Smarter living

What consumers want from new smart energy products and services

September 2017

Foreword
Sacha Deshmukh

Many predictions have been made about how we will live our lives in the future.

Smarter, more connected homes are just on the horizon, and a key catalyst for this is the national rollout of smart meters.

What consumers want from smarter living and the companies offering the new innovations is developing all the time.

To understand how smart innovations in the home will continue to enhance people's everyday lives, we've spoken to people about how they engage with the technology they already have, and how they'd like to incorporate more of it into their lives in the future.

This report contains insights about the smarter living services people of all ages and stages of life would like to see, both in energy and other areas, as automation and new uses of data become more prevalent.

Through in-home interviews, focus groups and a large online survey, we have spoken with over 3,000 people right across Great Britain, from ages 18–81.

We spoke with consumers in huge depth about the everyday challenges they face, and there is a clear link between these and the desire to take up new services which answer them.

This research also reiterates the important role that smart meters have to play, both in enabling some of the new services and preparing the ground for consumers to accept them.

As innovators grasp the potential offered by smart meters, the market will almost certainly evolve in unexpected ways.

Sacha Deshmukh
Chief Executive
Smart Energy GB

About Smart Energy GB
Smart Energy GB is the voice of the smart meter rollout. It's our task to ensure every household understands smart meters, the benefits and how to use their new meters to get gas and electricity under control. We also champion the future benefits of smart meters to the economy, environment and society with research and thought leadership.

About Incite
Founded in March 2000, Incite marketing planning is a global strategic research consultancy. Headquarters are in London and they also have offices in New York, San Francisco, Singapore and Shanghai.

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Research methodology

This research was conducted between March and May 2017. Eight focus groups, ten in-home interviews and an online survey of over 3,000 people was conducted. Through this research we spoke to people across Great Britain from the ages of 18-81. A detailed breakdown of the methodology is available on page 33.

Executive summary

In writing this report, we spoke to more than 3,000 adults across Great Britain, across every stage of life, about their attitudes to smart technology and how they would like it to be part of their lives in the future. During these fascinating conversations we found:

There is a huge opportunity for innovation

The national rollout of smart meters is a catalyst for innovation and is providing the opportunity to create new smarter living products and services. This research shows a strong desire amongst consumers for these products and services, especially those which provide compelling lifestyle benefits.

Where there are children in the home, the opportunity is even greater

People who had children living at home expressed a strong need for technology to make everyday life easier. They are busy, more time poor and told us that they see technology as a way to meet these challenges. This group found nearly all of the smarter living propositions we tested more appealing than other groups.

Smarter living is for everyone

The older people we spoke with told us that they would also like to take up smarter living services. Although they tended to say they were less excited about technology, when shown some of the potential new solutions, many told us they found these to be appealing. For example, over 60 per cent of people over the age of 55 told us they would find technology which automatically turned off unused appliances appealing.

Services which help people to navigate the energy market were popular

Many people told us that they found navigating the energy market and getting the best deal for them difficult. This was reflected in the positive reaction to services which could help with this. Fifty eight per cent of people said they found a service which could help them get the best deal appealing.

There is a strong appetite for time of use pricing and automation

Over two thirds of people told us that they found the idea of getting cheaper energy for using their appliances at different times of the day appealing. Additionally, almost 60 per cent of people also told us that the idea appliances could automatically turn on when energy is cheapest was appealing. This is particularly positive news for the government's plan to move to a smarter energy grid which would involve households being more flexible in their energy use and taking up time-of-use tariffs.

Smart meters are an important part of the journey

People we spoke to who had already upgraded to smart meters were even more positive and excited about all of the potential new smarter living services. Taking up smart meters is therefore a key step on the journey for consumers, who having upgraded to a smart meter, say they will be more likely to then take up the new services.

Introduction - towards a smarter future

Technology and innovation has changed almost every area of our lives. From how we shop to how we travel, to how we manage our health and our finances, there are few areas which have remained untouched.

Change is set to continue with the potential that we could all be living in more connected, smarter homes in the not too distant future. At the heart of this will be a transformation in how we buy, use and interact with energy.

Smart Energy GB has published a series of reports and papers exploring the opportunities for innovation, new services and new ways to buy energy that we could see in the future. Central to all of these is the upgrade to smart meters.

Smart meters are here

Many industries have transformed at a rapid pace over the past few years. However, the way we buy energy has been essentially the same for more than a century.

The analogue technology we have in our homes today does not generate data, which has made innovation difficult. But the digitisation of the energy system through smart meters is changing this.

The new meters are being offered to every home and many small businesses at no additional cost as part of a national upgrade to our energy infrastructure. In the immediate term, they mean accurate bills and greater visibility over energy use. In the longer term, they are a key building block of a smarter energy grid.

Building a smarter energy grid

Government has set out its plan to build a smarter energy grid, and smart meters in every home are an essential part of this.[1] By harnessing better data and new technologies, a smart grid can deliver the clean, secure and affordable energy needed for the future.

This national upgrade is unlocking new opportunities for Britain to benefit from low-carbon technologies, such as electric cars, and to make more efficient use of renewable energy sources.

Smart meters provide two important parts of this smarter grid, acting as both a technological platform and as a tool to engage households with their own energy use.

Households have an important role to play in a smarter grid. If they can be more flexible in their own energy use, there could be personal financial savings and benefits to the national grid.

Innovative products and services in the home and new ways to buy energy will be a big part of this.

1 See Department of Business, Energy and Industrial Strategy (July 2017) *Upgrading our energy system, smart systems and flexibility plan*

The potential for new services and innovation

New technology and services can help to support households to be more flexible, by providing better information on when to use energy or automation.

To understand this potential we joined up with Forum for the Future and Behaviour Change, and held a workshop with industry experts. The findings were published in *Energising smarter homes: How will our lives be transformed by the smart energy revolution?*[2] This paper assessed a number of potential innovations, and identified some of the potential barriers and questions for how some of this technology could develop.

Beyond energy, there is huge potential for the development of better services in healthcare. With the UCL Energy Institute in May 2017 we published *Energising health: a review of the health and care applications of smart meter data*.[3] The report looks at the potential for how energy data could aid large-scale public health research, and improve the conditions and care for those living with long term health conditions like dementia and Alzheimer's.

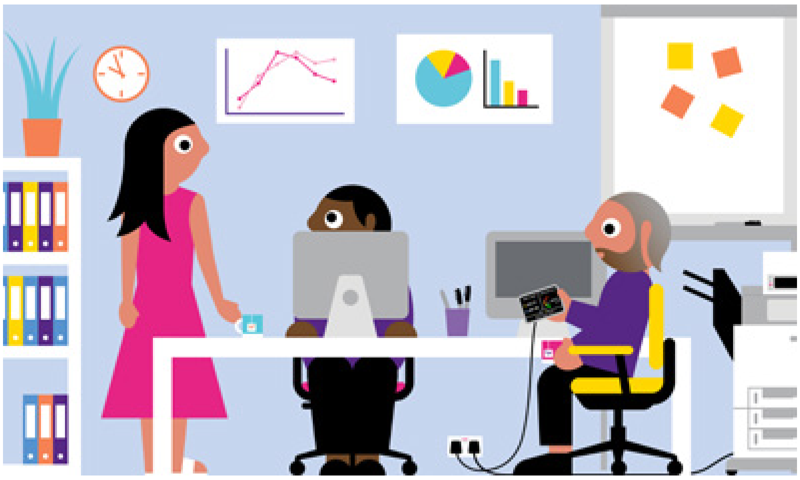
Along with new products and services, new ways to buy energy could also be introduced. A paper written by Dr Jeffrey Hardy of Imperial College London explores some of these ideas in greater detail.[4]

The future could involve more local generation sources, decentralised, peer-to-peer trading or community based production. Or at the other end of the scale, we could deal with intermediaries or third parties who are constantly switching us onto the best energy deal.

