BRENNAN CENTER FOR JUSTICE

TWENTY YEARS

VOTER REGISTRATION IN A DIGITAL AGE: 2015 UPDATE

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Brennan Center for Justice *at New York University School of Law*

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Lucy Zhou served as a Research Associate in the Democracy Program. Prior to joining the Center, she worked at Relman, Dane & Colfax, a civil rights law firm specializing in fair housing, fair lending, public accommodations, and employment discrimination cases. She has also served on the board of the Washington, D.C., chapter of the National Asian Pacific American Women's Forum, a national non-profit dedicated to immigrant rights, reproductive justice, and professional development for Asian American women. Ms. Zhou graduated *magna cum laude* and Phi Beta Kappa from Amherst College with a degree in Law, Jurisprudence & Social Thought, and is currently studying at New York University School of Law.

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EXECUTIVE SUMMARY

America's voter registration system needs improvement. In 2008, nearly 3 million registered voters could not vote because of problems related to their voter registration record.[1] A study only of in-person voters from the 2012 election similarly found that millions of voters[2] experienced registration problems at the polls.[3]

These problems stem from our country's outdated system of registering citizens and updating the voting lists. In 2015, we use computers and tablets to chat with friends overseas, but too many states still rely on ink and paper to sign up voters.

Over the last two decades, many states have improved how they register voters, moving voting lists from reams of paper to electronic databases. Today, as technology has improved, a growing number of states and localities are using 21st century methods to address voter registration challenges by reducing reliance on paper forms.

The Brennan Center spent the last two years questioning over 70 election officials who oversee modernized voter registration systems in states across the country. Our goal: Determine how these systems work, why they are beneficial, and how states implement them.

This report highlights experiences from states using electronic registration and online registration — two of the most popular modernized methods of registering voters. Electronic registration requires that data collected at a government agency — in most cases, a department of motor vehicles office (DMV)[4] — is sent to election authorities digitally, instead of relying on paper forms. Online registration allows voters to submit their application over the Internet.

Here's what we found:

- **States continue to implement modernized voting systems.** A total of 38 states now have electronic registration, online registration, or both. Electronic registration is available in 27 states, and 26 states have online options. In 2010, when the Brennan Center first studied these systems in depth, 17 states electronically registered voters, and only 6 allowed citizens to sign up online. As states continue to adopt modernized techniques, they speed up the process of registering voters.

- **Modernization boosts registration rates.** In one data sample, 14 of 16 states with electronic registration saw sustained or increased registration rates at DMV offices through the 2014 election. For example, since Pennsylvania eliminated paper registration at DMVs in 2005, registration rates at the DMV[5] have more than quadrupled. Online registration is also popular with voters. In 11 of the 14 states that had online voter registration in 2012, online registrations accounted for more than 10 percent of all new sign-ups between 2010 and 2012.

- **Electronic and online registration increase voter roll accuracy.** Election officials in almost every state interviewed reported that both electronic and online registration made their systems more accurate because staff no longer need to interpret illegible handwriting or manually enter voter information, thus reducing the chances for errors.

- **Modernized voter registration systems save money.** Not all states attempted to track cost savings, but of the 29 states that reported they did, there was unanimity that electronic and online registration reduces costs. Washington State, for example, saves 25 cents with each online registration.

With these improvements, some states continue to innovate and find new ways to sign up even more voters. For example, in the last year, there has been momentum in favor of what is sometimes called "automatic registration" or "opt-out registration." This groundbreaking modernization changes how electronic registration works at DMV offices. Oregon became the first state to pass this reform in March, and California followed shortly thereafter this October.[6] Soon, eligible citizens in these two states will be registered to vote unless they decline — as opposed to the usual system that keeps citizens off the rolls unless they expressly indicate their desire to register. Automatic registration is made possible by the electronic maintenance and transfer of voter registration information, but takes it a step further by shifting the burden of registering voters onto the government.

In June 2015, Hillary Rodham Clinton praised Oregon's system, calling for universal, automatic voter registration for all citizens when they turn 18.[7] Also in June 2015, New Jersey's legislature passed an automatic registration bill, but it is far from clear whether Governor Christie will sign it into law.[8] If New Jersey joins California and Oregon in implementing automatic voter registration,[9] 16 percent of the nation's population will live in states with automatic registration.[10] There have also been two automatic registration bills introduced in Congress, and at least 15 other states, plus Washington D.C., proposed similar legislation.[11]

Although this report limits its examination to electronic and online registration, this momentum around automatic registration clearly shows that America is in the midst of creating a modernized, accurate, and secure voter registration system for the 21st century.

In 1993, Congress passed the "Motor Voter" law[12] to address the voter registration challenges of the day. It used then-current technology to sign up more eligible citizens than ever before. It also laid a foundation for the kind of upgrades we see today. No one should lose their vote because of registration problems due to outdated technology. Electronic and online registration make voting more free, fair, and accessible to all eligible citizens. Other states should embrace these systems without delay.

I. FINDINGS

A. Adoption of Electronic and Online Registration Systems is Increasing

Five years ago, the Brennan Center found that 17 states electronically registered voters, and at least 6 states allowed voters to register online.[13] Today, 27 states have electronic registration at the DMV (some of these states also offer it at additional agencies) and 26 states have online registration.

Soon, even more will modernize. Five more states have authorized online registration[14] and three have authorized electronic registration,[15] but have yet to implement these modernizations. Additionally, implementing online registration and electronic registration at DMVs were two of the key recommendations made last year by the bipartisan Presidential Commission on Election Administration (PCEA), a panel chaired by the lead lawyers for the Obama and Romney campaigns, that studied how to improve the voting experience.[16]

List of States Adopting Electronic Registration, Online Voter Registration, or Both

State	Online Registration	Launch Date – Online Registration	Electronic Registration at DMVs	Launch Date – Electronic Registration at DMVs
Arizona[17]	Yes	July 2002	Yes	2005
Arkansas[18]	No	–	Yes	Mid 1990s; (paper fully eliminated in all circumstances in 2010)
California[19]	Yes	September 2012	Yes, but only for in-county address updates.	Mid 1990s
Colorado[20]	Yes	April 2010	No	–
Connecticut[21]	Yes	January 2014	No	–
Delaware[22]	Yes	July 2006	Yes	1990s; (paper fully eliminated in all circumstances in 2009)
Florida[23]	Yes	2017	Yes	2006
Georgia[24]	Yes	March 2014	Yes	Paper fully eliminated in all circumstances in 2009
Hawaii[25]	Yes	August 2015	No	–
Illinois[26]	Yes	June 2014	Yes	2016
Indiana[27]	Yes	July 2010	Yes	2010
Iowa[28]	Yes	2016	Yes	2006
Kansas[29]	Yes	May 2009	Yes	2008
Kentucky[30]	Yes	2016	Yes, but registrations are incomplete without paper signatures	1995
Louisiana[31]	Yes	April 2010	Yes	Paper fully eliminated in all circumstances in 2013
Maryland[32]	Yes	July 2012	Yes	2011
Massachusetts[33]	Yes	June 2015	Yes	1995; (paper fully eliminated in all circumstances by 2000)
Michigan[34]	No	–	Yes, but only for address updates.	1998; (paper fully eliminated in some circumstances in 2007)
Minnesota[35]	Yes	September 2013	Yes	2004

State	Online Registration	Launch Date – Online Registration	Electronic Registration at DMVs	Launch Date – Electronic Registration at DMVs
Mississippi[36]	No	–	Yes	2006
Missouri[37]	Yes, but paper is used after the voter submits their application online	December 2013	No	–
Nebraska[38]	Yes	September 2015	Yes	Date unknown
Nevada[39]	Yes	September 2012	No	–
New Jersey[40]	No	–	Yes	2007 (paper involved then, but paper has since been eliminated from the process at some unknown date)
New Mexico[41]	Yes	January 2016	Yes	2014; (redesigned in 2015)
New York[42]	Yes	August 2012; (paper fully eliminated in all circumstances in April 2015)	Yes	2012; (paper fully eliminated in all circumstances in 2015)
North Carolina[43]	No	–	Yes	2006
Oklahoma[44]	Yes	November 2015	No	–
Oregon[45]	Yes	March 2010	Yes	2016
Pennsylvania[46]	Yes	August 2015	Yes	1995; (Paper fully eliminated in all circumstances in 2005)
Rhode Island[47]	No	–	Yes	2005
South Carolina[48]	Yes	October 2012	Yes, but paper is used to complete the application	1995
South Dakota[49]	No	–	Yes	2006; (paper fully eliminated in all circumstances in 2012)
Texas[50]	No	–	Yes	2010
Utah[51]	Yes	June 2010	No	–
Vermont[52]	Yes	October 2015	No	–
Virginia[53]	Yes	July 2013	No	–
Washington[54]	Yes	January 2008	Yes	2008
West Virginia[55]	Yes	September 2015	Yes	June 2015

Table 1. The table above lists the 39 states that are known to either have, or soon will have either electronic registration, online registration, or both, and when they implemented that reform if available. Of these 39 states, 38 have implemented at least one component.

B. Electronic and Online Registration Save Money

Electronic and online registration result in substantial cost savings to state and/or local election officials, with exact cost savings varying from state to state. To be clear, not all states have attempted to track or measure their cost savings — only 29 reported to us they did. There was, however, unanimity among those 29 states that electronic and online registration result in cost savings. The most common explanation for the cost reduction was the saving on staff time at the county level, due to reduced data entry time from what was previously required to process paper forms.

Only 5 of the 29 states reported to us that they tracked labor costs, and all 5 of those documented saving with labor expenses. In the first year of electronic registration, Delaware's State Election Commission documented $200,000 in reduced labor costs.[56] Election officials in Colorado, Kansas, and Maryland reported that they knew they saved money on labor costs because fewer temporary employees needed to be hired for data entry — even when counties received a surge of registrations.[57] Oregon reported that county election officials spend a tenth of the time they previously did processing voter registration applications submitted online.[58]

Some election officials identified other areas of cost savings. For example, North Carolina election offices saved money on electronic registration by storing registration applications electronically instead of storing paper copies,[59] while Rhode Island reported saving money because electronic registration has eliminated the need to mail or hand-deliver paper forms from the DMV to election officials.[60] Though West Virginia's electronic registration system has only been in operation for a few months, election officials anticipate savings from printing and providing fewer paper registration forms to DMVs, as customers are now able to complete these transactions without paper forms.[61]

Although moving to an electronic registration system that still includes some paper can result in cost savings, the greatest cost savings happen when paper is eliminated.[62] For example, South Dakota first implemented an electronic registration system that transmitted voters' information electronically, but relied upon traditional paper methods to complete the transaction. At that time, South Dakota's counties spent from $500 to $2,000 per year on the maintenance of voter databases.[63] Now that South Dakota eliminated the use of paper completely, it expects to decrease these costs to as little as $0 to $300 per county, per year.[64]

Online registration also resulted in cost savings. For example, Washington State saves 25 cents with each online registration,[65] totaling approximately $176,000 in the first two years after launching its program.[66] In addition to these state-level savings, counties in Washington save between 50 cents and $2.00 per online registration transaction.[67] In Colorado, Director of Elections Judd Choate reported that processing online registration applications costs only one-quarter of what it costs to process paper registrations.[68] The California Secretary of State's office estimated that their online voter registration system saved them approximately $2.34 per online registration transaction.[69] Though they do not have specific estimates at the moment, the office anticipates that future elections will result in increased savings as online registration continues to increase in popularity.[70]

"Our voter registration system is self-sustaining. It's zero to minimum annual costs."

—Brandon Johnson, Help America Vote Act Coordinator, South Dakota[94]

These cost savings are especially exciting because most states have been able to implement online registration with only a modest investment. We were only able to collect estimates from 18 states, but nearly all — 14 — reported that they were able to implement online registration for less than $300,000. Start-up costs ranged from as low as $0 in Kansas and Missouri, to a budgeted $1.8 million in California.[71] Maryland implemented online registration as part of a larger package of services that also included an online polling place look-up feature, and other new voter services, at a cost of $500,000.[72] Illinois, on the other hand, was able to implement online registration without any additional contractor costs — choosing to build and implement the system entirely with in-house IT staff — but did have to make small infrastructure investments on hardware necessary to support the new system.[73] Kansas and Missouri were similarly able to implement online registration using their existing staff and IT professionals.[74] California's expenses were an outlier by orders of magnitude, but they did not have a statewide voter registration database at the time of implementation, and applied for and received grants to cover this expense.[75]

Start-Up Costs of Online Voter Registration in 18 States

State	Start-Up Costs	Implementation Year
Kansas	$0 (in house staff implemented)[76]	2009
Missouri	$0 (in house staff implemented)[77]	2013
Illinois	Approximately $20,000[78]	2014
Colorado	< $30,000[79]	2010
Utah	$36,000[80]	2010
Minnesota	$55,000[81]	2013
Virginia	$81,000[82]	2013
Indiana	< $100,000[83]	2010
Arizona	< $100,000[84]	2002
South Carolina	$130,000[85]	2012
Pennsylvania	$200,000[86]	2015
Oregon	Approximately $200,000[87]	2010
Nevada	Approximately $225,000[88]	2012
Washington	$279,000[89]	2008
Connecticut	$331,968[90]	2014
Maryland	< $500,000[91]	2012
New York	$500,000[92]	2012
California	$1.8 million[93]	2012

Table 2. The above table lists the start-up costs associated with building an online voter registration system.

C. Electronic and Online Registration Result in More Accurate Voter Rolls

Consistent with what we found in the 2010 report, election officials reported that both electronic and online registration increased the accuracy of voter rolls compared with paper forms. In the case of electronic registration, election officials suggested that accuracy increases because staff at election offices receive voter registration data from the DMV electronically and no longer have to interpret illegible handwriting on paper forms or manually enter voter information, thus limiting the opportunities for errors. In the case of online registration, election officials with these systems universally agreed in interviews that allowing voters to enter their own information into an online registration form significantly reduces the likelihood of mistakes,[95] and has the benefit of preventing voters from submitting incomplete applications.[96]

> "You'd be hard-pressed to even come up with a reason to not do [online registration]. The most obvious thing – [online registration] leads to a much cleaner database because the voter is putting in the information, not the county. There's no conduit. People have terrible handwriting. If they put in the wrong information online, they can correct it online. They can correct on the spot. It is so much better in every possible way. States that are hesitant to do it are missing the boat. They are missing the customer service, the cost savings, the service level and the use of their internal resources. It's completely a lost opportunity."
>
> **—Judd Choate, Director of Elections, Colorado**[97]

D. DMV Registration Rates are Boosted by Electronic Registration and Voters Use Online Registration

Electronic and online registration help voters register by making the registration process easier than in paper-based systems.

