

The Polarization Machine

How Digital Activity Threatens Electoral Legitimacy

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Introduction

In May 2014, two women from St. Petersburg visited the U.S. on a multi-state trip across the south western states. Their behavior was not alarming, but their mission was: they were visiting as spies. The womens' goal was to soak in the nuances of American culture, probe it for vulnerabilities and then use every social media mechanism at their disposal to pose as Americans and stoke cultural tensions from across the globe.

Back at the Internet Research Agency, the womens' findings were carefully analyzed and developed into narratives. Dozens of IRA employees were (and are!) employed to maintain fake social media profiles and repeat these narratives. Employees receive assigned talking points and voice their discontent between posting pictures of fake family members. They occasionally write alarming posts that sow cultural division along race, class, religion, and political lines, but blending in with an authentic-looking profile is critical.

That is just one aspect of their operation.

Other operations leverage advertising algorithms to target populations with specific messages.

"For example, Russia created a "Blacktivist" page that served as an extreme version of the Black Lives Matter movement. Advertisements created by this page issued denunciations of the criminal justice system and posted videos of police violence. In addition, the page "Being Patriotic" sought to rally Americans against expansions of refugee settlements. It also sent out missives attempting to dupe audiences into believing that federal employees were, in effect, seizing land from private property owners." (RAND, 20)

The purpose of this study is to better understand the digital forces that shape contemporary elections, as well as identify the indicators of legitimacy in today's digital paradigm. Through research and analysis of existing datasets collected by academic, nonprofit, and governmental bodies, I have designed a methodology to develop a digital scorecard that synthesizes data from a variety of sources to provide an overview of each state's electoral conditions. This scorecard will cover the following focus areas:

- **Election Administration**
- **Election Performance:**
- **Perception of Election Legitimacy**
- **Digital Attacks**

Each of these sections will be examined under the context of the following research questions:

1. How do we know if our elections are legitimate?

2. How has the internet disrupted American political discourse?
3. How do malicious actors interfere with American elections?
4. What policies can safeguard our elections in this new era?

By examining policies, perceptions, and performance within the context of a burgeoning internet era, my goal is to illuminate the factors that threaten the legitimacy of American democracy.

Scorecard Contents

This table shows a summary of the scorecard inputs, or indicators, mapped to their focus area and assigned into themes, such as “Media and Influence” and “Data validation.” The vision for the scorecard’s final form is a web-based interactive tool that outputs data visualizations derived from the datasets listed below.

I designed the scorecard with the intent of uniting disparate datasets into thematically similar categories. The goal is to create a full-color picture of the planning, execution, perception, and sanctity of each state’s election performance, and do so in a way that engages students, voters, and policymakers alike.

For example, reviewing the Disenfranchisement category might prompt you to realize that felons in your state permanently lose their right to vote. In fact, your state (Virginia) requires government-issued photo identification, disallows mail-in voting without an excuse, and does not offer early voting. What’s more, according to statistical modeling, your state’s congressional districts show evidence of gerrymandering meant to disadvantage voters like you.

Each of these facts are alarming on their own, but taken together, they form a complete picture of a state whose approach to democracy is restrictive and inaccessible.

Election Administration	Election Performance	Perceptions of Performance	Digital Interference
<i>Procedures & practices that comprise election management</i>	<i>Measurable election outcomes</i>	<i>Expert perceptions of election performance</i>	<i>Evidence of foreign digital interference</i>
Data Sources: Election Administration and Voting Survey (EAVS);	Data Sources: Election Performance Index; EAVs	Data Sources: Perceptions of Electoral Integrity (PEI) Index	Data Sources: Media and declassified intelligence reports.
Media & Influence			
		Campaign Finance	Targeted messages
		Media Coverage	Bot-promoted topics
Registration			

Automatic registration	Registration rates	Registration accuracy	Evidence of tampering
Online registration	Registration rejection rates		
Same-day registration	Reports of registration problems		
Disenfranchisement			
Disenfranchisement standards	Gerrymandering district assessments	Perceptions of district boundaries	Evidence of tampering
Voter ID laws			
Equity and Accessibility			
Availability of online tools	Reports of disability or illness	Perceptions of Election laws	Targeted outages of polling resources
Availability of mail-in, absentee, or early voting	Wait time at polls	Perceptions of Election authorities	
		Perceptions of Party and Candidate equity	
Participation and Polling			
	Turnout	Perceptions of Electoral Procedures	Targeted outages of polling resources
	Provisional ballots cast.	Perceptions of Voting Process	
	Mail ballots unreturned.		
	Military and overseas ballots unreturned.		
Data Validation			
	Data completeness	Perceptions of Vote Count	

	Mail ballots rejected	Perceptions of Results	
	Military and overseas ballots rejected.		
	Provisional ballots rejected.		
	Registrations rejected		
	Postelection audit required.		

Assessing national elections

How do we know if our elections are legitimate?

Measuring election legitimacy is complex. Assessing election systems requires a 360 degree view of its planning, polling, and the perceptions people have of its legitimacy.

