

SYMBIOSIS:

HOW GOVERNMENTS AND MANUFACTURERS THRIVE TOGETHER

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1 Introduction

In order to appropriately respond to criticisms of and demonstrably remedy problems in our electoral systems, it is important to investigate the relationship between electronic voting machine manufacturers and the governments who purchase from them. Because these companies stand to gain financially from the casting of ballots, they should be subject to intense regulatory scrutiny; furthermore, it should be ensured that government entities are acting in the best interest of the governed, not in the best interest of any manufacturer. To that end, we simplify our study of the link between manufacturers and governments by asking two questions:

what regulations apply to manufacturers?

and

how do manufacturers influence local, state, and federal governments?

Electoral requirements and regulations can vary wildly from locality to locality (not to mention between larger jurisdictions, like states), so what regulations currently exist, and how stringently are those regulations enforced? Furthermore, these manufacturers – particularly Election Systems & Software (ES&S) – have long histories of lobbying governments to be awarded contracts. Understanding the breadth of influence these companies have – and the consequences of that influence – is a key piece of the contextual puzzle in election outcome analysis.

Through close readings of Congressional testimony, investigative journalism, and local, state, and federal law, we can demonstrate how regulations, requirements, and standards have evolved since the 2000 Presidential election. In this work, we use Iowa as an example of a regulated jurisdiction: one with reasonable regulation which does not stifle manufacturers’ ability to sell, but still ensures that elections are carried out fairly; on the other hand, we use the state of Georgia and the city of Philadelphia as examples of issue jurisdictions, as both have been embroiled in legal battles over the influence corporate actors were able to exercise in their respective elections.

2 Existing Regulation

In this portion of the investigation, we seek primarily to understand what regulations exist, their stringency, and how they can be circumvented; this information, of course, will inform our later discussion of electronic voting manufacturers’ influence over the regulatory process. In this section, we closely read measures enacted:

- (i) by the federal government, including the Voluntary Voter System Guidelines (VVSG) set out by the Election Assistance Commission;
- (ii) in the state of Iowa;
- (iii) in the state of Georgia, including the case *Martin v. Fulton County Board of Registration and Elections* in which the plaintiffs alleged that electronic voting systems mis-cast votes in a significant enough number to change the outcome of the 2018 race for lieutenant governor.

While reading the following sections, it is important to think critically and with skepticism about the efficacy of and intentions behind these regulations: continually asking questions about who is affected (and how) should be the focus, rather than taking the laws at their face.

2.1 The Federal Government

After the 2000 presidential election and subsequent Supreme Court decision in *Bush v. Gore*, the federal government moved to enact specific, measurable, and marketable regulations on voting systems. These regulations, passed as the Help America Vote Act of 2002 (HAVA) [1], accomplish two main goals, namely:

- (i) establishing base standards for voting systems in participating states;
- (ii) establishing the Election Assistance Commission to test and certify voting systems, develop and recommend voting system standards to legislative bodies, and provide voter education materials.

Because the authority of conducting and regulating elections lies with the individual states, the federal government relies on an incentive-based model: any state which chooses to adopt the standards set out in HAVA was awarded federal money for conducting elections, while states opting out did not receive the same. The amount of funding allocated to participating states was as follows:

$$\begin{aligned} & \$1.625\text{m}^1 \\ & + \$(\text{total payments} - \text{sum of minimum payments}) \times (\text{voting age pop.}) \\ & + \$4000 \times (\text{number of precincts requiring upgrades}) \quad [1] \end{aligned}$$

It is additionally worth noting that these funds can be reduced or withheld from a state if the state does not implement HAVA-compliant voting system changes or does not meet the deadline for their implementation. More specifically, HAVA specified seven punch-card voting machines which must be replaced in order to receive funding or not have that funding withheld. It is worth noting that HAVA did not have to be complied with, but was opt-in for states who wish to receive federal funding. HAVA funding, different than the original amount awarded to the states, can be requested by the states on a year-to-year basis, with the specific purpose of upgrading, maintaining, and securing existing voting equipment. Finally, §906 of HAVA allows the Federal Department of Justice to pursue legal action against violators of its provisions: in the eighteen years since its passing, only twelve suits have been filed by the Department of Justice, none of which concern the electronic voting system regulations enacted [2].

