United States

Election Assistance Commission

Overview of Voting Technologies

Committee on the Future of Voting: Accessible, Reliable, Verifiable Technology

April 4, 2017

Washington, DC

Overview

- Current State of the Future
- Short term view = now through 2020
- Process use to develop requirements for future
- How to get involved

HAVA & EAC

- Agency created by passage of HAVA in 2002
- Bipartisan Agency
- HAVA tasked EAC with:
  - Develop guidance to meet HAVA requirements,
  - Adopting Voluntary Voting System Guidelines (VVSG),
  - Serve as National clearinghouse for election administration information,
  - Accredit Voting System Test Laboratories (VSTL),
  - Certify voting systems,
  - And audit the use of HAVA funds.

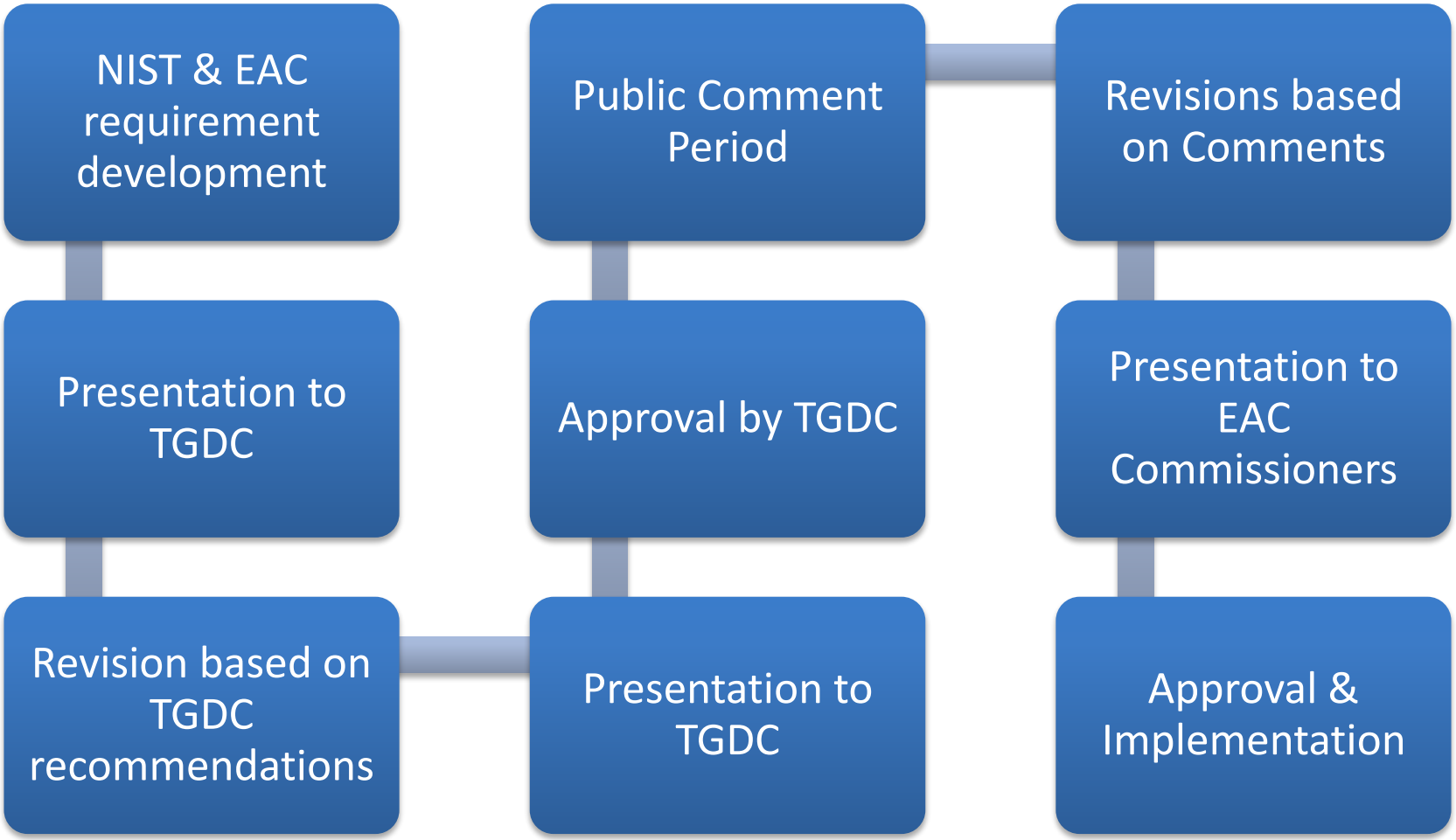
HAVA Established Advisory Committees

- 37-member Board of Advisors (representing voter interest groups)
- 110-member Standards Board (composed of two election officials from every state and five territories), as mandated by HAVA
- 14-memberTechnical Guidelines Development Committee (in consultation with NIST)