The opportunity

There is a national need and commercial opportunity to provide innovative services to consumers. Our published papers point to a big opportunity to provide consumers with new services. We wanted to build on this work by digging deeper into what consumers think about some of these, and more importantly, what they want in their own home as part of their daily lives.

We began by talking with people about the challenges they face in their daily lives and their current attitudes to technology, which is covered in the first section. The second half of the report then presents the findings of the conversations we had around specific services people could be offered, and how appealing people thought these were.



2 Smart Energy GB, Forum for the Future and Behaviour Change (2016) *Energising smarter homes: how will our lives be transformed by the smart energy revolution?*

3 Smart Energy GB and UCL Energy Institute (2017) *Energising health: a review of the health and care applications of smart meter data*

4 Dr Jeffrey Hardy, Imperial College London for Smart Energy GB (2017) *How could we buy energy in the smart future?*

Part 1:
Consumers, technology and the challenges of 21st century life

Attitudes to technology varies over life stages

Different people have differing needs and perceptions of smart technology. For some, it has become commonplace, and for others it is only just starting to touch their lives.

Our conversations with people began with a discussion about current thoughts, feelings and perceptions towards technology.

In speaking to people, we found that there were a number of factors which led to differences in attitudes. Age, whether there were children living in the home and whether they were working or not, all had a notable impact.

These differences naturally led to six main groups, which we will refer to throughout the rest of this report.

Each of these groups have different needs and thoughts on technology. There is however a broad agreement that technology has improved everyday life, with over half of people agreeing with this in each group.

18 - 34 no children

18 - 34 with children

35 - 54 no children

35 - 54 with children

55+ working

55+ not working

18 – 34 no children

Urban and renting

This group are more likely to live in and around a city than other groups. They are less likely to own their home, and those who rent often do so with other people. Typically this group are also either still in education or have just started out in their careers. They also have a lower average income than the older groups.

Career and lifestyle focused

They are naturally at a stage in their life where career takes centre stage, and put value in being perceived as successful. This group is highly sociable, their free time is spent with others. They are goal-oriented but spontaneous and impulsive with fewer responsibilities.

Attitudes to technology

This group are excited by technology and the future potential of smart technology. They see it as having made their lives better, and that it has already improved how they go about day-to-day activities.

Cost is a barrier to getting new or additional devices, and over half of this group said that they wished they could afford to buy more of the latest gadgets.

They are confident with setting up and using new technology, and do not fear falling behind.

This group also has more brand loyalty when it comes to technology providers, with 53 per cent saying that they prefer to stick to specific brands to provide technology, compared to an overall average of 42 per cent across all respondents.

53% say they are loyal to brands who provide technology

Over one third rent their home

One fifth are in full time education

36% live in cities

"With technology today you feel part of something, because everyone constantly shares what they're doing and what they're using. So you have these little communities of people who are into the same stuff as you and talking about it."
Male, Glasgow, 18-24, no children in the home

18 – 34 with children

First steps on the property ladder

As with the other younger audience, this group is also likely to be urban based.

They are slightly more affluent than their peers without children, and are more likely to have bought their own home.

Career and lifestyle focussed

Career and progression is important, but other factors play a greater role, such as family, health and wellbeing, and financial security.

Goal-oriented but busy

They are focused on their career, but there is an underlying feeling that they are always on the go. This group still has sociable hobbies around going out and exploring cultural events, but they are also interested in more home-based activities like music and film.

Attitudes to technology

Like their peers without children at home, the excitement this group has towards technology more generally carries through to high engagement with smart technology.

They are excited by the potential of smart technology and how intelligent emergent technologies are.

They also told us they were confident and comfortable with new technologies, though are more likely to fear falling behind as technology advances than their peers without children.

Over half own their home

54% **in full time employment**

54% **said they wished they had more money to buy the latest gadgets**

"It makes life easier. Want to know something and you just take your phone out of your pocket. You can use anything, phone, laptop, tablet, even your TV and just ask it a question and have the answer. There's all the other stuff it can do that is very clever but for me technology is just the things I can do day-to-day that even five or ten years ago people couldn't."
Male, Watford, 18-34, children in the home

35 – 54 no children

Settled and affluent
They have a higher average income than those who are younger without children, and the majority own their own home.

Less concerned about career and money
They tend to be more established in their career and being perceived as successful is less important. Without children in the home they are also less likely to feel pressures around financial control.

While they consider themselves outgoing, they have settled into habits and prefer to spend their time on hobbies like music and film. Spending time with friends and family is less of a pastime.

Attitudes to technology
They are confident users of technology, however following the latest developments is not a priority for them.

56% say technology has improved their everyday life

Nearly **60%** live in a town or suburb

Over two thirds own their own home

"It has a luxurious nature in a lot of ways – I'm sure I've got technology I don't actually need but it's things I enjoy and that's how I think about it. It's nice to have a laptop that I can watch a show on after work but I'm not going to run out and get a new one when it comes out."
Female, Barnsley, 35-54, no children

35 – 54 with children

Established lifestyle
This group are established in their career, although this area of their life is secondary to family.

Financial and time pressures
Between career and family, safeguarding time to do the things they enjoy is a challenge. Ensuring that time is put aside to do what they want is important. Despite typically having higher household incomes, with the responsibilities of home ownership and family finances, financial planning is more of a concern.

Social and active
Spending time with, and entertaining, friends and family are key pastimes. This group are more outgoing and social than their counterparts without children.

Sport and exercise are also a key part of their lives, with health and wellbeing also important to them.

Attitudes to technology
This group is more likely to be especially excited by the future possibilities of smart technology, and see it as being able to improve the things they do day-to-day in small ways.

They are more excited than their peers without children by technology, but also more likely to wish they could afford the latest gadgets.

66% say its worth putting time into searching for the best deals

60% live in the suburbs or towns

26% say they are always on the go

"It's just the type of thing that makes day-to-day life better for people. It's more efficient and less effort so it means you have more time. Everyone has a busy lifestyle so anything that gives you a solution to problems is a good thing."
Female, Watford, 35-54, children in the home

55+ working

Changing life stage

While the majority are still in full-time employment, a sizeable proportion have moved to part-time. They are more likely to be living in a suburb rather than a city.

Settled and comfortable

Financial pressures are less of a concern, this group are organised and practical in their approach to life.

They are more likely to see themselves as dependable than other groups and they enjoy cultural experiences, travel, and dining out as hobbies.

Attitudes to technology

This group do not tend to describe themselves as excited by technology and they are less concerned about having the latest gadgets. However, a majority say it has improved their daily lives.

They occasionally expressed concerns about getting help to fix technology when it goes wrong or breaks.

61% live in a suburb or a town

41% work part-time

"It's the efficiency and security it can give you. It helps me keep in touch with my children, keep in touch with my family. My son lives in Australia now but he set up something on my computer before moving so now I can see him and my grandson every Sunday when we talk. So it's different than just having a phone, the computer and the internet means I can stay close to them."
Female, Barnsley, 55+, working

55+ not working

Retired and country-based

They have finished working, and are more likely to be living in a village or in rural communities than the other groups. Most tend to own their home outright so don't have the pressure of a mortgage hanging over their heads.