In national contests, it is difficult to ascertain an overall score for an election's performance. That's because elections are administered by local officials in roughly 8,000 different jurisdictions in total across the country (Presidential Commission, 1) The advantages of this model are real: a completely decentralized system makes it extraordinarily difficult for a presidential race to be manipulated. There's no single ballot box to stuff or official to bribe; any attempt to sway a national race in any meaningful way will naturally produce a lot of potential witnesses. In earlier, less connected eras, hacking a national election was an impossibly complex undertaking -- there simply was not the data available to facilitate an interference campaign that would evade detection and make a meaningful impact to the result. With over 8,000 jurisdictions in play, where would a hacker even start?

But there are downsides as well. Laws vary from state to state, which results in inconsistent and unequal experiences among the national electorate. A lack of a centralized system makes some kinds of fraud difficult to detect. Some states may lack the necessary funding for fraud detection and robust cybersecurity for state election agencies. Voting is administered by volunteers or temporary employees who have little immediate recourse if things go awry on election day. The voting equipment itself may have vulnerabilities depending on its type, chain of command, usability, or transparency. Each vulnerability exposes the election to the risk of manipulation.

Before we can address the digital risks to our elections, we must first understand our desired standards. If we are to design ways to detect digital election tampering, we must have a baseline to compare to. This raised a series of questions, such as, "What makes an American election legitimate? What are the indicators of a free and fair election?"

Additionally, in a contest in which there is a winner and a loser, there must be a baseline of trust in the system and a shared sense of reality. Accusations of impropriety, even if unfounded, can undermine the result and strain democratic norms.

Thus, I conceive of traditional election legitimacy as having three aspects:

- **Planning and Administration**, or the election rules set and implemented by the states. Election laws and procedures generally fit on an easily discernible spectrum from *most restrictive* to *most accessible*.

- **Performance**, or the quantifiable behaviors or outcomes associated with an election, such as registration, turnout, ballot rejection rates, etc.
- **Perceptions of legitimacy**, measured qualitatively through analysis of expert opinions about specific elections.

I posit that in our present era, internet-based foreign attacks are an ongoing threat. They add new complexity to the question of election legitimacy and demand to be considered alongside administration, performance, and perceptions as part of the analysis.

Digital election interference attacks generally fall within one of these two categories:

- **Interference**, or the actions taken to prevent or disrupt voting in key locations by attacking registration systems or voting equipment. Cyber interference attacks may be difficult to detect or accurately measure, but their impact is theoretically quantifiable -- for example, as *registrations purged* or *voters disenfranchised*.
- **Cyber influence**, or coordinated actions taken to shape elections through mass influence campaigns, using fake social media profiles, bots, or digital ads. Cyber influence attacks are somewhat easier to detect, but their actual impact may be impossible to isolate and measure.

All four focus areas -- Administration, Performance, Perceptions and Interference -- must be analyzed in tandem to fully understand the conditions shaping electoral systems.

Election Administration

I define Election Administration as the set of policies, laws, and procedures that form each state's baseline of potential. These policies are important to study as a reflection of the state's philosophy towards voting. In general, these policies can be placed on a spectrum from *most restrictive* to *most permissive*.

Measuring Election Administration with EAVS

I used the Election Administration and Voting Survey for its dataset about electoral policies. The EAVS is a comprehensive survey instrument developed by the Election Assistance Commission. Administered biennially since 2004, the EAVS collects, analyzes, and reports on data relevant to the administration of federal elections from all 50 states, the District of Columbia, American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands. The survey itself contains hundreds of questions that drill down into jurisdiction-level data, yielding thousands of data points for individual states.

The EAVS provides a comprehensive data source for evaluating the quantitative aspects of election performance. It measures election administration practices in a high level of detail, from registration to voting day procedures. Below are the indicators selected from the EAVS to illustrate critical parts of each state's election administration.

Registration		SCORING
Automatic Registration for eligible voters	This indicator shows whether the state supports automatic registration for all eligible voters.	Yes / No (100% / 0%)
Online Registration Available	This indicator shows whether the state supports online registration for all eligible voters.	Yes / No (100% / 0%)
Same Day Registration	This indicator shows whether the state supports same-day registration for all eligible voters.	Yes / No (100% / 0%)
Felon Disenfranchisement		SCORING
Disenfranchisement standard	This indicator discusses the severity of offenses required to strip a person of their right to vote.	Scale (1 - 5)
Disqualification Period	This indicator shows the length of time felons lose their right to vote and whether it extends beyond their detention.	Scale (1 - 5)

Felon Voting Rights Restoration Procedure	This indicator rates the procedure necessary for an offender to restore their voting rights from most to least onerous.	Scale (1 - 5)
Voter ID Laws		SCORING
Voter ID Requirements	This indicator shows the ID requirements placed on voters by state election laws. These range from least burdensome (no ID required) to most restrictive (government-issued photo ID required).	Scale (1 - 5)
Equity and Accessibility of Polling		SCORING
Online Resource Availability	This indicator describes the online tools made available to voters, including online registration, ballot lookup, poll location lookup, and absentee and provisional ballot status checks.	Scale (1 - 5)
Poll Times	This indicator describes the hours during which voters can cast their ballots in person.	# of hours voters have on election day to cast their ballots
Mail-In and Absentee Voting	This indicator assesses the state's policy on mail-in and absentee voting, particularly restrictions placed on requesting mail-in ballots.	Scale (1 - 5)
Early Voting	This indicator describes whether the state permits early voting of any type.	Yes / No (100% / 0%)

