

Usable and accessible e-Voting

Evaluation of the upcoming Norwegian e-Vote solution

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Independent non-profit research institution

Applied research on international and national level

Research areas

Statistics: Primarily oil industry and banking sector

ICT: Security, Multimedia, e-Inclusion

Motto

"Forskningsresultat som brukes og synes"

"Research results that make a difference"



Usability and accessibility evaluations

Scenarios

Findings

Conclusions

Questions



e-Voting trials in municipality election

e-Vote 2011 project

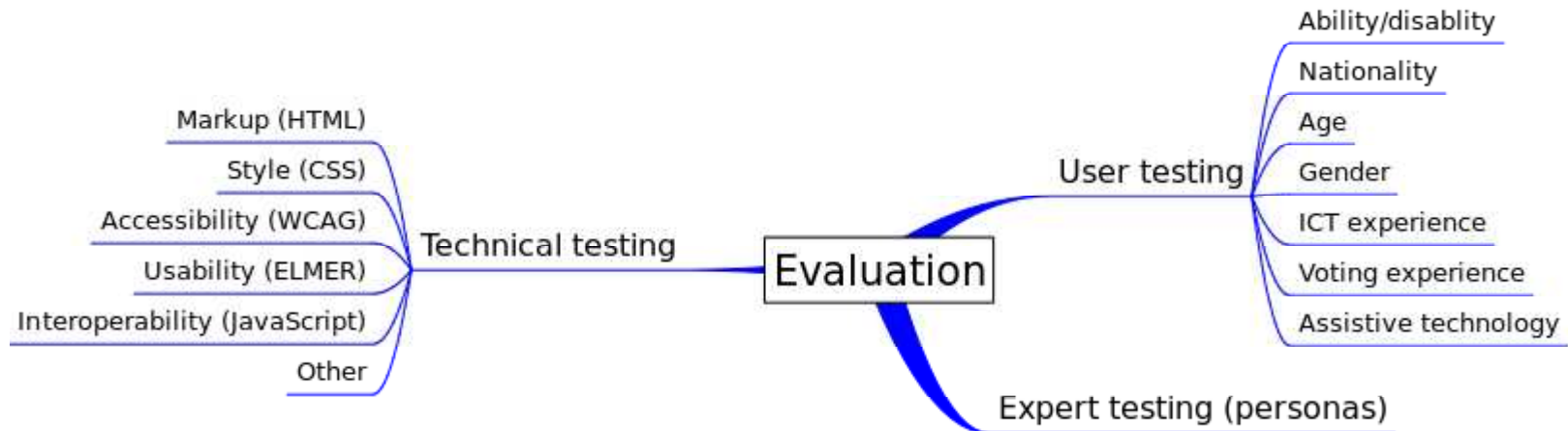
Prototypes

Development iterations

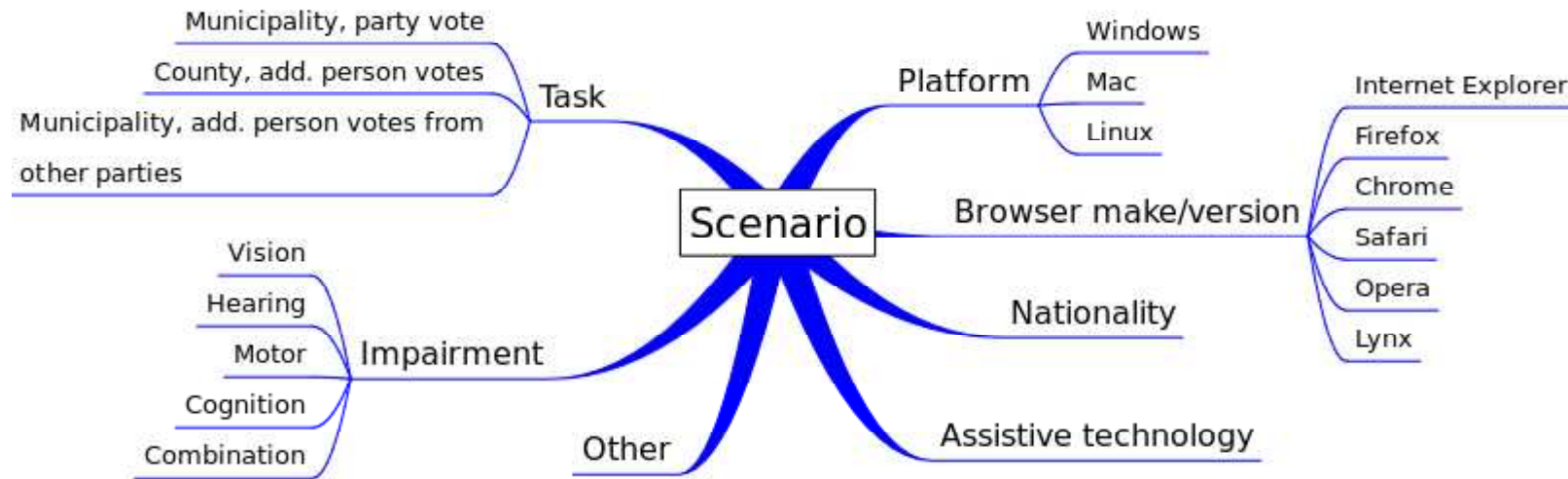
Usability and accessibility aspects



Evaluation parts



Conditions and tasks



Users

Norwegian Association of the Blind and Partially Sighted

Dyslexia Association

Cerebral Palsy Association

Norwegian Federation of Organisations of Disabled People

Senior Centers



(Small) financial incentive

In users' home environment

Scientific observer

Video recording

Tasks



Task completion within specified time period

Critical errors

E.g., particular guidance

Uncritical errors

E.g., suboptimal work flow (but not exploratory behavior)

Discussion of impression

Ranking of prototypes



Technical

Upside

No problems with HTML, CSS, and JavaScript



Downside

Static page layout

Lack of fallbacks for technology like HTTP Cookies

At most 85% of WCAG 2 (AA) conformance

Extensive use of tables as means for layout

Text in (raster) images

Low color contrast both with text and images

Insufficient handling of keyboard navigation

50%–70% ELMER conformance

Missing or misleading page headings

Too long help texts

Missing/poor dialogs with user



Upside

Extensive use of icons appealing in particular to dyslectics

Clean and simple layout preferred

The smallest number of navigation options considered as most intuitive



Downside

Lack of multimodal help, e.g. in form of instruction videos

Confusion by too many options

"Option suggest" viewed as too demanding compared to other solutions

No accessible implementation of AJAX/XHR

Horizontal scrolling

Help texts too general

Too small resolutions and poor contrast of user interface elements

Difficult navigation in sequences of content

Poor screen reader usability

Use of unfamiliar terms

Too small default font sizes and contrasts

Poor visual feedback and marking of what options (parties/candidates)

Ambiguous labeling of buttons

Illogical header and section levels

Inconsistent ways of selecting items



Upside

Positive attitude of vast majority

Favored by disabled persons as they do not depend on other assistance

Problems concerning influence by others outweighed by advantages

Potential to strengthen democracy due to degree of accessibility



Downside

Concerns related to privacy, anonymity, and trust

Significant gap towards accessibility and usability standards

Usability and accessibility not part of development process from the start

Improved training and education of developers and managers

ELMER appears either to have deficiencies or is not applicable

Positive attitude towards e-voting must not be spoiled by poor user experience



Thank you for your attention!

Questions and comments?

Other information

Project site http://nr.no/pages/dart/project_flyer_e-valg

Till Halbach: <http://nr.no/~halbach>

