NOTES

Navigating the ADA-HAVA Nexus: Balancing Election Accessibility, Security, and Technology

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* J.D., Georgetown University Law Center, 2024; B.S., Drexel University, 2020. My sincerest thanks to Professor Matt Blaze for his invaluable guidance on an earlier version of this Note for his Technology and Election Integrity Seminar; my partner, Marybeth, whose unwavering support has been a cornerstone throughout my law school journey; Bob Feder, for his faith in me and continual encouragement; and my family and friends who stood alongside me throughout my legal education. Thank you to the *Georgetown Journal of Law & Public Policy* for their help in preparing this Note for publication. All errors are my own.

I. INTRODUCTION

In the contemporary landscape of American democracy, the interplay between the Americans with Disabilities Act (ADA) and the Help America Vote Act of 2002 (HAVA) represents a critical juncture in ensuring equitable election processes. While the right to vote is constitutionally protected, Americans with disabilities have long faced barriers to fully realizing this right.[1]

The ADA and HAVA are monumental in their intent to dismantle barriers and foster an inclusive electoral environment. However, this Note will assert that achieving harmony among these critical elements—accessibility, security, and technology—is fraught with challenges and complexities, and ultimately, the need for evidence-based yet practical accessibility measures is more imperative today than ever before. Part I of this Note traces the origins and goals of the ADA and HAVA and poses the question of balancing accessibility and security in election technology. Parts II and III discuss the individual frameworks established by the ADA and HAVA, respectively. Parts IV and V explore the intersection of accessibility, security, and technology in the election process, as well as both fundamental and resolvable tradeoffs in balancing these often-competing objectives. Part VI examines various critical legal and policy debates, both in regulatory spaces and within advocacy communities. Finally, Part VII qualifies the impacts of today's electoral system on voters with disabilities, culminating in Part VIII's exploration of a balanced, nuanced path forward for future electoral reforms.

A. The Intended Goals of the ADA & HAVA

Signed into law in 1990, the ADA is a comprehensive federal civil rights law that protects individuals with disabilities.[2] Title II of the ADA specifically addresses voting access, requiring state and local entities to provide people with disabilities "a full and equal opportunity to vote."[3] The ADA applies to all parts of the voting process, beginning with voter registration through the casting of ballots.[4] While the ADA addresses voter access at the broadest level, additional legislative language was deemed necessary to add specificity to the implementation and availability of accessibility measures.

Intended to achieve widespread reforms to the voting process, HAVA addresses the availability of accessible voting machines in federal elections.[5]

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1. *See generally* Michael Waterstone, *Constitutional and Statutory Voting Rights for People with Disabilities*, 14 STAN. L. & POL'Y REV. 353 (2003) (discussing the various statutory and constitutional protections and limitations regarding individuals with disabilities); Kay Schriner & Andrew I. Batavia, *The Americans with Disabilities Act: Does it Secure the Fundamental Right to Vote?*, 29 POL'Y STUD. J. 663 (2001) (examining the implications of the ADA in the context of voting and disability).

2. *The Americans with Disabilities Act and Other Federal Laws Protecting the Rights of Voters with Disabilities*, U.S. DEP'T OF JUST., https://www.ada.gov/resources/protecting-voter-rights/ [https://perma.cc/K4ZX-Y955] (last visited Apr. 13, 2024) [hereinafter *The ADA and Other Federal Laws*].

3. *Id.*

4. *See id.*

5. Benjamin O. Hoerner, *Unfulfilled Promise: Voting Rights for People with Mental Disabilities and the Halving of HAVA's Potential*, TEX. J. C.L. & C.R. 89, 101 (2015) ("The technology incentives of

HAVA requires "jurisdictions responsible for conducting federal elections to provide at least one accessible voting system for persons with disabilities at each polling place,"[6] and these systems must grant equal opportunity for access and participation, most notably the privacy and independence afforded to non-disabled voters.[7] HAVA also established the U.S. Election Assistance Commission (EAC), described as "an independent, bipartisan commission charged with developing guidance to meet HAVA requirements, adopting voluntary voting system guidelines, and serving as a national clearinghouse of information on election administration."[8]

B. The Importance of Accessibility in Electoral Processes for Disabled Voters

Elections have long served as one of the hallmarks of American democracy, and barriers to accessing the ballot box diminish this constitutionally protected right. The American electorate is incredibly diverse, by age, gender, ethnic and racial backgrounds, socioeconomic status, beliefs, and background.[9] Why, then, are disabled voters so drastically underrepresented in this process as compared to their counterparts?

In the 2020 Presidential Election, roughly 154.6 million Americans cast votes reflecting their preferred candidate.[10] However, during the election, just 17.7 million people with disabilities reported voting.[11] Marginal gains toward parity in voter turnout have occurred; in 2020, the turnout gap between people with and without disabilities decreased to 5.7 points from 6.3 points in 2016.[12]

Following the 2020 election, a national survey sponsored by the EAC found that 11% of voters with disabilities had some type of difficulty in voting, almost twice the rate among voters without disabilities at 6%.[13] Voters with disabilities face a range of barriers that may prevent them from accessing the ballot box, including physical barriers to accessing their voting location, inadequately

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HAVA were meant to improve the legitimacy of federal elections through a two-pronged approach: first, to increase the accuracy and reliability of the voting systems and second, to improve accessibility to marginalized voters, such as people with disabilities and people who are non-native English-speakers.").

6. *The ADA and Other Federal Laws*, *supra* note 2.

7. 52 U.S.C. § 21081(a)(3).

8. *About EAC*, U.S. ELECTION ASSISTANCE COMM'N, http://www.eac.gov/about_the_eac [https://perma.cc/5JJP-YJEY] (last visited Apr. 13, 2024).

9. There are an estimated 35 million disabled American citizens eligible to vote, meaning that "[b]etween one out of seven and one out of five voting-age people has a disability." Rabia Belt, *Contemporary Voting Rights Controversies Through the Lens of Disability*, 68 STAN. L. REV. 1491, 1494 (2016).

10. Press Release, U.S. Census Bureau, *Census Bureau Releases 2020 Presidential Election Voting Report* (Feb. 17, 2022), https://www.census.gov/newsroom/press-releases/2022/2020-presidential-election-voting-report.html [https://perma.cc/3SKH-URAC].

11. LISA SCHUR & DOUGLAS KRUSE, FACT SHEET: DISABILITY AND VOTER TURNOUT IN THE 2020 ELECTIONS 1 (2021).

12. *Id.*

13. *Id.* at 3–4.

trained poll workers who are ill-equipped to assist voters with disabilities, and fear of not having appropriate accommodations provided.[14]

C. The Question of Balancing Accessibility, Security & Election Technology

Implementing federal laws alongside localized regulation allowed for the nation's highly decentralized election system, but tradeoffs exist when balancing accessibility for all voters with election security and the limitations of election technology. Furthermore, tension exists between supporters of universal accessibility and those who prioritize election security. How can all three persist in equitable consideration?

Voters with disabilities have historically been marginalized when voting and, ultimately, stigmatized in the process. These voters are more likely to be implicated in voter fraud, impacted by voter identification requirements, deterred by long lines at voting locations, and affected by problems with new voting technologies.[15]

Election integrity scholars have assessed the impact of HAVA on accelerating the computerization of voting systems at polling locations. However, "some of this new technology has had the unfortunate unintended consequence of increasing, rather than decreasing, the risk of our elections being compromised by malicious actors."[16] While this may be true, unintended consequences can, and must, be corrected. Intentional efforts are imperative to mitigate risks while continuing progress toward more equitable, accessible elections.

II. THE ADA'S ACCESSIBILITY MANDATE

A. Accessibility Requirements of the ADA

Title II of the ADA "requires state and local governments ('public entities') to ensure that people with disabilities have a full and equal opportunity to vote."[17] Such requirements touch on every aspect of the electoral process, including "voter registration, site selection, and the casting of ballots, whether on Election Day or during an early voting process."[18]

The definition of "substantially limits" under the ADA is "interpreted broadly and is not meant to be a demanding standard."[19] Additionally, "major life activities" are those "that you do every day, including your body's own internal

14. *See* Ihaab Syed et al., *Designing Accessible Elections: Recommendations from Disability Voting Rights Advocates*, 21 ELECTION L.J. 60, 74 (2022).

