



'Smartphone by default' internet users

A qualitative research report

conducted by ESRO for Ofcom

Research Document

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About this document

This qualitative research report focuses on those who conduct the vast majority of their online activities through their smartphone - either through choice or due to external factors limiting their access to alternative devices. Ofcom data show that approximately one in six adults now rely on devices such as smartphones and tablets for online access, and the trend is rising: at 16% in 2015, this is almost three times as likely as in the previous year (6%)¹.

The research provides a clear understanding of the needs, experiences and characteristics of people who predominantly access the internet through their smartphone, and what this means in relation to their media literacy.

The fieldwork involved 26 two-hour in-depth interviews in four UK cities: Glasgow, Leeds, London, Belfast and Cardiff. During these interviews, researchers explored the digital behaviour and skills of participants.

¹ Ofcom, 2016: *Adults' Media Use and Attitudes Report*, available at www.ofcom.org.uk/medialiteracyresearch

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Section 1

Executive summary

1.1 Introduction

Ofcom commissioned ESRO to investigate the experiences of ‘smartphone by default’ internet users, and fieldwork was carried out in early 2016. The research project focused on those who conduct the vast majority of their online activities through their smartphone - either through choice or due to external factors limiting their access to alternative devices. The sample contained participants with a choice of alternative devices available to them, and those for whom alternative options were much more limited. Ofcom data show that approximately one in six adults now rely solely on devices such as smartphones and tablets for online access, and the trend is rising: at 16% in 2015, this is almost three times as likely as in the previous year (6%)².

The project aimed to investigate the ways in which heavy reliance on a smartphone could affect digital behaviour and media literacy. Furthermore, it sought to consider to what extent smartphones are enabling, or limiting, when used as a primary device for online access. It is important to monitor these issues, as unequal access to internet services can create new forms of exclusion.

The fieldwork involved 26 two-hour in-depth interviews in four UK cities: Glasgow, Leeds, London, Belfast and Cardiff. During these interviews, researchers explored the digital behaviour and skills of participants. Questions investigating media literacy were supported by a set of digital tasks in which participants were asked to display their online competence. This allowed the researcher to probe actual behaviour alongside reported behaviour. Further details on the methodology can be found in Section 3 of this report, with the discussion guide and sample structure available in the appendices.

In order to aid analysis, we classified participants into two main groups according to their reasons for becoming ‘smartphone by default’ internet users: ‘smartphone by choice’ and ‘smartphone by circumstance’. We found it helpful to identify two further sub-categories of participants: those in ‘vulnerable circumstances’ who were ‘smartphone by circumstance’ as a result of difficult living conditions; and ‘microbusiness owners’, who could be in either group, but tended to be ‘smartphone by choice’ due to device portability and ease of use.

1.1 Key findings

Smartphones are empowering devices for those participants who have the option to use other devices

Those who had made an active decision to use their smartphone rather than another device tended to report that smartphones gave them greater control over digital and offline tasks. We grouped these people as ‘smartphone by choice’ participants, and they generally valued the device’s flexibility and portability. This was especially true for those choosing to use their smartphones in order to run a microbusiness, who found that the device gave them online access and connectivity ‘on the go’, which suited their particular needs. The fact that these participants could *choose* to rely on a smartphone usually meant that they also had access to another device – such as a family member’s laptop – if absolutely necessary.

² Ofcom, 2016: *Adults’ Media Use and Attitudes Report*, available at www.ofcom.org.uk/medialiteracyresearch

Smartphones are often more constraining for participants who have limited access to other devices

Many participants found that they needed to access additional devices at some point - especially for more complex tasks involving typing, printing or managing multiple sources of information. Those with limited access to other devices, such as the 'smartphone by circumstance' group in our sample, tended to struggle the most with these tasks, which were often high-priority tasks such as searching or applying for a job, or finding housing. These participants found that they had to look for public computer facilities, which then limited where and when they were able to complete certain tasks. This was especially significant for those without broadband at home, who found an array of work-around solutions for accessing Wi-Fi, such as making use of public Wi-Fi services and borrowing neighbours' networks. Where smartphones alone were found to be too limiting to make the task possible, participants used face-to-face services instead.

The benefits and ease of apps as a means to go online is offset by the difficulty of comparing products or services across providers

Participants across all groups found apps easy to use and had positive experiences when using them to access digital information. Participants were using apps for various activities, such as social media (like Instagram) as well as for travel (such as Google Maps), banking, and entertainment (such as Netflix). People felt that apps presented information in a streamlined way that allowed them to access details they needed quickly. Some participants also made regular use of shopping apps (such as eBay and Amazon) in order to save money.

However, some participants struggled to compare information, products or services across providers when using apps, due to the limited amount of information shown on a single page. This was often compounded by the small screen on their device. For many, this meant they were less likely to engage with information – such as news, recipes and weather – or products or services from a range of sources; instead they used the provider whose app they had downloaded. This limitation meant that people were less able to compare prices when shopping, thereby constraining their powers to make informed decisions about what to buy.

Some participants are struggling to develop computing skills such as typing and file management

With limited access to other devices, many participants appeared to be struggling to develop key computing skills which they might have learnt if they had greater access to other devices - such as desktop and laptop computers. Participants commonly reported difficulties with typing, troubleshooting and file management. This was especially true for the 'vulnerable circumstances' group in our sample, who had always had limited access to other devices, and had therefore not been able to develop these skills before they became heavily reliant on a smartphone.

This could pose serious challenges for those who were job hunting, as these key digital skills are required, both to search for jobs and in the working environment. It also raises the concern that a heavy reliance on a smartphone can lead to a degree of de-skilling, as people are not developing core digital skills.

Difficulties in completing complex tasks on smartphones often lead to delays and loss of productivity

Limited access to alternative devices can be seen to pose problems for those attempting to complete complex tasks such as finding work or moving house. This was particularly challenging for participants in our 'smartphone by circumstance' category, who were more

likely to be attempting these types of activity. Benchmarks for what was considered 'difficult' to complete on the smartphone varied among the participants, but often related to the screen size, and the amount and type of information they were trying to understand and use.

As a work-around, some participants would save up tasks until they could access a more appropriate device. This could sometimes lead to delays, and even missed opportunities; for example missing a deadline for applying for a job. These delays may be increased by rules and restrictions around access to public devices. For example, participants using computer hubs in the library faced limitations both on the length of time they were allowed to access a device for, and the library opening hours. Some participants were also reluctant to use 'informal' smartphones to conduct business with 'formal professionals' and preferred to wait and access another device, either a public facility, or borrowed from family or friends. Together, these delays appeared to create setbacks and decrease the productivity of participants.

Concerns about data use means participants rush some tasks

Participants in all groups were frequently concerned about running out of data, regardless of their actual data allowance. Some participants experienced a lack of data, in particular those who had smaller data packages and no home broadband. In these situations, participants were heavily reliant on access to Wi-Fi sources, either borrowed from family and friends, or public services. This was more often the case for 'smartphone by circumstance' and 'vulnerable circumstances' groups than for the 'smartphone by choice' group.

Across all three groups, however, there was a general lack of understanding about how to monitor data use. Only a small minority were aware of provider or handset-provided information. As a result of this uncertainty and worry, many participants were seen to rush tasks (especially those included as part of the fieldwork). They valued being able to complete them quickly - so as to use the least amount of data - over and above everything else. This meant that some participants exhibited self-limiting behaviours, abandoning tasks that seemed difficult or complex, or relying on face-to-face public services, in order to conserve data.

While most participants find it easy to search for information online using their smartphone, many struggle to store this information

Many participants regularly used their smartphones to search for information on Google or Bing (or other search providers). Some participants had started to use the voice search functionality built into their device, such as Siri and 'OK Google'. As a result, many participants relied on the top search results, and the small screen meant they rarely scrolled through information.

Many valued the speed and mobility of the device, which enabled them to search while on the move. This meant that there were many occasions when they were able to complete small tasks more efficiently – such as finding a specific piece of information to help their overall goal or project.

However, most participants found it difficult to conserve information trails, and struggled to find a way to save the details and answers they had found. They tended instead to rely on work-around solutions such as emailing information to themselves or taking screen shots. Furthermore, many found it difficult to create, edit or store documents on office application software (e.g. MS Office) on their smartphone. Those facing challenges with these tasks tended to turn to other devices wherever possible.