Habitual and practical

Time and financial situation are not a major concern; this group spend their time travelling and pursuing hobbies.They are habitual and tend to be risk averse.

Attitudes to technology

This group are less excited about technology than younger groups. Without as many time pressures, there is also not as much of a need for technology to automate tasks.

They are a group who need more support and reassurance when it comes to technology, especially with things like setting up new technology and getting help when it goes wrong.

17% said they would like technology to automate tasks they already do

Nearly one third live in rural communities or villages

75% own their homes outright with no mortgage

"I've got my magnificent seven grandchildren – they're so, so bright. They had to set it up for me but now I can FaceTime them all the time. They have to be my mentors when it comes to these things but it's what makes technology important to me. It's how I keep in touch with them and that's the most important thing in my life."
Female, Glasgow, 55+, not working

A closer look at attitudes to technology within the 55+ audience

Over half of those over the age of 55 agreed that technology has fundamentally improved how they go about day-to-day activities, so the value of it is recognised. This group told us they needed some more reassurances around certain aspects though, in areas like being able to set up new technology.

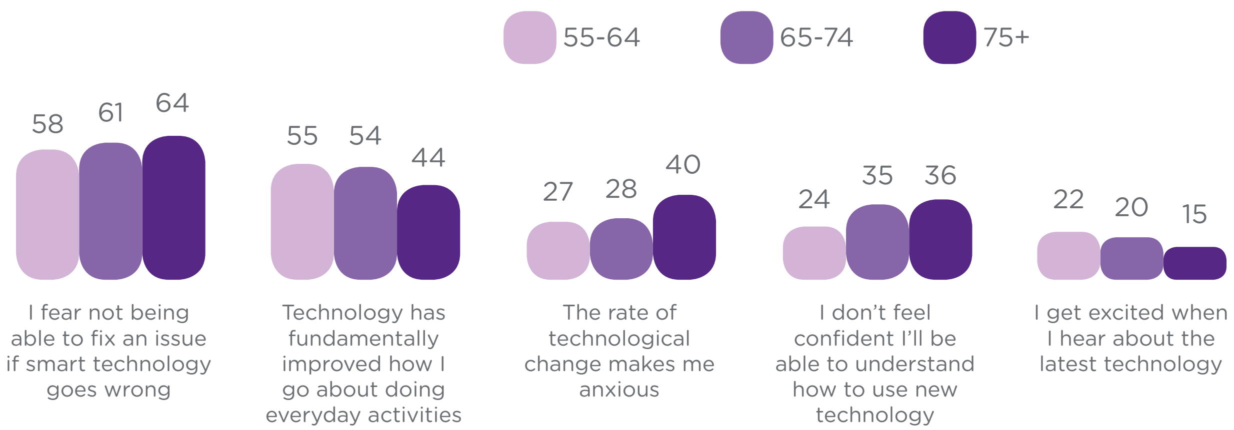
Those over the age of 75 are less likely to say that technology has improved how they go about their everyday lives, and are far more likely to say that they are anxious about the rate of technological change.

These insights suggest that there are a number of additional reassurances service providers and innovators need to overcome to engage this audience. However, with reasurance, there is clear potential for smart technology to provide solutions relevant to the lives of older people.

Some participants mentioned the positives of automation as a way of removing some of the barriers. Automation can be seen as a way to get over the barrier of having to engage with complex technologies and removes the issue of people being concerned about how to use it.

> **"The idea of it being done automatically is actually freeing you from technology, which is making your life simpler. In some ways it's a solution to the pain in the arse that technology is. It means that you, the individual, don't need to be so technical - it's going on to the next stage where someone else is doing the whizzy stuff and you're just consuming the technology instead of having to be an expert in it."**
> Male, Watford, 55+, working

Figure 1.
Attitudes towards technology amongst the over 55s
(percentage of people who agree or strongly agree with the statement)



Question: To what extent do you agree or disagree with the following statements relating to technology?
Base: All respondents (55-64 n = 549. 65-74 n = 477. 75+ n = 84)

Opportunities for innovation

New services and technologies generally develop to address the particular challenges and needs people have. This section of the report looks into the current areas which people told us they felt to be a challenge today.

Through discussions with consumers in their homes, in focus groups and through the survey, we found there were a number of areas where people felt there were challenges.

These span from managing the household finances to spending more time with family.

Some of the groups felt these challenges more strongly than others. For example, younger people told us they found it hard to manage everyday pressures and make plans, whereas this was not an issue for those who were older and no longer working.

However, there were also challenges people told us about which were felt by everyone. For example, navigating the energy market was one area which many people in each group felt to be a challenge.

1. Managing the household finances

Everyday financial pressures are felt by most of the groups, and particularly by those who are younger or who have children. Many told us that managing everyday finances was a challenge, and that they wanted to save more, whether this is saving for their future or for their children's. Fifty six per cent of those aged 18-34 with children told us that everyday spending commitments put them under financial pressure on a monthly basis. This compared to an average of 32 per cent.

There is a big opportunity here to provide services that help people to get better control over their finances and put money away for the future. As financial pressures are also felt across the groups, any services which can help consumers save money generally would also be welcomed.

"I think for a lot of people my age, saving seems like a pipe dream. The cost of living anywhere near the city is so high that living costs alone swallow most of your income. Most of my mates have just stopped trying to save to be honest."
Male, 18-34, Glasgow, no children in the home

"We try to plan, just because we like to know what's coming out, and what we can actually spend on us. I've experienced credit card debt before and got in a bit of a mess, so these days I feel like I have to plan. It definitely makes me feel good."
Female, Barnsley, 55+, working

2. Caring for family

With an aging population, more and more of us are becoming carers. Many people told us that they had concerns around the constraints and responsibilities which come with this role. Innovations which can support with caring for people would be welcomed, especially those which enabled things like remote monitoring.

3. Getting people in the household to change their behaviour

Many people told us of the challenge to get other members of the household to change their behaviour in areas like financial management, energy usage, good environmental practices and healthy eating. This was keenly felt by women, who often cited their children and/or partners as those whose behaviour they struggle to change.

This frustration also leads to guilt and self-doubt in those who try to change others' behaviours. Services which could support conscious householders to affect change amongst family members would remove a lot of this stress and tension.

"I like the idea of being able to check in on Grandma. I do try and see her as much as I can, but this has made me realise that I've never checked whether she's warm enough in winter. That makes me feel really bad."
Female, Barnsley, 35-54, children in the home

"Teenage boys are the worst – I feel like I'm just following them around, turning off lights and TVs the whole time. Trying to convince them to change just isn't worth doing."
Male, Barnsley, 35-54, children in the home

4. Making better connections with the community

The sense of being disconnected from the local community was something which many respondents, particularly in the focus groups, talked about. A lack of time and knowledge of how to properly engage were mentioned as the main barriers.

This is a particular issue for those under 35, whether they had children in the home or not, 44 per cent of those in this group without children and 46 per cent of those with children agreed that they are not as in touch with the local community as they would like to be. This compared to an average of 32 per cent who agreed with this statement.

There is an opportunity here to provide services that could help people to better connect within their communities and provide people with simple ways to get involved at a local level.

