

**Supplementary material to the article “Assessing the environmental performance of ICT-based services: does user behaviour make all the difference?” (Journal Sustainable Production and Consumption)**

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**Online survey – smart home users**

**1. Do you have a smart heating system?**

By smart heating system we mean a heating control that is connected to other sensors, can be controlled externally or is self-learning.

- yes, I have a smart heating system → *continue with question 2*
- no, I do not have a smart heating control → *exclusion*

**2. Why do you use your smart home system? open question**

Please tell us in keywords what you like about your smart home system or what you use it for.

**3. Why do you use your smart home system? table**

I use my smart home system because....

	1 Strongly disagree	2	3	4	5 Strongly agree	6 Do not know
... I want to increase my security at home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I always want to be sure that my home is well secured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I can check that everything is safe at home while I'm away.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... because I want to meet my friends' expectations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... because people who are important to me like smart homes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it arouses the interest of my acquaintances and friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.. it is a new experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it is exciting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... because I do not get bored with it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it automates tedious activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it makes my life easier.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it enables a high level of comfort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it works well for watching movies or listening to music.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...it allows me to place orders online.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it enables me to use entertainment services throughout the whole flat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

... I like to be up to date with technology.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I enjoy controlling a smart system.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I like dealing with technical devices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it is an investment that pays off financially.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it reduces my operating costs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it saves me money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it enables me to save resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... because it enables me to adjust my energy consumption so that I can live as environmentally friendly as possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it helps me to protect the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it is of high and consistent quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it is manufactured to a high standard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... it meets the highest standards and expectations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**4. Who arranged for the smart heating system to be installed in your home?**

- the landlord before I moved in
- the landlord after I moved in
- me when I moved in
- someone from my household when moving in
- me after I moved in
- someone from my household after moving in
- I do not know

*(Multiple answers possible)*

**5. Since when do you have your smart heating system?**

MM/YYYY

**6. How important were the following reasons for you to acquire a smart home system?**

	1 Not important	2	3	4	5 Very important	6 Do not know
Ensuring safety at home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased comfort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possibility of controlling devices/my household.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opportunity to protect the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saving money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Expectations/interest of my friends/acquaintances/family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
That it was an exciting new acquisition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Quality of the product.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My technology enthusiasm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**7. Please indicate to what extent you have noticed the following changes since you acquired your smart home system. Since using my smart home system...**

	1 Strongly disagree	2	3	4	5 Strongly agree	7 Do not know
... I save time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I save money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I save energy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... I save effort and hassle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**8. Since I started using my smart home system, ...**

The room temperature is lower than before.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The room temperature is higher than before.
I heat fewer rooms than before	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I heat more rooms than before

**9. Please indicate how often you do the following activities now compared to before you acquired your smart home.**

	1 Much less than before	2	3 Same as before	4	5 Much more than before	6 Do not know
Listen to music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Watch TV / Movies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Buy electronic devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Save energy by controlling my electricity consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have lights switched on in rooms where I am not currently staying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**10. Please indicate how often you perform the following activities. Please select "does not concern me" if you do not own a device.**

	1 Never	2	3	4	5	6 Always	7 Does not concern me
I leave the TV on even if no one is watching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I leave the room, I keep the light on.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When buying new electrical devices, I consciously pay attention to their power consumption.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I leave my devices in standby mode.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In winter I ventilate only briefly, but intensively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I defrost my fridge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When using the washing machine, I wait until it is fully loaded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I turn the heating down or off before I go on holiday.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I wash my clothes at a low temperature (hot clothes at 60°, only slightly dirty ones at 30°).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**11. [Environmental awareness] How much do you agree with the following statements?**

	1 Strongly disagree	2	3	4 Strongly agree	5 Do not know
Environmental protection should be a priority for Germany, even if it compromises economic growth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Each and every one of us must take responsibility today in our own surroundings for preserving an environment worth living in for future generations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In order to preserve our natural livelihoods, we must all be willing to limit our standard of living.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Through our way of life, we are also responsible for many environmental problems in other countries (e.g., through the exploitation of raw materials or waste exports).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When buying, I pay attention to the sustainability of products (e.g. environmental compatibility, durability, fair working conditions).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12. [Norm-Activation-Model] Please indicate to what extent you agree with the following statements.**