1. States Implementing Electronic Registration Experience Boosted DMV Registration Rates

In the 2010 study of electronic registration, nearly every state from which we obtained data — 8 out of the 10 — experienced striking growth in DMV voter registration rates following the launch of electronic registration.[98] In Kansas, Rhode Island, and Washington,[99] registration rates nearly doubled, and North Carolina saw a registration spike, after implementing electronic registration. While not included in the initial study, Iowa and Mississippi both implemented electronic registration before 2010, and both experienced immediate growth. Mississippi saw a spike after its 2006 implementation, while Iowa's registration rate more than doubled. Remarkably, in Arizona and Pennsylvania, registration rates increased several times over after the states launched electronic registration systems that eliminated all use of paper. South Dakota's rates increased seven-fold in the first three years after implementing electronic registration at the DMVs. One of these eight states, Michigan, did not see an immediate spike after launching partially electronic registration in 1998, but experienced a doubling of the DMV registration rate just six years later and has maintained that rate since. Of the 10 states studied, only Delaware and Florida did not observe growth following their launches of electronic registration. Delaware and Michigan, however, have the highest ratio of DMV registrations to total DMV transactions.[100]

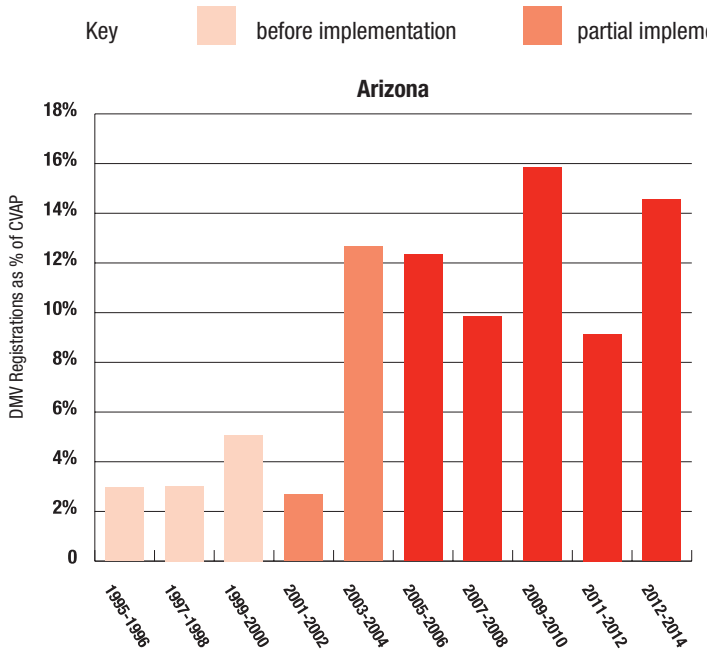
The results of implementing or improving electronic registration systems after 2010 are consistent with these earlier reports — four out of six states experienced growth in DMV voter registration rates.[101] Arkansas, Louisiana, Maryland, and Texas all observed spikes in their registration rates, while Georgia and Indiana maintained their rates. In Indiana's case, this lack of growth may be explained by having the nation's seventh highest ratio of DMV voter registrations to total DMV transactions, meaning there were few missed registrations that could be captured by electronic registration.[102]

In addition to our interviews, we were able to obtain data regarding registration rates through 2014 for 16 states, and found that 14 of the 16 states with electronic registration demonstrated sustained or improved levels of registration at DMV offices.[103] While we were not able to make a before and after comparison for South Carolina as it implemented a partially electronic registration system in 1995, it is especially notable that its registration rate tripled in 2011 and 2012 relative to the same two-year period in 2009 and 2010.[104]

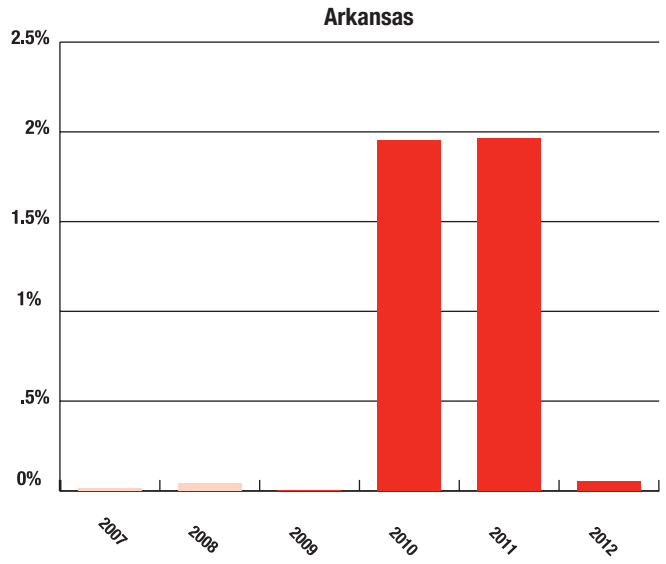
These results suggest that electronic registration is widely successful at registering new voters. Interviewed officials suggested reasons ranging from voters perceiving electronic registration to be more secure than paper registration forms,[105] to clerks inviting customers to register to vote more consistently,[106] to states having fewer incomplete registrations.[107]

Illustration 1: DMV Registration Rates Before and After Implementation of Electronic Registration

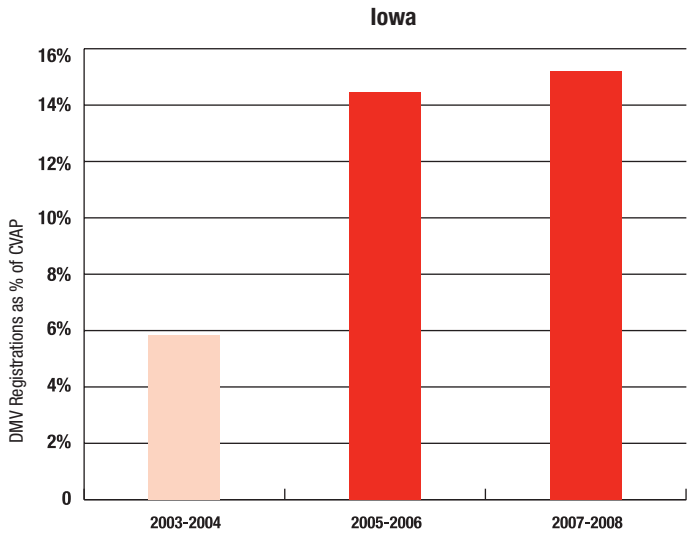
The below charts illustrate the proportion of voter registrations states received from their DMV offices before and after implementing electronic registration, whether in full or in part. Some of these states differ dramatically in the absolute size of their population and in the rate of growth. In order to best illustrate relative shifts in the importance of the DMV as a source of voter registrations, we present DMV voter registrations received each year as a percentage of a state's total population of voting-age citizens. The information in the charts below was obtained from the U.S. Election Assistance Commission's National Voter Registration Act Reports and the U.S. Census Bureau's Voting and Registration Population Characteristics Reports.[108] No regression analyses were performed.



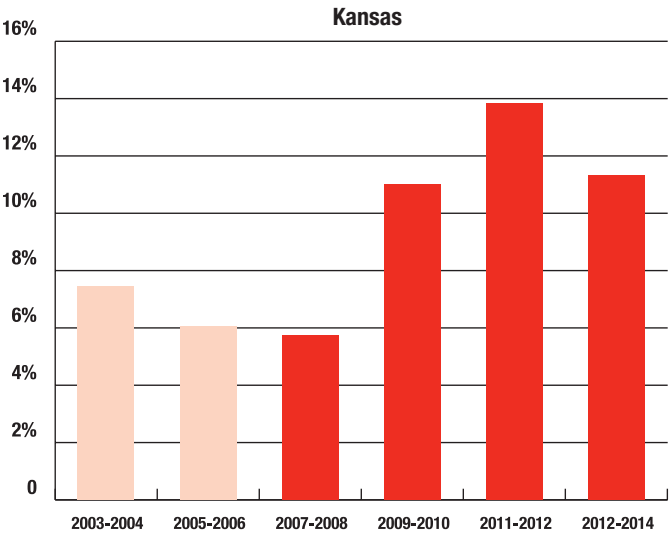
Arizona implemented electronic registration first in Maricopa County in 2002, and then statewide by 2005.[109] Maricopa County is the state's most populous county, constituting more than half of the state population.[110]



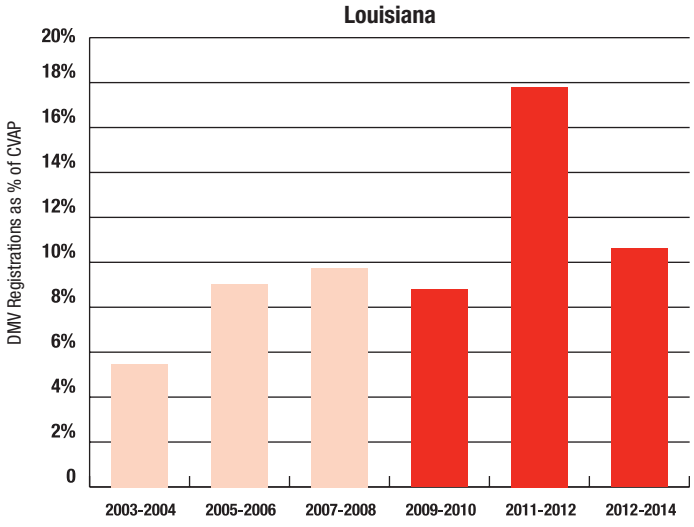
Arkansas implemented fully electronic registration in mid-2010.[111] Although the number of DMV registrations decreased in 2012, this is not unexpected, as the pool of eligible, unregistered citizens continues to decrease.



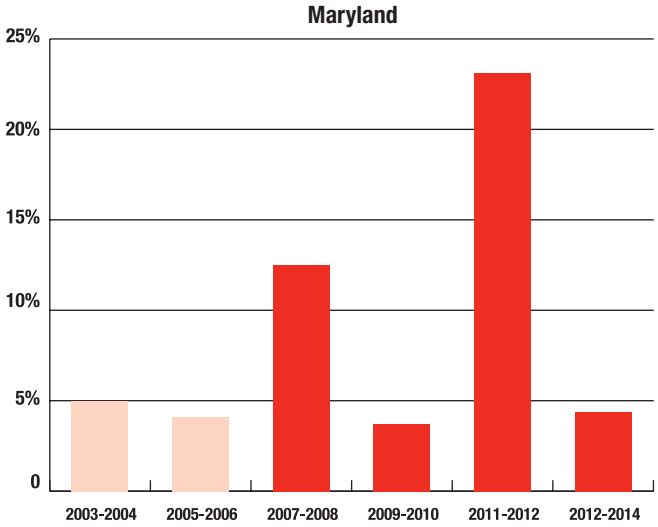
Iowa implemented electronic registration in 2006,[112] and in the following years, the registration rate more than doubled from 2003-2004.



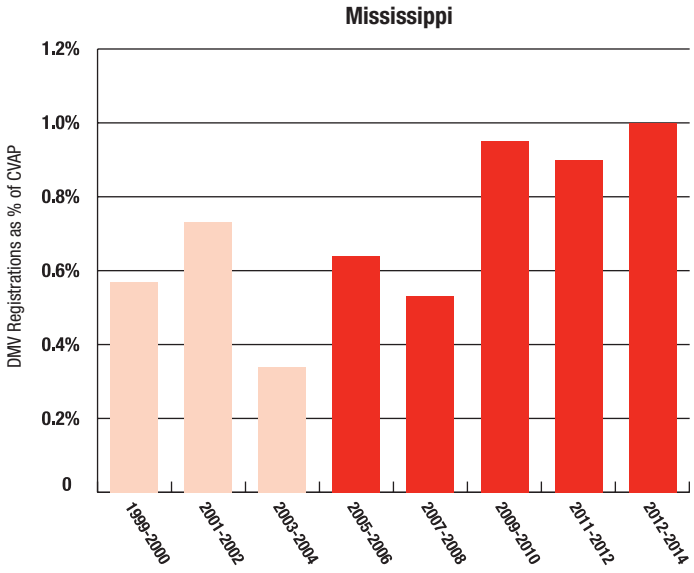
Kansas implemented electronic registration in 2008,[113] and in the following years, the number of DMV registrations nearly doubled.



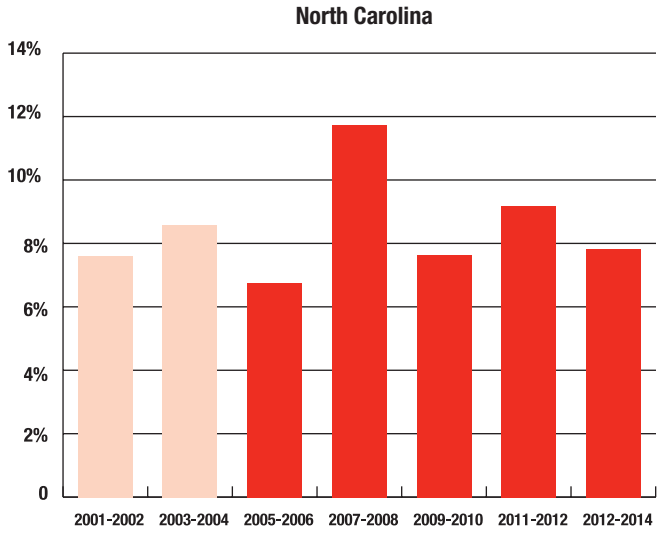
Louisiana launched electronic registration in 2009,[114] and in 2011-2012, the DMV registration rate nearly doubled.



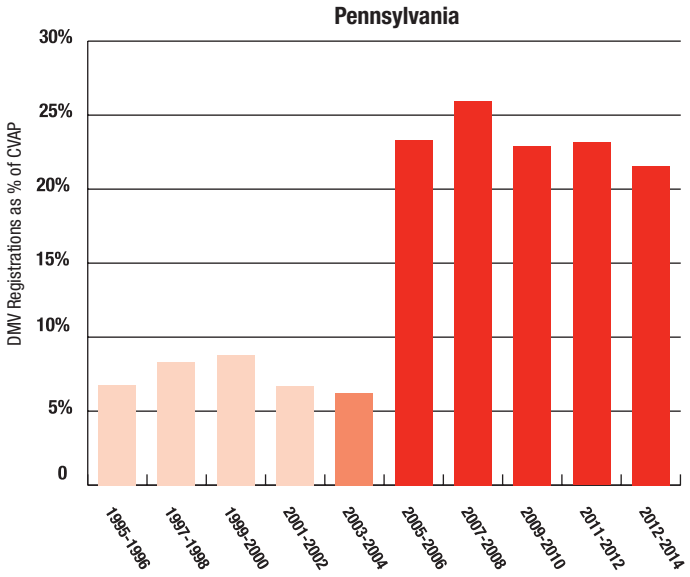
Maryland launched electronic registration in 2012.[115] The DMV registration rate in 2011-2012 was approximately 7 times what it was in 2009-2010 and more than double its rate from 2007-2008. Although the number decreased in 2014, this is not unexpected because the pool of eligible, but unregistered voters continues to decrease.



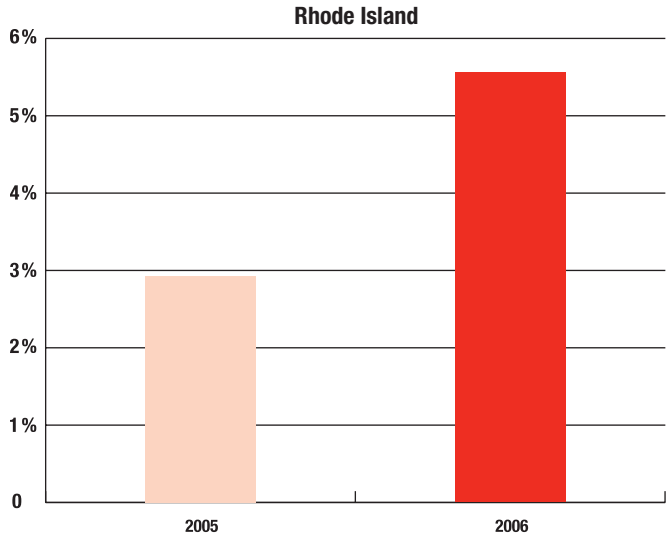
Mississippi implemented electronic registration in 2006.[116] The registration rates seem to fluctuate with every two-year election cycle, but have been slightly higher in more recent years than before electronic registration was implemented.