15. *See* Belt, *supra* note 9, at 1505–13.

16. Matt Blaze, *Election Integrity and Technology: Vulnerabilities and Solutions*, 4 GEO. L. TECH. REV. 505, 506 (2020).

17. *The ADA and Other Federal Laws*, *supra* note 2.

18. *Id.* Under the ADA, an individual has a "disability" when that person has "a physical or mental impairment that substantially limits one or more major life activities of such individual; a record of such an impairment; or being regarded as having such an impairment." 42 U.S.C. § 12102(1).

19. *Introduction to the Americans with Disabilities Act*, U.S. DEP'T OF JUST., https://www.ada.gov/topics/intro-to-ada/ [https://perma.cc/Q69A-43GR] (last visited Apr. 13, 2024).

processes."[20] Under the ADA, public entities must "ensure that people with disabilities can access and use their voting facilities,"[21] and individuals are granted a private right of action should this requirement not be met.[22]

B. The Legal Obligations to Provide Equal Access to Voting as a Public Service

The ADA and HAVA established crucial legal frameworks to ensure equal access to voting and public services for individuals with disabilities. These laws are critical in maintaining integrity and inclusivity within the democratic process.

HAVA emphasizes the importance of accessible voter registration, providing guides and checklists to help ensure voters with disabilities have equal access to this crucial step in the voting experience.[23] Furthermore, "[t]he EAC has a strong commitment to working with both election officials and voters with disabilities to ensure that the election process, polling places and voting services are accessible,"[24] catering to a broad range of disabilities.[25]

The ADA and HAVA provide a comprehensive legal framework to ensure that voters with disabilities have equal access to the electoral process. These acts cover a wide range of requirements, from accessible voter registration to the physical accessibility of polling places and the adoption of new voting technologies and systems. Continuous research and development, as well as additional training and resources for election officials, play a pivotal role in implementing these obligations effectively.

C. The Application of ADA Principles to Polling Places & Election Technology

The ADA mandates that state and local governments, along with election officials, ensure that individuals with disabilities have "full and equal"[26] opportunities to participate in all aspects of voting.[27] This encompasses "federal, state, and local elections" and includes "voter registration, selecting a location for polling places, and voting, whether on election day or during an early or absentee voting process."[28] The ADA requires that registering to vote must be accessible to

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20. *Id.*

21. *The ADA and Other Federal Laws*, *supra* note 2.

22. 42 U.S.C. § 12188 (specifying that parties discriminated against in this way have access to claims under the Civil Rights Act).

23. *Voting Accessibility*, U.S. ELECTION ASSISTANCE COMM'N, https://www.eac.gov/voting-accessibility [https://perma.cc/LV4X-DJYV] (last visited Apr. 13, 2024).

24. U.S. ELECTION ASSISTANCE COMM'N, EAC FACT SHEET: HOW THE U.S. ELECTION ASSISTANCE COMMISSION EMPOWERS VOTERS WITH DISABILITIES AND THE ELECTION OFFICIALS WHO SERVE THEM, https://www.eac.gov/sites/default/files/eac_assets/1/6/EAC_FACT_SHEET_Voters_with_Disabiltiies11.pdf [https://perma.cc/V6V3-T7NR] (last visited Apr. 13, 2024).

25. One way in which the EAC works toward these objectives is through its Accessible Voting Technology Initiative (ATVI), which supports "research on transformative technologies and approaches" to produce solutions to assist voters with disabilities. *Voting Accessibility*, *supra* note 23.

26. 42 U.S.C. § 12182.

27. *See Voting and Polling Places*, U.S. DEP'T OF JUST., https://www.ada.gov/topics/voting/ [https://perma.cc/JUZ5-ZNJV] (last visited Apr. 13, 2024).

28. *Id.*

individuals with disabilities, and these individuals cannot be categorically discriminated against or denied the ability to vote.[29]

III. THE HAVA FRAMEWORK FOR ELECTION SECURITY

The 2000 Presidential Election is best known for its dramatic election night and its even-more remarkable prolonged set of legal challenges. In Florida, the election was too close to call, triggering an election recount. Subsequently, Vice President Al Gore instead requested a hand recount,[30] highlighting on a national stage integrity issues with the voting systems utilized—namely punch card machines, which, at the time, were the most common type of voting machine in the country.[31] In the 2000 Presidential election, Florida demonstrated a "failure to fulfill the most basic of election administration functions: accurately 'registering the will of voters.'"[32] Three concerns emerged through this failure: technology and election infrastructure, access via voter registration, and integrity concerns.

A. An Examination of HAVA's Provisions Relating to Secure & Accessible Voting Systems

HAVA was signed into law to ensure that there would be no more images of election officials in this country examining ballots with magnifying glasses to determine for which candidate a voter intended to cast their vote. HAVA required states to replace all punch card and lever voting machines then in use.[33] The law established mandatory minimum standards for states and provided funding for the effective implementation of such standards by the states.[34]

To assist states, Congress allocated funds for new voting machines that satisfied specific standards.[35] States were required to replace punch card and lever voting machines by January 1, 2004, and to repay a portion of the funds allocated through HAVA if they failed to upgrade their systems.[36]

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29. 42 U.S.C. § 12182.

30. *See* Ron Elving, *The Florida Recount of 2000: A Nightmare That Goes on Haunting*, NPR (Nov. 12, 2018, 5:00 AM), https://www.npr.org/2018/11/12/666812854/the-florida-recount-of-2000-a-nightmare-that-goes-on-haunting [https://perma.cc/G7L4-EE9Q] (providing an overview of the aftermath of the 2000 Presidential Election).

31. Morgan Thomas, *Election Technology Through the Years*, COUNCIL OF STATE GOV'TS (Nov. 8, 2023), https://www.csg.org/2023/11/08/election-technology-through-the-years/ [https://perma.cc/2A8G-CYMC].

32. *See* Orion de Nevers, *What Happened to HAVA? The Help America Vote Act Twenty Years on and Lessons for the Future*, 110 GEO. L.J. ONLINE 168, 171 (2022).

33. 52 U.S.C. § 20902.

34. Such standards primarily concern provisional voting, voting information, updated and upgraded voting equipment, statewide voter registration databases, voter identification procedures, and administrative complaint procedures. 52 U.S.C. §§ 21081–21085. For a detailed overview of relevant HAVA provisions, see Waterstone, *supra* note 1.

35. 52 U.S.C. § 20904.

36. 52 U.S.C. § 20902(a)(2)–(3). Under HAVA, the replacement systems must "permit the voter to verify (in a private and independent manner) the votes selected by the voter on the ballot before the ballot is cast and counted" and "provide the voter with the opportunity (in a private and independent manner) to change the ballot or correct any error before the ballot is cast and counted (including the

Furthermore, HAVA demanded that *all* polling locations have "at least one direct recording electronic voting system or other voting system equipped for individuals with disabilities."[37] In practice, election officials and poll workers often ignore this provision on Election Day.

B. The Role of HAVA in Modernizing Election Technology

HAVA catalyzed a widespread modernization of voting technology, mainly by replacing outdated voting machines, a movement propelled by the federal funds allocated under HAVA.[38] This led to the significant enhancement of voting infrastructure across the nation. In the realm of voting machines, the transition saw the evolution of Direct-Recording Electronic (DRE) machines from their rudimentary 1970s versions to modern portable computers.[39] A notable advancement in these systems was the integration of the Voter-Verified Paper Audit Trails (VVPAT), which provided an essential mechanism for election audits and recounts, thus bolstering security and transparency.[40]

The security aspect of election technology underwent a profound transformation under HAVA. The role of Voting System Test Laboratories (VSTLs) became increasingly critical, ensuring the security of elections and voting equipment through rigorous pre- and post-election checks. Elections now encompassed a robust, multi-layered security system, combining physical controls with post-election audits and logic and accuracy testing.[41] This comprehensive approach directly responded to the escalating sophistication of cyber threats, including

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opportunity to correct the error through the issuance of a replacement ballot if the voter was otherwise unable to change the ballot or correct any error)." 52 U.S.C. § 21081(a)(1)(A).

