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EXECUTIVE SUMMARY
Written Testimony of Charles Stewart III
Kenan Sahin Distinguished Professor of Political Science, MIT
Co-Director of the Caltech/MIT Voting Technology Project
Before the U.S. Senate Committee on Rules and Administration

May 14, 2014

THERE IS A NEED FOR A MORE DATA-CENTERED APPROACH TO ELECTION ADMINISTRATION.
Election policymaking would greatly benefit from metrics-based policymaking, and the development of measures similar to those in policy areas like education and health care.

Elections are awash in data, managing elections is increasingly metrics-driven, and a growing network of experts is dedicated to a metrics-based approach to improving elections.

A major barrier to the development of metrics-based election administration is uncertainty about the future of the EAC.

THE TWO MOST IMPORTANT DATA-COLLECTION EFFORTS IN ELECTION ADMINSITRATION ARE FEDERAL PROGRAMS THAT NEED TO BE SUPPORTED AND STRENGTHENED.
Two federal data programs, the Voting and Registration Supplement of the Current Population Survey and the Election Administration and Voting Survey (EAVS) conducted by the EAC, are indispensable data tools for the assessment of election policy in the United States.

The EAVS is the only federal statistical program that gathers data about election administration across all local units of government in the U.S.

The future of the EAVS is jeopardized because of gridlock surrounding the EAC's future.

LOCAL GOVERNMENTS NEED HELP IN CONVERTING THE MOUNTAIN OF DATA GENERATED IN ELECTIONS INTO USEFUL INFORMATION TO BETTER MANAGE FUTURE ELECTIONS.
Local governments need better access to transaction data generated by voting equipment on Election Day in order to manage administrative burdens in conducting elections.

There may be a federal role for the creation of a focused grant program aimed at creating computer applications to turn transaction data into useful planning information.

The federal government should continue to support and encourage efforts to establish data standards that would allow the seamless sharing of data across election equipment platforms.

Systems need to be developed so that the gathering and reporting of data for the purpose of running elections more effectively do not add even more burdens to local election officials.

Biographical Information

Charles Stewart III is the Kenan Sahin Distinguished Professor of Political Science at the Massachusetts Institute of Technology, where he has taught since 1985. His research and teaching areas include voting technology, election administration, congressional politics, and American political development.

Since 2001, Professor Stewart has been a member of the Caltech/MIT Voting Technology Project, a leading multidisciplinary research effort that applies scientific analysis to questions about election technology, election administration, and election reform. He is currently the MIT director of the project. He has provided assistance to the Pew Charitable Trusts in the development of the Election Performance Index. Professor Stewart is an established leader in the quantitative analysis of the performance of election systems and administration.

Professor Stewart has published numerous scholarly books and articles. Most recently he has co-edited *The Measure of American Elections* (with Barry C. Burden, Cambridge University Press, forthcoming) co-authored *Fighting for the Speakership* (with Jeffrey A. Jenkins, Princeton University Press, 2013), and authored *Analyzing Congress* (Norton, 2nd ed., 2012).

Professor Stewart has been recognized at MIT for his undergraduate teaching, being named to the second class of MacVicar Faculty Fellows in 1994, awarded the Baker Award for Excellence in Undergraduate Teaching, and received the Class of 1960 Fellowship. Since 1992, he has served as Housemaster of McCormick Hall, along with his spouse, Kathryn Hess.

Professor Stewart, a Fellow of the American Academy of Arts and Sciences, received his B.A. in political science from Emory University, and an S.M. and Ph.D. in political science from Stanford University.

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Chairman Schumer, Ranking Member Roberts, and distinguished members of the Committee: thank you for the opportunity to speak with you today about the collection, analysis, and use of election data to improve elections for all Americans.

I am a professor of political science at MIT, where I have taught and conducted research about American politics for twenty-nine years. For the past decade, I have also been the co-director of the Caltech/MIT Voting Technology Project (VTP).

In my association with the VTP, I have been especially interested in the challenge of creating metrics so that we can know whether the efforts we undertake and the dollars we spend to improve elections are actually doing the job. I have also had the privilege of working with the Pew Center on the States to help bring to fruition their Elections Performance Index (EPI, which David Becker will speak more about), and have co-edited (with Prof. Barry C. Burden of the University of Wisconsin) a forthcoming book about the use of metrics to assess the quality of elections in America. (The book's title is *The Measure of American Elections,* and will be published by Cambridge University Press at the end of the summer.)

