

User Experience Design for E-Voting

How mental models align with security mechanisms

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E-Vote-ID 2019
2019 October 2

Joint work with Verena Distler, Peter B. Rønne, Peter Y.A. Ryan, Carine Lallemand, Vincent Koenig

Outline

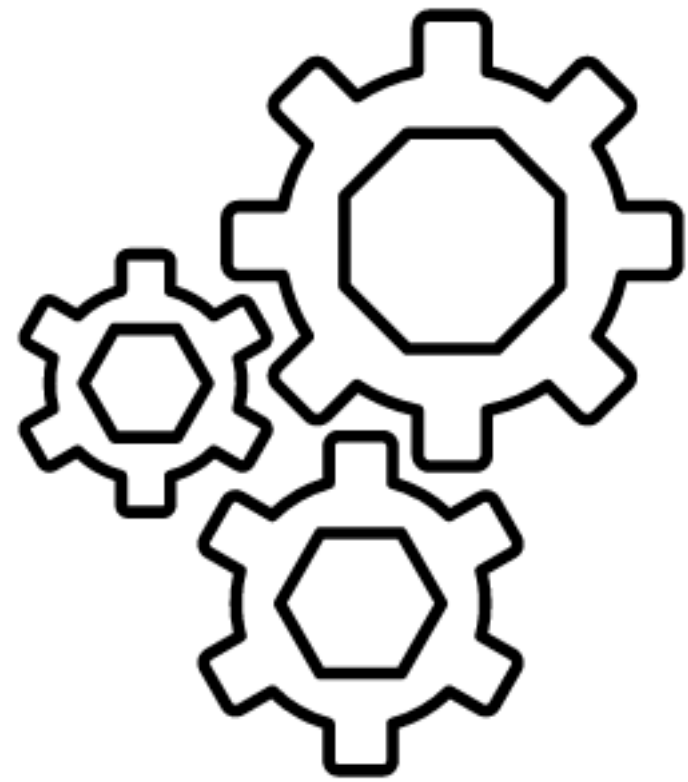
1. Motivation
2. Design
3. Results
4. Future Work

Motivation

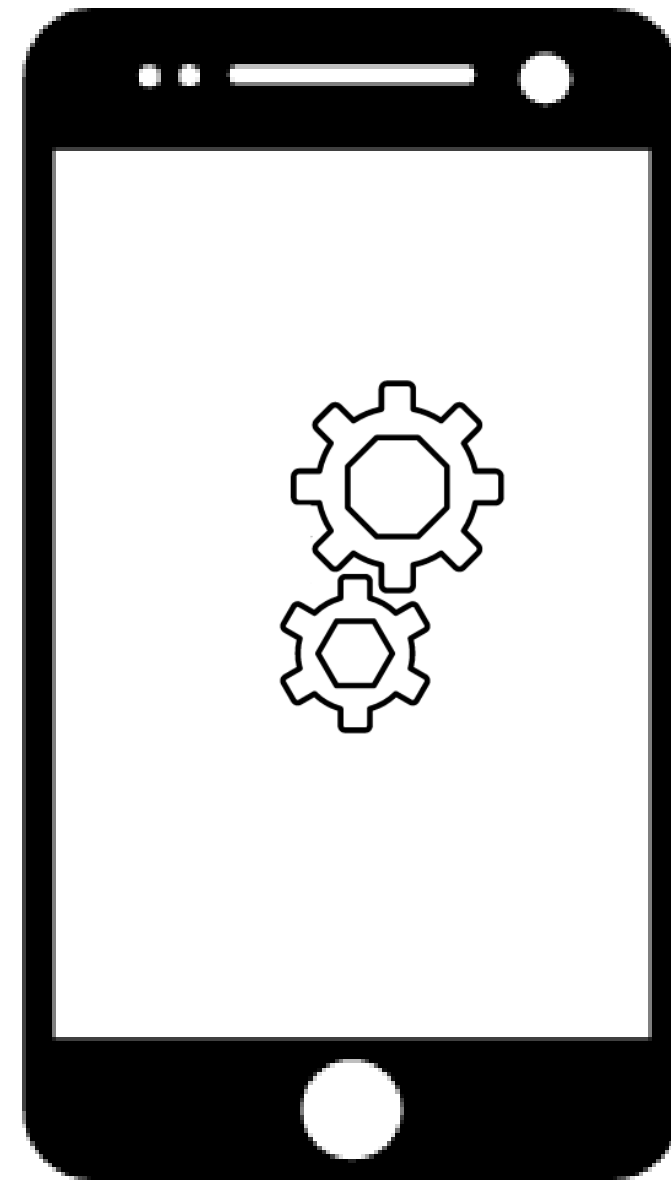
“We take a different approach and revisit an old idea: to provide each voter with a private tracking number. [...] This is appealing in that it provides voters with a very simple, intuitive way to verify their vote, in the clear.”

*–in Selene: Voting with Transparent Verifiability and Coercion-Mitigation
(Peter Y.A. Ryan, Peter B. Rønne, Vincenzo Iovino)*

