

From: [James Long](#)
To: Votingsystem.Guidelines@EAC
Subject: Fw: Follow-up usability comments on pilot program requirements....
Date: 05/06/2010 02:00 PM
Attachments: Comments_on_newest_usability_for_uocava_pilot_draft.doc

Was sent to my email by mistake.

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04/16/2010 10:40 AM

To: "jlong@eac.gov" <jlong@eac.gov>

cc: "Regenscheid, Andrew" <andrew.regenscheid@nist.gov>, "Laskowski, Sharon J. Dr." <sharon.laskowski@nist.gov>

Subject: Follow-up usability comments on pilot program requirements....

James,

Attached are some additional comments from Sharon on the updated usability requirements.

Thanks,



Nelson [Comments_on_newest_usability_for_uocava_pilot_draft.doc](#)

Comments on Section 3: Usability of the UOCAVA Pilot Program Testing Requirements (PPTR) draft 3/24/201

1. **The requirements, as stated, do not assure usability and are incomplete.** The general principles statement, for example, is not a usability statement and it is somewhat misleading. The goal of usability is to allow voters to vote as they intend quickly and without error and frustration. See the VVSG 2.0 introductory material in Section 3. Assistance is a last resort—the voter interface should be easy enough to use that assistance is a last resort.
2. **This section is sparse and basically outlines functional user interfaces requirements, not usability requirements.** For example, the alternative languages requirement is a functional requirement to conform to a law, not a usability requirement.
3. **The set of requirements is incomplete and choice of wording is misleading.** While it is positive that the PPTR drew its requirements from the VVSG, PPTR Section 3 uses only an arbitrary, sparse subset of the VVSG requirements. The VVSG usability requirements all work together. The piecemeal selections in Section 3 run the risk of causing unintended consequences. PPTR Section 3, as it stands, has the potential to decrease usability. For example,
 - Why is there no requirement for a design to address color blindness, that is, that when color is used, there should be another representation of the meaning of that color and color blindness colors are avoided (through appropriate contrast.)
 - What is the distinction between “voting system” and “vote capture device”? Section 3.4 uses “voting system” when device seems to be the appropriate term according to the definitions.
 - “voting input field” in 3.4 is an odd term in this context. What is the scope of “field”? 3.4.11 isn’t a field requirement, but a requirement for what is displayed to the voter around the “input fields”
 - For 3.5, the title “Interaction Issues” is not consistent with other titles, “Interaction” or “Interaction Design” would be better wording.
 - 3.5.1.2 is an unclear requirement. What if a contest cannot fit on a screen? There has to be some way to navigate through the entire list of candidates. For a paper ballot it is good practice to not require turning the page, but this requirement is not for paper, it is for voting device. Also, the title is clumsy, should contest be plural?
 - It appears that 3.5.1.1 and 3.5.1.3 are requiring the same thing; they could be combined, with scrolling as a sub requirement.
 - In 3.5.1.5, the meaning of pace is unclear. “pace” is not “sequence”. By pace, do you mean that the system shouldn’t move automatically, e.g. n seconds per field, through each choice and the voter has to keep up? I have never seen a system do that.

4. **PPTR Section 3 leaves all decisions on usability to the manufacturers.** While we understand the decision to leave testing to the manufacturers, it could easily be the case that the manufacturers design the user interface without advice or testing by experts in usability. Usability testing must be done by experts in human factors or usability engineering. These experts have the background to determine adherence to basic good, usable design. Usability is defined in the VVSG as “a measure of the effectiveness, efficiency, and satisfaction achieved by a specified set of users with a given product in the performance of specified tasks.” This implies that usability testing during the design phase should include actual users performing voting tasks.

General Recommendations

- Rather than including a section that is misleadingly labeled as usability requirements, change the title of PPTR Section 3, to “User Interface” and make it a subsection of Section 2 Functional Requirements. Alternatively, if there is time, work with a usability expert to extract the appropriate requirements from the VVSG and Web usability standards (if a web application).
- Refer developers and testers to the VVSG, Chapter 3 with instructions to test against all applicable requirements. Work with a human factors expert or a usability engineer to develop the user interface to safeguard the voters’ experience.
- Check use of terminology and structure (see examples above) and improve.