The future of the smart home:

Current consumer attitudes towards Smart Home technology

A report by Traverse (formerly OPM Group)
for Citizens Advice

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Background and context

Citizens Advice want to build an in-depth understanding of how consumers **are likely to react to smart home products and services**, what they see as the **benefits and risks** of these technologies and **what consumer protection they would hope/expect to be in place**.

To develop this understanding, **Citizens Advice commissioned OPM Group** to conduct a range of research activities including social media research, short deliberative workshops, and community workshops. This document summarises the key findings from these activities.

The research aims to explore the following:
- What consumers **want, need, and expect** from interactions with smart home equipment (benefits / risks, perceived value / concerns)
- What kind of **control and transparency** consumers want in relation to these interactions (assumptions and concerns about privacy and data); and
- What **seeking redress** should look like in the event that something goes wrong (potential policies and protections).

The outputs of this research will be used by Citizen's Advice to enable them to confidently represent the consumer voice in this arena, inform policy lines, and potentially form the basis of a guiding framework for this emerging market.

Methodology

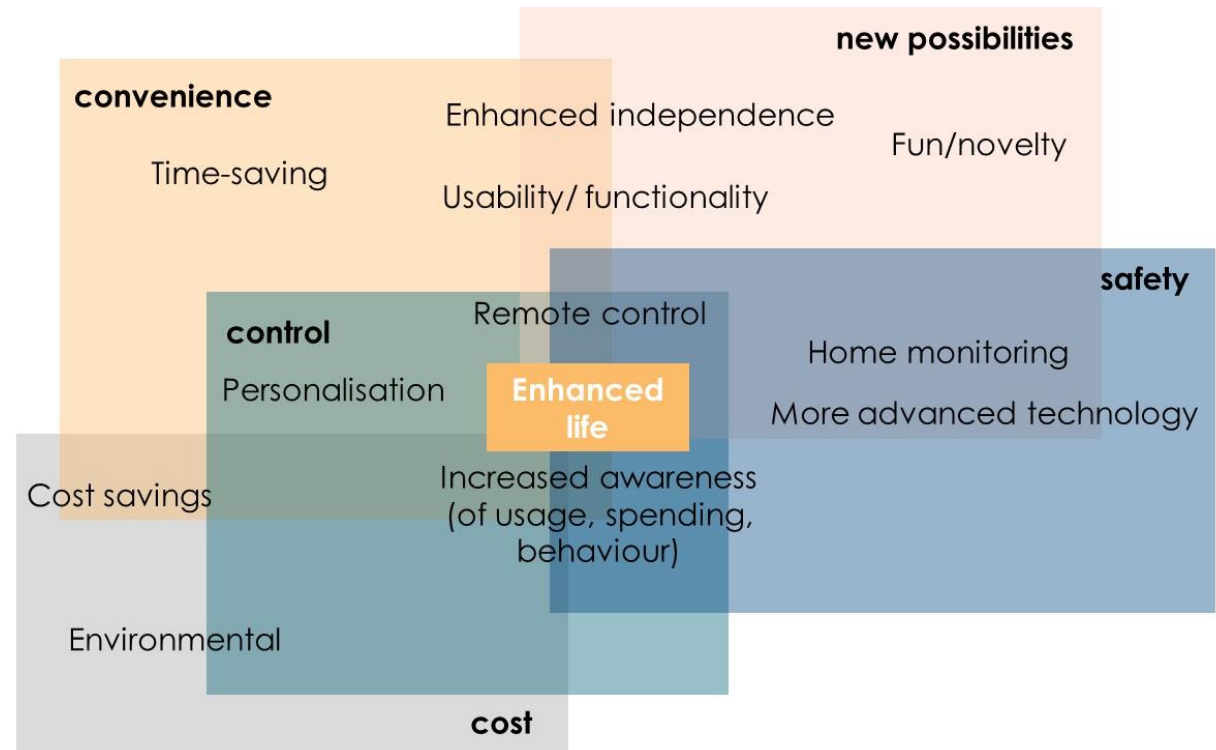| Summary of Activity	Further details and explanation
Social Media Ethnography	We began by undertaking a social media ethnography to understand key conversations that were taking place about smart home technology. The sites that we looked at included Reddit, Mumsnet and Quora and discussion topics helped to inform our key research questions and our topic guide for the deliberative workshops.
Deliberative workshops (3 x workshops, 51 participants in total)	In **February 2018 we held 3 deliberative events** to explore people's views in an interactive and engaging way. To ensure that these reflected the national population we held one in Cardiff, Reading and Gourock and we invited participants that represented a mix of ages, genders and socio-demographic backgrounds. We also screened for different technology users, ensuring that at each event there were participants with very low technology use. We began by **introducing smart home technology** through information cards and real-life examples and discussed the benefits and concerns of these products. We then discussed **scenarios** where things could go wrong with the technology (giving examples of videos about smart energy systems and on issues uncovered in the social media ethnography and) and what participants would want by way of **redress**. The last exercise in the workshop was about **data**. Through a voting exercise we uncovered how much participants were willing to share and with whom. This was followed by a discussion about opinions on **opt-in / opt-out** for data sharing.
Community workshops (2 x workshop with 10 participants in total)	To widen the reach of the research to include people **who would not normally come to workshops** we held two shorter versions of the workshop with community groups in London. One was organised with the charity Sense and involved participants who were either **deafblind or affected by severe audio and/or visual impairment** and the other was at the Sundial Community Centre for **older people**.