37. 52 U.S.C. § 21081(a)(3)(B). Congress also mandated that new voting systems under HAVA must "be accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as for other voters." 52 U.S.C. § 21081(a)(3)(A).

38. *See Help America Vote Act*, U.S. ELECTION ASSISTANCE COMM'N, https://www.eac.gov/about/help_america_vote_act.aspx [https://perma.cc/H3RH-5K55]; *see also* KAREN L. SHANTON, CONG. RSCH. SERV., THE HELP AMERICA VOTE ACT OF 2002 (HAVA): OVERVIEW AND ONGOING ROLE IN ELECTION ADMINISTRATION POLICY 10–12 (2023) (providing a detailed breakdown of funding authorized and appropriated for HAVA grant programs).

39. *See* Sharon B. Cohen, Auditing Technology for Electronic Voting Machines 6–9 (May 19, 2005) (Thesis, Massachusetts Institute of Technology), https://dspace.mit.edu/handle/1721.1/33119 [https://perma.cc/SYC9-R69Z] ("The first DRE machines were actually deployed in the 1970's and strongly resembled lever machines; the levers were replaced by buttons.").

40. *See* Sunoo Park, *The Right to Vote Securely*, 94 U. COLO. L. REV. 1101, 1135 (2023) ("The move from paperless electronic machines to paper-ballot or VVPAT-based voting systems in most states, and the increase in the quality and frequency of post-election auditing in many states, have been the key features of the improvement in election system security over the last decade and a half.").

41. *See* NAT'L ACADS. SCIS., ENG'G, & MED., SECURING THE VOTE: PROTECTING AMERICAN DEMOCRACY 53 n.54 (2018) ("Equipment used in elections may also undergo various forms of testing to attempt to improve integrity and security of election systems. These may include both pre-election and post-election testing of the hardware and software components of election systems. Pre-election testing of voting equipment is referred to as 'logic and accuracy testing.' Such pre-election testing is conducted primarily as an assurance against non-adversarial errors and breakdowns impacting accuracy.") [hereinafter SECURING THE VOTE]; *see also* U.S. ELECTION ASSISTANCE COMM'N, ELECTION MANAGEMENT GUIDELINES: ACCESSIBILITY 73–75 (2023), https://www.eac.gov/sites/default/files/electionofficials/EMG/EAC_Election_Management_

those from foreign adversaries, necessitating enhanced coordination between government and private-sector partners to safeguard election infrastructure.[42]

The impact of HAVA varies from state to state. In many cases, effective implementation of HAVA funding allowed states and election officials to proactively prepare for future electoral reforms and employ new funding sources for ongoing election modernization efforts. For example, Louisiana utilized HAVA funding for several key initiatives in the early 2000s, including the early replacement of punch card and lever voting machines.[43] These adoptions and new technologies later allowed the State to better adapt to the challenges posed by the COVID-19 pandemic and transition to a new paper-based voting system.[44]

IV. THE INTERSECTION OF THE ADA, HAVA & ELECTION TECHNOLOGY

A. The Intersection in the Context of Accessible Voting Systems

Before the enactment of HAVA in 2002, there was no legal requirement mandating the right of individuals with print disabilities, such as blindness, to vote independently. This lack of regulation meant that voting systems were largely inaccessible, forcing voters with disabilities to rely on sighted individuals to mark their ballots.[45] While the ADA laid the groundwork for non-discrimination based on disability, [46] it was not until the reforms implemented by HAVA that specific requirements for accessible voting were enforced.[47]

A significant achievement of HAVA was its requirement that at least one accessible voting machine be available at every polling place for federal elections, marking the first time the right of voters with disabilities to vote "in a private and independent manner" was nationally recognized.[48] However, HAVA's scope was limited to federal elections, leaving gaps in accessibility for state and local elections.[49]

Guidelines_508.pdf [https://perma.cc/7CER-YLCR] (describing logic and accuracy testing as a critical pre-election procedure to protect election integrity).

42. *Celebrating HAVA at 20: Security and Technology in Elections*, U.S. ELECTION ASSISTANCE COMM'N (Oct. 21, 2022), https://www.eac.gov/blogs/celebrating-hava-20-security-and-technology-elections [https://perma.cc/VY3V-WJWR]; *see also* CYBERSECURITY & INFRASTRUCTURE SEC. AGENCY, CISA STRATEGIC PLAN 2023–2025 2 (2022), https://www.cisa.gov/sites/default/files/2023-01/StrategicPlan_20220912-V2_508c.pdf [https://perma.cc/7QKQ-AMRG] (noting the importance of collaboration to "safeguard [American] infrastructure from cyber and physical threats and risks.").

43. *Celebrating HAVA at 20: Current Issues in Election Administration*, U.S. ELECTION ASSISTANCE COMM'N (Oct. 24, 2022), https://www.eac.gov/blogs/celebrating-hava-20-current-issues-election-administration [https://perma.cc/XW5Z-UL7T].

44. *Id.*

45. *See* LAWRENCE NORDEN, BRENNAN CTR. FOR JUST., THE MACHINERY OF DEMOCRACY: VOTING SYSTEM SECURITY, ACCESSIBILITY, USABILITY, AND COST 60 (2006) ("Voters with coordination or vision problems may require significant assistance to complete [marking their ballot].").

46. 42 U.S.C. § 12101.

47. *See* Lou Ann Blake, *The Changing Landscape of Accessible Voting at the Polls*, BRAILLE MONITOR (June 2019), https://nfb.org/images/nfb/publications/bm/bm19/bm1906/bm190606.htm [https://perma.cc/A7L5-5THE].

48. 52 U.S.C. § 21081.

49. *See* Blake, *supra* note 47.

HAVA funded the EAC with $3.9 billion to administer grants for states to replace outdated voting machines.[50] This led to the wider-spread adoption of DRE touchscreen voting machines and optical scan systems with accessible ballot-marking devices (BMDs),[51] significantly improving the voting experience for people with disabilities.[52]

The intersection of the ADA, HAVA, and election technology in the context of accessible voting machines highlights significant progress in ensuring voting inclusivity for people with disabilities. While HAVA addressed the gap in legal requirements for accessible voting, it also revealed the need for ongoing adaptation and improvement of election technology to meet the diverse needs of all voters. The evolution from DRE systems to BMDs marks a technological advancement but also underscores the challenges of maintaining the integrity and secrecy of the voting process for people with disabilities. Ensuring that accessible voting technology meets the needs of all voters without creating segregated, disparate systems remains a critical goal in the pursuit of truly inclusive and democratic elections.

B. The Tension Between Accessibility, Security & Technology

Election administration involves inherent tradeoffs where enhancing one aspect, such as security, might inadvertently create deficits in another, like accessibility.[53] This balancing act is particularly evidenced in the context of electronic ballot transmission.[54] Electronic voting methods, crucial for certain citizens unable to vote in person, introduce significant security vulnerabilities, contributing to future legal challenges. Despite these risks, electronic ballot transmission is employed in at least 31 states, mainly for military and overseas voters.[55]

Moreover, many U.S. states use voting machines that are rapidly aging or no longer manufactured, posing heightened security risks and maintenance challenges.[56] The use of outdated equipment, some over a decade old, increases the

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50. Arlene Kanter & Rebecca Russo, *The Right of People with Disabilities to Exercise Their Right to Vote Under the Help America Vote Act*, 30 MENTAL & PHYSICAL DISABILITY L. REP. 852, 852 (2006).

51. *See* SECURING THE VOTE, *supra* note 41, at 77–79 (describing the various types of voting equipment, as well as their respective accessibility and security features).