The remarks I will make today are drawn heavily from these experiences. I also rely on a white paper I coauthored with Professor Daron Shaw of the University of Texas for use by the Presidential Commission on Election Administration (PCEA) about the use of election data in election administration. I would happily make available to the committee the draft of the book with Professor Burden and the PCEA white paper, if the committee would find them useful.

In today's testimony, I want to touch on three major points.

1. There is a need for a more data-centered approach to election administration in the United States.

2. The federal government is responsible for the two most important data-collecting efforts related to election administration; these efforts need to be supported and strengthened.

3. Local governments need help in converting the mountain of data that is generated in the conduct of elections into information they can use to better manage elections.

1. THERE IS A NEED FOR A MORE DATA-CENTERED APPROACH TO ELECTION ADMINISTRATION.

How well are American elections run? How would we know the answer to this question?

In my experience, whenever this question is posed, it is common to answer from the position of deeply held beliefs, but rarely from the position of a systematic analysis of facts. These beliefs might arise from partisanship, such as when we are happy to judge an election well-run when our candidate wins. Or, these beliefs might be based on tradition — a well-run election is one that is conducted the way we have always done things.

Rarely are answers to the question about how well elections are run rooted in hard facts, such as statistics about how easily people could find their polling place, or how many voters were confused by ballot design, or how long people had to wait to vote.

When facts intervene, they rarely are presented in a systematic fashion. Opinions about levels of voter fraud might be due to a viral YouTube video. Satisfaction with a new electronic voting machine may be illustrated by a picture of a smiling citizen coming out of the precinct with an "I Voted" sticker stuck to her lapel. Disdain about the ability of local governments to run elections might follow from a newspaper article detailing yet another season of long lines outside polling places in Florida (or South Carolina, or Maryland, or …).

This approach is evaluation-by-anecdote.

In contrast, consider how we approach similar questions about other policy areas: "How good are America's prisons?" or "How good are America's schools?" or "How good is America's health care system?"

Some people surely would respond based on fact-free beliefs, and others would respond with a random story about the experience that one's cousin had with one of these institutions. However, it would not be difficult to discover basic facts about these other policy domains. It would take little effort to find out, for instance, what the re-incarceration rates were in each state, or the ranking of fourth graders on the reading portion of the National Assessment of Educational Progress, or the infant mortality rate in each state.

None of the statistics just referenced is the be-all-and-end-all of the questions about how well the prison systems, schools, and health systems work in the states. The point is that in each of these policy domains, significant effort is poured into defining measures of policy input and output consistently across states, multiple measures of system performance are regularly reported through a federal agency, and entire professions have grown up to analyze these data. Despite the fact that answers to policy questions about criminal justice, education, and health care are legitimately informed by political values and deeply held personal beliefs, even committed ideologues ground their appeals in statistics when they argue about policy; some

will even be convinced they are wrong if the facts are against them. The data provide a common starting point.

In other words, an obvious way to begin addressing questions about the state of public policy in these other important areas would be to draw upon a large body of data about the performance of these institutions and policy systems.

To return to elections, the correct strategy to overcome debilitating partisan conflict over election administration involves grounding debates over policy in hard facts. The success of the PCEA and the widespread embrace of its report, no doubt, are due to the Commission's attention to the facts — some of which challenged conventional orthodoxies. The task before us is perpetuating the model provided by the PCEA of bipartisan problem-solving guided by data.

The good news and the bad news

There is good news and bad news in the effort to make election administration and election policymaking more fact-based. The good news is that elections are awash in data, more attention is going into collecting and reporting data that can be used to help manage elections than a decade ago, and there is a growing network of election officials, academics, and other experts who are dedicated to the cause of a more metrics-based approach to diagnosing and fixing problems in the administration of elections.

The bad news is that there are challenges and barriers to the further development of a metrics-based approach to election administration. The big barrier is continued uncertainty about the future of the EAC, which threatens the future of the most important data collection effort in the area of election administration and has slowed down the development of data sharing standards that would facilitate innovation, in translating election data into useful management information.

There are smaller barriers, too. One of these is the role of localism in the conduct of elections. Elections are primarily a state responsibility, which most states have addressed by making election administration a local responsibility. There are benefits to such decentralization, including greater trust among voters in the fairness of the voting process. But there are costs, too, that must be accounted for.