Understanding Gerrymandering, An Administrative Obstacle to Fair Elections

One objective measure the EAVS cannot illuminate occurs one step upstream from their area of focus: the design of voting districts themselves. Starting in the early 2010's, researchers note a sharp increase in the effects of partisan gerrymandering. According to Princeton researchers Sam Wang and Brian Remlinger,

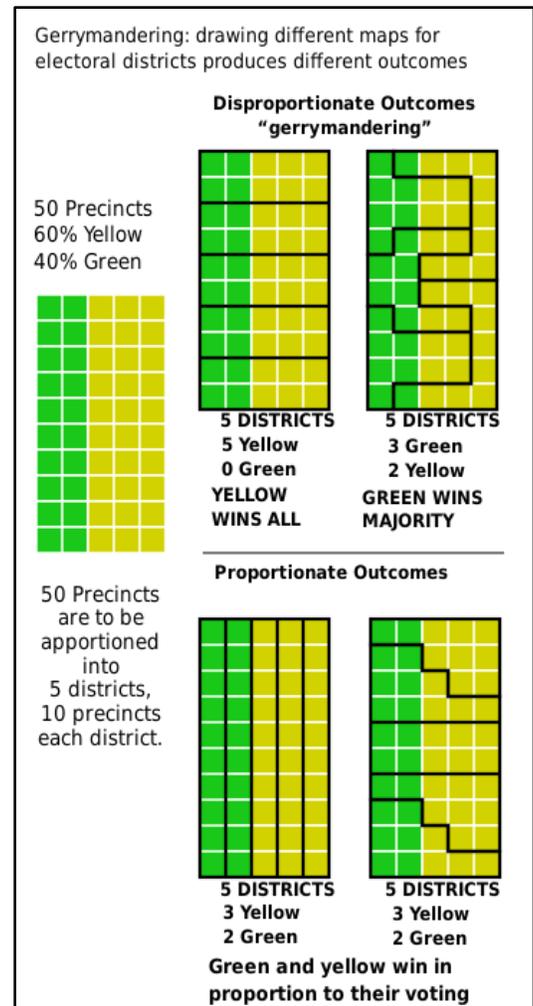
“Thanks to technology and political polarization, the effects of partisan gerrymandering since 2012 have been more pronounced than at any point in the previous 50 years. Close to a hundred congressional seats and thousands of state legislative seats have been strategically drawn to be noncompetitive at the expense of all other interests. As a consequence, tens of millions of voters have had no meaningful say in who represents them.” (Remlinger)

Redistricting, or the drawing of geographical boundaries of congressional districts, do not have many requirements prescribed by the Constitution except that they must contain roughly equal populations.

All states with more than one representative (43 at last counting) must undergo this process after each census. The states themselves are responsible for redistricting procedures and ensuring fair maps. While some early 20th century laws set criteria for voting districts, such as requirements for compactness, contiguity and equal population, these criteria were later revoked in favor of an approach that let states set their own redistricting standards.

Redistricting is meant to be a politically neutral process. Gerrymandering is when the districts are manipulated to advantage a particular party. There are two main methods of gerrymandering:

1. **“Cracking”**: Diminishing a party’s influence by breaking up a concentration of their voters into separate districts to “dilute” their voting power.
2. **“Packing”**: An inverse of cracking, this technique concentrates a party’s voters into the fewest number of districts as possible to diminish their voting power in other districts and on the overall state’s outcome.



Source: Wikipedia/gerrymandering

Princeton researchers point out that this is a civil rights issue and categorize the resulting outcomes into two categories:

- **Inequality of opportunity** describes when voters within a district are denied the opportunity to elect a candidate of their preference.
- **Inequality of outcome** describes results that clash with statistical probable patterns of wins and losses. (Wang)

Gerrymandering Indicators

Who Has The Authority?

Presently the majority of states adopt one of three approaches to drawing district boundaries. Most state legislatures are responsible for drawing district boundaries, then seeking approval from the state's governor. This approach can make the state congressional districts vulnerable to gerrymandering from the party in control during the redistricting process.

Thirteen states remedy this vulnerability by using a bipartisan or independent commission to draw district boundaries. Five other states use a "compromise" method in which an independent commission draws maps and the legislature approves them. One state--Arkansas--takes the opposite, seemingly very partisan approach of awarding redistricting authority to the governor, attorney general and secretary of state.

Statistical Methods of Measuring Gerrymandering

But the body in control of redistricting is not necessarily an indicator of unfairness. Researchers have developed statistical models capable of gauging the likely political impact of district boundaries.

- **Student's t-test:** The student's t-test is the simplest way to detect many partisan gerrymanders. A t-test determines whether two averages differ more than expected from random chance. When applied to the question of gerrymandering, the test can detect voter packing by illustrating whether one side's average wins are more lopsided than the other's.
- **The mean-median difference:** This test computes the difference between the average and median vote share for each district in the state. In a closely divided state, gerrymandered districts will yield a suspiciously high number of narrow wins benefitting one party. The party's median vote share will be lowered when compared to its statewide vote share. Such a large difference is unlikely to arise by chance and is therefore an indicator of partisan gerrymandering.