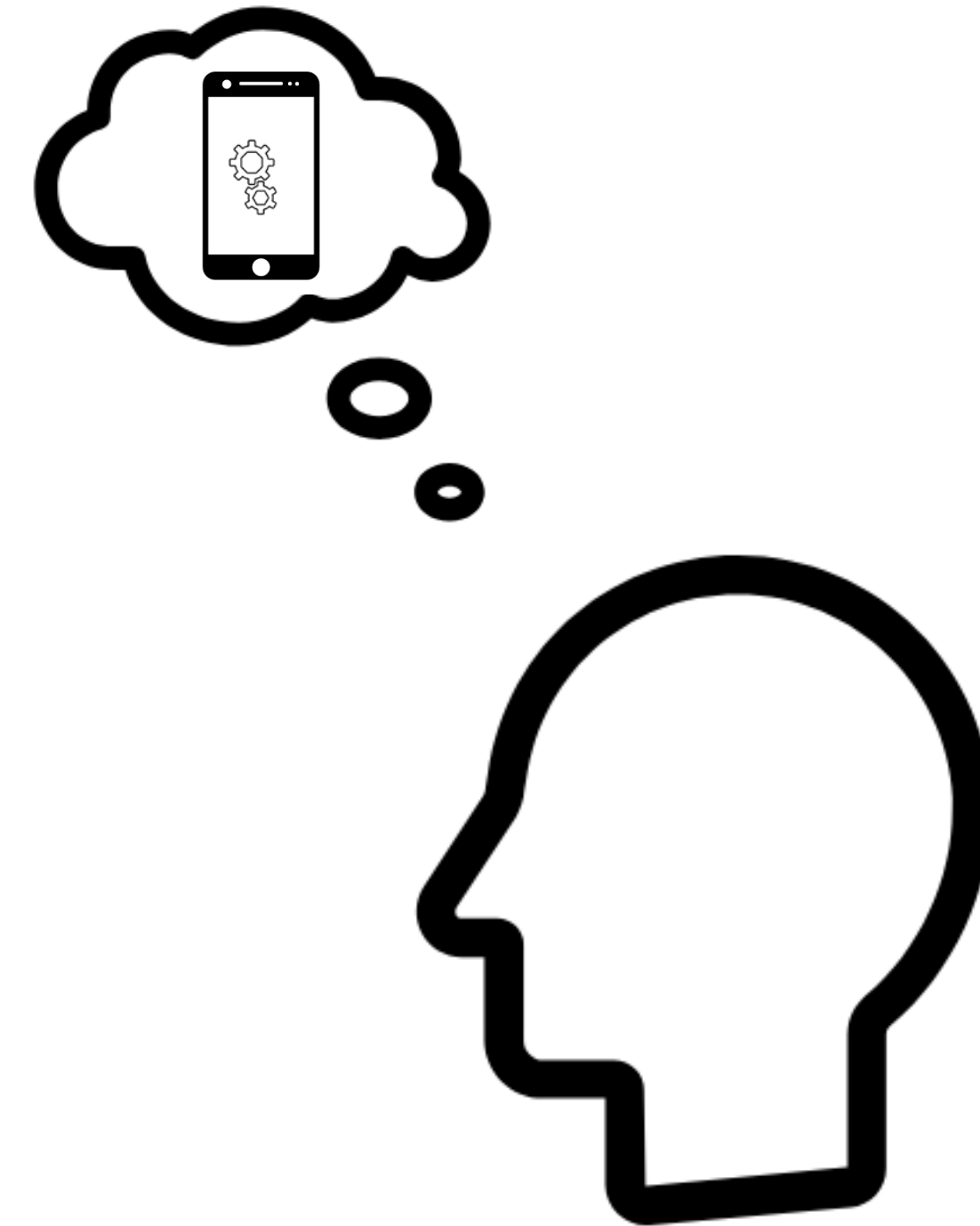
Design of a user interface



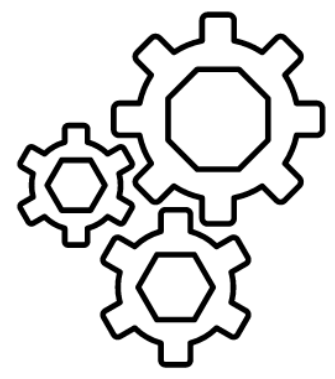
System



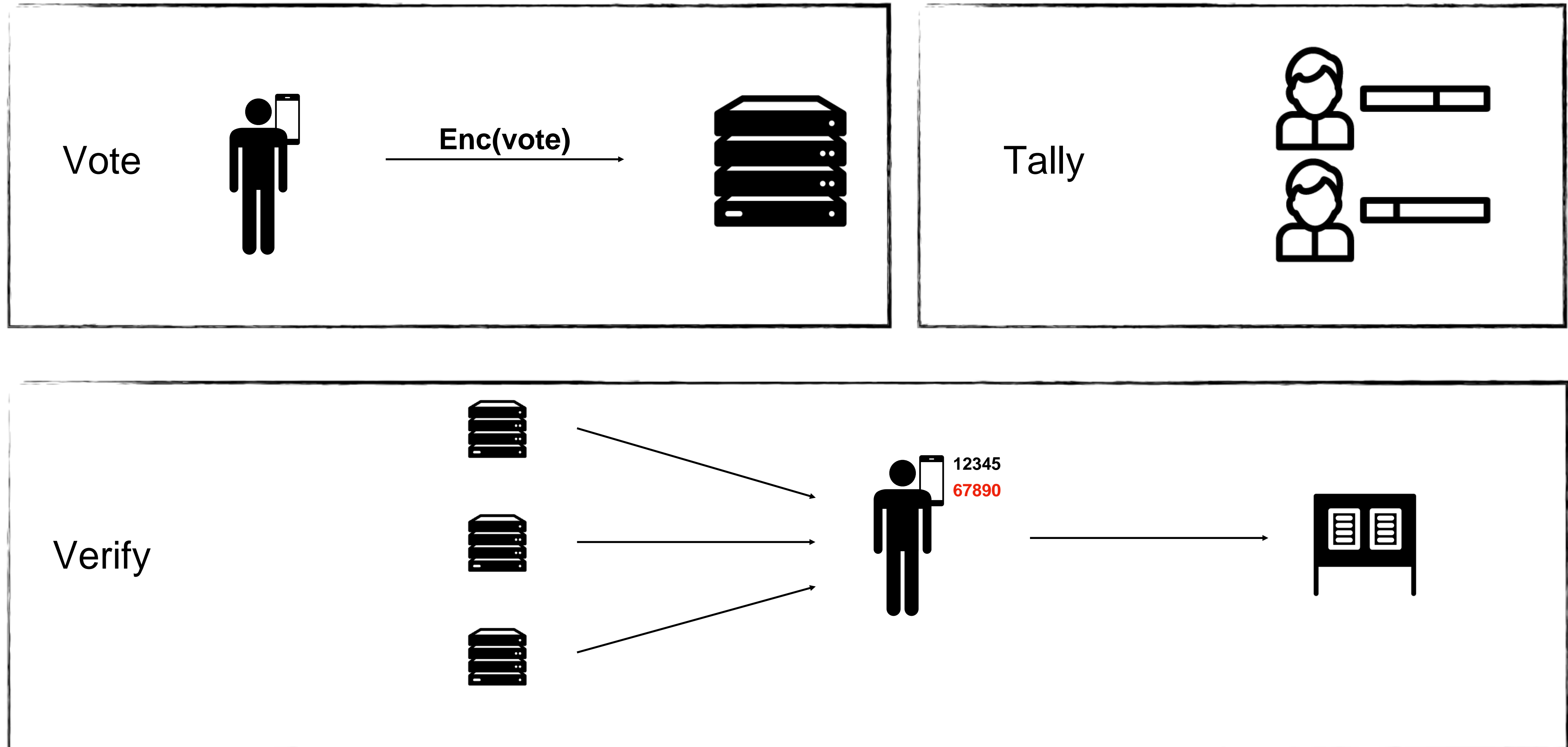
Image

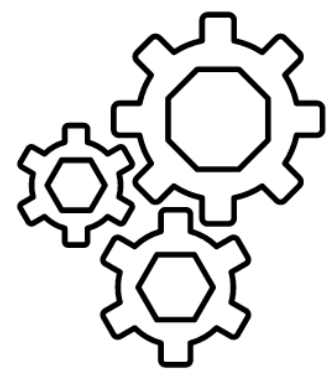


