



# **Envisioning an Elections Future: Exploring the Technology, Policy, Management and Legal Environments In Voter Registration**

**Final Project Report**  
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## Executive Summary

The New York State Board of Elections (SBOE) has ensured safe and transparent elections across the state since 1974. SBOE, as a bipartisan organization with a mission to protect the integrity of elections, regularly commits resources to protect NYS' election processes from cybersecurity threats.

To vote in New York State, persons otherwise *eligible* to vote, are required to register (or enroll) before they are entitled or permitted to vote. This makes voter registration one of the most critical processes for elections in New York. Federal laws and state laws and regulations, including The National Voter Registration Act (NVRA) of 1993 and the Help America Vote Act (HAVA) of 2002, govern voter eligibility. In addition to requirements related to voter eligibility, HAVA sets forth requirements on how states must capture and manage voter registration data. Specifically, while HAVA does allow each state some flexibility in designing the management, policy, and technical aspects of their own database, each state "is to establish and maintain a statewide database".

Subsequent to the release of HAVA in 2002, states began to respond to the requirements and exercise some of the granted flexibilities. As a result, today three different approaches or models for establishing the required database have emerged. The three models, top-down, bottom-up and hybrid, have become standard reference models in discussions and decision-making about voter registration, including questions related to security and resiliency. New York State is a bottom-up state where each of NYS's 57 County Board of Elections (SBOE) and the New York City Board of Elections <sup>1</sup> manages its own voter registration database and technical environment. As a bottom-up state, counties upload their data from a local database to the statewide database, managed by SBOE.

**Standard Reference Models for Voter Registration:  
*Top-down, Bottom-up and Hybrid***

Some states adopted a single, central platform at the state level that connected to terminals in local jurisdictions. This type of system is typically referred to as a "top-down" voter registration system. Other states have a state voter registration database that gathers and aggregates information from their local jurisdictions' voter registration databases. This type of system is typically referred to as a "bottom-up" system. Other states have what is termed a hybrid system, a system with a mix of top-down and bottom-up characteristics.

As part of their charge to protect the integrity of elections, SBOE has consistently prioritized end-to-end security of voter registration. Through their statewide cybersecurity initiatives, SBOE has made a significant impact in securing NYS counties as a whole in addition to adding layers of protection to voter registration. SBOE's efforts include launching major projects in the last several years specifically focused on understanding the current state of each County Board of Elections and NYC Board of

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<sup>1</sup> In NYS there are 57 County Board of Elections and 1 New York City Board of Elections. In this report when County Board of Elections (CBOEs) are referenced, it meant both the 57 CBOEs and the 1 NYC BOE.

Elections technical environment and then funding statewide initiatives to support the counties as they addressed gaps and managed risk. These programs include statewide contracts for security assessments, intrusion sensors, and CISO services as well as standing up a grant program with dedicated funding for each CBOE and NYC Board to identify and invest based on their individual cybersecurity needs. While SBOE continues to lead these critical programs aimed at securing the current technical environment, they also recognize that it is important to envision a potential future technical environment, such as an enterprise approach to voter registration.

SBOE leaders also recognized that before they began an initiative to envision a potential future technical environment, they needed to build a shared understanding of the management, technology and legal environments in voter registration currently in place in NYS and across the United States. To do this, SBOE reached out to The Center for Technology in Government (CTG UAlbany) at the University at Albany, an award-winning global research institute, known for transforming public service through innovations in technology, policy, and management to conduct a formal analysis of voter registration environments.

CTG UAlbany led a multi sector and interdisciplinary team consisting of the Government Law Center (GLC) at Albany Law School, International Data Corporation (IDC), and the Nelson A. Rockefeller College of Public Affairs and Policy, at the University at Albany in a project entitled “Envisioning an Elections Future: Exploring the Technology, Policy, Management and Legal Environments in Voter Registration,” where six parallel investigations made up the formal analysis:

1. Clarifying Voter Registration Designations and Identifying Voter Registration Components and Alternatives
2. Examining How Federal and State Laws Shape Voter Registration in NY
3. Understanding Voter Registration Across the US
4. Modeling Voter Registration Processes in NYS Counties
5. Testing the Security and Resiliency of Voter Registration Alternatives
6. Understanding the Security and Resiliency of Voter Registration in NYS Counties

This report is the culmination of the project and presents the results of the investigations, including ten high level findings and two recommendations for next steps.