- The efficiency gap:** This test measures partisan gerrymandering via a concept of “wasted” votes, developed by public policy expert Eric McGhee in 2013. At the heart of partisan gerrymandering is efficiency in vote distribution. Any votes for the successful party beyond the winning threshold are considered waste. Votes for the unsuccessful party are also wasted because they theoretically could have been useful in other districts in less gerrymandered maps. The game of gerrymandering to use your party’s votes most efficiently to win as many districts as possible, while forcing the opposing party to waste theirs. McGhee posits that large differences in the party’s wasted vote counts can indicate potential gerrymandering.

Likelihood of Gerrymandering		SCORING
Redistricting Authority	This indicator states the type of authority used by the state to draw district boundaries. The scoring scale rates highly the methods with the least likely partisan influence.	Scale (1 - 4)
Student's T-test	This indicator detects probable gerrymandering by assessing whether there is a statistically significant difference between two averaged outcomes.	Gerrymandering Likely / Not Likely (100% / 0%)
The mean-median difference	This indicator detects probable gerrymandering by measuring the difference between parties’ mean and median vote shares.	Gerrymandering Likely / Not Likely (100% / 0%)
Efficiency gap analysis	This indicator examines differences in “wasted votes” to detect statistically improbable outcomes.	% of votes wasted

Election Performance

While formal policies are a good way to get a sense of intent behind election administration, actual performance data is needed to reflect the practical reality of these policies. Even the best intentioned policymakers can inadvertently introduce negative externalities into the voting procedures they seek to improve. By reviewing data around actual registration numbers, turnout, wait times and obstacles faced by voters with special needs, we can see where policies succeed or fail.

Measuring Performance with the Elections Performance Index

The Elections Performance Index is an objective measure designed to assess the administration of national elections in all 50 states and the District of Columbia. It incorporates data from the EAVS, as well as the census. The EPI uses 17 indicators to make its assessments; these indicators have been sorted into categories Participation, Data Validation, and Equity and Accessibility.

Participation		SCORING
Turnout	This indicator shows the state's turnout, expressed as the total number of people who cast a ballot (as reported to each state's leading election authority), divided by the eligible voting population.	% of eligible voters who turned out
Provisional ballots cast	This indicator measures provisional ballots as a percentage of all ballots cast.	% of ballots are provisional ballots
Mail ballots unreturned	This indicator measures unreturned mail ballots as a percentage of all mail ballots transmitted.	% of mail ballots not returned
Military and overseas ballots unreturned	This indicator measures how many military and overseas ballots are not returned by voters.	% of mail ballots not returned by military and overseas voters
Data Validation		SCORING
Data completeness	This indicator shows the percentage of jurisdictions within the state that supplied data on the 18 core statistics requested by the Election Administration and Voting Survey (EAVS).	% of jurisdictions reporting
Registrations rejected	This indicator measures the rejection rate of new registrations received by a state.	% of new registrations rejected

Mail ballots rejected	This indicator shows the number of mail ballots rejected as a percentage of all ballots cast. Note that states that conduct their elections completely by mail are counted in this measure and will likely show a comparatively higher proportion of rejected mail ballots as a result.	% of mail ballots rejected
Military and overseas ballots rejected	This indicator shows the number of military and overseas ballots rejected as a percentage of all ballots cast.	% of military and overseas ballots rejected
Provisional ballots rejected	This indicator measures provisional ballots rejected as a percentage of all ballots cast.	% of provisional ballots rejected
Postelection audit required	This indicator describes whether a state regularly conducts a statewide post-election audit of voting equipment.	Yes / No (100% / 0%)
Equity and Accessibility		SCORING
Disability- or illness-related voting problems.	This indicator measures the degree to which voters are deterred from voting because of disability or illness.	% of nonvoters citing disability or illness as an obstacle
Voting wait time	This indicator shows the average amount of time voters spend in the act of voting, whether waiting to cast a ballot in person or dropping off a mailed ballot.	# of minutes

Perceptions of Election Legitimacy

How has the Internet disrupted American politics?

The decades between 2000 and 2020 ushered in drastic shifts in American political discourse from internet-based forces. Social media changed the way we communicate about leaders and policy, and the data collection it facilitates changed the way political actors target voters. A pair of Supreme Court decisions created the conditions for shadowy actors to flow money into political campaigns and onto our screens.

Each of these developments had a distinct impact on the impressions citizens have of their government, how their leaders are selected, and the electoral landscape that emerges as a result. Accurate analysis of the perceptions of election legitimacy during this era requires some contextualization.

Americans shift away from traditional journalism.

Morning newspapers and the evening news broadcast used to hold a special place in American society as trusted and intellectually serious institutions. Professional journalists were understood to be skilled researchers with ethical responsibilities and professional standards to uphold.

For centuries, American news organizations played a critical role in the function of democracy. They walked a fine line between sensationalism and libel, sales and their responsibility to report the truth. While imperfect, traditional journalism had a high enough barrier to entry to preclude a person from, say, peddling baseless conspiracy theories or perpetuating falsehoods about a political rival on a mass scale.

The conditions and infrastructure needed to maintain these journalistic safeguards, also made media organizations vulnerable to economic downturn and technological disruption. In the last two decades, both have happened, leading to a decline in quality of news Americans consume, as well as a sharp increase in the amount of news they consume -- largely thanks to social media.