Perception

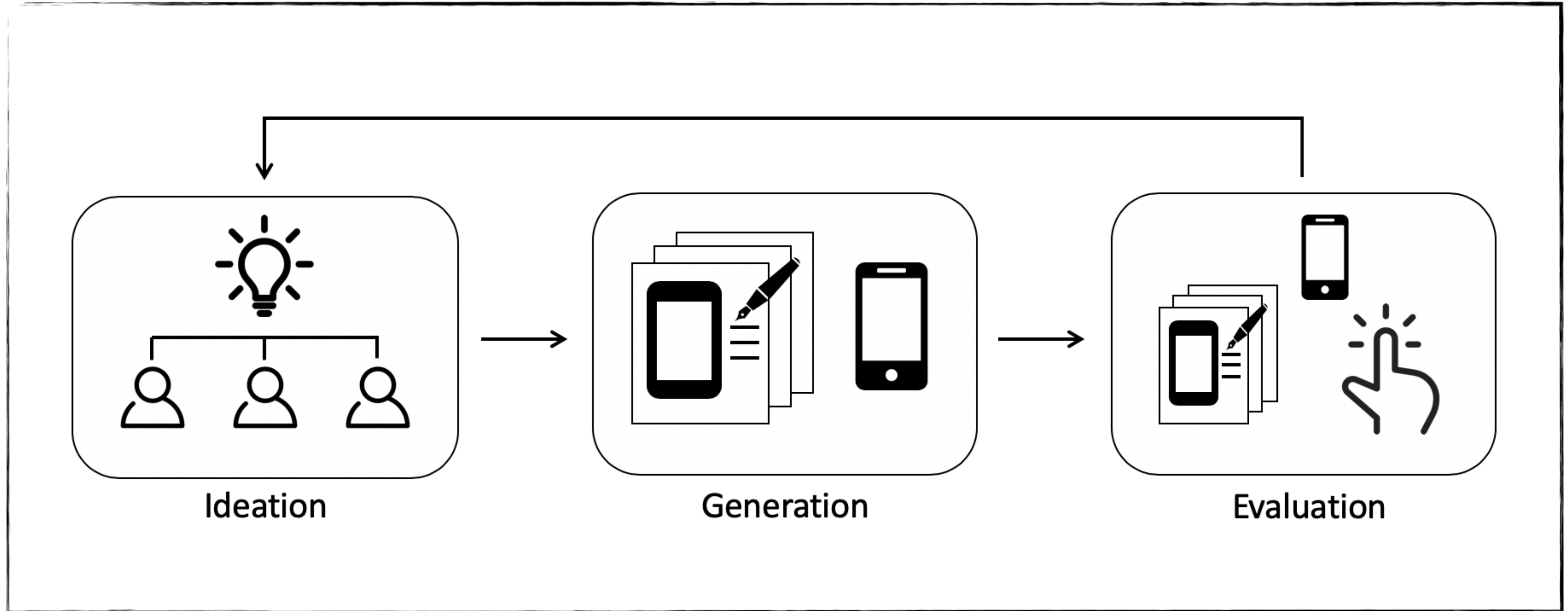


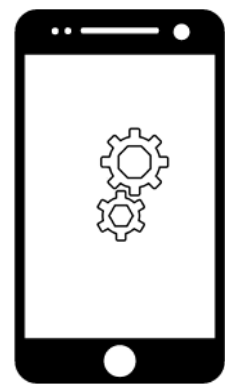
Selene



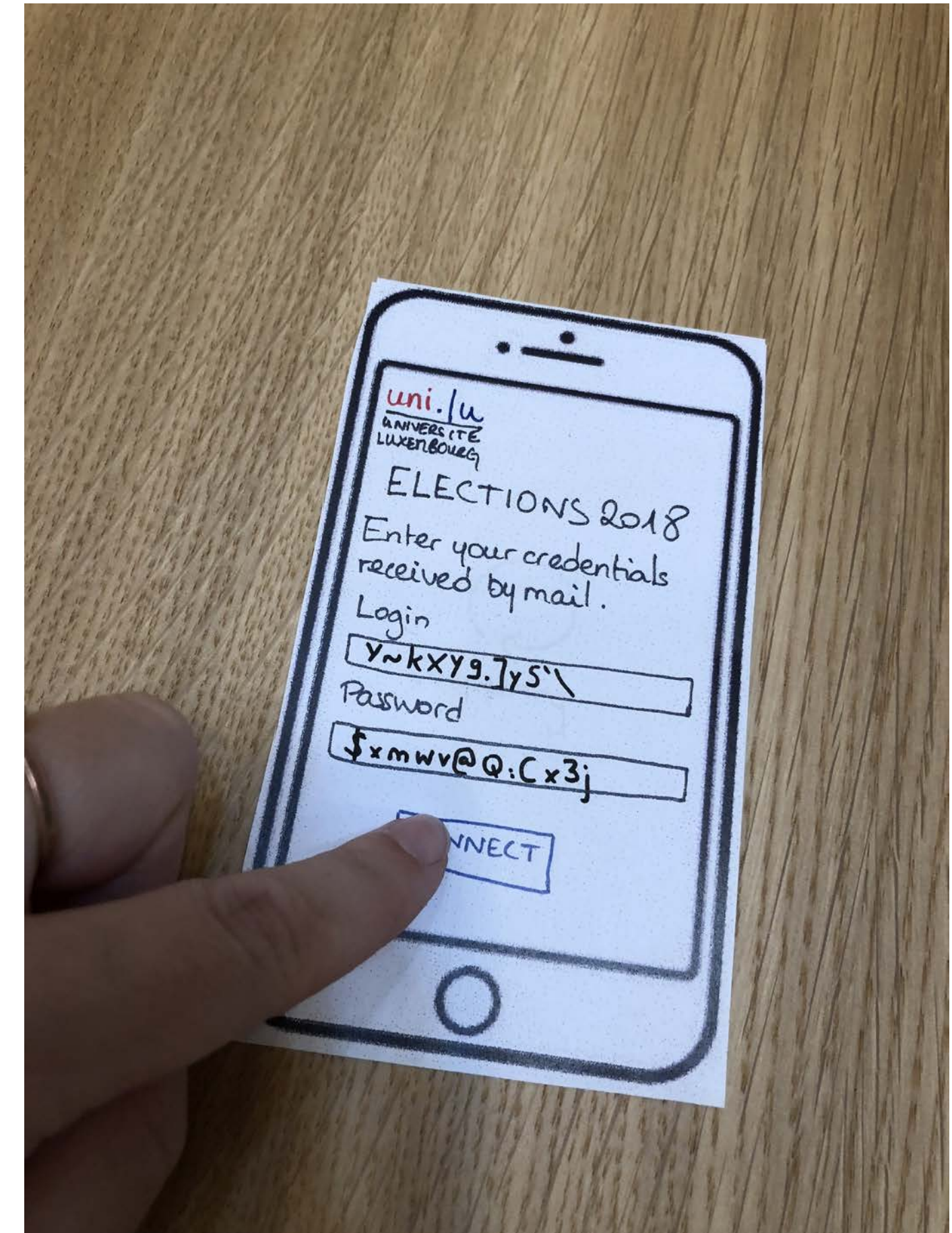


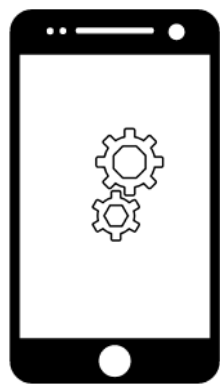