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Current views on the benefits of the smart home

Many perceived benefits of different smart home technologies **overlap** under the themes of **convenience, control and safety.**

Most consumers evaluate the benefits of the individual smart products/services **without spontaneously connecting them** under the concept of the smart home.

A minority suggest that the value of smart home technology cannot be isolated to individual benefits, and should be looked at in terms of what it means as a whole when connected: "**enhancing one's life".**

new possibilities

convenience

Time-saving

Enhanced independence

Fun/novelty

Usability/ functionality

safety

control

Remote control

Personalisation

Enhanced life

Home monitoring

More advanced technology

Cost savings

Increased awareness (of usage, spending, behaviour)

Environmental

cost

*A detailed breakdown of the benefits above can be found in the **supporting appendix**.
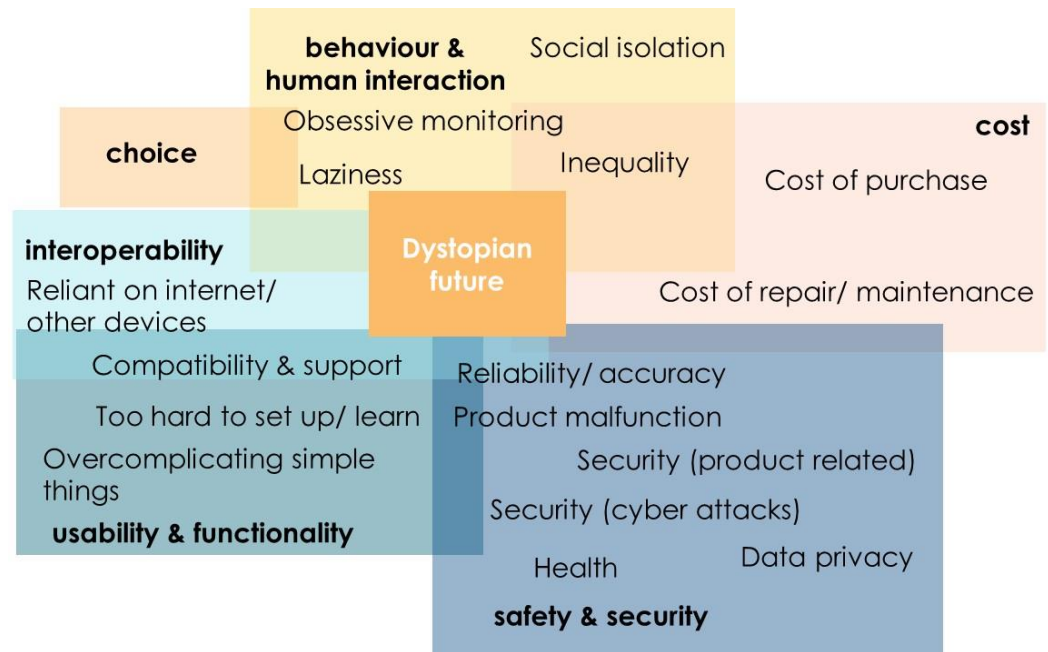
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Consumer concerns linked to safety, security and behaviour

Many concerns are based around **safety and security** related to products being unreliable, and data breaches, indicating **a lack of knowledge about what fail-safes are in place and a lack of trust in smart technology manufacturers.** The **cost of purchasing and maintaining** smart technology and the **complexities of operating it** are also commonly shared concerns.

Most consumers are not spontaneously concerned about data privacy, but when prompted, they become more worried about the implication/consequences.

Some consumers are also afraid the adoption and proliferation of smart technology may have **negative implications on individual/social behaviour by promoting laziness, isolation, and inequality.**

Throughout all discussions, consumers wonder **where technological progress is headed** and whether they **have a say** about which products become widespread and replace traditional technologies. Some worry that all of these concerns may lead to a **dystopian future**.

behaviour & human interaction — Social isolation

Obsessive monitoring

choice — Inequality

Laziness

cost — Cost of purchase

interoperability
Reliant on internet/ other devices

Dystopian future

Cost of repair/ maintenance

Compatibility & support — Reliability/ accuracy

Too hard to set up/ learn — Product malfunction

Overcomplicating simple things — Security (product related)

usability & functionality — Security (cyber attacks)

Health — Data privacy

safety & security

*A detailed breakdown of the concerns above can be found in the **supporting appendix**.

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Most appealing benefits vs. most concerning risks

When prompted with a pre-determined list of options at the end of the workshops, most participants chose **cost savings** and **energy efficiency** as the most appealing benefits. Although these benefits were discussed during the initial sessions, they were not the focus of discussion, with the expense incurred by smart technology seen as more of a barrier.

Despite being identified as a concern related to product reliability and data, **safety and security** were also seen as a particular benefit for some types of products (such as home monitoring and alarm systems), with **remote control being an equally important benefit.**

A small number of people are still not convinced that smart technology will bring **any benefits** to them personally.

The voting results show that by the end of the session, the **biggest concern is what happens to data** that is collected, followed by **vulnerability to cyber attacks** and **collecting too much** information. There are no significant demographic correlations.

"Gives me more independence" was the number one benefit for **vulnerable groups, while** their most common concerns were **instructions being confusing, accessibility issues** and **cyber attacks**.

