Considerations for Developing A Voting System Request for Proposals

Stephanie Singer, City Commissioner, January 27, 2015

Introduction

The City of Philadelphia plans to purchase a voting system for deployment in the 2017 spring primary election, with life expectancy through 2030. The quality and cost of the system purchased will be in heavily influenced by the written Request for Proposals (RFP), which spells out the requirements the eventual vendor must meet.

This memo briefly sets out recommended steps in the creation of an RFP for voting systems. Essential elements are:

- Collecting input from stakeholders
- Understanding and following expert recommendations and best practices
- Incorporating lessons learned from the Philadelphia's experience with the current voting system
- Understanding changes since the last voting system procurement.

Specific recommendations are listed in italic bold type.

There are helpful resources from non-partisan government sources. Of particular relevance are the recent report from the Presidential Commission on Election Administration (PCEA) and the Election Management Guides of the federal Election Assistance Commission.

Stakeholder Input

A voting system will have to meet the needs of a wide variety of Philadelphians. ***Part of the RFP process should include soliciting input from stakeholders***, including:
- Voters with disabilities
- Elderly voters
- Voters with limited English proficiency
- Poll workers
- County Board of Elections staff
- New citizens
- Organizations particularly concerned with voting, such as the Committee of Seventy, Advancement Project, League of Women Voters and political parties.

Expert Recommendations

Integrity of the Vote

How can we ensure fair elections? The consensus of the scientific and engineering community is that fair elections are ensured when voting technology is verifiable, accurate, secure and transparent -- sometimes called the "VAST mandate." A voting system is deemed trustworthy when it is:

- **Verifiable**: there are mechanisms and accountability loops to provide for routine audits of the system, risk limiting audits of any election conducted through that system, as well as reliable means to provide for recounts and measures of voter intent;
- **Accurate**: there are verifiable means to ensure that ballots are counted as cast;
- **Secure**: to the greatest extent possible (since security can never be guaranteed) the system has the least possible vulnerability to negligent or malicious manipulation or compromise of performance; and
- **Transparent**: the system, any devices comprising that system, as well as data produced by the system are available for independent unfettered inspection and analysis down to a source code and firmware level (with the caveat that the voter privacy must be protected).

The principles of the VAST mandate should be enunciated in the RFP and vendors should be required to address each of them.

Hardware

Experts in the field of election technology recognize that the paradigm is shifting dramatically away from the specialized hardware purchased by most counties after the turn of the millennium toward commercially-available off-the-shelf (COTS) hardware. For example, the PCEA recommends that the next wave of voting technology should be "widely available, off-the-shelf technologies and 'software-only' solutions….For cash-strapped jurisdictions that wish to keep pace with evolving technology, the purchase of hundreds of expensive, specialized pieces of hardware good for only one purpose — elections — no longer makes sense."

Philadelphia would not have to pioneer this new type of system -- Travis County, TX and Los Angeles County, CA, are already blazing the trail. In writing the RFP, ***Philadelphia should take care not to rule out these new systems (e.g., by limiting responses to vendors with systems currently certified by the Commonwealth of Pennsylvania).***

Cyber Risk

In an era where banks lose billions of dollars per year to cyberfraud in order to let consumers shop easily on line, election administrators have precious few resources and yet face great pressure on election administrators to provide a voting experience as convenient as shopping. Fortunately, there is industry expertise (e.g., at Carnegie Mellon's Software Engineering Institute) on cyber risk and resilience. ***Philadelphia should work with cyber risk and resilience experts to include enforceable***

language in the RFP that will ensure Philadelphia's ability to protect its elections from cyber attack.

Open Data

The PCEA recommends:

> Audits of voting equipment must be conducted after each election, as part of a comprehensive audit program, and data concerning machine performance must be publicly disclosed in a common data format.

The PCEA recommends further that

> Local jurisdictions should gather and report voting-related transaction data for the purpose of improving the voter experience.

Both of these recommendations require the County Board of Elections be able to control data collected by the voting system. Past contracts did not require vendors to release all data to the County Board of Election. *The RFP should specify that all data created by the voting system should be owned solely by the Philadelphia County Board of Elections, and should be available (without assistance from the vendor or any third party) in unencrypted, easily exportable and easily interpreted form.*

Individual election jurisdictions have developed their individual mechanisms in the 20th Century for making election data public. The next step toward a 21st-century election system is national standards for data sharing and interoperability. Standards are under development in a project spearheaded by the IEEE 1622 Working Group, NIST, and the TrustTheVote Project with collaboration from Pew, VIP, the Bipartisan Policy Center, and the Knight Foundation. *The RFP should require the election system to easily export election data in standard, machine-readable formats.*

Usability

Two features of Philadelphia's current election technology stand out for the intensity of complaints they generate: voting for the visually impaired and write-in voting. These are both usability issues. The machines allow the visually impaired to cast ballots independently, but the process is cumbersome and time-consuming. The machines allow voters to cast write-in votes, but the procedure is complicated enough that many voters -- even experienced voters -- don't know how to do it correctly. The current process for canvassing write-in votes is remarkably labor-intensive.

