

Barriers to Smart Home Adoption: A Qualitative Study of Non-Tech-Savvy Users

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Smart home adoption remains low in Europe, and despite commercial investment, non-tech-savvy users largely have not adopted smart home technology. This qualitative exploratory study investigates barriers preventing non-tech-savvy people from adopting smart homes and whether AI assistance could be a help. Semi-structured interviews and card sorting were conducted with four participants (ages 33–67) in Denmark. Thematic analysis revealed five barriers: [1] Privacy skepticism (ranked most important by all participants). [2] Complexity skepticism as a design/UX result. [3] Distrust in big tech. [4] Relevance based on Context, and [5] Home assistant adoption as an alternative. While participants showed willingness to learn if perceived value was high enough, privacy concerns and lack of trust in commercial platforms remained barriers. When imagining AI-guided setup, perceived ease of use improved modestly (+6.8%), but perceived usefulness declined (-2.4%), this means that AI alone cannot overcome fundamental privacy concerns. The findings suggest that mass-market adoption requires platforms to focus on local, offline-capable architectures and transparent data practices rather than technological improvements.

Additional Key Words and Phrases: smart homes, adoption barriers, privacy concerns, qualitative research, non-adopters, Home Assistant, Technology acceptance model, Innovation of diffusion,

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1 Introduction

Despite significant investment from commercial actors, smart home adoption remains low across Europe. This exploratory study explored the adoption barriers of non-tech-savvy individuals in regards to smart home systems with specific focus on Home Assistant and the potential of AI reducing complexity barriers. Through semi-structured interviews and two rounds of card sorting with four danish participants between the age of 33 and 67, the research identified five major themes that together paint a picture of a market caught between privacy concerns, usability frustrations, and distrust in big tech corporations. This results in negative perceptions of smart home systems.

2 Previous research

With major technology firms like Apple, Google, Philips, and recently also IKEA investing in smart home systems, consumers are seeing more solutions and accessories available at lower prices than ever before. While these commercial systems are marketed as simple to install, they typically require an internet connection and raise

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significant privacy and integrity concerns—often locking users into proprietary ecosystems where devices only work within a single brand's platform.

The alternative is open-source platforms like Home Assistant [assistant 2026] that operates entirely local and support devices from multiple manufacturers depending on the owned hardware. However, this flexibility comes at a cost. Setting up Home Assistant requires more technical knowledge and some coding expertise, often making it inaccessible to non tech-savvy users.

Caught between these two options, many potential users could find the adoption decision too pricey or complex and only partially adopt it, or abandon smart home technology entirely. This hesitation is reflected in current adoption rates. According to Eurostat data from 2024 [Eurostat [n. d.]]. In Denmark, around 17 % of homeowners have adopted an internet-connected home energy management system (such as thermostats, utility meters, and smart lighting), and around 15 % used an internet-connected security system (including alarms, smoke detectors, and cameras) When looking at the numbers from 2022, energy management was at 15% only showing a 2% increase in two years from 2022 to 2024, and home security was at 17% showing a decrease in adoption over the same two year period. [Hansen et al. 2024]

2.1 Explored Frameworks

2.1.1 Diffusion of innovation (DOI). DOI is a theory proposed by Everett M. Rogers [Rogers 1983] first time back in 1963. The theory tries to understand how new technology is adopted and uses five groups of technology adopters to explain the adoption process of the new technology. The innovators (2.5% of the population) , early adopters (13.5%) , early majority(34%), late majority(34%) and the laggards(16%). When looking at the adoption numbers from the danish population the adoption rate roams around 15-21 % depending on category definitions (internet connected TV's excluded) [Eurostat [n. d.]] which if we take the first two groups from DOI shows that the adoption of smart homes haven't reached the early majority yet. [Shin et al. 2018] mentions this in the article from 2018

" ... the smart home market is currently in a chasm between early adopters and the mass market. This chasm, in spite of suppliers actively providing smart home services means that it is necessary to analyze smart homes from a consumer perspective " [Shin et al. 2018]

2.1.2 Technology Acceptance Model (TAM). In the article Identifying the Key Drivers and Barriers of Smart Home Adoption: A Thematic Analysis from the Business Perspective [Basarir-Ozel et al. 2022] explored smart home adoption through a qualitative thematic analysis of 13 expert interviews. Their framework combined Diffusion of Innovation (DOI) theory with UTAUT2—a model derived from TAM. The study confirmed that DOI's classic innovation attributes, such as relative advantage, compatibility, and complexity, all played a meaningful role in adoption, while UTAUT2 contributed factors like enjoyment, price value, and facilitating conditions. Of the eight barriers identified, the three most prevalent were complexity, lack of compatibility, and high cost. As they write in the report:

"Complexity is one of the main inhibitors of SHT adoption. E1 states",
[Basarir-Ozel et al. 2022]

They then quote a participant saying:

"We need to reach a state where the machine is constantly learning from the data produced inside and outside the home. Only this highly personalized and ubiquitous environment will be attractive to mainstream consumers."[Basarir-Ozel et al. 2022]

This can raise the question if the introduction of Generative Ai models can help raise the adoption rate and lower the complexity, making the adoption barrier to smart homes lower for non-tech-savvy people opening up for mass market adoption.

3 Methods

This research is based on semi structured interviews with four people regarding themselves as non -tech savvy, placing them in neither the innovator or early adopter groups. For data collection semi structured interviews was conducted together with card sorting. The aim of the study was to gain knowledge of the barriers of smart homes and if the release of generative AI could be a factor in lowering a potential adoption barrier. A thematic analysis used the six phase approach to code and extract the themes and findings.

Three research questions was used to guide the study and results.

This study explores three research questions:

RQ1: What barriers prevent potential users from adopting smart home technology, and specifically open-source platforms like Home Assistant?

RQ2: How significant is technical complexity compared to other barriers such as cost, privacy concerns, and compatibility?

RQ3: Could AI assistants reduce these barriers and make open-source smart home platforms accessible to less tech-savvy users?

3.1 Sampling

The target group involves less tech-savvy individuals living alone or with a partner in a house or apartment who own no or very limited smart home devices. Purposive convenience sampling was used to recruit participants representative of non-adopters of smart home technology [Bjørner 2015, p. 61-62]. Four participants were recruited from the researcher's private network, selected based on their limited knowledge of, or minimal interest in technology. Participants ranged in age from 33 to 67 two of them being male and two female.

As Bjørner notes, convenience sampling involves selecting *"the most readily available participants—basically, anyone who are readily available and easy to contact."* However, he emphasizes that *"any researcher using convenience sampling must be very careful not to over-generalise the data, since it is based on participants who were present only by chance at the time the data was collected"* [Bjørner 2015, p.61]. This consideration is addressed in the limitations section below.

Besides convenience sampling, purposive sampling were used. Purposive sampling is a sampling method where people from specific groups representing or showing certain attributes are chosen to be included in the study [Bjørner 2015, p.62]. In this study that was used to probe for non- tech-savvy individuals within the private network.

3.2 Data collection

Each participant completed a semi-structured interview and card sorting structured in three phases to address all three research questions:

3.2.1 Semi structured interviews. Semi structured interviews is a data collection method where the researcher is following a interview guide but is allowed to ask follow up questions. The strength with this method is that it allowed for deeper questioning if the participant answer something that is particular interesting for the research. Compared to structured interviews where the interview guide is strict. Semi structured interviews has a flexible guide where the order of the questions and wording is flexible. [Bjørner 2015, pp.87]

3.2.2 Card sorting. Card sorting is a projective technique where participants organize cards into groups. This reveals how they make sense of the world making card sorting aligned with the constructivist approach. [Bjørner 2015, p.89]. In this study, closed-card sorting was used. Participants placed smart home related cards on usability and perceived ease of use scales in two rounds: One before before the AI part of the interview and one after. This approach gave both qualitative data - from the participants explicitly voicing their decisions and quantitative data- since each card placed represent a set of coordinates. This approach complemented the interview responses and gave a visual representation of whether AI discussion altered perceived barrier significance.

Below is the setup for how the raw card sorting looked the two pictures is for ID1 (pilot) pre and post AI.

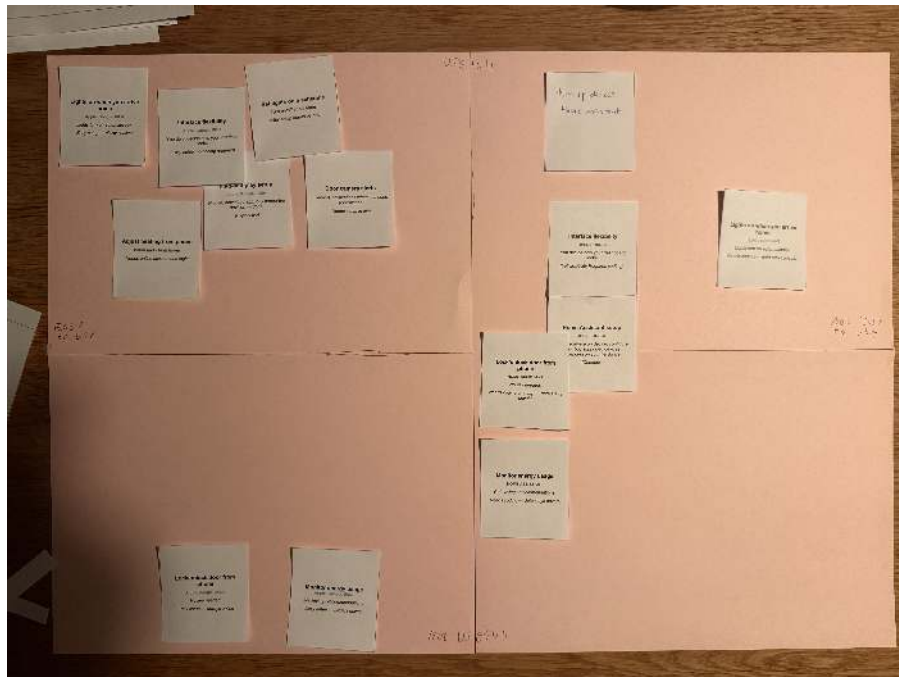


Fig. 1. ID 1 pre Ai card sorting

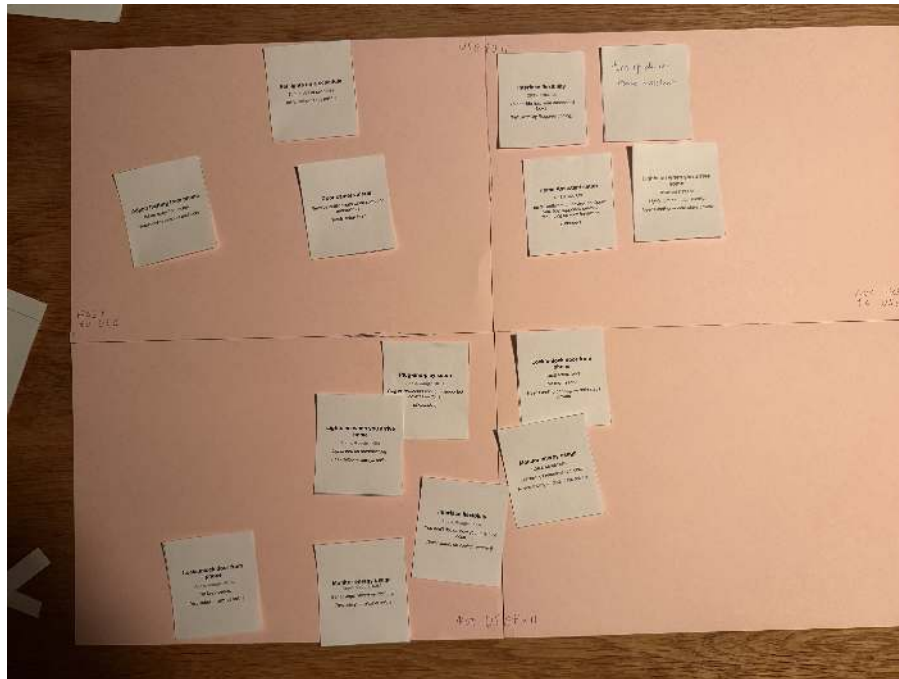


Fig. 2. ID1 Post AI cardsorting

3.2.3 Pilot interviews. Two interviews were conducted as pilot studies to refine the interview protocol and card sorting task. Minimal changes were implemented following these pilots, -one card in card sorting was taken out after the 1 interview (Plug & play) and another was renamed after the 2nd pilot (interface flexibility was changed to Design flexibility). Consequently, all four datasets were retained for analysis since the changes didn't seemed to have any significant impact on the interview phase in general. Data from the pilot interviews used in the thematic analysis will be marked as Pilot in coming sections.

3.3 Interview procedure

Phase 1: Initial questions and baseline card sorting. The interview began with three opening questions establishing participants' current technology use, familiarity with smart home concepts, and initial attitudes toward home automation. Participants then completed the first round of card sorting, placing home assistant devices and consumer smart home solutions on a perceived usability and perceived ease of use scale. This was done to establish baseline perceptions of smart home technology independent of AI discussion.

Phase 2: Barrier exploration and AI discussion. Participants then engaged in semi-structured questioning addressing their perceived barriers to smart home adoption (RQ1) and the significance of technical complexity compared to other barriers such as cost, privacy concerns, and compatibility (RQ2). The interview guide concluded with three questions focused specifically on AI assistants and their potential to address adoption barriers (RQ3).

Phase 3: Post-AI discussion card sorting. Immediately following the AI-focused discussion, participants completed the second round of card sorting, repositioning the cards on the same usability and ease of use scales.

Participants were explicitly asked whether discussing AI assistants made them want to reconsider any of their initial placements.

3.4 Data analysis

3.4.1 Thematic analysis. Thematic analysis is a method to systematically, through the six phase approach[Braun and Clarke 2012], identify patterns and themes across a dataset. The interviews were recorded with consent and transcribed using Whisper through Aalborg university's closed and GDPR compliant AI transcription model, ([AAU 2026]). The transcriptions were then read thoroughly while listening to the recordings to correct any mistakes in the transcriptions. Later each interview was read and coded to find groups of codes to create themes within each interview. The themes were then reviewed to see if they could be optimized before finally defining the themes and writing the findings with quotes.

4 Data analysis and findings

4.1 Participants

The participants were four individuals between the age of 33 - 67 evenly split between male and female. Below is a table of the participants and ID number and if they were part of the pilot or main interview.

Participant	Age	Gender	Study Phase
ID 1	35	F	Pilot
ID 2	33	M	Pilot
ID 3	67	F	Main
ID 4	40	M	Main

Table 1. Participant Demographics

4.2 Card Sorting Findings

The card sorting results were analyzed and the coordinates added to a spreadsheet. To create the visualizations of the individual and combined figures the spreadsheet with the anonymous processed data was loaded into a Jupyter notebook via Google Colab where the code was made with help from Claude AI. Individual charts were made as well and can be found in the appendix 7.3.

In this study card sorting tested whether AI assistance could help overcome adoption barriers to open source smart home platforms like Home Assistant. Participants rated smart home features before and after a discussion about using AI to guide setup, installation, and troubleshooting. Below are graphical visualizations of the findings.

ID	Ease of use				Usefulness			
	Pre	Post	Diff	% diff	Pre AI	PostAI	Diff	%Diff
1	6.04	5.81	-0.23	-3.8%	6.46	5.50	-0.96	-14.9%
2	6.25	6.61	+0.36	+5.7 %	5.82	5.86	+0.04	+0.6%
3	4.87	4.90	0.03	+0.7%	3.90	4.03	+0.13	3.4%
4	5.10	6.40	+1.30	+25%	5.07	5.33	+0.27	5.3%
Combined	5.54	5.92	+0.38	+6.8%	5.28	5.16	-0.13	-2.4%

Table 2. Cardsorting findings

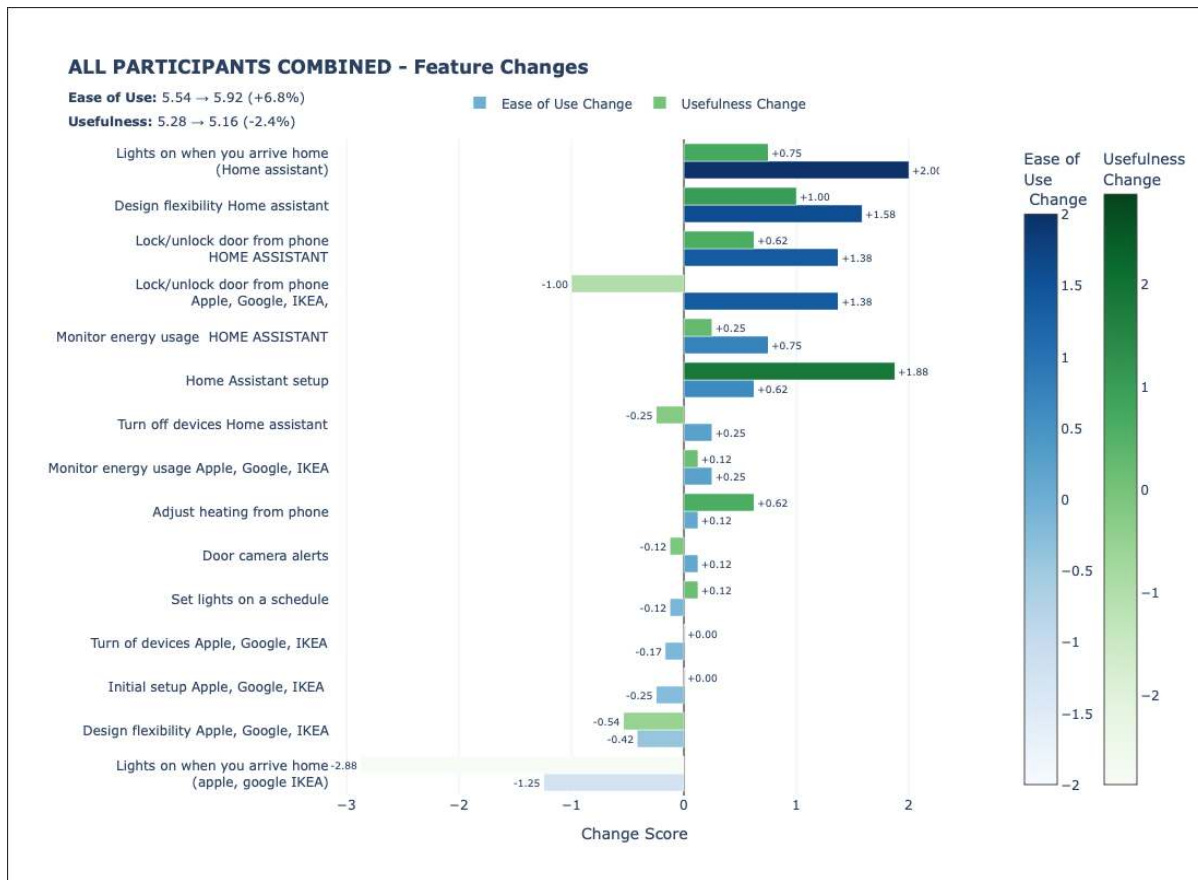


Fig. 3. Card sorting changes combined each ID chart can be found in the appendix 7.3

Key Finding: Ease of use improved 6.8% when participants imagined AI guidance, this was mainly due to ID 4 having a 25% increase. Perceived usefulness declined 2.4% often due to Apple, Google, or IKEA features being moved down. Home Assistant features improved slightly post AI (+2.0 ease, +0.75 usefulness) while Apple, google, IKEA solutions declined (-1.25 ease, -2.88 usefulness), demonstrating that while AI made the participants place some cards higher on the easy to use scale the perceived usefulness wasn't following.