2.1.1 Base Standards

Title III of HAVA sets out a number of voting system requirements that must be met for a participating state to receive federal funding under the Act. These requirements include

- a paper audit trail must be produced;
- voters must be able to secretly cast a ballot and correct that ballot before its result is printed on the paper audit trail;
- accessibility for those differently abled, pursuant to §203 of the Voting Rights Act;
- error rates must abide by the standards set out in §2.3.1 of the Voting Systems Standards (VSS) issued by the FEC,

among others [1]. Clearly, these standards are relatively broad and may easily be dodged: what constitutes a paper audit trail? What additional protections are there for voter privacy, and how might they apply to networked machines? As we will see in the subsequent section, these questions have been asked of the Election Assistance Commission (and many have been answered as part of the VVSG).

2.1.2 The Election Assistance Commission

Title II of HAVA establishes the Election Assistance Commission (EAC), which is charged primarily with developing the Voluntary Voting System Guidelines (VVSG), testing and certifying new voting systems, training election officials, and conducting studies on voting systems and their efficiencies. Additionally, the EAC develops and maintains a catch-all mail voter registration form [3, 1].

¹This amount is that appropriated to individual states and DC; US territories received one-fifth of this amount.

Since the adoption of HAVA, the EAC has developed three iterations of the VVSG based on the 2002 Voting System Standards developed by the FEC (which were themselves a punched-up version of the FEC’s 1990 Voting System Standards) and the standards set out in HAVA [3]. The first iteration, VVSG 1.0, was complementary to HAVA’s original voting system standards, and made explicit recommendations addressing language support; recommendations for the use of wireless technology, and the requirement that direct-recording electronic (DRE) voting systems implement a voter-verifiable paper trail for auditing purposes; recommendations for interaction design, voter usability, and testing; and improvements to voting machine accessibility standards [4]. The second iteration, VVSG 1.1, was undertaken after the adoption of VVSG 1.0 in 2005 by the Technical Development Guidelines Committee (TDGC) [3]. These guidelines, while similar to the original VVSG, establish new environmental requirements (relating to the physical surroundings of the machine, not addressing global climate concerns), and software distribution and testing requirements [5].

The third iteration, VVSG 2.0, has not yet been adopted by the EAC. Published on February 29, 2020, the Guidelines’ structure is a significant departure from previous versions: rather than implicitly establish a set of design principles through a reading of the requirements, VVSG 2.0 explicitly describes these high-level goals and uses them as guideposts in the remainder of the document (which includes specific manufacturing and design guidelines, as well as testing procedures). Furthermore, VVSG 2.0 focuses on high-quality design, interoperability, voter verifiability, auditability, security (especially pertaining to networked voting systems), and data protection consistent with US law [6, 7].

However, in their 2016 report, Burris and Fischer [8] note that

[m]ost states require that their systems be tested for conformance with EAC guidelines. HAVA does not require that voting systems be federally tested and certified, but it gave the EAC responsibility for managing voluntary testing and certification by laboratories accredited with the assistance of [the National Institute of Standards and Technology]. Voting systems or components from several companies have been certified by the EAC and are in use in about half the states, and a few other vendors have been involved in testing in 2016. However, the EAC process has not alleviated longstanding concerns about the expense and complexity of the certification process as a barrier to innovation and development of new systems.

Furthermore, it is noted in [5] that

[a]t a date to be determined by EAC Commissioners, EAC will fully transition to VVSG 1.1 and manufacturers will no longer be able to test to the 2005 VVSG for a full system certification. Modifications to a system qualified or certified to the 2005 VVSG after this date will be tested against the 2005 VVSG.

The combination of these two provisions – that the federal government cannot force states to comply with the VVSG, and that a sufficiently old voting system will not be subjected to the standards set out by future versions of the VVSG – gives great regulatory breadth of motion to electronic voting systems manufacturers and the states who contract them.