A User Centred Approach



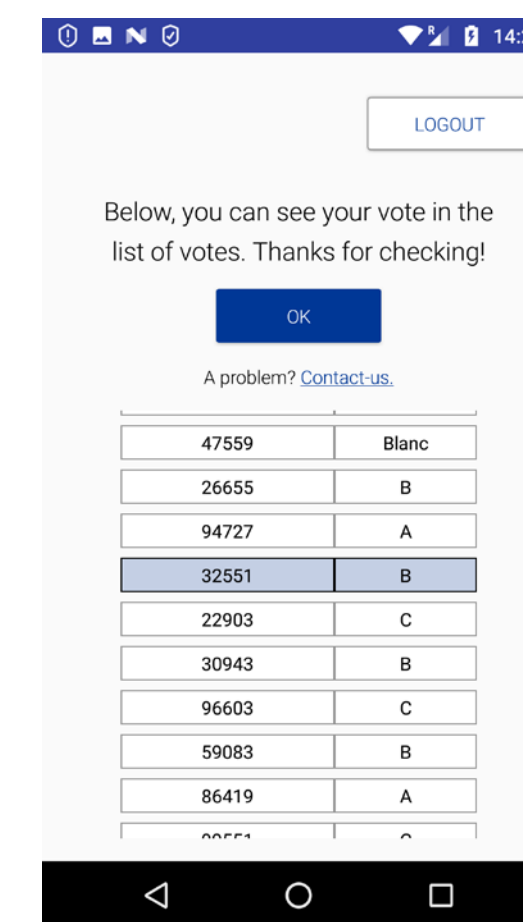
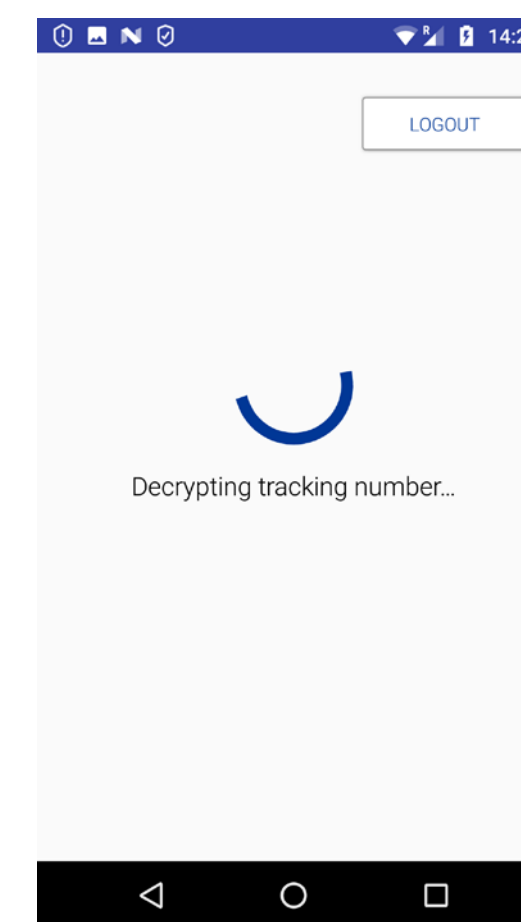
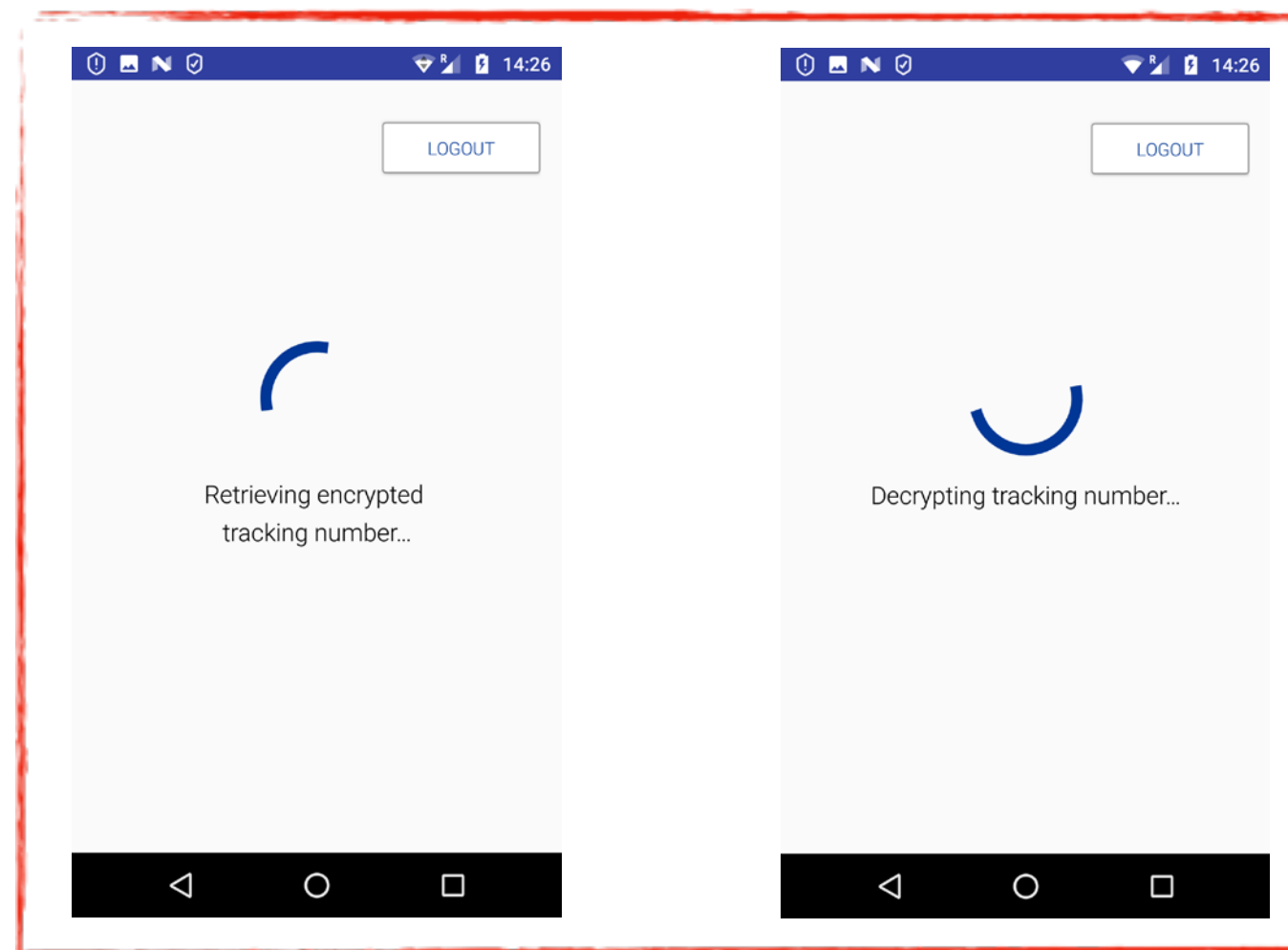
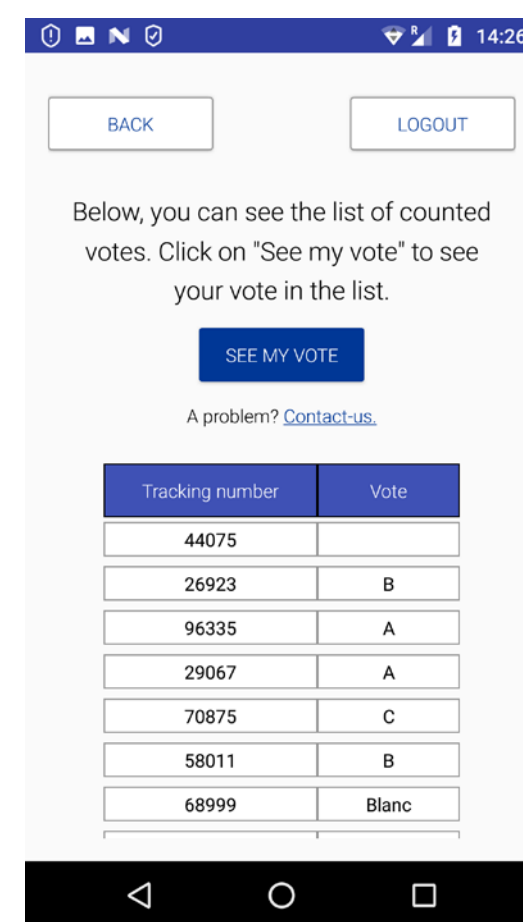