5. Making life a little less chaotic

Life can be unpredictable and chaotic. Pressures of work, family and household chores all have their part to play. This is a challenge which is felt to varying degrees across each group and is felt particularly by those who are younger or have children.

Over half of people aged 18-34, with and without children, and those aged 35-54 with children told us that the pressures of everyday life makes it hard to make plans. Perhaps unsurprisingly, only 16 per cent of those over the age of 55 who were not working agreed with this statement.

Smarter living services which could save time and automate tasks would be valuable to people feeling this particular challenge.

"The biggest thing we've noticed since we had the kids is that our time is now really squeezed – any spare time feels like a total luxury. I can't remember the last time we had a night out together where we could just enjoy each other's company. I wouldn't change it, but it's definitely tough."
Male, 35-54 Barnsley, children in the home

"Yeah, there are loads of things I wish I could do more of – see more of my mates, try to go the gym occasionally...but it always seems to fall by the wayside."
Female, 18-34, Watford, no Children in the home

"We do a lot with the kids school, so I know all the mums and everything going on around us. It's nice to have a group like that, you wind up finding a lot in common and organising stuff with people around you."
Female, 35-54, Glasgow, children in the home

6. Help to do more for the environment

Many respondents recognised the value of doing more for the environment but many admitted it wasn't a priority when compared to other challenges.

Time pressures and a lack of knowledge were cited as barriers for people doing more.

Services which could give consumers easy to follow advice on how to do their bit for the environment would be welcomed. Beyond recycling, consumers often don't know what to do next, or where to go for advice and ideas of what to do.

Consumers told us that this advice needs to be easy to follow and provide them with tips which don't require too much time or effort.

"I do worry about the environment – it's a big concern for me. I try to do my bit. But honestly, I think I'd need more independence for it to really make a difference. Renting with mates, I can't force them to behave in a certain way. I think they could do more, but I'm not going to try and force them."
Male, 18-34, Glasgow, no children in the home

"Let's face it – it's never going to be top of the list. As a parent, I have to make sure that we've got our own house in order first, before I worry about what's going on out there. We'll keep trying to do our bit, but could we do more – yes, probably we could."
Female, 35-54, Glasgow, children in the home

7. Navigating the energy market
Seeking a good deal on energy was a challenge many told us they faced.

Consumers told us they felt overwhelmed by the volume of choice in the energy market, not feeling armed with the knowledge or willingness to sift through all of the deals available.

The perceived nature of the energy market means that it's felt to be a hassle to engage with. People told us this leads them to step back, only engaging when it's absolutely necessary. In many cases, this perceived hassle means that people will consciously disengage, even when they know it's not in their best interest.

Some people told us that getting the cheapest deal wasn't always the top priority, and this was particularly the case for those over the age of 55. Nearly two thirds of those aged 18-34 with children, told us that when choosing an energy provider they simply go for the lowest cost. Whereas only just over a third of over 55s in work agreed.

"I get the point of going on a comparison website – it's the only way I've ever heard of to actually see what's out there without having to ring every company. The problem is just how much time it takes and even when I have tried them I just look at the number they say I'll be charged. Half the time I'm probably being fleeced anyway."
Male, Glasgow, 55+, working

"I do a direct debit so I never get charged for paying late. I think I must be on paperless since I'm sure I never see anything through from them. So the only time I really think about it is when I see my bank statement and get a shock once a month!"
Male, Glasgow, 18-34, no children in the home

8. Being more engaged with energy

The perceived difficulty in getting a good deal on energy is further exacerbated by a general feeling of lack of control over energy use. Many people told us that they felt they couldn't engage with energy usage because it is hard to understand and they don't know what they are using day-to-day. Many described it as a vague concept and not fully understood.

Many consumers also told us they feel like their own efforts at reducing energy consumption are undermined by others in the household. An individual can't make a house more energy efficient by themselves, it has to be a collective effort, but that can feel tricky to facilitate for those trying to lead by example.

There are two key factors that stop other members of the household from engaging:

- force of habit – whether it be leaving lights on or TVs on standby, there are many deeply ingrained behaviours that happen subconsciously

- lack of understanding – inability to understand how certain actions contribute to the bigger issue of energy consumption

We already know that smart meters are helping to solve this problem, with evidence from this and other studies pointing to better engagement with energy as a result of this new technology.

The smart meter users we spoke to in this research were significantly less likely to say they found their energy use hard to understand, and less likely to say that they don't have enough information to reduce energy use.

This corroborates other research conducted by Smart Energy GB. *Smart energy outlook*, a bi-annual survey of almost 10,000 people has found consistently that smart meter users are more confident in the accuracy of their bills, feel more in control of their energy usage and 80 per cent report they are taking steps to use less energy.[5]

These opportunities are not mutually exclusive

There is a great opportunity to also provide services which can tackle a number of these challenges, or have a positive knock on effect. For example, services that help people save energy, and therefore money, would also have a positive environmental impact.

"I think it's really important to create awareness of what you're doing and how you're using energy - if you're aware then you're more likely to change your behaviour, but I just don't think many people get it. Myself included."
Female, Watford, 18-34, no children in the home

"For example, I think most people struggle to understand units of energy - how it's measured and what it means. It's just not something that you're brought up to understand."
Female, Watford, 18-34, no children in the home