Through the thematic analysis and the use of the six phase approach five main themes was found across the dataset. The interviews was transcribed and familiarized before reading through them again generating codes for each interview. Then themes was generated based of the coding and written up in a excel sheet to sort the connections and merge them into clear, defined themes for the study. Some codes appear in multiple themes, this is due to some codes cut across multiple themes creating a coherent story. As Braun and Clarke mentions "*A number of codes cut across both themes... This example is not a case of undesirable overlap between themes; it illustrates that certain concepts or issues may cut across themes and provide a unifying framework for telling a coherent story about what is going on in the data, overall.*" [Braun and Clarke 2012]

Theme	Code
Privacy skepticism	• Privacy as 1 priority • Catastrophic thinking patterns • Ease of mind • Systemic/political concern • Preference for local/offline solutions • Wish for more Regulations • Ethical concern about AI and corporate practices • Interest in trade-off for security • Paradoxical Privacy Behavior • AI Data Privacy Concerns • Loss of control • Integrity loss
Complexity skepticism as a design/UX result	• Design/Interface matter • Setup complexity as barrier • Willingness to engage with support • Comfort with DIY/technical learning • Interface customization • Simplicity is king • Coding as a barrier
Distrust in big tech	• Distrust of big tech companies • Privacy as 1 priority • Paradoxical privacy behavior • Systematic/political concern • Regulatory skepticism • Ethical concern about AI and corporate practices
Relevance based on Context	• Catastrophic thinking patterns • Ease of mind • Door lock with phone • Perceived need for smart home • Existing technology preference • Low tech adoption in home • Relevance based on living situation • Utility monitoring • Scheduled Lighting/Automation
Home assistant adoption as an alternative	• Setup complexity as barrier • Willingness to get help • Home Assistant principles appeal • Home Assistant interface/design barrier • Preference for local/offline solutions • Sustainability concern • Interest in trade-off for security

Table 3. Thematic Analysis: Codes and Themes

4.3.1 Theme 1 - Privacy skepticism. This theme is the most prevalent theme in the study. It is about how the participants see privacy as a big factor regarding adoption and perceived willingness to adopt and use smart home systems. In general all participants choose privacy as the most important variable when thinking about smart homes.

"privacy, I think would be...number one, I think perhaps like most important" - Participant ID1 (Pilot)

"I will immediately put privacy on number one" - Participant ID 2 (pilot)

"I think privacy is the most important thing" -Participant ID3

" I think privacy is a concern. So I think I would put it as the most, I think, okay, number one" -Participant ID4

However why privacy is dominant depends on the individual person. Some mention catastrophic thinking patterns and loss of control of their home as the reason, while some talk about monitoring and misuse of private data and the risk of hacking as the reasons.

"I have like catastrophic thoughts all the time....if I lose my phone, I'm never going to get into my apartment. If someone steals my phone, they can get into my apartment" -Participant ID 1 (Pilot)

"What happens if we don't have an electricity? Every door will be open?" "I don't think I'm comfortable with unlock or lock the door from my phone because I'm not sure it's a secure system" -Participant ID 3

"if the benefits would be bigger than like the amount of work I would have to put in, the money, and some sense of integrity loss, because if it is a smart, it feels like all smart devices in one way or another monitor something at least." Participant ID 2 (Pilot)

"Things that you thought were private were sold to an open market" -Participant ID 4

When asked about the concerns about using AI as a tool to help them build a home assistant system. Privacy and ethical concern of data usage was a concern.

" if it means that chat will get like get my data in any way then I would say like no" - Participant ID1 (Pilot)

" So if it's needed to feed it with information about my technique, um, installation things in my home, then I'm not comfortable with it. Because then I have given it out on the internet through AI. " Participant ID 3

"Where you put your information. The AI that we use, that I use in my work, is a closed system. So, yeah. So probably I need to know what system I'm using and how the information is stored. And if someone else can use it." Participant ID 4

4.3.2 Theme 2 - Complexity Skepticism as a Design/UX Result. This theme is about how the user interface and user experience made the participants think about smart homes and what aspects they thought was important to them. This theme also touches upon technological complexity barriers and willingness to learn based of tradeoffs. Across interviews participants seemed to think that aesthetics and design was important for them in order to like and understand the system or have less frustration.

The participants was showed four pictures each of different smart home dashboards and was asked about which one seemed most appealing to them. Most thought that home assistant looked advanced and difficult where Apple, google and IKEA looked less intimidating. ID2 however liked the overview and the interface and graphs of home assistant.

"I like a neat overview of quite a lot. It's very structured. I personally like a darker interface...I like graphs"- Participant ID 2 (Pilot) when looking at the Home assistant dashboard

"Some of them seems more simple than the others which also reflects on how much you can do in the different systems. The overview of that is too complex I should say perhaps you can do a lot of things but there are other aspects of that that will stress me to death." Participant ID3 when looking at the Home assistant dashboard

"So... I would say the least appealing for me is this one. It's a lot of information. And it has...Design is not really appealing" - Participant ID4 when looking at the Home assistant dashboard

" I like when things look pretty and it's user-friendly. It looks easy, you know? " - Participant ID1 (Pilot) when looking at apple homekit.

The complexity of setting up a system was split equally between second/third place of important factors for the participants when asked to rate from one to five. Some of the participants seemed to agree on that if they deemed something to complex but had the need for a particular system or function they would be willing to get help online through google or AI or asking a friend.

" But if it would be like this private data advanced system, I think that I could go further. I like not read, but like look at videos or stuff to understand it. Yeah, I could do that. I could go like a mile or two more for that system." Participant ID1 (Pilot)

"it feels like something I would figure out um with a bit of googling um if I didn't know it beforehand" -Participant ID2(Pilot)

" Well, that sounds good, of course. Especially if there are more difficult and, yeah, a complex system. Yeah, of course. I will. Sounds like a good help." -Participant ID 4

A hard line in regards to complexity across the participants was when coding was involved to get a system up and running. This often lead to features and functions in home assistant was placed lower on the easy to use scale making the perceived adoption harder.

"Okay, like if you have to code yourself, then I would say like not easy to use. But if it's more like an app or something that's already like finished, then it's easier. But if I have to do something myself, I wouldn't do it. So I wouldn't like... That wouldn't be easy for me because I've never been coding. So I would like... I think it could perhaps be useful, but not easy. Or not useful, but like nice" -Participant ID 1(Pilot)

"I could see that it could be quite useful. It says here that it needs coding. That would be... Oh, I see. Okay. I think that it would be quite hard for me to do. So I would have quite a hard time setting it up, I think. If that's the way I'm supposed to look at it. (...) Somewhere around here. Quite hard to use." Participant ID 2(Pilot) on lights on when arriving home

"And I think that's my limit. I'm not capable of that." Participant ID 3 on features that needs coding.

"Lights turn on automatically needs coding. Data stays private. Yeah. Needs coding. might be a problem. But still, it's, it's quite nice actually. Maybe, here so not easy to use but usefull" Participant ID 4

4.3.3 Theme 3 - Distrust in Big Tech. A theme that everyone across the interviews agreed on was that using systems from big companies like Apple, google, and IKEA, came with trust issues towards the handling of the data and therefore adopting such systems seemed to be a hard line for most participants because they simply wouldn't trust them with their home data.

"I have a problem when the only alternative is Apple, Google, Ikea. Because it's big companies and it's the ones that hackers will concentrate on first of all. And I think that's a big problem. I think we have to solve this in the future in a much more local way. Because I don't think this is sustainable at all. And it's also a question about the political context we live in. We stopped to use regulations in the beginning of the 1990s. So we have not regulated anything of this. And that's the other problem. Because these big companies, they can do exactly what they want and we have no control at all!" Participant ID 3

"I don't trust the big companies at all honestly." participant ID 1(Pilot)

Yeah. I think there have been things in the past. I think what comes up in my mind is the thing that happened with Facebook users a couple of years ago. And a lot of information was sold to third parties. ... So, yeah, that's a problem. I think it's a general concern today.- participant ID 4

No Personally I think it's It's quite obvious that they don't keep the data safe um My impression is that they It's quite obvious that they use our data for for their own gains so If they wouldn't use our data To gain something then they wouldn't collect our data. It's as simple as that So To me there I really don't

see any difference Regarding any of the big brands they feel if they feel like the same They are they're quite even regarding Evilness - Participant ID 2(Pilot)

4.3.4 Theme 4 -Relevance based on Context. This theme is about the perceived need for a smart home system across the dataset. It is about the participants incentives on whether or not a smart home or functions belonging to a smart home system would be something they can see themselves adopting. Overall, the participants are reluctant to fully adopt, and most don't see the need for it in there current living situation. However certain features is smart homes does trigger interest.

For Participant ID 1(Pilot) it is about ease of mind. Knowing that the appliances and electronics are turned off when leaving the house.

"it's not like I want a camera inside, but you know, sometimes I take pictures of my electronic devices to see that they're really turned off. And I know that I'm not like the only person in the world doing that, even if it sounds, a bit weird uh but i think that would like help me in some ways yeah " -Participant ID 1. (Pilot)

For participant ID 3 it is about knowing that your children can check on you or get to you if something is happening.

Perhaps when I get older. Perhaps starts to be a little dementia or something like that. It could be something for my children to have the power to do from home. -Participant ID 3

For participant ID 2 it is about utility monitoring and energy saving.

"I would like to be able to to adjust the heating, i would like to be able to monitor, water usage and so on. That would be at least very interesting to see and to see where maybe which rooms that are the biggest energy spenders and during which time of the day and so on, that would be very very interesting" - Participant ID 2(Pilot)

For participant ID4 it was a little more subtle, but lock/unlocking the door from the phone was mentioned.

"Probably like the very simple things like and lock and unlock the doors. That would be nice. I think that's it. I don't see that we need more than that." - Participant ID4

When going through the first round of card sorting the participants placed features on a usability / ease of use scale where some of the cards resulted in comments relevant to this theme. A general one was that their current housing situation had an impact on whether a feature was useful or not.

"Monitor energy usage you get saving recommendations sounds useful but I don't think I will need this in everyday life maybe if I had like a bigger house or something like that" Participant ID 4
"Adjust heating from phone when away from home needs online account and login. Actually same thing here if I had a house it would be nice but now I don't think it's for me" -participant ID 4

That one I can see a need for. If I will go up to the summer house in the winter. Yes. But then I also have to have the internet on. The whole time. And I don't have that today. No. -Participant ID 3 on "Adjust heating from phone (second round when going through the cards again)

"Door camera alerts..... Not in my current living situation, I think. Maybe if I lived in a house, but since I live in an apartment, I feel I don't have that much use for it." Participant ID 2 (Pilot)

"Adjust heating from phone when away from home needs online... Okay. That's nice. But I live in a rental, so I don't think I could ever do that. If I were to live in a house, I would like to do that because I would like to turn it off when I go away." - Participant ID 1 (Pilot)

4.3.5 Theme 5 - Home assistant adoption as an alternative. This theme is about the participants perceived positives and negatives to that system. Generally the participants dislike big tech systems due to privacy and integrity issues and some like the principle of a offline local system that doesn't send data to the cloud.

"But then I like Home Assistant because I like... I like the principles of it. But it looks... Like if I look at this picture here, it looks really advanced. But I would love to understand it and be a little bit like, oh, look what I understand. A little bit show offy or something. Because like the step for me to use like IKEA, Google, Apple, would be quite large because it would feel like I was saying before, like even if I have my phone all the time, it would feel like a larger step giving away my home. It would feel like I would sell my home" -Participant ID1 (Pilot)

For participant ID 2 if he ever thought he found the need for a smart home, Home assistant would be the one he would go for.

Well, If that's the case... If I would ever get home assistant... or a smart home system I would...Very much try to get home assistant... Out of those four... If it's possible to have it in offline mode... Or... Keep it very limited, regarding privacy. I would probably try to get help in setting it up. But It's a big if I would feel like I had the use for it...Participant ID 2 (Pilot)

"yeah that's a difficult thing um if there was a real need for me to have the system in my home maybe it would be um maybe that would be better just to learn and take the time, because if it's more secure and my information is private maybe in the end that would be worth the effort. " Participant ID 4 on Home Assistant

5 Discussion

5.1 Reliability & Validity

Reliability refers to how dependable and consistent the data gathering process is, leading to reliable findings that can be replicated. Importantly reliability is a prerequisite for validity [Bjørner 2015, pp.110].

The semi-structured interview guide and card sorting was pilot-tested with two participants before the main study. Minimal changes were implemented (one card removed, one renamed in the card sorting task), and all data were kept for analysis, confirming internal consistency [Bjørner 2015, pp.111] across all four interviews since the changes was deemed to have a minimal effect on the further interviews and results. A way to improve the reliability of the study could have been to use intra-coding whereas the researcher repeats the coding process multiple times to check if the same results appear. [Bjørner 2015, pp.111].

This exploratory study faces limitations due to its small convenience sample ($n=4$) recruited from the researcher's private network. As Bjørner notes, convenience sampling requires caution against over-generalizing findings [Bjørner 2015, pp.61.]. It is therefore important that, these findings represent initial insights into smart home adoption barriers for this specific group and shouldn't be generalized to the broader population.

Validity is the process whereas the researcher checks for accuracy of the findings by using procedures, for example by triangulation where data is collected from multiple sources, and using it to build a coherent justification of themes. [Bjørner 2015, pp.109]. This study utilized both semi-structured and card sorting techniques, and an argument for data confirmation can be made that when looking at the card sorting data after the thematic analysis has been made. To further strengthen the validity and utilize full triangulation, member checking could be made where the results is presented to the participants for review to confirm or deny the findings. [Bjørner 2015, pp.109]

5.2 Bias

With qualitative research it is important to think about potential biases in the study. Since the researcher was using convenience and purposive sampling from his private network. Several potential biases could influence this study's findings. Selection bias could be present as the recruitment of participants stemmed from the researcher's private network, even though the sampling was split evenly between gender, and age was fairly represented the sample size of $n=4$ was still a limitation. This probably lead to the results not representing the broader population, and therefore won't be generalizable outside the sample. Researcher bias could also exist in the research since the entire research was done by a single researcher, this could lead to preconceptions about findings since the researcher have interest in the outcome, resulting in follow up questions that lead participants toward expected answers, or interpret ambiguous statements in a way that supported the research questions. However, the sequencing of card sorting pre- and post-AI discussion may have created implicit demand expectations of change, when ask to look through the cards the second time, even if they maybe didn't want to change something. A way to have mitigated this could have been to remove all cards before round two and ask them to start over. Furthermore a systematic error could be present in the process of analyzing the card sorting results where a bias to some of the cards could result in them being reported wrong, as the ease of use and usefulness scale the participants placed the cards on didn't have reference numbers on the X or Y axis. This resulted in the researcher having to take a decision on each card, where the card would be on each scale. The pictures was also not taken from the exact same angle and hight, and lightning conditions, creating visual differences that could make it hard to create consistency. To mitigate this every card was referenced with each other to see a change and only changes above 0.5 on the scale (from 0-10) would be noted though an argument could be made that it would have been better to raise that threshold to 1 or more.

6 Conclusion

This study explored the adoption barriers of non tech-savvy individuals in regard to smart home systems with specific focus on home assistant and the potential of AI reducing the complexity barrier. Through semi-structured interviews and two rounds of card sorting with four danish participants the research identified five major themes that together paint a picture of a market caught in between privacy concerns, usability frustrations, and distrust

in big tech corporations, resulting in a negative perception of commercial solutions.

6.0.1 Key findings. Looking at the first research question RQ1: 3 Findings show that the main concern and barrier for adoption of any smart home technology across the sample is privacy concerns. This also resulted in the participants showing distrust and disregard for commercial systems that demands online connection. All the participants unanimously placed privacy highest on the top 5 question. The reason however varied: From catastrophic loss-of-control thinking to systemic distrust in corporate data practices, and hacking concerns. Regarding open source systems like home assistant, the complexity appeared as the second major barrier, but rather as a design and interface problem than a pure technological one. Participants showed willingness to learn and get help either online or through friends if they found the need for such a system. Coding however seemed like a hard line. This leaves Home assistant with a potential if they can make up for the design and interface concerns voiced in this research while leaving the need for coding as well. The significance of technical complexity compared to other barriers (**RQ2**)³ therefore also depends on which angle it is looked at.

The findings on AI (**RQ3**)³ are nuanced and partially contradict the idea that AI could lower the adoption barrier on open source systems. When participants imagined AI guidance for setup and troubleshooting, perceived ease of use only saw a modest change (+6.8% combined, with individual variation from -3.8% to +25%). However, perceived usefulness *declined* by 2.4%, driven primarily by participants down rating Apple, Google, and IKEA features after the post-AI questions. Home Assistant features improved slightly in both ease of use (+2.0) and usefulness (+0.75), suggesting that AI assistance might help overcome setup complexity for open-source platforms. Privacy remained a concern with sharing home automation data with AI systems, showing ethical reservations about AI training practices and data privacy even in the context of AI-assisted setup.

At a time when major technology corporations continue to push online, smart home systems, this study reveals a potential market opportunity for privacy-first, offline-capable platforms like home assistant. The participants, representing the "late majority" and "laggards" that must be reached for mass-market adoption, are not rejecting smart homes because they are technophobic. Rather, they reject them because the value of such a system does not justify the perceived risks and privacy concerns. As one participant noted: *"Even if I have my phone all the time, giving my home away feels like a larger step... it would feel like I would sell my home."*-Participant ID 1 (Pilot)

This exploratory study suggests that the smart home adoption chasm persists not because of technical barriers alone, but because fundamental consumer values—privacy, risk concerns, and trust—remain unaddressed by current commercial solutions. Addressing these human factors may prove more critical than further technological innovation.

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7 Appendix

7.1 Interview guide

Pre-Interview

Thank you for participating.

First. I would like to Audio record this. Is that okay ?

1. How would you describe yourself when it comes to technology? Are you comfortable learning new tech, or do you prefer it simple ?

2. Have you heard of platforms like Home Assistant, Google Home, IKEA trådfri or Apple HomeKit? What's your impression of them?

3. Do you currently own any smart home devices If yes: which one? Tell me about the setup experience. Was it easy or frustrating?

Card sorting part 1.

Can you please place the cards in front of you on the matrix on Usefull, not usefull, hard to use, Easy to use.

Please explain why you place the cards where you do.

Interview continued (PU)

4. If you think about your home right now, whats frustrating or inconvenient about how things work ?

5. Imagine a system that would solve one of those problems. How important would that be to you ? What would the benefit be ?

6. What would you hope to gain from having a smart home? Can you think of something that you would like to have made automated in your home? Lights, heating, doors, utility monitoring etc.