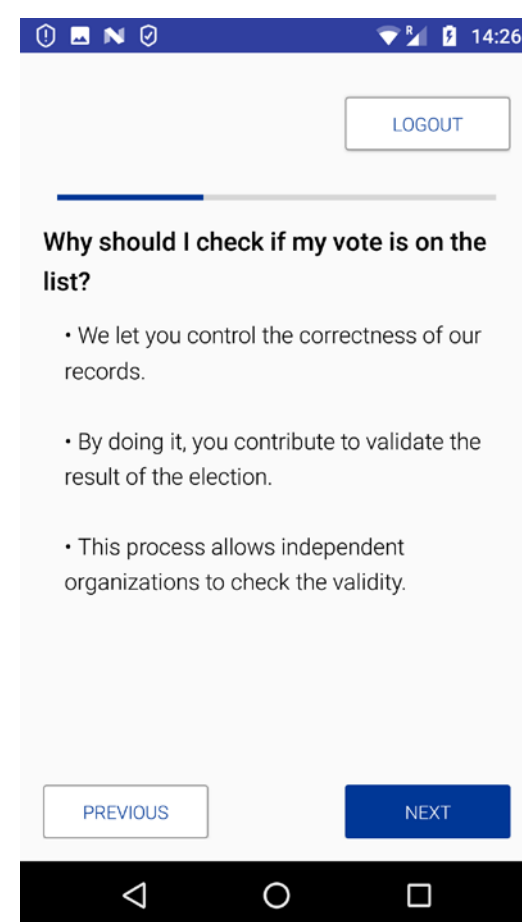
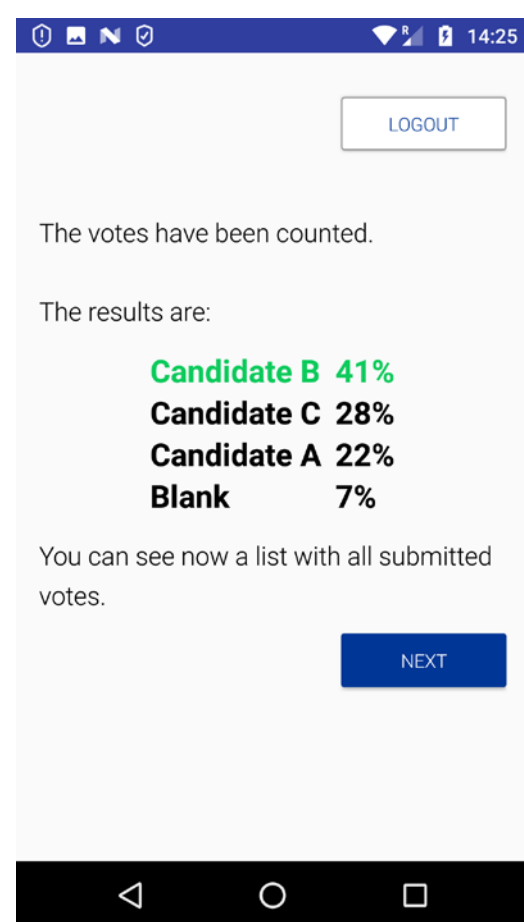
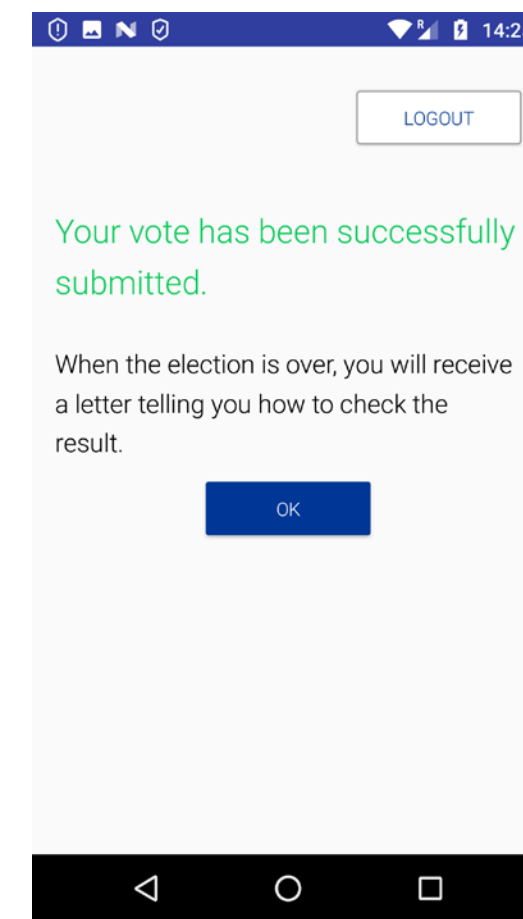
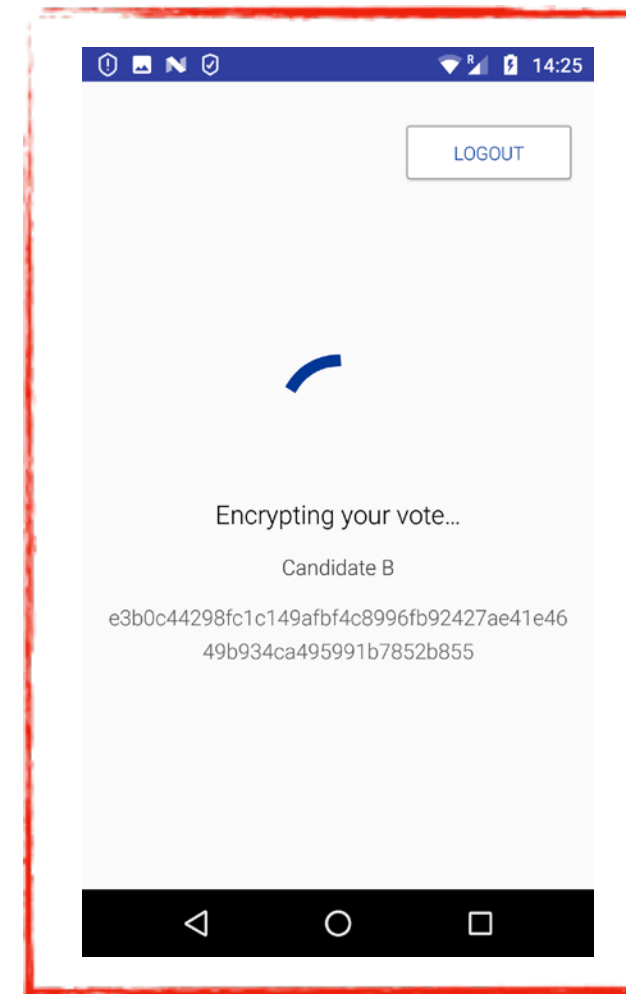