Social media promotes & feeds an insatiable appetite for news

The steep rise in social media usage “democratized the news” by enabling average citizens to participate in the broader discourse and potentially reach millions of people. While this has some obvious upsides for free societies, the lack of reporting standards in digital content yields endless proof of the old adage, “a lie can travel halfway across the world while the truth is still lacing up its shoes.”

Online sources are increasingly becoming the news destination of choice for Americans. A Pew study found that 34% of American adults report that they prefer to get their news online, an increase from 28% in 2016. While the most popular medium is still television, it is on a downward trajectory, from being the preferred source for 54% of Americans in 2016, to 44% in 2018. Twenty percent of Americans turn to social media often to receive their news, with Facebook being the most common site cited. (Pew)

Prior to the 2010's, the universes of social media and news did not have the symbiotic relationship we now see on our feeds. Even well-established newspapers and media organizations--who ostensibly had an established readership-- struggled to adapt and find financial sustainability in the digital paradigm. One-fifth of all U.S. newspapers have closed since 2004 (Abernathy).

This phenomenon hit local media particularly hard, forcing the closure or corporate acquisition of local papers and tv stations. When those organizations fell, society lost the reporting expertise and quality content that citizens depend on for casting a well-informed vote or contextualizing discussions of policy. The void left in local news coverage that is increasingly filled with national news stories. Studies suggest that focusing on national news leads to increased polarization among the electorate (Darr), suggesting that Americans are angrier and less informed than ever.

Social Media presents distorted realities in exchange for user data

We now know that Facebook's ability to connect people to news, events, ideas, and causes, also gave it the ability to harvest vast amounts of user data. Marketers, campaign strategists, and election hackers alike use social media to sell products, politicians, and ideas. Social media platforms are more than happy to facilitate. They offer several methods to reach an audience, such as:

- **Targeted ads**, which leverage user data and browsing habits to advertise goods, services, and ideas. These ads can appear obvious, as in sidebars or images. They can also appear as text, video, or link posts almost indistinguishable from normal activity, except for a discreet "sponsored" indicator.
- **Groups and events**, both which unite like-minded users in a single location inaccessible to outsiders. Group membership exposes the user to additional targeting and can promote the "echo chamber" qualities that perpetuate misinformation and breed polarization.
- **Astroturfed content** placed in users' feeds based on algorithms constructed from individual user data and behavior. This content type is distinct from targeted ads because there is no formal transaction associated with it; it is simply the work of agents of influence using the platform as designed.
- **Influencers** are users with positions of high visibility or importance within social media platforms. Their activities are accompanied by visual indicators of importance, like a blue checkmark or high subscriber count. Influencers have commodified their online identities

to promote products or services, and follower/subscriber count is an expression of their worth within the social media marketplace. Their self-branding becomes a useful shorthand for the demographics of users a company or politician wishes to reach.

- **Hecklers** or trolls are user accounts used to shape narratives within website comment sections. Their goal is to sow chaos and division within the electorate, depress turnout for certain voters, and cast doubt on leaders and institutions. Heckler accounts are detailed and realistically maintained, so the average user interacting with them often has no way to verify whether they are trolls.
- **Bots** are automated accounts used to amplify messages through followers and hashtags. They are a rather blunt instrument and comparatively easy to detect with the right algorithms.

In a capitalist society, none of these activities is necessarily evil. They only become problematic when used to threaten public safety, undermine democratic norms or violate the rule of law.

Supreme Court decisions drastically impact campaign finance.

Around the same time, a landmark Supreme Court case, *Citizens United v. FEC*, held that corporations had a right to participate in independent political communications without the expenditure restrictions and fundraising regulations applied to official campaigns. Critics immediately saw the corruption risk ushered in by the *Citizens* decision; essentially it created a mechanism for corporations, including nonprofits and labor unions, to wield influence in elections on behalf of political candidates--as long as there is no direct coordination between campaigns and their supporting corporations. *Citizens United* and an associated case, *Speechnow.org v. FEC*, opened the door for the creation of Super PACs, or independent expenditure-only organizations capable of raising and spending unlimited funds in support of -- but separate from -- a political campaign.

Measuring Perceptions: The PEI Index

I chose to examine the Perceptions of Electoral Integrity (PEI) Index to answer questions about perceptions of election legitimacy. The PEI was developed by the Electoral Integrity Project, which is an academic initiative hosted by Harvard University to drive research and innovative policy leading to the improvement of elections.

Researchers at the Electoral Integrity Project define electoral integrity as a set of “international standards and global norms governing the appropriate conduct of elections.” (PEI-US-2018) Their standards have been endorsed by numerous bodies in the international community, such as the United Nations General Assembly, and in treaties, protocols, and guidelines by international agencies.

The PEI is a comprehensive instrument administered internationally by an advisory board with serious bona fides. PEI standards are applied as a survey reflecting a set of 49 indicators. The survey is given to experts to evaluate public perception of specific elections. Applied in countries across the world, the survey's purpose is to assess whether national elections adhere to the international standards set forth, including the pre-election period, campaigns, voting day, and the election's aftermath.

