High-Tech, Low-Tech

Combining Hand-Marked Paper Ballots with Scanning Technology to Line-Proof Elections and Build Voter Confidence

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Beginning as early as the late 19th Century[1], America began moving away from hand counted paper ballots and utilizing technology in elections. Our country has moved from punch cards and lever machines to accessible ballot marking devices (BMDs) and optical scanners for hand-marked paper ballots and direct recording electronic systems. With more contests than ever on local ballots and a growing number of registered voters, this has enabled Americans to get accurate election results quickly. As advocates for alternative voting methods pitch hand counting or an end to hand-marked ballots, there's a mathematical equation that election officials must do to determine what systems work best for them.

Built-In Accessibility

The Help Americans Vote Act (HAVA) was born out of the 2000 Presidential Election, but its implications are still being felt today as election officials and voting system vendors work to make elections more accessible and efficient. It is imperative that every jurisdiction work to make their elections accessible to all eligible voters, regardless of ability, not just to meet regulations but to ensure equal access to a crucial part of our democratic process. Whether adopting a fully-electronic system or an entirely paper-based model, it's important to consider that not every voter is capable of holding a pen or reading a screen and that proper accommodations are considered.

Hand-Marked, Hand Counted

While many jurisdictions have switched to machine tabulated ballots, there are still places in America where votes are continuously counted by hand in elections. However, that number is shrinking. According to the latest data, only 0.2% of all registered voters in the country live in jurisdictions where most ballots are counted by hand.[2] Most jurisdictions that count ballots by hand are small home rule communities in the New England and upper Midwest areas, where elections are conducted at the town level. The decision to hand count can be due to the cost-savings of not purchasing additional equipment or because it would be logistically difficult to manage tabulators and ballot marking devices with a limited number of staff. In those smaller communities with fewer registered voters, election officials have been able to manage counting the ballots that come in on election

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[1] MIT Election Data and Science Lab, 2022. [2] Verified Voting, 2022.

night and reporting their results on time. The larger the jurisdiction, the less manageable of a task this becomes.

An additional complicating factor in hand count jurisdictions is the length of the average American ballot. Unlike other nations who often conduct elections with just one or a few choices, American ballots are often complex, with multiple local, state, and federal elections on the ballot. The United States is credited with having the longest ballots in the Democratic world.[3] In order to efficiently hand count complex ballots, jurisdictions need a number of trained election officials or workers who can accurately tally multiple contests without making errors and in a short enough window to report results to the state and public. For elections run at the county level, this is often not possible or is not allowed under state election laws or guidance.

Hand-Marked, Machine Counted

In the middle of the low-tech to high-tech spectrum sits the tried-and-true model of voter-marked paper ballots that are read by electronic tabulators either in-person on election day or centrally by election administrators in vote-by-mail jurisdictions. These systems will also include accessible ballot marking devices that are available for voters with disabilities who would not be able to vote using a hand-marked ballot or potentially for in-person early voting opportunities. By moving from a hand count to a machine tabulated system, election officials can more efficiently and accurately report election results to voters, candidates, and the public.

This system offers jurisdictions the flexibility to determine the flow of their election process and adapts well to both in-person and vote-by-mail systems, with officials able to mix and match the number of ballot marking and tabulation devices needed depending on their size and number of in-person polling locations. In a cost analysis from the University of Pittsburgh, the up-front cost of a voter-marked paper ballot system with optical scanners was less than half the cost per registered voter than that of a similar voting configuration using entirely ballot marking devices[4]. In a separate analysis looking at the State of Georgia, paper ballot systems continued to be less than half the cost of all BMD systems over the course of a ten-year period[5], making them a compelling option for jurisdictions with limited budgets.

Voter-marked paper ballots can also increase voter confidence and trust in the election process by allowing each voter to visually verify their selections prior to tabulation. This paper record is maintained throughout the tabulation process as a safeguard and as the

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[3] National Conference of State Legislatures, 2022 [4] The University of Pittsburgh, 2020.
[5] VoterGA, 2019 [6] MIT Election Data + Science Lab, 2022

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ultimate record of a voter's intent in the event of a recount, audit, or other challenge to results. Hand-marked ballots also maximize the number of voters who can vote concurrently for in-person voting configurations, with jurisdictions able to set up additional voting booths quickly and cost-effectively during peak hours if needed to move voters through the process.

Machine-Marked, Machine Counted

At the far end of the technology spectrum sits full electronic voting configurations, including direct recording electronic systems (DREs) or ballot marking devices with separate electronic tabulators. These configurations are used in several states and large counties across the country to cut down on voter errors like overvotes and stray marks and to save on pre-printing dozens of ballot styles. Jurisdictions using exclusively ballot marking devices for in-person voting also allow for voters with disabilities who vote in-person to mark the same ballot as voters without disabilities, helping ensure their anonymity is upheld when ballots are counted.

These benefits are frequently felt most by large counties or states who are looking for uniformity in the process and have the larger budgets to accommodate the additional equipment purchases needed to ensure an adequate number of machines per polling location. When considering a switch or upgrade to an entirely electronic configuration, election officials will need to consider the length of time it would take a voter to complete a ballot and average turnout in a polling location to create a steady flow of voters and avoid long lines. In measuring data from MIT's Election Data and Science Lab, jurisdictions with all-touch screen systems had lines that were 87% longer than in states where the majority of voters cast hand-marked ballots in federal elections since 2016.[6]

Requirements on the number of ballot marking or direct recording electronic devices needed per registered voter varies by state, with different configurations needed for precinct-based polling locations versus vote centers or centralized polling locations. Jurisdictions looking to implement an electronic system should consider how many voting booths they would normally set up and see in use as a potential benchmark for equipment decisions.

It's All About the Math

Like winter snowflakes, there are no two elections across this country that are perfectly alike. Each jurisdiction knows best the needs of their voters, their team, and their system.

[3] National Conference of State Legislatures, 2022 [4] The University of Pittsburgh, 2020.
[5] VoterGA, 2019 [6] MIT Election Data + Science Lab, 2022

When choosing the right way to configure their voting system, election officials need to do complex math to determine the amount of equipment they need, what they can afford, and what their long-term costs and obligations will be and then compare that to the human element, including training, voter confidence, and familiarity. While there's no one-size-fits-all solution, the enduring popularity of the voter-marked and verified paper ballot system combined with electronic tabulation is a testament to the flexibility and cost-savings of a tried-and-true voting method particularly as voters seek verification of their election results.

ABOUT CLEAR BALLOT

As the leader in election innovation, Clear Ballot has introduced a new class of tools and a modern approach to voting, enabling unprecedented speed, accuracy, and transparency that officials and the voting public have sought for decades. Clear Ballot entered the election industry with its first product in 2012, disrupting the industry with the nation's first independent, automated audit, and four years later developed a complete voting system which is now the fastest growing voting system in the industry. Clear Ballot's election technology is currently used in thirteen states, serving more than 40 million registered voters.

[3] National Conference of State Legislatures, 2022 [4] The University of Pittsburgh, 2020.
[5] VoterGA, 2019 [6] MIT Election Data + Science Lab, 2022