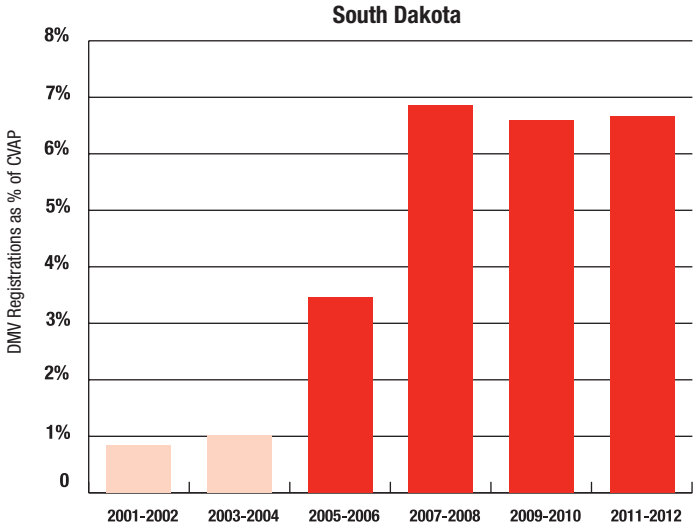
North Carolina implemented electronic registration in 2006,[117] and the two-year period following implementation, 2007-2008, saw the highest registration rate in the entire 12-year period.



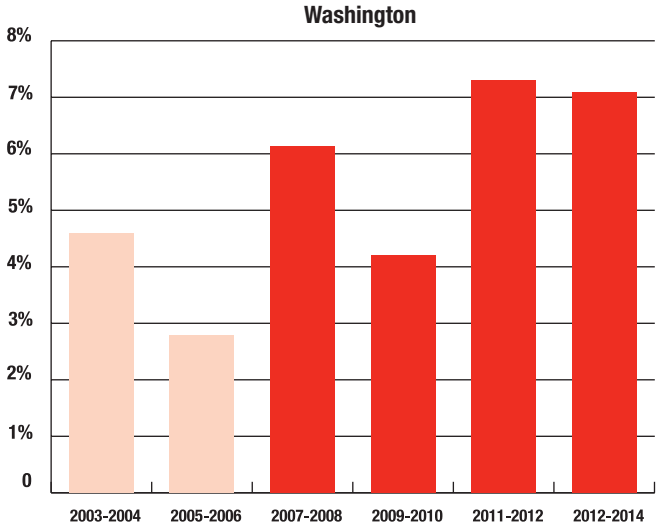
Pennsylvania phased out the use of paper for registration between 2003 and 2005.[118] Strikingly, registration rates from 2005 onward are roughly four times the rates from earlier years.



Rhode Island entirely eliminated paper from its electronic registration in August 2005,[119] and experienced almost double the rate of DMV registrations the following year. Data pre-2005 was not available.



South Dakota implemented electronic registration in 2006,[120] and experienced a dramatic increase in DMV registration rates in subsequent years.



Washington launched electronic registration in 2008.[121] Although DMV registration rates have fluctuated, they have been increasing overall, particularly in presidential election years.

2. Online Registration is Popular with Voters

Though online registration is still new in many states, our research suggests voters have been quick to embrace this method of registration. Election officials frequently explained that online registration offers more convenience for new and existing voters, who can access the online system at any time and from the comfort of their homes, rather than waiting in line at the county election office to fill out a paper form or waiting for a paper form in the mail.[122]

Online registrations accounted for more than 10 percent of all new registrations in 11 of the 14 states with online registration between 2010 and 2012, the latter a presidential election year. In Arizona and Utah, online registrations accounted for over 25 percent of all new registrations in that same period.[123] (See Table 3) In fact, in one month leading up to the Fall 2012 voter registration deadline, California received more than 1 million registration applications through its new online system.[124] South Carolina launched online registration only five days before its October 2012 registration deadline, but in those five days, 25,000 online registration transactions were submitted, including approximately 14,000 new registrations (the rest were largely address updates).[125] And, despite being made available for only the final three months of the year, online registration accounted for nearly 31 percent of all voter registration transactions in South Carolina in 2012.[126]

Online registration continues to grow in popularity even in those states that have had it for several election cycles. For example, in Washington, where online registration was launched in 2008, the number of new voter registrations submitted online reached a record high in 2012 at nearly 77,000 (21 percent of all new registrations that year), surpassing the 2008 figure of approximately 75,000 (18 percent of all new registrations).[127] In Arizona, online voter registrations accounted for approximately 25 percent of all registrations in 2003, the year following its launch, and accounted for 39 percent of registrations in 2008.[128] As noted in Table 3, in the period from November 2010 to November 2012, online registrations accounted for 46 percent of all new registrations in Arizona, the highest share in any state.[129] In 2012, Indiana received nearly two and a half times the raw number of online applications as in 2010 and 2011 combined.[130] In Oregon, online transactions accounted for 28 percent of all voter registration applications in 2012, compared to 18 percent in 2010 and 2011.[131]

Such high levels of usage, however, are not guaranteed. Interest in the upcoming election also seems to matter. The 2014 election was plagued by historically low turnout across the country, and with that, low registration rates. Even in Arizona and Utah, the two states where online registration is utilized most heavily, the percentage of new registrations conducted online in 2014 decreased by 16 and 14 percentage points compared to 2012 percentages, respectively. This is partially explained by the total number of newly registered voters in 2014 decreasing from 2012 levels, dropping 82 percent and 56 percent in Arizona and Utah respectively.[132] It also is not surprising that Georgia, Minnesota, and Virginia — where online registration was only launched between 8 and 16 months before the 2014 election — had 3.6 percent, 10 percent, and 7.4 percent of all new registrations submitted online, respectively.[133] These states similarly suffered from lower turnout at the polls, and the total number of new registrants in 2014 respectively was 53 percent, 66 percent, and 2.4 percent less than that in 2012.[134]

Despite the low overall registration rates in 2014, in the three weeks between Georgia's March 2014 launch of its online registration system and the registration deadline for the midterm election primaries, almost 12,000 online transactions were submitted, which included approximately 6,900 new voter registrations.[135] As of November 5, 2014, more than 100,000 online transactions were submitted, about half of which were new registrations.[136] This strikingly high usage was partially attributed to the timing of the rollout with an upcoming registration deadline – for example, county registrars were able to visit high schools with tablets and help students register online.[137] There was also a lot of press interest surrounding Georgia's implementation of online voter registration and the primary registration deadline, which likely contributed to its success.[138]

In the first five days after launching online voter registration, Pennsylvania received 4,100 voter registration applications — an average of one submission every two minutes.[139]

Online Registrations as Reported to the U.S. Election Assistance Commission, Nov. 2010-Nov. 2012[140]

State	Total New Voter Registration Applications Received, 2010- 2012	Total New Voter Registration Applications Received Online, 2010-2012	Percentage of New Voter Registration Applications Received Online, 2010-2012
Arizona	576,085	267,538	46.4%
Utah	217,657	58,209	26.7%
Washington	697,507	128,605	18.4%
California[141]	2,111,659	375,750	17.8%
Colorado	458,323	75,106	16.4%
Oregon	245,315	38,317	15.6%
Kansas	235,322	35,057	14.9%
Indiana	354,598	50,489	14.2%
Nevada[142]	239,755	33,224	13.9%
Louisiana	375,809	51,517	13.7%
Maryland[143]	408,588	46,513	11.4%
Delaware	71,181	5,384	7.6%
South Carolina[144]	255,445	11,748	4.6%

Table 3. The above table lists the percentage of new voter applications received online.

"Convenience is the first benefit [of online voter registration]. People can register to vote without going in to the [DMV] or printing a form. They can even do it [on their smart] phone."

—Linda Ford, Director of Elections, Georgia[145]

E. Applications Submitted Electronically or Online are Processed More Quickly

In interviews for the 2010 report, election officials observed that voter registration applications submitted through electronic or online registration are processed more quickly and with less delay than traditional paper registrations. Today, officials in at least 32 of 38 states with electronic or online registration confirmed the same experience. In Washington, for example, Director of Elections Lori Augino reported that electronic registration reduced application processing time from multiple weeks to one day.[146] This faster processing time was primarily attributed to the non-existent or minimal delay in electronically transferring the information to election officials, as well as the greatly reduced need for data entry.

For example, local election officials typically receive online and electronic registrations within 24 hours, and, in some cases, in real time. Applications delivered through these means do not have postal service or courier delays, and unlike paper forms, are far less vulnerable to being lost or misplaced.[147]

Additionally, county clerks no longer need to open envelopes, stamp forms, or manually enter information from paper registration forms.[148]

> "[Before electronic registration], it took weeks to process registration forms after the piece of paper the voter filled out was sorted and finally sent to the county. That registration is captured and processed within a day now. So now a voter doesn't have to wait weeks to have their registration processed. It's happening so much faster."
>
> **—Lori Augino, Director of Elections, Washington**[149]

II. HOW STATES IMPLEMENT ELECTRONIC AND ONLINE REGISTRATION

A. Most Electronic and Online Registration Systems are Limited to Citizens Interacting with the DMV, but Other Details Vary

There is no "one size fits all" approach to electronic and online registration, and states instead have designed their systems in accordance with state-specific needs, resources, and existing election operations. Accordingly, these systems vary across states in many ways, including how information, including signatures, is captured, and whether any paper is used. However, in most states, these modernized systems are limited to citizens who are either applying for or already have a DMV-issued ID, such as a driver's license.

In fact, 25 out of 27 states that have already implemented electronic registration only make it available at the DMV. Starting registration modernization efforts at the DMV makes good sense for several reasons. First, the DMV is an agency where transactions already require a signature that election officials can use for voter registration purposes if needed.[150] Second, the DMVs are already set up to share information with election officials because of requirements under the Help America Vote Act, the federal law creating statewide voter registration databases.[151] Third, in many states, DMVs provide the largest source of voter registrations, so there is a big payback on any investment in infrastructure.[152] At least two states, Delaware and Kentucky, have electronic registration at social service agencies in addition to DMVs, and upon implementation, Illinois will do the same.[153]

In the majority of the 26 states that have implemented online registration, only citizens with a DMV ID number issued by their state of residence can register through the online system.[154] In contrast, Delaware, Minnesota, and Missouri do not require a DMV ID number to access the online registration system. Minnesota's system, launched in September 2013, allows citizens to use their DMV ID number *or* the last four digits of their Social Security number to register through an online transaction.[155]

Similarly, in Delaware, voters' signatures are transferred from the information on file with the DMV or the elections bureau.[156] For those without a signature on file, voters can cut and paste their own digital signature into the form.[157] Their online application is received by local election officials in real time.[158] Missouri's online registration system does not require a DMV ID number or Social Security number. Instead, voters complete the online registration by providing their signature on their touchscreen device.[159]

B. Electronic Voter Registration: How it Works

As noted earlier, a system utilizing electronic registration digitally transfers voter registration information from government offices to election officials. Registration information is collected when the voter applies for other government services, and is electronically transferred to election officials with the voter's consent. Election officials receive these electronic records in a format they can review and upload directly into their voter registration databases.

1. Voter Information, Including Signatures, is Collected in Different Ways

Electronic registration at state DMV offices varies. For example, in 19 of 27 states that currently have electronic registration, DMV clerks verbally ask customers whether they would like to register to vote or update an existing registration.[160] In Maryland, however, voters type their responses directly on an electronic pad with a stylus.[161] In Kentucky and Michigan,[162] voters at motor vehicle offices complete registration applications on paper that have been pre-populated with certain information, but require voter's signature for completion.[163] In New York, those registering at the DMV use a piece of equipment known as the VeriFone device to respond electronically to questions on a voter registration form.[164] New Mexico, Pennsylvania, and West Virginia use a touchpad device to collect information like party affiliation and whether the voter would like to be a pollworker. All other information that was collected as part of the DMV transaction, like address and date of birth, is then verified on the touch screen device.[165]

At least 10 states have what is sometimes referred to as a "hard stop," meaning the registration question requires a yes or no response before the transaction can continue.[166] Rhode Island Deputy Director of Elections Mike Narducci explained that the state's system uses a hard stop to ensure that every customer at the DMV is offered the opportunity to register to vote.[167]

In at least 16 of the 27 states with electronic registration, voters provide their signature on an electronic pad with a stylus. In other states, voter registration applications import the electronic signature from the DMV record.[168] Mississippi DMVs use a paper form for driver's license applications, which integrates the voter registration questions, but collects a signature on an electronic pad.[169] In North Carolina, Texas, and Washington, voters provide their signatures on paper, which are later scanned to create a digitized version.[170]

In at least 23 of the 27 states with electronic registration, the transfer of voter information from DMVs to election officials is entirely paperless. At least four additional states — California, Kentucky, Michigan, and South Carolina[171] — have electronic registration systems in which DMVs transfer *at least some* voter registration information electronically to election officials, but have not completely eliminated the transfer of separate paper forms with the signature. For example, Michigan electronically transfers all voter registration information, including the electronic signature for address updates within the state, but new registrants have to go through the traditional paper and pen process for the signature.[172] Those signatures are then added to the fully electronic file.

Minnesota has a twist on this practice. In Minnesota, signatures are captured on paper but retained at the DMV. These signatures are not transferred to local election officials, as they are not needed to complete the registration.[173]

2. How Voter Registration Information is Transferred to and Processed by Election Officials

Electronic registration systems also vary with regard to when and what they transfer. In the vast majority of states that have eliminated paper from their electronic registration process — 20 of the 23 states with a fully electronic registration process — voter registration files are transferred electronically from the DMV systems to statewide voter registration databases on a daily basis.[174] The statewide voter registration databases sort the files by county and those records are electronically delivered to the counties the next morning.

"We get everything in real time. …The system knows based on your address where you should be registered — it's automatic. It goes to your county, and that night the polling place card goes out."

—Elaine Manlove, State Election Commissioner, Delaware[179]

Some of those states transfer information multiple times a day. For example, Delaware electronically transfers voter registration files from DMVs in real time.[175] Louisiana electronically transfers voter registration files every 30 minutes,[176] and New Mexico sends information twice daily.[177] A few states transfer voter registration files from the DMV to the registration database less frequently than every 24 hours.[178]

County-level election officials in electronic registration states also retrieve new registration files differently. For example, in Arizona and Maryland, county supervisors receive e-mail notices of new registrations each morning, prompting them to access the system.[180] In Iowa, on the other hand, state statute mandates that counties process these electronic files within seven business days; most counties process the files once or twice a week.[181] In Arkansas and Kansas, county election officials log in to the system, typically on a daily basis, and can view new registration files.[182] In Louisiana, parishes check work queues of electronic registration files throughout the day.[183]

California's system is unique. The state electronically transfers information for in-county address updates, but requires paper for out-of-county address updates.[184] If the voter has moved to a new county, the California DMV will send the address update electronically, but the voter must fill out and sign a new voter registration card, which is then mailed to the county election office.[185]

Indiana's process is distinct in two ways: First, Indiana electronically transmits all voter registration application information directly from the Bureau of Motor Vehicles office to the appropriate county office, as opposed to the state. This transfer includes the electronic signature captured on the electronic signature pad.[186] Second, the Bureau of Motor Vehicles is required to send the completed and signed paper applications to the appropriate county office, even though state law allows the county office to process the electronic application without the physical version of the paper application.[187] Though there is a paper transfer of information for voter registration applications at DMV offices, the application can be approved without the physical signature.