From the perspective of developing a metrics-centered approach to election administration, localism makes it more difficult for similarly situated jurisdictions to learn from each other, because similarly situated jurisdictions often use different vocabularies to talk about the same things. (George Bernard Shaw's quip about Great Britain and the United States being nations separated by a common language seems apt here.) Election administrators in small jurisdictions are often poorly equipped to use modern management approaches to conduct elections. Finally, an under-appreciated consequence of localism is that it creates a fragmented

market for election equipment manufacturers, which hinders the development of information-technology solutions that might help local officials manage based on systematic measures of performance.

A map of election administration data

For data to be useful in improving any area of public administration — not just election administration — it must exhibit two critical characteristics. First, it must conform to the units of government where policy is made and implementation occurs. Second, it must be comparable across units.

In the United States, virtually every level of government is in a position to set policy and pass laws that influence how elections are conducted. These different levels of government are all involved in implementing laws that affect the convenience and integrity of elections. In addition, precincts are a unit of government where policy is generally not made, but in which the implementation of federal, state, and local laws can significantly influence the actual experience of voters. A comprehensive data portrait of election administration in the United States would have indicators of the outcomes of election administration at all these levels.

There are, in fact, data sources that address election administration at all these levels, some of which are noted in Table 1 below. Note that the sources at the finer levels of analysis can be aggregated up, the best example being voting machine totals that can be added up to provide election returns at the precinct, county, state, and national levels.

Table 1. Levels of administration and available election administration data

Level of govt.	Data source	Producing agency	Description
State	Current Population Survey, Voting and Registration Supplement	U.S. Census Bureau	Survey data about voter participation and registration patterns
Local (county/ municipal)	Election Administration and Voting Survey	U.S. Election Assistance Commission	Counts of the number of voters participating in elections — registration, absentee, UOCAVA, provisional ballot statistics. Counts of precincts, election workers, and voting machines
Precinct	Election returns	State and local election departments	Number of votes cast for candidates and the number of voters who turned out at the polls
Voting machine	Various log files	Local election departments	Voting machines record "events" associated with using the equipment.

Table 1 contains a row for "voting machine," even though it is not a unit of government. It is included to emphasize the fact that individual items of voting equipment may be the source of

data that provides information about the administration of elections, beyond just the vote totals. I say more about this below.

Table 1 excludes one very useful source of data that is generally maintained in cooperation between state and local governments — voter registration lists. Not only do the registration lists record how many people are registered statewide and in individual jurisdictions, they can also provide information about the number of people assigned to each precinct, how many people voted in each precinct, and (in some cases) the date and location of voting for early voting.

The second important desired feature of policy-relevant data is that it should be comparable across different units. A single data point — such as the number of registered voters in a precinct — is not very informative unless it can be compared to a data point that comes from a similar unit — such as the number of registered voters in another precinct. In addition, comparing two data points is uninformative if the data mean different things in the two places. If the first precinct is in a state that accounts for active and inactive voters in the count of registered voters, while the second precinct is in a state that only accounts for active registrants, the comparison is of limited use.

The issue of comparability is a major one in the field of election administration. For some administrative processes, there sometimes seems to be as many definitions for common terms as there are states or counties.

For instance, in the Election Administration and Voting Survey (EAVS), which is administered biennially by the U.S. Election Assistance Commission (EAC), counties are asked to report "the total number of people in your jurisdiction who participated" in the most recent federal election, a quantity we can use to define "turnout." They are also asked to report the method used to reach this quantity. Of the localities responding in 2012, 1,448 based their turnout report on actual ballots counted, 1,071 based their report on the number of voters checked off the voter list plus the number of absentee ballots, 336 used the total number of votes cast for president, 563 ran a report of the number of voters according to the electronic voter history file, and 518 reported using "other" methods. Experience has shown that these methods all yield similar results, but they do not yield *identical* results.

As mentioned above, localism is a feature of American election administration that hampers the development of a common body of knowledge about how policies affect the convenience and security of voting. Localism also hampers the development of technologies to assist state and local election officials do their jobs better. The EAVS is an invaluable resource in this setting, to the degree it has gotten the election administration community to speak more of a common language — or at least to understand each other's languages better — and has provided hard facts that help similarly situated jurisdictions learn from each other.

2. THE FEDERAL GOVERNMENT IS CURRENTLY RESPONSIBLE FOR THE TWO MOST IMPORTANT DATA-COLLECTION EFFORTS RELATED TO ELECTION ADMINISTRATION; THESE EFFORTS NEED TO BE SUPPORTED AND STRENGTHENED.