	1 Strongly disagree	2	3	4	5 Strongly agree	6 Do not know
The electricity consumption of private households contributes significantly to the threat to natural environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The electricity consumption of Private households is a major contributor to climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rising electricity consumption in the private sector is a serious problem for the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am aware that my private energy saving behaviour has an impact on climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I believe that through energy-saving behaviour I can make a contribution to protect the environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By consistently saving energy in the household, I can make a decisive contribution to environmental protection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For environmental reasons, I personally feel obliged to generally save electricity in my household.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I personally consider it my duty to save energy in my household.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For environmental reasons, I personally feel obliged to save energy wherever possible.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13. [Green Tech Optimism] Please indicate to what extent you agree with the following statements.**

	1 Strongly disagree	2	3	4	5 Strongly agree	6 Do not know
Seeing how the development of green technologies is progressing makes me optimistic about the situation of our environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Even through the further development of green technologies, we will not be able to stop climate change.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
By using more and more efficient household appliances (refrigerator, washing machine, etc.) we can master climate problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The environmental problem will become less important as appliances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

for household and everyday use require less and less energy.							
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**14. Do you have the following electronic devices in your household?**

Devices	Yes	No	Do not know
Wall and radiator thermostats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Window sensors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Humidity and water sensors/humidity meters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Door and window contacts (for ventilation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Motion detector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surveillance camera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Door intercom/communication with video and Wi-Fi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Washing machine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tumble dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Robot Hoover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refrigerator (also as freezer and refrigerator combination)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coffee machine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wi-Fi sockets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Central switch for all sockets and lights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DVD and Blu-ray devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bluetooth-Multiroom-Soundsystem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speakers with voice control (e.g. Amazon Echo or Google Home)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stationary computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laptop/Notebook/Netbook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tablet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Printer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landline telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile phone (except smartphone)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smartphone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital camera	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MP3 player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaming console (also portable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smart Watch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic body scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smart thermometer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smart Home Central (control unit)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**15. How many of these devices do you own? (Filter)**

Device	1	2	3	4	5	6	7 or more
[Filtered devices from No. 14]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**16. How many of the devices you own are interconnected? (Filter)**

By interconnected, we mean that the devices are electronically connected to each other, e.g., by Wi-Fi or radio, and can exchange information. This way, the smart home system can e.g., be controlled via an app.

Device	0	1	2	3	4	5	6	All	Do not know
[Filtered devices from No. 14]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**17. Please state for each of your devices whether... (Filter)**

- 1) most of them already existed before you *set up* your *smart heating system* (e.g. you may have had a smartphone before owning a smart home system and are now also using it for it).
- 2) they were mainly *newly* purchased after the *smart heating system* was already set up.
- 3) they have predominantly replaced other devices that were not compatible with the smart home system.

Device	Already existed	Mainly newly purchased	Predominantly replaced other devices
[Filtered devices from No. 14]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**18. Please indicate which areas of your smart home system you use the most. (Multiple answers possible)**

- Heating/Ventilation/Shading
- Multimedia/Entertainment (smart TV, voice-controlled speaker, smartphone/landline phone, etc.)
- Security functions (e.g., surveillance camera, door contacts etc.)
- Household appliances (e.g. Hoover robots, connectable lamps, etc.)
- Gadgets (smart scale, smartwatch, etc.)
- Other, namely: *[free entry]*

**19. How are your smart devices connected to each other? Please indicate all communication channels used. [Multiple answers possible]**

- via radio connection
- via cables
- via bluetooth
- via Wi-Fi
- I do not know
- Other, namely: *[free entry]*

**20. How do you control your smart devices? [Multiple answers possible]**

- via a control or radio centre (HUB/Gateway)
- via smartphone/tablet
- via computer/laptop
- via speaker/virtual assistant (e.g., Alexa, Sonos One, ...)
- I do not know
- Other, namely: *[free entry]*

**21. How often do you usually deal with the technical control and adjustment of the functions of your smart home devices?**

	Less frequently than once a week	Once a week	Several times a week	once a day	Several times a day	hourly	Several times per hour
Smart Home System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**22. Please state below how long you normally use the indicated devices per week. (Filter from question No. 14)**

	0-2 h	3-4 h	5-6 h	7-8 h	9-10 h	More than 10 h	Do not use
TV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD and Blu-ray devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bluetooth multiroom sound system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stationary Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Laptop/Notebook/Netbook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tablet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Gaming console (offline use only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**23. How often do you speak to your virtual assistant on average?** (Filter from question No. 14)

By virtual assistant we mean, for example, a smart speaker with an integrated voice assistant (e.g., Alexa).