Participants have a wide range of security behaviours, suggesting a mixed understanding of security messages

Participants reported a range of myths and concerns about security, demonstrating a lack of clarity in understanding online risks. The biggest concerns for participants were privacy and information security; participants across all groups were concerned about their phones being hacked. In order to mitigate these risks, participants had a range of tactics that included deleting apps that they weren't using so that no one could hack them, and avoiding using mobile banking applications.

However, few participants were aware of the potential risks of sharing data on public Wi-Fi networks. Many of the 'smartphone by circumstance' and 'vulnerable circumstances' participants were reliant on public Wi-Fi due to a lack of home broadband, but did not voice concerns over the potential hacking and data privacy risks associated with this.

Section 2

Introduction and background

2.1 Background to the research

Adults are increasingly likely to access the internet through a device other than a computer. Ofcom figures³ show that use of computers for online access has decreased by ten percentage points - from 81% to 71% - since 2014. Meanwhile, use of other devices is increasing.

Sixteen per cent of adults now rely on alternative devices for internet access, almost three times as many as in the previous year (6%). Although this pattern is seen across all ages, genders and socio-economic groups, it is particularly notable among young people, newer users and those in DE households - where as many as one in four people rely on a device other than a computer for online access.

The smartphone is a key component in this evolving digital landscape. Given that 70% of adults now use a smartphone, reliance on this device will have a big impact on the ways in which people are going online, and how they navigate the online world.

Research objectives

The overarching objective of this project was to develop a clearer understanding of the needs, experiences and characteristics of people who predominantly access the internet through their smartphone, and to understand what this means in relation to their media literacy. The specific research objectives were to:

- a) understand the practicalities of internet access as experienced by 'smartphone by default' internet users, exploring the detail and breadth of online activities;
- b) build a structured understanding of the full range of factors which may lead to 'smartphone by default' internet access;
- c) explore users' online behaviour, and the implications of this on current needs, past experiences and future goals; and
- d) identify the ways in which users' online skillsets – including their ability to self-reflect and try to improve their skills as deemed necessary – are affected by reliance on a smartphone.

³ Ofcom, 2016: *Adults' Media Use and Attitudes Report*, available at www.ofcom.org.uk/medialiteracyresearch

2.2 Methodology

Sampling and recruitment

The sample for this project was designed to include a range of different social groups. A purposive sampling technique was used to ensure that both a broad range of locations and economic circumstances were covered.

A key consideration for participant sampling and recruitment was how reliant someone would need to be on their smartphone in order to qualify as 'smartphone by default'. Throughout the project, the team were keen to capture the experiences of individuals who were 'smartphone only', with no access to other devices at all. However, people with no access to any other devices proved hard to find – most had access to other devices through friends and family or through public computer terminals. When probed over the course of an interview, many who had originally self-identified as 'smartphone only' turned out in fact to have access to other devices.

We encountered two main types of 'smartphone by default' internet users:

- a) Those who were smartphone by default through choice, having decided that a smartphone was the best device for their needs and circumstances.
- b) Those forced to rely on their smartphone as a result of circumstances, often due to financial difficulties limiting their ability to purchase other devices or home broadband.

The sample was further divided by demographic characteristics, to explore trends across social groups. More specifically:

- a) Different age groups – in particular older and younger participants
- b) Different socio-economic groups – to unpick the different activities and goals of those with a lower and higher income
- c) Self-employed – those running micro-businesses with four employees or fewer.

In addition to this, the research was designed to cover a broad geographical spread⁴.

Further details can be found in the sample specification and screener attached in Annex 1.

Fieldwork

Ethnographic depth interviews

The research team conducted 26 ethnographic depth interviews⁵ with participants in Leeds, Cardiff, Belfast and Glasgow. These interviews lasted around two hours and focused on the participant's experience as a 'smartphone by default' internet user, probing topics such as ability to access other devices, digital skills and media literacy. The discussion guide can be

⁴ We were particularly interested to explore Glasgow as Ofcom statistics suggest broadband take up in the city is notably low, with penetration at 39% - compared to the UK average 57%. (<http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmnr08/scotland/>)

⁵ All participant names have been changed to protect confidentiality.

found in Annex 2 and provides a detailed description of which topics were covered and how the interviews were structured.

Desk research and expert interviews

The research team also conducted a review of existing literature on: the prevalence of smartphones as devices used for internet access; digital exclusion and the challenges faced by the digitally excluded population; and how websites and apps are designed and optimised for mobile use. (A full list of sources of can be found in Annex 3.)

In addition to this, the research team interviewed seven experts with a broad range of relevant knowledge:

- a) Digital Inclusion research manager at Age UK
- b) Professor from the Oxford Internet Institute
- c) Professor at the Open University whose PhD thesis focused on smartphone reliance and digital exclusion
- d) Policy and Research Manager at Go On UK (now doteveryone)
- e) UX design and mobile strategy consultant
- f) Two digital inclusion officers in Glasgow

Section 3

Access and ownership

We investigate the diverse reasons why participants became 'smartphone by default', before exploring the main differences between their goals and behaviours.

3.1 Patterns of behaviour: exploring the factors that lead to 'smartphone by default' internet use

We interviewed people from a diverse array of backgrounds, as we were interested to explore the diverse routes into 'smartphone by default' internet use; how this broad range of people had all started to rely increasingly on their smartphones over other devices.

In order to aid analysis, we classified participants into two main groups according to their reasons for becoming 'smartphone by default' internet users: 'smartphone by choice' and 'smartphone by circumstance'. We found it helpful to identify two further sub-categories of participants: those in 'vulnerable circumstances' who were 'smartphone by circumstance' as a result of difficult living conditions; and 'microbusiness owners', who could be in either group, but tended to be 'smartphone by choice' due to device portability and ease of use.

- a) 'Smartphone by choice': participants who had selected a smartphone as the most appropriate device for their digital needs, despite potentially easy access to other devices.
 - i) 'Microbusiness owners': participants who were running small-scale businesses which they could do through relying on their smartphones
- b) 'Smartphone by circumstance': participants who were using their smartphones because their situations (often financial) meant they were unable to access other devices.
 - i) 'Vulnerable circumstances': participants who were 'smartphone by default' because of their unstable and difficult situations (such as homelessness or refugee status)

Although broad, these categories are useful in summarising different levels of access to resources and digital inclusion.

3.2 'Smartphone by choice' participants

For the participants who were 'smartphone by choice', access to other devices enabled them to use their smartphones flexibly.

People in this group were likely to be in work, be financially settled and have secure housing. The vast majority of participants in this group had strong personal networks with stable relationships, and some had children.

The defining factor of this group is that they were the most likely to have made an active decision to use their smartphone, over and above other devices (hence 'smartphone by choice'). While participants across all three groupings placed value on having the 'newest' handset, participants in this category were able to regularly renew their mobile phone contract, and so considered new phones fairly easy to access.

“I mean of course, I am one of those people that just likes to have the newest phone that’s out. I don’t know why. I just want to have the new one.”

Sean⁶, 41, smartphone by choice, Belfast, iPhone 6

Some participants had other devices at home that were used by family members, and a large proportion were able to connect their phone to a home broadband network using Wi-Fi. Most of these participants were also able to access computers at work. However, use of these computers for personal tasks could be tightly controlled and many were only able, or permitted, to complete work-based tasks on them. Most people in this category articulated a preference for their smartphone based on the fact that it met most of their needs:

“I used to have a laptop but it just sat in the corner gathering dust. I can do everything I need on my smartphone.”

Anne, 60, smartphone by choice, Cardiff, Samsung S5

At 60, Anne is an older participant who has adopted and increased her use of her smartphone incrementally as her contract has evolved to offer her newer devices. She was surprised to find out how much she had grown to depend on her smartphone, which ended up replacing her laptop completely. Her experience was not unique - others we spoke to had old devices (in particular laptops and desktops) that had been used more frequently in the past, but were now abandoned in favour of their smartphones.