5. Smart Energy GB and Populus (2017) *Smart energy outlook*, August 2017

Part 2:
Consumer appetite for new products and services

Consumers were overwhelmingly positive about the propositions we tested

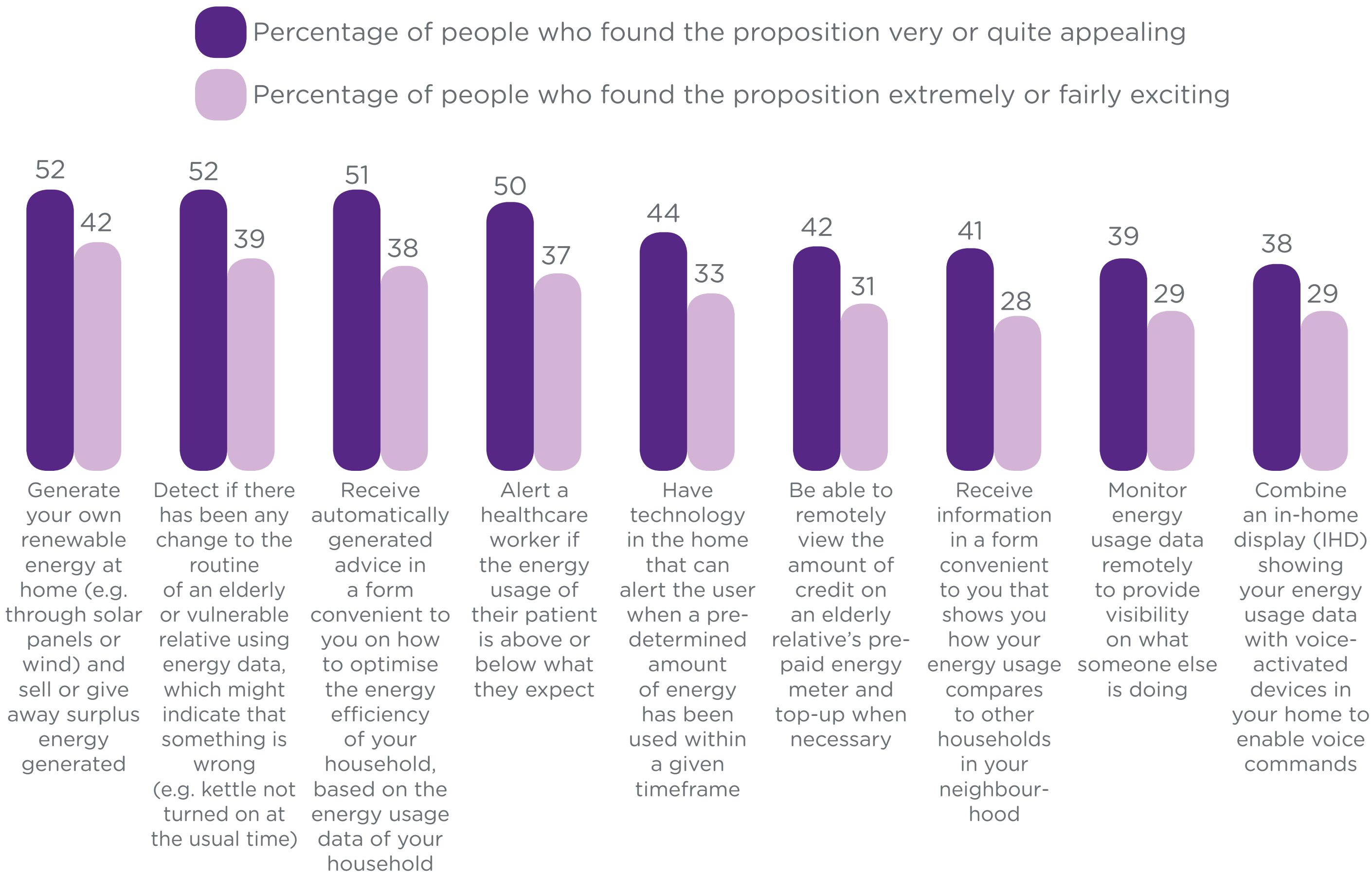
In this section of the report we review the responses people gave to particular smarter living services.

In both the focus groups and survey, we showed people a range of propositions to see how appealing and exciting they thought they were. We also spoke to them about any questions they would need answering in order to take up these services, and to understand any additional reassurances they might need.

The responses to the propositions we explored were extremely positive, with over half of the propositions being seen as appealing by a majority of people. Additionally, 87 per cent of people found at least one of the propositions appealing. The responses can be seen in Figure 2 below.

Figure 2.
How appealing and exciting respondents found each proposition

Figure 2. (continued)
How appealing and exciting respondents found each proposition



Question: Using the scale below, please tell us how appealing or unappealing you find each of the ideas shown? Please use a scale from 1 to 5, where 1 means 'Very unappealing' and 5 means 'Very appealing'
Question: Now using the scale shown, how would you rate each of these ideas? Please use a scale from 1 to 5, where 1 means 'Not exciting at all' and 5 means 'Extremely exciting'
Base: All consumers (GB Total n = 3,017).

Simple automations which help with the running of the household
Propositions offering simple automations were popular, seen to remove manual steps and enable financial savings.

The most appealing was the idea that when fully charged, devices like mobile phones would stop drawing power. People were particularly positive about the potential of this to save the household money, and to save on carbon emissions on a large scale.

It was also particularly appealing to those between the age of 35 and 54 with children in the home, and by those over the age of 55, with over 70 per cent of people in each of these groups saying that it was appealing to them.

Similarly, the idea that appliances could turn off automatically if they had been on standby for a long time, or could turn off when the house is empty, were also seen as appealing to the majority.

Not surprisingly, these propositions which remove manual steps were particularly appealing to those 35-54 with children in the home, reflecting their busy lives and strong interest in technology.

"Although I don't think that it's a very expensive issue on an individual level I suspect that for the whole country quite a lot of energy is wasted through phones being kept on charge for hours."
Female, Barnsley, 35-54, No children in the home

These simple automations fulfil a number of areas of opportunity identified in the previous section. Automation can address a lot of challenges, helping people to save money, changing entrenched behaviours and also giving people the sense that they are doing something good for the environment.

Some poeple told us they needed practical reasurrances, with one respondent asking whether this would mean things like their alarm clock would need to be reset every time they left home. These are questions which can be addressed with appropriate communication.

"I am always forgetting to unplug my phone when it has charged. This would be of benefit to me to reduce costs."
Female, East Midlands, 35-54, no children in the home

"This sounds like a win-win i.e. I could save money and it would be better for the grid to help balance the demand over time."
Female, South East, 35-54, no children in the home

Households are willing to change their behaviour for a clear benefit

The second most appealing of the innovations tested was the prospect that you could get cheaper energy for using energy at non-peak times.

Over two thirds of consumers saw this as appealing and this was seen as appealing across all of the groups.

Nearly as many people would be willing to hand over complete control for when appliances turn on. Almost 60 per cent said they would be happy for appliances to automatically turn on when energy is cheapest. Again, this was something which was of more interest to those with children in the home, with 67 per cent of this group saying they found this appealing.

People again often made the link between the personal benefit of this service and also a benefit to the nation in terms of balancing demand on the grid.

Some of the questions raised over the automation related to the total loss of control, with some consumers needing reassurance that the washing would still be done for when they needed it.

Considering some of the questions people raised, it would be sensible to have a range of options available to suit different lifestyles. This would allow people to choose how much control to hand over based on personal needs and circumstances. Some people also said they needed reassurance that they can take back the control if they need to, or override the automation.

"This could help both reduce bills, and there would be less strain on the national grid."
Male, South East, 55+ working

Half of people would be interested in generating their own energy
Over half of people told us that they found the idea of generating their own energy appealing. There was a fairly consistent positive response to this proposition across all of the groups.

Consumers would like more information in order to make better decisions
In the earlier section we saw how consumers felt they needed more support to navigate the energy market, find the best energy deal and be more environmentally friendly.

Nearly two thirds of people said they would like to use services which help them to either monitor the performance of appliances or see which ones are using the most energy.

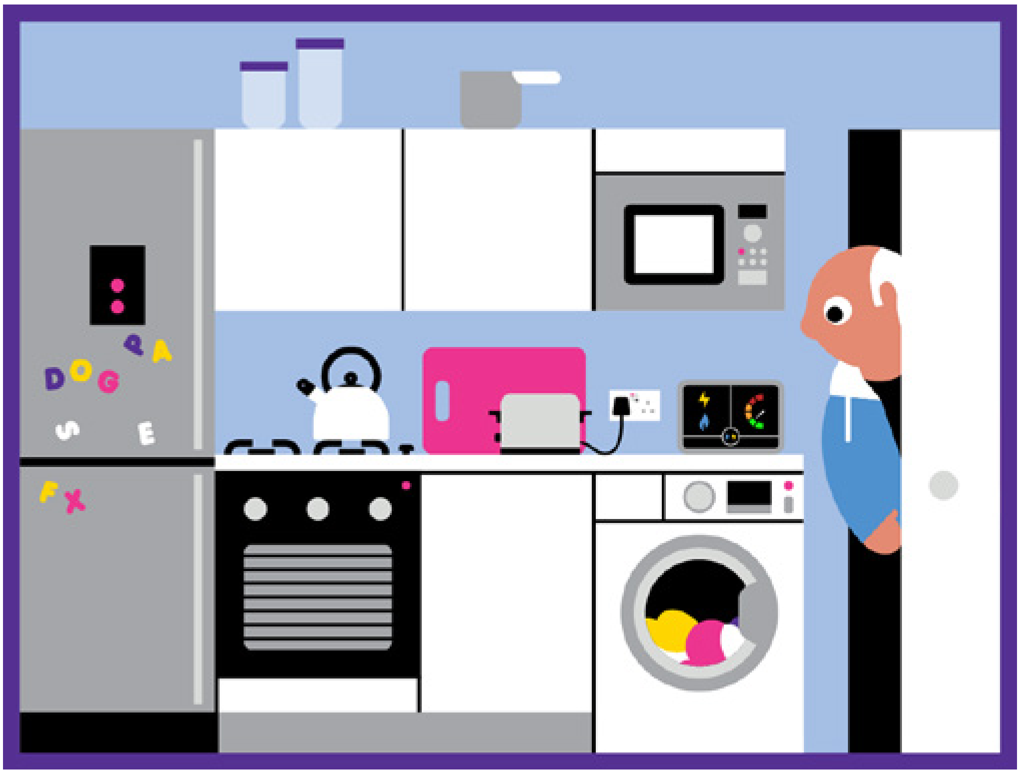
Over half said they would like to receive advice on energy efficiency based on their individual household. Both of these ideas were more appealing to those groups with children in the home.