Which benefit of smart home technology appeals to you the most?
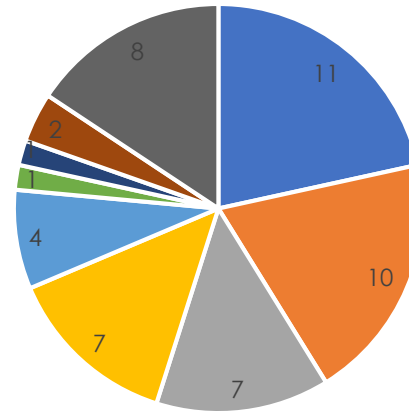
- Helps me save money
- Helps me be energy-efficient
- Can be operated and monitored remotely
- Offers a high level of security
- It links with many other things in the house
- It knows/ saves my preferences (it's personalised)
- It gives me more independence
- Something else
- None

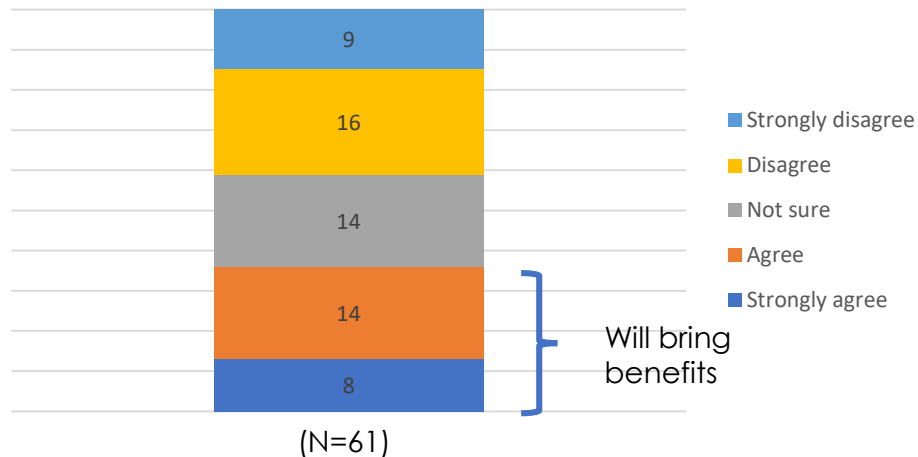## Which risk of smart home technology concerns you the most?
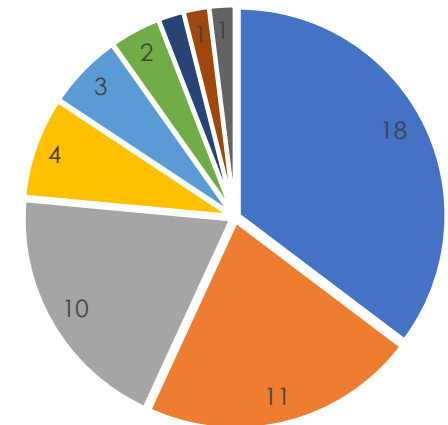
- I don't know what it does with my data
- It leaves me vulnerable to cyber attacks
- It will collect too much information
- If it breaks I won't know how to fix it
- I won't know how to use it properly
- It won't do what I want it to do
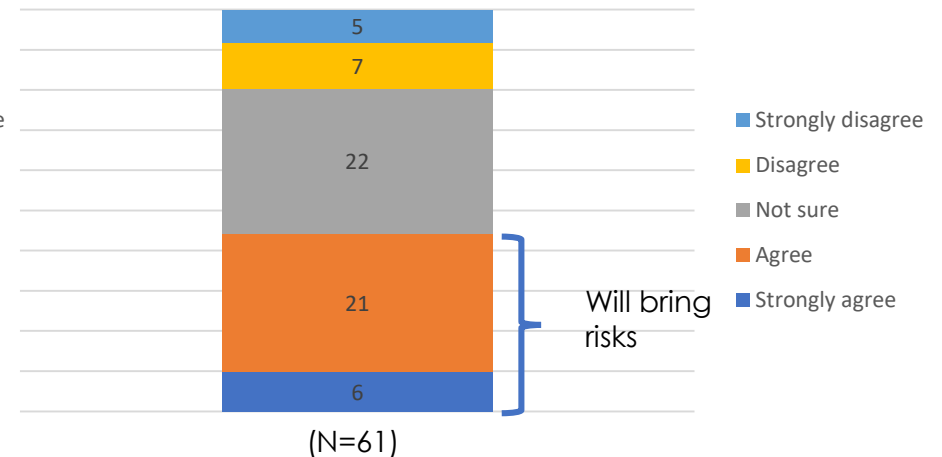- The instructions are confusing
- Something else
- None

(N=51)

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Overall view of benefits vs. risks of smart technology

"Smart home technology will bring significant benefits to me/ my family"

Value	Category
9	Strongly disagree
16	Disagree
14	Not sure
14	Agree
8	Strongly agree

Will bring benefits

(N=61)

"Smart technology will bring significant risks to the people who use it"

Value	Category
5	Strongly disagree
7	Disagree
22	Not sure
21	Agree
6	Strongly agree

Will bring risks

(N=61)

Overall, **more participants saw the risks rather than the benefits** of smart home technology. A large proportion weren't sure, reflecting the general uncertainty and unfamiliarity expressed during the sessions.

Differences between groups also include the following:
- o Most consumers in Cardiff felt that smart tech is risky, whereas in Gourock most were unsure. Reading-based participants were slightly more positive towards smart technology than in the other two locations.