2.2 The States

In the following sections, we analyze existing electronic voting system regulation in the states of Iowa and Georgia. Since 2003, Iowa has required the use of optical-scan voting systems, alongside a two-way testing system – allowing both jurisdictions looking for systems to use, and manufacturers looking for jurisdictions to use their systems – to request that systems be tested by the state for future use. Additional public pre-flight system tests (conducted immediately prior to every partisan election) further bolster the integrity of Iowa’s voting systems.

Georgia, on the other hand, contracts voting system manufacturers to provide systems for the entire state; if an individual jurisdiction wants to use a different system, they have to pay for it themselves. Furthermore, while the Georgia Code certainly contains more regulatory language for voting machines, it is generally more lax. Basic privacy and integrity measures exist, but there are no requirements that DREs produce voter-verifiable paper records, despite the fact that Georgia has and continues to receive HAVA funds [9, 10].

2.2.1 Iowa

The State of Iowa requires the use of HAVA-compliant optical-scan electronic voting systems; an additional provision requires that these systems must be made compliant with HAVA §301(a)(3) by “... electronic ballot marking devices that are compatible with an optical scan voting system” §52.2 [11]. The required optical-scan systems are then further required to protect voter privacy, prevent voters from voting more than once, allow write-ins, implement a specific layout for presidential elections, and allow for straight-party voting §52.26 [11]. These systems must also be reviewed by the Iowa Board of Examiners for Voting Machines and Electronic Voting Systems; while the Board itself is asked to develop testing procedures for the systems, any manufacturer who wishes to supply voting equipment to an Iowan jurisdiction must also provide a system testing report issued by an “independent and accredited testing authority” [12, 11]. A testing authority, as defined by Iowa State Administrative Code §721.22.1 is

[...] a person or agency that was formally recognized by the National Association of State Election Directors as competent to design and perform qualification tests for voting system hardware and software. “Accredited independent test authority” also includes voting system test laboratories accredited by the Election Assistance Commission to test voting systems for compliance with federal voting system standards and guidelines, as required by the Help America Vote Act, Section 231.

In addition, the state also requires that counties publicly test all approved voting machines prior to their use in a partisan election. These tests consist of counting a number of pre-audited ballots by hand and by machine, and determining whether the results match; if there are any discrepancies, the cause of the error is determined and corrected, and the ballots are re-counted. This continues until there are no errors §52.35 [11]. These regulations are not the result of good planning, but that of a mishap: in 2006, results rolling in from an election in Pottawattamie County came under suspicion. It was determined that the ES&S optical-scan machines were incorrectly reporting vote totals – specifically absentee ballot vote totals – which called the results of the election into question; eventually, though, the ballots were hand-counted and the proper candidate declared the winner [13]. This reporting error caused the state to re-visit its equipment-testing standards, resulting in the above rules.

Consequently, any in-use voting system in Iowa has gone through a series of rigorous checks, including federal guideline compliance verification, including the compliance with the VVSG. Furthermore, requesting system tests with the Board is two-way; that is, any person or manufacturer who wishes to have their system tested by the Board may file a request to do so §52.5 [11]. This practice has fostered a reasonably diverse set of voting systems around the state: across the 99 Iowa counties, twenty-eight different types of optical scan voting systems and software are in active use [14].

2.2.2 Georgia

Georgia’s regulatory system is much more complicated than that of Iowa’s. In general, it places practical power of purchase, approval, and distribution with the state, rather than individual counties or municipalities; these smaller jurisdictions can purchase their own voting equipment, but the state government will not foot the bill. Additionally, the state differentiates between and provides regulations for multiple voting system types, primarily optical-scan and DRE systems; however, the type of equipment used must be uniform across the state. In general, the state requires that voting systems must:

- be certified by the EAC prior to purchase or acquisition;
- allow straight-party voting;
- let voters change their vote up to the time they register their vote or intend to register their vote;
- provide absolute secrecy for voters;
- publicly display a count of the number of voters who have cast ballots;
- be constructed so a voter “may readily learn the method of operating it,”

among others §300, §322 [9]. Any jurisdiction or manufacturer may request that a system be examined by the state for compliance with the above requirements, but these manufacturers have to pay the state’s expenses. If a system is sold to a jurisdiction but doesn’t live up to the required standards, the manufacturer is required to pay \$100,000 plus incurred expenses to the state. Furthermore, if a machine is approved,

[...] no improvement or change that does not impair its accuracy, efficiency, or capacity shall render necessary a reexamination or reapproval of the machine or of its kind.