Perceptions / motivations

7. What concerns or hesitations do you have about smart home technology?

8. Rate this list from 1 to 5 where 1 is most important and 5 is least important to you.

Price

Privacy

Setup complexity

Compability across brands

Interface flexibility

9 Tell me about your thoughts on security and privacy in smart homes.

11. What is your thoughts on big tech. (apple, google, amazon etc) - Do you trust them to keep your data

safe.

11 if you look at these pictures. Which one looks more appealing to you explain why.
(Picture of home assistant dashboard and Ikea smart home dashboard and Apple homekit dashboard)

12. Home assistant offers more privacy as it can work entirely offline and is more flexibility that Google, Apple, and IKEA but requires more technical setup. Whats your reaction to the trade-off?

13 What level of technical effort would feel acceptable to you for a smart home setup?

AI

14. Have you used Ai assistants like ChatGPT, Claude or gemini? For what kind of tasks?

15 Imagine a AI assistant could help you set up and manage a smart home- guiding you through installation in plain language, troubleshooting problems, and explaining what each setting does. How does that sound to you?

16 What concerns would you have about using an AI assistant to help you setting up a smart home for you. ?

Card sorting matrix part two

Can you take a look at the matrix you did earlier. If you think about the use of AI would you like to change anything ?

17. Do you have any questions for me ?

Thank you.

7.2 Transcriptions

7.2.1 ID 1 Transription -Pilot. Interview 1 (Pilot 1) ID1

00:00 - 00:11 SPEAKER_00

Thank you for participating. First I would like you to record this, is that okay?

00:11 - 00:12 SPEAKER_01

Yeah, that's fine.

00:12 - 00:34 SPEAKER_00

Right, so I'm gonna ask you some questions and then we're gonna do something later on, and then I'm gonna ask you more questions, and then we're gonna do another thing later on. Okay. First, how would you describe yourself when it comes to technology? Are you comfortable learning new tech or do you prefer it simple?

00:34 - 00:38 SPEAKER_01

I think I prefer it simple, yeah. I do.

00:38 - 00:40 SPEAKER_00

Why?

00:40 - 01:01 SPEAKER_01

Because it's like, I think that technology sometimes frustrates me, especially if I don't understand it, so then I want it to be simple and I don't want to be dependent on someone else to fix my stuff or if something is bugging. And I just want to... I just want to keep it simple.

01:01 - 01:14 SPEAKER_00

Cool. Have you heard about platforms like Home Assistant, Google Home, Ikea, Trådfri, or Apple HomeKit?

01:14 - 01:17 SPEAKER_01

Yeah, I've heard of it, but I don't know much about it to be honest.

01:17 - 01:20 SPEAKER_00

Do you have any impressions of them?

01:20 - 01:31 SPEAKER_01

No, just they can change colors on the light bulbs at Ikea. And I think that's their Home Assistant system. I think to have like an app.

01:31 - 01:40 SPEAKER_00

Right. So do you currently own any smart home devices at all?

01:40 - 01:55 SPEAKER_01

No, I don't think so. Let me think about it. Like I've had like these kind of like a coffee maker that you can put like a timer on or stuff like that, but I don't know if that is...

01:55 - 02:10 SPEAKER_00

It's more like Philips Hue light systems or curtains that...

02:10 - 02:18 SPEAKER_01

No, but I always wanted like to have like lights where you can clap to turn them on or turn them off, but I don't know how that works.

02:18 - 03:03 SPEAKER_00

Interesting. Okay, so now we're going to do a thing called card sorting. Where we have... We have a bunch of cards with a scenario on it or scenarios or some kind of it. And then you're going to place them on the matrix, which is useful, not useful, easy to use, or your perception of it, if it's easy to use for you or not easy to use. Okay. And then you have these cards over here. And then while you place them, try to tell me something about why you're placing them, where you place them.

03:03 - 03:05 SPEAKER_01

And if I don't know what it is?

03:05 - 03:11 SPEAKER_00

You can ask. And then you can then afterwards place them.

03:11 - 03:23 SPEAKER_01

Mm. Okay, so a home assistant setup. I think I understand like the concept of it. So home assistant is...

03:23 - 03:54 SPEAKER_00

So home assistant is like a app, a DIY system that you can use to set up lights or utility monitors that can show how much energy you use. And you can mix and match from different brands. But it's a little more tricky because you have to set it up and use something called Raspberry Pi or... And sometimes you have to code a little yourself.

03:54 - 04:29 SPEAKER_01

Okay, like if you have to code yourself, then I would say like not easy to use. But if it's more like an app or something that's already like finished, then it's easier. But if I have to do something myself, I wouldn't do it. So I wouldn't like... That wouldn't be easy for me because I've never been coding. So I would like... I think it could perhaps be useful, but not easy. Or not useful, but like nice. But yeah, okay. So I would put it like somewhere here, I think. In between.

04:29 - 04:30 SPEAKER_00

Yeah.

04:30 - 04:44 SPEAKER_01

Okay, interface flexibility. You decide how your dashboard looks. Okay, so this is like connected to that, but like how it looks.

04:44 - 04:46 SPEAKER_00

Yes.

04:46 - 04:47 SPEAKER_01

Yeah, okay.

04:47 - 04:59 SPEAKER_00

Or just think about it like... Just think about it as you can decide how the interface looks..

04:59 - 05:07 SPEAKER_01

Yeah, but that would be nice. But then that also needs coding

Okay, so it's not like just moving apps on your iPhone. It's not that easy.

05:07 - 05:12 SPEAKER_00

No, it's a little more technological than that.

05:13 - 05:51 SPEAKER_01

Okay, then it wouldn't be easy for me to use either. But it would be really nice. Yeah. It would be really nice. I would put it like a little bit more on useful. Because I like when things look like pretty. But not easy. So it would be like almost next to the other one. A little bit higher, perhaps. Useful, yeah. Oh, lights on when you arrive home. I would love that. Especially if they turn off when I leave. Or I would love that. Easy setup, always online. Okay, yeah. Useful. I'd like that.

05:51 - 06:01 SPEAKER_00

And would it be useful and easy to use?

06:01 - 06:31 SPEAKER_01

Oh, yeah. Sorry. Useful and not easy to use.

I think it says easy setup, always online. So I would say easy to use. If it's also like Apple, Google and Ikea, then they usually have user-friendly... You know. So I would say if I don't have to code it, do I have to code it? No, then it's easy to use and useful. So then I would put it like there. Plug and play setup. Okay. Okay. Okay. So like a Sonos or something

06:31 - 06:33 SPEAKER_00

Something like that.

06:33 - 06:35 SPEAKER_01

Yeah. Yeah.

06:36 - 06:52 SPEAKER_01

Okay. Yeah. Well, I would really love that. Yeah. Plug and download app by supported device. Done. Yeah. I would say if you just buy it, I think it would be useful. Even if I'm not like...

06:52 - 06:53 SPEAKER_00

What was the situation?

06:53 - 06:54 SPEAKER_01

Sorry?

06:54 - 06:56 SPEAKER_00

What was the situation of the card?

06:56 - 06:57 SPEAKER_01

Expensive.

06:57 - 07:00 SPEAKER_00

No. No. What was the headlining of the card?

07:00 - 07:05 SPEAKER_01

Plug and play setup. Plug and play setup.

07:05 - 07:06 SPEAKER_00

Okay.

07:06 - 07:21 SPEAKER_01

And it's like a music device. Right? I got it right. Plug and... It's just because it says play. So I'm thinking like it's a music thing.

07:21 - 07:35 SPEAKER_00

Yeah. Plug and play is a term in technology where you buy something, you open it, you basically just... A Sonos or an Apple device is a plug and play device. Okay. Yeah. So like the experience is very easy for the user because it's made for...

07:35 - 07:37 SPEAKER_01

Yeah. Yeah.

07:37 - 07:38 SPEAKER_00

Because it's user friendly.

07:38 - 07:39 SPEAKER_01

Yeah. Yes. And it's music.

07:39 - 07:42 SPEAKER_00

No. It's just whatever.

07:42 - 07:52 SPEAKER_01

Okay. Well, still easy I think. And useful. Then I don't know if it's useful if it's not music.

07:52 - 08:02 SPEAKER_00

It can be anything that is smart connected. So a new light bulb you buy. Okay. Or a system that...

08:02 - 08:55 SPEAKER_01

Okay. So it's the system behind it. Yeah. Yeah. Yeah. Sure. So it could be music, but it could also be like curtains. Yeah. Okay. So it's like semi useful, semi easy I think. Perhaps it's just because I don't really understand it. But yeah, but easy to use and kind of useful. I could have that in the future I think. Adjust heating from phone when away from home needs online... Okay. That's nice. But I live in a rental, so I don't think I could ever do that. If I were to live in a house, I would like to do that because I would like to turn it off when I go away. Needs an online account and login. Okay. That I can handle.

08:56 - 09:15 SPEAKER_01

I think that's useful and I think it's easy to use. I would put it here. Adjust heating from phone together with plug and play setup. Lock or unlock door from phone. Oh my God. No, never.

09:15 - 09:16 SPEAKER_00

Can you give your thoughts on why?

09:16 - 10:14 SPEAKER_01

Yeah. Yeah, sure. Okay. I understand like it's useful because like I've actually been in the situation where it was useful because my sister's house you could open with the phone and like I think it was one or two times that I didn't have the keys to the house and she could unlock it from her phone. So it was useful. But if I'm thinking like in that house. Yeah. I'm not in that situation. But if I'm thinking like from my own perspective, who is very like have like catastrophic thoughts all the time. I would be like, oh, if I lose my phone, I'm never going to get into my apartment. If someone steals my phone, they can get into my apartment. I would like feel unsafe with this in a way because I would also, you know, I understand that with smart devices, you're always like giving your data away, but like giving my home away. Coded like in data. I know I would never. So it's not useful. And it's not easy to know.

10:14 - 10:16 SPEAKER_01

Perhaps it's easy to use. I think it's really easy to use.

10:16 - 10:23 SPEAKER_01

But I would say no, not ever, ever. For me, it's not useful.... But I've been in a situation where it was useful....Yeah. So I'm putting it there.

10:43 - 10:47 SPEAKER_01

Lights on when you arrive home. Didn't we have this?

10:47 - 10:50 SPEAKER_00

Yeah, but that's a different card.

10:50 - 12:23 SPEAKER_01

Oh, okay. Home assistant. And this was, uh, okay, no. Okay. So this is like coding, and the other one was not coding. So lights turn on automatically. Needs coding. Data stays private. Okay. Like, nice that the data stays private, though, but I think it would be a little bit harder to use for me, but still, it could be useful. So I'm putting it in the middle, a little bit up, useful, but not easy to use. So somewhere here, I think. Door camera alerts. Receive notifications when somebody approaches, need set up in app. Okay, so this could be important to me because I'm always, like I said before, I have all catastrophic thoughts and things. So I could actually appreciate, okay, I can see who's walking past my door or who's staying outside. And it says it needs set up in app, but I think I would try to do this on my own if I had the possibility, or I would... I would ask someone who's good at it because I think that this would be very useful for me. Even if it's not easy, I will try to figure it out or get help. So can I put it on easy to use if I can get help?

12:23 - 12:26 SPEAKER_00

Yeah? You can put it just where you want it.

12:26 - 12:46 SPEAKER_01

Okay, then I would say useful and quite easy to use. Interface flexibility. You don't decide how your interface looks. Because interface is, once again, like an app or a system that I can look at, use.

12:47 - 12:50 SPEAKER_00

The interface is the UI, how it looks like.

12:50 - 12:51 SPEAKER_01

Okay, yeah.

12:51 - 13:01 SPEAKER_00

So Apple has interface on the iOS, the iPhone, that looks like what it looks like and you can't really change much. You can move apps around and put them in groups but that about it.

13:01 - 13:31 SPEAKER_01

Yeah, but that would be easy and I think useful because, as I said before, I like when things look pretty and it's user-friendly. It looks easy, you know? Looks easy and beautiful, yeah. And this is an easy setup, no code coded required. So useful and easy to use. I would put it almost up in the corner. Monitor energy usage. Gets saving recommendations.

13:33 - 14:08 SPEAKER_01

You know, I don't know. I've never even changed the company who delivers the energy, even if it would be something cheaper because it just takes my time and I'm not interested. So even if it's an easy setup, I wouldn't care, honestly. Except if I could turn off devices and see if they're turned off. But that's not what it says. So I would say not useful to me. But easy, sure. Sure easy, but not useful to me.

14:10 - 14:15 SPEAKER_00

If there's something you think is missing, you can add cards.

14:16 - 14:57 SPEAKER_01

Yeah, I don't know what's coming in the next cards, but otherwise it would be that I turn off devices. Because I think like turning off, as I said before, due to my catastrophic thoughts, it would be really nice to just assure that,

okay, oh, I turned off like the stove or any like electronics, like my curling iron or something like that. Okay, I will write it. Okay, but before we have monitor energy usage. Sorry, I don't understand it. Like what's monitor energy? Is it just my energy use?

14:57 - 14:59 SPEAKER_00

I think it's the same card as you had before.

14:59 - 15:11 SPEAKER_01

Oh, but this is a home assistant. Yeah. Okay, so it needs coding. So okay, so it's the same, sorry. Not useful before and not useful now. So I think it's different. This is coding.

15:11 - 15:26 SPEAKER_00

Yes, but maybe that I didn't mention on the card that the Apple or the consumer stuff you're mostly bound to their products.

15:26 - 15:27 SPEAKER_01

Yeah, sure.

15:27 - 15:30 SPEAKER_00

And at home assistant, you can mix and match every brands.

15:30 - 15:33 SPEAKER_01

Yeah. But I wouldn't need it anyway.

15:33 - 15:34 SPEAKER_00

No.

15:34 - 17:37 SPEAKER_01

So perhaps a little bit not easy to use and not useful. Okay, lock unlock door from phone. So this is kind of the same we have before. Yeah, but that was like a ready thingy. And this is a home assistant. So it's the same. It's like not useful to me, because I would be scared as hell. If somebody could open my door with my phone. So I would say like no and a little bit harder to use than if it was just like finished. But at the same time. Okay, I just thought of something. So here my data is private and it's not like an Apple and Google, so that would make it a little bit more useful to me, honestly. So harder to use, but a little bit more useful. Because then I could keep it on my to myself. Then it's the same with monitor energy. Even if I think it's boring, it's a little bit more useful. I didn't really think of that perspective. But now I do. Yeah. Okay, set lights on a schedule, turn off and oh yeah. Okay, so like a timer. Initial setup needs pairing. Okay, but I can pair two things. Yeah, I could like that. Especially like if I'm away from home and I can turn on my lights on the evening. So it looks like someone is home. And you'd pair, I could do that. That would be useful and easy to use. I would put it here in the corner and then I will write another one that says turn off devices. Then I don't know if it's like a home assistant or something or if it's the finished one, but.

17:37 - 17:38 SPEAKER_00

You decide.

17:38 - 18:03 SPEAKER_01

Okay. Yeah, but then I would need it to be home assistant because I wouldn't like trust Google. What if they turn on my devices while I'm not home? Like tick, tick, tick, no. Then I would like it to be like a home assistant. So that would be useful. And a little bit harder, but I would still like it.

18:05 - 18:11 SPEAKER_00

Yeah. Perfect. Is there anything else you're thinking about? You wanted to have?

18:11 - 18:30 SPEAKER_01

No, I don't think so, yeah, it was the plug and play setup because that involves a lot of things. Could involve. It could be like, curtains. Yeah, I think most of it.

18:30 - 18:34 SPEAKER_00

Perfect. I'm going to take a picture.

18:57 - 18:57 SPEAKER_01

All right.

19:00 - 19:16 SPEAKER_00

So if you think about your home right now, what's frustrating or inconvenient about how things work? In related to smart home or just not smart home, but your home in general.

19:16 - 19:27 SPEAKER_01

Yeah. Oh, that's hard because part of me wants to say like the door because I want like a safety door.

19:27 - 19:33 SPEAKER_01

But that could also be connected to like having this like turning off or like locking the door like that kind of device..

19:33 - 20:01 SPEAKER_01

And I don't want that. Yeah, but as I said before, it's like knowing that like things are turned off. That would give me some kind of comfort, like not having to check everything like more times being like almost a bit OCD about it. I'm not really sure about that.

20:01 - 20:01 SPEAKER_00

Yeah.

20:01 - 20:38 SPEAKER_01

I mean, I don't know if I could have like, but I don't know what that is. If that is like a like we talked about this like plug and play set up, or if it's more like, it's not like I want a camera inside, but you know, sometimes I take pictures of my electronic devices to see that they're really turned off. And I know that I'm not like the only person in the world doing that, even if it sounds, a bit weird uh but i think that would like help me in some ways yeah

20:38 - 20:44 SPEAKER_00

i think this leads me to the next question which is imagine a system that will solve one of those problems how important would that be to you what would the benefit be

20:44 - 21:04 SPEAKER_01

okay so i'm not sure like that a electronic device would like cure my ocd but i think it could be like a uh a help so yeah if that could help me with that then it would be important yeah

21:04 - 21:20 SPEAKER_00

what would you hope to gain from having a smart home can you think of something that you would like to have automated in your home, lights heating doors utility monitoring

21:20 - 21:51 SPEAKER_01

um um as i said before like clapping and turning off your lights uh because that was such a thing like i don't know if it was like in the 90s or uh like that you know in movies and stuff that would be so cool uh so i would want that but like also like when i talk i i understand that it's in the same theme but you know knowing that i locked my door and having like is a possibility to check um that sorry what was the question?

21:51 - 21:59 SPEAKER_00

uh what would you hope to gain from having a smart home can you think..

21:59 - 22:18 SPEAKER_01

yeah more safety, safety and comfort i think and also like something cool to impress others by clapping and turning your lights on perfect because i don't think like that i'm i know that much i've perhaps i don't really know the possibilities you know uh

22:18 - 22:21 SPEAKER_00

right right and then we'll see if we can do it in the next one

22:21 - 22:22 SPEAKER_01

Right.

22:23 - 22:27 SPEAKER_00

What concerns or hesitation do you have about smart home technology?

22:28 - 23:12 SPEAKER_01

Yeah, well, it's like what I've mentioned before, like that my data won't be private or that someone can like hack into my home and not only like hack into a smart like microwave or something like that, because I understand that they can get like in my system if they do. But, you know, more of these like serious like the door or something like even more private, you know. I wouldn't like that would be my nightmare, like being in my home and all of a sudden, the lights turns on and turns off because someone can control it. That would be like horrific for me. Yeah.

23:16 - 23:40 SPEAKER_00

Understandable. And rate this list from one to five, where one is most important and five is least important for you. Price, privacy, set up complexity, compatibility across brands and interface flexibility. I can write them down for you.

23:40 - 24:19 SPEAKER_01

I was trying to remember them, but like privacy, I think would be. like number one, I think perhaps like most important. So privacy and then. Interface, how it looks. Is really important because if I don't like the way it looks, it doesn't matter that I won't use it. If it's ugly, I won't use it. And if it's like hard to, you know, handle, if it's not like user friendly. So that would be like two. Yeah. And then it was the brands or what it was.

24:19 - 24:36 SPEAKER_00

It was a price price and set up complexity and, compatibility across brands, which means that you can mix and match every brand.