52. Blake, *supra* note 47; *see also Brennan Center Overview of Voting Equipment*, BRENNAN CTR. FOR JUST. (May 31, 2018), https://www.brennancenter.org/our-work/research-reports/brennan-center-overview-voting-equipment [https://perma.cc/SU7J-UB8X].

53. *See* RACHEL OREY, BALANCING SECURITY, ACCESS, AND PRIVACY IN ELECTRONIC BALLOT TRANSMISSION 1 (2022) ("Security improvements can result in barriers to access: a voting system with no security vulnerabilities would be intrinsically restrictive. Similarly, a voting system which prioritized the ease of casting a ballot over all else would likely expose the system to vulnerabilities that would undermine the integrity of the election as a whole.").

54. *See id.*

55. *Id.* at 7; *see also* Syed et al., *supra* note 14, at 72 (discussing electronic ballot transmission in the context of overseas voters serving in the military and the impact its expansion would have on voters with disabilities).

56. *Voting Machines and Infrastructure*, BRENNAN CTR. FOR JUST., https://www.brennancenter.org/issues/defend-our-elections/election-security/voting-machines-infrastructure [https://perma.cc/7SEN-LB4Y].

risk of failures, crashes, and security vulnerabilities.[57] This situation is exacerbated by the attempts from foreign interests to hack U.S. voting infrastructure, making upgrades of these systems critical.[58] While small-scale attacks or failures might not impact national vote totals significantly, they can severely damage voter experience and confidence, especially in close contests.

When states received HAVA funding to replace and upgrade their election technology, the voting machine of choice was the DRE voting machine. However, as security experts have shown, DRE voting machines present a much higher risk than other voting technologies.[59] Additionally, DRE machines are vulnerable to "alteration or deletion of vote tallies stored in internal memory or removable media; . . . of ballot definition parameters displayed to voters; and . . . of electronic log files used for post-election audits and detecting unauthorized tampering."[60] Nonetheless, millions of Americans vote on these machines every election cycle, likely without understanding their risks.

The introduction of additional technology to existing voting machines inherently increases security risks by increasing the number of access points for potential vulnerabilities.[61] One potential solution to this issue, though not yet widely considered, is to develop an intermediary device that acts as a buffer, ensuring

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57. *Id.*; *see also* Paul M.A. Baker, *Revisioning the U.S. Elections Process: Voting Security and Election Integrity* (Ga. Inst. Tech., Working Paper, 2019) https://cacp.gatech.edu/sites/default/files/2020-03/Voting%20Security%20Working%20Paper%206-1-2019.pdf [https://perma.cc/Z7KV-UGMC] (highlighting the vulnerabilities and weaknesses associated with aging election infrastructure).

58. Older voting equipment can be particularly insecure, difficult to maintain, and more likely to fail on Election Day. *See Voting System Security and Reliability Risks*, BRENNAN CTR. FOR JUST. (Aug. 30, 2016), https://www.brennancenter.org/our-work/research-reports/voting-system-security-and-reliability-risks [https://perma.cc/G644-B7XT]; *see also* SECURING THE VOTE, *supra* note 41, at 1 ("According to assessments by members of the U.S. Intelligence Community, actors sponsored by the Russian government 'obtained and maintained access to elements of multiple US state or local electoral boards.'"); Press Release, U.S. Dep't of Just., Two Iranian Nationals Charged for Cyber-Enabled Disinformation and Threat Campaign Designed to Influence the 2020 U.S. Presidential Election (Nov. 18, 2021), https://www.justice.gov/opa/pr/two-iranian-nationals-charged-cyber-enabled-disinformation-and-threat-campaign-designed [https://perma.cc/NX5H-WNZB].

59. Blaze, *supra* note 16, at 514 ("The design of DREs makes them inherently difficult to secure and also makes it especially imperative that they *be* secure. This necessity exists because the accuracy and integrity of the recorded vote tally depends completely on the correctness and security of the machine's hardware, software, and data. Every aspect of a DRE's behavior, from the ballot displayed to the voter to the recording and reporting of votes, is under control of the DRE hardware and software.").

60. *Id.* at 515.

61. *See* Sarah J. Swierenga et al., *Security Implications for Personal Assistive Technology in Voting*, *in* HUMAN ASPECTS OF INFORMATION SECURITY, PRIVACY, AND TRUST: LECTURE NOTES IN COMPUTER SCIENCE 582, 585 (2015) ("However, whenever two devices are directly connected, potential security risks of virus transmission and/or hacking exist, especially when one of the devices is a ballot marking or ballot counting machine that may be used by subsequent voters."). Furthermore, personal assistive technologies that connect to voting systems via a USB connection can "transmit malicious software from [the] personal assistive technologies or devices into election systems during the connection, and/or use the direct connection as a means to manipulate election data or election processes, thereby compromising the integrity, privacy, and security of the election." *Id.*

that a voter's personal assistive technology never directly interacts with a voting machine or its software.[62]

C. Legal and Practical Challenges in Reconciling the Three Elements

Reconciling election accessibility, security, and technology presents a complex landscape marked by both legal and practical challenges. On the legal front, the crux of the challenge lies in navigating the often-conflicting requirements of the ADA and HAVA. Harmonizing these mandates can be legally intricate, leading to fierce debate. Occasionally, litigation can arise due to varying interpretations of accessibility and security requirements, disputes over appropriate resource distribution, concerns about privacy when collecting voter data, or the inconsistencies in state- and local-level election laws.

On the practical side, ensuring accessibility, security, and technological advancements in elections brings its own set of challenges. Cybersecurity threats loom large, demanding the mitigation of threats like hacking and tampering, while preserving accessibility. The complexity of advanced voting technology presents practical hurdles for both voters and poll workers, necessitating user-friendly designs and adequate training. Resource constraints often limit state and local election officials, making it difficult to acquire and maintain accessible technology while simultaneously investing in robust security measures.[63] Effective use of accessible technology requires comprehensive training for poll workers and voters, and ensuring compatibility with diverse disabilities is a continual technological challenge. Moreover, the rapid evolution of technology necessitates adaptive accessibility solutions, and maintaining public confidence in the electoral process is an ongoing challenge.

Cost is perhaps the most prominent practical challenge when balancing accessibility, security, and election technology. As noted by Orion de Nevers, "[in] many jurisdictions, technology 'is the single greatest driver of costs' in elections, with state and local governments facing increasing financial 'stress' as the costs of upgrading election equipment mount in the absence of renewed federal funding."[64]

Just as it becomes harder to find a new battery for a first-generation iPhone, so too has it become more difficult to find replacement parts for voting machines purchased by states under HAVA in the early 2000s. Even if spare parts *are* available, it is worth noting that "[n]ot only are [they] in short supply for these

62. *Id*. at 588 ("The intermediary would convert the assistive device's output signals into a simple, secure, and standardized output that can be fed into limited and sanitized (free of security threats) inputs for voting systems.").

63. *See* Hoerner, *supra* note 5, at 101 ("HAVA's technology provision . . . promoted 'low levels of investment and innovation in the market for voting machines' and ensured that 'future upgrades occur [ed] only infrequently and at great cost to state and local election agencies.'").

64. de Nevers, *supra* note 32, at 179–80.

machines, but they are also not required to meet the same security and accessibility requirements as new machines are."[65]

V. THE TRADEOFFS BETWEEN ACCESSIBILITY, SECURITY & TECHNOLOGY

A. Exploring the Specific Tradeoffs

During the 2020 Presidential Election, election security was again spotlighted. In a Gallup poll, only 63% of respondents reported being "very or somewhat confident" that their ballot was accurately cast and counted during the 2020 general election.[66] This is significant, as before HAVA, "[in] 2000, only 70% of voters were confident each 'vote was counted as intended.'"[67] Why, then, has there been virtually no discussion about the state of American election infrastructure and administration, as was the case following Bush's victory in 2000?

Balancing these complex and often competing priorities necessitates navigating a series of intricate tradeoffs. Figures 2 and 3 below summarize this analysis as either fundamental or resolvable tradeoffs. For these purposes, fundamental tradeoffs are defined as elements that will always exist in tension with one another. In contrast, resolvable tradeoffs are considered to be those in which solutions are available to mitigate these tensions.