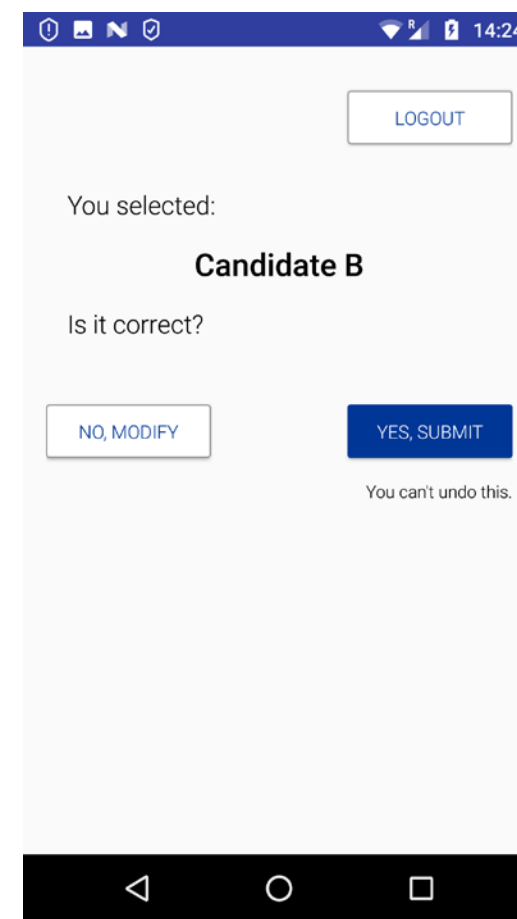
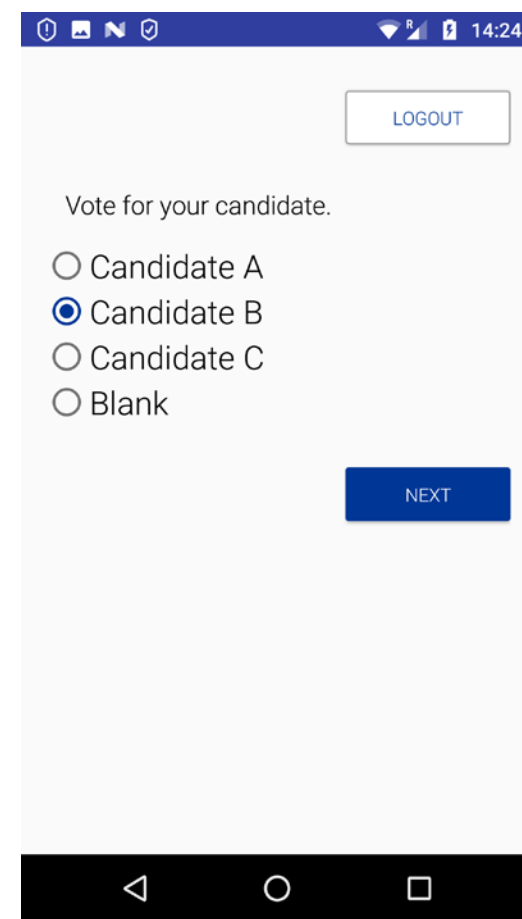
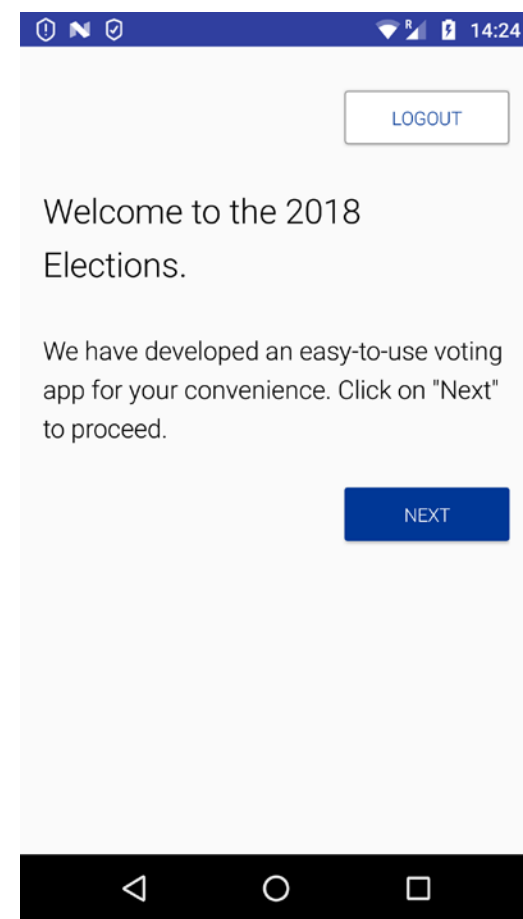
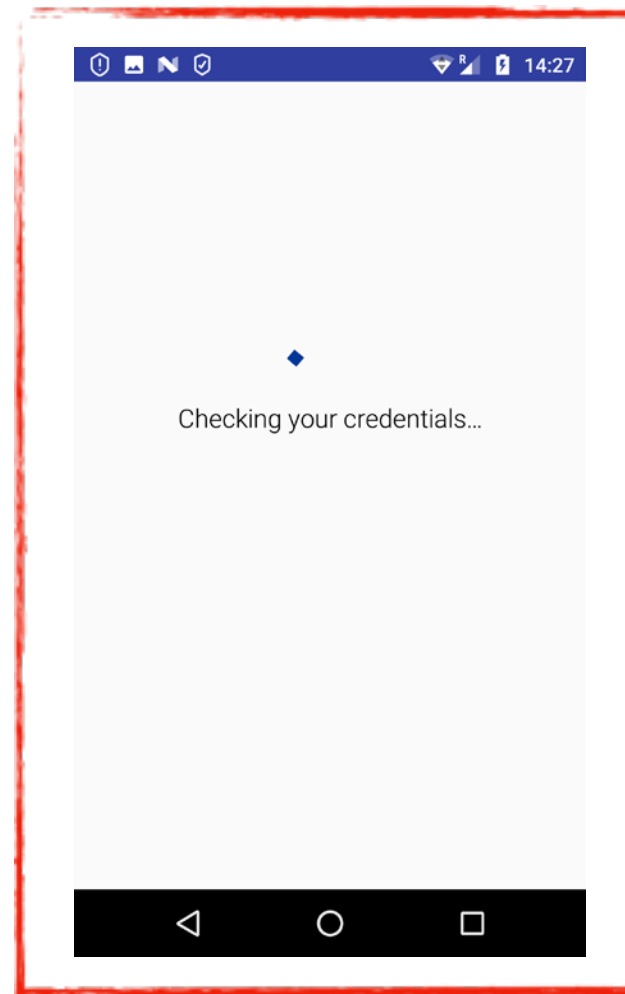
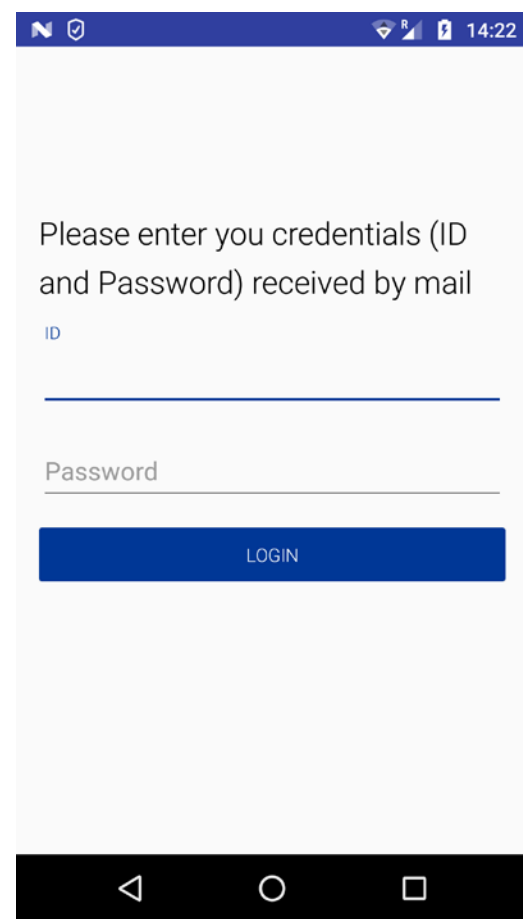