24:37 - 25:01 SPEAKER_01

No, that doesn't matter. No.

Then I think that was like, that's like five because I don't care about the brands and if to mix them, if I find something I really like them, I want to stick to that, which also means for me that the price. It's not important, because if I find something that I'm really liking that, I think it's really helpful in my life every day. Then I, I would pay for it. So that leads me to what in the middle

25:01 - 25:02 SPEAKER_00

Set up complexity?

25:02 - 25:17 SPEAKER_01

Oh, that's fine. Yeah, that would be in the middle because I'm not good at it, I would try, of course, with like, youtube, and stuff to figure it out. But if i'm not going to figuring it out, I will call someone to help me that's a little bit tech nerdy.

25:18 - 25:43 SPEAKER_00

So privacy, interface flexibility, price. No, it was privacy, interface flexibility, setup complexity, price, compatibility across brands.

25:43 - 25:43 SPEAKER_01

Exactly, yeah.

25:43 - 25:48 SPEAKER_00

Tell me about your thoughts on security and privacy in smart homes.

25:48 - 26:20 SPEAKER_01

Yeah, kind of been through that already. But I could repeat like that, that's important for me because I think it's scary. I understand I sound like an idiot but I do think it's scary you know. But at the same time I have my phone like everywhere all the time so I understand that it's like, I don't know how to say it. I can't find the word.

26:21 - 26:23 SPEAKER_00

Describe the feeling or.

26:23 - 26:44 SPEAKER_01

Yeah, but like I understand like I can use my phone, I don't care about my phone, I don't care like I have it with me everywhere. I log on into like open Wi-Fi and stuff so it's like I don't care about privacy at one point but at the other point I do care. So I understand that it's like I don't care about my phone, like when I'm thinking about this it gets me scared so I'm looking for the word that it's like double faced

26:44 - 26:47 SPEAKER_00

Anxiety?

26:48 - 26:53 SPEAKER_01

No, no, that wasn't it. Like more, I don't know the word in English.

26:54 - 27:10 SPEAKER_00

Don't worry, I understand the gist of it. What is your thoughts on the so-called big tech? So Apple, Google, Amazon, do you trust them to keep your data safe?

27:10 - 27:51 SPEAKER_01

No, I don't. I don't. And that's the issue. That's what I mean like I wouldn't like have, wouldn't want to have like an Alexa or something at home. But at the same time I'm walking around with my iPhone all the time and I have all my data on it so that's what I meant before that like one perspective. I don't want to share my data and I'm, you know, I want to keep it. As private as possible and then the other hand it's like, like a free card with my phone. Yeah. So yeah, no, I don't trust the big companies at all honestly.

27:52 - 28:08 SPEAKER_00

I'm going to show you some pictures of different desktop parts from different brands and which one looks more appealing to you and try to explain why.

28:09 - 28:39 SPEAKER_01

Oh, this is hard. I like that one of them has like a camera view so I can see what's happening like outside or where it is, where it's supposed to be.

28:39 - 28:50 SPEAKER_00

I do think though that most of them can do that except from the IKEA one.

28:50 - 28:52 SPEAKER_01

But is this IKEA?

28:52 - 28:53 SPEAKER_00

That's IKEA yes.

28:53 - 29:54 SPEAKER_01

Oh because I love, I like the colors of it. I think that is super, super user friendly but also a little bit almost like gamified. Yeah. But I think I like this one the most. I think perhaps it's like, I would guess it's Apple. Yeah. Because it looks like my phone. And because that's something I'm used to. So my attention is drawn to this because I understand this system. This is like super clear to me. So I would say that. But I also like, I like this. I like this because it feels nerdy. This one feels like, oh, hard to understand, which also means I wouldn't understand it. So yeah, the Apple one. But I also like like the colors and the playfulness of IKEA. This one I don't know.

29:55 - 29:55 SPEAKER_00

Yeah.

29:55 - 29:58 SPEAKER_01

Oh, I like this one.

29:58 - 30:08 SPEAKER_01

I think it's the Apple one. I don't know, I like the color. I like it. Yeah. Yeah.

30:08 - 30:28 SPEAKER_01

This one is Home Assistant, the nerdy one. And then this is IKEA. Yeah. And then you have Apple. Yeah. So you like Apple the most. Yep. But also like the colors and the IKEA one.

30:28 - 30:32 SPEAKER_01

Yeah. Because it's like a playfulness.

30:32 - 30:36 SPEAKER_00

Yeah. Thank you.

30:38 - 30:48 SPEAKER_00

Home Assistant offers more privacy and flexibility than Google, Apple and IKEA, but requires technical setup. What's your reaction to the trade off?

30:48 - 30:55 SPEAKER_01

I don't think I understood the question.

30:55 - 31:41 SPEAKER_00

Home Assistant offers more privacy and flexibility. Especially on the interface. Like you can literally do everything you want with it but it requires more technical setup. Where Google, Apple and IKEA is less private. What are your reactions to the trade offs between if you have Home Assistant on one side and the Google, Apple and IKEA and Amazon on the other side? Like... And you think about the privacy and flexibility of the two different platforms.

31:41 - 31:55 SPEAKER_01

But then I like Home Assistant because I like... I like the principles of it. But it looks... Like if I look at this picture here, it looks really advanced.

31:56 - 32:44 SPEAKER_01

But I would love to understand it and be a little bit like, oh, look what I understand. A little bit show off or something. Because like the step for me to use like IKEA, Google, Apple, would be quite large because it would feel like I was saying before, like even if I have my phone all the time, it would feel like a larger step giving away my home. It would feel like I would sell my home because even if I have my phone with me and even if the cameras are I don't know, turned on and they scan my rooms or stuff, it's still, you know, it's still different than letting it, you know, into my home, I think.

32:44 - 32:54 SPEAKER_00

Yeah. What level of technical effort would you feel acceptable to you for a smart home setup?

32:54 - 33:26 SPEAKER_01

But if it would be like this private data advanced system, I think that I could go further. I like not read, but like look at videos or stuff to understand it. Yeah, I could do that. I could go like a mile or two more for that system. Definitely. But it's still, you know, if I look at it, it looks it would be perhaps have to be a little bit more user friendly than this picture.

33:26 - 33:27 SPEAKER_00

Thank you.

33:27 - 33:35 SPEAKER_00

Have you used AI systems like chat GPT, Claude Gemini and for what kind of tasks?

33:35 - 34:35 SPEAKER_01

Like for everything like yesterday I asked AI to help find like a rhinestone. I'm looking for like because I don't know what like the shape of it is named so I tried to explain it and understand a lot or get AI to find it for me on the internet but I also use it for work sometimes to answer like emails not like entire emails but it could be like oh somebody applied for a job and they're like it's not that I just want to answer like oh thank you we don't have any openings but I want to answer something more like then I can use AI and I'm making like quiz and stuff yeah so mostly for like everyday tasks

34:35 - 34:55 SPEAKER_00

Okay now imagine an AI system could help you set up and manage your smart home guiding you through installation in plain language and then you can use it to do things like troubleshooting problems with you and explaining what each setting does. How does that sound to you

34:55 - 35:24 SPEAKER_01

yeah but that would be nice that would be like asking a friend yeah but I would have to trust AI and perhaps not use like chat if it like if it means that chat is just helping me like install it sure but if it's like if it means that chat will get like get my data in any way then I would say like no then I'm not going to use it

35:24 - 35:30 SPEAKER_00

so you would be okay with chat to help you. you would ask for like how to do this and then you would do it yourself instead of having chat to do it for you?

35:30 - 36:34 SPEAKER_01

Exactly . If it means that chat can do it for me without like getting my data, but if I ask like ai can you code this I'm not gonna do it. But if i were to. Like hey could you code this system that could lock and unlock my door then it will get the code so then it could do it then it could save that code right? Then I wouldn't like it you know but then I would rather do it myself if it means like giving away in some way the possibility but also if I if I were to have this system even if I had it on like an app on my iPhone would it still be giving my data away because it's an iPhone or is it like locked ?

36:34 - 37:12 SPEAKER_00

I don't know what to say but you know I can't really answer that I don't really have the correct answer for it. In theory everything you send online to a cloud is data some of them have more strict rules than others but in theory everything that leaves your house and goes to a data center is data

37:13 - 37:28 SPEAKER_01

so I think it's a bit depressing but yeah no but then I would say like I would like AI to like help me do it but I wouldn't want AI to do it for me yeah

37:28 - 37:47 SPEAKER_00

and what concerns would you have using AI and AI assistant to help you setting up a smart home you kind of already said that so with that in mind and with AI in mind see if you want to redo some of the positions on it based on everything we talked about

37:54 - 38:10 SPEAKER_01

so if I would get AI to help me with like a home assistant for example?

38:10 - 38:20 SPEAKER_00

yes for example like after everything we talked about try to look at the cards again and see if you want to move someone to another place

38:20 - 38:39 SPEAKER_01

I would like move everything away that is Apple Google Ikea right now after this discussion just like thinking about it it will still be useful but I don't know how to explain it sorry because it's still useful but I just don't want it

38:50 - 40:04 SPEAKER_01

It's not easier but I would put like interface flexibility more to useful than before but it's still not easy to use but a little bit more if i can get ai help. Unlock door still not interested, home assistant open source so it was open source and home assistant the same yes okay, home assistant is open source okay then i would put it like this so i would put like lights on when you get home and home assistant set up interface flexibility more to useful and a little bit more too easy to use still not easy to use but a little bit more easy to use than before this discussion and i moved like all the apple and google and IKEA things more down to not useful because i want to give my daily away

40:07 - 40:59 SPEAKER_00

cool so i'm taking a picture and see if i can see everything do you have any questions or things you want to add at the end

40:58 - 41:11 SPEAKER_01

no it's more it got me thinking about
like it's more at home and what i could mean and how you could do that so that's interesting but also like the
data discussion but no no i don't think so no.

41:11 - 41:22 SPEAKER_00

thank you for the help

41:22 - 41:25 SPEAKER_01

Of course

7.2.2 ID 2 Tanscription -Pilot. 00:00 - 00:01 SPEAKER_00

So thank you for participating.

00:01- 00:03 SPEAKER_01

You're welcome.

00:03 - 00:06 SPEAKER_00

I'm gonna record this, if it's okay with you?

00:06- 00:07 SPEAKER_01

Yes.

00:07 - 00:46

Perfect.

So this is gonna be a structured interview. I'm gonna ask you some questions and can come in with follow up questions, it's more like a conversation and it's not a test of you. We're gonna do an interview part and then a little activity. So my first question is...

How would you describe yourself when it comes to technology? Are you comfortable learning new technology or do you prefer it simple?

00:46 - 00:57 SPEAKER_01

I would see myself as someone who likes technology. And... Say the question again, please.

00:59 - 01:06 SPEAKER_00

How would you describe yourself when it comes to technology? Are you comfortable learning new tech or do you prefer it simple?

01:06 - 01:12 SPEAKER_01

I'm comfortable learning new tech. I think.

01:14 - 01:21 SPEAKER_00

Have you heard of platforms like Home Assistant, Google Home, IKEA, Trådløs? Or Apple HomeKit?

01:21 - 01:23 SPEAKER_01

Some of them, at least.

01:24 - 01:27 SPEAKER_00

Do you own any?

01:27 - 01:31 SPEAKER_01

No, we don't, actually.

01:31 - 01:33 SPEAKER_00

What's your impression of them?

01:33 - 01:56 SPEAKER_01

Uh... I... Personally, I feel that they are... I don't need them in my home, I think. I can live my life without them.

01:56 - 02:15 SPEAKER_00

Okay. You have a matrix in front of you and you're gonna have some cards, which is... Over here. And... I'll tell you in a second what you can do with them. Uh...

02:37 - 02:57 SPEAKER_00

So, when you look at each card, it's a different situation or a different kind of smart home. I want you to place them on this map, depending on if you think they are useful, not useful, easy to use or not easy to use.

02:57 - 03:05 SPEAKER_01

And I can sort of tell how easy they are to use or hard to use.

03:05 - 03:06 SPEAKER_00

It's what you think.

03:06 - 03:07 SPEAKER_01

It's what I think.

03:07 - 03:31 SPEAKER_00

If you were supposed to implement this in your home, it's how you would perceive the situation or whatever is on the card. And you are very welcome to say a lot what you're doing and why you do it. And why you place them where you place them.

03:31 - 03:32 SPEAKER_01

Should I just start?

03:32 - 03:33 SPEAKER_00

Yeah, just begin.

03:33 - 05:03 SPEAKER_01

camera alerts. Well, it doesn't seem like it would be a very hard decision. Hard setup. Is it useful? Not in my current living situation, I think. Maybe if I lived in a house, but since I live in an apartment, I feel I don't have that much use for it. Easy to use. So I would put it somewhere around. All right. I'm going to go with this. Around here. It feels like it would be to set up, like it says here, in an app. That would be quite easy, I think. And not very useful. Lights on when you arrive home.. Mm. Yeah. I'm going to go with this. It's almost like the one before. It would be more useful when living in a house.

05:03 - 05:07 SPEAKER_00

okay.

05:07 - 05:36 SPEAKER_01

I could see that it could be quite useful. It says here that it needs coding. That would be... Oh, I see. Okay. I think that it would be quite hard for me to do. So I would have quite a hard time setting it up, I think. If that's the way I'm supposed to look at it.

05:36 - 05:44 SPEAKER_00

There is no right or wrong. Okay. So whatever comes to your mind, whatever you think you place it, you just place it.

05:44 - 05:45 SPEAKER_01

Yep.

05:45 - 05:47 SPEAKER_01

Somewhere around here. Quite hard to use.

05:47 - 05:57 SPEAKER_01

Not very useful. But it could be. Maybe somewhere around there. Monitor energy usage. Useful, because that's always interesting. Yep. Useful. And feels like quite easy setup Yeah.

05:57 - 06:04 SPEAKER_01

So that's the Apple, Google, IKEA one.

06:06 - 08:31 SPEAKER_01

Yep. Yep. If there are any distinct differences between the brand, I have no idea. Set lights on a schedule. Could be useful, but then again you could achieve the same with a timer. I guess if you would want a bigger setup, like for all the lights in your home or specific things, it would be good. Maybe for when you're going away, if you want the lights to turn on during daytime. Maybe in the middle. And, quite easy to use I think. Around there.

Turn off devices. Yeah kind of like the one before. Um. Um. I guess that it could be nice to check if you've turned off the oven. Uh. And things like that. Instead of wondering if you did it. Um. Yep. Half useful. Um. Quite easy to use.

08:31 - 08:34 SPEAKER_01

Around here.

08:34 - 08:36 SPEAKER_01

Somewhere.

08:36 - 08:40 SPEAKER_01

Uh. Lock/Unlock Door From phone.

08:40 - 08:41 SPEAKER_01

Yeah.

08:41 - 09:10 SPEAKER_01

That would be very useful I think. Um. Then you don't need to hand out extra keys to relatives and if someone needs something from your home. Um. As long as it's very secure. Uh. I wouldn't mind it. Um. And.

09:10 - 09:11 SPEAKER_01

I think.

09:11 - 09:23 SPEAKER_01

It feels like it shouldn't be very hard to set up. Um. Or hard to use. Um. So. Useful. And. Easy to use. Somewhere around here. Needs to go. Yeah. Um.

09:23 - 09:47 SPEAKER_01

Okay. Um.

09:47 - 09:47 SPEAKER_01

It needs coding. Okay.

09:47 - 09:48 SPEAKER_01

Then we'll put it around.

09:48 - 09:50 SPEAKER_01

Here. Maybe there.

09:50 - 09:51 SPEAKER_01

Um.

09:51 - 11:51 SPEAKER_01

It needs coding. Since I don't know coding. It's very hard. But I, I think it could be solved by getting help from a friend or something. We'll put it in the middle. Of easy to use. maybe a little bit to the left there I mean quite hard to use but useful adjust heating from phone easy to use could be quite nice when it's very warm outside because I don't like the warmth useful easy to use somewhere around there lights on when you arrive home lights turn on automatically I don't see very much use with this I don't think I have any problem with turning my lights on by hand I feel like this would be too much intruding on my personal life than I would gain from it I think so I will put this in not useful but easy to use there turn off devices is this the same as this one no 11:51 - 11:56

11:51- 11:55 SPEAKER_00

it's two different systems but the cards are the same

12:02 - 12:31 SPEAKER_01

okay so I guess it's the same as this one but easier if it's allways online.

12:31 - 12:33 SPEAKER_01

Lock/unlock door from home then it would be the same as this one but easy.

Around over here.

12:33 - 13:03 SPEAKER_01

monitor energy usage get savings recommendation yeah so where did I put that one there easy setup allways online I'll actually put this one a bit further there and if it needs coding it's quite hard for me at least so I put it around here

13:03 - 13:10 SPEAKER_01

Home assistant setup

13:10 - 13:17 Undetermined speaker

hmm

13:17 - 13:56 SPEAKER_01

um it feels like something I would figure out um with a bit of googling um if I didn't know it beforehand um so medium um so this one home assistant setup um regarding usefulness so it is this just basically what helps me run the other stuff

13:56 - 14:00 SPEAKER_00

yeah you need that too you need that to do anything home assistant wise

14:00 - 14:23 SPEAKER_01

so if I want home assistant any home assistant um or or another brand or something um it would be useful otherwise so I'll just actually just put it in the middle

14:23 - 14:51 SPEAKER_00

so just a clarification a home assistant that is a diy system so in this situation you would have to do whatever that say uh the other one so you have to buy hardware and do some things themselves um and the other one which is the apple google u usually just buy a finished system and plug it in

14:51 - 15:14 SPEAKER_01

right yep that's much easier um I'll put it around here quite hard medium hard um I think I would figure it out but it would take some uh maybe quite a lot of googling um

15:14 - 15:20 SPEAKER_01

um

15:20 - 15:41 SPEAKER_01

the I didn't quite think of um well that regarding some of these maybe I should put this one over here that um

15:41 - 15:44 SPEAKER_00

you moved the turn off device home assistant

15:44 - 16:20 SPEAKER_01

yeah um how the app looks like interface flexibility open source you decide how your dashboard looks uh this would be hard for me um I think um but if I want to use a system like this I would like to um to design how it looks so I feel that it would be useful but it would be quite hard so I'll put it up here um

16:23 - 16:50 SPEAKER_01

interface flexibility apple google ikea you don't decide how your interface looks um well well it's not very useful if I don't get to decide how it looks but it would be quite easy um I'm going to put it in the uh I'm going to put it in the

16:50 - 17:02 SPEAKER_01

can you like download presets of interfaces or are they static you have one interface

17:02 - 17:24 SPEAKER_00

they usually look the same yeah but it's like an android phone and an apple phone the ios or and it looks like it looks you can't really change that if there isn't a card for it you can't code it yourself um So how it's born is how it looks.

17:24 - 17:43 SPEAKER_01

Yeah, so usefulness, I'll put it in the middle and I guess if it's just buying the thing then it's quite easy to use if I've interpreted this card.

17:43 - 17:53 SPEAKER_00

So I think you should look at it like you look at your iPhone. You can move things around, you can add apps, you can download apps, but it's like how the interface looks.