The present machines are cumbersome and time consuming to set up and take down and the steps required for doing so are subject to errors that can delay the opening of the polls or slow the counting of the vote.

The Center for Civic Design has developed design recommendations for elections based on usability testing with voters and poll workers.

Considerations for Voting Systems RFP
Stephanie Singer, Philadelphia City Commissioner

***The RFP should require vendors to address usability of all aspects of the
voting system.***

Legislative Expectations

Election law evolves constantly. Governments often make laws in response to
factors far removed from the technological concerns and constraints of local election
administration offices. ***The RFP should require vendors to discuss flexibility to
accommodate possible legislative changes (e.g., ballot rotation).***

Developments Since the Previous Procurement

Technology
Digital technology has evolved considerably since the currently dominant voting
systems were originally developed. Evolution may be an understatement. In the
past 5 years alone the market has brought forth 3 generations of touch screens. The
legacy notions of "points and clicks" are giving way to "taps and swipes." In the time
since the three major voting systems were introduced, many consumers changed
their mobile phones 3 times and their computing devices at least twice. But voting
systems design in that time has not changed much at all, until recently. There are
developments worth watching in at least two large jurisdictions. According to the
PCEA:

> "From the frustrations of finding adequate voting equipment technology on
> the market, promising collaborations have arisen in communities such as Los
> Angeles County, California,17 and Travis County, Texas, that may inform the
> setting of standards for future technologies."

***Philadelphia should make use of planning documents and experiences of
Travis County and LA County, as well as any other innovative jurisdictions, in
the process of developing Philadelphia's RFP.***

Certification Process
The Bipartisan Policy Center, working to implement the recommendations of the
PCEA, has recommended changes to the federal certification process for voting
technology. Because Pennsylvania certification depends on federal certification, any
changes in the federal process are of interest and concern to Philadelphia. ***The RFP
should require vendors to comply with the new standards proposed by the
Bipartisan Policy Center.***

Lessons Learned
Even if Philadelphia opts to ignore these new developments, there is now a decade-
worth of nationwide experience with electronic voting systems. The experiences of
other jurisdictions provide a wealth of information about the operating costs of
various types of election systems, as well as lessons learned. The last ten years has
seen the development of various not-for-profit organizations collecting information

about election systems, including Verified Voting, the Pew Foundation OSET Foundation and the Caltech-MIT Voting Technology Project. **_Philadelphia should make use of the collective expertise of election jurisdictions and relevant not-for-profit organizations in the process of developing Philadelphia's RFP._**

Notes on the Request for Information (RFI)

In October, 2014, the Office of Innovation and Technology of the City of Philadelphia issued a Request for Information (RFI) for voting machine modernization. This RFI contained factual errors.

- Elections are not run by the Office of the City Commissioners (as stated in the RFI on p.3), but by the Philadelphia County Board of Elections. In most (but not all) elections, the three members of the Philadelphia County Board of Elections are the three City Commissioners, but whenever a City Commissioner is on the ballot she must recuse herself from the Board of Elections. However, she remains a City Commissioner and Voter Registration Commissioner.
- Malfunctioning voting machines should not cause "backlogs" at the polls (as stated in the RFI on p.4). For several years (since _NAACP v Cortes_), every Pennsylvania polling place provides emergency paper ballots to voters when half or more of the machines are not functioning.

The RFP should be checked for factual errors before publication.

Documents

PCEA: Report of the Presidential Commission on Election Administration, available at https://www.supportthevoter.gov/files/2014/01/Amer-Voting-Exper-final-draft-01-09-14-508.pdf

RFI: City of Philadelphia Request for Information, available at http://www.phila.gov/rfp/Documents/RFI%20Voting%20System%20Modernization%20Final.pdf

NAACP v Cortes (https://www.paed.uscourts.gov/documents/opinions/10d0328p.pdf)

Draft standards for election data reporting: http://grouper.ieee.org/groups/1622/groups/2/WorkingDocuments/MEC/IEEE1622-2--2014-11-24.pdf

Recommendations of the Bipartisan Policy Center on the federal certification process: http://bipartisanpolicy.org/blog/bpc-recommendations-for-quick-action-on-voting-technology/

Considerations for Voting Systems RFP
Stephanie Singer, Philadelphia City Commissioner

Resources

Presidential Commission on Election Administration (http://supportthevoter.gov)
Election Assistance Commission (http://eac.gov)
Center for Civic Design (http://civicdesign.org/)
Pew Charitable Trusts (http://www.pewtrusts.org/en/projects/election-initiatives)
Verified Voting (http://verifiedvoting.org)
Caltech-MIT Voting Technology Project (http://vote.caltech.edu/)
Software Engineering Institute (http://www.sei.cmu.edu/)
OSET Foundation (http://www.osetfoundation.org/)

Considerations for Voting Systems RFP
Stephanie Singer, Philadelphia City Commissioner