65. Matt Zdun, *Machine Politics: How America Casts and Counts its Votes*, REUTERS, Aug. 23, 2022, https://www.reuters.com/graphics/USA-ELECTION/VOTING/mypmnewdlvr/ [https://perma.cc/MH7D-3LTA].

66. Justin McCarthy, *Confidence in Election Integrity Hides Deep Partisan Divide*, GALLUP (Nov. 4, 2022), https://news.gallup.com/poll/404675/confidence-election-integrity-hides-deep-partisan-divide.aspx [https://perma.cc/Z2R8-NDAX].

67. de Nevers, *supra* note 32, at 190.

Figure 2: Fundamental Tradeoffs in Balancing Election Accessibility, Security, and Technology		
	Tradeoff	**Reason for Fundamental Nature of Tradeoff**
Accessibility	Ensuring that voting systems are accessible to individuals with a wide range of disabilities has the potential to complicate its design and implementation. Making voting systems more accessible may necessitate adding further layers of technology, which inherently increases the potential vulnerabilities of the machines.	➢ Accessibility needs vary widely among individuals, and what works for one voter might not work for another, making a one-size-fits-all solution impractical. ➢ Achieving a universal design that accommodates all types of disabilities without making the system overly complex is a significant challenge. This diversity of needs makes it difficult to develop a single solution that is optimal for all voters.
Security	Maintaining the integrity and confidentiality of votes, while simultaneously ensuring accessibility, requires a balance between ease of use and robust security protocols.	➢ Perfect security can hinder accessibility features. ➢ Ensuring absolute security and maintaining ease of use is a constant balancing act, which may create tension.
Technology	Incorporating advanced technology to enhance accessibility can introduce new complexities regarding usability, security, and cost.	➢ Rapid technological advancements require the continual evolution of systems. ➢ Technological solutions that are cutting-edge today may soon become obsolete, requiring ongoing adaptation and innovation.

Figure 3: Resolvable Tradeoffs in Balancing Election Accessibility, Security, and Technology		
	Tradeoff	**Potential Solution**
Accessibility	Challenges to standardize accessible features across diverse voting systems, can lead to inconsistent user experiences and potential barriers for some voters.	➢ Develop and implement universal design principles and guidelines for voting systems, catering to a broad spectrum of disabilities. ➢ Regularly gather feedback from users with disabilities and advocacy groups to refine and improve system design.
Security	Accessible voting systems may increase the risk of security vulnerabilities.	➢ Conduct regular security audits and updates. ➢ Require systems to incorporate a voter-verifiable paper trail and regularly conduct risk-limiting audits to ensure election accuracy and integrity.
Technology	Challenges may arise in keeping pace with rapidly advancing technology while ensuring usability for all voters.	➢ Establish a collaborative approach involving technology and cybersecurity experts, disability advocates, and end-users in the design and testing of voting systems. ➢ Prioritize user-friendly interfaces and consider the diverse needs of all voters throughout development.

B. Case Studies Highlighting Conflicts & Compromises in Election Technology

The Brennan Center for Justice has identified the use of outdated voting equipment as a substantial security and reliability risk in the U.S.[68] While recent advances have been made in securing voting technology by ensuring most votes are cast on systems that have a paper trail,[69] older equipment remains susceptible to security breaches and failures.[70] These risks highlight the need for ongoing investments and upgrades in election infrastructure to ensure security and reliability.[71]

Significant challenges have marked the United States' journey toward electronic voting. A notable example is the Florida Congressional Election of November 2006, where in Sarasota County, electronic voting machines

68. *Voting System Security and Reliability Risks*, *supra* note 58.
69. *See* Zdun, *supra* note 65.
70. *See Voting System Security and Reliability Risks*, *supra* note 58.
71. de Nevers, *supra* note 32, at 195.

registered no votes, despite almost 18,000 ballots having been cast.[72] This incident highlighted the reliability issues with electronic voting systems, casting doubts on their effectiveness and triggering legal action and demands for recounts.[73]

Moreover, the 2016 and 2020 federal general elections brought to the fore the vulnerabilities of the democratic process in the face of modern technology. The spread of misinformation and disinformation, primarily through social media, posed significant challenges to election integrity.[74] Investigations into foreign interference, particularly by the Russian government in the 2016 election, raised questions about the security of the electoral process and the influence of technology in the spreading of false information.[75]

In 2018, West Virginia piloted the Voatz blockchain-based mobile voting application, marking the first use of this type of application in a U.S. federal election.[76] The system used blockchain technology to create an immutable record of votes, combined with cybersecurity software to detect smartphone malware and offer biometric methods for voter identification and authentication.[77] The application functioned only on pre-determined smartphones that met specific security standards and provided a VVPAT through email receipts to voters and election offices, thereby enhancing transparency and auditability.[78]

While Voatz held significant promise for voters with disabilities,[79] West Virginia announced that it would not be using the system moving forward.[80] Cybersecurity experts at MIT found that the Voatz system "is vulnerable to a number of attacks that could violate election integrity,"[81] highlighting that "an attacker with root access to a voter's device can easily evade the system's

72. *See* David Jefferson, *What Happened in Sarasota County?*, 37 THE BRIDGE 17 (2007).

73. Rush Holt, *Legal Issues, Policy Issues, and the Future of Democracy*, 37 THE BRIDGE 24, 25–26 (2007).

74. *See, e.g.*, Tiffany Hsu, *Misinformation Defense Worked in 2020, Up to a Point, Study Finds*, N.Y. TIMES (Apr. 13, 2023), https://www.nytimes.com/2023/04/13/business/media/misinformation-2020-election-study.html [https://perma.cc/363J-YK9C].

75. *See* SECURING THE VOTE, *supra* note 41, at 1–3.

76. IRENE SOLAIMAN, DEFENDING VOTE CASTING: USING BLOCKCHAIN-BASED MOBILE VOTING APPLICATIONS IN GOVERNMENT ELECTIONS 7 (2018), https://www.belfercenter.org/sites/default/files/files/publication/DefendingVoteCasting.pdf [https://perma.cc/22LB-LZ2H]. For an overview of West Virginia's Voatz pilot program, see LARRY MOORE & NIMIT SAWHNEY, UNDER THE HOOD: THE WEST VIRGINIA MOBILE VOTING PILOT (2019), https://www.nass.org/sites/default/files/2019-02/white-paper-voatz-nass-winter19.pdf [https://perma.cc/77H3-GYZ6].

77. SOLAIMAN, *supra* note 76, at 7–8.

78. *Id.*

79. *See* Kevin Collier, *Voatz Smartphone Voting App Has Significant Security Flaws, MIT Researchers Say*, NBC NEWS (Feb. 13, 2020), https://www.nbcnews.com/tech/security/voatz-smartphone-voting-app-has-significant-security-flaws-mit-researchers-n1136546 [https://perma.cc/4EWY-S8ZS] ("While supporters have touted its ability to enfranchise Americans with disabilities and those serving overseas—both groups with dismal voting turnout—the company has largely been quiet about addressing security concerns.").

80. *Id.*

81. Michael A. Specter et al., *The Ballot is Busted Before the Blockchain: A Security Analysis of Voatz, the First Internet Voting Application Used in U.S. Federal Elections*, MIT 1 (2020), https://internetpolicy.mit.edu/wp-content/uploads/2020/02/SecurityAnalysisOfVoatz_Public.pdf [https://perma.cc/SP92-PART].

defenses, learn the user's choices (even after the event is over), and alter the user's vote."[82] Additionally, even though Voatz touts its implementation of VVPAT through the use of email receipts, the researchers found that "there is no mention of the receipt in the app, and it does not appear that the app itself provides any method of verifying that the ballot was counted in the blockchain of record."[83]

The West Virginia mobile voting pilot program illustrates that while significant strides have been made in improving the reliability and security of voting systems, issues such as outdated equipment, misinformation, and the need for inclusive access remain critical areas demanding attention. Continuous advancements in election technology, such as the use of blockchain, along with vigilant approaches to security and accessibility, are essential to uphold the integrity and inclusivity of the democratic process.

