Human Factors Principles & Guidelines

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Principles

Equivalent and Consistent Voter Access	Marked, Verified and Cast as Intended
Robust, Safe, Usable, and Accessible	Voter Privacy

Human Factors Changes from VVSG 1.1

- Clearly stated goals of accessibility and usability for all voters
  - Can be applied to any interactive system or function in the voting system scope.
  - Emerging technology, rather than specific implementations
  - Informed by extensive gap analysis and research review
- Reference to federal accessibility standards to ensure that systems meet accessibility requirements as required by law.
- Includes accessible processes for verification, including voter-verifiable paper records.
- Organized according to the widely-accepted POUR principles (Perceivable, Operable, Understandable, and Robust).
- Supports universal design and usability, addressing large range of voters balanced with minimizing voter interface complexity.
- User-centered design methodology added.
- Transparency Principle--systems/processes easy to understand.

Updates from February 2017

- "**Cast as Marked**" and "**Marked as Intended**" have been combined into "**Marked, Verified and Cast as Intended**."
- "**Voter Privacy**" and "**Ballot Secrecy**" are new principles.
  - Working definition
  - Relevant Guidelines under "**Cast as Marked**" moved to these principles
- "**Tested for Usability**" and "**Meets Web Accessibility Standards**" have been combined into "**Robust, Safe, Usable, and Accessible**."
  - Updated: "Meets currently accepted federal standards for accessibility"
- User-centered design methods added to "**High Quality Implementation**."
- "**Transparency**" calls for system/processes to be easy to understand.

Equivalent and Consistent Voter Access

- All voters can access and use the voting system regardless of their abilities, without discrimination.

  - Voters have a consistent experience throughout the voting process in all modes of voting.

  - Voters receive equivalent information and options in all modes of voting.

Marked, Verified and Cast as Intended

- Ballots and vote selections are presented in a clear, understandable way and can be marked, verified and cast by all voters.

  - **PERCEIVABLE** - The default voting system settings for displaying the ballot work for the widest range of voters, and voters can adjust settings and preferences to meet their needs.
  - **OPERABLE** - Voters and poll workers can use all controls accurately, and voters have direct control of all ballot changes.
  - **UNDERSTANDABLE** - Voters can understand all information as it is presented, including instructions, messages from the system, and error messages.

Robust, Safe, Usable, and Accessible

- The voting system and voting processes provide a robust, safe, usable, and accessible experience for all users.

  - The voting system's hardware and accessories protect voters from harmful conditions.

  - The voting system meets currently accepted federal standards for accessibility.

  - The voting system is measured with a wide range of representative voters and poll workers, including those with and without disabilities, for effectiveness, efficiency, and satisfaction.

...And User-Centered Design

- Under High Quality Implementation: The voting system is implemented using high quality best practices.

  - The voting system is implemented using best practice user-centered design methods, for a wide range of representative voters and poll workers, including those with and without disabilities.

Definition of Privacy and Ballot Secrecy

- For the VVSG 2.0 Principles and Guidelines, we make a distinction between the privacy of the interaction between the voter and the voting system and the secrecy of the marked ballot:

- **Voter privacy is primarily concerned with what happens while a voter is marking and casting their ballot.**

  - Voters can mark their ballot without revealing their ballot selections to anyone else. Voting systems must not record how a specific voter interacted with the ballot.

  - **Ballot secrecy is primarily concerned with what happens after a voter casts their ballot.**

  - The voting system must not create or store any link between a specific voter's identity and a set of specific ballot selections.

Voter Privacy

- Voters can mark their ballot and verify and cast their vote selections privately and independently.

  - The voting process preserves the privacy of the voter's interaction with the ballot, modes of voting, and vote selections.

  - Voters can mark their ballot and verify and cast their vote selections or other associated cast vote record, without assistance from others.

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We look forward to their continued input as we develop requirements in the coming months.