Key Points of Variation in the Electronic Registration Process[188]

Invitation to Register to Vote	
Asked verbally by a DMV clerk	Arkansas, Delaware, Florida, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts[189], Michigan, New Jersey[190], New Mexico, New York, North Carolina, Rhode Island, South Carolina, Texas, Washington
Asked on a paper application form	Arizona, California, Georgia, Massachusetts, Minnesota, Mississippi, New Jersey, South Dakota
Asked on an electronic touchpad device	Pennsylvania, West Virginia
Collection of Voter Registration Information	
DMV clerk inputs applicant's oral responses	Arkansas, Delaware,[191] Florida[192], Iowa, Kansas, Louisiana, New Jersey, Rhode Island, South Carolina, Texas, Washington
Applicant's written responses inputted into computer by DMV clerk	Arizona, Georgia, Indiana, Massachusetts, Minnesota, Mississippi, North Carolina, South Dakota
Applicant's written responses mailed to county election offices	Michigan,[193] California[194] (Certain transactions are sent electronically, but others require responses that are mailed.)
Applicant inputs responses into electronic device	Maryland, New Mexico, New York, Pennsylvania, West Virginia[195]
Applicant's written responses mailed to county election offices and some data sent electronically	Kentucky
Applicant Signature Capture	
Applicant signs an electronic signature pad with a stylus	Arkansas, California, Delaware, Florida, Georgia, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Mississippi, New Mexico, Pennsylvania, Rhode Island, West Virginia
Electronic signature on file with DMV is used	Arizona, New Jersey, New York, South Dakota
Applicant signs a paper application, which is scanned	North Carolina, Texas, Washington
Applicant signs a paper application, which is mailed to county election offices	California[196], Kentucky, Michigan,[197] New Jersey, South Carolina
Applicant signs a paper application, which is retained by DMV	Minnesota
Frequency of Electronic Transfer to Election Officials	
In real time	Delaware, Louisiana[198]
Daily	Arizona, Arkansas, California, Florida, Georgia, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, North Carolina, New Mexico[199], Rhode Island, South Dakota, Texas, Washington, West Virginia
Several times a week	Pennsylvania, New York
Weekly	New Jersey, South Carolina

Table 4. The table above lists some points of variation in the electronic registration process at DMVs.

C. Online Voter Registration: How it Works

Today, 26 states have an online registration system that allows eligible citizens to submit a new or updated voter registration application over the Internet.[200] Five additional states have authorizing online voter registration systems, but have yet to implement them.[201] As with electronic registration, almost all of these states limit online registration to those who have a DMV-issued ID, and some states have an online system that involves some information transmitted by paper.

1. Online Registration Methods for Verifying an Applicant's Identity

Aside from Delaware, Minnesota, and Missouri,[203] all states with online systems require that a voter have an existing record on file with the DMV, meaning that the voter already has a DMV-issued ID. In the vast majority of states, when an individual logs on to the appropriate website (e.g., of the Secretary of State's office or the State Election Commission), they are prompted to enter their identifying information so that the online system can locate their personal record in the DMV database.[204]

"It's a convenience for people who want to register to vote. It gives them one more option. The younger generation just assumes that everything should be done online. …It's easier."

—Brad Bryant, State Election Director, Kansas[202]

Online registration in these states is not possible unless the applicant's personal record is located because that is where the digital signature is captured and then used for voter registration purposes. Accordingly, states must have a means for locating the record that is precise enough to identify the correct person, but not so strict that minor variations (such as "Peg" instead of "Peggy") preclude a correct match from being made. Interestingly enough, the information used to find a "match" in DMV records varies by state. For example, at least five states require DMV ID number, date of birth, and first and last names;[205] while one state requires DMV ID number, date of birth, and house number of the street address.[206]

2. Assisting Registration of Eligible Residents without a DMV ID through Online Services

Although only three states allow eligible voters without a DMV ID to submit a full voter registration application over the Internet,[207] most online registration states have some online method for assisting eligible voters who do not have a DMV license or identification card. These alternatives are not fully paperless options to register, but rather help facilitate the registration process.

For example, in at least five online registration states,[208] voters who do not have a DMV ID number can access a voter registration application online. They must, however, print and mail their signed application.[209] While it may be helpful to voters to have the application available online, this is not online registration. Similarly, some states, like California, Connecticut, Louisiana, Pennsylvania, Utah, and Virginia, allow those without DMV ID numbers to partially register online, but still require a paper form with a signature to complete the application.[210] The voter's application is completed upon receipt of their hand-written signature.

In both Connecticut and Pennsylvania, applicants without DMV ID numbers cannot proceed with the online application unless they attest to citizenship and eligibility.[211] For California voters without a DMV ID or signature on file, the counties receive all registration information submitted online electronically, and then mail a paper card to the voter to gather the signature.[212] California counties are required to accept missing signatures to complete applications up to, and including, Election Day.[213] In Utah, applicants without a DMV ID may submit the voter registration form online, but are then required to print, sign, and mail this form to complete their registration. This hard-copy form includes a unique barcode so when it is received by election officials they do not have to key in any information. Utah voters are given a limited timeframe to submit their signature before their electronic file will be deleted from the system.[214]

3. Online Registration Systems Vary in Updates Allowed

In all online registration states we studied, voters can submit updates to their voter registrations through the online registration system.[215] The information that can be updated online, however, varies. Typically, voters can update their address or political party online, but fewer states permit a name change to be made online.

Address Change

Most online registration states allow voters to change their address within the state, but states vary in how this can be done.[216] For example, Colorado's online registration system begins by asking the registrant whether they want to register to vote or update/verify a current registration. The system prompts voters who choose the "Update/Verify" option to enter their first and last name, date of birth, and zip code. The system shows the voter's current voter registration record, and the voter can choose to update basic information in their record, including their address.[217]

In at least three online registration states — New York, South Carolina, and Utah — voters must update their address with the motor vehicles department first before they can update their voter registration record address online.[218]

Political Party Change

In all of the online registration states that request political party affiliation, party changes can be made online.[219] In California, however, a change of party affiliation must be submitted as a new registration.[220]

Name Change

In several states, voters can update their records online to document a name change. In other online states, voters must first notify the DMV of the name change.[221] In California, name changes have to be submitted as new registrations.[222]

4. Other Election Purposes of Online Registration Systems

In addition to new registrations and updates, many states use their online registration systems for additional functions. For example:

- **Absentee Ballots:** In at least four states, including Louisiana, Maryland, Minnesota, and Utah, voters can submit an online request for an absentee ballot.[223]

- **Vote by Mail:** In Oregon, a vote-by-mail state, voters can use online registration to provide an alternate address to receive their ballot. Voters who will be away during the election period can check a box indicating such, and are then prompted to indicate the mailing address where they would like to receive their ballot.[224] In Arizona, voters have the option to sign up online for the state's permanent early voting list, enabling them to receive a mail-in ballot for every election in which they are eligible.[225]

- **Registration Confirmation:** In many states with online registration, voters can print a confirmation receipt or confirmation number. In several states, voters also have the option to receive the confirmation by e-mail.[226] Provided they are date-and-time stamped, these confirmation receipts can be helpful for voters sorting out registration issues, if necessary, because they provide proof the online registration was submitted.[227]

- **Working with Third-Party Groups to Encourage Online Registration:** California, Georgia, Washington, and West Virginia are working to expand online registration through partnerships with state agencies, voter outreach groups, and other third-party organizations. Georgia's Secretary of State's office created a third-party registration coordinator position to work with state organizations to encourage the use of online registration.[228] In Washington, third-party organizations can request a unique URL that feeds into the state's online registration system and allows the source of the registration to be tracked.[229] California partnered with Rock the Vote to develop the same functionality and can now track how many registration applications come from each unique entity.[230] West Virginia is also partnering with Rock the Vote, hoping to launch similar functionality after rolling out its online voter registration system.[231]

- **Additional Language Support:** Some states also offer their online registration systems in languages other than English. In Illinois, the online registration system is also available in Chinese, Hindi, and Spanish;[232] in Minnesota, state election officials are currently working on alternate-language versions for Hmong, Somali, and Spanish;[233] and in California, the online voter registration website is available in 10 languages: Chinese, English, Hindi, Japanese, Khmer, Korean, Spanish, Tagalog, Thai, and Vietnamese.[234]

Online Services for Military and Overseas Voters

At least 10 online registration states have a separate online registration portal or process for military and overseas voters.[235] In these states, voters under the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA) can file a request online for an absentee ballot or early ballot. Some non-online registration states have online portals specific for UOCAVA voters.[236]

5. Online Registration Security

Given recent highly publicized hacking incidents — for example, the United States Office of Personnel Management's hacking[237] and Twitter's data breach[238] — the security of online systems likely is of concern to voters and election officials alike. States use a variety of security measures to safeguard online registration systems and voter information. These tools include websites that will "time out" automatically after a certain period of inactivity, a CAPTCHA[239] test to prevent hacking or automated attacks on the system, and monitoring for suspicious activity, including monitoring the volume of failed DMV ID numbers.[240]

Some states have taken additional security measures. Two years ago, both Maryland and Washington added the *issue date* of the applicant's driver's license as additional required information for voters registering online, because driver's license numbers in these states can be predicted using a publicly-known algorithm based on the applicant's name.[241] In addition, although Louisiana's DMV ID numbers are not publicly-available, the state added the DMV ID audit code to further enhance security.[242]

There has been at least one instance, involving the University of Maryland College Park (UMCP), in which an online registration system was shut down because of security risks. But in this situation the vulnerability was in a related online system, not the voter registration portal itself.[243]

In September 2012, two months after the launch of Maryland's statewide online registration system, UMCP designed its own online registration system to feed into the statewide database.

An initiative of UMCP's Student Government Association developed by the University's IT staff, the "Terrapin Electronic Voter Registration Application System" was modeled closely after the DMV system used by online registration states. Students did not need a Maryland driver's license to use UMCP's online registration system, but they did, however, have to be age-eligible U.S. citizens, live in Maryland, and be current graduate or undergraduate students at UMCP with University ID. Students were not asked to provide any portion of their Social Security numbers on the online voter application but instead provide their university ID number. Only students at UMCP were eligible to use its online registration system; it was not set up for use by faculty or staff.

Students' signatures were captured electronically when they obtained their university ID, and this signature was then used to process their online voter registration application. A number of long-term graduate students received their university ID before the university began collecting electronic signatures. These students were able to provide an electronic signature at the registrar's office.
UMCP's voter registration files were uploaded into Maryland's statewide voter registration system every night, and then processed like all other online registration applications, including a citizenship eligibility check.

During the 2008 elections, more than 2,500 students used this system to register to vote.[244] However, there was a security breach in early 2014 that targeted the college's ID card systems. While the online registration system was not directly affected, UMCP officials deemed the online ID card system that housed voters' signatures and Social Security numbers too vulnerable. UMCP decided to shut down the whole system rather than risk students' information being accessible to unauthorized users. Although UMCP is continuing to work on improving the security system, the online registration system was not running as of August 2015.[245]

CONCLUSION

Electronic and online registration systems have become commonplace, and can be implemented in a variety of ways accounting for state-specific needs. The benefits from these systems appeal to legislators of differing political views, and accrue to election officials and voters alike. The states that do not have these systems have many reasons to adopt them, and numerous examples upon which to build future systems.

The Brennan Center advocates that states make electronic and online registration as expansive and accessible as possible, and to work toward universal registration. This includes expanding the opportunity to register to vote for eligible citizens beyond the DMV population and creating user-friendly systems, accessible for those with disabilities. This also includes adopting reforms like automatic voter registration, same-day registration, and portability.

ENDNOTES

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4 DMV is intended as a generic term, although the Brennan Center recognizes that many states have unique names for their motor vehicles departments.

5 As described in Illustration 1.

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9 Oregon's automatic voter registration will launch in January 2016, and California's will launch mid-2016. Or. Sec'y of State, *Oregon Motor Voter Act FAQ,* http://sos.oregon.gov/voting/Pages/motor-voter-faq.aspx (last visited Oct. 13, 2015); Patrick McGreevy, *Gov. Brown Approves Automatic Voter Registration for Californians,* The Los Angeles Times (Oct. 10, 2015), *available at* http://www.latimes.com/local/political/la-me-pc-gov-brown-on-motor-voter-bill-20150917-story.html.

10 *U.S. Census Bureau Data.* U.S. Census Bureau, Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2014, 2014, *available at* http://www.census.gov/popest/data/state/totals/2014/tables/NST-EST2014-01.xls.

11 *Automatic Voter Registration*, The Brennan Ctr. for Justice, https://www.brennancenter.org/analysis/automatic-voter-registration (last visited Oct. 13, 2015).

12 National Voter Registration Act, 52 U.S.C.A. §§ 20501 – 20511 (1993).

13 Christopher Ponoroff, Brennan Ctr. for Justice, Voter Registration in a Digital Age 12-18 (Wendy Weiser ed., 2010), *available at* http://www.brennancenter.org/sites/default/files/legacy/Democracy/Paperless_Registration_FINAL.pdf.

14 As of October 13, 2015, online registration is awaiting implementation in Florida, Iowa, Kentucky, New Mexico, Oklahoma.

15 As of October 13, 2015, electronic registration is awaiting implementation in Illinois, Nebraska, and Oregon.

16 Presidential Comm'n on election admin., the American voting experience: report and recommendations of the presidential comm'n on election admin 23, 30 (2014) [hereinafter *PCEA Report*], *available at* https://www.supportthevoter.gov/files/2014/01/Amer-Voting-Exper-final-draft-01-09-14-508.pdf.

17 Telephone Interview with Craig Stender, HAVA Project Manager, Ariz. Sec'y of State (Mar. 7, 2013); E-mail from Mary Fontes, HAVA Business Analyst, Ariz. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (July 16 & 17, 2013) (on file with Brennan Ctr.).

18 Ponoroff, *supra* note 13, at 9; Telephone Interview with Rob Hammons, Director of Elections, Arkansas Secretary of State (May 21, 2013).

19 Telephone Interview with Jennie Bretschneider, Ass't Chief Deputy, Cal. Sec'y of State (Mar. 22, 2013); Ponoroff, *supra* note 13, at 9; *see also* Telephone Interview with Jennie Bretschneider, Ass't Chief Deputy, Cal. Sec'y of State, & Jason Heyes, Project Manager for California Online Voter Registration (COVR), Cal. Sec'y of State (Aug. 14, 2013). The following discussion of California's electronic voter registration process does not reflect the recent approval of automatic registration. This discussion is in regards to the state's current process of registering voters at the DMV, and is current as of August 2015. When automatic voter registration is implemented it is likely that voter registration at DMVs will not require the use of paper for voter registration.