For this group, the flexibility and immediacy of a smartphone made it the device of choice - offering a portal into the digital world that they could carry with them and use whenever they wanted. These participants frequently used their smartphones for a range of tasks, including personal communication, consuming media and carrying out administrative/day-to-day tasks such as banking and shopping.

“We like not having loads of devices at home – we spend so much time out and about that I don’t think we need them. The only thing we were missing was using Netflix, but we just got Chromecast so now we can do it from our phones onto the telly – so we really can do everything now!”

Hannah, 33, smartphone by choice, Leeds, iPhone 5

“The girls at work always ask me to look things up for them because I’m always on my phone”

Shelley, 42, smartphone by choice, Leeds, iPhone 5

Participants in this category reported an increasing use of smartphone apps to help them complete tasks more quickly (e.g. travel planning, ticket booking etc.). Significantly, they reported high expectations of app functionality, often intentionally limiting their use of apps to those they knew would satisfy their needs.

“I mainly use apps for most things. Some of them are really good. I only tend to use the good ones – I don’t really look elsewhere. I couldn’t be bothered to shop around if I already have an app that works for me”

⁶ All participants’ names have been changed to protect confidentiality

Hannah, smartphone by choice, Leeds, iPhone5

Microbusiness owners

Microbusiness owners relied heavily on smartphones to conduct their businesses, although most needed to use another device at least occasionally.

The 'microbusiness owners' managed companies in a range of sectors and types of business. All of them employed four people or fewer in their main operation. They included a small local taxi firm, an online jewellery store run through Etsy, an events management and DJ company, and a bookseller. All of the participants were heavily reliant on their smartphone to run and manage their businesses.

Often due to the size and scale, the company owner was heavily involved in the daily activities of the business as much as in managing the operations and administration. The need to travel, coupled with the small scale of the business, meant that many were driven towards using a smartphone to run their business. Many placed high value on the flexibility and mobility their smartphone allowed, enabling them to be in constant contact with other people (staff and customers) while on the move.

"In my work, I need to be in four places at once all the time. My smartphone allows me to do that. I couldn't do it without having this in my pocket."

Carl, 34, microbusiness owner (events manager and DJ), Belfast, Samsung S5

"I check my expenses on my phone more than once a day, just to make sure I know my incomings and outgoings. It's so important. It's a lifeline for me."

Simon, 45, microbusiness owner (bookseller), Cardiff, Samsung Galaxy S6

This also enabled them to balance the responsibilities of running their business with other competing demands. Hannah (age 33, Leeds) runs a lifestyle business. Her smartphone enables her to keep in touch with her Etsy store, alongside holding down full-time work and spending time with her partner and family.

Despite the importance of smartphones for managing the business on a daily basis, almost all of the participants, at some point, felt they needed to access another device, most notably a laptop or desktop computer. This was particularly the case for complex tasks associated with business growth, such as handling finances and their accountant, often requiring them to use MS Excel to share information.

"It's impossible to talk to my accountant and deal with all the spreadsheets without going onto a laptop computer. It just needs the slightly bigger screen to properly deal with the numbers on the spreadsheet and send something over to him."

Carl, 34, microbusiness owner (events manager and DJ), Belfast, Samsung S5

One of our participants had found an innovative way of overcoming the challenges of dealing with her accountant. Katherine, aged 61, ran a small local taxi firm with her husband, both of whom wrote their income and outgoings in an accounts book on a daily basis. On Friday evenings, Katherine would phone her son to talk through the figures, while he input them into a spreadsheet on their behalf. He would email this to Katherine who then printed the document on her home printer (connected to her smartphone) before posting it to their accountant.

“My phone is perfect for us. I don’t think we need anything else. The only benefit I could see from having a laptop would be so that my son doesn’t have to spend his Fridays doing it for me.”

Katherine, 61, microbusiness owner (taxi firm), Glasgow, iPhone 5

Carl, aged 34, from Belfast, was also using his laptop as part of his DJing, while relying on his smartphone for all the business operations and management. He didn’t feel able to perform without his laptop, due to his need to store large volumes of music data. He had a hard drive with a terabyte of storage, where he had the DJ software installed, as well as the music itself, as his smartphone didn’t have the capacity for this.

“There’s no reason why in the future, if they can make the smartphone software able to handle the hard drive and its size, I couldn’t DJ from my smartphone. That could totally work!”

Carl, 34, microbusiness owner, Belfast, Samsung Galaxy S5

3.3 ‘Smartphone by circumstance’ participants

Participants who were ‘smartphone by circumstance’ often struggled to access other devices, and as such, depended heavily on their smartphones as a means to access online resources and services. Many were frustrated by constraints resulting from limited data or a lack of home broadband.

The people in this group were likely to have an unstable living situation and/or other factors which created uncertainty in their lives. They were more likely to lack financial stability – being either unemployed or in low-paid or intermittent employment (e.g. zero-hour contracts). Many in this group were wary of taking on too many financial commitments and some had experienced problem debt. They were more likely to be living in private rented accommodation or social housing, and some were ‘sofa-surfing’ as they didn’t have stable housing of their own. Although many had a stable social network and some stable family relationships, these individuals were more likely to mention difficult relationships that were a source of stress or difficulty.

“I’m not really in touch with my family since I was homeless. Just one of my brothers texts me from time to time.”

Zahra, 21, smartphone by circumstance, Cardiff, iPhone 5

In contrast to the ‘smartphone by choice’ participants, almost all of the ‘smartphone by circumstance’ participants were ‘smartphone by default’ because they couldn’t afford, or weren’t able to access, other devices (i.e. they didn’t own laptops or home computers). Most appreciated the fact that they could afford a smartphone and had some kind of internet access, despite their situation.

Few had broadband internet at home, leading to frequent concerns about data limits (discussed more in detail below) which were often around 1GB or 2GB; and some had developed their own strategies for 'sharing' or 'borrowing' internet connections in their local neighbourhood.

"I worry about data so I turn my phone off whenever I'm not using it. I asked to use my neighbour's Wi-Fi instead, but they said no."

Chester, 50, smartphone by circumstance, Leeds, Samsung Galaxy S4

For many, the lack of broadband (and sometimes more flexible devices like laptops) was a source of frustration. Larger data packages were almost universally felt to offer greater online freedom, as participants were able to spend longer online, and were better able to stream video. Some participants explained how, if they had the money, they would appreciate the convenience and speed of being able to access the internet in a more flexible way.

"For me, with money at the moment, because I've just got back to work, I can't commit to the broadband direct debits and stuff. Home broadband is a luxury."

Becca, 36, smartphone by circumstance, Glasgow, iPhone 5

For some participants in this group, the need to complete complex digital tasks was not, or did not feel, pressing. These people felt that their smartphones met all of their internet needs and they didn't need to look any further. For example, Zahra, aged 20, had been in and out of homeless shelters for a few years but had recently settled into a council home in Cardiff. When she was homeless her smartphone had been a vital tool for directions, making phone calls and staying in touch with friends and family through Facebook. Since moving into her new home she didn't feel that she needed another device for going online – in her opinion, her phone suited her needs perfectly.

'Vulnerable circumstances' participants

Smartphones were hugely significant for participants in vulnerable circumstances, giving them access to the internet and a way of staying in touch with family and friends. Many, however, still relied heavily on face-to-face (rather than digital) services.

The research included a minority of participants in 'vulnerable circumstances', in order to understand the issues faced by those in unstable living arrangements, or with limited resources. Participants who fell into this category were often facing challenging situations, such as homelessness, long-term unemployment, or were seeking asylum. The majority were relying on the state for support, and had no alternative sources of income. Their housing situation was often precarious too, meaning they led a nomadic lifestyle and struggled to put down roots.

People in this category were generally the most digitally excluded individuals within the sample. Smartphones were generally perceived to be their only option for regular access to the internet, and a hugely important means to stay in contact with friends and family. None of the 'vulnerable circumstances' participants had access to broadband at their place of residence, and few could afford to purchase larger, more expensive devices.

Some participants in this category were unable to (or chose not to commit to) long-term contracts, generally due to their financial circumstances (e.g. poor credit history, lack of address status, fluctuating or low income). Many said that they would struggle to get any kind of contract, due to a lack of credit history or a poor credit track record, and problems proving their address. These people tended to have monthly SIM-only deals and pay-as-you-go (PAYG). They were therefore less able to afford newer handsets - instead making do with previous phones, recycling or buying them second-hand.