- o Younger people were more positive about the benefits but similar to other ages regarding risks

- o The more vulnerable groups seemed to be more positive towards the benefits smart technology can bring

**Benefits and concerns**

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Openness towards sharing data

Participants were sent a **pre-task** before joining the workshops - a **questionnaire composed on 9 increasingly intrusive questions** (on the right). They were asked to think about whether they would they be **comfortable sharing those answers or not**, in a hypothetical scenario.

The purpose of this was to establish their **baseline attitudes to data sharing** and subsequently identify whether there are **any differences in their openness depending on the 'audience'** that the data is shared with.

- Who is your energy provider?
- How many people live in your house?
- How many hours a day do you watch TV?
- What time do you get home every day?
- How many calories do you consume a day?
- How much time do you spend in the bathroom a day?
- Who do you share your passwords with (family, friends, colleagues etc.)?
- Do you ever leave your house unlocked?
- Do you ever watch adult content in your house?

6.8 average number of questions consumers are willing to answer across all groups (baseline)
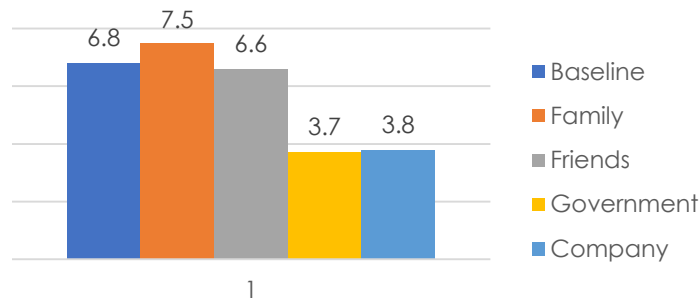
There were no significant differences across most groups in general openness to sharing data. In the **deafblind** community group, only 2 participants answered this question and they felt that these questions were **not very intrusive compared to other information they had been required to give out** (such as medical records).

However, there are some differences in the audiences consumers would share their data with, with the voting results suggesting that **government and companies are given a much lesser degree of trust.**

Bar chart values:
- Baseline: 6.8
- Family: 7.5
- Friends: 6.6
- Government: 3.7
- Company: 3.8

Legend:
- Baseline
- Family
- Friends
- Government
- Company

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Initial assumptions about data collection

Data privacy and data collection in general is not top of mind for most participants, although some consumers raise concerns around data security (in relation to hacking) unprompted.

However, when discussed, consumers became **increasingly aware of the amount and types of data current technology is already collecting** about them, and data they are sharing themselves. By the end of the session this was a key concern (slide 11).

Some types of data are viewed as a **'double-edged sword'**: they can be beneficial as they are **inherent to the core functions of the smart product** (e.g. a smart thermostat 'knowing' what time people come back home so it can heat the house efficiently), but **can also leave people exposed to vulnerabilities** (data collected by the thermostat can indicate when people are not at home and the house is left unsupervised).

Consumers were **not instinctively worried about data manipulation or misuse**, but as the discussion progressed, they wondered about how **data correlation/aggregation** would be used for or against them.

It was very hard for consumers to think about collected **data being used not just to improve the respective products/services but to create new services in the future**. When prompted, a few consumers thought that it might be an advantage, but did not have a fully-fledged rationale.

This can be explained by consumers' limited knowledge of smart technology as well as their lack of trust and sense of control when it comes to the technology and the data.

> **"Not really concerned about sharing data but I am starting to think about this more often."**

> **"I don't think there's anything they wouldn't collect."**

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Types of data consumers are comfortable sharing

Across all groups, many consumers are **willing to share a significant amount of personal data**. Often, they are **conscious that they already do**, and have '**set a precedent'** which influences how they feel about sharing data with smart technology products.

Consumers recognise that in order for products to work, or work at their best, **data needs to be collected.** Even if it's intrusive or may pose security risks, some consumers **accepted that data is/can be used to make products work better.**

Such data includes:
o   Interactions with the smart product itself ("when and how often you use it")
o   Preferences ("products you like, things you buy etc.")
o   What you listen to/ read/ watch
o   Shopping lists
o   Some behavioural/lifestyle data that are not related to security ("how often you eat, shower")
o   Even more 'negative' behavioural patterns were seen as OK to share ("how lazy you are", "how unhealthy you are")
o   Energy usage data

"If it's just general information then it's ok!"

"If I ask Alexa what's the Reading score then I get an email with an offer on cheap tickets – that's great"

Data that feels too sensitive to share

Generally, data that can be related to people's **physical safety is seen as too sensitive to share**. The group discussions brought about many references to services people are already using/ data they are sharing.

Thinking about them in this context **made them feel uneasy about the security and privacy risks involved** and many made references to familiar risks that they were **afraid could be exacerbated/facilitated by smart technology** (e.g. robbery, identity theft, child grooming/manipulation).

Behavioural patterns or personal details that can lead to conclusions about daily lives and leave people vulnerable either to attacks or fraud also feel too sensitive to share.

There are **individual differences**, with some consumers feeling much more protective towards their data, either for security/privacy reasons or because they recognise its value and feel that they shouldn't give it away 'for free'.

Some consumers recognised that **the sum of the information was more valuable than its parts** and that was their main concern.

Sensitive data includes:
- o Financial details
- o Medical records
- o House occupancy
- o Location sharing
- o Passwords
- o Private conversations
- o Information about children
- o Pictures, contacts and other private personal content
- o Habits and routines

> **"Individually it doesn't mean anything, but put it all together and you get a good picture of your lifestyle."**

Views about opt-in vs. opt-out

Consumers were happy for **the information that they didn't mind sharing to be collected as a default**, and people given the **opportunity to opt out if they wanted to**.