20 Telephone Interview with Judd Choate, Dir. Of Elections, Colo. Sec'y of State (July 31, 2013).

21 Telephone Interview with Peggy Reeves, Dir. of Elections, Conn. Sec'y of State (Mar. 2, 2015).

22 Telephone Interview with Elaine Manlove, Comm'r of Elections, Office of the State Election Comm'r., State of Del. (February 20, 2013); Ponoroff, *supra* note 13, at 10; Steven Rosenfield, Paperless Voter Registration: Innovation in Three States 7 (Project Vote, 2010), *available at* http://projectvote.org/images/publications/2010%20Issues%20in%20Election%20Administration/Paperless%20Registration%20Case%20Study%20FINAL.pdf

23 Florida recently passed legislation authorizing online voter registration, and it is expected to be in effect in 2017. Steve Bousquet, *Gov. Rick Scott with 'Some Hesitation' Signs Online Voter Registration Law,* Tampa Bay Times (May 15, 2015, 11:45 AM), http://www.tampabay.com/news/politics/stateroundup/gov-rick-scott-with-some-hesitation-signs-online-voter-registration-law/2229827/; Telephone Interview with Maria Matthews, Dir. of Elections, Fla. Sec'y of State & Maureen Johnson, Dir., Fla. Dept. of Highway Safety and Motor Vehicles (May 20, 2013).

24 Telephone Interview with Linda Ford, Dir. of Elections, Ga. Sec'y of State; and Ryan Germany, Gen. Counsel, Ga. Sec'y of State (Mar. 4, 2015). E-mail from Jennifer Ammons, Gen. Counsel, Ga. Dep't of Driver Services, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (September 18, 2013) (on file with Brennan Ctr.).

25 Due to the newness of Hawaii's online voter registration system, election officials could not be interviewed in time for publication. Therefore, the discussion on online registration does not include Hawaii. Web Staff, *Office of Elections Launches Online Voter Registration System*, KHON2 (Aug. 4, 2015), *available at* http://khon2.com/2015/08/04/office-of-elections-launches-online-voter-registration-system/.

26 Illinois recently passed legislation establishing electronic voter registration at certain state social service agencies, and it is expected to be in effect in 2016. 10 ILCS 5/1A-16.6; Telephone Interview with Kyle Thomas, Dir. of Voting and Registration Sys., Ill. State Bd. of Elections; Kevin Turner, IT Dir., Ill. State Bd. of Elections; and Cheryl Hobson, Deputy Dir. of Voting and Registration Sys., Ill. State Bd. of Elections (Feb. 11, 2015).

27 Telephone Interview with Brad King, Co-Dir., Election Div., Ind. Sec'y of State (May 16, 2013); In Indiana, the DMV is required, by law, to send over the hand-signed voter registration form to election officials. The paper copy is not needed to complete the application and rather serves a file-keeping function. E-mail from Brad King, Co-Dir., Election Div., Ind. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (May 13, 2015) (on file with Brennan Ctr.); *see also* E-mail from Brad King, Co-Dir., Election Div., Ind. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 22, 2014) (on file with Brennan Ctr.).

28 The Iowa Online Voter Registration Portal will go live in mid-2016. Jason Noble, *Online Voter Registration Coming to Iowa in Early 2016,* Des Moines Register (January 20, 2015, 3:06 PM), *available at* http://www.desmoinesregister.com/story/news/politics/2015/01/20/online-voter-registration-iowa/22062699/; Telephone Interview with Sarah Reisetter, Dir. of Elections, Iowa Sec'y of State (May 9, 2013).

29 Telephone Interview with Brad Bryant, State Election Dir, Kan. Sec'y of State (March 14, 2013).

30 Press Release, Ky. Sec'y of State, Secretary of State Alison Lundergan Grimes Shatters Barriers to the Ballot Box (Sept. 22, 2015) *available at* http://migration.kentucky.gov/Newsroom/sos/sos092215a.htm; Telephone Interview with MaryEllen Allen, Exec. Dir., Ky. Bd. of Elections, (April 12, 2013).

31 Telephone Interview with Chrissie Weatherford, Info. Tech. Dir., La. Sec'y of State (May 2, 2013); E-mail from Chrissie Weatherford, Info. Tech. Dir., La. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 23, 2014) (on file with Brennan Ctr.).

32 Md. State Archives, *State Board of Elections, Origins and Functions* (Mar. 28, 2014), http://msa.maryland.gov/msa/mdmanual/25ind/html/30electf.html; Telephone Interview with Mary Cramer Wagner, Dir. of Voter Registration Div., Md. State Bd. of Elections & Ross Goldstein, Deputy State Adm'r, Md. Bd. of Elections (Mar. 5, 2013).

33 Due to the newness of Massachusetts' online voter registration system, election officials could not be interviewed in time for publication. Therefore, the discussion on online registration does not include Massachusetts. S*ee* Andy Metzger, *State House News: Massachusetts Launches Online Voter Registration,* The Scituate Mariner, June 23, 2015, http://scituate.wickedlocal.com/article/20150623/NEWS/150628782. E-mail from Michelle Tassinari, Dir. of Elections Div., Mass. Sec'y of State's Office, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (June 29, 2013) (on file with Brennan Ctr.).

34 Michigan eliminated paper for address updates in 2007, when the DMV began sharing electronic signatures with election officials. Ponoroff, *supra* note 13, at 10; *see also* Telephone Interview with Kristi Dougan, Voter Outreach Coordinator, Mich. Dep't of State (Apr. 9, 2013).

35 Telephone Interview with Jeff Narabrook, Voter Outreach Dir., Minn. Sec'y of State (Oct. 29, 2013); 2004 Minn. Laws 1497, *available at* https://www.revisor.mn.gov/laws/?year=2004&type=0&doctype=Chapter&id=293&format=pdf.

36 Telephone Interview with Madalan Lennep, Elections Consultant, Miss. Sec'y of State (Apr. 12, 2013).

37 Missouri has not eliminated paper in its online registration system. The voter experiences a paperless process, but the election officials require paper transfer after an application is submitted to complete that application. Telephone Interview with Brianna Lennon, Elections Counsel, Mo. Sec'y of State (Mar. 11, 2014).

38 Due to the newness of Nebraska's online voter registration system, election officials could not be interviewed in time for publication. Therefore, the discussion on online registration does not include Nebraska. Press Release, Neb. Sec'y of State, Online Voter Registration System Nearing Roll Out (Aug. 27, 2015), *available at* http://www.sos.ne.gov/admin/press_releases/pdf-2015/8-27-15-OVRA-News-Release.pdf; Joe Duggan, *Coming Soon to Nebraska: Online Voter Registration*, Omaha World-Herald, Mar. 31, 2014, http://www.omaha.com/news/coming-soon-to-nebraska-online-voter-registration/article_ca8c62d9-77de-57d8-8e24-f64f2e7fd76d.html.

39 Telephone Interview with Scott Gilles, Deputy Sec'y for Elections, & Justus Wendland, HAVA Administrator, Nev. Sec'y of State (June 11, 2013).

40 E-mail from Mike DiSimoni, Deputy Dir. of Elections Div., New Jersey Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (August 14, 2013) (on file with Brennan Ctr.).

41 New Mexico passed legislation authorizing online voter registration in 2015, providing for registration updates by January 2016, and full online registration by July 2017. The Secretary of State's office expects both to launch in 2016. E-mail from Kari Fresquez, Interim Election Dir., N.M. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 23, 2015). New Mexico previously implemented electronic voter registration at the DMV in 2014, but after problems with the system, it decided to temporarily revert to paper registration systems at the DMV while redesigning the electronic registration system. E-mail from Bobbi Shearer, Dir. of N.M. Bureau of Elections, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 1, 2014) (on file with Brennan Ctr.). New Mexico recently relaunched its electronic voter registration system in May 2015 at all DMV locations operated by State and Municipal officials. Third-party offices that are privately run, like "MVD Express" and "MVD Now" (of which there are 15 out of a total 87 DMV offices across the state), and do not offer all motor vehicle transactions, will be fully electronic by the end of the calendar year. E-mail from Kari Fresquez, Interim Election Dir., N.M. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug.13, 2015) (on file with Brennan Ctr.).

42 New York had an electronic registration system that did not require the use of paper for voters, but required the transmission of paper forms between the DMV and election officials, from the time it launched in August 2012 until April 2015. This past April, New York implemented a process that eliminated paper entirely for both electronic and online voter registration. Telephone Interview with Robert Brehm, Co-Executive Dir. & Anna Svizzero, Dir. of Election Operations, N.Y. Bd. of Elections (March 15, 2013); E-mail from Ann Scott, Dir. of Agency Program Services, N.Y. Dep't of Motor Vehicles, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 6 & 7, 2015) (on file with Brennan Ctr.).

43 Telephone Interview with Veronica DeGraffenreid, Voter Registration Dir., and Marc Burris, Chief Information Officer, N.C. State Board of Elections, (May 3, 2013).

44 Oklahoma is included in this table as they have authorized online voter registration. They are not included in the previously stated tally of 38 states that currently have either electronic registration, online registration, or both, as they have not yet implemented online voter registration. Paula Burkes, *Oklahoma Voter Registration Soon Will be Available Online,* The Oklahoman, June 17, 2015, http://newsok.com/article/5428081.

45 Oregon is currently in the process of designing and implementing its automatic voter registration system at DMV offices, and it is expected to be in effect in 2016. Press Release, Or. Sec'y of State, *supra* note 6; Telephone Interview with Steve Trout, Director of Elections, Oregon Secretary of State's Office, (April 26, 2013); Press Release, Brennan Ctr. for Justice *supra* note 6.

46 Telephone Interview with Marian Schneider, Deputy Sec'y for Elections and Admin., Bill Finnerty, Chief Info. Officer, & Wanda Murren, Press Sec'y, Pa. Sec'y of State (Sept. 1, 2015); Ponoroff, *supra* note 13, at 17; *see also* E-mail from Kara Templeton, Dir., Bureau of Driver Licensing, Pa. Dep't of Transp., to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Sept. 3, 2015).

47 Telephone Interview with Mike Narducci, Deputy Dir., John Fleming, Chief of Staff; and Rob Rock, Elections Assistant, Elections Div., R.I. Sec'y. of State (Apr. 4, 2013).

48 Telephone Interview with Howard Snider, Dir. of Voter Servs. S.C. State Election Comm'n (April 10, 2013); E-mail from Howard Snider, Dir. of Voter Servs., S.C. Election Comm'n., to Holly Maluk, Voting Rights Researcher, Brennan Ctr. For Justice (Oct. 4, 2013) (on file with Brennan Ctr.).

49 Telephone Interview with Brandon Johnson, Senior Elections Coordinator, S.D. Sec'y of State (Apr. 5, 2013).

50 Telephone Interview with Keith Ingram, Dir. of Elections & Betsy Schonhoff, Voter Registration Manager, Tex. Sec'y of State (Aug. 8, 2013).

51 Telephone Interview with Mark Thomas, Dir. of Elections, Utah Office of the Lieutenant Governor (May 3, 2013).

52 Due to the newness of Vermont's online voter registration system, election officials could not be interviewed in time for publication. Therefore, the discussion on online registration does not include Vermont. Peter Hirschfield, *Online Voter Registration Now Open in Vermont*, Vermont Public Radio (Oct. 12, 2015), *available at* http://digital.vpr.net/post/online-voter-registration-now-open-vermont#stream/0.

53 Telephone Interview with Donald Palmer, Sec'y, Va. Bd. of Elections & Matt Davis, Info. Servs. Manager, Va. Bd. of Elections (July 31, 2013).

54 Telephone Interview with Lori Augino, Dir. of Elections, Shane Hamlin, Assistant Dir. of Elections, Patty Murphy, IT Specialist, & Nick Pharris, Program Specialist, Wash. Sec'y of State. (Mar. 20, 2013).

55 Due to the newness of West Virginia's online voter registration system, election officials could not be interviewed in time for publication. Therefore, the discussion on online registration does not include West Virginia. Press Release, W.V. Sec'y of State, Secretary Tennant Unveils Online Voter Registration Application (Sept. 30, 2015), *available at* http://www.sos.wv.gov/news/topics/elections-candidates/Pages/Secretary-Tennant-Unveils-Online-Voter-Registration-Application.aspx; Telephone Interview with Layna Brown, Elections Dir. and Briana Wilson, Communications Dir. W.V. Sec'y of State (Aug. 13, 2015).

56 Pew Ctr. on the States, Upgrading Democracy: Improving America's Elections by Modernizing States' Voter Registration Systems 4 (2010), *available at* http://www.pewtrusts.org/~/media/legacy/uploadedfiles/pcs_assets/2010/UpgradingDemocracyreportpdf.pdf.

57 Telephone Interview with Judd Choate, *supra* note 20; Telephone Interview with Brad Bryant, *supra* note 29; Telephone Interview with Mary Cramer Wagner, *supra* note 32. Director Wagner noted that while the staff time needed for processing voter registration forms has decreased, staff time needed for processing absentee ballots has simultaneously increased.

58 Telephone Interview with Steve Trout, *supra* note 45.

59 Telephone Interview with Veronica DeGraffenreid, & Marc Burris, *supra* note 43.

60 Telephone Interview with Mike Narducci et al., *supra* note 47.

61 West Virginia's Secretary of State's Office is responsible for supplying DMV offices with voter registration forms and envelopes with prepaid postage for DMV offices to send completed forms back to the Secretary of State's Office. Now that DMV officials can electronically transfer voter registration information, they are expecting a decreased need for printed forms and envelopes with prepaid postage. Telephone Interview with Layna Brown & Briana Wilson, *supra* note 55.

62 Ponoroff, *supra* note 13, at 1, 11-12.

63 Telephone Interview with Brandon Johnson, *supra* note 49.

64 *Id.*

65 Telephone Interview with Lori Augino et al., *supra* note 54.

66 Matt A. Barreto et al., Wash. Inst. of the Study of Ethnicity and Race & Election Admin. Res. Ctr., Online Voter Registration (OLVR) Systems in Arizona and Washington: Evaluating Usage, Public Confidence and Implementation Processes 122 (2010), *available at* http://www.sos.wa.gov/_assets/elections/Pew%20Report%20on%20Online%20Voter%20Registration%20in%20Arizona%20%26%20Washington%204-1-10.pdf.

67 Telephone Interview with Lori Augino et al., *supra* note 54.

68 E-mail from Judd Choate, Dir. of Elections, Colo. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (Sept. 27, 2013) (on file with Brennan Ctr.).

69 NAISCO 2013 State IT Recognition Award Nomination, California Online Voter Registration (COVR), Cal. Sec'y of State (2013), *available at* http://www.nascio.org/awards/nominations2013/2013/2013CA1-CA%20COVR%20NASCIO%202013.pdf.

70 *Cf.* Cal. Sec'y of State, Technical Proposal: California Online Voter Registration (COVR) Project 15 (2011), *available* at http://www.fvap.gov/uploads/FVAP/Grants/California_application.pdf.

71 See Table 2.

72 Telephone Interview with Mary Cramer Wagner, Dir. of Voter Registration Div., Md. State Bd. of Elections (July 26, 2013).