## FINDINGS

The findings are presented in three categories:

- What was learned about the three voter registration designations (Top-down, Bottom-up and Hybrid)?

- What was learned about the approach to voter registration in NYS, the threats to the security and resiliency of that approach and what alternative approaches were identified?
- What was learned from other states?

*What was learned about the three voter registration designations (Top-down, Bottom-up and Hybrid)?*

1. The EAC voter registration designations of Top-down, Bottom-up and Hybrid are useful as a starting point to understand a state's approach to voter registration. However, implementations of each designation vary across states in terms of how each state uses technology, moves data and how voter registration processes are organized and carried out.
2. Regardless of a state's voter registration EAC designation, each local jurisdiction has sole authority over a voter's record from that jurisdiction. The local jurisdiction has sole authority to approve initial registrations, changes to existing registrations and deletion of existing voter registrations.
3. The nature and extent of the variations in a state's voter registration approach are a function of decisions made by actors responsible for voter registration overall and for specific administrative processes. These decision-makers include state legislators, boards, and commissions.
4. Threats to the security and resiliency of voter registration creates risk regardless of the EAC voter registration designation.

*What was learned about the approach to voter registration in NYS, the threats to the security and resiliency of that approach and what alternative approaches were identified?*

5. NYS County Boards of Elections and NYC Board of Elections rely on their jurisdiction's information technology resources and expertise to support voter registration administrative tasks and processes.
6. Analysis of risk remediation plans shows regardless of size, all CBOE and NYC BOE face the same type and proportion of threats to the security and resiliency of voter registration.
7. NYS election laws have the flexibility necessary to modify the approach to voter registration in NYS without changes to current language within existing law.
8. States anticipating investments and/or modifications in their voter registration approach began a change management process approximately 1-3 years before they made investments, this includes establishing a formal state-local governance entity.

### *What was learned from other states?*

9. To lessen administrative burden on local jurisdictions, some states have reengineered a small number of voter registration processes with the goal of shifting some pre-processing of data to the state. These reengineering efforts are having a positive impact on security and resiliency in voter registration in addition to creating statewide data standards.
10. For a variety of reasons, the vendor environment is changing rapidly and as a consequence creating new challenges for states and counties seeking to enhance or replace current systems. Challenges include providing continuity and adaptability of election operations. Changes are taking the form of new unknown companies and mergers and acquisitions, among others.

## RECOMMENDATIONS

1. **Build Election Leaders' Awareness and Understanding of Emerging Technology Environments**
  - Conduct current practice research on software, cloud, and platform "as a service" already in use in U.S. governments, both inside and outside election operations. This study would identify the current models and uses of "as a service" in government, describe the basic characteristics of the models and shed light on the considerations and conditions where "as a service" is most appropriate. This current practice study and subsequent discussions among technical and non-technical election leaders is recommended as the foundation to inform investments in voter registration so that everyone can approach design and investment discussions with a shared understanding.
2. **Establish and Convene a Formal State-Local Elections Information Technology Advisory Body to Inform a Range of Investments**
  - Establish and convene a formal State-Local Elections Information Technology Advisory Body with the responsibility to inform state and county level investment in elections operations. This body would not replace any existing governance as set forth in laws, statues, regulations, policies, and practices in NYS elections, but rather would have responsibility to inform elections IT investment decision making. This recommendation takes this process beyond episodic engagement of stakeholders to ongoing engagement in the form of an advisory body with specific and ongoing responsibility to consider the full portfolio of IT initiatives that support election operations at both state and county levels.

## Introduction

The New York State Board of Elections (SBOE), a bipartisan agency with a mission to protect the integrity of New York's elections, has ensured safe and transparent elections across the state since 1974. Responsibility for elections is the responsibility of both state and local agencies. In some states, like New York, a state-level board works with 57 County Board of Election Commissions and Boards and 1 New York City Board of Elections. In other states, a Secretary of State is the lead responsible official for elections.