C. The Impact of Technology Choices on Accessibility & Security

The choice between having election machines that are entirely accessible or perfectly secure has no perfect solution.[84] Studies conducted by the EAC and Rutgers University revealed that voters with disabilities are more likely to face difficulties and require assistance during the voting process.[85] In 2020, 11% of voters with disabilities experienced difficulties voting in person, compared to just 6% of voters without.[86] Additionally, voters with disabilities were more likely to use mail ballots.[87] Difficulties in voting—both in accessing the ballot and obtaining candidate information—are largest for individuals with cognitive impairments and those needing full-time supportive care.[88] This data underscores the need for ongoing efforts to make the voting process more accessible and the importance of equipping election officials with the necessary resources and training.[89]

The introduction of electronic voting systems has the potential to drastically improve the ability of voters with disabilities to vote privately and independently. However, the implementation of these systems has not been without challenges. For example, many voting systems are not arranged to accommodate voters using

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82. *Id.*

83. *Id.* at 13.

84. Rachel Orey illustrates this dilemma in her Bipartisan Policy Center report, which notes that "[t]rade-offs are inherent to election administration. Election officials and policymakers must regularly make decisions that restrict or expand voter access, detract or enhance election security, and reduce or enshrine voter privacy." OREY, *supra* note 53, at 1.

85. SCHUR & KRUSE, *supra* note 11.

86. *Id.*

87. *Id.* at 6.

88. LISA SCHUR, DOUGLAS KRUSE & MASON AMERI, DISABILITY, THE VOTING PROCESS, AND THE DIGITAL DIVIDE 49 tbl.22 (2022), https://www.eac.gov/sites/default/files/electionofficials/accessibility/Disability_the_Voting_Process_and_the_Digital_Divide_EAC_FINAL.pdf [https://perma.cc/W544-J5M9].

89. *See* Press Release, U.S. Election Assistance Comm'n, New Study Examines Accessibility of Elections for Americans with Disabilities (July 12, 2023), https://www.eac.gov/news/2023/07/12/new-study-examines-accessibility-elections-americans-disabilities [https://perma.cc/7FVF-9E3R].

wheelchairs, and the overall physical accessibility of polling places remains an issue.[90] Moreover, the Department of Justice's oversight after the implementation of HAVA revealed gaps in ensuring the accessibility of the voting area itself and the level of privacy and independence provided to voters with disabilities.[91] The continuous evolution of election technology presents both opportunities and challenges for enhancing accessibility for disabled voters. The EAC is committed to developing resources and best practices to ensure accessibility for *all* eligible voters.[92]

VI. LEGAL & POLICY DEBATES

A. Legal Disputes & Debates Arising from Conflicts Between the ADA, HAVA & Election Technology

The legal disputes and challenges that can arise from conflicts between the ADA, HAVA, and election technology are multifaceted. These conflicts often stem from the need to reconcile differing standards and timeliness for accessibility mandated by the ADA and HAVA. Resource allocation disputes often arise as election officials grapple with simultaneously meeting the requirements of both laws. Additionally, disagreements over interpretation can occur about whether certain technologies meet accessibility standards or provide adequate, reasonable accommodations.[93]

B. Court Decisions and Legal Interpretations Shaping the Relationship

Cases like *Crawford v. Marion County Election Board*[94] and *National Federation of the Blind, Inc. v. Lamone*[95] have significantly impacted the relationship between the ADA, HAVA, and election technology. These cases offer valuable insight into how legal interpretations shape the implementation of election technology in the context of accessibility and security.

Crawford involved an Indiana law requiring voters to present government-issued photo IDs at polling places.[96] The plaintiffs argued that the law infringed upon the right to vote, particularly impacting minorities and elderly individuals.[97] The Supreme Court upheld the statute, stating that the state has a legitimate

90. BARBARA BOVBJERG, U.S. GOV'T ACCOUNTABILITY OFF., VOTERS WITH DISABILITIES: CHALLENGES TO VOTING ACCESSIBILITY 11 (2023), https://www.gao.gov/assets/gao-13-538sp.pdf [https://perma.cc/H5RN-UPKF].

91. *Id.* at 15.

92. *See* Press Release, U.S. Election Assistance Comm'n, *supra* note 89.

93. *See* Syed et al., *supra* note 14, at 66. ("Disability access laws are primarily enforced through voluntary compliance. There is no national ADA-certification or permitting process to ensure that buildings used for voting are accessible . . . The majority of states do not even specify deadlines for counties to designate polling places, let alone require a comprehensive audit of each site's accessibility.").

94. 553 U.S. 181 (2008).

95. 813 F.3d 494 (4th Cir. 2016).

96. *Crawford*, 553 U.S. 181.

97. *Id.* at 186–87.

interest in preventing voter fraud and protecting election integrity.[98] The Court found that the law did not significantly burden voters, as they could obtain free voter registration cards if they lacked another form of photo ID.[99] This decision reflects a balancing act between ensuring election security and maintaining voter access—a core tension in election technology debates.

In *Lamone*, the primary focus was on the accessibility of Maryland's absentee voting process for voters with disabilities.[100] The plaintiffs sued state election officials, alleging that the requirement to mark a paper ballot by hand without assistance denied them meaningful access to absentee voting.[101] The District Court found that Maryland's program failed to comply with requirements set forth under the ADA and the Rehabilitation Act of 1973[102] and that the proposed "online ballot marking tool, was a reasonable modification that did not fundamentally alter Maryland's voting program."[103] This decision highlights the importance of providing accessible voting options that allow persons with disabilities to vote privately and independently, as required by the ADA and HAVA.

Overall, *Crawford* emphasizes election security, accepting certain identification requirements despite its potential impact on election access. Conversely, *Lamone* underscores the necessity of accessibility in the realm of election technology and aligns with the objectives outlined in the ADA and HAVA. Additionally, the Court in *Crawford* applied a less stringent standard than that of *Lamone*, instead viewing Indiana's photo ID requirement as a minor burden compared to the state's interest in election integrity.[104] The court in *Lamone*, however, found that failing to provide accessible absentee voting options violated the ADA, instead emphasizing that election technology must accommodate disabled voters.[105] Perhaps most importantly, *Lamone* illustrates the evolving nature of election technology, where new solutions (such as the online ballot marking tool) become available to voters as they are developed to ensure compliance with the ADA and HAVA.

C. Perspectives of Disability Advocates, Election Officials & Lawmakers on Technology Integration

Disability advocates have long held that the reason American elections often fail to meet accessibility mandates is "due in large part to a complex and decentralized system of administering elections, in which laws are under-enforced,

98. *Id.* at 196 ("There is no question about the legitimacy or importance of the State's interest in counting only the votes of eligible voters.").

99. *Id.* at 197–203.

100. *Lamone*, 813 F.3d 494.

101. *Id.* at 507 ("We affirm the district court's conclusion that by effectively requiring disabled individuals to rely on the assistance of others to vote absentee, defendants have not provided plaintiffs with meaningful access to Maryland's absentee voting program.").

102. 29 U.S.C. § 794.

103. *Lamone*, 813 F.3d at 502.