The state trusts that vendors will accurately document and report breaking changes: if the manufacturer does not believe a change requires reexamination, then the state doesn’t have to perform a reexamination §324[9]. Furthermore, Georgia does not require DREs – which were in use as late as 2019 – to print paper voter-verifiable records §322, §379.1 [9]. Then, if an audit is conducted – for example, because an election is contested – there does not exist a paper record to demonstrate that votes were mis-cast, mis-counted, or not counted at all, as required by Georgia law §522 [9].

In 2018, Georgia held its elections for governor and lieutenant governor; these elections were, in fact, contested. In particular, we focus on the challenged lieutenant gubernatorial election between Geoff Duncan (R) and Sarah Riggs Amico (D): a rigorous review of an already controversial election found that the undervote rate – primarily in areas of color – was statistically significantly

higher than in primarily white areas. At least part of the blame, argued the plaintiffs, rested on malfunctioning DRE voting machines, which were reported to have rebooted, produced error codes at election time, and recorded results wildly inconsistent with other machines at the same precinct; additionally, the design of the electronic ballot may have led voters to believe that they were voting straight-party when they were not [15].

As previously mentioned, Georgia law states that, in a contested election, the petitioners must demonstrate that the election’s outcome would have been changed if vote-counting errors had not happened. However, because Georgia’s DREs do not produce auditable paper records – as is required by HAVA – it is all but impossible to demonstrate that an election’s outcome would have been different were the votes counted properly. The plaintiffs argued that glitchy DREs, among other issues, contributed to Amico’s defeat; the Georgia Supreme Court, relying on precedent from *Fuller v. Thomas* (2008), denied *Martin*’s petition, citing a lack of compelling evidence that improperly counted votes could have changed the outcome of the election [15].

Based on the above, we can conclude that Georgia’s electronic voting machine regulations are generally weak. Because there is no requirement that machines produce paper records, a key provision in voting machine regulation, the integrity of Georgia’s elections can easily be questioned, without any mechanism to effectively respond.

3 Manufacturer Influence

In this section, we explore how manufacturers attempt to exert their influence for corporate gain; more specifically, we look at how ES&S lobbied both the city of Philadelphia and the state of Georgia over a period of many years.

As the federal government has grown continually more powerful, lobbyists have largely turned their attention to the Hill. However, because the Constitution reserves the power of conducting elections to the states – and many states give that right to individual counties and localities – voting machine manufacturers have kept their ties to state and local governments tight. As in-use voting technology has aged since the passage of HAVA, more places have been looking to update; these opportunities are often quite lucrative, and manufacturers are looking to capitalize.

3.1 Philadelphia

In 2018, the Pennsylvania Department of State directed all counties to update their electronic voting systems in response to a directive from the U.S. Department of Homeland Security; more specifically, DHS mandated that any electronic voting system in use must produce a voter-verifiable paper record [16]. In response, the City of Philadelphia, whose borders coextend Philadelphia County, tasked its City Commissioners with finding a new voting system. Eventually, the Board of Commissioners chose the ES&S ExpressVote XL – this choice, however, was heavily criticized by city and state officials, who argued that two of the Commissioners had vested interest in the selection of ES&S [17].

In a months-long investigation published in 2019, the Philadelphia Controller found a number of suspicious connections between individual Commissioners and ES&S. In July 2013, Commissioner Al Schmidt (R) visited the offices of ES&S outside of his official capacities as Commissioner. When

asked to recount his visit, he could not; furthermore, Schmidt received campaign contributions from ES&S in April and July of 2013. In 2018, Commissioners Schmidt and Deeley (D) received financial campaign support from lobbying firms contracted by ES&S; these contributions were made after the City requested voting machine manufacturer proposals, and were specifically targeted at Schmidt and Deeley, who had final says in which company was awarded the contract. Confoundingly, both Commissioners signed Confidentiality and Conflict of Interest forms during the selection process, which required them to disclose any conflicts of interest, and possibly recuse themselves from the process were it to benefit them financially. Both Commissioners remain in office today, despite not having disclosed these connections pursuant to their signed agreement [17].