Regardless of the structure and authority, according to the Executive Director of the National Association of State Election Directors (NASED)<sup>2</sup>, elections involve seven areas of responsibility:

1. Voter Registration and Management
2. General Election Management
3. Ballots Creation and Printing
4. Voting
5. Election Night Reporting
6. Official Vote Counting and Tabulation
7. Email, General Office and County Related work

As indicated by NASED, paramount among the duties for entities overseeing elections is the process and management of voter registration. In order to vote in an election in New York, persons otherwise eligible must register (or enroll) to cast a vote.

In 2020, NYSBOE initiated a project to explore the security and resiliency of voter registration approaches in New York and other states to consider the technology, management, and legal environments in ensuring integrity in elections, specifically voter registration.

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<sup>2</sup> <https://www.nased.org/>

The purpose of *Phase One* was to generate new understanding about voter registration as a critical elections process, to develop a new understanding about alternative approaches to voter registration and to begin a preliminary exploration of the policy, management and technology investments required to increase the security and resilience of voter registration in NYS. More specifically, Phase One focused on building an understanding of the range of approaches to voter registration in place throughout the United States, to consider which approaches might provide more secure and resilient voter registration for New York. This includes identifying the investments in management, policy and technology required to enact the preferred alternatives to be realized in the state. Findings and recommendations from Phase One are intended to inform the design of Phase Two, which will focus on envisioning potential future voter registration approaches.

Of the several key pieces of legislation and frameworks to guide and inform this project, first and foremost is *The Help America Vote Act*

(HAVA) of 2002<sup>3</sup> which required states to adopt a computerized statewide voter registration list. This Act resulted in the use of three primary approaches to voter registration throughout the United States. According to the U.S. Election Assistance Commission<sup>4</sup> (EAC), “some states adopted a single, central platform at the state level that connected to terminals in local jurisdictions.” This type of system is typically referred to as a “top-down” voter registration system. Other states have a state voter registration database that gathers and aggregates information from their local jurisdictions’ voter registration databases. This type of system is typically referred to as a “bottom-up” system. Finally, some states have what’s termed a hybrid system, with a mix of top-down and bottom-up characteristics. These three designations have become standard reference models in discussions and decision-making about voter registration, including questions related to security and resiliency. As a result, the EAC designations, top-down, bottom-up and hybrid, are used throughout the project as reference points for data collection, analysis and reporting of findings and recommendations.

#### **EAC Voter Registration Designations**

The Help America Vote Act (HAVA) of 2002 required states to adopt a computerized statewide voter registration list. States responded to this requirement in different ways. Some states adopted a single, central platform at the state level that connected to terminals in local jurisdictions. This type of system is typically referred to as a “top-down” voter registration system.

Other states have a state voter registration database that gathers and aggregates information from their local jurisdictions’ voter registration databases. This type of system is typically referred to as a “bottom-up” system. Other states have what is termed a hybrid system, a system with a mix of top-down and bottom-up characteristics.

<https://www.eac.gov/statewide-voter-registration-systems>

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<sup>3</sup> <https://www.congress.gov/bill/107th-congress/house-bill/3295>

<sup>4</sup> <https://www.eac.gov/>

This project specifically focuses on voter registration and management. As such, it is important to note a key finding from the legal analysis carried out in the project; regardless of the institutional and organizational structure in place in a state, authority for approving voter registration records is exclusively assigned to county-level election officials.

This is an important point as this project is not to recommend a change in this assignment of authority, but rather examining alternative approaches to implementing voter registration that would both enable counties to meet their statutory authority and for states and counties together to meet their obligations to provide secure and resilient elections.

A key area of exploration in this project was to gain a better understanding of security and resiliency in voter registration. To that end, the team identified important questions that served as a guide in the exploration. One specific question, “Is there a technology environment and set of business processes in voter registration that are more secure and resilient than the one in place in NYS?” offered an opportunity to look at several voter registration approaches through a cybersecurity lens. A review of the existing cybersecurity frameworks from the National Institute of Science and Technology (NIST), Cybersecurity and Infrastructure Security Agency (CISA), The MITRE Corporation, and the Center for Internet Security (CIS), provided a foundation for a high-level assessment of voter registration.



**NIST Cybersecurity Framework 1.1**  
<https://www.nist.gov/cyberframework/framework>

Exploring security and resiliency specifically through the lens of the NIST framework (identify, protect, detect, respond, and recover) helped the team articulate another important finding that cybersecurity risks exist in all voter registration designations. The only way to manage the risk is to design and implement a voter registration approach where risk management responsibilities are placed with the stakeholders that have the most capability and capacity. This was an important finding as voter registration responsibilities in New York are distributed among state and local agencies and technology providers, with all three assuming some portion of risk, with a majority of risk with counties.