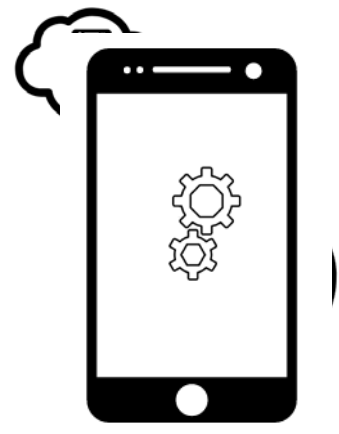
Testing with paper





Mobile Application



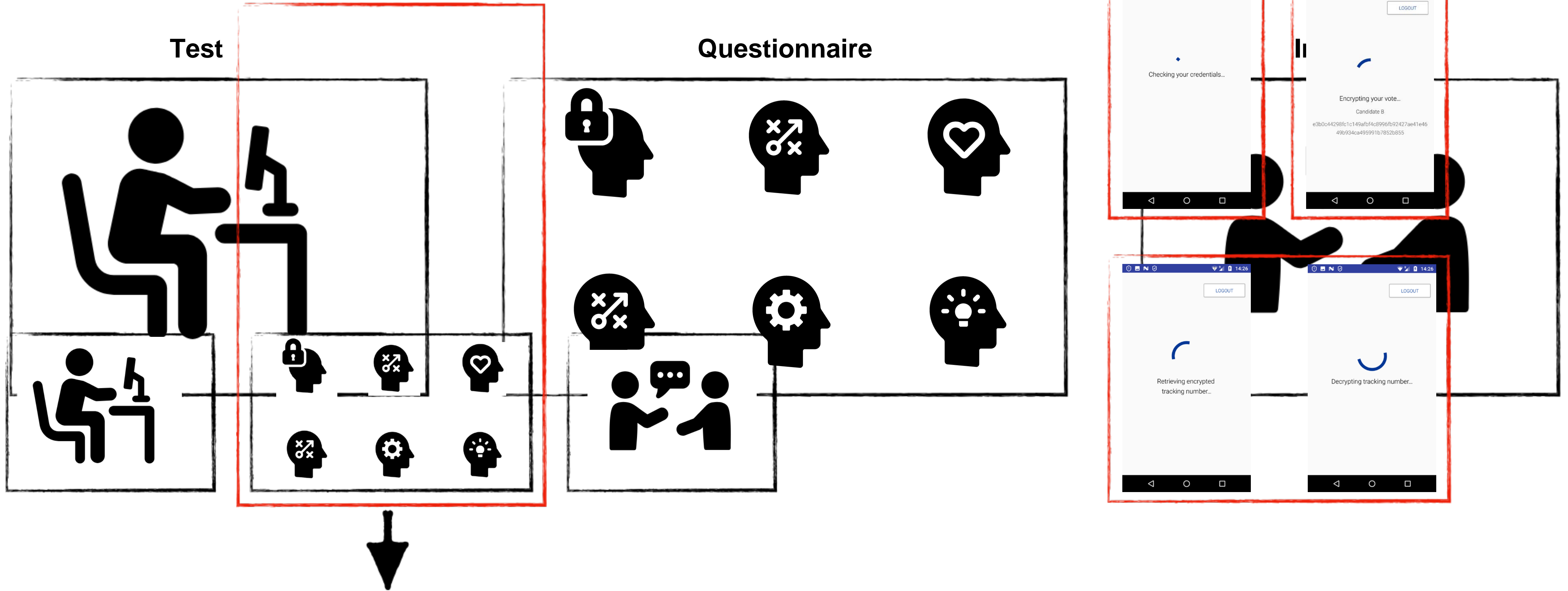


“Mental models are people’s view of the world, of themselves, of their own capabilities, and of the tasks that they are asked to perform, or topics they are asked to learn.”