The federal government has played an indispensable role in the collection of critical data that informs our understanding of how well elections are conducted in the United States. The most visible of these efforts are two data products, the Voting and Registration Supplement (VRS) of the Current Population Survey and the Election Administration and Voting Survey (EAVS) conducted biennially by the EAC.

The VRS has long been familiar to the election administration and reform communities because it is the most important national survey that tracks voter turnout and registration patterns. As the name implies, it is a supplement to the monthly Current Population Survey (CPS), which is sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics, primarily to gauge labor market dynamics. Every two years in November, a large subset of the CPS sample is asked a small number of questions, about whether they voted in the most recent federal election, the mode they used to vote (in-person on Election Day, in-person at an early voting site, or absentee/by-mail), whether they are registered, and reasons for non-voting and non-registration (among those who report not voting and not registering, respectively).

The VRS's large sample of voters in each state and the District of Columbia allows the examination of voting and registration trends at a level of detail that is simply impossible through other means. Its long history, stretching back to the 1960s, provides an invaluable time series of turnout and registration patterns that allows policymakers and the public to see clearly the impact of federal election laws over time, such as the Voting Rights Act of 1965 and the NVRA. The VRS's laser-like focus on two questions, turnout and registration, makes it the best data source by which to understand these issues.

Because the VRS has a distinguished history and has been responsible for the core knowledge we have about turnout and registration dynamics, I will say no more about it than to urge its continued support.

<u>The EAC's Election Administration and Voting Survey: An invaluable resource</u>

Instead, I would like to focus attention on a newer data program, the EAC's Election Administration and Voting Survey (EAVS). Beyond the fact that it is a national survey, the value of the EAVS comes in its comprehensive coverage of *all* local election jurisdictions — that is, the units of government that are the most directly responsible for administering elections — and its attention to comparability. Therefore, it is more properly considered a national election administration and voting *census.*

Before the EAVS was begun in 2004, the only data available at the level of the local jurisdiction to help inform election policymaking nationwide was the number of votes cast for candidates

for federal office, but that was available only if scholars and policymakers contacted each state elections division separately. Other basic facts, such as the number of absentee ballots mailed out and returned, the number of voting machines, the number of new registrations that were rejected and the number of overseas military ballots mailed out were simply unknown. The EAVS survey instrument collects data for about 618 distinct metrics that are useful in painting a comprehensive portrait of the performance of American elections.

The EAVS experienced growing pains in its earliest years, both in terms of settling on the items to include in the survey and in the ability (or willingness) of local jurisdictions to respond. These challenges are well documented in the EAC's 2004 "Election Administrator Survey Report." However, the 2012 EAVS saw nearly universal participation by local governments.

One measure of local government participation in the EAVS is the "data completeness" measure that is contained in the Pew EPI. Rather than expect all local jurisdictions to respond to all the minute details of the survey, the Pew data completeness measure identifies seventeen high-level items on the EAVS that are necessary for monitoring the basic performance of elections at the local level. These are items such as the number of new registration forms processed and the number of absentee ballots requested and mailed out to voters. A particular state's "data completeness score" is simply the percentage of these seventeen items that the jurisdiction reported. The nationwide data completeness score is the average of all the local scores, weighted by the size of the jurisdiction.

The nationwide average data completeness scores were 86% in 2008 and 94% in 2010. For 2012, completeness was 95%.

Comparability is another feature of the EAVS that can be easily overlooked. One way that the EAVS helps to ensure the comparability of the data across jurisdictions is through its Statutory Overview. The Statutory Overview, which is published alongside the quantitative data gathered via the EAVS, first of all provides a summary of state laws that are relevant to the conduct of federal elections. But the survey also allows states to provide definitions to common terms used in election administration, so that the quantitative information in the EAVS can be better understood. For instance, Section A of the Statutory Overview instrument asks each state to define nine specific election administration terms, and to provide a legal citation to the definition. The terms include "over-vote," "under-vote," "absentee," and "early voting." Responses to this section provide guidance in moving between state-specific terminology and terminology that is used in national discussions of election administration. For instance, it is through the statutory overview that we learn that states use eight different terms to refer to mail-in voting (including "absentee," "mail-in voting," and "early voting") and eight different terms for early voting (including "early voting," "absentee in-person," and "in-person advance voting").