73 Telephone Interview with Kyle Thomas et al., *supra* note 26.

74 Telephone Interview with Brianna Lennon, *supra* note 37; Telephone Interview with Brad Bryant, *supra* note 29.

75 Press Release, Cal. Sec'y of State, Secretary of State Bowen Delivers Online Voter Registration (Sept. 19, 2012), *available at* http://admin.cdn.sos.ca.gov/press-releases/2012/pdf/db12-097.pdf; E-mail from Jennie Bretschneider, Ass't Chief Deputy, Cal. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (Sept. 17, 2013) (on file with Brennan Ctr.).

76 Kansas did not report any additional spending on implementing an online voter registration system, as it was built in-house. Telephone Interview with Brad Bryant, *supra* note 29.

77 Missouri did not report any additional spending on implementing its online voter registration system, as it was built in-house. Telephone Interview with Brianna Lennon, *supra* note 37.

78 This money was spent on hardware necessary to support the online registration system, and there were no outside contractors hired to build Illinois' online registration system, as it was built completely in-house. Some counties had to spend additional money to integrate the State Board of Election's online system. Telephone Interview with Kyle Thomas et al., *supra* note 26.

79 Colorado's implementation costs included $15,000 in "real costs" as well approximately $15,000 of staff time. Telephone Interview with Judd Choate, *supra* note 20.

80 Telephone Interview with Mark Thomas, Dir. of Elections, Utah Office of the Lieutenant Governor (Aug. 27, 2013).

81 E-mail from Jeff Narabrook, Voter Outreach Dir., Minn. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 25, 2014) (on file with Brennan Ctr.).

82 As of the July 22, 2013 launch of its online voter registration system, Virginia's Board of Elections had spent just over $60,000 of its $81,000 budget for implementation. According to Information Services Manager Matt Davis, the remainder of this one-year budget was allotted for anticipated improvements to the system following implementation. Telephone Interview with Donald Palmer and Matt Davis, *supra* note 53.

83 Telephone Interview with Brad King, *supra* note 27.

84 Craig Stender & Mary Fontes, *supra* note 128 at 16; Ponoroff, *supra* note 13, at 1.

85 Telephone Interview with Howard Snider, *supra* note 105.

86 Telephone Interview with Marian Schneider et al., *supra* note 46.

87 Telephone Interview with Steve Trout, *supra* note 45.

88 Telephone Interview with Scott Gilles, *supra* note 39.

89 This included approximately $170,000 on state-level implementation work, and $109,000 among Washington's counties. Ponoroff, *supra* note 13, at 1.

90 Telephone Interview with Peggy Reeves, *supra* note 21. This cost also included enhancements to the centralized voter registration system.

91 Telephone Interview with Mary Cramer Wagner, *supra* note 72.

92 In New York, the state's DMV paid 100 percent of the cost of implementing an integrated electronic voter registration system that includes *both* online registration through the MyDMV website and in-person electronic voter registration at motor vehicle offices. New York's DMV spent exactly $500,000 to implement the integrated system, which covered the cost of the software necessary for county Board of Elections to accept electronically transmitted data. In contrast to other states, New York was able to monetize the in-house staff time allocated specifically for the implementation of online registration — $250,000. To be clear, the DMV did not increase its usual salary budget nor hire new staff or contractors to support this implementation. Telephone Interview with Ann Scott, Project Manager for Electronic Voter Registration, N.Y. State Dep't of Motor Vehicles (August 23, 2013).

93 Press Release, Cal. Sec'y of State, *supra* note 75.

94 Telephone Interview with Brandon Johnson, *supra* note 49.

95 In addition to the information provided from other states, New York's state elections officials in 2013 noted that they do not expect to fully realize the benefit of more accurate voter rolls until the second phase of their two-stage implementation process for online registration has been completed, eliminating paper forms from the process for online registration. Telephone Interview with Robert Brehm, Co-Executive Dir. of N.Y. Bd. of Elections & Anna Svizzero, Dir. of Election Operations, N.Y. (June 28, 2013); E-mail from Ann Scott, *supra* note 42.This second stage of implementation happened in April 2015, but given the recent date of implementation, New York has not been re-interviewed on this topic. E-mail from Ann Scott, *supra* note 42.

96 *E.g.*, Telephone Interview with Peggy Reeves, *supra* note 21.

97 Telephone Interview with Judd Choate, *supra* note 20.

98 For this section, we were unable to obtain relevant data for California, Kentucky, Massachusetts, Minnesota, New York, New Jersey, New Mexico, South Carolina, and West Virginia. Data from Kentucky, Massachusetts, and South

Carolina was unavailable for the relevant time period, as each of these states implemented electronic registration in the early 1990s. Data from Arkansas is available beginning 2007. Data from Minnesota was also unavailable because the state is exempt from NVRA requirements, and did not report DMV registration numbers for the relevant time period. California currently does not offer electronic registration at DMV offices for new voters, and does not expect DMV electronic address updates alone to impact registration rates. Finally, due to the recent implementation of electronic voter registration in New York, New Mexico, and West Virginia, it is too early to assess whether voter registration rates at DMV offices experienced growth in the subsequent two-year period. Part of the data in this section, specifically the citizen voting age population, was sourced from U.S. Census Bureau Data, cumulatively hereinafter *U.S. Census Bureau Data.* U.S. Census Bureau, Reported Voting and Registration Among Citizens, 1996, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/1996/tab4C.txt [hereinafter *Census 1996*]; U.S. Census Bureau, Reported Voting and Registration Among Citizens, 1998, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/1998/tab04.txt [hereinafter *Census 1998*]; U.S. Census Bureau, Reported Voting and Registration of the Citizen Voting-Age Population, for the states: November 2000, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2000/tab04c.pdf [hereinafter *Census 2000];* U.S. Census Bureau, Reported Voting and Registration of the Citizen Voting-Age Population, for the states: November 2002, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2002/tab04c.pdf [hereinafter *Census 2002]*; U.S. Census Bureau, Reported Voting and Registration of the Citizen Voting-Age Population, for the states: November 2004, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2004/tab04c.xls [hereinafter *Census 2004*]; U.S. Census Bureau, Reported Voting and Registration of the Citizen Voting-Age Population, for the states: November 2006, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2006/tab04a.xls [hereinafter *Census 2006*]; U.S. Census Bureau, Reported Voting and Registration of the Citizen Voting-Age Population, for the states: November 2008, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2008/Table%2004a.xls [hereinafter *Census 2008*]; U.S. Census Bureau, Reported Voting and Registration, for the states: November 2010, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2010/Table4a_2010.xls [hereinafter *Census 2010*]; U.S. Census Bureau, Reported Voting and Registration, for the states: November 2012, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2012/Table04a.xls [hereinafter *Census 2012*]; U.S. Census Bureau, Reported Voting and Registration, for the states: November 2014, *available at* http://www.census.gov/hhes/www/socdemo/voting/publications/p20/2014/Table04a.xls [hereinafter *Census 2014*]. Part of the data in this section, specifically the number of registrations submit at the DMV, was sourced from EAC reports, cumulatively hereinafter *EAC Reports.* U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 1995-1996: A Report to the 105th Congress, Table 2 (1997), *available at* http://www.eac.gov/assets/1/AssetManager/The%20Impact%20of%20the%20National%20Voter%20Registration%20Act%20on%20Federal%20Elections%201995-1996.pdf [hereinafter *EAC 1997*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 1997-1998: A Report to the 106th Congress, Table 2 (1999), *available at* http://www.eac.gov/assets/1/AssetManager/The%20Impact%20of%20the%20National%20Voter%20Registration%20Act%20on%20Federal%20Elections%201997-1998.pdf [hereinafter *EAC 1999*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 1999-2000: A Report to the 107th Congress, Table 2 (2001), *available at* http://www.eac.gov/assets/1/AssetManager/The%20Impact%20of%20the%20National%20Voter%20Registration%20Act%20on%20Federal%20Elections%201999-2000.pdf [hereinafter *EAC 2001*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2001-2002: A Report to the 108th Congress, Table 2 (2003), *available at* http://www.eac.gov/assets/1/Page/The%20Impact%20of%20the%20National%20Voter%20Registration%20Act%20on%20Federal%20Elections%202001-2002%20accessible.pdf [hereinafter *EAC 2003*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2003-2004: A Report to the 109th Congress, Table 2 (2005), *available at* http://www.eac.gov/assets/1/AssetManager/NVRA%202003-2004%20Report%20Tables%201-4.pdf [hereinafter *EAC 2005*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2005-2006: A Report to the 110th Congress, Table 2b (2007), *available at* http://www.eac.gov/assets/1/Page/NVRA%20Reports%20and%20Data%20Sets%202006-2005.pdf [hereinafter *EAC 2007*]*;* U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2007-2008: A Report to the 111th Congress, Table 2a (2009), *available at* http://www.eac.gov/assets/1/AssetManager/The%20Impact%20of%20the%20National%20Voter%20Registration%20Act%20on%20Federal%20Elections%202007-2008.pdf [hereinafter *EAC 2009*]; U.S. Election Assistance Comm'n., The

Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2009-2010: A Report to the 112th Congress, Table 2a (2011), *available at* http://www.eac.gov/assets/1/Documents/2010%20NVRA%20FINAL%20REPORT.pdf [hereinafter *EAC 2011*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2011-2012: A Report to the 113th Congress, Table 2a (2013), *available at* http://www.eac.gov/assets/1/Documents/EAC_NVRA%20Report_lowres.pdf [hereinafter *EAC 2013*]; U.S. Election Assistance Comm'n., The Impact of the National Voter Registration Act of 1993 on the Administration of Elections for Federal Office 2013-2014: A Report to the 114th Congress, Table 2a (2015), *available at* http://www.eac.gov/assets/1/Page/2014_EAC_EAVS_Comprehensive_Report_508_Compliant.pdf [hereinafter *EAC 2015*].

99 It is important to note that the registration rates fluctuated at the beginning of Washington's implementation of electronic registration, but did double the pre-electronic registration rates.

100 There are numerous reasons that can explain why some states did not experience immediate growth after launching electronic registration, because there are many factors that can potentially influence voter registration rates. This includes public interest in a particular election, adequately trained DMV clerks who consistently ask customers the voter registration question, the percentage of voters already registered, and the popularity and accessibility of other voter registration methods. Ponoroff, *supra* note 13, at 15, *see also* Stuart Naifeh, Driving the Vote: Are States Complying With the Motor Voter Requirements of the National Voter Registration Act? 8 (Demos, 2015), *available at http://*www.demos.org/sites/default/files/publications/Driving%20the%20Vote_0.pdf

101 This includes Arkansas, Georgia, Indiana, Louisiana, Maryland, and Texas. Arkansas improved their electronic registration system in 2010, and Georgia implemented their system in 2009. Georgia was not included earlier as there was no data to reference.

102 Naifeh, *supra* note 100.

103 Florida and Maryland experienced slight drops, but this is not unexpected; as the pool of eligible, unregistered citizens continues to decrease, so will DMV registration rates.

104 During this same period, the total number of registrations increased more than five times over. *EAC 2011, supra* note 98; *EAC 2013, supra* note 98.

105 Telephone Interview with Howard Snider, Dir. of Voter Servs., S.C. State Election Comm'n (April 10, 2013).

106 Telephone Interview with Mike Narducci et al.*, supra* note 47.

107 Telephone Interview with Elaine Manlove, *supra* note 22.

108 *EAC Reports*, *supra* note 98; *U.S. Census Bureau Data*, *supra* note 98. The data for Arkansas came from the Secretary of State's office. *NVRA Statistics,* Ark. Sec'y of State, http://www.sos.arkansas.gov/elections/Pages/NVRAStatistics.aspx (last visited July 14, 2014).

109 Ponoroff, *supra* note 13.

110 The population of Maricopa County is 4,087,191; the population of Arizona is 6,731,484. U.S. Census, "Maricopa County, Ariz.," quickfacts.census.gov/qfd/states/04/04013.html (accessed Aug. 10, 2015).

111 Telephone Interview with Rob Hammons, *supra* note 18.

112 Telephone Interview with Sarah Reisetter, *supra* note 28.

113 Telephone Interview with Brad Bryant, *supra* note 29.

114 Telephone Interview with Chrissie Weatherford, *supra* note 31.

115 Telephone Interview with Mary Cramer Wagner, *supra* note 32.

116 Telephone Interview with Madalan Lennep, *supra* note 36.

117 Telephone Interview with Veronica DeGraffenreid and Marc Burris, *supra* note 43.

118 Ponoroff, *supra* note 13, at 17.

119 *Id.*

120 Telephone Interview with Brandon Johnson, *supra* note 49.

121 Telephone Interview with Lori Augino et al., *supra* note 54.

122 *E.g.,* Telephone Interview with Lori Augino et al., *supra* note 54.

123 This finding refers to the registration period post-November 2010 election through the November 2012 election. *EAC 2013 supra* note 98.

124 This number includes ineligible, duplicate, and already-registered voters. Press Release, Early Estimate from State's Elections Chief: Voter Registration Likely to Reach Record High for Next Election (Oct 23, 2012), *available at* http://www.sos.ca.gov/administration/news-releases-and-advisories/2012-news-releases-and-advisories/db12-103/.

125 E-mail from Howard Snider, Dir. of Voter Servs., S.C. Election Comm'n., to Holly Maluk, Voting Rights Researcher, Brennan Ctr. For Justice (Apr. 16, 2013) (on file with Brennan Ctr.).

126 *Id.*

127 E-mail from Shane Hamlin, Deputy Dir. of Elections, Wash. Sec'y of State, to Holly Maluk, Voting Rights Researcher, (Aug. 2, 2013).

128 Craig Stender & Mary Fontes, Ariz. Sec'y of State, Arizona's Electronic Voter Registration Program: EZ Voter Report 21-24 (July, 2013) (on file with Brennan Ctr.).

129 *EAC 2013* at 46, *supra* note 98.

130 E-mail from Brad King, Co-Dir., Election Div., Ind. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (June 18, 2013) (on file with Brennan Ctr.).

131 E-mail from Steve Trout, Dir. of Elections, Or. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (June 27, 2013) (on file with Brennan Ctr.).

132 *See EAC 2013*, *supra* note 98, at 46; *EAC 2015*, *supra* note 98, at 85.

133 *Id.*

134 *Id.*

135 Press Release, Georgia Sec'y of State's Office, 11,970 Georgia Voters Take Advantage of the New Online Voter Registration System in Just Three Weeks (Apr. 22, 2014), http://sos.ga.gov/index.php/elections/11970_georgia_voters_take_advantage_of_the_new_online_voter_registration_system_in_just_three_weeks.

136 E-mail from Linda Ford, Dir., State Elections Division, Ga. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice, (Nov. 7, 2014) (on file with Brennan Ctr.).

137 Telephone Interview with Linda Ford & Ryan Germany, *supra* note 24.

138 Aaron Gould Sheinin and Kristina Torres, *Thousands Register to Vote on Georgia's New Online System Before Monday's Deadline,* The Atlanta Journal-Constitution, Apr. 16, 2014, http://www.ajc.com/news/news/state-regional-govt-politics/thousands-register-to-vote-on-georgias-new-online-/nfbZR/; Susan McCord, *Georgia Voter Registration Now Online, By Smartphone*, The Augusta Chronicle, Apr. 2, 2014, http://chronicle.augusta.com/news/government/elections/2014-04-02/georgia-voter-registration-now-online-smartphone.