The experiences of other states presented critical aspects of voter registration such as a range of voter registration systems, staff and operations, intergovernmental relations, governance models, and the vendor environment. The experiences contribute to the collective understanding of what is considered a voter registration approach within a state. In addition, a look into the voter registration

processes in NYS and analysis of current county risk remediation plans brought to the forefront some of the mechanisms that are working and the challenges that continue to exist.

Throughout the explorations, both the project team and the NYSBOE team found a number of terms that were used interchangeably but in fact were used to mean different things. This prompted the need for an explicit discussion of specific terms and phrases, and for the teams to be intentional and deliberate in the use of these terms and phrases. The result was more clarity and specificity in discussions; but this continues to be a challenge.

With those challenges in mind, it is important to provide insights on the terms that are used in this report so that we can continue to bring clarity to the overall discussion on voter registration. To that end, in this report the following terms are used for voter registration categorizations:

- The term “Voter Registration Designations” is the EAC description of categorizations and while this is useful, it doesn’t represent all the areas of how voter registration is carried out.
- The term “Voter Registration Approach” is used to represent a state’s laws, policies, regulations, organizational structure, management practices, governance, training, technology architecture and business processes currently in place. Approach was used to be more encompassing than the “Designation” definition.
- In order to conduct a security resiliency and legal analysis on voter registration, “Voter Registration Alternatives” were created drawing on both the descriptions of “designations” and “approaches.” The alternatives added details of statewide local participation and specific technology choices. Again, the alternatives were created only for the purposes of carrying out the analysis in this project.

Along the same lines and for the purpose of this report, the term “environment” is used in several contexts to encompass all the factors, components, and decisions of that specific area. For example the term “technology environment” is used to encompass all of the technology choices including, but not limited to, software, hosting, data management and use, and network infrastructure at state and local levels in voter registration. In using the word environment, the intent was to include everything associated with the environment so as not to leave anything out.

The words used to categorize and describe aspects of voter registration in this report do not completely alleviate the challenges associated with shared terminology but rather it offers a baseline for considering the findings and recommendations.



Finally, this report brings together these explorations to generate new understanding about voter registration as a critical elections process, to develop a new understanding about alternative approaches to voter registration and to begin a preliminary exploration of the policy, management and technology investments required to increase the security and resiliency of voter registration in NYS. The report is organized into three sections. Section One provides an overview of the six streams of work that comprised the project approach. Section Two presents the findings, while Section Three provides the recommendations.

## Section One: SIX PARALLEL STREAMS OF INVESTIGATION

Phase One was carried out by a team from the Center for Technology in Government at the University at Albany (CTG UAlbany), the Government Law Center (GLC) at Albany Law School and International Data Corporation (IDC). With CTG UAlbany as lead partner and working from January to September 2021, the team carried out six parallel investigations. The nature of the investigations varied from examinations of the use and relevance of key terms and phrases to specific processes carried out by counties in NYS as part of voter registration. Some investigations brought experts together for interviews and modeling sessions, others focused on previously collected data and finally one was a legal analysis of current elections legislation at both the federal and state level. The design and results to-date of each investigation were presented and discussed with SBOE during project workshops. These discussions were used to reflect on findings to date and to refine the investigations themselves. Results from the six investigations provide the basis for the findings and the recommendations presented below.

1. *Clarifying Voter Registration Designations and Identifying Voter Registration Components, and Alternatives*
  - A review of definitions of top-down, bottom-up and hybrid designations from the U.S. Election Assistance Commission (EAC) and National Conference of State Legislatures (NCSL)
  - Identification and discussion of components of voter registration as described by U.S. state election leaders
  - Identification and discussion of voter registration alternatives with component descriptions and classifications within the top-down, bottom-up and hybrid designations
2. *Examining How Federal and State Laws Shape Voter Registration in NY*
  - A review of all federal and state election laws with a focus on descriptions of information technology and data requirements in voter registration
  - Identification and discussion (with NYS election leaders) of the potential issues and arguments associated with voter registration alternatives
  - Review of the state of Washington's election law for the purposes of learning how they changed their voter registration approach without changing any language within their laws
3. *Understanding Voter Registration across the U.S.*
  - Discussion with national and state election leaders in identifying which states were the best candidates for interviews in the three EAC designations (top-down, bottom-up and hybrid)
  - Interviews with state election leaders from nine states (Illinois, Texas, Virginia, Colorado, New Jersey, Washington, Ohio, California and Florida)
  - Discussion of results with NYSBOE leaders

