

Voting Equipment in America: Observations from the Field

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Background

- Reviewed 16 currently marketed or proposed voting machines at the International Association of Clerks, Recorders, Election Officials, and Treasurers (IACREOT) Meeting in Denver of 2002
 - Some machines were already certified
 - Some machines had been submitted for certification
 - Some machines were "proposed" designs
- Reviewed 6 machines at the National Federation of the Blind (NFB) in Baltimore
 - All machines were loaners from manufacturers
 - The latest software releases may or may not have been installed
- Reviewed 6 Machines at the University of Maryland (UMD) as an expert reviewer for their NSF project
- Reviewed numerous published papers, articles, white papers, position papers, and newspaper articles purporting to report on the usability of voting machines



Observation 1

- Vendors appear to be from/use 3 primary areas/approaches
 - Vendors of related products in or entering the voting equipment market by modifying or adapting existing technology to the domain (e.g., ATM vendors)
 - “Classic” computer solution providers interested in the voting machine market (developers)
 - “Modern” computer solution providers interested in the voting machine market (designers)



Observation 2

- Voting system vendors have limited awareness of the field of usability and have only limited awareness of accessibility
 - Most existing vendors (those already selling product) are *aware* of accessibility
 - None of the vendors interviewed are aware of or appear to use the user-centered design process as we know it
 - None of the vendors interviewed were aware of Human Factors Engineering or Usability Professionals as specialized practitioners (though some had become aware of accessibility resources such as the Trace Center)
 - The use of “design standards” were considered a “necessary evil” of the engineering process
 - All of the vendors were aware of and willing to accept mandatory usability and accessibility acceptance levels as part of their procurement requirements



Observations 3

- The issues found in even casual reviews of existing products show a failure to apply many basic principles of interface design, visual presentation, feedback, process control



Observations 4

- The lack of empirical data on usability and accessibility is a major limitation of our cause
 - There is anecdotal evidence but limited empirical data on usability “type 1” (usability problems prior to success) for digital voting technology
 - There is little or no empirical data on “type 2” and “type 3” (usability problems leading to partial or complete failure)
 - The inability to review products with a realistic ballots has resulted in major limitation of all of the reviews since ballot complexity is a major contributor to usability
 - Lacking this data, the profession is ill equipped to teach, instruct, or proselytize on the issues of usability, user-centered design, or accessibility