17:53 - 18:06 SPEAKER_01

Okay, so like accessibility, how easy it is to run it.

18:06 - 19:00 SPEAKER_00

it's about how it looks. Like when you open the app, why do you agree with how it's your laptop, you have to go to different screens to different stuff. It's basically how the interface looks. So how the app looks and you can, and there's only a certain amount of things. You can do in one and there's some, but that comes with some limitations where you can do a lot with the other, but it also, it is more technological.

19:00 - 19:19 SPEAKER_01

Yeah, yeah. So they would, for me, they would be on the like opposites. This is if I can choose, I would absolutely choose this one, but I think it would be quite hard for me.

19:19 - 20:16 SPEAKER_00

i'll just take a quick picture of this perfect okay so back to questions um if you think about your home right now what's frustrating or inconvenient about how how things

20:16 - 21:49 SPEAKER_01

I think that most things that i find inconvenient are due to my children but i guess that yeah one one thing i find inconvenient is our current sound setup which is basically basically just two speakers one in the kitchen and one in the like middle room and you you have to shift bluetooth connection depending on where you're where you're at and when you when you when you're too far from one the the connection breaks and drops so a better sound setup would be convenient

21:51 - 22:19 SPEAKER_00

right and then that i have the next question is imagine a system that would solve one of those problems how important would that be to you would it what would it benefit so when in concern of the speaker setup sound system setup

22:19 - 22:48 SPEAKER_01

uh i i i would benefit a lot from a system that allows me to to manage sound in in the whole apartment that would be uh a huge quality improvement of quality of life for me at least

22:57 - 23:13 SPEAKER_00

um cool what would you gain from having a smart home can you think of something that you would like to have automated in your home lights heating doors utility monitoring anything like the there's no limit

23:13 - 25:17 SPEAKER_01

um as i said before sound i would like to be able to to adjust the heating um um i would like to be able to monitor um um um water usage and so on that would be at least very interesting uh to see and to see where maybe which rooms are are the biggest energy uh spenders and and during which time of the day and so on um that would be very very interesting to to see um i guess that it would be i i wouldn't have that much need of being able to uh adjust lightning i think but i guess if i had the possibility i would do it it would be nice to to not have to go back to the kitchen to turn up the lights and so on when you're going to bed for example yeah um yeah um also i guess it would be nice to yes double check that the door is locked

25:19 - 25:28 SPEAKER_00

um cool yep uh what concerns or hesitations do you have about smart home technology

25:35 - 26:20 SPEAKER_01

i think my main issue is ... if if it actually would give me, if the benefits would be bigger than like the amount of work I would have to put in, the money, and some sense of integrity loss, because if it is a smart, it feels like all smart devices in one way or another monitor something at least.

26:24 - 26:26 SPEAKER_00

Monitor something in like what?

26:30 - 26:38 SPEAKER_01

I don't actually know, it's just a feeling that I have that, and I do not know if they do.

26:40 - 26:43 SPEAKER_00

But you're thinking in terms of...

26:43 - 27:05 SPEAKER_01

Yeah, if I for example buy Google's version of a smart home setup, it feels like Google would automatically know quite a lot of what we do. How much and...

27:05 - 27:11 SPEAKER_00

So privacy basically. Yeah. So you're concerned about your data and... Yeah, absolutely. Right. Exactly.

27:11 - 27:24 SPEAKER_01

So, and it feels like the cons are bigger than the pros for me.

27:29 - 28:16 SPEAKER_00

Cool. I have a list here of five potential words which I want you to write which from one to five, which are the most important and least important to you. Where one is the most important and five is the least important. And if you can't read my... Not so pretty letters, just ask.

28:16 - 28:17 SPEAKER_01

Yeah.

28:22 - 28:27 SPEAKER_00

And while you're doing it, it would be nice if you tell me why. Yep. So,

28:30 - 28:45 SPEAKER_01

um.. So I immediately feel that compability across brands and interface flexibility are the lowest ones because I can live without interface flexibility

28:45 - 31:07 SPEAKER_01

I guess that would be five, interface flexibility. Because I could live with a static interface design, whatever. The rest are quite hard. Okay. I guess I would have to put...Capability across brands as four. Although I think it's quite important to be able to use whatever I would like to use. I actually feel it's very important, but the other three are more important. So I would have to put four on that one. And not because it's not important, but because the other ones are more important. Okay. Price, privacy, setup, complexity. I will immediately put privacy on number one. Setup, complexity, price. I think setup, complexity will be two and price three.

31:07 - 31:20 SPEAKER_00

Okay. So privacy, number one. Setup, complexity, two. Price, three. compability across brands, four. And... Interface, flexibility, five Cool.

31:22 - 31:40 SPEAKER_00

And... So that also leads me to the next questions Tell me your thoughts about thoughts on security and privacy in smart homes

31:41 - 32:49 SPEAKER_01

Hmm I feel that that's the like big question for me and Probably because I don't feel that I have That much real use for a smart home system It feels like it would be Conveniences more than necessities For me right now Like I have everything I need in my home I don't feel that there is anything lacking There are absolutely improvements to be made but if those improvements come with a privacy price that I'm Not willing to pay that depending on What I gain I think that would be my my answer to that

32:52 - 33:08 SPEAKER_00

Perfect and What is your thoughts on The so-called big tick so Apple Google Amazon, do you trust them to keep your data safe

33:11 - 34:27 SPEAKER_01

No Personally I think it's It's quite obvious that they don't keep the data safe um My impression is that they It's quite obvious that they use our data for for their own gains so If they wouldn't use our data To gain something then they wouldn't collect our data. It's as simple as that So To me there I really don't see any difference Regarding any of the big brands they feel if they feel like the same They are they're quite even regarding Evilness

34:28 - 35:01 SPEAKER_00

Thank you I have some pictures here of Different systems if you say was they take a look at these pictures and then Then tell me which one of them looks more appealing to you and explain why I'm going to show them all at the same time Maybe you can also guess which in one which one it is which

35:01 - 36:18 SPEAKER_01

hmm Okay, so I should just just tell you my opinion . This this looks like a phone I I don't like the I I don't like the design. It feels... To me this is... I don't know. It's too... It's like rounded and... I don't know.

36:18 - 36:23 SPEAKER_00

That's fine. You don't have to explain anything. It's just like your initial thoughts.

36:23 - 39:06 SPEAKER_01

I think it's boring. It feels like a boring... It feels like opening my mother's or father's phone. Boring. This one I like because you have a neat overview of quite a lot. It's very structured. I personally like a darker interface. So I like this one. It feels like it's something that you have to code or design yourself. Is there anything else? I like graphs, so graphs are always nice. It gives a clear picture. Like immediately. You don't have to... As long as you know what the graph's about, you don't have to do anything else. Look at it to understand it. So that's nice. Yeah, I like this one. This one I hate. It's probably IKEA. I don't like the colors. I don't like the cute design. Nah. To me, this feels limited. Like they... They decide what you can and what you can't do. Uh... That is the feeling I get from this one. It feels like the settings for this would be extremely limited. That's the feeling I get. Uh... This... Oh, sorry. This one... Um... A little bit better than the first one, but not much. Um... Mmm...

39:06 - 39:08 SPEAKER_01

Yeah.

39:08 - 39:13 SPEAKER_01

Yeah. Yeah. A little bit better.

39:13 - 39:26 SPEAKER_00

Um... So from the picture you have right now, if you had to choose one...

39:26 - 39:32 SPEAKER_01

Of these? Yeah, I would absolutely choose this one.

39:32 - 40:08 SPEAKER_00

Which is, um... Home Assistant. Yeah. I guess. Um So... Home Assistant Offers more privacy As it can be entirely offline and is more flexible than Google, Apple and IKEA But requires more technical setup. What is your reaction to the trade-offs?

40:08 - 41:11 SPEAKER_01

Uh... Well, If that's the case... If I would ever get Home Assistant... Or a Smart Home System I would...Very much Try to Get Home Assistant... Out of those four... If it's possible to have it in offline mode... Or... Keep it very limited... Regarding Privacy I would probably try to get help in setting it up But It's a big If I would Feel like I had the Use for it...

41:11 - 41:17 SPEAKER_00

What level of technical effort would feel acceptable for you... In a smart home?

41:17 - 41:50 SPEAKER_01

Well I don't know any coding... Um... So that would be a hard line to cross. I would Have to get help... Because... Um... I would probably have to have... Another do it for me Um But... Hardware I would probably be able to figure out Coding would be... I think the hardest... Part...

41:50 - 42:00 SPEAKER_01

Have you used AI assistants? Like Chat GPT or Claude and for what kind of tasks.

42:00 - 42:16 SPEAKER_01

Uh... Very limited usage of AI. The Most Use I have for AI is...

Gemini.

When you Google... You get the Gemini's... Um... Um... AI Answer... First... And that's because it's quite hard to miss because they put it first before all the search results. So, quite naturally you at least skim through it before you check the actual searches. But I barely used any of the other AI brands. I've maybe done a couple of ChatGPT.

43:33 - 43:51 SPEAKER_00

So it's not something you use for your day-to-day tasks?

43:51 - 43:53 SPEAKER_01

No.

43:53 - 44:41 SPEAKER_00

Imagine an AI assistant could help you set up and manage your smart home guiding you through installation and plain language, troubleshooting problems and explaining what each setting does. How does that sound to you?

43:51 - 44:41 SPEAKER_01

Well it sounds good but I'm a bit skeptical by nature towards AI. So, I think my first first hand... um. solution would be asking someone for help but if it would be possible to do it all by with the help of AI I guess that would be would be good depends on which AI yeah

44:41 - 44:51 SPEAKER_00

what concerns do you have about using AI systems to help you to possibly help you setting up a smart home for you

44:51 - 46:28 SPEAKER_01

ethical questions regarding like chat GPT and their connection to the weapons industry and their part in wartime so I feel chat GPT for me is not an alternative so then I would have to find a better alternative and make sure that they're not doing the same as chat GPT so the ethical question is the biggest concern for me regarding AI and I guess it's also an ethical question also but like the source material because because that's another big problem with AI, where do they, what have they trained on? And if they've trained on people's work, are they losing money because of it, and so on. That would also be a consideration for me.

46:28 - 46:38 SPEAKER_00

So with AI in mind, take a look at your matrix and see if there's something you want to change...

46:42 - 46:54 SPEAKER_01

I guess that I could... So if I were to... I guess I could move all the homeassistant and...

46:55 - 46:59 SPEAKER_00

Try to do whatever you think..

47:11 - 48:00 SPEAKER_01

I think it would be medium. I think there are so many guides and so forth. On how to get these set up with AI and without for that part. So I guess I would like to put them... Like... In the... Just like... Above medium difficulty i think.

48:00 - 48:02 SPEAKER_00

okay

48:02 - 48:03 SPEAKER_01

I don't know if I would...

48:03 - 48:09 SPEAKER_01

I don't need to change the other. Everything home assistant, DIY related is just pushed a little more to the easy to use..

48:09 - 48:17 SPEAKER_00

Thank you. Do you have any questions or anything else you want. Thank you.

48:17 - 48:18 SPEAKER_01

... No, I don't think so.

48:18 - 48:25 SPEAKER_00

No? Well, that concludes our talk. Thank you for your help

7.2.3 ID 3 Transcription. 00:00 - 00:12 SPEAKER_01

Yes, okay. Thank you for participating.

00:12 - 00:14 SPEAKER_00

Yes.

00:14 - 00:17 SPEAKER_01

Is it okay with you if I record this interview?

00:17- 00:119 SPEAKER_00

Yes, it's okay.

00:19 - 00:36 SPEAKER_01

Thank you. Okay, so first of all, how would you describe yourself when it comes to technology?
Are you comfortable learning new tech or do you prefer it simple?

00:36 - 00:57 SPEAKER_00

Some things I'm not comfortable with and some things I am. So the things that I daily use, it's no problem. But then there are other things that I'm perhaps not this same comfortable with.

00:57 - 01:04 SPEAKER_01

So for example computers, printers, stuff like that. It's like normal technology.

01:04 - 01:07 SPEAKER_00

It's normal technology I use, yes.

01:07 - 01:15 SPEAKER_01

Have you heard about platforms like Home Assistant, Google Home, IKEA, trådfri, Apple HomeKit?

01:15 - 01:17 SPEAKER_00

Yes, I have heard about it.

01:17 - 01:20 SPEAKER_01

What is your impression or thoughts about them?

01:20 - 01:31 SPEAKER_00

It is nothing that I use. And I'm not certain that I have the need for it either.

01:35 - 01:41 SPEAKER_01

My next question is, do you currently own any smart home devices?

01:46 - 01:51 SPEAKER_00

I have to look around and see. No.

01:51 - 01:56 SPEAKER_01

That could be Philips Hue or an Alexa speaker or anything that goes...

01:56 - 02:24 SPEAKER_00

No, no, no. Not here. In the sommerhouse i needed to have a chromecast, that's google TV. I managed to solve it, but I do not have anything else that is run by WIFI.

02:24 - 03:18 SPEAKER_01

we are gonna go a little exercise now well. It's not an exercise, it's just a to kind of figure out where your thoughts are on technology. So this is a matrix. I'm going to give you some cards soon and you have to place those cards depending on if you think it's useful, not useful, easy to use, or not easy to use. And this is from your perspective. And read the cards and everything it says because some of the information is more important. So read the cards and then place them and you can place them just as you want. It's not a test, it's nothing. It's just to figure out what your thoughts are. So if you get the first one.

03:26 - 03:33 SPEAKER_00

And this is for designing your furnitures at home or what this is?

03:33 - 03:58 SPEAKER_01

All the cards are related to smart homes. So they're related to different basically two types of smart home systems. There is Apple, Google, Ikea. And then there's Home Assustant which is a DIY system. You have to do it yourself and most of the things are...

03:58 - 04:03 SPEAKER_00

I read that word as design but there is this guy. What's that?

04:04 - 04:05 SPEAKER_01

That's me writing wrong.

04:08 - 04:12 SPEAKER_00

I thought it was something. I didn't know what it was.

04:13 - 04:14 SPEAKER_01

Yeah, that's a misspell.

04:17 - 04:34 SPEAKER_00

Okay. It was easier than I thought. Okay. Okay. So this is to control your devices.

04:35 - 04:52 SPEAKER_01

It is how the app looks like. So when you open the app how does it look? And there's nothing you need to do. It's depending on if you think the flexibility of the app is something you care about or not.

04:52 - 05:03 SPEAKER_00

Okay. Okay. If it's something that's make the life easier. So, okay.

05:05 - 05:15 SPEAKER_01

If it does. Well, it depends if it does to you. Yeah. So, this one.

05:28 - 05:39 SPEAKER_01

you can also try to explain why you put it where you put it if you can.

05:39 - 05:54 SPEAKER_00

I don't think that's a problem. But if I'm going to install, install or add, it must be useful. Otherwise, I haven't used it.

05:55 - 05:57 SPEAKER_01

It's from what you think about it.

05:57 - 05:58 SPEAKER_00

Yes, yes, yes, yes.

05:58 - 06:08 SPEAKER_01

If you think it's, it seems hard, but it's still useful, then it can be on the hard to not easy to use, but still useful. If you think it seems easy,

06:08 - 06:09 SPEAKER_00

then it's okay.

06:09 - 06:13 SPEAKER_01

So that was the initial setup of Apple, Google and IKEA.

06:13 - 06:14 SPEAKER_00

Open source.

06:20 - 06:25 SPEAKER_01

Tell me if you need the to have the explanation of what open source is.

06:25 - 06:44 SPEAKER_00

Open source. I know what open source is, but I don't think I ever had installed some open source software. So it's very hard to.

06:44 - 06:50 SPEAKER_01

So from the initial thoughts, how would you think that that process would be for you?

06:50 - 06:59 SPEAKER_00

Yes. It must be here somewhere. I think.

06:59 - 07:23 SPEAKER_00

I don't know. unlock/lock the door from the phone. I don't know how it works.

07:24 - 07:43 SPEAKER_00

I know how to use the alarm on a phone. If you put it, you can put the alarm on and take the alarm away. But I don't know how I can open the door with my phone.

07:43 - 08:00 SPEAKER_01

It also says like this is the lower part of it is kind of like how the process of installing that. So, for example, in that case, it needs coding. So you have to write code.

08:00 - 08:34 SPEAKER_00

Okay. I'll Put it somewhere. Here. So I think. I don't think I'm comfortable with unlock or lock the door from my phone because I'm not sure that it's a secure system.. What happens if we don't have an electricity? Every door will be open so we can go into the neighbor. We don't have any problem.

08:34 - 08:36 SPEAKER_01

I cannot answer to that.

08:36 - 08:43 SPEAKER_00

No, I understand that. But that's my skepticism. So put it down here somewhere to the left. Right.

08:43 - 08:44 SPEAKER_01

So we have another one.

08:46 - 09:43 SPEAKER_00

At the same place.

And that is not only dependent on if it's easy or not. It's more that I cannot see any use. So somewhere here in the middle.. . Set lights on a schedule, set times and It needs pairing,. I think we will go here in the middle

10:16 - 10:20 SPEAKER_01

Can you explain why you out that there

10:20 - 10:40 SPEAKER_00

I don't think it's so hard to use, perhaps it's a little but more usefull.

10:40 - 10:46 SPEAKER_01

And it was to turn the device of via the app

10:46- 10:50 SPEAKER_00

Yes

10:50 - 10:55 SPEAKER_01

Here is a new card monitor energy usage

10:50 - 11:35 SPEAKER_00

The funny thing is, in the sommerhouse i can do that if i want to, but I have never used it. I know that there is something, and I have received a mail about it for some years ago but why should I? That's how I am, I don't know how easy it is. I don't think it's so hard.

11:35 - 11:40 SPEAKER_01

What card is that ?

11:40 - 12:23 SPEAKER_00

Lights on when you arrive home it's much easier to buy a lamp that has a sensor then I don't have to do anything at all. And it works even if the no it doesn't work if the electricity doesn't work the lamp will not turn on no no but isn't this the same that I had before

12:23 - 12:25 SPEAKER_01

you had it before but that was the home assistant, and this one is apple google.

12:25 - 12:40 SPEAKER_00

okay but for me that's no difference okay it's easier to set up okay I'll put it down here somewhere then

12:40 - 12:57 SPEAKER_00

This is the same thing that we also had, but I have never used it.

12:57 - 12:58 SPEAKER_01

what is it?

12:58 - 13:04 SPEAKER_00

for the air system so it's going to heat

13:07 - 13:34 SPEAKER_00

I can do that if I want by the phone but I have never done it so I don't think it's so hard I know that my husband had installed it on his phone so I have tried it but I think it's quite easy perhaps it could be more useful but I don't know

13:36 - 13:48 SPEAKER_00

hmm same

13:48 - 13:58 SPEAKER_01

which one was that

13:58 - 14:03 SPEAKER_00

lights on when you arrive home yes

14:05 - 14:17 SPEAKER_00

Perhaps that could be more useful.

14:17 - 14:19 SPEAKER_01

Explain why it was and why.

14:19 - 14:43 SPEAKER_00

It's turn off devices via app. Home Assistant. Easy setup, no coding required. Perhaps it could be a good idea. In some situations you perhaps need to do it. But I'm not interested. That's the problem.