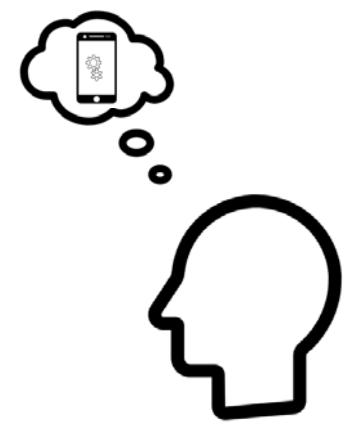
–Donald Norman



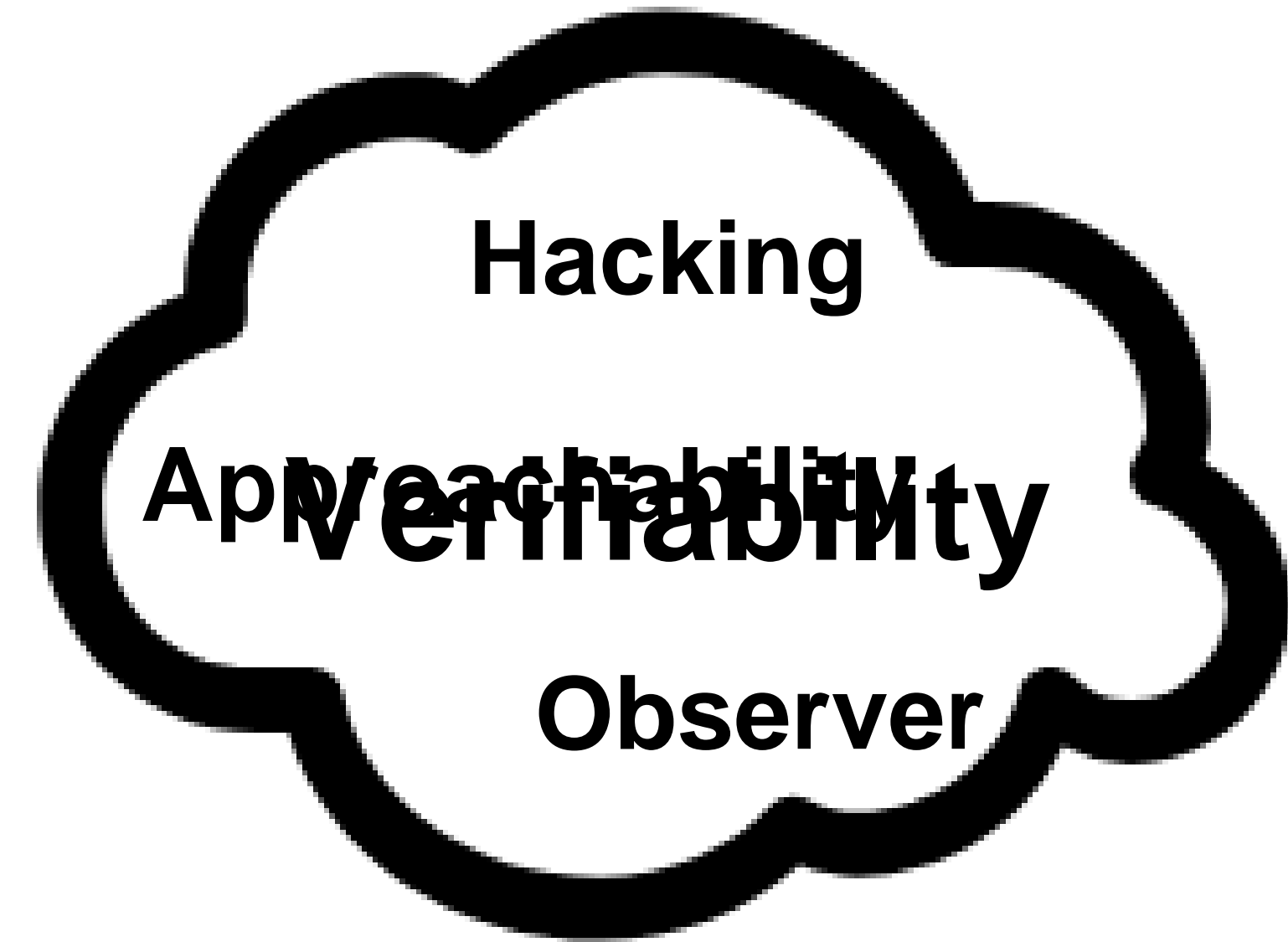
User Study



Security, visible yet unseen? —CHI Proceedings 2019



Mental Models



What have we learned?

Impact on Voting Research

- People care about *Privacy* and *Coercion*
- *Verification* is confusing
- *Trust* important for security perception
- Accessibility of knowledge

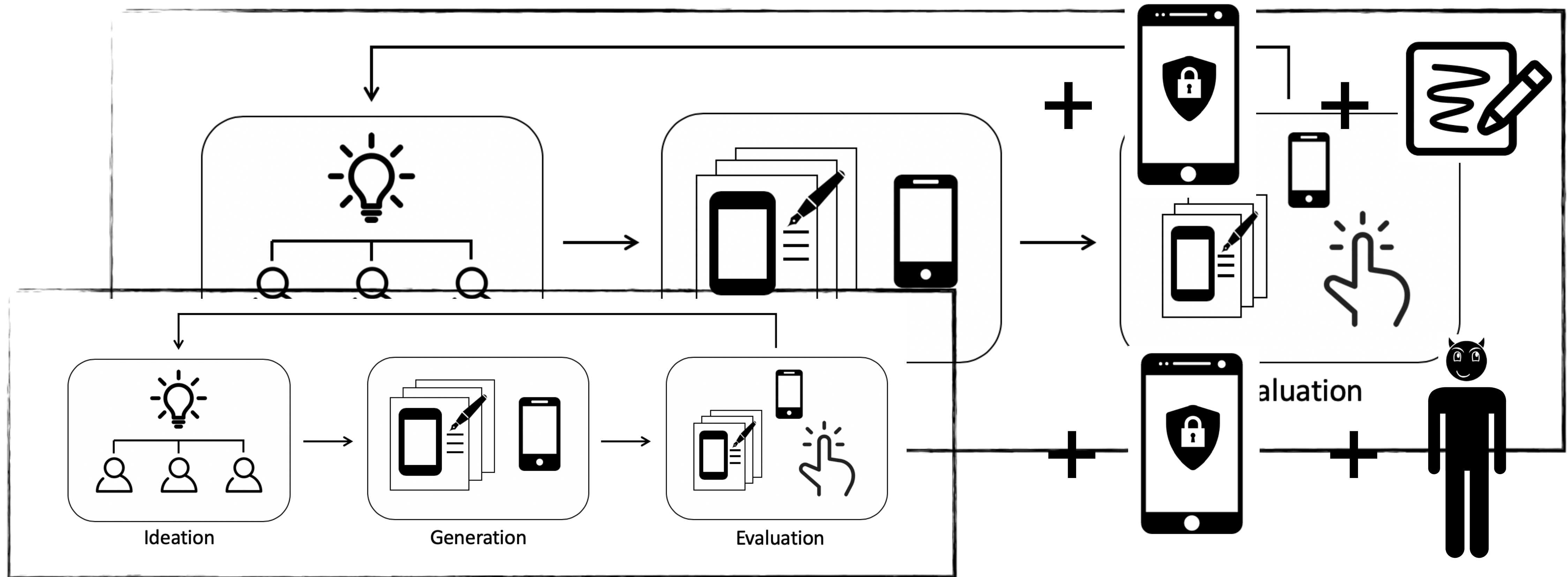
Impact of Design

- 100% of effectiveness
- A lack of understanding
- Security unseen

Limitations

- 1 hour to understand
- Incomplete experience

Future Work



Thanks for your attention!

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