"I just bought this phone off eBay for about 70 quid. I can just put any SIM card in it so it works for me"

Gary, 44, smartphone by circumstance, Belfast, Microsoft Lumia 640

Across the sample, people had a good understanding of their own contract type, although they often had a limited sense of whether or not it provided value for money. This was especially significant for those on the lowest incomes. These people were often paying a fairly large proportion of their income to ensure that they had access to a smartphone.

For example, Polly, a new migrant from Cameroon, specifically chose her phone for the larger data package, despite the fact that there were cheaper options available. This was because her primary need was for a phone with online access, as a means to stay in touch with friends and family - both in the UK and back home. Participants like Polly frequently used online communication services, such as social media sites including Facebook Messenger, WhatsApp, Skype and Viber, to stay in contact with family and friends. Polly also regularly needed to interact with UK services as she didn't understand many aspects of the UK support system (such as housing, health and education), and used her phone to stay in touch with service providers. Polly was not aware how she might use her phone, beyond simple internet searches and speaking to her friends and family.

"It was one of the first things I bought when I came to England – I needed a phone to talk to my family back home."

Polly, 39, vulnerable circumstances (new migrant from Cameroon), Leeds, Samsung S5

Like other participants in this group, Polly continued to be heavily reliant on face-to-face and telephone services, where she could speak to a professional who would help her to complete tasks or resolve problems.

"One time I was struggling to pay my council tax bill – I didn't understand how to do it online. When I went into the council someone in the office helped me to do it."

Polly, 39, vulnerable circumstances, Leeds, Samsung Galaxy S5

Polly was especially reliant on face-to-face help, given her limited English skills and lack of familiarity with the range of types of support she could access. However, she was not alone in choosing this over online interaction. There was a sense that vulnerable participants were generally more likely to go and talk to someone face to face. They explained how this felt more immediate, in comparison to remote online services, making them feel better able to deal with the often pressing problems they were facing.

“If I need it, I’ll just go down to the housing office and talk to them about options. I need to speak to someone face to face, I think.”

Carly, 41, vulnerable circumstances (currently homeless and living in a hostel), Glasgow, Samsung Galaxy S4 Mini

3.4 Distinct goals and behaviours

Understanding digital goals

Each group of participants had slightly different motivations for going online, and a range of variable digital behaviour.

Across the whole sample, smartphones were seen as predominantly social devices. All participants used them heavily to contact friends and family, either through SMS and phone calls, internet platforms such as WhatsApp, Skype and Viber, or through social media (e.g. Facebook Messenger, Instagram and Snapchat). This was particularly true for the ‘vulnerable circumstances’ participants, who used their smartphones for this goal almost exclusively. Alongside communication, some participants were also using their smartphones for entertainment (such as YouTube, dependent on data allowances), occasionally searching for simple information, reading the news and taking some photographs.

“I’ve been in hostels so I haven’t talked to my son in ages. The good thing is that I asked him to be my friend on Facebook and he said yes. We can now stay in touch on there.”

Carly, 41, vulnerable circumstances (homeless), Glasgow, Samsung Galaxy S4 Mini

“My phone helps me stay in touch with my family in Cameroon. I speak to them on Skype every day, which really helps.”

Polly, 50, vulnerable circumstances, Cardiff, Samsung Galaxy S5

In comparison, the ‘smartphone by choice’ participants were predominantly using their smartphones for leisure pursuits and activities, and occasionally more complex tasks such as house purchases and sales. They used their smartphones to access news and current affairs (including podcasts and articles), to manage their finances and bank accounts, and for entertainment (including videos and music, photography, and fitness and health tracking). A small number of participants also used their smartphones to stay in touch with their work life, reading and responding to emails outside work hours.

“I’m always online browsing and shopping on my phone. At the moment I’m doing my living room up so I’ve got loads of tabs open of the ones I want!”

Roisin, 40, smartphone by choice, Belfast, iPhone 5

“I run the Etsy page on my phone, which is great. And also some interest pages on Facebook about dog diets, where we can post what we learn about it. It’s a great community!”

Hannah, 33, smartphone by choice, Leeds, iPhone 5

The ‘smartphone by circumstance’ participants were the group most likely to engage with Government websites (e.g. benefits and housing applications, job seeking), and were likely to use their smartphones to do these tasks. In addition, many were using their smartphones to manage their finances, explore news and current affairs, and to take and share photographs.

“I’m not working at the moment so I’ve been getting into watching YouTube videos of Photoshop on my phone. It’s a good way to stay on top of what’s new for when I hopefully get a job.”

Phil, 50, smartphone by circumstance, Belfast, Samsung Galaxy S2

3.5 Device access and understanding

The impact of device access

‘Smartphone by choice’ participants tended to have better access to alternative devices, so they were less reliant on public computing facilities and were better able to maintain control when managing their affairs.

Almost all participants experienced moments when they felt unable to complete a necessary task on their smartphone and needed access to another device – most often a computer or laptop with a bigger screen, keyboard and mouse.

“Sometimes on the weekend I’ll go to my mum’s house for a few hours to use her laptop and Wi-Fi. It’s just when I really need to do bits and pieces that I can’t do on my phone.”

Ellie, 21, smartphone by circumstance, Cardiff, iPhone 5

The majority of the ‘smartphone by choice’ participants had relatively easy access to other devices. In comparison, those who were ‘smartphone by circumstance’ - especially those in vulnerable circumstances - found it more difficult to access these alternatives. Only a minority used desktop computers at work or had access to another device in the home. Most were, therefore, likely to have to seek out public devices, or those owned by friends and family. For example, Charlie, aged 18, would travel 90 minutes each way to her girlfriend’s family home to use her friend’s laptop for job applications. Gary (aged 44, Belfast) sometimes went to the library to use the computer there to do research for the herbal medicine course he had recently started.

Those who couldn’t afford to buy other devices often faced barriers when accessing publicly-provided ones, including prohibitive mental health issues (e.g. anxiety, agoraphobia etc.), the cost of travel, and the stigma associated with public computer terminals. For example, Polly did not want to ask library staff to help her decipher the information on health-related websites, including NHS Choices, when she had a health scare, because she was embarrassed about her own lack of knowledge.

“I feel like I should know some of these things. I don’t want to have to ask for help to just understand the information. It’s quite embarrassing.”

Polly, 50, vulnerable circumstances, Cardiff, Samsung S5

Chester also felt uncomfortable about the prospect of dealing with his finances in the public library.

“You don’t like doing everything in public, do you? Some things are personal, and I’m a private person really”

Chester, 50, smartphone by circumstance, Leeds, Samsung S4

Office application software (e.g. MS Office) documents were particularly problematic: some participants felt that trying to create them on a smartphone was almost impossible. This was especially difficult for participants who needed to interact with ‘officials’, such as when they were looking for a job or trying to make complaints, or exercise their rights.

“I haven’t got Word on my phone; it’s just too hard to use and takes up quite a lot of storage. That’s why I went to the library to type up my CV”

Shelly, 42, smartphone by choice, Leeds, iPhone 5

‘Smartphone by choice’ participants with some access to a work computer faced challenges in importing, printing and saving documents from different machines. They often devised workaround solutions such as emailing documents to themselves or using cloud storage. However, for the ‘smartphone by circumstance’ participants, the problems extended to a lack of familiarity with word processing software in general – some participants experienced difficulties with typing, basic software functionality and formatting. These problems were often compounded by rules and restrictions around access times and usage levels for public computers. The difficulty in gaining access to a public computer terminal, combined with personal struggles to use desktops, often meant that people put off these kinds of tasks - even if the delays were causing them additional problems.

Beth (25, from Cardiff) had recently secured a part-time job, following an extensive search. During this time, in order to write applications and amend her CV she felt that she needed to use a computer with a keyboard and mouse. The larger screen size and input tools made her feel more in control of her applications. She would regularly travel by bus to her local library, about 20 minutes away, and book a slot to use the computers. These computers were only bookable for an hour at a time, meaning that Beth had to leave the library for some time before booking a further slot later in the day. Beth felt increasingly frustrated at the amount of time it took to make these applications, and didn’t feel inspired to keep returning.