14:43 - 14:59 SPEAKER_01

I see now that that was actually supposed to be a harder setup. You need coding because you also have that on the IKEA. But I should take my decision from the information I have on the paper.

14:59 - 15:01 SPEAKER_00

If you have put something wrong.

15:01 - 15:04 SPEAKER_01

It's a mistake from my side.

15:04 - 15:08 SPEAKER_00

Yes, I think you have to change some things.

15:08 - 15:15 SPEAKER_01

I'm just going to take a picture of that.

15:15 - 15:18 SPEAKER_00

Yes, do that.

15:31 - 15:54 SPEAKER_01

If you think about your home right now. What's frustrating or inconvenient about how things work?

15:54 - 15:59 SPEAKER_00

If there is any. When it comes to technology.

15:59 - 16:00 SPEAKER_00

Yes.

16:00 - 16:05 SPEAKER_01

Anything in particular? No. Just technology in general?

16:05 - 16:06 SPEAKER_00

I don't think so.

16:06 - 16:28 SPEAKER_01

Alright. Then I'll skip the next one. What would you hope to gain from having a smart home? Can you think of something that you would like to have made automated in your home? Lights, heating, doors, utility, anything?

16:28 - 16:52 SPEAKER_00

Not as the situation is today. Perhaps when I get older. Perhaps starts to be a little dementia or something like that. It could be something for my children to have the power to do from home.

16:53 - 19:12 SPEAKER_00

That's another. It's a question about safety, more than something else. But if I can. If I can put in some opinions. I have a problem when the only alternative is Apple, Google, Ikea. Because it's big companies and it's the ones that hackers will concentrate on first of all. And I think that's a big problem. I think we have to solve this in the future in a much more local way. Because I don't think this is sustainable at all. And it's also a question about the political context we live in. We stopped to use regulations in the beginning of the 1990s. So we have not regulated anything of this. And that's the other problem. Because these big companies, they can do exactly what they want and we have no control at all. So if perhaps I could be more positive. If we had minor companies and we had a lot of companies with this kind of software. And that we regulate and put a limit to the size of these companies.

19:12 - 19:16 SPEAKER_01

So more regulation within technology and software and within privacy and data in general

19:16 - 20:01 SPEAKER_00

Yes. And not these big ones. Because these big ones are always the ones that will be hacked. They do not hack in the same amount of Firefox or the other ones And I think we had a problem with Canvas. I think you have it in Denmark too. Or you don't use Canvas The learning platform. But several universities over the world use it. And it was hacked last week.

20:01 - 20:04 SPEAKER_01

I think we used something called Moodle.

20:03 - 20:10 SPEAKER_00

Moodle, yes. I know. It's another American system that we left for several years ago.

20:11 - 20:54 SPEAKER_00

It's a terrible system. And that's... We didn't at our... department use it but I don't know the Department of Psychology had it and I have been teaching through it. It's terrible. But now we have something since ten years back called Canvas and it's an American tool and it's used by several universities. Now someone hacked it and we still don't know what information they have received. The system is up again. It was down at the end of the week and no student can come into it but they still don't know what have they done out there.

20:55 - 20:57 SPEAKER_01

And what did they get out of it? Yes.

20:57 - 21:09 SPEAKER_00

And I think that is a big problem. Why do we use the same system? Everyone. And it's a big company again.

21:10 - 21:16 SPEAKER_00

Shit will happen if I say that.

21:20 - 21:31 SPEAKER_00

So the technique isn't the problem. It's the regulation and politics around this kind of technique.

21:31 - 21:55 SPEAKER_01

I have a question that says what concerns or hesitations you have about smart home technology? You were in on parts of it before. Do you have some things in particular about smart home technology?

21:57 - 23:06 SPEAKER_00

It's technology itself. But much is, you can use it through smartphone. Most of those things. But it's the way we treat technology that is the problem. all digital technology and in some aspects I think I can feel much more secure not using these systems even if many of those systems has the purpose to give me more security but I don't think I will have more security I think I will be much more vulnerable if I use it because I don't know I have no control I don't know what they are going to do you have those alarm system as my oldest daughter have in their house and it was shown that they could sit and look into your home through their cameras what the heck that's not security

23:08 - 23:50 SPEAKER_00

no so in some way to be as much offline as you can feels more secure and if we think of the world we live in if we think of the risks concerning oil electricity war, this is not sustainable at all several local solutions should have been much more sustainable if you can

23:50 - 24:02 SPEAKER_01

when you think about local do you mean local as in geopolitical local or local as in it runs in your like the system runs offline in your own house

24:02 - 25:03 SPEAKER_00

it could be offline in my own house but I also think local we had an example that they was in media for some weeks ago about one municipality who have been tired of this. Some hackers appeared one two three four times a year in their big systems so they started to fix their own and they have control over it. So that's another way to do it but then you have to build other things that have to then find solutions for how to connect different systems and at the same time have the security in your own system

25:03 - 25:27 SPEAKER_01

thank you. so rate this list from one to five where one is the most important for you and five is the least important thing to you and you have price privacy setup complexity and capability across brands and interface flexibility okay

25:29 - 25:59 SPEAKER_00

so yes that's no problem that's number one and in line with what I just said perhaps I should put this as number two.

25:59 - 26:17 SPEAKER_01

can you read it yeah so privacy one compatibility across brands two and with that you mean you have to mix and match you're able to mix and match whatever you want yes yes setup complexity of three interface or design flexibility four and price is five

26:17 - 26:22 SPEAKER_00

that's how I would say it

26:22 - 26:31 SPEAKER_01

and then I have tell me about your thoughts on security and privacy in smart homes I think you came along that before so I think that's fine

26:31 - 26:32 SPEAKER_00

yes

26:32 - 26:42 SPEAKER_01

and also what is your thoughts on big tech like I will Google Amazon do you trust them to keep your data safe I guess you've answered that as well

26:42 - 26:45 SPEAKER_00

yes I think I have answered that yes

26:45 - 26:48 SPEAKER_01

and that is a no as I understood you do not trust them

26:48 - 26:50 SPEAKER_00

no I do not trust them at all

26:50 - 27:14 SPEAKER_01

and then I have some pictures for you which is pictures of different interface designs on different systems and then you can choose which one of them you think appeals most to you if you had to choose one of them you would like

27:14 - 27:24 SPEAKER_00

oh different size too yeah it's a little bit hard to

27:24 - 27:26 SPEAKER_01

but it's just a design yes

27:26 - 27:48 SPEAKER_00

yes I understand that but that's so much and it's so small so I have to concentrate to read okay hmm

28:23 - 28:39 SPEAKER_00

It's just a design.

28:40 - 28:41 SPEAKER_01

It's just a design yes.

28:41 - 28:42 SPEAKER_00

Nothing else.

28:42 - 29:14 SPEAKER_01

No. Some of them seems more simple than the others which also reflects on how much you can do in the different systems.

29:14 - 29:33 SPEAKER_00

The overview of that is too complex I should say perhaps you can do a lot of things but there are other aspects of that that will stress me to death.

29:35 - 29:36 SPEAKER_01

Can you explain what you mean by that?

29:37 - 29:47 SPEAKER_00

I hate when it's too hot inside or should I go and look how the degrees in every room No. No. It's too much information for me.

29:47 - 29:47 SPEAKER_01

Mm-hmm.

29:47 - 30:06 SPEAKER_00

Mm-hmm. I can feel if it's too hot. It's so I have chosen between those two. Yeah. And I think that's the one.

30:07 - 30:07 SPEAKER_01

Okay.

30:07 - 30:19 SPEAKER_00

Mm-hmm. And the reason for that is it feels like I have more control when I look at this one.

30:19 - 30:20 SPEAKER_01

Mm-hmm.

30:20 - 30:29 SPEAKER_00

Because you have all the rooms. You can choose the room and in the room you can see more information if I understand it.

30:29 - 30:31 SPEAKER_00

In the right way.

30:31 - 30:57 SPEAKER_00

That one is harder to understand. It seems it was the whole. The whole house here. Bedside lamp. It's on the detail level. Where is the bedroom? Is this the bedroom? Or I do not understand it really.

30:57 - 30:58 SPEAKER_01

That is fine.

30:58 - 31:09 SPEAKER_00

But that one I feel much more logical to me. Yes. Mm-hmm. I don't know who this is. It's a big company.

31:09 - 31:11 SPEAKER_01

That was the Apple one.

31:11 - 31:18 SPEAKER_00

The Apple one. Yes. But it was the easiest one I think. But it was just the design. Nothing else.

31:18 - 31:35 SPEAKER_01

Exactly. Mm-hmm. Home Assistant offers more privacy as it can be. It can work entirely offline and is more flexible than Google, Apple and Ikea. But it requires more technical setup. What's your reaction to the trade-off?

31:37 - 31:39 SPEAKER_00

I think privacy is the most important thing.

31:39 - 32:07 SPEAKER_01

So you would be willing to like, and this is part of like... it's the technical, like the trade-offs between those two systems where one system is easy to set up and you probably could do yourself or the other one system is hard and you, how like, could you, would you be okay with the trade-off except one system being hard, Offers privacy and local setup? Where the other one is easy and always online?

32:07 - 32:15 SPEAKER_00

I think so. Yes.

32:17 - 32:20 SPEAKER_01

And what level of technical effort would you feel acceptable for you?

32:21 - 32:53 SPEAKER_00

That's a hard question to answer. I, you have something here of this I think is, was hard to set up and needs coding. What do you mean by needs coding?

32:53 - 33:03 SPEAKER_01

That some of the functions in that system requires you to actually write code to make, it work.

33:03 - 33:09 SPEAKER_00

And I think that's my limit. I'm not capable of that.

33:09 - 33:10 SPEAKER_01

Nope.

33:13 - 33:22 SPEAKER_01

Have you used AI systems like chatGPT, Claude, or Gemini? And for what kind of tasks?

33:22 - 33:26 SPEAKER_00

No, very, very short. Just to test the system. Nothing else. No.

33:26 - 33:41 SPEAKER_01

Uh, imagine an AI system could help you to set up and manage your smart home, guiding you through installation in plain language, troubleshooting problems, or explaining, um, what each setting does. How does that sound to you?

33:45 - 34:11 SPEAKER_00

If you, if you mean that it's quite instrumental without leaving out any information about the system, you just do like this and then you do that, that, that's instrumental. Uh, you, uh, it's okay. But the problem with AI is, that every time you use it, you also feed it.

34:11 - 34:14 SPEAKER_01

Hmm.

34:14 - 34:34 SPEAKER_00

So if it, it's needed to feed it with information about my technique, um, installation things in my home, then I'm not comfortable with it. Because then I have given it out on the internet through AI. Hmm.

34:34 - 34:56 SPEAKER_01

So, you're tapping into the next question, which is what concerns you have about using an AI system to help you setting up a smart home for you. So, can you explain a little more of the, imagine that you're setting up a smart home, you're using AI systems for it. What information would you be okay to give it? And what will you not give it?

34:56 - 35:20 SPEAKER_00

The limit is Private information about my equipment. In my home. That could be open a door for someone outside my home to come in to my system. There's the limit somewhere.

35:20 - 35:28 SPEAKER_01

So getting help with how you set up the system is fine, as long as it doesn't know anything about your system at all.

35:30 - 35:32 SPEAKER_00

No. No.

35:35 - 35:40 SPEAKER_01

So with AI in mind, try to look at the matrix you did earlier. Okay. And see if you want to change something.

35:41 - 36:05 SPEAKER_00

Okay. It depends on ehm. Because It depends on how much is online in your house. Perhaps some of these devices, is not so important as others, if you understand what I mean.

36:05 - 36:10 SPEAKER_01

As I mentioned earlier, everything home assistant wise can be offline.

36:11 - 36:12 SPEAKER_00

Yes.

36:12 - 36:16 SPEAKER_01

And still work within your local house.

36:17 - 36:18 SPEAKER_00

Yes.

36:20 - 36:24 SPEAKER_01

And anything Apple, Google IKEA is able to reach the cloud.

36:25 - 37:15 SPEAKER_00

It is. So, I don't, do not change those. Perhaps, perhaps I could change something like that... And help me to use it more... For those things we have old technology that works.

37:16 - 37:18 SPEAKER_00

Yes.

37:19 - 37:20 SPEAKER_01

What do you mean?

37:21 - 37:23 SPEAKER_00

You could have a timer.

37:24 - 37:26 SPEAKER_01

Absolutely.

37:26 - 37:30 SPEAKER_00

Why should I put this on a digital solution?

37:31 - 37:34 SPEAKER_01

That's totally up to you.

37:35 - 37:39 SPEAKER_01

I cannot answer that.

37:40 - 37:50 SPEAKER_00

For me that's not important at all.

37:50 - 37:59 SPEAKER_01

You don't have to remove or change anything if you don't want to.

38:00 - 38:46 SPEAKER_00

It's not important. Energy uses. Yes, it can be if it's something I can control. But as the problem it's not the uses of energy today. The problem is that we also have big companies for this. And most of my money goes for the electric net. Not for the energy use. So, it's not a big question. It's a quite small question. So, I don't think there is much more. That one I can see a need for.

38:46 - 38:50 SPEAKER_01

Adjust heating from the phone.

38:50 - 39:10 SPEAKER_00

yes. If I will go up to the summer house in the winter. Yes. But then I also have to have the internet on. The whole time. And I don't have that today. No.

39:10 - 39:12 SPEAKER_00

So, yes.

39:12 - 39:15 SPEAKER_01

Well, that also concludes everything. Do you have any questions?

39:16 - 39:18 SPEAKER_00

What are you going to do with this?.

39:20 - 39:40 SPEAKER_01

I'm going to code it And look at all the other interviews I have. And then try to figure out what the general opinion is about home assistance. And the adoption and the barriers between different people. And how they think about adoption on home assistance. Which is the offline local thing. And Apple, Google, IKEA. And what the barriers for people are.

39:40 - 39:42 SPEAKER_00

Okay.

39:42 - 39:45 SPEAKER_01

So, that's basically the whole idea.

39:45 - 39:55 SPEAKER_00

I understand. But as I have so few things in my home. I cannot really see the need for much of this.

39:55 - 39:58 SPEAKER_01

No. That is totally fair

39:58 - 40:15 SPEAKER_00

If you have a big home. A lot of people. Perhaps the need is different. Or if you think it's fun. But I don't think it's fun. But the research question is concerning the use of it and the opinion about it.

40:15 - 40:16 SPEAKER_01

Exactly.

40:116- 40:17 SPEAKER_00

Okay.

40:17 - 40:19 SPEAKER_01

Thank you. Thank you.

7.2.4 ID 4 Transcription. 00:02 - 00:03 SPEAKER_00

Thank you for participating.

00:04 - 00:06 SPEAKER_01

Thank you.

00:06 - 00:07 SPEAKER_00

Is it okay if I record this?

00:08 - 00:09 SPEAKER_01

Yes, of course.

00:10 - 00:27 SPEAKER_00

Thank you. So we're gonna have a semi-structured interview now. And if there's anything you're in doubt of, just ask me. I can't answer on everything because I don't want to bias you or give you any impressions of anything. But just ask and we can see.

00:27 - 00:28 SPEAKER_01

Yeah.

00:28 - 00:34 SPEAKER_00

So we're gonna start with a semi-structured interview, part one, and then we're gonna do a card sorting exercise.

00:34 - 00:35 SPEAKER_01

Mm-hmm.

00:35 - 00:39 SPEAKER_00

And then we're going to go back to the rest of the questions in the semi-structured interview.

00:40 - 00:40 SPEAKER_01

Okay.

00:40 - 00:40 SPEAKER_01

Sounds good.

00:42 - 00:54 SPEAKER_00

So, first question is, how would you describe yourself when it comes to technology? Are you comfortable learning new tech or do you prefer simple?

00:56 - 00:59 SPEAKER_01

I'm gonna say that I'm comfortable with new tech. I'm pretty sure. Yeah.

00:57 - 01:01 SPEAKER_00

would you call yourself a techie ?

01:01 - 01:04 SPEAKER_01

No, no i won't.

01:04 - 01:12 SPEAKER_00

Have you heard of platforms like home assistant google home ikea or apple homekit?

01:12 - 01:15 SPEAKER_01

yeah I have heard about it.

01:15 - 01:18 SPEAKER_00

what is your impression of them?

01:18 - 01:37 SPEAKER_01

I haven't really made an impression because i haven't really used them so... No i haven't got any impression of them I'm not using them, but i know what they are.

01:15 - 01:37 SPEAKER_00

So as a concept you know what it is?

01:37 - 01:45 SPEAKER_00

so if i asked if you currently own any smart home devices?

01:45 - 01:47 SPEAKER_01

Yeah.

01:47 - 01:47 SPEAKER_00

You do ?

01:47 - 01:48 SPEAKER_01

Smartphone?

01:48 - 01:49 SPEAKER_00

Smarthome devices.

01:49 - 01:51 SPEAKER_01

Smarthome, no. no

01:51 - 02:03 SPEAKER_00

okay so we're going to go to the card sorting

02:11 - 02:58 SPEAKER_00

so this is a matrix which is split in useful not useful easy to use and not easy to use and i have some cards here which is different scenarios or functions in home assistant systems or smarthome systems and what i would like you to do is read them and try to read the thing with the small letters as well because that's sometimes important depending on the card um and then place those cards from what you think it would be for you to implement them in your home.

02:58 - 03:00 SPEAKER_01

In my home ?

03:00 - 03:02 SPEAKER_00

Exactly.

03:02- 03:06 SPEAKER_01

Can you explain what home assistant is?

03:06 - 04:15 SPEAKER_00

Yeah. So Home assistant is a DIY solution to Apple homekit or google home or IKEA trådfri which is something you have to buy different hardware and connect them together and then download software. And everything you buy around that home assistant system is, that's the hub for it. So like, Apple TV can be a Apple kit home hub, or a Google, like, Philips Hue dongle thing you have to buy in order to get the Philips Hue light to work. That's more plug and play because that's more consumer-wise. But it comes with different situations and options, and those are kind of like things you have to think about when you do it, and that's kind of like we have here. So

that's why I wanted to look at the cards, pick one at a time, try to explain what is in the card, and where you want to put it, and then try to explain a little about why you're putting it where you're putting it.

04:16 - 04:25 SPEAKER_01

Okay. So, I'm not really using any of these things. So, it would be hypothetical.

04:25 - 04:28 SPEAKER_00

That's is fine. If you were to implement it, how would you think it would be?

04:28 - 04:51 SPEAKER_01

Okay. Let's see here. So, lights on when you arrive home. Apple, Google, Ikea, lights turn on/off automatically, easy setup, always online. I think it's quite useful, and it sounds like it's very easy to use. So, we'll put it here.

04:54 - 04:57 SPEAKER_01

So, the easy to use scale will go that way, and the useful, so it's like...

04:57 - 05:02 SPEAKER_01

So, something like here. Yeah, I think it's useful.

05:02 - 05:14 SPEAKER_01

Yeah, I think it's useful. This is useful, this is very useful and very easy to use. Ah, okay. Because it's like, so up here is 10, for example. And that is zero. Yeah. And then it's 10 and zero again.