Conversely, for the **information that felt sensitive to share, they wanted it not to be collected as a default**, and to be given the **option to opt in** if they wanted to.

Some consumers (especially in Cardiff) **didn't want any data collected by default**. Some also didn't even want to be presented with the option to share their data – they thought it just shouldn't happen.

Generally, the **most important thing** about opting in or out for consumers was **having clear visibility of what data smart products/services want to collect** from the moment they sign up and start using them and having **the choice to select and also go back and change their preferences if needed.**

"I don't what my data being shared with anyone – even if that gives me a better deal!."

"I don't think anything should be collected by default."

"You should be able to go back and change your preferences."

Data collection & usage

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Conditions that reassure consumers about sharing data

From consumers' point of view, data collection should be a matter of **informed consent** and giving consumers overall **transparency and control** over their data.

Having transparency on **what data is being collected and what it is used for** would influence their openness to sharing the data. Apart from a sense of control, there is a **risk-benefit trade-off** when it comes to smart technology itself but also the data that is being collected.

Knowing **how the data is stored and protected would also make consumers more open**: they expect safeguards to be in place from responsible parties. Some would feel more comfortable sharing sensitive data through trusted intermediaries (e.g. PayPal).

"If you're aware of the benefit you may be more willing to share ."

"They should be open about how they use it, then that might be ok."

Consumers also expect to know **how and who their data is shared with**. Some may be more willing to share more sensitive data, such as behavioural patterns, if they know it is only used by the smart tech that collects it and not shared with other potential providers, or if the data is **aggregated** anonymously and cannot be traced back to them individually.

Although many were aware of the potential value of data, **only a few mentioned getting something in return for their sharing data** (e.g. insurance perks if they share information about their behaviour).

Some consumers **find it hard to articulate what protections they would like to be in place**. They feel **disempowered** and want to be made more aware of their rights as consumers.

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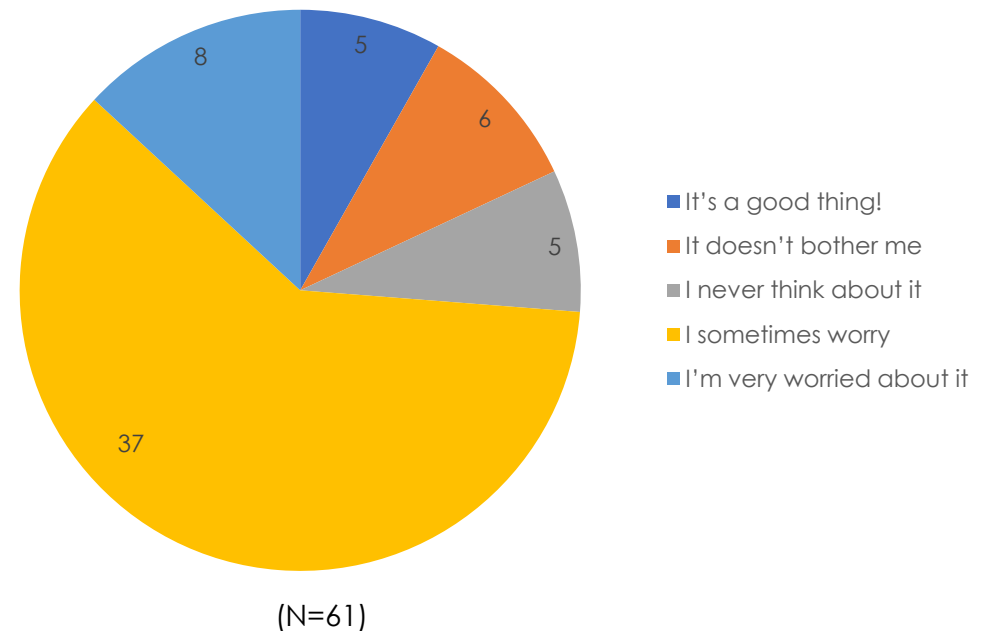
Comparison to other data consumers already share

When asked about how they feel about **data that they may already be sharing with current products/services**, **"I sometimes worry" was the most widespread sentiment** across all groups, except the community group with older people.

Only a few consumers believe data collection is a good thing and an equal number place themselves at the other end of the spectrum, feeling very worried. At the same time, there are some **apathetic consumers** who aren't bothered or don't think about data collection.

The voting results echo the findings from the discussions: in general, consumers are becoming more knowledgeable and are starting to think about the implications of data collection on their security and privacy.

Which best represents how you feel about common ways in which your personal data is used/shared? (e.g. social media, loyalty cards, location check-ins, privacy policies)

- It's a good thing!
- It doesn't bother me
- I never think about it
- I sometimes worry
- I'm very worried about it

(N=61)

What happens when things go wrong

In this exercise we wanted to explore what participants felt about:

- **Whose responsibility** it is to address these issues

- How **issues should be resolved** when something does go wrong; and

- What **assurances** should be in place for when something goes wrong and how it could be avoided

Across most groups participants **initially struggled** to identify who was responsible for an issue and how it could be addressed. It took prompting from facilitators to steer discussion through this exercise, and while participants gave **various suggestions for how issues should be addressed**, they were less focussed on who should be held accountable to fix issues and more concerned with the solution itself.