“If I was being honest, it was hard to stay motivated to keep going back when it all takes such a long time. I definitely didn’t go as often as I could have.”

Beth, 25, smartphone by circumstance, Cardiff, Samsung Galaxy S5

Device understanding

Participants with previous experience of other devices tended to be more critical of their smartphone as a means of going online.

Participants with greater experience of other devices (most often desktops and laptop computers) were most able to articulate the strengths and weaknesses of these, compared to other devices. In general, they were better able to perceive both the benefits and limitations of a smartphone in completing specific tasks.

“The smartphone is like a universal tool in my pocket. It doesn’t do everything, but it helps me to do an awful lot!”

Carl, 34, microbusiness, Belfast, Samsung S5

In comparison, participants with less general experience of technology were less attuned to the flexibility of the smartphone, as a tool to complete various activities, and few had explored how the device worked, to any great degree. There was a lot that most participants didn’t know about the functionality of their phones.

Some participants (including those worried about their data consumption) were unclear whether their phone had 3G or 4G, how to connect it to Wi-Fi, and how to know whether it was connected to Wi-Fi. Carly (41, vulnerable circumstances, Glasgow) relied on staff at the hostel to connect the phone to the Wi-Fi for her.

“I don’t really know whether it has 3G or 4G. What is that? Where would it tell me on the phone?”

Gary, 44, smartphone by circumstance, Belfast, Microsoft Lumia 640

Other participants, across all groups, were unsure about how particular parts of their phone worked. For example, Charlie (aged 18, Glasgow) struggled to find out how much storage was available on her smartphone. Anne (aged 50, Cardiff) couldn’t work out how to uninstall an app, and was planning to speak to her friend Helen about it. In addition to this, numerous participants were unaware of how to use or access their cloud storage.

“It says I’ve got cloud storage here, but I don’t really know where that links to or what I’ve got in there. I have no idea how to access it.”

Jennifer, 33, smartphone by choice, Glasgow, iPhone 4

3.6 Understanding contracts

Participants tended to be clear about their contract prices, terms and conditions, but perceptions of a ‘good deal’ were more complicated and nuanced

There were some distinct trends in broadband access, data packages and contracts, across these groups, which are detailed in the table below.

	BROADBAND ACCESS	DATA PACKAGES / CONTRACTS
Smartphone by choice	<ul style="list-style-type: none"> Almost all had broadband at home 	<ul style="list-style-type: none"> Almost all had one-to-two-year contracts that they paid by direct debit

		<ul style="list-style-type: none"> Data packages ranged between 2GB – 20GB
Smartphone by circumstance	<ul style="list-style-type: none"> A minority had home broadband: predominantly those in ‘smartphone by choice’ Some were using mobile broadband devices (dongles) offered by phone providers 	<ul style="list-style-type: none"> A minority had one-to-two-year contracts Most had flexible monthly SIM-only plans that enabled them to change how much they paid each month Data allowances tended to be between 1GB – 2GB
Vulnerable circumstances	<ul style="list-style-type: none"> Few had broadband access in their place of residence All relied on public Wi-Fi 	<ul style="list-style-type: none"> These participants most often had PAYG contracts Some had flexible monthly SIM-only plans Relied on limited data, up to 1GB
Microbusiness owners	<ul style="list-style-type: none"> Almost all had broadband at home, but also made heavy use of Wi-Fi hotspots and roaming 	<ul style="list-style-type: none"> Tended to have one-to-two-year monthly contracts Data allowances tended to be between 5GB and 10GB.

Across the sample, participants appreciated the range of contract options, which meant that some could choose an option suitable for their financial situation. Flexible monthly contracts, such as those offered by giffgaff, were popular among ‘smartphone by circumstance’ and ‘vulnerable circumstances’ participants whose income was low or variable. These contracts enabled them to change their data or minute allowance each month, depending on what they felt they needed or could afford. Gary (44, Belfast), Charlie (18, Glasgow) and Jess (21, Cardiff) all had giffgaff contracts, either currently or previously.

However, for participants across all three groups, there was quite a lot of confusion about what is ‘a good deal’ in terms of payment for smartphones, minutes and data. Many participants struggled to know how much data they might use or need on a monthly basis – often relying on guesswork. Participants also felt unclear about how much different aspects of the contract should reasonably cost. Many were confused about the relative cost of the handset, insurance and talk/data packages in the monthly contract cost of a smartphone. Sometimes they were further confused by the presence of other offers – such as subscriptions to other sites (e.g. music or TV subscription sites).

“I really want a monthly contract. I think about £50 a month is a good amount.”

Carly, 41, vulnerable circumstances (homeless), Glasgow, Samsung S4 Mini

The participants therefore developed personal measures based on what type of contract appealed to them. These measures often varied by group. For those who were ‘smartphone by choice’, many were keen to have access to the newest handset models, have relatively large data allowances, sufficient storage and reasonable monthly repayments. ‘Smartphone by circumstance’ participants, however, were more attracted to contract flexibility, coupled with reasonable monthly repayments. Having sufficient data allowances and access to the newest handsets were secondary factors. Contract flexibility was also the most appealing factor for ‘vulnerable circumstances’ participants.

“I really want to get a giffgaff contract. It seems like the best option. Lots of people have told me about it and how good it is to change how much you pay each month. So if I can't afford it one month, I can cut right back.”

Gary, 44, smartphone by circumstance, Belfast, Microsoft Lumia 640

Data allowances and shortages

Many participants thought of data as a limited resource, which needed to be preserved. Whether real or perceived, this was an especially significant concern for lower-income participants - many of whom devised complex systems for managing this, sometimes shortening time spent on complex tasks or abandoning them altogether.

Many vulnerable, and 'smartphone by circumstance' participants were worried about the risk of having to pay a fee for going over their data allowances. Most participants in these categories did not have home broadband, and were therefore extremely concerned about running out of data. They would often make use of public Wi-Fi hotspots in order to get online. Sometimes this involved devising complex workaround solutions in order to complete tasks they could otherwise have done quickly. For example, Chester, 50, was wary about using all of his mobile data while searching for a job. He would spend a short period of time on his phone in the evenings, going through the day's updates and taking screenshots of job advertisements he felt were appropriate and interesting. He would then visit his local library or café with public Wi-Fi once every week or two, in order to make multiple applications during a single sitting.

Despite a general concern for managing data, few participants had developed strategies for checking and monitoring data use. Few knew how much data they actually used, despite having significant concerns about going over their limit. Few knew how to access information on their data usage on their phones or providers' websites during the course of the month.

“I have no idea how you check how much internet you have left. To be on the safe side I just make sure my 3G is always switched off and then connect to Wi-Fi in coffee shops where I know the password.”

Gerry, 42, vulnerable circumstances, Belfast, iPhone 5

A number of participants had had to pay additional charges for going over their data limit. Some participants, like Gerry (42, Belfast), had been surprised the first time they were hit by a fee, and had since then focused on limiting their data use in order to prevent this from happening again. Other participants continued to face additional charges on their phone, some without knowing why. Simon (44, Cardiff) had received additional charges on his account for the past nine months, which regularly caused his bill to creep close to £100 a month (his budget was £40). He wasn't sure what the cause of these charges was, repeatedly scanning through his monthly bill to try and find out. He has since stopped doing this and continues to pay the extra charges without understanding why.

As a result of this confusion, some participants were guessing and self-limiting their online behaviour in an effort to reduce the risk of going over their allowance. Worries about the limitations imposed by data restrictions meant they also placed value on completing tasks quickly, and using the least amount of data. For example, Gerry in Belfast had become obsessive about his data use, in case he was charged extra fees. This was because he once used up all his data trying to check his credit rating online - a task which took him a few hours.

This need for efficiency meant that some participants tended to abandon tasks and activities that became too difficult to complete on their smartphone – either as a consequence of the device, the website or their own skills. They were then often pushed towards telephone and face-to-face services at a later date to complete these tasks, if they didn't abandon them completely. During the fieldwork, researchers set a task for Gary (44, from Belfast) to find out about volunteering at his local Citizen's Advice Bureau in Northern Ireland. After approximately three minutes of scrolling through numerous pages on the CAB website trying to find the relevant information, he decided that the information didn't exist. When researchers pushed him to resolve the issue, he searched on Google for the phone number of his local branch, which he said he would choose to call instead.