4. *Modeling Voter Registration in NYS*

- Identification of the range of approaches to voter registration in NYS
- Conducted interviews with election commissioners and IT leaders to gain their insights on voter registration across a range of approaches
- Developed high-level voter registration process maps based on data collected in interviews
- Discussion of maps and other findings with NYSBOE

5. *Testing the Security and Resiliency of Voter Registration Alternatives*

- Review of security and resiliency frameworks from the National Institute of Science and Technology (NIST), Cybersecurity and Infrastructure Security Agency (CISA), The MITRE Corporation and the Center for Internet Security (CIS)
- Creation of a tool to conduct a high-level assessment of the security and resiliency of voter registration alternatives
- An alpha test of the tool with a small number of public administration and information technology experts
- Discussion of results of security and resiliency alpha test with elections leaders

6. *Understanding the Security and Resiliency of Voter Registration in NYS Counties*

- A review of NYS county risk remediation plans to identify the types of risk based on the “very high” and “high” action items
- Assignment of all very high and high action items into type categories for analysis
- Discussion of risk analysis by type and size of county for enhanced understanding of overall risk to CBOEs in NYS

## Section Two: FINDINGS

Ten findings emerged from the project team analysis and discussions with the NYSBOE. The findings are presented in three categories:

- What was learned about the three EAC voter registration designations (Top-Down, Bottom-Up and Hybrid)?
- What was learned about the approach to voter registration in NYS, the threats to the security and resiliency of that approach and what alternative approaches were identified?
- What was learned from other states?

What Was Learned?	
CATEGORY	FINDING
What was learned about the three voter registration designations (Top-Down, Bottom-Up and Hybrid)?	<b>FINDING #1:</b> The EAC voter registration designations of top-down, bottom-up and hybrid are useful as a starting point to understand a state’s approach to voter registration. We found many variations in how states use technology, move data and how they organize and carry out voter registration processes within each designation.
	<b>FINDING #2:</b> Regardless of a state’s voter registration EAC designation, each local jurisdiction has the sole authority over the record of a voter from that jurisdiction. The local jurisdiction has the sole authority to approve initial registrations, changes to existing registrations and deletion of existing voter registrations.
	<b>FINDING #3:</b> The nature and extent of the variations in a state’s voter registration approach vis-a-vis that state’s EAC designation, are a function of decisions made by actors responsible for voter registration overall and for various voter registration administrative processes, including the state legislature and various accountable officials, boards, and commissions.
	<b>FINDING #4:</b> Threats to the security and resiliency of voter registration creates risk regardless of the EAC voter registration designation.
What was learned about the approach to voter registration in NYS, the threats to the security and resiliency of that approach and what alternative	<b>FINDING # 5:</b> NYS County Boards of Elections and NYC Board of Elections rely on their jurisdiction’ information technology resources and expertise to support voter registration administrative tasks and processes.
	<b>FINDING #6:</b> Analysis of risk remediation plans shows regardless of size, all CBOE and NYC BOE face the same type and proportion of threats to the security and resiliency of voter registration

<p>approaches were identified?</p>	<p><b>FINDING #7:</b> NYS’s election laws have the flexibility necessary to modify the approach to voter registration in NYS without changes to current language within existing law.</p>
<p>What was learned from other states?</p>	<p><b>FINDING #8:</b> States anticipating investments and/or modifications in their voter registration approach began a change management process approximately 1-3 years before they made investments, this includes establishing a formal state-local governance entity.</p>
	<p><b>FINDING #9:</b> To lessen administrative burden on local jurisdictions, some states have reengineered a small number of voter registration processes with the goal of shifting some pre-processing of data to the state. These reengineering efforts are having a positive impact on security and resiliency in voter registration in addition to creating statewide data standards.</p>
	<p><b>FINDING #10:</b> The dynamic voter registration vendor environment presents challenges in terms of ensuring continuity and adaptability of election operations.</p>

**FINDING #1:** The EAC voter registration designations of top-down, bottom-up and hybrid are useful as a starting point to understand a state’s approach to voter registration. We found many variations in how states use technology, move data and how they organize and carry out voter registration processes within each designation.