In the month following polling day, fieldworkers administered the PEI-US questionnaire to over 700 experts. Individual questions are answered by experts using a 5-point agreement scale, and those scores are aggregated and set on a 100 point scale. To mitigate confusion around questions phrased negatively, an inverse score was produced for calculation purposes. The resulting 11 indices are aligned to the stages of the electoral system, as well as my unique scorecard design.

Perceptions of Election Integrity		SCORING
Voter Registration Index	<ul style="list-style-type: none"> Some citizens were not listed in the register The electoral register was inaccurate Some ineligible electors were registered 	1 - 100%
Media Coverage Index	<ul style="list-style-type: none"> Newspapers provided balanced election news TV news favored the governing party Parties/Candidates had fair access to political broadcasts Journalists provided fair coverage of the election Social Media were used to expose electoral fraud 	1 - 100%
Campaign Finance Index	<ul style="list-style-type: none"> Parties/Candidates had equitable access to public political subsidies Parties/Candidates had equitable access to political donations Parties/candidates publish transparent financial accounts Rich people buy elections Some state resources were improperly used for campaigning 	1 - 100%
District Boundaries Index	<ul style="list-style-type: none"> The boundaries discriminated against some parties The boundaries favored incumbents The boundaries were impartial 	1 - 100%
Electoral Laws Index	<ul style="list-style-type: none"> Laws favored incumbents Election laws restricted citizens rights 	1 - 100%
Party and Candidate Registration Index	<ul style="list-style-type: none"> Some opposition candidates were prevented from running Women had equal opportunity to run for office Ethnic and national minorities had equal opportunity to run for office Only Top Party officials selected candidates Some parties/candidates were restricted from holding campaign activities 	1 - 100%

Electoral Authority Index	<ul style="list-style-type: none"> • The election authorities were impartial • The authorities distributed information to citizens • The authorities allowed public scrutiny of their performance • The election authorities performed well 	1 - 100%
Electoral Procedures Index	<ul style="list-style-type: none"> • Elections were well managed • Information about voting procedure was widely available • Election Officials were fair • Elections conducted in accordance with the law 	1 - 100%
Voting Process Index	<ul style="list-style-type: none"> • Some voters threatened with violence at the polls • Some fraudulent votes were cast • The process of voting was easy • Voters were offered genuine choice at the polls • Postal ballots were available • Special voting facilities available for the disabled • National citizens living abroad could vote • Some form of internet voting was available 	1 - 100%
Vote Count Index	<ul style="list-style-type: none"> • Ballot boxes were secure • The results were announced without undue delay • Votes were counted fairly • International Election Monitors were restricted • Domestic Election Monitors were restricted 	1 - 100%
Results Index	<ul style="list-style-type: none"> • Parties/Candidates challenged the results • The election led to peaceful protests • The election triggered violent protests • Any disputes were resolved through legal channels 	1 - 100%

This source was highly relevant because the questions targeted perceptions aligned closely to the more objective factors measured elsewhere. While my other sources were helpful in understanding the *design or intent* of our voting mechanisms, this index gets at the *impact* of the systems on voters, according to experts. The former reflects a top-down view of the election process, while the latter is a bottom-up view of how they are working. Both are necessary to form a complete view of an election's overall legitimacy.

Methods of Digital Interference

How do malicious actors interfere with American elections?

When Americans were first confronted with the idea of cyber interference in our elections, many found it hard to conceptualize. Our voting systems are decentralized and mostly non-networked, so what would a hacked election even look like?

Mass data collection and advanced computer modeling techniques now make it possible to identify the districts capable of delivering the marginal impacts that can swing an election. Once those jurisdictions have been identified, there are two primary areas of opportunity to influence election infrastructure: voter registration, voting machines.

Attack Voter Registration

Attacks on voter registration often begin by a hacker gaining access to databases. They may target employees with sophisticated phishing scams or find weaknesses in the system security. Once in, they have three options for interfering with the database:

- Remove registrants from the rolls to suppress their vote
- Add registrants to enable fraudulent voting
- Collect voter registration data to use in a future attack. This includes the data points used to verify voter identity, such as driver's license number or last four digits of social security number.

In addition to database changes, hackers can also use more typical and visible types of attacks, such as denial of service attack, which shuts down a network by flooding it with traffic. A similar attack, called "man-in-the-middle", has the attacker intercept and intercede in services between two entities.

Attack Voting Machines

As noted, most voting machines are not connected to the Internet. But that does not mean they are impervious to interference. Rather, it means that malicious actors must gain physical access to machines. While this is a higher risk undertaking, it yields a high reward for hackers. According to security experts, a few minutes of unsupervised access allows a hacker to upload malware that exploits weaknesses in the machine's software, including programs that manipulate individual votes or the final tally, then self-destruct to avoid detection. A number of older machines still in circulation use PCMCIA cards, which are memory expansion devices that were first introduced in 1990. These cards are known for being insecure and easy to subvert.