“The information's just too difficult to find. I've scrolled through too much rubbish and it's using too much of my data. I'd just call them.”

Gary, 44, smartphone by circumstance, Belfast, Microsoft Lumia 640

Section 4

Digital behaviour: completing online tasks on a smartphone

In order to better understand the behaviours, skills and challenges of ‘smartphone by default’ internet users, we now discuss our findings with reference to the following key skills and needs, drawn from Go On UK’s basic digital skills framework⁷:

- a) Communication
- b) Transactions
- c) Creation
- d) Managing information
- e) Problem solving
- f) Interaction with government websites (addition)

4.1 Communication

Smartphones were used as communication tools widely across the sample, but were associated with informal rather than formal interactions. This posed problems for lower-income participants who often struggled to find other ways of communicating formally.

As mentioned previously, communication with others was, almost universally, the primary use of smartphones among our sample. Participants frequently chose to interact with others using email, instant messaging, social media and video calls. Their smartphones were generally seen primarily as a social tool; few had landlines or other forms of communication. Many expressed a preference for interacting via social media or internet-based communication apps like WhatsApp and Facebook Messenger.

For example, Jennifer, 33, from Glasgow, used Facebook and WhatsApp every day on her smartphone and admitted it was her main activity. She was a member of a few Facebook and WhatsApp groups, with other mums from the nursery and school her children attended, as well as her pre-natal group. These groups were a really important part of her life and she found it increasingly valuable to be part of them. She thought both Facebook and WhatsApp were well designed for group conversations and found them really easy to use.

“I use WhatsApp every day to talk to my techy friend Helen.”

Anne, 60, smartphone by choice, Cardiff, Samsung S5

“I mainly use my phone for Instagram. It’s probably awful how much I look at it during the day!”

Jess, 21, vulnerable circumstances, Cardiff, iPhone 5

⁷ Go On UK (2015) Basic Digital Skills Framework, Available for viewing here: www.go-on.co.uk/get-involved/basic-digital-skills/

“When my phone’s broken I feel cut off from the world! I can’t cope without Instagram. I’ve been so quiet. My last Instagram was four weeks ago - I feel socially cut off!”

Charlie, 18, smartphone by circumstance, Glasgow, girlfriend’s Samsung S4

Across the sample, participants strongly associated their smartphones with informal exchanges between friends and family, and they felt that their smartphones were well designed for these social interactions. Many participants stated that they felt slightly uncomfortable with the idea of dealing with more complicated or important exchanges using their smartphone, primarily because the culture around smartphone communication meant that formal social etiquette and grammar conventions didn’t apply in the same way. As such, many of our participants (within both the ‘smartphone by choice’ and ‘smartphone by circumstance’ groups) felt that contact with formal services such as Housing Associations, Job Centre advisors or the NHS should only be done in a more formal manner (e.g. using a laptop, where they could type and compose emails with greater control).

For example, Gerry would never answer ‘formal emails’ on his smartphone; instead, he waited to find time to use the library computers.

“If it’s something important like government stuff or replying to formal emails I go to the library – I like to see them on a proper screen.”

Gerry, 42, smartphone by circumstance, Belfast, iPhone S5

Where participants didn’t have access to other devices, this could result in them putting off dealing with more formal interactions. Sometimes the more important the task, the less comfortable participants were in relying on their smartphone to complete it. This ‘Catch 22’ situation could mean that some individuals built up long to-do lists of formal tasks, which they could then find overwhelming – sometimes to the point where they couldn’t bear to engage with the tasks at all. For instance, Gerry, 42, was reluctant to complete ‘formal applications’ or deal with ‘officials’ such as HMRC or the Job Centre through his smartphone. He was concerned that he wouldn’t be ‘vigilant’ enough in his communications, and so preferred to wait until he had access to a computer at a library or at a friend’s house. Waiting for other devices became a task that Gerry found relatively tiresome and challenging – especially when relying on the goodwill of a friend. It was during this time that the original tasks grew in size and urgency, and became more daunting to complete.

‘Smartphone by choice’

Participants who were ‘smartphone by choice’ tended to use a range of social media and other communication tools, such as WhatsApp and Facebook. For example, Anne (60, smartphone by choice, Cardiff) used WhatsApp every day to stay in touch with her adult children and grandchildren. She also would use it daily to share decorating tips with her best friend. In general, people in this group had greater access to home broadband, which opened up other channels of communication - such as Skype and Viber to stay in touch with family and friends. Of all the participants, people in this group were most comfortable sending work-related and important personal emails through their smartphones.

‘Smartphone by circumstance’

Participants who were ‘smartphone by circumstance’ were also regular users of social media on their smartphones. This group were also likely to rely heavily on their smartphones for accessing professional services, although this was likely to be predominately through phone

calls rather than digital platforms. In some cases, individuals felt uncomfortable making a phone call (and were worried about not having information to hand or 'being caught out' by the person they were interacting with), so they would 'save' up tasks until they had access through a different device or contact channel (e.g. face-to-face). For example, Zahra (20) used her smartphone to look up phone numbers, as she much preferred to talk to people rather than contact them online. Ideally she would then use the phone call to arrange a face-to-face meeting.

'Vulnerable circumstances'

For those in 'vulnerable circumstances', the smartphone was primarily used as a point of social contact. It was an important means of staying in touch with family and friends, from whom they were often separated, either geographically or socially. For example, new migrants at the drop-in centre in Leeds described their phone as a vital lifeline for staying in touch with friends and family back home. Some had two phones to take advantage of cheaper rates when calling overseas. Also, for the very vulnerable in particular, smartphones were an easy and accessible way to keep in contact with people they might otherwise lose touch with, due to their frequent moving. For instance, Carly, 41, felt very protective of keeping the same phone number, as it was the only thing that stayed constant during her life on the streets. All the friends she had made when moving around had that phone number; losing it would mean losing them.

'Microbusiness owners'

Communication was an essential task for individuals running businesses. Microbusinesses frequently used their smartphones for emails, phone calls, SMS and social media in order to interact with customers, providers and other services. These people generally ran businesses alongside managing other responsibilities, so it was essential to have flexibility in their correspondence. The ability to communicate with one another 'on the go' was particularly important, and was something a smartphone enabled them to do effectively. For example, Carl, 34, runs a small events management business, booking acts for holiday venues. He relies on the opinions of other staff on the new acts he sees, and so finds it really useful to be able to call or send them videos of musicians in order to get a second opinion when booking an act.

4.2 Transactions

Both 'smartphone by choice' and 'smartphone by circumstance' participants showed a preference for using apps when conducting online transactions. While these were seen as highly convenient, they could sometimes limit their ability to compare prices from different suppliers.

Mobile banking through apps was common across both the 'smartphone by choice' and 'smartphone by circumstance' groups. Apps designed by high street banks were frequently described by participants as empowering, enabling them to have a greater sense of control over their finances.

"I mean banking, it's so easy. I actually think the app is easier to use than the website. My account information is so nicely laid out."

Roisin, 40, smartphone by choice, Belfast, iPhone 5s

"I always use my banking app. It's so easy and I can just see everything there so quickly."

Becca, 36, smartphone by circumstance, Glasgow, iPhone 5

“I have a bank app too so that I can check my account. They’re great aren’t they?”

Polly, 50, vulnerable circumstances, Cardiff, Samsung S5

A minority of participants (especially those in the ‘smartphone by circumstance’ or ‘vulnerable circumstances’ categories), were more likely to have security concerns about banking apps and were wary about using them.

“I don’t like having anything on my phone which you need to be vigilant about because you can’t trust anyone. I wouldn’t trust that the money in my bank account wouldn’t be stolen if it was always on my phone.”