The EAC issues four written reports that summarize the data collected through the EAVS. These are the reports related to the administration of the National Voter Registration Act (NVRA) and the Uniformed and Overseas Citizens Absentee Voting Act (UOCAVA), plus a report that

summarizes findings about the remaining election administration items in the EAVS and the Statutory Overview report. The EAC also makes the raw data available for use by the general public, available for download in spreadsheet format, and in other formats that facilitate statistical analysis.

A sampling of findings from the 2008 and 2012 EAVS

It is because of the EAVS — and only because of the EAVS — that we know the following facts about the 2012 federal election, with some comparisons to the 2008 election:

- Over 60 million registration forms were processed by the fifty states and the District of Columbia in the two-year election cycle ending November 2012. One-third of these forms were new registrations. Over 40% were address changes.

- In 2012, 65% of voters cast ballots on Election Day, 25% cast ballots absentee or by mail, and 10% cast ballots at early voting sites.

- Over 861,000 UOCAVA ballots were mailed out and nearly 601,000 were returned for counting, for a 70% return rate. This was down from 960,000 mailed out in 2008, with over 702,000 returned for counting (73% return rate) in 2008.

- Fifty-three percent of UOCAVA ballots were sent to military voters in 2012. This is down somewhat compared to 2008.

- Rejection rates for submitted UOCAVA ballots (3.5%) in 2012 were slightly higher than the rejection rates for civilian absentee ballots (2.9%). (Rejection rates for both UOCAVA and civilian absentee ballots were lower in 2012 than in 2008.)

- UOCAVA ballots were most commonly rejected because they were not received on time (42% of rejections) or there was a problem with the voter's signature (14%). In contrast, civilian absentee ballots were most often rejected because of signature problems (36%), followed by being received late (33%).

- Local jurisdictions were divided into over 171,000 precincts. There were 99,000 physical polling places used on Election Day and approximately 2,500 early-voting sites. The number of precincts and Election Day voting sites was down roughly 10% compared to 2008; the number of early voting locations was approximately the same.

- The number of Election Day voters per Election Day polling place grew from 671 in 2008 to 689 in 2012.

- The number of early voters per early voting site in 2012 averaged 1,111 per day of early voting.

- The number of provisional ballots increased in 2012 to 2.6 million, compared to 2.1 million in 2008. The number of provisional ballots eventually counted also increased, from 1.4 million in 2008 to 1.9 million in 2012.

Challenges facing the EAVS

The EAVS remains a work in progress. A handful of states have been persistent non-responders, which means that citizens of those states are in the dark about basic features of election administration. The need to maintain a questionnaire that allows for the diversity of election administration practices in the states and territories creates a large instrument that can be a challenge to administer, respond to, and use. The raw data from the EAVS is generally released between nine months and a year following each federal election. This gap between the general election and the release of the EAVS data makes it difficult to insert nationally comparable election administration data into state debates about changes to election laws in the winter legislative sessions that generally follow November elections.

These are normal, manageable challenges that would face any large federal data collection program. There is one major challenge to the EAVS that is unique to it and beyond the control of the EAC's able staff: the EAVS's existence is threatened by the ongoing uncertainty about the future of the EAC. Despite the uncertainty about the EAC's future, the research staff has soldiered on, continuing to administer the survey after the past two federal elections. Despite difficult working conditions, the EAC staff has to be commended for continuing on with this important scientific activity.

Still, these are not conditions under which any important federal data gathering program can grow, develop, and excel. Whatever the future of the EAC, and however the clearinghouse and research functions of the EAC might be divided up should the Commission ever be abolished — the EAVS needs to be protected. Without an EAVS, we would be flying blind, and would be much more likely to re-experience the types of election administration meltdowns that led to the EAC's creation in the first place.

3. LOCAL GOVERNMENTS NEED HELP IN CONVERTING THE MOUNTAIN OF DATA THAT IS GENERATED IN THE CONDUCT OF ELECTIONS INTO INFORMATION THEY CAN USE TO BETTER MANAGE ELECTIONS.

Anyone who has encountered elections professionally — as a candidate, election administrator, academic, journalist, or citizen volunteer — knows how much data is generated in the course of conducting an election. Ballots cast by voters are quickly translated into election returns, which are often broken down by the precinct in which they are cast. Sometimes these election returns are further broken down by the mode of voting.

Other statistical reports are generated, too. Voter registration databases can be used to generate reports of how many voters live in each precinct — reports that are often further broken down by race, sex, age, and political party. Some states and localities generate other reports that are similarly detailed, such as the number of absentee ballots and number of provisional ballot.