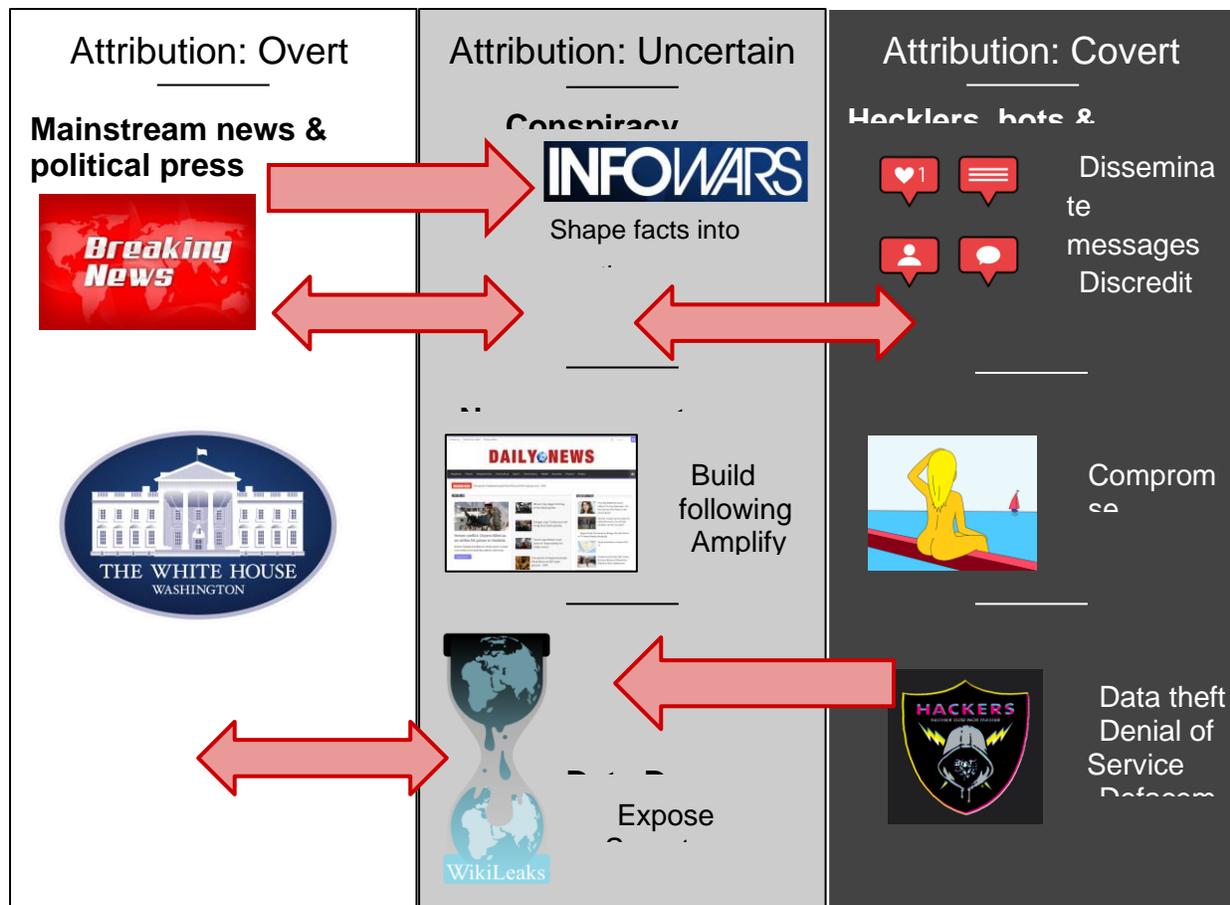
The variety of voting machines and riskiness of accessing them makes this interference option a risk proposition to would-be hackers. However, in the lead up to elections, it is possible to know which districts are competitive and target areas with few voting machines. Simply disabling a couple of machines is enough to boost wait times and effectively disenfranchise would-be voters. This method deployed to a key set of polling places could impact elections in a way that is both difficult to detect and impossible to measure. Media reports in recent years have highlighted security concerns over the use of internet connected voting machines, especially those that do not produce a paper ballot “receipt”, thus making the vote unverifiable.

Currently, the Department of Homeland Security helps states manage cyber threats to the digital systems involved in election administration. Their “mission managers” look for evidence of hacking attempts in state election systems. A National Situational Awareness room is used by states to share information about attempted hacks. (DHS) Actual data about hacking incidents is not widely reported, likely to prevent public faith in elections from being undermined. This makes measuring the impact of cyber interference challenging. If there is proof that any of these attempts were successful, it is likely in one of the many heavily redacted sections of the Senate Intelligence report.

[Attack Voters And Democratic Norms Through Digital Influence Campaigns](#)

Social media is a crucial instrument of influence campaigns in conflicts worldwide. The tactics used in influence campaigns were honed by Russian state actors in particular over the past decade. The earliest example of these tactics occurred during the 2014 Ukrainian revolution, in which the Russian spy agency GRU waged propaganda campaigns in support of Russian annexation of Crimea. Members of GRU, like the Internet Research Agency, would be paid to cultivate and maintain dozens of highly realistic social media profiles, promote fake news, and use automated or “bot” accounts to amplify their message. (Helmus, 19)

It’s critically important to grasp how digital influence campaigns exploit the synergies between social media and mainstream news. This relationship is best illustrated as having three arenas, as described by Weisburd, Watts, and Berger. The diagram below adapts their original graphic to illustrate how influence campaigns targeting the United States use the same three-part recursive approach observed in Russia, Ukraine, and elsewhere.