Phil, 50, smartphone by circumstance, Belfast, Samsung Galaxy S3

Many participants were using their smartphones to browse for products and make purchases. Across the sample, people were booking travel, purchasing tickets and buying and selling products using online marketplaces and retailer websites. The majority of these transactions were completed through apps, rather than through internet browsers, with participants describing the convenience and functionality of the app as an important factor in determining where they shopped. For example, apps that remember personal and payment details, with features such as being able to place items in a shopping basket or to ‘favourite’ items, were clearly preferred by some users. Conversely, if the online shopping experience was not well optimised for mobile, individuals described how they gave up or decided to make their purchase elsewhere.

For instance, while Roisin (40, Belfast) frequently browsed for and purchased products on her iPhone, she also chose to make certain purchases on another device – usually her daughter’s laptop. This was particularly the case for higher-value purchases such as home furniture, electronics or booking travel. Roisin believed it was better to make these purchases on a laptop because she could ‘check all of the details’ and be certain that she had bought the correct product and entered the correct data. Roisin wasn’t the only participant who felt this way; others, like Sam, were also anxious about making more expensive purchases on a smartphone.

“I’ll look up the prices of flights on my phone, but then I’ll usually use [my boyfriend’s] laptop to actually buy them. It feels too risky to pay for something that big on your phone, like if you tap in the wrong box it could all go wrong”

Sam, 25, smartphone by choice, Leeds, iPhone 5

A consequence of mobile shopping – especially through apps – was that individuals often disregarded smaller retailers in favour of bigger companies which had apps, where the shopping experience was perceived to be better designed and more trustworthy.

“I use the Pizza Express app all the time. It tells you where your nearest one is and what deals you can get, so when we’re with the kids we’ll always just for that, it’s the easy option right?”

Andy, 38, Leeds, smartphone by choice, iPhone 5

The exception to this is where smaller traders use online marketplaces, enabling participants to access products and services from smaller businesses via the more sophisticated technology of the aggregator (e.g. Etsy or EBay).

“It’s great. I can use PayPal on my eBay app and check when payments have gone through when I’m out having a coffee or shopping!”

Anne, 60, smartphone by choice, Cardiff, Samsung Galaxy S5

Many of the participants said they were struggling to compare products and prices across multiple stores’ websites on their phone. Few were able to manage ‘tabs’ or windows open simultaneously, and therefore often gave up on price comparison altogether, simply trusting the retailer to give them a good price. Some regularly shopped using ‘digital department stores’ (e.g. Amazon), where price comparison was an aspect of the service (e.g. comparing the prices of products from Amazon and via the Amazon Marketplace).

To illustrate this, Anne (50) recently wanted to buy a tumble dryer. She first tried to compare different brands and models through multiple browser windows. She found she frequently forgot prices, and had to go back and forth to check pages she’d already visited. Eventually, her friend Helen showed her how Ebay compared multiple products in one place, often with a discount. Unsure of how to save her searches, however, she restarted her search each day and had to try to remember which ones she’d already seen. Anne found herself becoming confused about different features and was frustrated by the different levels of explanation provided by suppliers.

In the end she called a local store to ask them specific questions and ultimately purchased her tumble dryer from them. Anne felt that if she had been able to carry out her search on a laptop, she might have been better able to manage this information.

Anne’s case was not unique: many of our participants stated that they struggled to carry out full and comprehensive price comparisons. This was often because they were unable to see full website pages on a small device screen, or didn’t feel confident switching between tabs on their smartphone.

‘Smartphone by choice’

Participants who were ‘smartphone by choice’ often made purchases through their smartphones, using apps and mobile-optimised websites. They used brand apps most frequently to access discounts and offers. Dave (aged 47, from Leeds) often downloaded specific brand apps to get store points or savings. He used the Starbucks app to buy his morning coffee and downloaded the Burger King app to see what discounts were available. He tended to look up apps when he encountered new brands to see what they offered.

“I have quite a few of these apps that are great for getting discounts and vouchers and the like. Like the Starbucks app that I use to get my coffee in the morning.”

Dave, 47, smartphone by choice, Leeds, iPhone 5

In addition, these participants commonly used ‘digital department stores’ like Amazon and eBay to compare products across different brands. Anne (60, Cardiff) had recently redecorated her living room entirely with purchases from Amazon because she was able to see many different products in one place.

‘Smartphone by circumstance’

For those participants in the ‘smartphone by circumstance’ category, online banking was considered a real benefit, as they were able to take greater control over an often variable financial situation or stretched budget. Beth (aged 25, Cardiff) had recently downloaded the app developed by her bank. She now checked her account balances more often, scanning them every day. As a result, she had stopped going into her overdraft and therefore stopped having to pay additional charges. Beth felt that her banking app had helped her gain much greater control of her finances. Some of these participants considered online shopping to be a great way to make savings, and regularly used the internet to shop for presents and higher value products. However, many preferred high street shopping, where they could personally verify the quality of products and keep track of how much they were spending.

‘Vulnerable circumstances’

Participants in ‘vulnerable circumstances’, by contrast, very rarely used smartphones to complete transactional tasks, in particular mobile banking. Some of the very vulnerable weren’t able to access their own bank account, particularly if they didn’t have a fixed address, which meant that managing finances through a banking app was not possible. Instead, as with many other life tasks, managing money was supported by professional services, in person or over the phone.

‘Microbusiness owners’

Participants running microbusinesses often spoke about the benefits of digital platforms for selling products and engaging with providers; this was often done through ‘go to’ websites that were always open in tabs on their smartphone. Hannah, 33, exclusively ran her Etsy store through her smartphone, finding the Etsy app and Facebook business pages really easy to use on the mobile.

Most of these participants were able to keep on top of their business finances by regularly checking their accounts through banking apps, and using them to make small business payments. However, most struggled to complete more complex accounting tasks on their smartphone and were often obliged to do so on another device.

“Being able to go on my business account, have a look and what’s gone in and make the odd small payment I need to make whilst I’m on the road, that’s amazing. You can’t put a price on that.”

Carl, 34, microbusiness owner (DJ and events manager), Belfast, Samsung S5

4.3 Creation

All groups preferred to create and share visual media, rather than Word documents or forms, and tended to be able to do this easily. Most found documents tricky to handle on smartphones, and would avoid this wherever possible.

Participants created digital content in a wide variety of forms, such as social media posts and text documents (e.g. CVs), as well as creating and sharing photo albums, videos and audio files.

Creating social media posts to share with friends and family was the most common form of content creation, and many used apps to complete these kinds of tasks (e.g. Instagram or Flickr). Across the board, photo and video sharing was seen as a simple task, both in terms of software design and individual ability.

“I think Facebook is really easy – too easy sometimes. People post things all the time I don’t want to read.”

Zahra, 20, smartphone by circumstance, Cardiff, iPhone 4

Creating and editing written documents was felt to be more challenging by all groups, with many participants composing only very short documents or notes. Formal word processing was largely felt to be more problematic on the smartphone; only a few participants had attempted this kind of task. Many participants had struggled to make important documents such as CVs and covering letters on their smartphone due to the small screen size. Few were ‘creating’ content using standard office packages, finding word processing, spreadsheets and presentation software either too difficult to manage on the smartphone, or irrelevant to them and their lifestyles. In general, participants waited to undertake longer, more formal writing tasks until they had access to a device with a keyboard.

“It’s hard to see what I’ve written before on the small screen. I’m constantly scrolling up and trying to read it and then scrolling back down to write it. It’s so difficult I might as well just wait and try to use the library computers.”

Gary, 44, smartphone by circumstance, Belfast, Microsoft Lumia 640

Simon, aged 45, from Cardiff, was an exception to this trend, as he regularly tried to write page-long book reviews on his smartphone. Although he found inputting text with his fingers far more laborious than using a keyboard, he liked the flexibility of being able to complete the task ‘when inspiration struck’. Despite the advantage of spontaneity, he often felt the need to print a version in order to check it for mistakes before publishing.

“I love that I can access Word on my phone. I sometimes use it. But it’s just such a faff to type something that long with my thumbs. It takes ages.”

Simon, 45, smartphone by choice, Cardiff, Samsung Galaxy S6

Related to this, we met a number of participants who seemed to be struggling to develop computing skills, such as typing. Shelly (40, smartphone by choice, Leeds) admitted she had very low computer skills because she didn’t feel she needed them. When she had recently been job hunting she had handwritten her CV before travelling to the library to type it up. She explained that typing it up had taken her over an hour, despite it being short and formatted in

a basic way, because she was quite slow. Her experience suggests that heavy reliance on smartphones might lead to a degree of deskilling, whereby people lose skills – like typing – which they no longer draw upon in day-to-day life.