104. Crawford v. Marion Cnty. Election Bd., 553 U.S. 181, 202–03 (2008).

105. *Lamone*, 813 F.3d at 506–508.

compounded heavily by a failure to solicit the perspectives, preferences, and needs of people with disabilities."[106] In 2016, a GAO survey found that only 40% of all polling places posed no potential access barriers for voters with disabilities.[107] Of the polling locations observed by the GAO, the accessible voting machines at 65% of locations were "set up in a way 'that could impede casting a private and independent vote,'" as expressly required by HAVA.[108]

When HAVA was signed into law, state election officials agreed with disability rights and civil rights activists that it was a major piece of civil rights legislation. However, a 2005 study of elections officials was conducted to gauge perspectives on HAVA and its implementation barriers.[109] Of the 150 officials surveyed, disability-related requirements within HAVA were reported to be the most onerous to implement due to the possibility of "challenging or burdensome financial and labor costs on 'lower population and lower resource jurisdictions.'"[110]

The decentralized nature of administering elections makes it difficult to identify a single point of responsibility in ensuring accessibility for voters with disabilities.[111] During the course of Rabia Belt's research, "[w]hen speaking to election officials, they deferred most questions to the county level . . . [making] it even harder to plan in advance on accessibility measures for the typical voter with a disability and difficult for disability advocates to strategize across county lines."[112]

VII. ASSESSING THE IMPACT ON DISABLED VOTERS

A. Real-World Impacts on Disabled Voters

Upon its passage, HAVA was heralded "as 'the most important voting rights bill since the passing of the Voting Rights Act in 1965' and as 'the most important bill of the 107th Congress.'"[113] However, since HAVA was enacted, the goals and ideas of the legislation have failed to live up to its objectives, leaving

106. Syed et al., *supra* note 14, at 66.
107. *Id.*
108. *Id.*
109. *Id.* at 67.
110. *Id.*
111. *Id.* at 66 ("This shortfall is likely due in large part to a complex and decentralized system of administering elections, in which laws are under-enforced, compounded heavily by a failure to solicit the perspectives, preferences, and needs of people with disabilities."); Blaze, *supra* note 16, at 505–06 ("A consequence of our federalist system and tradition is that even though U.S. elections are organized around a national hierarchy, they are executed in a highly decentralized manner, with each state responsible for setting its own standards and procedures for registering voters, casting ballots, and counting votes.").
112. Belt, *supra* note 9, at 1516; *see also* Syed et al., *supra* note 14, at 67 (In the over 10,000 jurisdictions responsible for conducting elections in the U.S., the duties of election officials often include "processing and maintaining voter registration records, receiving nominations, preparing ballots, procuring and maintaining voting equipment, training poll workers, and conducting elections.").
113. Hoerner, *supra* note 5, at 98.

behind millions of voters who deserve accessible, private, and independent opportunities to participate in the electoral process.

One reason HAVA did not live up to its intended impact was its short-sighted goal of pushing election administrators to implement the law's essential elements in such a short timeframe. HAVA provided funding for upgrades "in the form of a $3 billion, one-time cash infusion for states to quickly upgrade voting technology."[114] However, this created an unintended funding cliff that did not provide prolonged financial support to maintain machinery upgrades and necessary future maintenance.

Modern discourse about election integrity and security has been largely devoid of any mention of HAVA. The 2020 election was the most litigated in U.S. history, yet many of the supposed arguments should have, in theory, been addressed by the implementation of HAVA.[115] Despite this, mis- and dis-information cultivated feelings of distrust of election officials, and even when election officials worked diligently to certify the election results, they were met with hostility from the public, and, in extreme cases, intimidation, harassment, and threats of violence.[116]

B. Successes & Challenges in Ensuring Accessibility & Security Through Technology

The integration of technology in U.S. elections presents a complex landscape of successes and challenges. One success is the general expansion of voting access. The implementation of various voting technologies has significantly broadened voting access, especially for voters with disabilities.[117]

Additionally, the U.S. has made impactful progress in securing voting technology. The majority of ballots in modern elections are now cast on systems with VVPAT, enabling independent verification of software totals and, thus, reducing the likelihood of cyberattacks impacting national election results.[118] For voters with disabilities, electronic ballot delivery and marking technologies provide opportunities for more private and independent voting experiences while concurrently allowing those individuals to use their own personal assistive technologies.[119]

Even with these improvements, challenges persist, such as the aging infrastructure of U.S. election technology; many digital systems in use were designed over

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114. de Nevers, *supra* note 32, at 178.

115. *Id.* at 177.

116. *See* Johnny Kauffman, *'You Better Run' : After Trump's False Attacks, Election Workers Faced Threats*, NPR (Feb. 5, 2021), https://www.npr.org/2021/02/05/963828783/you-better-run-after-trumps-false-attacks-election-workers-faced-threats [https://perma.cc/EHS9-TBQV].

117. *See* NORDEN, *supra* note 45, at 45–50.

118. *See Voting System Security and Reliability Risks*, *supra* note 58.

119. OREY, *supra* note 53, at 19 ("Additionally, voters should be instructed on how to create secure conditions for electronic transmission, including using their personal devices and to never mark a ballot when their device is connected to the internet."); *see also* Swierenga et al., *supra* note 61 (engaging in a comprehensive review and analysis of the impact of personal assistive technologies on elections).

twenty years ago, exceeding their expected lifespans.[120] This aging infrastructure, combined with the lack of a standardized national voting method, poses significant threats and challenges to maintaining election accessibility and security.[121] Furthermore, electronic ballot transmission, while improving accessibility, introduces new and noteworthy security risks. Agencies like the Cybersecurity and Infrastructure Security Agency (CISA) and the National Institute of Standards and Technology (NIST) have highlighted the inherent dangers of electronic ballot return technologies, suggesting that even with risk management controls, these methods are incredibly high-risk.[122]

Despite the ADA's accessibility requirements, significant barriers remain for voters with disabilities. Only a fraction of voting sites are free of potential impediments,[123] and the COVID-19 pandemic has further complicated the situation for these voters, especially in states requiring witness or notary signatures for absentee ballots.[124] In addition, addressing the triad of access, security, and privacy in electronic ballot transmission is complex. Enhancements in one area often lead to compromises in another, as demonstrated by the inverse relationship between increasing layers of technology in voting systems to increase accessibility and the negative impact had on election security. Local election offices, particularly smaller ones, often lack the resources necessary to implement these changes independently.

VIII. STRIKING A BALANCE

A. Harmonizing Accessibility, Security & Election Technology

Many considerations are implicated in effectively balancing election accessibility, security, and technology. One key aspect of this approach, outlined by the Bipartisan Policy Center, focuses on enhancing resource allocation for electronic ballot transmission.[125] This includes equipping state and local election offices with the necessary resources for new technology, training, and voter education, thus ensuring a robust security apparatus and effective communication channels.[126]

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120. *Accessibility and the Voting Landscape*, GA. INST. TECH., https://cacp.gatech.edu/research/accessibility/accessibility-and-voting-landscape [https://perma.cc/29JQ-XNSV].

121. *Id.*

122. *See generally* OREY, *supra* note 53; *see also* SECURING THE VOTE, *supra* note 41, at 99 ("Electronic versions of ballots may be subject to Internet-based (or other) attacks that might, for example, delete electronic ballots or otherwise replace or modify electronic election records.").

123. *See* Belt, *supra* note 9, at 1498 ("By 2012 . . . [t]hirty percent of voters with disabilities had difficulty voting; by contrast, only eight percent of voters without disabilities faced challenges."); *see also* Ted Selker, *The Technology of Access: Allowing People of Age to Vote for Themselves*, 38 MCGEORGE L. REV. 1113 (2007) (highlighting the difficulties many elderly voters encounter when attempting to engage in the election process).

124. OREY, *supra* note 53, at 6.

125. *Id.* at 12.

126. *Id.*

Another notable recommendation involves expanding ballot delivery and marking options for voters with disabilities. This expansion would enable these voters to use their own personal assistive technologies, fostering a more independent and private voting experience.[127] This can be implemented alongside robust ballot tracking systems for both mail and electronic ballot returns, enhancing election security and voter access while enabling voters to address ballot issues promptly and efficiently.[128]

Furthermore, it is advised that states provide clear, detailed guidelines on permissible electronic transmission types.[129] Adherence to federal agency guidance, such as that published by CISA and NIST, is crucial in mitigating the risks associated with electronic ballot transmission. Regular risk assessments and audits would further reinforce the integrity and confidence of these practices.