Weisburd, Watts, and Berger explained how this method was applied to the Syrian conflict, “All three elements were working together: the trolls to sow doubt, the honeypots to win trust, and the hackers (we believe) to exploit clicks on the dubious links sent out by the first two,” while behind the Syrian network “lurked closely interconnected networks tied to Syria’s allies, Iran and Russia” (Helmus, 12).

Challenges in Measuring Digital Interference

At present, there is no established and maintained dataset that provides ongoing information about digital interference activities. It is somewhat understandable that intelligence officials would not want to publicize system breaches. Hacks to electoral systems and databases are a major national security concern, and public knowledge of their existence can undermine elections through a loss of faith. These activities are likely to stay classified unless a media organization reports on them.

Influence campaigns are also difficult to measure. The agents employed by the GRU use techniques to obscure their location and avoid easy detection. They use profiles developed over

years to lend the appearance of being a real person. As such, there is not much of a “smoking gun” to detect -- unless social media platforms commit to developing better policing strategies.

There are, however, browser plug-ins and social media extensions that can help average users detect bot activity or identify suspicious sources for independent measurement.

However, it is difficult to reliably measure the impact of interference efforts on specific voting populations. For example, virtual private network (VPN) technology, which enables users of a shared or public network to send and receive data on a private network, makes it difficult to verify the true origin of comments and content.

Measuring Digital Interference	
Media reports of electoral systems accessed	<ul style="list-style-type: none"> Aggregate media reports using web scraping applications and keywords. These reports would need to be validated and catalogued to form a database of known breaches.
Bot detection & hashtag promotion	<ul style="list-style-type: none"> Conduct a meta-analysis of hashtags and accounts flagged by bot detection software
Engagement metrics associated with known malicious agents	<ul style="list-style-type: none"> Track accounts associated with bot activity. Use the platform’s engagement metrics to measure the reach of their promoted messages.
Keyword and sentiment detection	<ul style="list-style-type: none"> Use machine learning techniques to analyze keywords and sentiments on a large scale.

Recommendations

The cure for the ills of Democracy is more Democracy.

--

Jane Addams, *Democracy and Social Ethics* (1902)

It's tempting to look at the current state of American democracy and feel a sense of hopelessness. The threats are sophisticated and relentless; their efficacy is proven each day. The American electorate appears largely incapable of rebuffing foreign influence. Election systems do not provide a uniform experience to voters and many states implement policies that depress turnout or suppress the vote.

Each of these obstacles can be overcome by legislative action and a renewed commitment to our founding ideals.

Enact bill HR1, For the People Act

Legislation capable of mitigating many of the systemic and administrative issues discussed, has already been introduced and passed in the U.S. House of Representatives. The For The People Act of 2019 is designed to address many ills, including campaign finance, voting rights, and government ethics. Key provisions relevant to voting rights include:

- Creating a national voting registration program
- Restricting felon disenfranchisement to the time in custody and overturning permanent voting bans for former felons
- Preventing unnecessary voter roll purges
- Combating partisan gerrymandering
- Stopping the flow of dark money into elections
- Making election day a national holiday

The bill is ambitious and comprehensive. As the Brennan Center summarized, "H.R. 1 would transform our democracy by making it fairer, stronger, and more inclusive." (Annotated Guide)

Sharpen platform tools in the fight against misinformation

Misinformation is rampant on social media, but that does not mean platforms are powerless to stop it. These companies are perfectly capable of setting up the digital infrastructure to more effectively moderate their content. Legislators should seek ways to compel their cooperation if need be.

- **Close loopholes in deplatforming practices:** For example, if the troll account gets deleted, the memes it uploaded will continue to be accessible to other users. This loophole could be closed in a number of ways, including adding metadata attributes that facilitate the tracing and removal of troll-uploaded content. In the event that the account is deleted for violating the terms of service, the user's assets should be removed as well to close this loophole.
- **Develop mechanisms to identify, block and/or signpost propaganda** when it first appears to prevent the inadvertent spread of propaganda or harmful misinformation.

Empower a Federal Agency to combat digital threats to elections.

Foreign influence campaigns are sophisticated and complex; it is foolish to expect states to oppose it on their own without a coordinated, well-funded federal effort. Countering Russian influence campaigns requires both familiarity with the Russian media and a command of advanced analytic methods to be successful. These efforts must include constant monitoring of keywords and narrative themes espoused by propagandists in order to isolate their attacks from normal political discourse.

In 2018, the Trump Administration announced the formation of the Cybersecurity and Infrastructure Security Agency or CISA. The CISA is intended to support “the national capacity to defend against cyber attacks and works with the federal government to provide cybersecurity tools, incident response services and assessment capabilities to safeguard the ‘.gov’ networks that support the essential operations of partner departments and agencies.” (DHS). This agency seems equipped to combat interference or hacking attempts, but influence campaigns appear to fall outside its purview.

Rebuild local journalism

It's not enough to simply block the flood of propaganda; trustworthy media must take its place to effectively neutralize the impact of foreign interference. Rebuilding local journalism has several benefits, such as drowning out displacing fake news and reengaging voters with local issues. Both outcomes would go a long way towards

reducing the cultural polarization citizens now experience. Lawmakers should investigate and encourage ways to fund local journalism.

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