ES&S continued its lobbying crusade after it invited Schmidt to its offices in 2013. Beginning in January 2014, the corporation used lobbying forms – as well as its own lobbyists – to keep in contact with the Board of Commissioners. This contact paid off, as the Board requested \$22m in appropriations to modernize City election equipment in 2015; this budget request was found to have been developed with support from ES&S. Clearly, the company was playing the long game: even after the \$22m proposal was not accepted that budget cycle, ES&S soldiered on. Since January 2014, ES&S spent more than \$425,000 on lobbying efforts with the Board. ES&S did not disclose any of these efforts to the Board of Ethics, as was required by the City’s request for proposals. In turn, the company was fined \$2.9m for its ethics violations, the largest penalty in the City’s history [17].

Despite the Controller’s investigation, the political consequences for the Commissioners, and the financial consequences for the company, ES&S was awarded the City’s \$29 million contract in 2019. The efficacy of this lobbying is concerning, especially when ethics investigations determine that the lobbying itself was unethical. Clearly, ES&S wields an inordinate amount of influence over at least two of three Philadelphia City Commissioners; this influence, especially in the hands of a corporation inherently tied to the carrying out of our democracy, is potentially dangerous to the integrity of our elections.

3.2 Georgia

To preface this discussion, we note that, earlier this year, Georgia handed out a \$107m contract to Dominion to provide voting machines for the entire state. From 2004 to 2019, Election Systems & Software was contracted to maintain and repair Georgia’s voting systems, purchased from Diebold in 2002 [18].

In 2002, after the passage of HAVA, Georgia was on the market for new election equipment. The state legislature had recently eliminated the requirement for a paper audit trail, so manufacturers trying to market their DRE machines – particularly Diebold and ES&S – immediately jumped at the opportunity. Diebold’s liaison with Georgia was able to negotiate directly with then-secretary of state Cathy Cox, and secured a \$54 million contract; this liaison was former Georgia secretary of state Lewis Massey. In 2006, a bill was put before the Georgia General Assembly which would require that any voting machine produce an auditable paper record; the state’s elections director, Kathy Rogers, vehemently opposed it, and the bill was killed. After Georgia’s government was sued by election integrity activists, it was found that Georgia’s then-secretary of state Karen Handel had received more than \$25,000 in campaign contributions from family members of Lewis Massey and Bruce Bowers, the head of Massey’s lobbying firm [19].

In 2017, then-secretary of state (now Governor) Brian Kemp, still overseeing his own election for higher office, began accepting manufacturer’s bids to become Georgia’s election equipment supplier. Working as Kemp’s deputy Chief of Staff was former Georgia Assemblyman Charles Harper: Harper, who had worked as a lobbyist for Kemp’s office since 2012, had registered as a lobbyist with ES&S in 2017, and was hired as deputy Chief of Staff the same year. Harper remained an active lobbyist for ES&S through 2018. [19, 20]. Additionally, David Dove, Kemp’s executive counsel, attended a Las Vegas conference sponsored by ES&S during his 2017 tenure as Kemp’s Chief of Staff where he was considered a member of ES&S’s “National Advisory Board,” which consisted of current and former public officials from across the country (including Kathy Rogers, former Georgia elections director) [18, 19, 21].

Despite the above involvement and the fact that five additional ES&S lobbyists registered in Georgia during this period, including the well-known Skin Edge (this is a real name) – Kemp assured the public that the system selection process would be transparent and fair; ES&S echoed this sentiment, with one spokesperson saying that “[t]he state Legislature, not government employees, will set the specifications of Georgia’s next voting system. We expect a highly competitive, fair and transparent procurement process.” The intense speculation that Kemp would contract ES&S, coupled with outcry from election integrity and activist groups such as Voter GA, Fair Fight Action, and Verified Voting, forced the Assembly and Kemp away from ES&S’s DRE systems [18]. In 2020, after Kemp was elected Governor, Georgia signed a \$107 million contract with Dominion Voting Systems² to provide new ballot-marking devices for use in March’s Presidential primary and November’s general elections [23].

