographical Information Systems (GIS)

A few jurisdictions on the cutting edge of technology track the opening and closing of the polls through GIS on Election Day. In Long Beach, for example, each precinct chief poll worker dials

into a central call center after the polling place has opened on Election Day. He or she provides the central office with the polling place's unique code and that data is entered into the GIS database. At the central elections office on Election Day, a large board representing the entire jurisdiction lights up in green as the unique codes are entered. If a code is not entered into the system, the GIS system alerts the jurisdiction's election official about which polls are having difficulties and are not yet open on Election Day, which informs elections office staff, and allows them to take remedial action to fix the problem as soon as possible.

#### *tip*

Some phone companies provide wireless telephone service to elections offices for their polling places at reduced costs. Election officials should check with their local providers. This program can save an election official money on long-term cell phone contracts.

### Electronic Poll Books

Many voters are accustomed to the large, paper-based poll books at the polls on Election Day. In some States, voters sign the poll book during check in. Different variations of poll books are becoming more common, however. According to the EAC's 2008 Election Administration and Voting Survey Report, 25 States use electronic poll books in some capacity.

The electronic poll books in use across the country include some or all of the following: complete access to the statewide voter registration database, jurisdiction registration lists, ability to credit a voter for having cast a ballot, and identification card swipe or barcode scanning capacity for easy sign in. Election officials can also use electronic poll books to collect data about election administration at the polls such as the length of time it takes a poll worker to verify a voter during the check-in process and the times during the day when most people vote. These data can help election officials more effectively allocate their resources in future elections.

Depending on the needs of the jurisdiction, electronic poll books can include the full statewide voter registration database or just the jurisdiction-specific information. Although the statewide

database would help poll workers to direct a voter in the wrong precinct to the correct precinct assuming he or she is registered in the State, accessing the entire voter registration database file will take more time than just searching the jurisdiction's list. Most poll books have the ability to search the jurisdiction's voter registration list first and only to search the statewide voter registration database if the voter is not registered in the local jurisdiction.

Some electronic poll books include peripherals for identification card swipe or barcode scanning of a driver license, State-issued nondriver identification card or coded voter registration card to facilitate the check-in process. This technology helps to ensure that the correct voter is marked as having signed in and voted and eliminates the potential problem of giving credit for voting by mistake to a voter with the same name or a similar name.

## Voting Systems

The EAC is responsible for testing and certifying election systems at the Federal level. The Help America Vote Act (HAVA) mandates that EAC accredit voting system test laboratories and certify voting equipment, marking the first time the Federal government has offered these services to the States. State participation in EAC's certification program is voluntary. The EAC's full accreditation and certification program became effective in January 2007.

The EAC published Voluntary Voting System Guidelines for testing and certifying voting systems and is in the process of issuing updated guidelines. A complete copy of the current guidelines, a list of certified voting systems, and additional information about the EAC's testing and certification program is available at [www.eac.gov](http://www.eac.gov).

Jurisdictions should check their States' requirements for new voting systems. Most States require Federal certification and/or State certification. State-level tests generally are designed to ensure that the voting system complies with State laws and regulations. The State elections office can provide local jurisdictions with a list of voting systems that are certified for use in the State.

In addition to Federal and State certification requirements, jurisdictions should conduct acceptance testing on newly acquired voting systems and components. However, election

officials should note that acceptance testing is only one of the types of testing that they can conduct on their voting machines. An acceptance test is defined as a test that is performed on an individual unit of a voting system in order to verify that the unit is physically, electronically, mechanically, and functionally correct. Correct, in this case, means that the unit is identical in every respect to the system certified for use in the jurisdiction, including the software and firmware.

Acceptance testing assures election officials that the voting system is functioning correctly, that the voting system complies with the conditions of the product acquisition document, and that the voting system is correctly configured for use in an election. For a complete description of acceptance testing see chapter 4 of the Election Management Guidelines, *Acceptance Testing*.

Finally, election officials might pursue partnerships with local colleges and universities to test their voting systems. Local computer experts can help to ensure that the acceptance testing proves that the jurisdiction is receiving the equipment in full working condition. For a complete description of building partnerships with colleges and universities see chapter 12 of the Election Management Guidelines, *Building Community Partnerships*.

## Cost and Replacement

All technology has an expected lifespan. The cost of new technology, software upgrades, maintenance, storage, and replacement necessitates constant planning on the part of the elections office. It can be especially important to discuss the long-term plans with the jurisdiction's budget authority, because voting systems will not last forever.

Some election officials have advocated for the creation of a technology manual. The technology manual could document every technological aspect of the election process to ensure continuity. Some areas that the technology manual might cover include:

- ★ How does the office technology interact on the network?
- ★ How are polling places set up?
- ★ What is in the server?
- ★ The technology manual could include the serial numbers and expected life spans of all pieces

of technology in the jurisdiction. It could also include information about when and where the technology was purchased and for how much.

The technology manual could also include the processes for using the technology. For example, the manual could contain flow charts documenting ballot layout, provisional ballot processing, vote by mail, poll worker training, etc. The purpose of the technology manual is to document every technological aspect of the election process to ensure the continuity of operations, which is important because of the high rate of staff turnover in election offices.

## **Conclusion**

As noted in this chapter, advances in technology can benefit both election officials and voters. Nevertheless, election officials must consider all voters in the jurisdiction.

It is possible that not every voter will have access to new, cost-effective technological solutions. For example, using the Internet for voter outreach or for online voter registration is a step toward accommodating technologically advanced voters. However, for the voters without access to the Internet, these “advances” are invisible. Election officials need to consider these less technologically advanced voters any time the election office seeks efficiencies through technology.