A high number also found the prospect of tailored energy deals appealing. This was again found to be particularly appealing to those who had children in the home.

For some, especially those who were older or more vulnerable, the prospect of looking for the best energy deal was daunting, especially if this involved having to speak to sales people on the phone or face to face.

In these cases, technology was seen as particularly valuable, removing these concerns and barriers to engaging in the market.

> **"I think micro generation can play an important part in generating renewable energy. I also like reducing our energy costs this way."**
> Male, Glasgow, 35-54, no children in the home



One area people said they would need reassurance was on how the selection of deals were compiled, to ensure that the intermediary was working in their interest.

> **"Often difficult to work out your own best deal so this would save me the problem provided the information provided the best deal could be trusted."**
> Male, Watford, 55+, not working

> **"Would make me feel more in control and wouldn't make me worry so much as I could drive down and double check everything is ok."**
> Female, South East, 18-34, no children in the home

Remote monitoring had a positive appeal

Services that allowed for some form of remote monitoring with the users permission for vulnerable relatives or friends received a generally positive response. Over half of respondents would be interested in receiving a service which allowed them to remotely monitor the energy use of an elderly or vulnerable relative.

This service was also more appealing to those with children in the home, and by those who identified themselves as a carer.

Almost two thirds of carers said they would like to view the data, and 57 per cent said they would be happy to share the data with a healthcare worker.

Some of the older participants we spoke to could see the value in these services for them, although had some questions about the amount of data they would need to share. Many people mentioned that this service would be particularly valuable to ensure that people were warm and comfortable in their homes.

> **"It means that someone can be monitored constantly without actually having to go to their home, ideal for anyone who has elderly relatives living alone."**
> Female, South East, 55+ working

Smart meters prove an important step on the journey for consumers

We compared the reactions of people with smart meters to all the smarter living propositions against people without them. Smart meter users found almost all of them far more appealing.

Eighty per cent of people with smart meter said they would like to receive cheaper energy for using appliances at different times of the day, and almost 70 per cent of this group also said that they found the automation of the appliances appealing. This response is particularly positive for the future introduction of time-of-use tariffs, which offer people cheaper energy if they use it at different times of the day. Smart meters are playing an important role in getting households ready for these new tariffs by giving them more information on their energy use day-to-day.

"It would enable me to ask my voice-activated device how much I energy I would be using whilst still doing a task, so I wouldn't have to stop what I'm doing and go over to the smart meter."
Female, Barnsley, 18-34, no children in the home

This is a further sign that smart meters are an important step for consumers to engage with smarter living services. We already saw how smart meters were addressing engagement with energy in the previous section, but it would also appear that the presence of smart meters make other services more appealing.

The adoption of smart meters also does not seem to be following the traditional model of technology adoption, where younger audiences take up technology first. The smart meter users we spoke to in this research were skewed towards older people, with over half of people being over the age of 55. This is a further positive sign that smart meters could be an important stepping stone for people to engage with smarter living services, especially those who are older and traditionally more disengaged with technology.

Figure 3.
How appealing smart meter users and non smart meter users found each proposition