Finally, investing in election security talent across all levels of government is another shared responsibility. This includes developing pipeline programs to supply talented personnel to election departments and investing in academic partnerships and fellowships.[130] Strengthening the roles of CISA and the EAC in defending election infrastructure and improving voter experience would also be valuable.[131]

B. Innovative Approaches to Addressing Technology & Policy

Voting technologies in the U.S. have evolved significantly since the 2000 presidential election. From the exclusive use of paper ballots to the introduction of mechanical and electronic systems, there has been incremental progress toward more efficient and reliable voting methods.[132]

DRE machines, which came into widespread use in the 1970s, have evolved from electrical versions of mechanical lever and punch card machines to modern portable computers. These machines display ballot choices and record votes electronically, with newer versions featuring touchscreens and VVPAT for enhanced security and auditability.[133] The role of computers in recording and tabulating votes has been a pointed topic in policy debates, particularly the use of electronic voting machines without paper backup records.[134] This has led to increased advocacy for post-election audits and the declining use of purely electronic DRE machines.[135]

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127. *Id.* at 13.
128. *Id.* at 15.
129. *Id.* at 16.
130. MARIA B. LYNCH ET AL., BEYOND 2020: POLICY RECOMMENDATIONS FOR THE FUTURE OF ELECTION SECURITY 2–4, 27–28 (2021), https://www.belfercenter.org/sites/default/files/2021-02/D3PPolicyRecs.pdf [https://perma.cc/9QAK-868A].
131. *See id.* at 12–21.
132. *Voting Technology*, MIT ELECTION DATA & SCI. LAB, https://electionlab.mit.edu/research/voting-technology [https://perma.cc/Q3N2-ZA4J].
133. *Id.*
134. *Id.*
135. *Id.*

Furthermore, NIST, along with the EAC, has developed the Accessible Voting Technology (AVT) Portal.[136] The AVT Portal serves as a resource hub for accessible voting research, providing a platform for researchers, equipment manufacturers, and election officials to explore technologies that enhance voting system accessibility.[137] Primarily focusing on current and future trends in accessible voting technology research, as well as standards, applications, and research projects on accessibility, the AVT Portal has the potential to be essential in balancing election accessibility, security, and technology moving forward.[138]

Today, one of the primary methods to secure electronic voting systems is by using election technology equipped with VVPAT. These paper records enable manual audits and allow for the confirmation of vote tallies in cases of suspected manipulation.[139] Risk-limiting audits, where a small sample of paper ballot records is manually tallied post-election, can further reduce the risk of malicious tampering.[140] During a risk-limiting audit, if discrepancies are found, the process is expanded until the paper vote records align with the electronic tally.[141]

Lastly, basic cybersecurity measures are vital for election security as a whole.[142] These include securing voting equipment from physical tampering, updating software regularly, disconnecting machines from the internet, and maintaining comprehensive use logs.[143]

Bridging the gap between accessibility, security, and election technology in voting systems involves embracing technological evolutions, enhancing auditing capabilities, and implementing rigorous (yet common-sense) cybersecurity measures. The transition from mechanical to electronic voting systems, the integration of VVPAT and risk-limiting audits, and the focus on cybersecurity best practices reflect an ongoing commitment to improving the integrity, reliability, and accessibility of the voting process. These efforts, supported by election law and cybersecurity experts, aim to ensure that U.S. elections remain secure, accessible, and technologically advanced.

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136. *See Accessible Voting Technology*, NAT'L INST. OF STANDARDS & TECH. (Dec. 19, 2019), https://www.nist.gov/itl/voting/accessible-voting-technology [https://perma.cc/VV9W-VY2V].

137. *Id.*

138. *Id.*

139. *See* SECURING THE VOTE, *supra* note 41 at 78–79 (explaining the role of VVPAT and its importance to election integrity).

140. *See* Mark Lindeman & Philip B. Stark, *A Gentle Introduction to Risk-Limiting Audits*, 10 IEEE SEC. & PRIVACY 42, 42 (2012) ("Risk-limiting audits address limitations and vulnerabilities of voting technology, including the accuracy of algorithms used to infer voter intent, configuration and programming errors, and malicious subversion.").

141. *Id.* ("As long as the audit does not yield sufficiently strong evidence, more ballots are manually inspected, potentially progressing to a full hand tally of all the ballots."); *see also* Josephine Wolff, *How Can U.S. Electronic Voting Systems Be Made More Secure?*, TUFTS NOW (Nov. 4, 2022), https://now.tufts.edu/2022/11/04/how-can-us-electronic-voting-systems-be-made-more-secure [https://perma.cc/CUL2-T3MW].

142. *Wolff*, *supra* note 141.

143. *Id.*

C. The Importance of Continued Research, Stakeholder Collaboration & Technological Advancements

While there is abundant anecdotal evidence of challenges and opportunities in the election process, continued research is vital in ensuring a viable balance between accessibility and security through technological advancement. NIST emphasizes that the security of the nation's elections is crucial for various reasons, "including to ensure voters have the ability to vote, preserving the confidentiality of voters' selections, and protecting the integrity of each election outcome."[144] NIST's research also focuses on cybersecurity challenges that are directly relevant to the development of standards, guidelines, and technologies that can enhance election security, such as innovative security technologies to address new and evolving challenges.[145] Additionally, NIST focuses on potential threats to election systems through its publishing of standards for securing election technology, as well as corresponding guidance regarding the application of best practices for ensuring election security.[146] This research and guidance are crucial in understanding, mitigating, and responding to potential risks to the electoral process and ensuring the rights of disabled voters are protected.

The disability community represents a significant portion of the U.S. electorate and plays a critical role in shaping election outcomes and ensuring equitable access to the polls.[147] Voters with disabilities have shown immense civic engagement, with their turnout increasing significantly in recent elections.[148] Collaboration between voting rights and disability rights organizations remains essential in ensuring that all voters, regardless of ability status, can participate in elections. This partnership is a vital aspect of advancing both democracy and social justice.[149] Supporting disability rights leaders to have a voice in the broader civil rights movement is also vital. Such support includes fostering relationships between disability community groups and democracy movements, thereby enhancing the overall strength and inclusivity of these movements.

The computer science community has played a significant role in opposing paperless systems and advocating for post-election audits.[150] This activism led to a decline in the use of DREs and the increasing inclusion of VVPAT in newer election technologies.[151] The 2020 election marked a significant shift in public

144. *Election Security: Overview*, NAT'L INST. OF STANDARDS & TECH. (Jan. 25, 2023), https://www.nist.gov/itl/voting/research-and-projects/election-security [https://perma.cc/UJT2-3BYE].

145. *Id.*

146. *Id.*

147. *See* Sabrina Fong, *Why the Movements for Voting Rights and Disability Rights are Strongest Together*, FORD FOUND. (May 25, 2022), https://www.fordfoundation.org/news-and-stories/stories/why-the-movements-for-voting-rights-and-disability-rights-are-strongest-together/ [https://perma.cc/PL2D-4TCG].

148. *Id.*

149. *Id.*

150. *Id.*; *see also* Zdun, *supra* note 65 (discussing the shift in voting technology used in U.S. elections over time).

151. Fong, *supra* note 147.

trust regarding electronic voting systems. Concerns about election security and voter fraud led many states to increase the use of paper ballots, which many consider more secure.[152] The increasing belief in suspected election fraud has directly influenced the trend toward paper ballots.

IX. CONCLUSION

The ADA and HAVA represent pivotal steps toward a more inclusive and democratic electoral process in the U.S., but the journey is far from complete. The interplay between ensuring accessibility for disabled voters, maintaining election security, and integrating technology advancements is a complex yet critical endeavor. This Note has highlighted the success and challenges in harmonizing these elements, underscoring the necessity of continuous innovation, stakeholder collaboration, and legislative responsiveness. Future efforts in election administration and technology development must continually consider the diverse needs of all voters, particularly those with disabilities.

Moving forward, it is essential to embrace the lessons learned and to continue advocating for an electoral system that upholds the principles of accessibility, security, and technological integrity. Only then can we ensure that every citizen, regardless of ability status, can fully participate in the cornerstone of American democracy: the right to vote.

152. *Id.*