

## A Survey Instrument

### Q1: Device Introduction

In this study we would like to learn about your opinions on internet connected devices. But what exactly are internet connected or 'smart' devices? A growing number of physical things around us are being equipped with electronic capabilities and connected to the internet. They become increasingly smart. Examples of such devices are smartphones, smart speakers with voice assistants, smart security cameras, smart thermostats, smartwatches, or cars with increasing connectivity. All these devices have several features in common:

- They have one or more sensors that collect information around them, like microphones, video cameras, a thermometer, or GPS.
- They are connected to the internet, for example via WiFi or Cellular networks.
- Thus, they can communicate with other devices, mobile applications, or servers (e.g. websites or the 'Cloud').
- They allow features for users which would not be possible if they were not connected.

**Q2: Device experience:** Do you have personal experience with such devices? Please select all internet connected products you have used at least once during the last four weeks:

Personal Computer (Desktop PC and/ or Laptop) | Smartphone | Tablet | Smart TV | Smart Speaker (e.g. Google Nest, Amazon Echo) | Smart Watch and/ or fitness tracker (e.g. FitBit, Apple Watch) | Gaming Console (e.g. Playstation, Xbox) | Smart Lightning (e.g. Philips Hue, Wyze bulb) | Smart Thermostat | Internet Connected Security Camera | Smart doorlock and/ or doorbell | Robot vacuum | Printer with internet / WiFi connection | Car with at least one internet connected component (e.g. Infotainment, Board computer, WiFi or cellular connectivity) | Other device(s): (- Open text field -)

**Q3: Vignettes:** On the following pages, you will read seven fictional short stories about people and their experiences with internet connected devices. After each story, we will ask you some questions about your impressions and thoughts on the account. Please read the stories carefully and answer the questions as genuinely as possible. There are no right or wrong answers, and we do not want to test your performance in any way. Instead, we would appreciate your honest opinion and impressions. **One exemplary vignette (of seven):** [text the same as example Vignette in Methodology section in main body of paper; without numbering of vignette elements.]

**Q3.1:** If you had to predict, how likely do you think a real manufacturer would respond this way considering the circumstances? *Extremely unlikely, Unlikely, Somewhat unlikely, Neither likely nor unlikely, Somewhat likely, Likely, Extremely likely*

**Q3.2:** The manufacturer's response to the situation is appropriate considering the circumstances. *Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree*

(If answer to previous question was *Strongly disagree, Disagree, or Somewhat disagree*;) What exactly was inappropriate about the manufacturer's response? (- Open text field -)

**Q3.3:** Alex's response is a suitable way to move forward from this situation. *Strongly disagree, Disagree, Somewhat disagree, Neither*

*agree nor disagree, Somewhat agree, Agree, Strongly agree*

(If answer to previous question was *Strongly disagree, Disagree, or Somewhat disagree*;) What should Alex do instead? (- Open text field -)

**Q3.4:** The situation Alex is faced with is concerning.<sup>1</sup> *Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree*

**Q3.5:** The situation described in the story is realistic. *Strongly disagree, Disagree, Somewhat disagree, Neither agree nor disagree, Somewhat agree, Agree, Strongly agree*

(If answer to previous question was *Strongly disagree, Disagree, or Somewhat disagree*;) What do you think is unrealistic about this story? (- Open text field -)

**Q4: Confidence in previous answers:** How confident do you feel about your answers to the previous stories? *Very confident, Somewhat confident, Somewhat unconfident, Very unconfident, I don't know*

(If answer to previous question was *Somewhat unconfident or Very unconfident*;) What exactly makes you feel unconfident about your answers? (- Open text field -)

**Q5: Personal experiences:** Did the previous stories remind you of any personal experiences you have had with electronic devices? *Yes, No, I don't know* (If answer to previous question was *Yes*;) Please briefly tell us about your personal experiences you were reminded of: (- Open text field -)

**Q6: Attention check:** We would like to learn what your favorite device is. Please select 'Washing machine' from the list below. This is an attention check. Based on the text you read above, what device have you been asked to enter? *Smartphone, Washing machine, Laptop, Voice assistant*

**Q7: Age:** How old are you? *Under 18, 18-24 years old, 25-34 years old, 35-44 years old, 45-54 years old, 55-64 years old, 65+ years old, Prefer not to say*

**Q8: Gender:** Which gender do you identify with? *Male, Female, Non-binary / third gender, Prefer not to say*

**Q9: Country:** In which country do you currently reside? (*Select from list*)

**Q10: Employment status:** Which option best describes your current status? *Employed, Unemployed, Student, Retired, Other* (If answer to previous question was *Employed*;) Which field are you working in? (*Select from list*)

**Q11: Last comments:** Would you like to make any last comments or remarks about this survey? (- Open text field -)

**Q12: Debriefing:** Thank you for your responses! This study was about security and privacy issues of internet connected devices. We did not disclose this at the beginning of the survey directly to not influence your responses in any way. Security and privacy is a sensitive topic which becomes increasingly important as the number of different smart devices in our environment grows rapidly. In this survey, we wanted to measure your expectations about responses of different actors for varying security and privacy issues and smart devices. By reading and responding to different short stories, you helped us a lot to do so.

<sup>1</sup>We did not focus on this scale in our analysis due to space limitations and no important relationships over what the other scales already showed.