05:14 - 05:14 SPEAKER_01

Okay. Something around here.

05:18 - 05:45 SPEAKER_01

Design flexibility, home assistant. You decide how your dashboard looks. Full flexibility requires coding. Requires coding, I think that's the problem here. So, I would put it... For me, I would not say it's easy to use. I'm not sure it's useful for me. Actually. So, maybe here.

05:46 - 05:46 SPEAKER_01

Mm.

05:48 - 06:13 SPEAKER_01

Door camera alerts, receive notifications when someone approaches, needs setup in app. I'm not sure why I would need this at all, actually. So, I would put it somewhere. It might be easy to use, but I don't think it's useful. So, something here, maybe. Maybe.

06:18 - 06:26 SPEAKER_01

Locks, unlock door from phone. Apple, Google, Ikea. No key needed. Easy setup, always online. Yeah. Sounds like a good idea. Something here.

06:28 - 06:47 SPEAKER_01

Set slight on schedule. Turn off at set times.

Could be useful when you're on vacation, for instance.

So, maybe in here, as well.

06:48 - 07:25 SPEAKER_01

Lights on when you arrive home. Lights turn on automatically needs coding. Data stays private. Yeah. Needs coding. might be a problem. But still, it's, it's quite nice actually. Maybe, here so not easy to use but usefull so something like here mabye.

07:25 - 08:00 SPEAKER_01

locks/ unlocks door from phone is this the same. not really needs coding or setup yeah so when it's needing code when you need to code it is it a thing what information is private is that okay so maybe it's I think it's quite useful but I figured we put it in here.. Ahh so home assistant okay you need to code.

08:01 - 08:30 SPEAKER_01

Monitor energy usage you get saving recommendations sounds useful but I don't think I will need this in everyday life maybe if I had like a bigger house or something like that so for me it would be a we'll put it here.

08:30 - 08:48 SPEAKER_01

Adjust heating from phone when away from home needs online account and login. Actually same thing here if I had a house it would be nice but now I don't think it's for me. Somewhere here.

08:48 - 09:22 SPEAKER_01

Initial setup Apple Google, IKEA and buy hardware, install app and accessories more expensive always online. Yeah maybe for me, everything is I could see that I could, ehmm somewhere here.

09:22 -09:40 SPEAKER_01

Design flexibility. Apple, Google, IKEA. You decide how your interface look, easy setup..

Can you explain design flexibility ? Do you have an example.

09:41 - 10:23 SPEAKER_00

It's how for example in Apple products when you open the phone in IOS for example it looks at a specific way Apple designed the home screen or how the app screen looks like and you can't really change that very much because like that's their design rules where google sometimes like the android system is more flexible so you can change more and you can like put more widgets during like remember when android has like had like widgets you can add to the screen and apple was like nope and then that came to apple later on but it's it's how the interface looks like.

10:23 - 11:05 SPEAKER_01

for me this is i'm not interested and this is not a big thing for me so for me it would it sounds like it's easy but for me this would not be that useful actually so.. okay monitor energy usage Apple, Goggle, IKEA, saving recommendations i think it's the same here, no it's easy to use,

11:05 - 11:41 SPEAKER_01

initial setup open source install software on device configure files buy supported devices depending on your hardware i don't see that i'm not not a tech guy so i don't think this is. It sounds easy to use but i don't think it's going to be useful for me

11:41 - 11:55 SPEAKER_01

turn off devices home assistant needs more setup steps, data stays private and this is um

I suppose this needs coding as well?

11:57 - 12:04 SPEAKER_00

exactly it can sometimes you don't necessarily need coding but if you want to do more advanced things in it then sometimes you need coding

12:06 - 12:24 SPEAKER_01

so i think it could be useful but maybe not easy for me to use. Turn off devices via the app if you easy set up no coding required, yeah sounds nice uh useful easy to use I will put it here.?

12:26 - 12:40 SPEAKER_00

Okay. I'm just gonna take a quick picture of this.

12:57 - 13:09 SPEAKER_00

alrighty thank you. so if you think about your home right now what's frustrating or convenient about how things work

13:12 - 13:27 SPEAKER_01

I think this home is like very uh low tech we don't have any things to worry about and what works uh The internet works and the TV works, that's fine for me.

13:31 - 13:58 SPEAKER_00

Then I would have asked you if there was any system that could solve like the imagined system that could solve any one of the problems but you don't have any problems. What would you hope to gain from having a smart home? Can you think of anything that you would have made automated in your home like lights, heating, doors, utility monitoring?

13:59 - 14:16 SPEAKER_01

Probably like the very simple things like and lock and unlock the doors. That would be nice. I think that's it. I don't see that we need more than that.

14:19 - 14:22 SPEAKER_00

What concerns or hesitations do you have about smart home technology?

14:26 - 15:00 SPEAKER_01

Probably if they get access to other systems, maybe there could be a problem regarding integrity and information about us that we don't want to give away to another company. That would be it. But I think if you have that's very limited things. Like lights and so on. Maybe that's not, they're not using other system. I don't know. But that could be a thing.

15:01 - 15:01 SPEAKER_01

So yeah.

15:02 - 15:02 SPEAKER_01

Yeah.

15:03 - 15:36 SPEAKER_00

And then I have a list of five things you can think about. And I would like you to rate these five words or let's say, situations I think from one to five where one is most important and five is the least important for you.

15:37 - 16:19 (*writing them down on paper for him to see*)

16:19 - 16:30 SPEAKER_01

Okay. Price, privacy, setup complexity, compatibility across brands, interface flexibility.

16:33 - 16:36 SPEAKER_01

Okay.

16:37 - 16:59 SPEAKER_01

I think privacy is a concern. So I think I would put it as the most, I think, okay, number one, compatibility across brands. Not really. Setup complexity.

17:01 - 17:03 SPEAKER_01

Two, three.

17:10 - 17:11 SPEAKER_01

Something like that. Yes. There you go

17:12 - 17:22 SPEAKER_00

Perfect.. So privacy, setup complexity, price, compatibility across brands, and interface flexibility.

17:22 - 17:23 SPEAKER_01

Yeah.

17:23 - 17:36 SPEAKER_00

Tell me your thoughts on security and privacy in smart homes.

17:36 - 17:40 SPEAKER_01

Privacy and price.

17:41 - 17:48 SPEAKER_00

your thoughts on security and privacy in general in smart homes.

17:57 - 18:25 SPEAKER_01

Yeah. Well, that's the concern that you have information in your home via other devices, maybe, or systems that the smart phones gets hold of. And there's, yeah, this is not my field, but I would say when you don't how the company handles the information that you give them, yeah, there could be problems. So, yeah.

18:27 - 18:37 SPEAKER_00

So when you think about , Apple, Google, Amazon, do you trust them to keep your data safe?

18:39 - 18:39 SPEAKER_01

No. Not at all.

18:41 - 18:45 SPEAKER_00

Can you elaborate a little?

18:47 - 19:22 SPEAKER_01

Yeah. I think there have been things in the past. I think what comes up in my mind is the thing that happened with Facebook users a couple of years ago. And a lot of information was sold to third parties. And so there has been incidents where things that you thought were private were sold to an open market. So, yeah, that's a problem. I think it's a general concern today.

19:27 - 19:42 SPEAKER_00

I have some pictures for you. And if you look at these pictures, which one looks more appealing to you? And explain to me why. So we have... This one. And it's basically just the design. And how it looks like for you.

19:43 - 21:04 SPEAKER_01

Okay. So... I would say the least appealing for me is this one. It's a lot of information. And it has... Design is not really appealing, I would say. I think this one... I don't know what... The other name was... Yeah, my home. It's more... It's easier to look at. It looks like it is very easy to use maybe. This one is... I would give this, like, if I was a boomer I would love this I think. It looks like something a child could use. An my parents. So that would be great but not for me. I think this one is actually is also quite good so I think those I think it's yeah they are lighter I think that's appealing for me darker designs it's not really for me I think that's the thing and it's yeah

21:06 - 21:17 SPEAKER_00

just for fun can you guess which one is which so we have Ikea home assistant google and apple

21:18 - 22:07 SPEAKER_01

okay so I think this is Ikea yeah just a guess I think this is apple and then so google and... Home assistant

22:09 - 22:16 SPEAKER_00

Ikea, home assistant, google, apple

22:25 - 22:29 SPEAKER_00

so what level of technical effort would you feel acceptable for you in a smart home

22:31 - 22:51 SPEAKER_01

oh um I'm not interested in spending time at all at those things so I would say a very like something very easy very easy to learn and to install uh

22:53 - 23:12 SPEAKER_00

Home assistant offers more privacy and it can as it can work entirely offline um and it's more flexible than google apple and ikea but requires more technical setup what's your reaction to the trade-off

23:15 - 23:40 SPEAKER_01

yeah that's a difficult thing um if there was a real need for me to have the system in my home maybe it would be um maybe that would be better just to learn and take the time, because if it's more secure and my information is private maybe in the end that would be worth the effort.

23:47 - 23:51 SPEAKER_00

Have you used ai systems like chat gpt claude or gemini and for what kind of tasks ?

23:52 - 23:40 SPEAKER_01

yeah I have and have used it in my work. And I would say I use it only when I need to translate something from English to different languages just to have an understanding what's the meaning of a special text or a certain text. But I think that's it. I'm not using it that much. So, yeah. Never use it in my private life.

24:30 - 24:43 SPEAKER_00

Imagine an AI system could help you set up and manage a smart home, guiding you through installation in plain language, troubleshooting problems and explaining what each setting does. How does that sound?

24:44 - 25:01 SPEAKER_01

Well, that sounds good, of course. Especially if there are more difficult and, yeah, a complex system. Yeah, of course. I will. Sounds like a good help.

25:02 - 25:08 SPEAKER_00

What concerns would you have about using an AI system for such a task or to help you setting up a smart home for you?

25:09 - 25:40 SPEAKER_01

I think it's the same thing. Where you put your information. The AI that we use, that I use in my work, is a closed system. So, yeah. So probably I need to know what system I'm using and how the information is stored. And if someone else can use it. Yeah.

25:42 - 25:51 SPEAKER_00

With AI in mind, try to look at the matrix and see if you want to redo something, change position, anything like.

25:54 - 27:05 SPEAKER_01

Maybe the things like lights on when you arrive home, lock and unlock door from phone, with the home assistant. I could, if there was an AI that can be helpful, maybe I would put them here. Something useful and easy to use. I think that's not interesting for me. Probably we'll move these three up to here. And then I would, yeah. Could maybe move the same lights. Was it lights on when I arrived? Yeah. Lights on when I arrived, unlocked. I could put them, yeah, somewhere here maybe. Or just put it down this case here. Yeah.

27:07 - 27:12 SPEAKER_01

Okay. So, something like this.

27:13 - 27:15 SPEAKER_00

And thank you for your help.

27:15 - 27:16 SPEAKER_01

You're welcome.

