Acceptance of Autonomy and Cloud in the Smart Home and their Concerns

Online Survey

- **Groups**: German smarthome users with daily experiences and people interested in making their home smart or smarthome technology.
  - German smarthome forums and social network groups

- **Respondents**: 6 weeks, December 2017
  - 211 respondents, 73% male
  - 52% (66% male) had daily experience with smarthomes

- **Occupations**: developer, managing director, designer, police officer, motorcar mechanic, electrician, nurse, teacher, and more.

Cloud

- To what degree do respondents accept that smarthome devices depend on cloud-based services?

  - **4 levels of dependency**
    - No dependency
      - Device must not have a cloud dependency.
    - Full functions
      - Without cloud connection, there will be no remote / advanced functions. However, all local functions must work, e.g. cleaning robot.
    - Main functions
      - Without cloud connection, no control through network. However, main functions are available, e.g. switch a power plug by physical button.
    - Only with cloud
      - Device works only with a cloud connection, e.g. Smart speakers.

  - Significant association
    - $\chi^2(3)=11.55, p<.05$

Autonomy

- Do respondents accept that smarthomes learn inhabitants’ behavior and adapt its behavior automatically?

  - **3 levels of autonomy**
    - Not autonomous
      - Fully end-user driven. Explicit control of the smarthome, e.g. smartphone, voice commands.
    - Semi-autonomous
      - Behavior is based on rulesets. Smarthome does not learn inhabitant’s behavior, i.e. state-of-the-art smarthomes.
    - Fully autonomous
      - The smarthome learns inhabitant’s behavior and adapts or creates rules by itself.

  - Significant association
    - $\chi^2(2)=30.04, p<.001$

- **Most frequent concerns**
  - Malfunction (33.65%), Loss of control (30.33%), Privacy of data (8.06%), Security (8.06%), Flexibility (8.06%)