As in Philadelphia, ES&S, among other companies, seems to have notable inroads with the Georgian government. The influence that these companies wield is tangible, both in the movement of lobbyists between manufacturers and governments (some of whom are both lobbyists and public officials simultaneously) and in the outcomes of the decisions made by those governments. Corporations and our elected officials should be held to higher standards, especially when those standards relate to the efficacy and integrity of our elections.

4 Recommendations

In summary, we have seen that voting manufacturers, while regulated, still have much leeway in terms of product quality, close relationships with governments and government officials, and ability to circumvent provisions of federal voting machine regulation. And, now that this relationship is better understood, we should seek to make it more equitable, ethical, and aligned with well-formed voting system standards. The following is a list of suggested recommendations to force corporations – and governments – to act in the best interests of the people they serve.

1. **Get rid of corporate lobbying.** This is an ambitious goal: despite repeated efforts at every level of government to get officials out of corporate pockets (even a joint initiative by Senator Ted Cruz and Representative Alexandria Ocasio-Cortez), many stalwarts still believe that, if someone has money and resources, the scales should be tipped in their favor. This, of course, gives undue influence to large players and, as corporations are allowed to become larger and larger (e.g. ES&S), that influence only grows. While such a monumental action

²The lobbying network did not stop with ES&S – Jared Thomas, a registered lobbyist with Dominion Voting Systems, worked on every single Brian Kemp campaign since 2002 [22, 23].

would require *Citizens United v. FEC* to be overturned, the task of navigating technological and regulatory issues should fall to independent groups of experts, who should relate their expertise to Congress and other legislative bodies.

2. **Repeal HAVA and pass better legislation.** Developing a federal program to maintain electoral integrity, ensure that best practices (as set out by experts) are followed, and keep down state costs would be exceptionally effective at improving the US's electoral ecosystem. An adapted Iowa model could be particularly good: the EAC, re-envisioned under new legislation, could provide an opt-in program where states, counties, municipalities, and corporations can request that a particular voting system is examined. If the EAC determines that the voting system is acceptable (based on compliance with the VVSG and test results from independent experts), the system is put into a federal marketplace. The cost of the system on this marketplace, however, will be much lower than that issued by the manufacturer: the states (or individual jurisdictions) pay a fraction of the cost, and the federal government makes up the remainder. This way, there is considerable financial incentive to purchase and implement sound voting systems, while the opt-in provision keeps the whole law constitutional.
3. **If we cannot repeal HAVA, make it better.** If HAVA cannot be repealed – which it is unlikely to be – the law itself should be strengthened, along with the EAC. Allowing independent federal agencies to more aggressively regulate companies who have such a large financial stake in the carrying out of our democracy is especially important.
4. **Improve access to voting machine system testing.** Whether by an amendment to HAVA or being written into new legislation, manufacturers should be compelled to make their testing procedures and results available to the government for review, if not available to the public. We should not blindly trust manufacturing companies whose primary interest is capital gain with issues of election integrity.

Any of these above steps, no matter how small, is a start toward bettering elections in the United States. As cybersecurity threats mount in the lead-up to the 2020 general election, we should consider implementing changes which not only insulate our systems from questions about their integrity, but fundamentally improve them.