Many assume that **problems occur due to issues with set-up**, so are technically their fault, but believe they should be supported to avoid such errors.

Participants would **use the word 'manufacturer' interchangeably,** to mean anyone who seemed to be involved with the product - the supplier, designer, vendor etc - and did not differentiate explicitly between smart products and services delivered using smart products.

When prompted, there was an expectation of some public protection / **regulation** such as warranties and clear T&Cs to protect them.

Almost all participants believed there should be '**someone to call**' when things go wrong, and for most this meant a telephone call to a human operator.

> **"What if there is no one to phone?"**

We used scenarios on the following themes (see next slide for details):
- Data misuse/misinterpretation
- Data breach
- Control
- Usability
- Interoperability
- Dependence on wider factors

> **"If it happened once, people would worry about it happening again and it might make them not want to use the lock. To avoid that issues need to be very easy to solve so you know that if it happened again it's not a big deal"**

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Scenarios

Scenario	Situation	Problem
1. Data misuse	You buy a **smart fridge** to help you know what you have in stock when you're out food shopping. You're having a party this weekend, so buy a lot of junk food in the supermarket.	The next month your health insurer sends you a letter saying that they will increase your tariff as they have noted changes in your diet that mean they now class you in a higher risk category.
2. Data breach	You have had a new **web cam** installed which allows you to see who is at the front door, by looking at your phone.	Burglars hack into your account and are now able to see whenever anyone enters or leaves the house. When they are sure no one is at home, they carry out a robbery. No one finds out about the robbery until they get home from work later that day.
3. Control	You have bought a new **smart washing machine** and smart lights.	The washing machine works by you pre-loading it, and then it turns on at a time when demand for energy is lowest as this is cheaper to run. Unfortunately this is usually at 2.30am. To make matters worse, when you get up to close the door on the noise, the motion-triggered lights all turn on, completely waking you up.
4. Usability	You have bought a **smart lock** and it's been working so well for a few months that you decide not to bother with carrying keys round with you anymore.	One day, there is a power cut and the lock is stuck in the closed state, leaving you locked out of our house without a key.
5. Interoperability	You've replaced all your lights with **Smart Bulbs**, which you control using **Amazon Echo** (Alexa).	Unfortunately, when Alexa malfunctions, you are unable to operate your home lighting. You buy a new home hub – Google Home - but then find out that your light bulbs are incompatible with this. You therefore have to spend even more money on new light bulbs.
6. Devices being dependent on wider factors	You have bought a **smart heating system**, and love the way you can come home to a warm house, even when you get home at a different time each day.	The company which makes the smart heater goes bust, and your heating device becomes inactive.

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Issues, responsibility and redress - Whose responsibility?

Across most groups participants **initially struggled** to identify who was responsible for an issue and how it could be addressed. It took prompting from facilitators to steer discussion through this exercise, and while participants gave **various suggestions for how issues should be addressed**, they were less focussed on who should be held accountable to fix issues and more concerned with the solution itself.

In most scenarios, participants either felt that the issues were the '**manufacturer's responsibility**', or were **their own responsibility** (but believe they should be supported by someone to avoid such errors**.**)

- Many felt that the error occurred due to their **own failures during set-up or their purchasing decisions**. Some participants articulated a fear of error due to their misuse/misunderstanding, and suggested that they **wanted guidance during set-up or purchasing** to ensure that they were making the right decisions and remove the onus of responsibility from them when something goes wrong.

- The exceptions were scenarios 4 and 6 (smart lock and company going bust) where it was clear to participants that the product failed through no fault of their own. Despite this, **they still struggled to locate exactly who was responsible in these cases** and suggested that it was the manufacturer.

- Participants would **use the word 'manufacturer' interchangeably,** to mean anyone who seemed to be involved with the product (the supplier, designer, vendor etc). It was not clear from our scenarios whether the same level of confusion would arise if they had purchased a product/service themselves.

- When other stakeholders were introduced as part of the scenario, for example an insurance company (scenario 1), or a burglar (scenario 2), some participants identified these parties as responsible for issues.

"If you didn't read the 18 pages of T&Cs then your fridge turns against you, that's on you."

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Issues, responsibility and redress - Whose responsibility?

While participants were unsure of who was responsible, in most scenarios participants thought that the issues **should be** the **manufacturer's responsibility.** (Where manufacturer was understood to mean someone who was not them, and had some professional / commercial relationship with the product)

- In some cases (**particularly in the community workshop with older people**) participants felt that the manufacturers should provide a service to help them **set up** the products correctly to avoid issues and *ensure* that full responsibility did indeed lay with the manufacturer.

- This was particularly important in cases with more severe consequences such as the data breach scenario, where participants did not trust themselves to set up the product safely, with strong enough passwords and did not want to be held to account for any issues.

> "They need to bring it to everyone's attention but you can't blame them for everything"

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Issues, responsibility and redress - Whose responsibility?

