LITE: Label for IoT Transparency Enhancement

Motivation

Design a solution for IoT devices being compliant with the General Data Protection Regulation (GDPR), to implement informed consent and improve transparency.

Privacy facts

Collected data — **Sample**

- customer nr.
- temperature
- humidity
- device Internet address

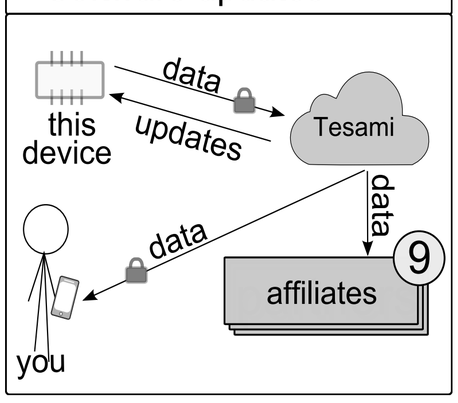
Sent *hourly* to
Tesami GmbH

Stored for *3 years*
in France

All data accessed by
- You
- Tesami GmbH
- 9 affiliates

Purpose of collection
- your personal use
- scientific research
- targeted advertisements
- product improvement

Received data
Software updates



Label design

Content and structure are aimed at answering questions about the data collected and used by the IoT device:

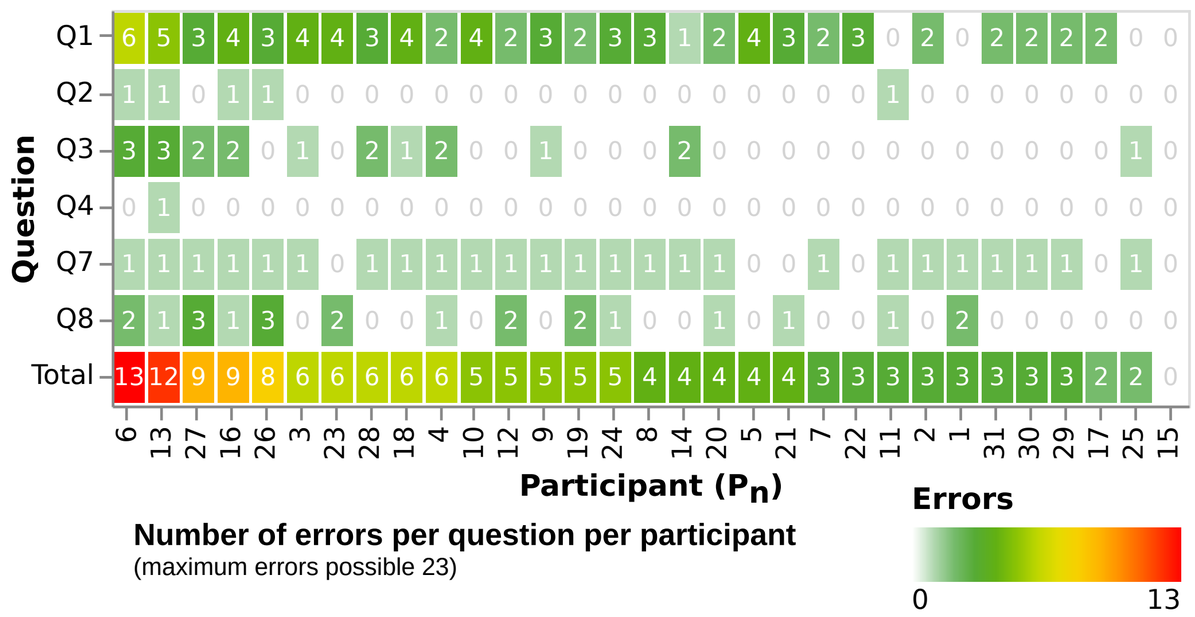
- *What* data are collected?
- *What is the purpose* of collection?
- *Where* are they stored?
- *How long* are they kept?
- *Who* accesses the data?
- How to access my data?
- What do the data look like?
- How frequently are the data sent?
- Which communications are protected?
- What paths do the data follow?
- What information is received from other sources?

Additional considerations:

- Target non-experts
- Avoid specialized terms
- Usable in grayscale
- Short and simple
- Remain generic
- Side-by-side comparison

Results

Q1. What purpose are the data collected for?
Q2. If the data were collected in the year 2045, what will be the last year in which they are still available?
Q3. What information is collected?
Q4. Which country are the data stored in?
Q7. How many organizations can access the data after collection?
Q8. Which of the following data transmissions are not protected?



Number of errors per question per participant
(maximum errors possible 23)

Selected opinions

- “I do think such kind of labels are essential” (P28)
- “They kind of show you their hand, like in poker almost” (P2)
- “Usually this type of information is buried under a lot of paper” (P7)
- “I get so much data just by looking at that, [..] if you make it longer, I will probably not read it” (P10)
- “It only informs me, but I cannot control the data or limit it” (P1)
- “I need to feel that I trust the label itself” (P17)
- “It's pretty clear, but I would like it bigger” (P5)

Recruitment

- Students and staff of the University of Karlstad
- Signed consent form
- No ethical committee needed
- Interviewed on-campus
- Compensation: lottery of 6 meal coupons (8.5 €)

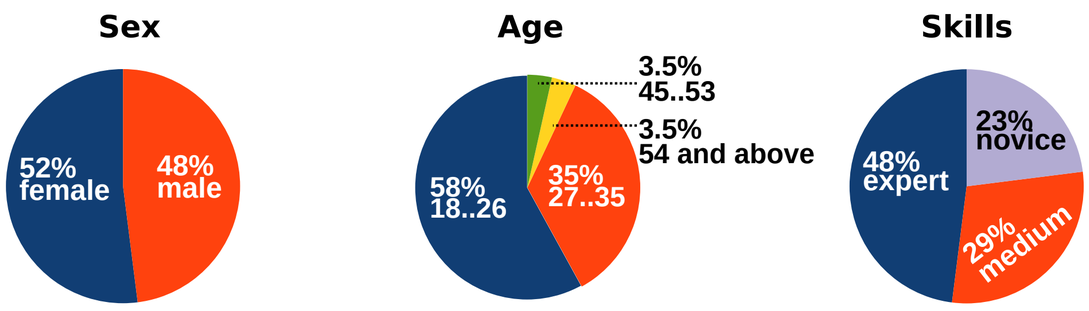
Evaluation

- Questionnaires and interviews
- 31 participants interpreted the label
- They were alone while examining the label and device, and filling out the questionnaire
- The label was always at their disposal, even during the interviews
- Average interview duration: 7min

Discussion

- Details about how each affiliate uses the data were requested
  - P19 suggested a folding label to reveal more info
- Standardized terms and icons will reduce error rates
- Vague purpose statements did not trigger suspicion
- Most participants did not doubt the authenticity of the label
- No correlations between age, skill level and error rates found

Demographics



Conclusions

- The results indicate that LITE is a step in the right direction
- Participants were enthusiastic about the label and its benefits
- Despite the errors made by some, LITE increases their awareness of privacy aspects and improves transparency
- Digital versions of LITE can improve accesibility (e.g., larger fonts, text-to-speech rendering, interactivity)
- The generic design could be applicable to other domains

Privacy & Us

Alexandr Railean, Delphine Reinhardt
arailean@datenschutzzentrum.de, reinhardt@cs.uni-goettingen.de

Unabhängiges Landeszentrum für Datenschutz, Kiel, Germany
Georg-August-Universität Göttingen, Germany