139 Telephone Interview with Marian Schneider et al., *supra* note 46.

140 All states listed in this table had their online registration systems operating for the full 24 month period with the exception of California (one month), Nevada (two months statewide), Maryland (five months), and South Carolina (the five days prior to their registration deadline for the November 2012 election). Although Nevada's Clark County piloted online voter registration in the 2010 general election, Clark County did not use online registration in the 2011 general election. New York is not included in this table, as the data was not included in the EAC report. Telephone Interview with Howard Snider, *supra* note 105; *EAC 2013* at 46, *supra* note 98.

141 California's online registration portal was only in operation for one month of this two-year period. Telephone Interview with Jennie Bretschneider, *supra* note 19.

142 Nevada's online registration portal was only in operation for two months of this two-year period. Telephone Interview with Scott Gilles, *supra* note 39.

143 Maryland's online registration portal was only in operation for five months of this two-year period. Md. State Archives, *supra* note 32.

144 South Carolina's online registration portal was only in operation for one month of this two-year period, Telephone Interview with Howard Snider, *supra* note 105.

145 Telephone Interview with Linda Ford & Ryan Germany, *supra* note 24.

146 Telephone Interview with Lori Augino et al., *supra* note 54.

147 *E.g.* Virginia and Indiana mentioned this as a benefit of online registration. Telephone Interview with Donald Palmer & Matt Davis, *supra* note 53; Telephone Interview with Brad King, *supra* note 27.

148 Telephone Interview with Sarah Reisetter, *supra* note 28; Telephone Interview with Layna Brown & Briana Wilson, *supra* note 55.

149 Telephone Interview with Lori Augino et al. *supra* note 54.

150 E-mail from Jennifer Ammons, Gen. Counsel, Ga. Dep't of Driver Services, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (June 14, 2013) (on file with Brennan Ctr.).

151 Help America Vote Act of 2002, Pub. L. No. 107-252, codified at 52 U.S.C.A § 20301 (West 2015).

152 For example, approximately 85 percent of voter registrations take place at local DMV offices in Michigan. *See* Telephone Interview with Kristi Dougan, *supra* note 34.

153 *See* Telephone Interview with MaryEllen Allen, *supra* note 30 (Ky.); Telephone Interview with Elaine Manlove, *supra* note 22 (Md.); 10 ILCS 5/1A-16.6 (Il.).

154 In at least 23 states, online registration systems are offered through the website of the Secretary of State, the state board of elections, or the state election commission — while these websites are electronically linked to the state's DMV files. In at least three states, online voter registration is offered through the DMV's website.

155 Minnesota accepts a typed signature as a legal signature for voter registration purposes, which facilitates the option for voters to use the last four digits of their Social Security number or their DMV ID number. Minn. Stat. § 201.061 (2014); Telephone Interview with Beth Fraser, Deputy Sec'y of State, Jeff Narabrook, Voter Outreach Dir. & Michele McNulty, Election Adm'r Principal, Minn. Sec'y of State (Oct. 3, 2013).

156 Telephone Interview with Elaine Manlove, *supra* note 22; E-Mail from Elaine Manlove, Comm'r of Elections, Del. Office of the State Election Comm'r., to Sophie Schuit, Research and Program Assoc., Brennan Ctr. For Justice (July 16, 2014) (on file with Brennan Ctr.).

157 Fully online registration is available to Delaware residents who cut and paste their own digital signature into the form. However, this option is not advertised on the state's online registration webpage and has not been widely utilized by Delaware residents. Telephone Interview with Elaine Manlove, *supra* note 22.

158 Telephone Interview with Elaine Manlove, *supra* note 22; E-mail from Elaine Manlove, Comm'r of Elections, Del. Office of the State Election Comm'r., to Sophie Schuit, Research and Program Assoc., Brennan Ctr. For Justice (Sept. 4, 2014) (on file with Brennan Ctr.).

159 Telephone Interview with Brianna Lennon, Elections Counsel, Mo. Sec'y of State (Mar. 11, 2014).

160 See Table 4 for additional details.

161 Telephone Interview with Mary Cramer Wagner, *supra* note 72.

162 In Michigan, new voter registration applications require the physical signature on the paper form, but address updates do not. Telephone Interview with Kristi Dougan, *supra* note 34.

163 Telephone Interview with MaryEllen Allen, *supra* note 30; Telephone Interview with Kristi Dougan, *supra* note 34.

164 Telephone Interview with Robert Brehm and Anna Svizzero, *supra* note 95.

165 E-mail from Kari Fresquez (Aug. 13, 2015), *supra* note 41 (N.M.); E-mail from Kara Templeton, *supra* note 46 (Pa.); Telephone Interview with Layna Brown & Briana Wilson, *supra* note 55 (W.V.).

166 Arkansas, Delaware, Florida, Indiana, Iowa, Kansas, New York, North Carolina, Rhode Island and West Virginia reported having a hard stop for the voter registration question. Telephone Interview with Rob Hammons, *supra* note 18 (Ark.); Project Vote, *Delaware Expands Innovative Paperless Voter Registration Program* (Apr. 28, 2010) http://www.projectvote.org/blog/2010/04/delware-expands-innovative-paperless-voter-registration-program/ (last visited Aug. 14, 2015) (Del.); Telephone Interview with Maria Matthews & Maureen Johnson, *supra* note 23 (Fl.); E-mail from Brad King, Co-Dir., Election Div., Ind. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (May 13, 2015) (on file with Brennan Ctr.); Telephone Interview with Sarah Reisetter, *supra* note 28 (Ia.); Telephone Interview with Brad Bryant, *supra* note 29 (Kan.); Telephone Interview with Robert Brehm and Anna Svizzero, *supra* note 95 (N.Y.); Telephone Interview with Veronica DeGraffenreid, and Marc Burris *supra* note 43; Telephone Interview with Mike Narducci et al*., supra* note 47 (R.I.); Telephone Interview with Layna Brown & Briana Wilson, *supra* note 54 (W.V.).

167 Telephone Interview with Mike Narducci et al.*, supra* note 47.

168 These include Arizona, New Jersey, New York, and South Dakota. Craig Stender & Mary Fontes *supra* note 128 (Ariz.); E-mail from Michael DiSimoni, Deputy Dir. of Elections Div., New Jersey Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 12, 2014) (on file with Brennan Ctr.) (N.J.); E-mail from Ann Scott, Dir. of Agency Program Services, N.Y. Dep't of Motor Vehicles, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 25 & 26, 2014) (on file with Brennan Ctr.) (N.Y.); Christopher Ponoroff, Brennan Ctr. for Justice, Voter Registration in a Digital Age: South Dakota app. 2 (Wendy Weiser ed., 2010), *available at* http://www.brennancenter.org/sites/default/files/legacy/Democracy/Paperless%20Report%20Appendix_Final%20%28South%20Dakota%29.pdf (S.D.).

169 Telephone Interview with Madalan Lennep, *supra* note 36.

170 Telephone Interview with Veronica DeGraffenreid, & Marc Burris, *supra* note 43 (N.C.); Telephone Interview with Lori Augino et al., *supra* note 54 (Wash.); *Texas Automates Voter Registration at the Driver License Offices*, Project Vote, http://www.projectvote.org/blog/2010/05/texas-automates-voter-registration-at-the-driver-license-offices/ (Last visited Oct. 21, 2014) (Tex.).

171 Telephone Interview with Jennie Bretschneider, *supra* note 19 (Ca.); Telephone Interview with MaryEllen Allen, *supra* note 30 (Ky.); Telephone Interview with Kristi Dougan, *supra* note 34 (Mich.); E-mail from Howard Snider, Dir. of Voter Servs., S.C. Election Comm'n., to Holly Maluk, Voting Rights Researcher, Brennan Ctr. For Justice (Oct. 4, 2013) (on file with Brennan Ctr.) (S.C.). Upon implementation of automatic voter registration, California will likely switch to a system that is entirely paperless.

172 Michigan updated the electronic transfer capabilities for address changes in May 2014. Customers can also update their address online through ExpressSOS.com when updating their driver's license, as the service automatically sends the updated address to election officials. Telephone Interview with Kristi Dougan, *supra* note 34; E-mail from Kristi Dougan, Voter Outreach Coordinator, Mich. Dep't of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 27, 2014) (on file with Brennan Ctr.).

173 Telephone Interview with Jeff Narabrook, *supra* note 35.

174 See Table 4, *infra.*

175 Telephone Interview with Elaine Manlove, *supra* note 22.

176 Telephone Interview with Chrissie Weatherford, *supra* note 31; E-mail from Chrissie Weatherford, *supra* note 31.

177 E-mail from Kari Fresquez (Aug 13, 2015), *supra* note 41.

178 These states include New Jersey, New York, Pennsylvania, and South Carolina. E-mail from Michael DiSimoni, *supra* note 168 (N.J.)*;* E-mail from Ann Scott, Dir. of Agency Program Services, N.Y. Dep't of Motor Vehicles, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 12, 2014) (on file with Brennan Ctr.) (N.Y.); E-mail from Kara Templeton, Dir., Bureau of Driver Licensing, Pa. Dep't of Transp., to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Sept. 4, 2015); Telephone Interview with Howard Snider, *supra* note 105.

179 Telephone Interview with Elaine Manlove, *supra* note 22.

180 Telephone Interview with Mary Fontes, HAVA Business Analyst, Ariz. Sec'y of State (July 23, 2013); Telephone Interview with Mary Cramer Wagner, *supra* note 32.

181 Telephone Interview with Sarah Reisetter, *supra* note 28.

182 Telephone Interview with Brad Bryant, *supra* note 29; Telephone Interview with Rob Hammons, *supra* note 18.

183 E-mail from Chrissie Weatherford, *supra* note 31.

184 Telephone Interview with Jennie Bretschneider, *supra* note 19. Upon implementation of automatic voter registration, California will likely switch to a system that is entirely paperless. This discussion is in regards to California's current process of registering voters at the DMV.

185 E-mail From Jennie Bretschneider, Ass't Chief Deputy, Cal. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 23, 2014) (on file with Brennan Ctr.).

186 E-mail from Brad King, (July 22, 2014), *supra* note 27.

187 *Id.*

188 The information included in this table was found through interviews and email exchanges with State Election officials. *See also,* Project Vote, *supra* note 166; Christopher Ponoroff, Brennan Ctr. for Justice, Voter Registration in a Digital Age: Delaware app. 2-3 (Wendy Weiser ed., 2010), *available at* https://www.brennancenter.org/sites/default/files/legacy/Democracy/Paperless%20Report%20Appendix_Final%20(Delaware).pdf.

189 The Massachusetts DMV is required to ask customers both orally and on a paper form if they would like to register to vote. E-mail from Michelle Tassinari, Dir. of Elections Div., Mass. Sec'y of State's Office, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 17, 2014) (on file with Brennan Ctr.).

190 When conducting a transaction at DMV counters, customers can reject the invitation to register with the clerk and instead take a paper form home and mail it in at a future date, which is why New Jersey is listed as "asked on a paper application form," as well as "applicant signs a paper application, which is mailed to county election offices." When the form is mailed back, it goes to the county elections offices where it is then manually entered into the SVRS. These paper forms also include a code to indicate that the source was the DMV's office. E-mail from Michael DiSimoni, *supra* note 178.

191 The DMV officials collect the vast majority of information through an interview process, but voters do review information provided, verify eligibility, and enter party preference on an electric pad. Christopher Ponoroff, Delaware app., *supra* note 188.

192 It should be noted that in Florida, reference to a DMV clerk is actually to a clerk at the county tax collector's offices, as the front offices for driver's license examiners have closed and their duties, staff, and responsibilities have shifted to the county tax collector's offices throughout the state. E-mail from Maria Matthews, Dir. of Div. of Elections, Fla. Dept. of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 25, 2014) (on file with Brennan Ctr.).

193 This is the case for new voter registrations. For applicants who are updating their address, this process is done electronically as voter registration and driver's license addresses are linked, as Michigan has a statute requiring that if you possess a Michigan driver's license, the address reflected on the DL must be the same as the address on your voter registration and vice versa. E-mail from Kristi Dougan, Voter Outreach Coordinator, Mich. Dep't of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 28, 2014) (on file with Brennan Ctr.).

194 This is the case for new voter registrations. For applicants who are updating their address, new data is inputted into a computer by DMV clerks and forwarded electronically to elections officials. For new voter registration applicants and those who have moved outside their county, California law requires a live signature, so the applicant's paper voter registration application is mailed to the county election officials. E-mail from Jennie Bretschneider, *supra* note 185. Upon implementation of automatic voter registration, it is likely that California's registration process at DMVs will not require the use of paper at all.

195 Information, like name, address, and date of birth, that was collected in the main DMV transaction is presented on the touchpad screen during the voter registration part of the transaction to allow voters to verify the information is correct for the purposes of voter registration. Telephone Interview with Layna Brown & Briana Wilson, *supra* note 55.

196 Applicants sign an electronic pad with a stylus for their DMV transaction, but the paper application with the wet signature is required for the purpose voter registration if the applicant is completing a new registration, or is updating their address after moving to a new county. E-mail from Jennie Bretschneider, *supra* note 185.

197 Michigan uses two methods of signature capture depending on the method of registration, and all local election officials within Michigan have access to digitized signatures for voters from their DMV file. First time voter registration applications are officially complete upon the local clerk's receipt of the physical paper signature. This paper signature is also scanned into an electric signature for future use. Local Michigan clerks only need to refer to a voter's electronic signature to complete address updates. E-mail from Kristi Dougan, *supra* note 172; E-mail from Kristi Dougan, Voter Outreach Coordinator, Mich. Dep't of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 28, 2014) (on file with Brennan Ctr.).

198 Louisiana DMVs electronically transfer information every 30 minutes to election officials. E-mail from Chrissie Weatherford, *supra* note 31.

199 New Mexico DMVs electronically send information twice daily from the DMV to the voter registration system for processing. E-mail from Kari Fresquez (Aug 13, 2015), *supra* note 41.

200 Hawaii launched its online voter registration system in early August 2015, Massachusetts launched its online voter registration system in June 2015, and Nebraska and West Virginia launched their online voter registration systems in September 2015. We did not interview officials in these states on their experiences with online registration. Separate from the 26 states that do have online voter registration, some other states offer limited voter registration services online. For example, Ohio offers residents the option of updating an existing voter registration online, but do not accept *new* registrations online. By way of another example, Texas provides voters the opportunity to update their voter registration information online when they utilize the online services offered by their state's motor vehicles department, but does not offer online registration as a stand-alone service. In Texas, a within-county address update can be submitted online through the Department of Public Safety's website. *Update Your Ohio Voting Address,* Oh. Sec'y of State, https://olvr.sos.state.oh.us/ovru/Modify.aspx (last visited Aug. 19, 2015); Telephone Interview with Keith Ingram, Dir. of Elections, Tex. Sec'y of State & Betsy Schonhoff, Voter Registration Manager, Tex. Sec'y of State (Aug. 8, 2013).

201 Florida, Iowa, Kentucky, New Mexico, and Oklahoma. October 13, 2015, all five states are still awaiting implementation of online voter registration systems.

202 Telephone Interview with Brad Bryant, *supra* note 29.

203 Telephone Interview with Elaine Manlove, *supra* note 22; Telephone Interview with Beth Fraser and Jeff Narabrook, *supra* note 155. Local election authorities in Missouri process each application to verify voter eligibility. E-mail from Brianna Lennon, Elections Counsel, Mo. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 17, 2014) (On file with Brennan Ctr.).