Scenario	Individual's responsibility	'Manufacturer's' responsibility	Other
1. Data misuse: smart fridge	If I know the risks when I opt in then it is fair	There **should be no downsides** to me in using the product I want to know how the data will be used and how this could impact me before I use the product.	**Insurer**: The insurance company made an error Responsibility needs to be made clear from the outset. The insurer should tell you the risks clearly from the outset, for example in a contract.
2. Data breach: smart camera	I didn't set it up properly, or I used a weak password	They should set it up for me to make sure it is working properly	Burglar or insecure cloud storage
3. Control: smart washing machine	I didn't set it up properly	They should resolve the issue	
4. Usability: smart lock		The product has malfunctioned	**Who is liable** if the lock fails? How does this impact on insurance
5. Interoperability: new home hub	I made the wrong purchasing decision	They should check in advance if your existing products are compatible	**Vendor** should ensure that he is selling you a compatible product.
6. Devices being dependent on wider factors: heating company going bankrupt		They should have a backup in place	Participants were unsure whose responsibility it was.

Issues, responsibility & redress

Although they struggled to define who, in **all cases** participants said that they wanted there to be **a person to contact easily by telephone who could help** when something goes wrong. Many commented on their current frustration with customer service systems and the difficulty of being quickly connected with someone who could resolve their issue. They said that they are often referred from one person to another and that the people on the phone do not know how to help. In most cases they suggested that there should be an easy to reach helpline, which should operate 24/7.

They also felt that in all cases where something had broken (i.e. the Echo Dot) participants felt their devices should have **warranties** and if something were to go wrong, they should be **quickly replaced.**

In some cases with more **severe** consequences (e.g. the fridge and health insurance, the burglary relating to the smart lock), participants felt that the manufacturers should be able to identify unusual behaviour in advance and alert the consumer, to resolve the situation before it becomes a problem.

In cases 1 and 2 which relied on the product collecting behaviour data, participants felt that the manufacturer should be more alert to behaviour change, or something unusual occurring and should communicate this to customers. In the case of scenario 4 participants thought that they should receive a warning through the app if there were any issues, as the consequences of being locked out are very severe.

There was **less discussion around what should happen next in scenarios 3 and 5**. This may be because participants felt the scenarios are less severe and they pertain to technologies that participants would be less reliant on. They suggested that a manual override would be a sufficient solution and were **more concerned with how to avoid the issues that resolve them**.

"it would affect future interaction in a positive way - I would feel reassured if I knew I could reset it!"

"There needs to be someone that you can get a hold of."

"Once something goes wrong I would give up."

Issues, responsibility and redress - What should happen next?

Scenario	What should happen next? (as well as having someone to easily contact, and the product being replaced or fixed by the manufacturer under warranty)
1. Data misuse: smart fridge	• Manufacturer should be proactive in getting in touch and letting me know that something is wrong or that there has been a change. • The insurer should **trust** me over their interpretation of the data. • I should be able to change insurance policy at any time.
2. Data breach: Smart camera	• Manufacturer should be proactive in getting in touch and letting me know that something is wrong or that there has been a change. • I should be **compensated** for all losses. • **Insurance** should be available to cover incidents of this nature
3. Control: smart washing machine	
4. Usability: smart lock	• Manufacturer should be proactive in getting in touch and letting me know that something is wrong or that there has been a change. • There should be built-in troubleshooting features. • The issues should be easy to resolve
5. Interoperability: new home hub	• The Alexa should be replaced within 24 hours
6. Devices being dependent on wider factors: heating company going bankrupt	I don't know

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In cases where participants felt that they had made mistakes at set-up which caused the issues (scenario 2 and 3) they felt that there should either **be help in setting up the devices**, or there should **be some education in place to ensure that individuals were setting up the product correctly**.

In cases where the smart products were being used for convenience, as opposed to being fully reliant on them (such as scenario 3 and 5) participants felt that a **manual override** would be a sufficient way to avoid major inconveniences.

In the cases where there were other stakeholders or wider factors involved, such as in scenario 1 and 6, participants wanted to clearly understand the **terms and conditions** in advance, and wanted a written contract for what would occur in advance of these issues occurring.

"Technology not straightforward – you have to know what you're doing."

"You want to ultimately have control yourself."

Issues, responsibility and redress - How can this be avoided?

Scenario	How can this be avoided?
1. Data misuse: smart fridge	• Clarity from the outset about terms and conditions. These should be easy to read, and the parts that could impact me should be **highlighted.** • Flexibility to change the level of data shared at any point • Ability to change insurer at any point
2. Data breach: Smart camera	• The technology should be set up for me • I want to be educated in how to set it up properly • Provisions should be in place so this issue cannot easily occur
3. Control: smart washing machine	There should be a manual override I want to be educated in how to set it up properly
4. Usability: smart lock	There should be product features that help to avoid this issue, such as a back up battery
5. Interoperability: new home hub	• There should be a manual override • I would want the technology to be set up for me • I want help in making the right purchasing decisions
6. Devices being dependent on wider factors: heating company going bankrupt	Issues like this cannot be avoided, but there should be a back up that is committed to paper in advance.

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Key findings

- Most consumers perceive **the risks associated with smart home technology as outweighing the benefits,** even though they may own some smart technology themselves.
- Interest in take-up of smart tech is currently is also related to **cost** and to the value that these products/ services offer, which isn't that obvious to the average consumer. **Products that help consumers save money** or increase security are more likely to be purchased.
- Many consumers were **unsure** about smart technology, and this contributed to their scepticism.
- Consumers don't instinctively think about what data they're sharing, but when they do consider it, they are **concerned about the volume of data that is being collected.**
- Consumers are generally happy to share "lifestyle" data, but not data that is linked to their **physical safety and security**.
- Many initially struggle to identify who is responsible in situations where something goes wrong, and often end up **holding the manufacturer responsible.**
- **For redress,** they expect a mix of **technical fail-safes** and **interaction with humans**.
- **Consumers expect some regulation** (warranties, clear T&Cs) to protect them.
- Some consumers believe **individuals bear responsibility** as well.
- Consumers believe **education on smart technology** is needed to avoid problems occurring in the first place.