- The United States Election Assistance Commission’s (EAC) designation of *Top-Down*, *Bottom-Up* and *Hybrid* provides three general approaches to voter registration in place across the U.S. While these designations signal an intent, our investigation shows that no state is “purely” Top-Down, Bottom-up or Hybrid. Examinations of the variations found in states considered to be “Top-Down” show that these states, for example, use technology and establish data flows and business processes in very different ways.
- The EAC designation is useful to the extent that it communicates an intention. It is essential that those involved in discussions about alternatives to voter registration in NYS see the designations as a starting point for discussions about voter registration.

**FINDING # 2:** Regardless of a state’s EAC voter registration designation, authority to change the record of a voter from that jurisdiction is the sole authority of the responsible officials in that jurisdiction.

- The authority to modify a voter’s record always rests with the local jurisdiction regardless of the state’s designation of top-down, bottom-up, or hybrid. Even in states with a top-down designation, i.e., data is being pre-processed at the state level prior to flowing to the local jurisdiction, the local jurisdiction has sole authority to make an eligibility determinations and to make changes to a voter’s record.
- This finding is relevant to the discussion of voter registration, in particular, to allay assumptions that a designation other than bottom-up means that the state assumes authority in eligibility determination and making changes to a voter’s record. In all states, regardless of designation, the local jurisdiction has the sole authority to make eligibility determinations and to make changes to a voter’s record.

**FINDING # 3:** The nature and extent of the variations in a state’s voter registration approach vis-a-vis that state’s EAC designation, are a function of decisions made by actors responsible for voter registration overall and for various voter registration administrative processes, including the state legislature and various accountable officials, boards, and commissions.

- Variation in how states carry out voter registration is in part due to the legal framework in place in each state and to state-specific decisions on the design and implementation of the relevant technology, process and management environments. For example, an analysis of the states shows variations in the choice of software and responsibility for various administrative tasks such as identifying duplicate records.
- This finding is important to the discussion of voter registration because it highlights that each state can make choices about voter registration that are consistent with their existing legal and administrative frameworks, or they can choose to evolve or refine those frameworks to adapt to new opportunities for increasing security and resiliency of voter registration through changes to those frameworks or in some cases, simply through innovations in management, policy and technology within the existing legal framework.

**FINDING # 4:** Threats to the security and resiliency of voter registration creates risk regardless of the EAC voter registration designation.

- Cybersecurity threats are a constant. Capability to identify and manage those threats to reduce risk is critical to the NYSBOE’s ability to ensure elections integrity in NYS. Each EAC designation represents, in general, an approach to distributing the management, policy and technology responsibilities for administering voter registration. Each approach presents its own unique cybersecurity threats and requires consideration of the best strategy for identifying and managing related risk. Risk potential increases when the capability to identify and manage risk is limited. For example, in bottom-up states like NYS, where the state voter registration database gathers and aggregates information from local jurisdictions’ voter registration databases, managing the cybersecurity threat relies, in part, on the cybersecurity expertise of the IT leadership within the counties and NYC. In the current environment, if the SBOE was to assume responsibility to identify the collective threat to voter registration in NYS, they must have visibility into the different voter registration databases and the local IT environment responsible for those databases. Changes in the technical environment, such as providing centralized hosting, provide an example of an alternative that reduces risk.
- This finding is critical to discussions about voter registration as changes in the technology environment may allow placement of the most cyber risk with the stakeholder with the greatest capacity and capability to manage the risk.

## WHAT WAS LEARNED IN NYS VOTER REGISTRATION PRACTICES ABOUT THE APPROACH, THREATS AND POSSIBILITIES?

**FINDING # 5:** NYS County Boards of Elections and NYC Board of Elections rely on their jurisdiction’ information technology resources and expertise to support voter registration administrative tasks and processes.