7.3

sectionCard sorting findings matrix individual

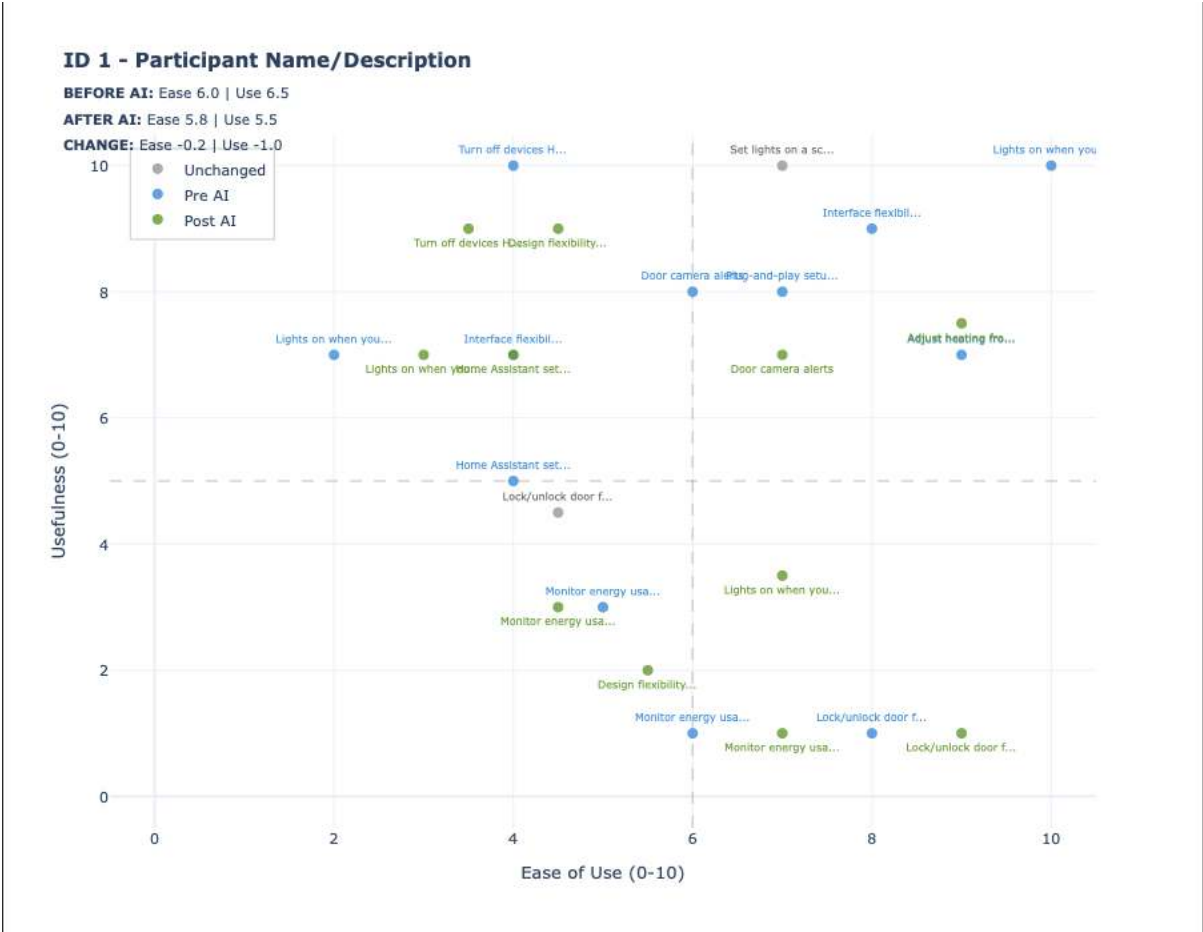


Fig. 5. ID1 Cardsorting results Pre And Post AI

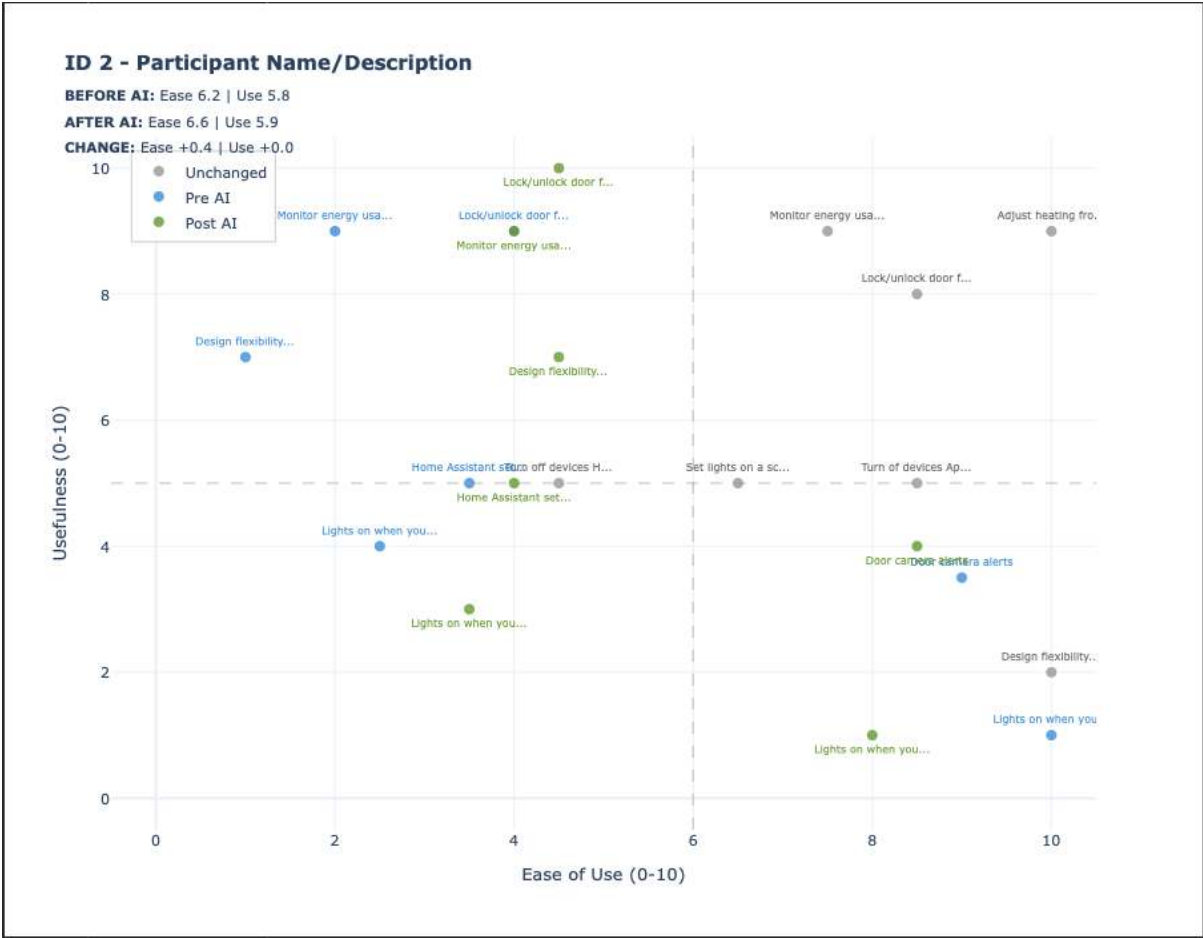


Fig. 6. ID2 Cardsorting results Pre And Post AI

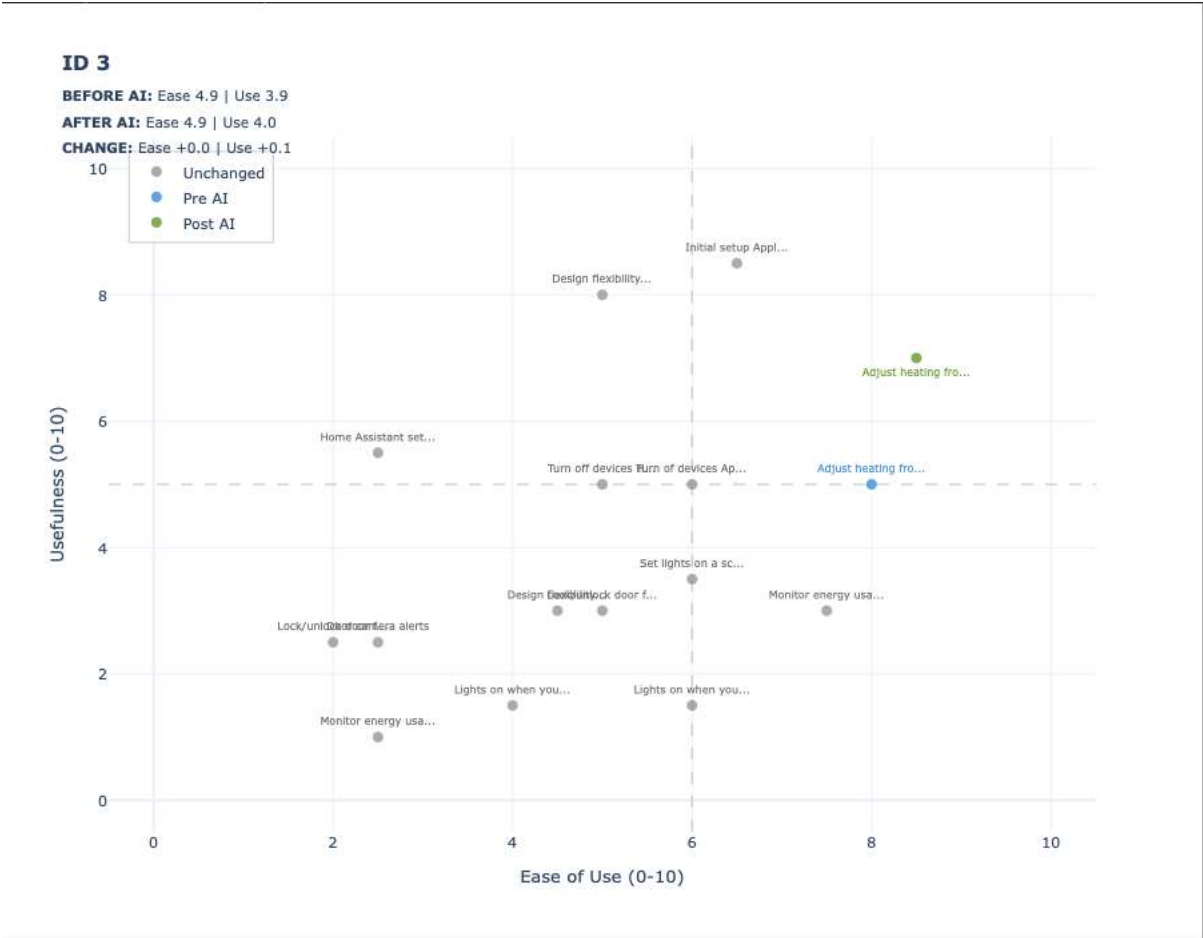


Fig. 7. ID3 Cardsorting results Pre And Post AI

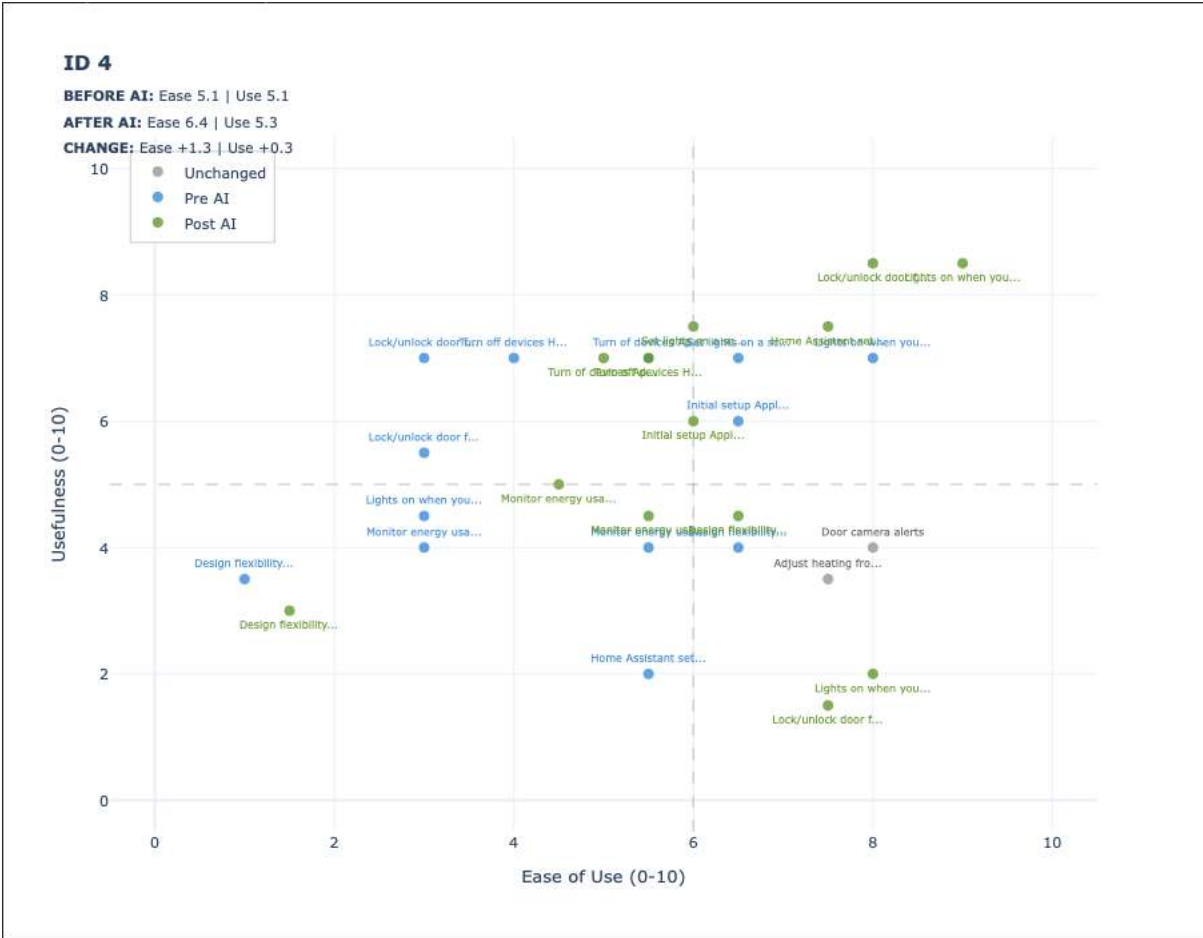


Fig. 8. ID4 Cardsorting results Pre And Post AI

7.4 Card sorting changes charts individual

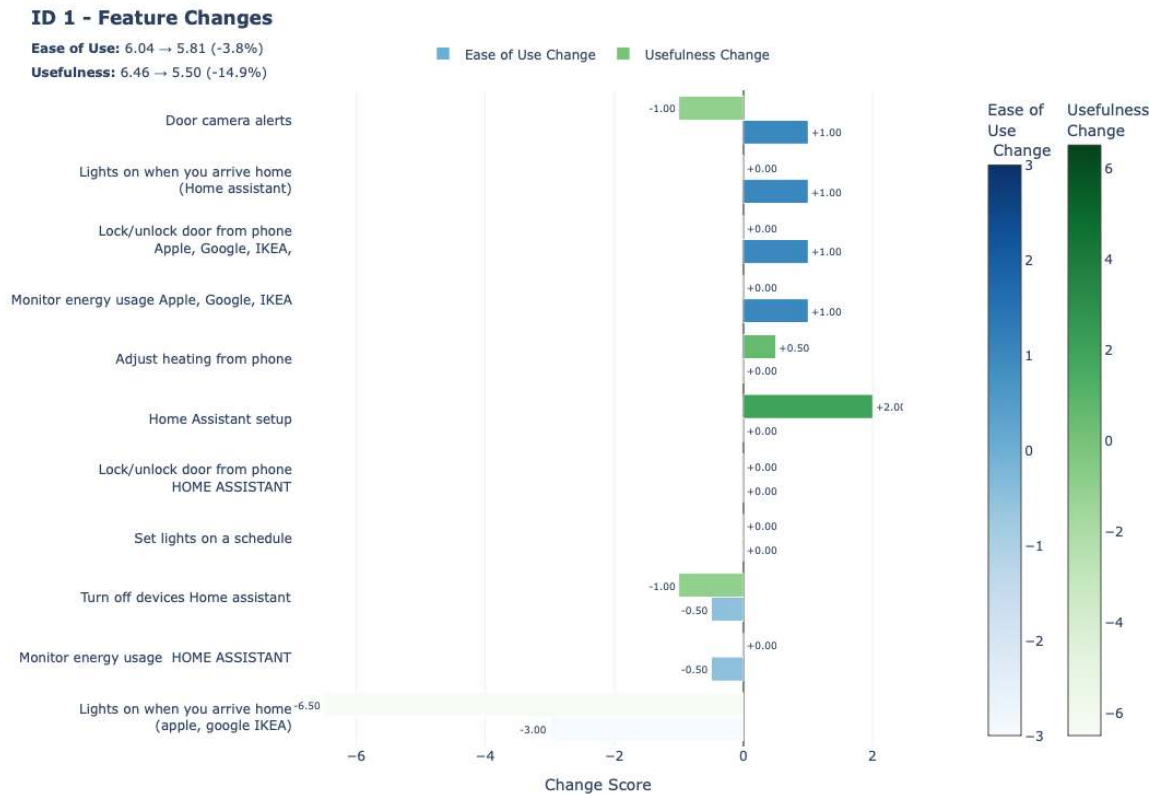


Fig. 9. ID 1 card sorting Changes

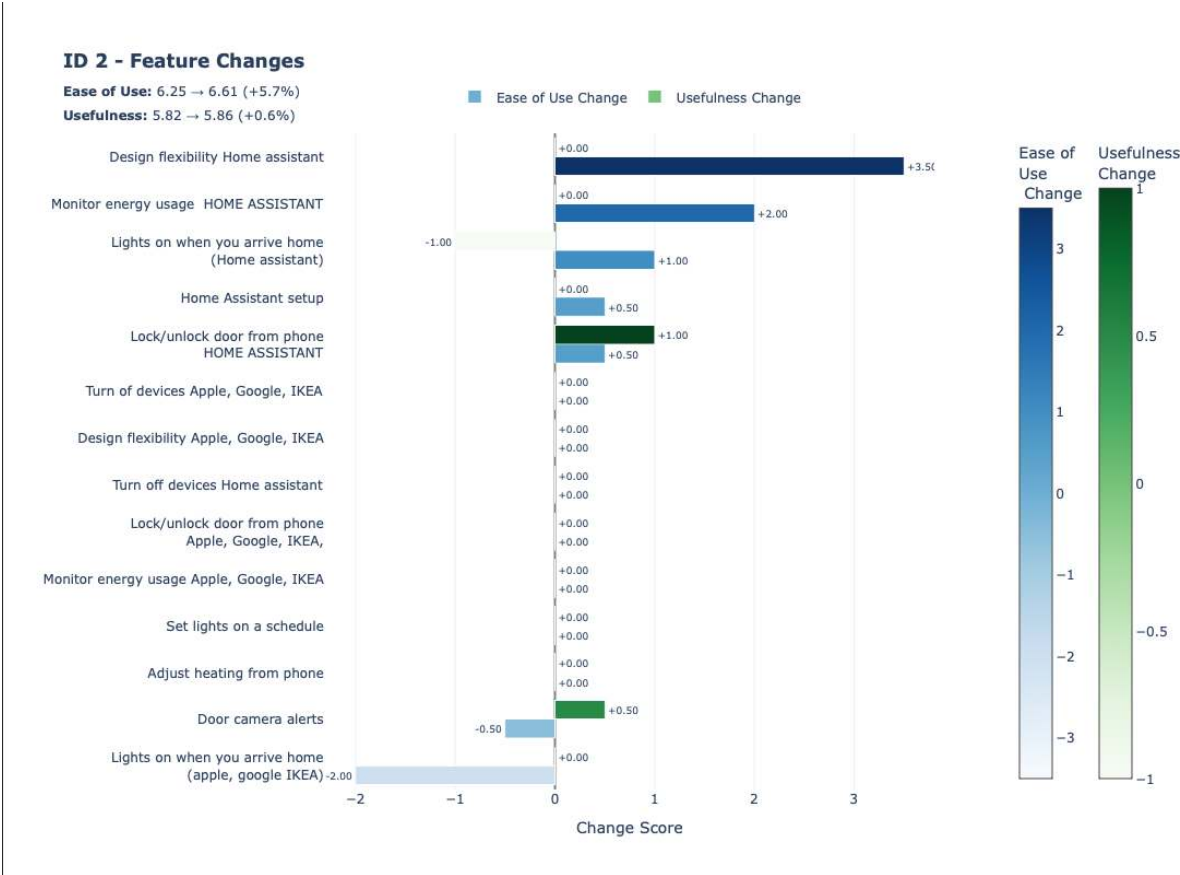


Fig. 10. ID 2 card sorting Changes

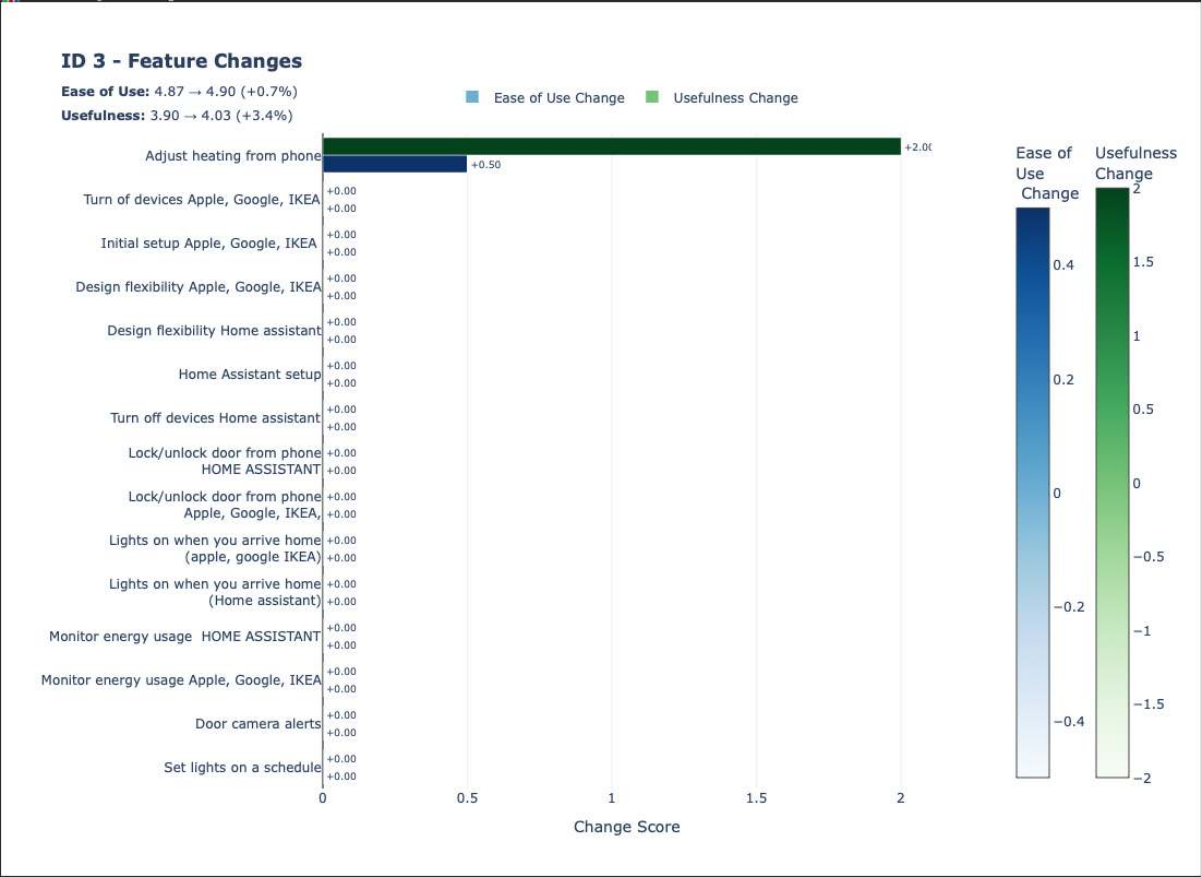


Fig. 11. ID 3 card sorting Changes

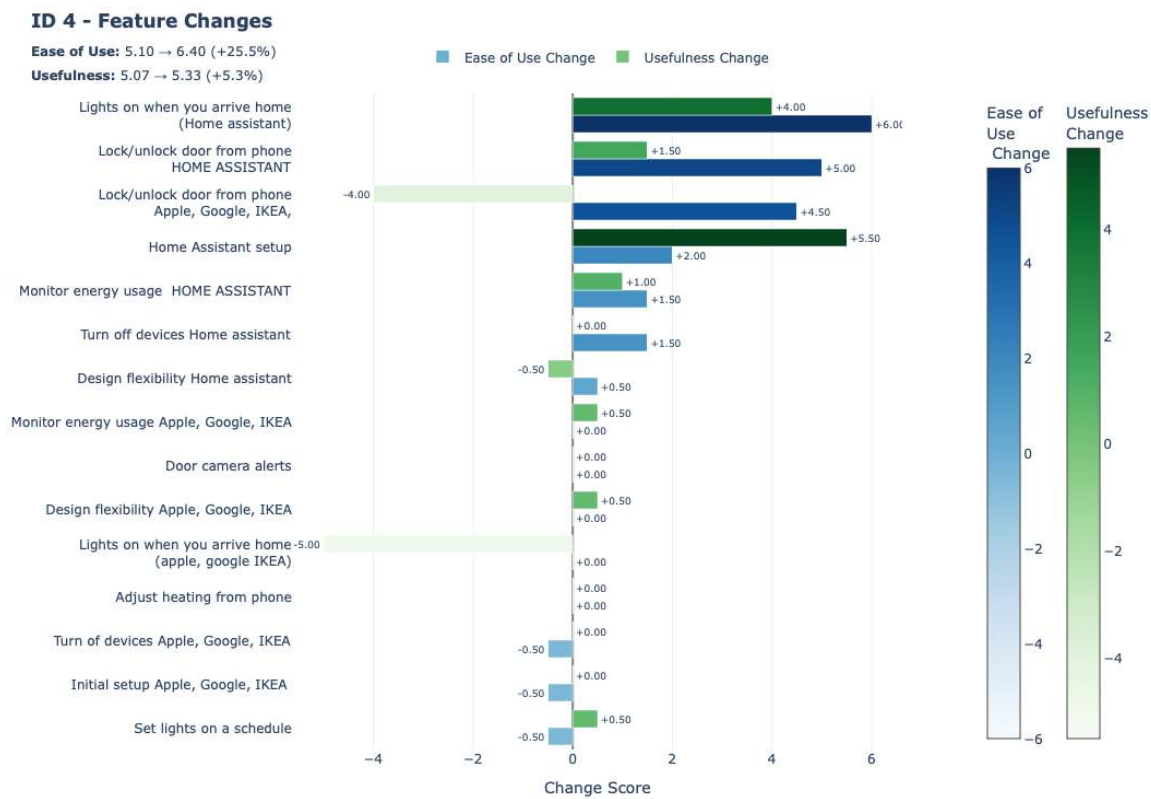


Fig. 12. ID 4 card sorting Changes