	Less frequently than once a week	Once a week	Several times a week	once a day	Several times a day	hourly	Several times per hour
Virtual Assistant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**24. Please indicate how long your robot Hoover is normally used per week.** (Filter from question No. 14)

	1h	2h	3h	4h	5h	6h or more	never
Robot Hoover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**25. Please indicate how long your Hoover is normally used per week.** (Filter from question No. 14)

	1h	2h	3h	4h	5h	6h or more	never
Hoover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**26. How many hours per week do you spend privately doing the following online?**

	0-2 h	3-4 h	5-6 h	7-8 h	9-10 h	More than 10 h	Do not use
Communication (e.g., WhatsApp, email, social media messenger)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information gathering (e.g., news, reading articles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shopping (e.g., online shopping, searching for shops or products, price comparison portals)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creating content (publish social media posts, websites, blogs, vlogs, videos)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Streaming videos and movies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Streaming music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Playing online video games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Online platforms (e.g. eBay Kleinanzeigen, Kleiderkreisel, BlaBlaCar, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**27. When consuming which products or services can you best self-actualize?**

Please choose at least 3 of the following product groups and put them in order. Move the product groups about which you best self-actualize to the top.

Clothing
Holiday trips
Kino/Theater
Interior
Digital Devices
Social Media
Online Videos/Streaming
Apps

**28. How many of the following products have you purchased in the last three months?**

Please estimate the number in each case. If you are not sure whether a purchase falls within this period, include it anyway.

	0	1	2	3	4	5	More than 5
Interior (e.g., furniture, decoration, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Books, magazines (excluding electronic editions, e-books, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Household devices (e.g., hair dryer, Hoover, kitchen devices, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holiday trips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal accessories (e.g., jewellery, handbags, purses, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Digital devices (e.g., mobile phone, laptop, speakers, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>[Control question]</b> Please select number 2 here.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**29. How many square metres of living space does your flat have?**

- under 20
- 20 to under 40
- 40 to under 60
- 60 to under 80
- 80 to under 100

- 100 to under 120
- 120 to under 140
- 140 to under 160
- 160 to under 180
- 180 to under 200
- 200 and more
- do not know / no indication

**30. Which type of energy do you predominantly use to heat your home?**

- Electricity
- Gas
- Fuel oil
- Solid fuels (e.g., wood, coal, pellets)
- Other (e.g., geothermal energy, solar energy)
- do not know / no indication

**31. Do you use green electricity?**

- yes                       no                       do not know

**32. What type of heating is predominantly installed in your home?**

- Floor heating
- Radiator
- Wall heating
- do not know / no indication

**33. Do you heat your home the same during the day and at night, i.e., do you have the same temperature setting all the time?**

- yes, it is equally warm in the flat during the day and at night
- no, the temperatures during the day and at night are different

**34. Do you heat your home evenly, i.e., do you have the same temperature setting in all rooms?**

- yes                       no

***FILTER: If 33 and 34 no, then:***

**35. To what room temperature do you heat your living space (living room, kitchen, office) during the day in the heating period?**

**36. To what room temperature do you heat your bedroom during the day in the heating season?**

**37. To what room temperature do you heat your living space (living room, kitchen, office) at night during the heating period?**

**38. To what room temperature do you heat your bedroom at night during the heating season?**

***FILTER: If 33 yes and 34 no, then:***

**39. To what room temperature do you heat your living space (living room, kitchen, office) during the heating season?**

**40. To what room temperature do you heat your bedroom during the heating season?**

**FILTER: If 33 no and 34 yes, then:**

41. To what room temperature do you heat your home during the day in the heating season?

42. To what room temperature do you heat your home at night during the heating season?

**FILTER: If 33 and 34 yes, then:**

43. To what room temperature do you heat your home during the heating season?

Answer options for each question:

- <17°C
- 17°C to below 19°C
- 19°C to below 21°C
- 21°C to below 23°C
- 23°C to below 25°C
- >25°C
- do not know → **Filter to question with hand controller for the same combination**

**Hand control filter of the respective sub-questions at "do not know" OR**

**If 33 and 34 no + Do not know anywhere at 35-38, then:**

44. To what level do you normally set the hand controls in your living space (living room, kitchen, office) during the day in the heating season?