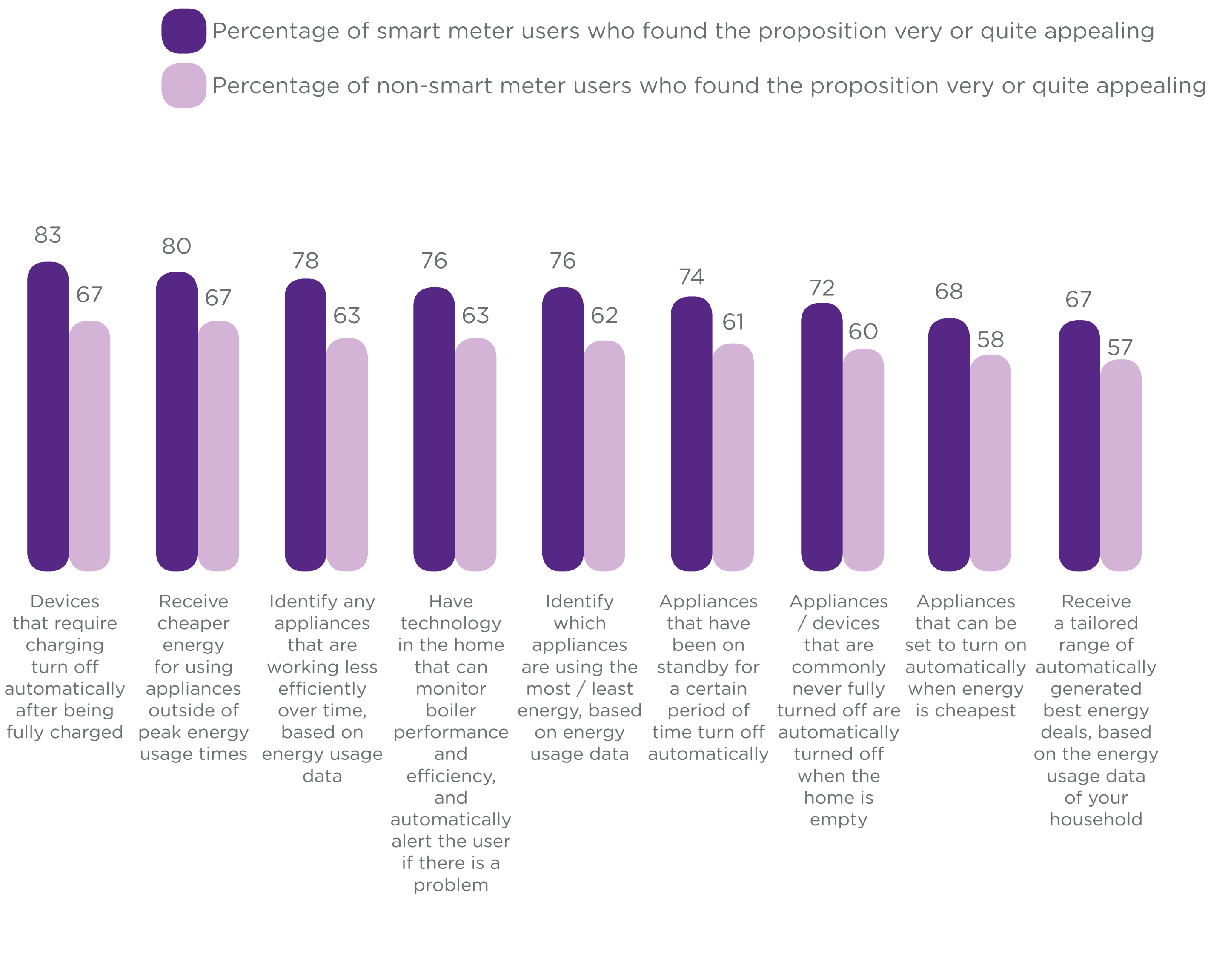
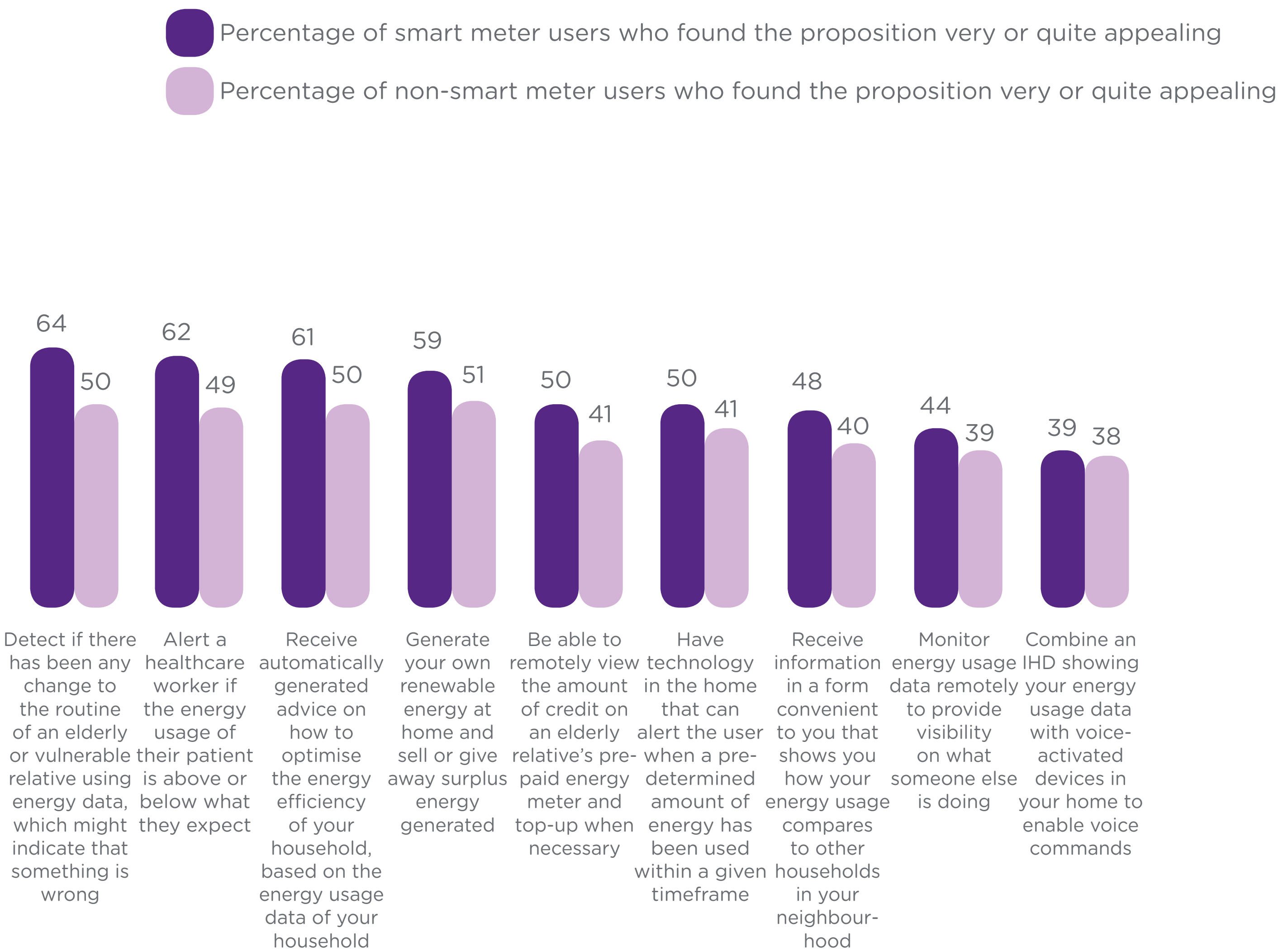


Figure 3. (continued)
How appealing smart meter users and non smart meter users found each proposition



Question: Using the scale below, please tell us how appealing or unappealing you find each of the ideas shown? Please use a scale from 1 to 5, where 1 means 'Very unappealing' and 5 means 'Very appealing'
Base: All consumers (Smart meter users n = 317, Non-smart meter users n = 2,700).

Attitudes to data sharing

Engaging with new services often involves sharing data about you or your household. We asked people about the types of data they would be happy to share in order to access different services, which is shown in Figure 4 on the opposite page.

Of the services we talked to people about, there was greater willingness to share energy data over any of the other types of data. A similar proportion of people said they were willing to share their shopping habits in return for offers.

Fewer people said they would be willing to share data on more personal topics, such as sharing data on their health and fitness habits or on their personal finances.

Considering we know that navigating the energy market and managing personal finances were both challenges people told us they felt strongly, it is perhaps unsurprising that people are more willing to share these types of data - as these solutions would meet particular challenges.

We explored earlier the idea that you could choose to engage with a service which, with the users permission, enables some remote monitoring of an elderly or disabled relative. This received a positive response, particularly by those who identified themselves as carers.

One third of people would be willing to share an elderly or vulnerable relatives energy data with local health care services. This suggests there is a significant opportunity to provide these services to support independent living.

Differences over age group

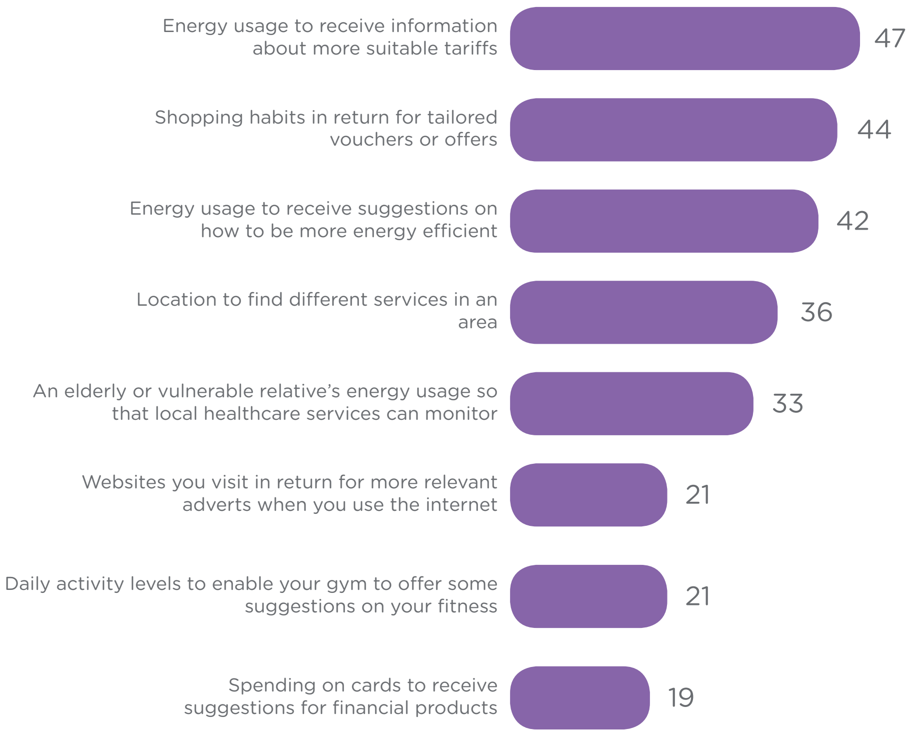
There were some differences in the willingness to share data depending on age. Those over the age of 55 were less willing to share data in most of the scenarios we asked them about. The exception was when we asked them about sharing energy usage data in order to get information on energy deals, which they were keener to do. This was also the only scenario they were as willing to share their data as other groups.