- In NYS, the technical environment that supports voter registration is managed by the County. In some cases the county IT department works to support CBOE leaders in supporting voter registration functions which might include procurement, implementation and management of voter registration systems as well as the network infrastructure that connects to the state’s technology environment. In other cases, all the decisions are made by CBOE leaders and the system is managed by the vendor. In either case, the County assumes the responsibility for their technology environment which means assuming

responsibility for securing those systems. Therefore, voter registration at the county level is reliant on the capability, capacity and resources of each county. This creates challenges for state IT leaders in terms of having little visibility into the county technology environment and it limits the ability of NYSBOE to assess county cybersecurity capability and capacity to identify and manage risk to the security and resiliency of voter registration.

- This finding is important to the discussion of voter registration in NYS as it recognizes that in NYS there is a number of IT departments and contracted vendors as stakeholders with significant responsibility for managing cyber risk to voter registration. Most importantly, it draws specific attention to the need for the analysis of capability and capacity to identify and manage risk within each county in the current approach to voter registration in NYS and the need to closely examine the alternative approaches that might strengthen security and resiliency overall and reduce concerns about the “weakest link”.

**FINDING # 6:** Analysis of risk remediation plans shows regardless of size, all CBOE and NYC BOE face the same type and proportion of threats to the security and resiliency of voter registration

- Each NYS CBOE and NYC Board was required by NYSBOE to develop a risk remediation plan based on the findings from the recent cyber risk assessment. The risk remediation plans specify the actions necessary to address the cyber risks through the assessment. Actions are designed to address risks according to four categories: Very High Risk, High Risk, Moderate Risk and Low Risk. A comparative analysis of the risk remediation plans shows that for the Very High and High risk categories, regardless of size of jurisdiction, are facing the same type and proportion of security and resiliency risks. Very High and High actions fall into the following seven categories: 1) firewall rules, 2) network events, 3) outdated hardware, 4) outdated software, 5) policies, 6) segmentation, and 7) server settings.
- This is an important finding as it addresses a common misconception that larger jurisdictions have less cyber risk than smaller ones due to greater availability of resources.

**FINDING #7:** NYS’s election laws have the flexibility necessary to modify the approach to voter registration in NYS without changes to current language within existing law.

- A review of federal and state laws (as related to voter registration in NYS) determined that there is flexibility within current law to modify the state’s voter registration approach. Since all voter registration designations (top-down, bottom-up, and hybrid) place the sole authority of eligibility determination with the CBOE, the review looked at the legal implications on the technology, management, data and process environments and found

that modifications could be argued within the current legal language. Even with a small number of potential issues in the language, the review showed that all issues are arguable and have the potential for resolution without changes to current language.

- This finding is important to the discussion on voter registration as it makes clear that the NYSBOE can consider modifications in voter registration technology, management, data and process environments within the current legal framework in NYS. It removes the concern that changes to the current voter registration approach in NYS are not consistent with NYS's law and provides a new context within which state and county election leaders can engage in discussions about new approaches to ensuring the security and resiliency of voter registration in NYS.

## WHAT WAS LEARNED FROM OTHER STATE'S EXPERIENCES?

**FINDING #8:** States anticipating investments and/or modifications in their voter registration approach began a change management process approximately 1-3 years before they made investments, this includes establishing a formal state-local governance entity.

- Interviews with state election leaders from across the U.S. highlighted a focus on change management, intergovernmental advisement, and governance as first steps before changes in voter registration technology, data and management environments were made. State leaders noted that starting change management early, at least a year in advance of any investment, was critical to create the necessary buy-in and support from key stakeholders. Attention to change management and intergovernmental support in these states included assigning responsibility for relationship management and developing advisory and governance bodies with both state and local membership. The introduction of change management principles to both county and state staff helped state leaders identify and address challenges before investments in new processes and technologies were made and the creation of a governance body was found to be important as a platform for ensuring transparent and coordinated investments in voter registration.
- This finding is important to the discussion on voter registration because it highlights the importance of early investments in coordinated and intentional intergovernmental relationships across all state and local government entities involved in elections. The analysis shows the value of a formal advisory body of stakeholders engaged in transparent

and coordinated activities focused on ensuring the security and resiliency of voter registration in NYS.

**FINDING #9:** To lessen administrative burden on local jurisdictions, some states have reengineered a small number of voter registration processes with the goal of shifting some pre-processing of data to the state. These reengineering efforts are having a positive impact on security and resiliency in voter registration in addition to creating statewide data standards.