What will come as a surprise to most is that these types of reports generated in the course of conducting an election are only the tip of the iceberg. So much more data is generated in the course of conducting an election than only election returns and turnout reports.

Focusing on Election Day itself, the computer equipment that helps an election official manage an election also records information about each transaction. To be very clear, this is not data about *whom* the voter has voted for. Rather, it is data that records things like the time the voter checked in at the registration table and the time when the voting machine was prepared for the voter to cast a ballot (if it is an electronic machine) or scanned a ballot (if it is an optical scanning machine).

This is the transaction data associated with elections. Retailers know that transaction data can tell managers about the behavior of their customers; the best managers know how to turn this data into changes in customer service that improve the shopping experience. It is not a big stretch to think about voters as customers when they come to the polls, and thus to ask, how can transaction data help improve the convenience and security of voting?

Example: The value of transaction data for addressing long lines at the polls

Why is transaction information important in elections? We can see the potential importance of using voter transaction data if we consider the problem of long lines on Election Day.

Quite simply, a long line occurs when there is not enough equipment or personnel to handle the volume of voters who arrive at a polling place. Defining what is enough equipment or personnel is tricky, however. The science of operations management tells us that to know "how much is enough," we need to know just a few basic things, such as arrival rates and service times (i.e., how long does it take to check in and to mark a ballot?). We need to know how these arrival rates and service times vary over the time of day, how they vary across precincts, and how they vary according to the populations who are served at each precinct.

Based on my talking to election officials and examining many types of data and numerous reports, I am convinced that local officials typically do not know basic facts, like arrival rates and service times, with the degree of precision necessary to plan the purchasing of equipment and deployment of resources so as to keep lines to a reasonable length.

Of course, all officials have a general sense of when voters show up to vote. They will often tell you that the turnout of voters in working class neighborhoods spikes after work hours, while turnout of voters in precincts with a lot of retirees spikes in the middle of the day. However, not many will know how many voters arrive between 7:00 and 7:30 a.m., compared to between 7:30 and 8:00 a.m. And yet, it is precisely this degree of precision that is necessary in order to know if you have enough voting machines to handle the anticipated surge of voters when polls open on Election Day.

This is where arrival rate and service time data from voting equipment could be so useful. Today, officials who oversee elections for half of the American electorate — i.e., the half who already utilize electronic poll books — probably possess all they need to know about the arrival rates of voters to make the calculations necessary to plan for the next election, and to ensure that lines don't overwhelm them.

Why don't election officials use this data more often? Two main reasons dominate.

First, the reporting-functions of election equipment are usually not set up to produce the types of reports that would be useful to election officials as they make their plans to manage future elections. At the risk of getting too geeky, the event logs produced by much of the current voting equipment is oriented around helping local officials diagnose problems with their voting equipment — a critical function, no doubt — and not to help with the forward-looking tasks of knowing how much voting equipment to buy and how to deploy it.

Second, most local election departments do not possess the type of industrial engineering expertise necessary to analyze service data from election machines. In fact, it would probably be impractical for all but the largest of election jurisdictions to maintain such expertise full time, given all their other pressing needs. However, the expertise I am talking about is often possessed by *some* department of most counties, whether in the planning department or the transportation department.

Spurring innovation via targeted federal activity to aid data interchange in election administration

Why should this be of interest to the Congress?

It should be of interest because a few targeted federal actions could help the private sector develop the technological tools that would take service time data and turn it into information that state and local officials could use to improve the experience of voting for all Americans — especially the Americans who experienced the longest lines to vote in 2012. Here, I mention two ways in which the federal government could encourage development in this area.

First, the federal government could fund a small grant program to spur the development of hardware and software tools that would take existing service data and turn it into information that local officials could use to manage elections more effectively. The model I have in mind is drawn from the EAC's Election Data Collection Grant Program, which was aimed at improving the quality of data collected for the EAVS in 2008. These grants, which amounted to $2 million awarded to five states, significantly improved the quantity and quality of data reported by these states, and their ability to gather data related to election administration down to the precinct level.

Of particular note is the success of Wisconsin — the state with the most decentralized election administration system in the country — in developing systems to ensure uniform reporting of election data in the Badger State, despite its extreme decentralization and variability in technical capacity of the local jurisdictions that manage elections.