45. To what level do you normally set the hand controls in your bedroom during the day in the heating season?

46. To what level do you normally set the hand controls at night in your living room space (living room, kitchen, office) during the heating period?

47. To what level do you normally set the hand controls at night in your bedroom during the heating season?

**If 33 YES and 34 NO + Do not know anywhere at 41/42, then:**

48. To what level do you normally set the hand controls in your living space (living room, kitchen, office) during the heating season?

49. To what level do you normally set the hand controls in your bedroom during the heating season?

**If 33 NO and 34 YES + Do not know anywhere at 39/40, then:**

50. To what level do you normally set the hand controls during the day in the heating season?

51. To which level do you normally set the hand controls at night during the heating period?

**If 33 and 34 YES + Do not know at 43, then:**

52. To what level do you normally set the hand controls during the heating season?

Answer options for each question:

- 1
- 2
- 3
- 4
- 5

- 6
- I do not use hand controls

**53. Do you adjust your heating temperature to whether you are at home or not?**

- yes → *continue with question 54*
- no → *continue with question 58*

**54. On an average weekday, how many hours are you at home during the day (between 6 am and 10 pm)?**

- Not at all
- 1-3h
- 4-6h
- 7-9h
- 10-12h
- 13-15h
- 15h or more

**55. On average, how many hours a day are you at home at the weekend (between 6 am and 10 pm)?**

- Not at all
- 1-3h
- 4-6h
- 7-9h
- 10-12h
- 13-15h
- 15h or more

**56. What is your average heating temperature in your home when you are not at home?**

- <17°C
- 17°C to below 19°C
- 19°C to below 21°C
- 21°C to below 23°C
- 23°C to below 25°C
- >25°C
- do not know → *Filter to question with hand controller for the same combination*

*Filter: "do not know" for question 56*

**57. To what level do you normally set the hand controls in your home when you are not at home?**

- 1
- 2
- 3
- 4
- 5
- 6
- I do not use hand controls

**58. What type of building do you live in?**

- Detached single-family house

- Semi-detached or terraced house
- Duplex house
- Residential building with 3 or more flats
- Other type of building

**59. When was the building constructed?**

- before 1949
- 1949 – 1990
- 1991 – 2000
- 2001 – 2010
- 2011 or later
- do not know

**60. What is your mode of housing?**

- owner of a house
- owner of a flat
- tenant/subtenant
- rent-free in a company flat
- rent-free in another flat or house

**61. How high was your energy consumption on space heating in the last accounting period?**

*open question*

Please enter the energy consumption of the space heating from your last heating bill (in kWh). You can see an example of this in the picture. If you do not know, please enter "xxx".

**62. How long was the accounting period?**

- Monthly,  quarterly,  half-yearly,  annually,  do not know

**63. What is the weather-adjusted characteristic value of your heating consumption per m<sup>2</sup>?**

*open question*

This value should be evident from your heating bill. You can see an example of this below. Please enter the value in kWh. If you do not know, please enter "xxx".

**64. How many people live in your household, including yourself? *open question***

Please indicate only the number of persons in numerical format. Example: "4" instead of "four"

**65. How many of them are children and young people (under 18)? *open question***

Please indicate only the number of persons in numerical format. Example: "2" instead of "two"

**66. What is your monthly net household income? Please assign yourself to one of the following groups.**

- 500€ to below 1000€
- 1000 to below 1500€
- 1500 to below 2000€
- 2000 to below 2500€
- 2500 to below 3000€

- 3000 to below 3500€
- 3500 to below 4000€
- 4000 to below 4500€
- 4500 to below 5000€
- 5000 to below 5500€
- 5500€ and more
- no indication

**67. What is your highest level of education?**

- School finished without graduation
- Primary/Secondary school certificate
- Intermediate school certificate
- Advanced school certificate (Abitur)/subject-related advanced school certificate
- University degree
- Academic degree
- No indication

**68. In which year were you born? (drop-down menu)**

**69. Which gender do you assign yourself to?**

- female
- male
- other
- no Indication

**70. How many inhabitants does the place you live in have?**

- under 5.000
- 5.000 to below 10.000
- 10.000 to below 20.000
- 20.000 to below 100.000
- 100.000 to below 500.000
- above 500.000
- do not know