- The comparative analysis of states shows that, increasingly, states are reengineering a number of processes and shifting the administrative burden of pre-processing of voter registration data from the county to the state. These reengineering efforts are not changing authority over a voter's record, but rather take advantage of new technologies, such as cloud.
- States noted that as the number of voter registration intake mechanisms increase, so does the administrative burden associated with processing these voter registrations and making them ready for review and approval by the local jurisdiction.
- Reengineering was found to advance data standardization efforts whereby preprocessing such as reconciliation of data from multiple sources. Several counties identified that the voter registration data coming from a range of state and local sources could be a launching point for a reengineering effort whereby there is a focus on standardization and uniformity.

**FINDING #10:** The dynamic voter registration vendor environment presents challenges in terms of ensuring continuity and adaptability of election operations.

- States with new investments in voter registration technology described several vendor-related challenges. The first challenge relates to the capability and capacity of vendors to respond to frequent changes in system requirements stemming from new legislation and process improvements. While there are states that have worked through these challenges, others have chosen to discontinue their vendor contracts and brought system responsibilities in-house. This change has required significant investment in IT capability and capacity. The second challenge reported results from changes in the vendor market.

States reported seeing a growing number of vendors in the voter registration space as well as changes in companies due to mergers and acquisitions of voter registration vendors. State election leaders described the work required to develop requirements and vet new vendors as well as the impact on state efforts.

- Some states reported how the changing vendor ownership landscape has an impact on a vendor's ability to continue to meet the needs of election operations. In addition, they reported that managing vendor relationships requires an increasing amount of time and attention from state and local leaders. This finding is important in the discussion of voter registration because vendors play a significant role in election operations at all levels, and in particular, have a significant impact on security and resiliency of elections infrastructure including voter registration.
- Vendor selection and management becomes even more important when considering a voter registration approach that places a majority of the cyber security and resiliency responsibilities with the vendor.

## Section Three: RECOMMENDATIONS

Two recommendations emerged from the Envisioning Elections Future Reflection Workshop, held on July 29, 2021 with the project team and the NYSBOE team. These recommendations are intended to inform decision making about next steps in envisioning an elections future in NYS and to outline some specific actions that state and local election leaders can begin to take toward ensuring the security and resiliency of voter registration in NYS.

### 1. Build Election Leaders' Awareness and Understanding of Emerging Technology Environments

- A current practice research on software, cloud, and platform “as a service” in U.S. governments, both inside and outside election operations, is recommended to ongoing discussions about investments in voter registration.
- Industry experts already state that “as a service” arrangements can have security and resiliency benefits in both automation of critical functions and access to expert cyber risk management but there are tradeoffs that must be considered.
- This study would identify the current models and uses of “as a service” in government, describe the basic characteristics of the models and shed light on the considerations and conditions where “as a service” is most appropriate.
- Discussions among election leaders on the results of the study are an important step in building a shared understanding in order to inform a range of investments.
- This work is an investment in raising the collective level of understanding about the use of these emerging technologies in the public sector.

### 2. Establish and Convene a Formal State-Local Elections Information Technology Advisory Body to Inform a Range of Investments

- Establishing and convening a formal State-Local Elections Information Technology Advisory Body with the responsibility to inform state and county level investment in elections operations is recommended. This body would not replace any existing governance as set forth in laws, statutes, regulations, policies, and practices in NYS elections, but rather have the responsibility to inform elections IT investment decision making.
- State election leaders outside of NY noted that attention to state-local relationships was imperative and establishing more formal advisory and governance bodies before investments were made was critical to their successful outcomes. To date, NYSBOE has

worked with stakeholders to inform individual IT initiatives and new investments, and this has worked well.

- Agenda items that this advisory body will consider are to 1) review the portfolio of IT and modernization efforts, 2) participate in envisioning exercises on potential and alternative future technology and process environments, and 3) explore more uniformity in a small number of voter registration processes through a reengineering analysis study. These efforts are all carried out with the overall goals of ensuring security, resiliency, efficiency and effectiveness.
- This recommendation takes this process beyond episodic engagement of stakeholders to ongoing engagement in the form of an advisory body with specific and ongoing responsibility to consider the full portfolio of IT initiatives that support election operations at both state and county levels.