The model I have in mind would grant relatively modest amounts (around $1 million) to five states which, in consultation with university partners, would develop software systems that could convert the service data produced by voting equipment in the normal course of conducting an election into information that would give officials deeper insights into how to manage the logistical side of elections more efficiently. If the grants were awarded to states with a diversity of voting equipment, the end result would be software systems that could eventually be utilized in a variety of jurisdictions beyond those that received the grants.

Second, the federal government could continue to support and encourage the efforts currently under way to establish standards that would allow the seamless sharing of data across different types of computers that are involved in administering elections. (The way to think about this is creating the same types of standards that allow a computer user who creates a spreadsheet using a database program on one brand of computer to share the spreadsheet with a colleague who uses a different brand of computer, without loss of information.)

The creation of data sharing standards is a necessary condition for more widespread interoperability of electronic equipment used in the management of elections, as well as the creation of software and hardware systems to help manage elections better.

One example of an effort to establish data sharing standards in the elections field is work being undertaken by a working group (P1622) under the Voting Systems Standards Committee of the IEEE Computer Society. The ultimate goal of this working group is to enable the effortless interchange of information across equipment in all areas of election administration, from designing ballots to reporting election results.

The value of this effort goes beyond the issue of using data to better manage elections. Currently, the election equipment used by local jurisdictions usually uses proprietary data formats that cannot be directly transmitted to any other electronic equipment. As a consequence, if jurisdictions want to use equipment from different manufacturers, they often have to translate data files from one format to the other, which risks the corruption of data as it moves between platforms. The time and effort necessary to move information between different brands of computer equipment leads to a lock-in of states and local jurisdictions into particular equipment and manufacturers. This ultimately discourages the use of commercial off-the-shelf equipment in election administration, thus increasing costs and reducing innovation.

This IEEE effort to create a common data standard for election administration is valuable to the effort to better utilize data in managing elections, because it would lead to faster innovation in

software and hardware systems that would take information generated by one manufacturer's equipment and turn it into useful management information for election officials.

What is the federal role in this effort? Because the IEEE is a private organization, this is not a project of the federal government, per se. However, scientists from the National Institute of Science and Technology (NIST) participate on this working group, providing valuable leadership in the process. Furthermore, the EAC's Voluntary Voting System Guidelines, should they be updated, will undoubtedly contain a requirement that election equipment manufacturers use a common data format, such as the one being developed by the IEEE working group.

Again, we find ourselves back to wrestling with the lack of a functioning EAC. Without a functioning EAC, it is impossible to approve a new set of voluntary voting system standards. Without these standards, the work of creating a common data format for elections-related data will be incomplete. Without a common data format, development of systems to help local officials manage elections better will be slowed significantly.

Therefore, as with the matter of encouraging the future survival of the EAVS, the ultimate success of a common data format for election data depends on a resolution to the current gridlock over the future of the EAC. Regardless of how this gridlock is resolved, the development of common data standards in the elections field will languish so long as the voluntary voting systems standards cannot be officially updated by any process.

A final note: Helping local election officials

I want to add one final observation about the collection and use of election data for the better management of elections. In order for the management of elections to become more data-driven, it is important that we find ways to inject relevant data into the decisionmaking process *without adding further burdens to local election officials.*

Local election officials already have a lot to do without adding significantly more requirements on them to gather and report data. It is therefore imperative to find ways to make the gathering and reporting of management-related election data an automatic byproduct of conducting elections. In other words, the challenge of creating systems to facilitate the gathering and reporting of data needs to be met by equipment manufacturers and vendors, who should be encouraged to create systems to make the jobs of election administrators easier. One of the ways of doing this is to create data standards so that innovation can proceed within the private sector and the academic community to develop the tools that local election administrators need.

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To conclude, I thank the committee for their time and for holding hearings on an important range of issues pertaining to the improvement of elections for all Americans. Election administration is too important not to work to elevate it into the ranks of policy areas that are guided by data-driven analysis. In this field more than most others, good data can be an antidote to partisan bickering.

The role the federal government can play in encouraging the development of a data-centered approach to election administration and election policy is subtle, but quite traditional. The federal government is in a unique position to gather and disseminate data in the field of election administration, in the same way it gathers and disseminates large amounts of data related to areas of public policy and commerce. It is also in a unique position to facilitate the coordination of private and public entities to set a framework for technological innovation, through the setting of standards. By playing both roles, the federal government can provide a rich environment in which private initiative and public purpose can productively meet.