204 In lieu of using the phrase "driver's license number or non-driver's identification number issued by the state's motor vehicles department," throughout this report we often use the term "DMV ID number" instead.

205 Including Arizona, Connecticut, Georgia, Kansas, and Oregon. Telephone Interview with Craig Stender, *supra* note 17 (Ariz.); E-mail from Peggy Reeves, Dir. of Elections, Conn. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Oct. 7, 2014) (on file with Brennan Ctr.) (Conn.); Telephone Interview with Linda Ford, *supra* note 24 (Ga.); *Online Voter Registration,* Kan. Dep't of Revenue in Conjunction with the Sec'y of State's Office, https://www.kdor.org/voterregistration/ (last visited Aug. 17, 2015) (Kan.); *My Vote*, Or. Sec'y of State, https://secure.sos.state.or.us/orestar/vr/register.do?lang=eng (last visited Aug. 17, 2015) (Or.).

206 Utah. Telephone Interview with Mark Thomas (Aug. 27, 2013), *supra* note 80.

207 This option is available in a limited number of states, Delaware, Minnesota, and Missouri. As noted above, in Delaware, eligible voters have the option to provide their Social Security number (in lieu of their DMV ID number) on their online voter registration application. A small number of states, including Arizona and Maryland, also provide an online registration option to U.S. citizens who are in the military or residing overseas that does not require them to use a DMV ID number.

208 Delaware, Georgia, Illinois, Indiana, and Maryland allow residents without State ID numbers to complete the voter registration application online, but require voters to print, sign and mail in the forms. E-mail from Jim Tenuto, Assistant Exec. Dir., Il. State Bd. of Elections, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (July 24, 2014) (on file with Brennan Ctr.).

209 In some of these states, the form can be downloaded and printed as a blank form that the voter completes in ink. In others, the form is a fillable PDF into which voters can type their information before printing it. Many states that do not have an online registration system of any kind also provide their eligible voters the option of accessing the state's paper voter registration form online and then mailing it.

210 Providing one's Social Security number — either the full number of last four digits — is already required of all voters using California's and Virginia's online registration system, and is necessary in order to proceed with a partial online voter registration application. In Connecticut, county registrars are notified that registrants have downloaded a complete form, which is then automatically transferred upon receipt of the paper form with signature and unique barcode. In Pennsylvania, registrants can choose to have the Department of State's office send a card to collect the wet-ink signature with a pre-addressed return envelope in lieu of printing their own form. If the county election office does not receive a completed signature form within 14 days of the online form's submission, the Department of State will send the registrant a reminder with a form to collect the wet-ink signature and a pre-addressed return envelope. Voters in Louisiana are encouraged to provide their Social Security number to verify identity if they do not have a DMV ID number, but are also given the alternate option of mailing in additional identification documents. Voters in Utah can provide their Social Security Number, but are not required to do so. Telephone Interview with Jennie Bretschneider, *supra* note 19 (Cal.); Telephone Interview with Peggy Reeves, Dir. of Elections, Conn. Sec'y of State (Aug. 31, 2015) (Conn.); Telephone Interview with Chrissie Weatherford, *supra* note 31 (La.); E-mail from Chrissie Weatherford, Info. Tech. Dir., La. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (Aug. 15, 2013) (La.); Telephone Interview with Marian Schneider et al., *supra* note 46; Telephone Interview with Mark Thomas (May 3, 2013) *supra* note 51 (Utah). Telephone Interview with Charlie Judd, Chairman, Va. Bd. of Elections (July 30, 2013) (Va.); Telephone Interview with Donald Palmer and Matt Davis, *supra* note 53 (Va.). In addition to the option for applicants in Delaware without DMV IDs to submit full voter registration applications online, Delaware allows applicants without DMV IDs to submit their application without a signature, but will require a wet-ink signature. If they do not mail in a paper copy of their registration form with their signature, their registration will remain in the system as a partial application. They will receive three e-mail reminders to submit their signature, but if they do not submit a paper signature, they can provide one on Election Day. Telephone Interview with Elaine Manlove, *supra* note 22.

211 The same is true of applicants using the online registration system with their DMV ID. Telephone Interview with Marian Schneider et al., *supra* note 46; Telephone Interview Peggy Reeves (Aug. 31, 2015), *id*. When county election officials receive voter's signature postcards in Pennsylvania, they scan the card's barcode to pull up the voter's registration materials. E-mail from Marian Schneider, Deputy Sec'y for Elections and Admin., Pa. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Center for Justice (Sept. 3, 2015) (on file with Brennan Ctr.).

212 Telephone Interview with Jennie Bretschneider & Jason Heyes, *supra* note 19.

213 Counties are required to follow up with voters for missing information, but have discretion as to how they follow up. Some counties will mail postcards informing voters that they need to submit a signature, while others will provide a postcard informing voters where to sign with prepaid postage to mail their signature back. Some counties accept the signature at the polls, but discretion lies with the counties to do so. Telephone Interview with Jennie Bretschneider &

Jason Heyes, *supra* note 19.

214 Voters who provide their e-mail address and do not submit their signature within 21 days will be sent an e-mail reminding them that their application is incomplete, pending receipt of their signature. It also explains that if no response is received within 45 days, the electronic file will be deleted from the system. Telephone Interview with Mark Thomas (May 3, 2013), *supra* note 51.

215 Some states require voters to submit new registrations instead of allowing them to make changes to already existing registrations. In some states where voters wish to change their voter registration address, they must first do so with the DMV before making those changes to their registration online. As we did not interview officials in Hawaii, Massachusetts, Nebraska, and West Virginia regarding their online registration systems, they are not included in this.

216 If a resident moves within the county in California and forgets to re-register on paper or online, they are able to vote with a provisional ballot. Voters are required to put their new address on the provisional ballot, and election officials will count the provisional ballot and update the voter's address during the canvass period. Telephone Interview with Jennie Bretschneider, *supra* note 19; E-mail from Jennie Bretschneider, *supra* note 185.

217 Telephone Interview with Judd Choate, *supra* note 20.

218 In Utah, voters who move within state must submit their address change through the Driver License Division's (DLD's) online portal. Provided that their driver's license is current and valid, a Utah resident may update their address (or a name change) in their DLD record online, allow 24 hours for processing, and then go back to the online voter registration system and register to vote using the updated information. Telephone Interview with Mark Thomas (May 3, 2013), *supra* note 51. Similarly, in South Carolina, new voters who have recently moved within the state must first update their address with the DMV (either online or in person) before updating their voter registration online. Telephone Interview with Howard Snider, *supra* note 140; *Motor Voter FAQs: Voter Registration Frequently Asked Questions,* New York State DMV, http://dmv.ny.gov/node/25431 (last visited Oct. 2, 2014).

219 Hawaii, Minnesota, Missouri, South Carolina, Virginia, and Washington do not ask voters to identify a political party affiliation, regardless of whether they are submitting an online application or registering by another method.

220 County election officials in California then check these "new" applications for duplicates in the same manner that they check for duplicates among registration applications submitted on paper or via any method. First, an automated system will check for potential duplicates, checking for duplicative driver's license numbers and/or duplicative Social Security numbers, for example. When the automated system identifies potential but unclear duplicates, county election officials review those records to verify whether or not it is a duplicate record. Telephone Interview with Jennie Bretschneider, *supra* note 19; Telephone Interview with Jennie Bretschneider and Jason Heyes, *supra* note 19.

221 Including Colorado, Delaware, Indiana, Kansas, Louisiana, Maryland, Minnesota, Missouri and Virginia. Minnesota voters can change their first name through the online system if they use their DMV ID number and all of the voter's information matches with the DMV. In order to change a voter's last name, the name change must already be in the DMV's records in order to successfully complete the registration update. Voters can also change their name using their SSN, but changes would need to be approved within the SSN record as this method requires an exact match for both first and last names. In Louisiana, IT Director Chrissie Weatherford explained that state law requires that voters document and prove their name change. It is the responsibility of local parish registrars to follow up with voters to verify their name change, "But the [online registration] system will accept it." In Virginia, although there is not a specific online form for updating one's registration record, voters can look up their record and update any field related to their voter registration record, including documenting a name change. E-mail from Jeff Narabrook, *supra* note 81; Telephone Interview with Chrissie Weatherford, *supra* note 31; Telephone Interview with Donald Palmer and Matt Davis, *supra* note 53.

222 If the voter makes this update in person at a DMV office, the law under NVRA requires that the individual be asked if they wish to update their name for voter registration purposes as well. National Voter Registration Act of 1993, 52 U.S.C. § 20504(d) (2013). If the voter chooses to mail documentation of the name change to the DMV instead, they

could then update their name in their voter registration record online as the second step in the process. *Id.*

223 E-mail from Jeff Narabrook, *supra* note 81 (Minn.); E-mail from Chrissie Weatherford, *supra* note 31 (La.); *Voter Registration Application and Absentee Ballot Request*, Md. State Bd. of Elections, https://voterservices.elections.maryland.gov/OnlineVoterRegistration/InstructionsStep1 (last visited Aug. 19, 2015) (Md.); *Utah Voter Registration: Register to Vote in Utah*, Utah Lieutenant Governor's Office, https://secure.utah.gov/voterreg/index.html (last visited July 8, 2014) (Utah).

224 Telephone Interview with Steve Trout, *supra* note 87.

225 Telephone Interview with Craig Stender, *supra* note 17. *see also Voting in This Election,* Arizona Secretary of State, http://www.azsos.gov/elections/voting-election (last visited July 28, 2015).

226 These e-mail confirmations are provided in addition to the paper confirmation cards that local election officials send to voters in the mail.

227 Minnesota does provide an e-mail confirmation, for both the initial application submission and upon the application's acceptance or rejection. These e-mail receipts cannot be used as a legal form of confirmation of a voter's registration. E-mail from Jeff Narabrook, *supra* note 81. In all online registration states, the voter will also receive a confirmation card in the mail once local election officials have accepted their registration, as required by law for all types of voter registrations, regardless of the method of submission.

228 This third-party registration coordinator works with mandatory site locations (DDS, libraries, schools, DFACS, etc.), not private third-party groups. When Georgia's office spoke with private third-party groups conducting voter registration drives, they encouraged these groups to direct voters online or to include a URL or QR code on their materials. Telephone Interview with Linda Ford & Ryan Germany, *supra* note 24; E-mail from Ryan Germany, Gen. Counsel, Ga. Sec'y of State, to Sophie Schuit, Research and Program Assoc., Brennan Ctr. for Justice (Aug. 26, 2015) (On file with author).

229 Telephone Interview with Lori Augino et al., *supra* note 54.

230 California requires outside entities to meet certain technical and security requirements, and sign a written agreement before being authorized as a posting entity. The "post" function allows these entities to pre-populate certain applicant data to our online voter registration application on behalf of the applicant. Voters are then transferred to the California online voter registration portal, where they review the pre-populated fields, answer additional questions, and submit their application. Rock the Vote is currently the only posting entity, but California is currently working with additional organizations to add this functionality. Telephone Interview with Jennie Bretschneider and Jason Heyes, *supra* note 19; E-mail from Jennie Bretschneider, *supra* note 185.

231 Telephone Interview with Layna Brown & Briana Wilson, *supra* note 55.

232 Telephone Interview with Kyle Thomas et al., *supra* note 26.

233 Telephone Interview with Jeff Narabrook, Voter Outreach Dir., Minn. Sec'y of State (Mar. 26, 2015).

234 E-mail from Jennie Bretschneider, *supra* note 185.

235 Arizona, California, Colorado, Louisiana, Maryland, Minnesota, Missouri, Nevada, Utah, and Washington.

236 *See, e.g.* Alaska and Maine have separate portals for UOCAVA Voters. *Absentee Voting by Electronic Transmission,* State of Alaska Division of Elections, https://elections.alaska.gov/vi_mo_act_milit_by-elect.php (last visited Sept. 16, 2014); *Absentee Ballot Request,* State of Maine Secretary of State, Division of Elections, http://www.maine.

gov/cgi-bin/online/AbsenteeBallot/index.pl, (last visited Sept. 16, 2014).

237 Kate Vinton, *White House Confirms Second Government Data Breach Targeting Sensitive Military, Intelligence Personnel Data*, Forbes.com, June 12, 2015, http://www.forbes.com/sites/katevinton/2015/06/12/report-new-government-data-breach-includes-sensitive-military-intelligence-personnel-data/.

238 Cass Jones, *Twitter Says 250,000 Accounts Have Been Hacked in a Security Breach*, The Guardian, Feb. 1, 2013, http://www.theguardian.com/technology/2013/feb/02/twitter-hacked-accounts-reset-security.

239 A CAPTCHA test, or "Completely Automated Public Turing Test to tell Computers and Humans Apart," is a challenge-response type test to ensure that the user is human instead of an automated program.

240 Online registration systems in at least seven states, including Colorado, Indiana, Louisiana, Maryland, Minnesota, Virginia, and Washington, include a time-out feature (typically ranging from 15-60 minutes), and at least five online registration states, including Connecticut, Indiana, Louisiana, Oregon, and Washington, have a CAPTCHA test. Telephone Interview with Judd Choate, *supra* note 20 (Colo.); Telephone Interview with Brad King, *supra* note 27 (Ind.); Telephone Interview with Chrissie Weatherford, *supra* note 31 (La.); E-mail from Ross Goldstein, Deputy State Adm'r, Md. Bd. of Elections to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (May 29, 2013) (on file with Brennan Ctr.) (Md.); Telephone Interview with Beth Fraser et al., *supra* note 155 (Minn.); Telephone Interview with Donald Palmer and Matt Davis, *supra* note 53 (Va.); Telephone Interview with Lori Augino, Dir. of Elections, Wash. Sec'y of State, Shane Hamlin, Deputy Dir. of Elections, Wash. Sec'y of State (Aug. 2, 2013) (Wash.); Telephone Interview with Peggy Reeves, *supra* note 21 (Conn.); E-mail from Gina Zejdlik, Interim Elections Dir., Or. Sec'y of State, to Holly Maluk, Voting Rights Researcher, Brennan Ctr. for Justice (Sept. 18, 2013) (on file with Brennan Ctr.) (Or.).

241 Telephone Interview with Lori Augino, & Shane Hamlin, *id.;* E-mail from Ross Goldstein, *supra* note 240. Maryland and Washington have also incorporated a number of additional recommendations made by computer security experts. For a list of recommendations see: Letter from J. Alex Halderman, Professor, U. Mich. et al., to Robert L. Walker, Chairman, Md. State Bd. of Elections, et al. (Sept. 25, 2013), *available at* http://apps.washingtonpost.com/g/documents/local/maryland-online-voting-concerns/78/.

242 Telephone Interview with Chrissie Weatherford, *supra* note 176.

243 Telephone Interview with Joseph Calizo, Asst. Dir. of Student Activities, Univ. of Md. Coll. Park (Mar. 29, 2013); Telephone Interview with Mary Cramer Wagner & Ross Goldstein, *supra* note 32; Telephone Interview with Mary Cramer Wagner, *supra* note 72.

244 Jon Banister, *University Officials Shut Down Online Voter Registration Following Data Breach,* The Diamondback, Sept. 10, 2014, http://www.diamondbackonline.com/news/campus/article_60043638-387d-11e4-b476-001a4bcf6878.html.

245 Banister, *supra* note 244.

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