Again, considering the challenge consumers told us they face in navigating the market, it points to the potential for people taking up services they feel meet their needs and which add value.

In each of the other scenarios we asked people about, those over the age of 55 were less willing to share their data compared to average.

"Depends on the data but happy to share non confidential stuff. Energy data is already measured when I give them a meter reading."
Female, North East, 18-34, no children in the home

Figure 4.
Willingness to share different types of data (those who said they were very or fairly likely to share)



Question: Looking at the examples below, how likely or unlikely would you be to share this data in return for the following benefits? Base: All GB Adults (n = 3,017)

Conclusions and recommendations

People have told us about their desire for new smarter living products and services in great numbers.

This research shows a strong desire for particular services which bring automation into the home, introduce new ways to buy energy and help people to save time and money whilst doing their bit for the environment.

Automating tasks is particularly appealing to those with busy lifestyles

Automation in the home was particularly appealing to those with busy lifestyles. The propositions we tested which automated appliances like washing machines to turn on when energy is cheaper were particularly popular with people who had children, or whom told us they had busy lives.

More broadly, those with children in the home were especially positive and excited by technology and its benefits. This makes this an audience who are particularly ready to take up new smarter living services.

Older audiences, traditionally less excited by the latest developments in technology, are also keen to take up new services. Just like any audience, they will be keen to take up services which provide solutions to the challenges they face. For instance this group told us they felt navigating the energy market to be a particular challenge, offering services which could support with this would be of interest.

Smart meters are a key step on the journey

Essential to this future becoming a reality is the smart meter rollout, which not only puts in place the platform for innovation but is also proving to be an important stepping stone for people to engage in the smart future.

From what consumers have told us, there are also a number of principles innovators can follow when creating smarter living solutions.

1. Focus on utility, not gimmicks
The propositions we tested with consumers that proved most popular were those which met a particular challenge or a number of challenges.

For instance, simple solutions such as devices being turned off when fully charged were seen to provide a personal financial benefit but also a benefit for the environment and nation.

2. Provide reassurance, and make the benefits clear
In some cases people told us they needed reassurance over aspects of the different propositions. For example, in the case of the automation of devices, there were questions over how much control would need to be given over and whether the washing would be done when it needed to be.

These reassurances can be easily given to people, giving them the confidence to engage with the new services. Clear communication on the benefits and how they will meet everyday challenges will also be essential for success.

3. Being trusted is essential
Many smarter living solutions involve an element of sharing data which means people need to trust the person, organisation or company they are sharing their data with.

This research showed a general willingness to share data in return for a service, be that advice on energy use or the remote monitoring of elderly relatives. These services could be transformative, but to be successful people will need to trust the services and their providers.

Research methodology

Research carried out by Incite.

The research comprised of two stages, qualitative research carried out through in-home interviews and focus groups. Followed by a quantitative survey. More detail on the methodology can be found below.

Qualitative research

In-home interviews

We conducted ten in-home interviews, with two consumers in each of the following groups:

- Ahead of the curve technology users
- Mainstream technology users
- Late technology users
- Smart home technology users
- Smart meter users

Fieldwork period: March 2017

Objectives of this stage of the research:

- Identify and explore current tensions, challenges and unmet needs that exist – at a general level but also related to technology and energy use
- By going room by room in the home, this enables deeper exploration of relationship with technology and technology enabled services within the home
- Reaction to concepts related to smarter living that could be enabled by smart meters

Focus groups

Eight focus groups were conducted as follows:

- Ahead of the curve technology users (2 groups)
- Smart home tech users (1 group)
- Smart meter users (2 groups)
- Mainstream technology users (2 groups)
- Late technology users (1 group)

Fieldwork period: March - April 2017

Total respondents: 46

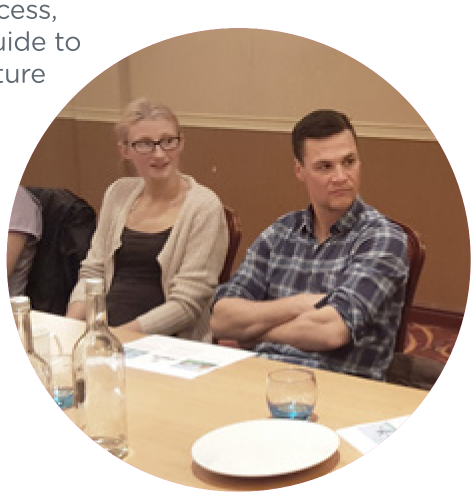
Objectives of this stage of the research:

- Identify and explore current tensions, challenges and unmet needs that exist – at a general level but also related to technology and energy use
- Explore reactions to concepts relating to smarter living, enabled by smart meters
- Expand on smarter living concepts provided, and idea generation of opportunities for further innovation

Additional in-home interviews

Two further in-home interviews were conducted with late technology users with no personal internet access, following the focus group guide to ensure a comprehensive picture

Fieldwork period: April 2017



Qualitative recruitment sample

Ahead of the curve:

- First amongst friends to adopt new technology, and pro-actively engage with the technology industry, driven by discernment rather than status

Mainstream technology users

- Average technology users, comfortable using day to day technology

Late technology users

- Reluctant to embrace technology and lacking confidence to use it

Smart home technology users

- Own and active users of smart technology in the home such as smart lighting, smart home personal assistants, smart appliances

Smart meter users

- People who have smart meters and who are actively using them (accessing data at least monthly)

Focus groups and in-home interviews were conducted in Watford, Barnsley, Glasgow. This was to ensure good geographical spread of participants.

Other considerations

- Range of social grades included across research
- Age range for qualitative research 21-81
- Offline audience included to ensure range of attitudes incorporated

Quantitative research

Methodology

- 25 minute online survey
- Fieldwork period: May 2017
- 3,017 consumers surveyed
- Nationally representative sample ensuring spread of age, gender, social grade, and region

Objectives of this stage of the research

- validate tensions identified in qualitative research and cluster to create territory areas. Hierarchical clustering used to look at response patterns and identify common themes
- Define targets for innovation opportunities using segmentation typology
- Visualise relationship between people typologies and territories using correspondence mapping
- Test appeal of concepts enabled by smart meters, including ideas generated in qualitative research

SMART ENERGY GB | The voice of the smart meter rollout

To find out more about smart meters, please visit **smartenergyGB.org**