TGDC & VVSG

- Assist EAC with developing VVSG
- Chair is NIST Director
- 14-memberTechnical Guidelines Development Committee (in consultation with NIST)
  - 2 Standards Board representatives
  - 2 Board of Advisors representatives
  - 2 ACCESS Board representatives
  - 4 Scientific/Technical experts
  - 1 ANSI representative
  - 1 IEEE representative
  - 2 NASED representatives

Former VVSG Development Process



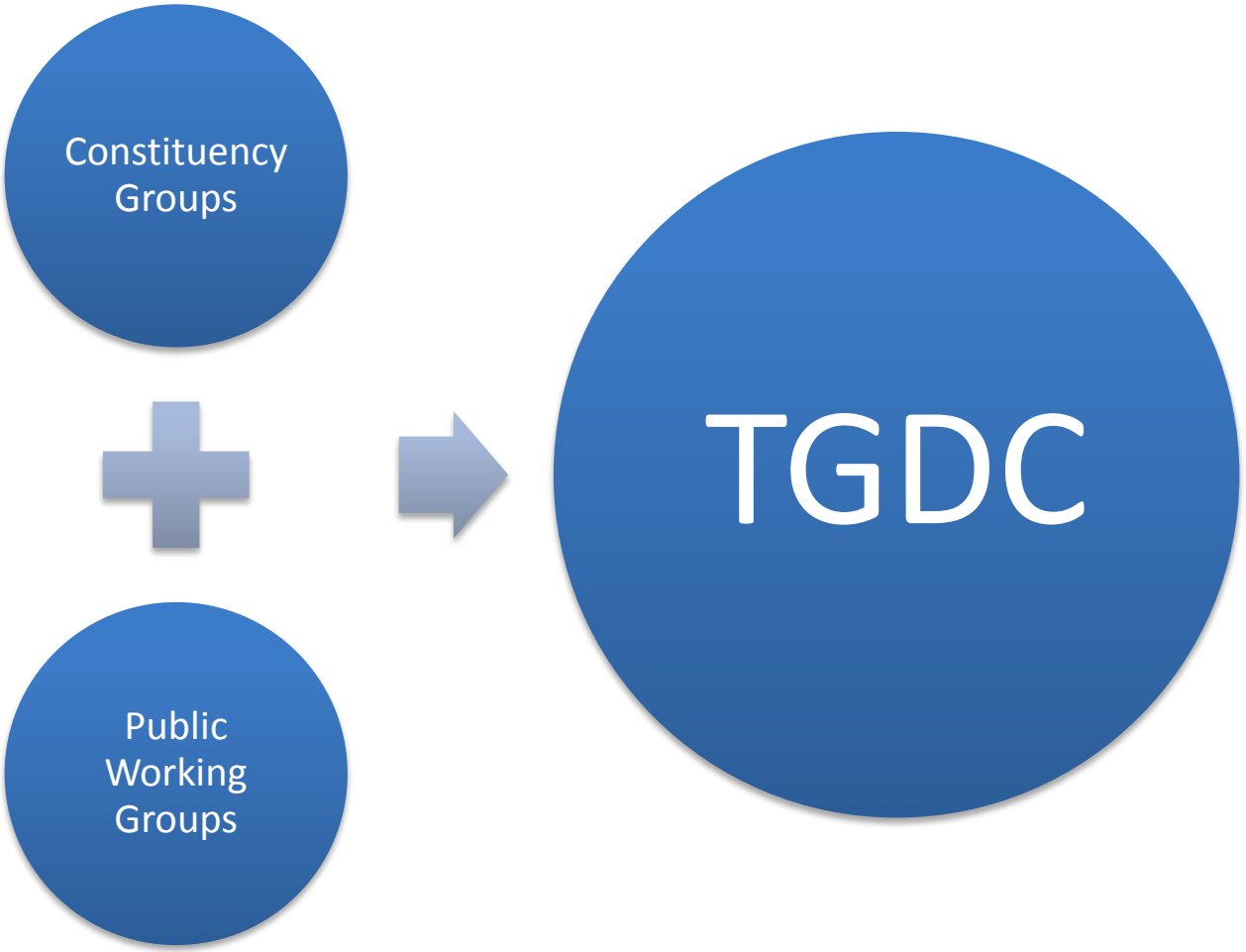
Voluntary Voting System Guidelines (VVSG)