"The benefits are nice but some of the concerns are REALLY concerning."

"I got over these concerns for the benefits. (deafblind consumer)"

Key findings – emerging consumer profiles

Adopters

Sceptics

Profiles of likely adopters:
- Young mums (for the convenience smart technology can offer them in coping with a busy lifestyle)
- Technophiles
- Consumers with complex needs: mobility, learning disabilities

The 'average consumers' tends to currently sit in the middle for a variety of concerns:
- Cost
- Lack of knowledge
- Concerns about reliability
- Lack of assurances around data security and privacy

Rejecters feel strongly about the following:
- Lack of trust in technology
- Impact on behaviour
- Data security and privacy

Participant feedback

Chart legend: Strongly Agree, Agree, Not Sure, Disagree, Strongly disagree

Categories (top to bottom):
- I would like to participate in these kinds of events in future
- I understand how the output from the event will be used by Citizens Advice
- Overall, I am satisfied with this event
- It is important that the public can take part in discussions on topics like this
- I am likely to purchase smart technology for my home in the future
- I am likely to look for information on this topic in the future
- I had enough time to contribute my views
- I was made to feel welcome and felt my input was respected and valued
- My questions were answered clearly and appropriately
- The information provided was clear and easy to understand
- I understand the aims and objectives of this event
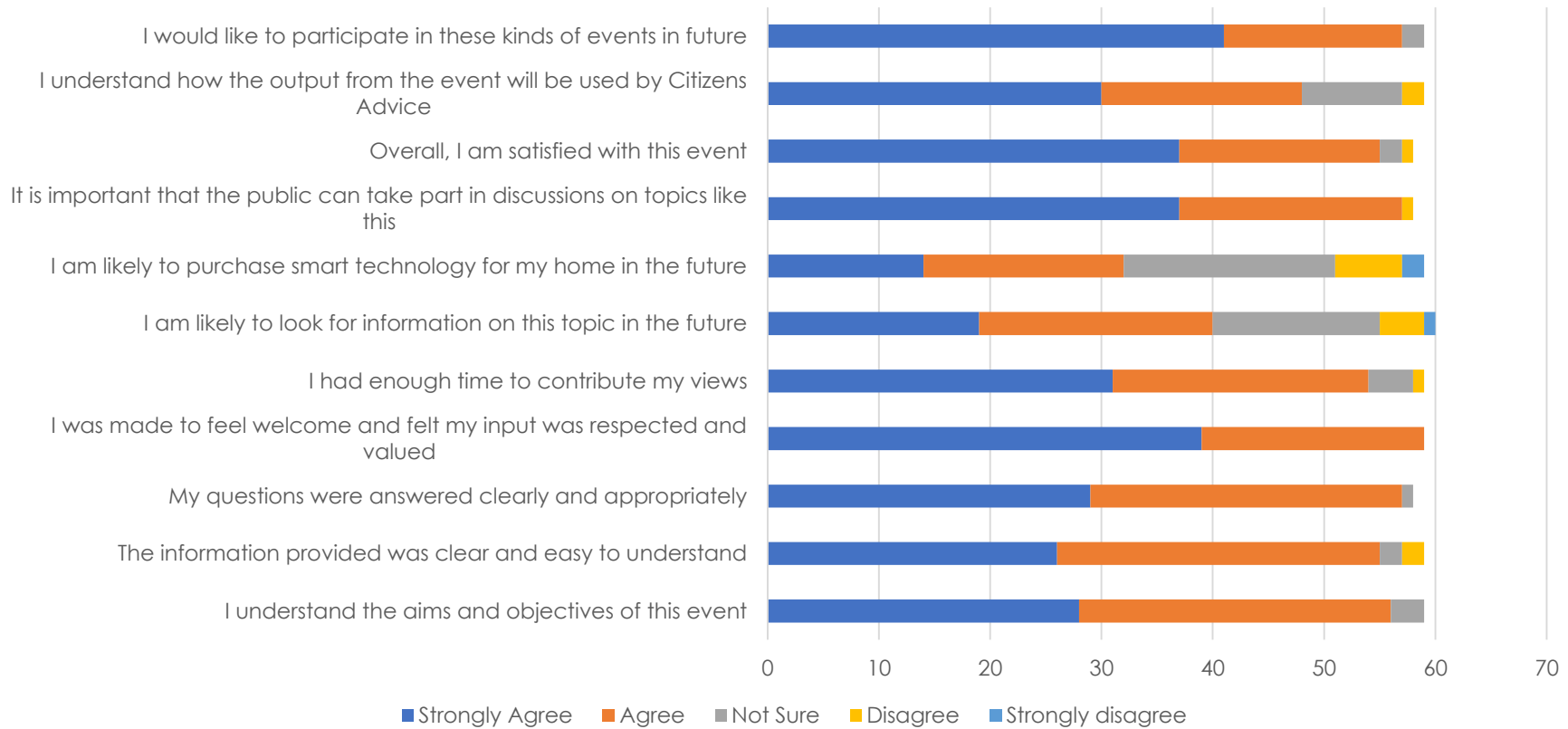
"Friendly and welcoming environment. Well explained and presented. More info on how data will be used would be good."

"Really informative and friendly."