References

- [1] “The Help America Vote Act,” 2002. [Online]. Available: https://www.eac.gov/sites/default/files/eac_assets/1/6/HAVA41.PDF
- [2] The United States Department of Justice, “Voting Section Litigation,” 2020. [Online]. Available: <https://www.justice.gov/crt/voting-section-litigation>
- [3] “The Election Assistance Commission.” [Online]. Available: <https://www.eac.gov/>
- [4] EAC, “Voluntary Voter System Guidelines 1.0,” 2005. [Online]. Available: https://www.eac.gov/sites/default/files/eac_assets/1/28/VVSG.1.0_Volume_1.PDF
- [5] —, “Voluntary Voter System Guidelines 1.1,” 2015. [Online]. Available: https://www.eac.gov/sites/default/files/eac_assets/1/28/VVSG.1.1.VOL.1.FINAL1.pdf
- [6] —, “Voluntary Voter System Guidelines 2.0,” 2020. [Online]. Available: https://www.eac.gov/sites/default/files/TestingCertification/2020_02_29_vvsg_2_draft_requirements.pdf
- [7] TGDC, “VVSG 2.0 TGDC Recommended Principles and Guidelines,” 2020. [Online]. Available: https://www.eac.gov/sites/default/files/eac_assets/1/6/TGDC_Recommended_VVSG2.0_P_Gs.pdf
- [8] L. Burris and E. Fischer, “The Help America Vote Act and Election Administration: Overview and Selected Issues for the 2016 Election,” 2016.
- [9] “Georgia State Code §21-2,” 2020. [Online]. Available: <https://bit.ly/35uylhT>
- [10] EAC, “2020 HAVA Funds,” 2020. [Online]. Available: <https://www.eac.gov/payments-and-grants/2020-hava-funds>
- [11] “Iowa Code §52,” 2020. [Online]. Available: <https://www.legis.iowa.gov/law/iowaCode>
- [12] “Iowa Administrative Code §721.22,” 2011. [Online]. Available: <https://www.legis.iowa.gov/docs/iac/rule/10-05-2011.721.22.2.pdf>
- [13] B. Friedman, “Op-Scan Voting Machines Miscount Ballots in Iowa Republican Primary! Hand Count Reveals Other Candidate Leads By Far!” 2006. [Online]. Available: <https://www.bradblog.com/?p=2929>
- [14] I. S. of State, “Iowa County Voting Systems,” 2020. [Online]. Available: <https://sos.iowa.gov/elections/pdf/covotesystem.pdf>
- [15] S. C. of Georgia, “*Martin et al. v. Fulton County Board of Registration and Elections et al.*” 2019. [Online]. Available: <https://cases.justia.com/georgia/supreme-court/2019-s19a0769.pdf>
- [16] P. D. of State, “New Voting Systems,” 2019. [Online]. Available: <https://www.votespa.com:443/About-Elections/Pages/New-Voting-Systems.aspx>
- [17] C. C. of Philadelphia, “Voting Technology Procurement Investigation,” 2019. [Online]. Available: <https://bit.ly/2z4WaB5>

- [18] M. Niese, “Firm’s Close Ties to Georgia Stir Concerns About Voting System Purchase,” The Atlanta Journal-Constitution, 2019. [Online]. Available: <https://www.ajc.com/news/state--regional-govt--politics/firm-close-ties-georgia-stir-concerns-about-voting-system-purchase/HVK4wcNsEAKO0Xa0ptLLKM/>
- [19] S. Halpern, “How Voting-Machine Lobbyists Undermine the Democratic Process,” The New Yorker, 2019. [Online]. Available: <https://www.newyorker.com/tech/annals-of-technology/how-voting-machine-lobbyists-undermine-the-democratic-process>
- [20] G. G. Transparency and C. F. C. of Georgia of Georgia, “Lobbyist Reports – Charles Halpern,” 2020. [Online]. Available: http://media.ethics.ga.gov/search/Lobbyist/Lobbyist_Name.aspx?&FilerID=L20120038
- [21] G. Gordon, A. R. Leiker, J. Self, and S. Dunlap, “Voting Machine Vendor Treated Election Officials to Trips to Vegas, Elsewhere,” McClatchy, 2018. [Online]. Available: <https://www.mcclatchydc.com/latest-news/article213558729.html>
- [22] G. G. Transparency and C. F. C. of Georgia of Georgia, “Lobbyist Reports – Jared Thomas,” 2020. [Online]. Available: http://media.ethics.ga.gov/search/Lobbyist/Lobbyist_Name.aspx?&FilerID=L20070103
- [23] M. Niese, “Georgia Buys New Voting Machines for 2020 Presidential Election,” The Atlanta Journal-Constitution, 2019. [Online]. Available: <https://www.ajc.com/news/state--regional-govt--politics/georgia-awards-contract-for-new-election-system-dominion-voting/tHh3V8KZnZivJoVzZRLO4O/>