- VVSG 1.0 (2005 VVSG)
  - Adopted in 2005; all systems tested to this as of December 2007
  - Will be sunset July 6, 2017
  - **Modifications** to systems certified this can still be submitted for testing and certification **after** the transition to VVSG 1.1, until the system is determined to be a new system.
- The next iteration (2007 VVSG)
  - Never approved by EAC Commissioners
  - Sections from this imported in to 1.0 to create VVSG 1.1
- VVSG 1.1
  - revision to the 2005 VVSG
  - Approved by Commissioners in March 2015
  - Implementation plan approved in January 2016
  - Available for testing now; transition to 1.1 will be complete on July 6, 2017
- VVSG 2.0 – currently in development

VVSG 2.0

- Currently working on VVSG 2.0
- 3 tiered structure:
  - Principles & Guidelines
  - Requirements
  - Test Assertions
- New development process to allow more stakeholders to get involved and increase transparency
- Change focus of requirements from design based to function based
- Plan to release draft requirements in September 2017

Current VVSG Development Process



Current VVSG Development Process

TGDC develops VVSG from working group & constituency group data

Approves document & submits it to EAC Commissioners

EAC Commissioners approve & set implementation plan for VVSG

VVSG 2.0

- Focus on function based requirements
  - Allows for innovation
  - Provides path for function-based testing.
  - More flexibility to modify system configurations (e.g. add or remove components)

VVSG 2.0 17 Functions

- Input Data for Ballot Construct
- Associate Data for Ballot Construct
- Ballot Layout
- Ballot Generation
- Ballot Transfer
- Ballot Retrieval
- Ballot Presentation
- Capture Vote Selections
- Interpret Vote Selections
- Extract Vote Selections
- Present Vote Selections
- Transfer Vote Selections
- Store Vote Selections
- Retrieve Vote Selections
- Tabulate Vote Selections
- Transfer Results
- Present Results

VVSG 2.0

- A voting system is a combination of devices that fulfill the 17 functions
- Combination of devices must meet the definition of voting system provided in HAVA
  - Section 301 (b) (1) defines voting system as:

    (1) the **total combination** of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used—

    (A) **to define ballots;**

    (B) **to cast and count votes;**

    (C) **to report or display election results; and**

    (D) **to maintain and produce any audit trail information**

Testing & Certification

- How does it work?
  - Systems tested to comprehensive set of standards
    - Usability/Accessibility
    - Security
    - Functionality
  - Systems MUST meet all requirements
  - Purpose is to provide a baseline of functionality so states and locals can test to their needs

Testing & Certification

- 39 Certifications granted since 2009
- 8 full systems
- 31 modifications
- 4 systems under test right now
  - 3 full systems
  - 1 modification

Post Certification

- Quality Monitoring program
  - Manufacturing facility audit
  - Manufacturer QA audit (*as needed*)
  - Fielded system review
  - Field Anomaly reporting & investigation
- Post certification assistance to State Certification staff and/or County officials

State Use of EAC Certification

- Forty-seven (47) states rely on the EAC's VVSG and/or its testing and certification program either directly or by reference.
- The three states not relying on the EAC guidelines are:
  - Nebraska,
  - New Hampshire,
  - and Oregon.

Legacy/First Generation HAVA Systems

- Equipment is more complex
- Monolithic voting system w/ custom hardware
- Process went from logistical to IT used to manage the logistics
- Increased efficiencies with technology
- Increased access/usability
- Ability to innovate around the voting system

Innovations in Last 5 Years

- Hybrid voting systems
- Modernizing in other areas of elections:
  - Ballot delivery systems
  - COTS-based systems
  - Online registration
  - Ballot-on-demand
  - Election night reporting
  - Electronic Pollbooks
- States looking at how to evaluate emerging tech

What does this mean?

- More and more election officials are being asked to be IT managers:
  - Manage co-dependent IT systems
  - Analyze risk
  - Evaluate current and future systems for application to operation
  - Educate on challenges and needs
  - Manage and protect the data within the systems
  - Every election is a pilot

Conclusion

- Voting system requirements & needs are different today than 10 years ago.
- Get involved with the working groups: https://www.nist.gov/itl/voting/general-information-about-nist-eac-public-working-groups
- We need you to join us now and stay involved as we move forward.

Questions?

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