We saw this particularly among younger participants. Zahra (20) was defensive of her poor typing skills, which she felt she hadn't had the time or opportunity to develop.

“I'm quite slow at typing, but does that really matter? It's not fair because I just don't really have the chance to do it so of course I'm not very good.”

Zahra, 20, vulnerable circumstances, Cardiff, iPhone 4

While users across all groups tended to focus on creating visual media content, the three groups had clearly different goals and needs in terms of creating documents and posts.

‘Smartphone by choice’

When ‘smartphone by choice’ participants created long text documents, this was likely to be for work rather than for personal use.

“I only really use proper documents at work. I guess sometimes I use the odd spreadsheet for something complicated at home.”

Sean, 41, Smartphone by choice, Belfast, iPhone 6

As these participants had relatively easy access to other devices, they were often able to choose alternative input options, most notably laptops or desktops. Here they had a larger screen to better view the whole document, as well as access to a keyboard and mouse for greater flexibility and easier data input.

‘Smartphone by circumstance’

Many participants in the ‘smartphone by circumstance’ category needed to create and share CVs and covering letters for job applications. Where possible, participants tried to supplement smartphone activities by using other devices where they could use a keyboard and see more of the document on a larger screen. However, they often had much more restricted access to such devices than those in the ‘smartphone by choice’ category. Many of these participants did not attempt to create office-based Word documents until they had access to either a public computer or one owned by friends or family. This could be a lengthy and drawn-out process: Charlie, 18, travelled an hour and a half each way to her girlfriend's family home to borrow her laptop to make job applications every other week.

‘Vulnerable circumstances’

For the most vulnerable in our sample, the most common form of content creation was social media posting, as well as taking and editing photographs through a range of apps.

Overall, these people had close relationships with front-line professionals, so they rarely needed to create documents on their own smartphones. This meant that although their needs could be relatively considerable, they did not depend on their smartphones to accomplish these tasks.

4.4 Managing information

Most participants valued the ability to access information wherever they were, but struggled to build ‘information trails’ on their smartphone.

Almost all participants relied on their smartphones to search, read, store and manage information. This related to all areas of life - from housing and education to hobbies and personal interests.

The majority used smartphones for research and online learning, as well as ad-hoc searches for relevant or interesting information. Many valued the ability to search for information efficiently and ‘in the moment’ when they were in the midst of doing other offline and online activities. Most also noted the ease of reading information on websites that had been mobile-optimised, as the font was often large enough and clear. Shelly (42) loved how easy it was to use Google to search for information on her smartphone. She was studying sign language and would often look for new signs online, especially seeking out YouTube tutorials to watch when she was revising. Both the videos and images presented to her were easy to access and generally clear.

Most participants used Google for the majority of their searches, either typing information into a browser, using a Google search app or using Siri or ‘OK Google’.

“I love OK Google. It’s just brilliant. Any time I need anything, I go, OK Google, what’s the time in Japan right now.”

Carl, 34, microbusiness owner, Belfast, Samsung S5

Other participants were using the default search function that came with the browsers pre-installed on their phones. Most participants found that the browsers on their phones worked for search, when they typed into the URL bar at the top. Robert, 66, during the tasks set as part of the fieldwork, would simply type the information into the browser bar at the top of the screen.

However, some of our participants found it quite difficult to store information they had accessed online on their smartphones to return to at a later date. Finding a way of returning to online sources did not feel intuitive to most participants who were rarely familiar with bookmark functions. Some relied on screenshots as the best way to save information - and data - to avoid reloading the page later.

For example, Hannah (33), managed a Facebook group about paleo diets for dogs, due to her interest in doing this for her own dog. She was a keen reader about the subject, wanting to share information with others in the group, and often took screenshots of interesting information. Hannah had not found any means to store the information she was uncovering about diet tips and tricks, beyond having the posts on Facebook. So when she searched online, she often repeated herself and came across many of the same links, because she was relying on memory.

Storing and sharing more formal documents on the smartphone also presented difficulties. Jess (age 21, Cardiff) was looking for work, but had trouble submitting her CV as the only copy she had was saved on the Universal Job Search website. Someone had helped her type this up at the job centre, but in order to access it she had to enter in her reference number and download it each time she needed it. This was time-consuming as she had stored her reference number elsewhere in the phone and it took a while to retrieve it.

Document management

Managing files is not intuitive on a smartphone; some participants struggled to manage long-term or complex tasks.

Almost no one had a clear system for managing documents on their smartphone, and most didn't feel that this was an intuitive element of the device. Some kept documents in emails, searching through their inbox to find things they needed. This was often because they were unsure where the documents would download to, how to access them and how to order the files.

"I'm sure every time I download a doc to read it, it must save somewhere on the phone. I have no idea where. I just go back to my emails and find it from there."

Sean, 41, smartphone by choice, Belfast, iPhone 6

This problem - coupled with the small screen – meant that some participants found it difficult to oversee longer-term projects using only their smartphone. Purchasing a new house, redecorating a room and managing a job search were difficult for all groups. Many used their smartphones to complete some of the smaller tasks associated with this, but would try to access another device with a larger screen and different software when managing the larger plan.

Robert, aged 66, was trying to buy a second home in Ireland near to his son. He downloaded an app to look at individual houses – finding the photos and information easy to scan. He found it was really difficult to collate information about different houses, adding in financial information from mortgage providers. He made a decision to find the laptop he'd put away in the cupboard so that he could build a spreadsheet and save some documents and links in a folder.

Becca, aged 36, from Glasgow, also struggled when looking to apply for a new council house. She knew there would be a lot of competition when new houses were offered, and was using her phone every day to scroll through all the options available. She found she was missing out on options because she couldn't see them all, make notes about them or save information coherently. She chose, for a few days, to quietly save some documents on her work computer and scan some of the housing pages after work hours to finalise it.

'Smartphone by choice'

'Smartphone by choice' participants tended to have easy access to a range of other devices, which meant that most had experience of searching for information on browsers. Some had adapted their searching habits for their smartphones, such as using 'OK Google' or Siri, which worked intuitively with the phone. These people often searched for information related to hobbies and personal interests, using Google and YouTube. They tended to have fewer problems with file management and completing complex tasks, due to their ability to access alternative devices.

'Smartphone by circumstance'

By contrast, those in the 'smartphone by circumstance' category often had little choice but to use their phones to search, find and manage information - and this was sometimes a struggle. For a number of participants in this group, searching and applying for jobs or social housing was a lengthy and complicated process. More than one participant was searching for employment on their smartphone, and had devised 'workaround' strategies to simplify an

otherwise complex process. Some emailed information to themselves and then applied for jobs when they could access a computer on which to save their CV. Further, some participants were not sure where important documents were stored and on whose device; or had difficulty accessing these documents. Beth's CV, stored on the Universal Job Match website, was very confusing for her. She regularly tried to download versions to use elsewhere, but could never find the same versions again.

'Vulnerable circumstances'

For those in the vulnerable category, their heavy dependence on front-line services meant that they were unlikely to need to store important information on their phones. Some were trying to store CVs and housing applications on other devices. Polly, 50, had a copy of her CV on a USB memory stick, which she carried with her. She did not really understand what it did or how to use it, instead relying on library staff to access it for her.

'Microbusiness owners'

For some microbusiness owners, storage was an issue, and people who had to store quite large numbers of files and volumes of data struggled to do this on their smartphone. Carl, 34, had huge volumes of music for his DJ-ing, which he could not access without using a laptop.

4.5 Problem solving

While the majority of participants relied on Google for simple searches, only a few were innovative in using their smartphones to troubleshoot technical or complex problems.

Problem-solving tasks tended to take two forms:

- a) Finding digital solutions or information to resolve offline problems – such as instructions for fixing a broken dishwasher
- b) Troubleshooting technical problems relating to the smartphone or other device

Participants across all three groups used a range of websites to find information to help them solve offline problems. Zahra, aged 20, used her phone for directions when driving, using the Google Maps app on her smartphone. Gerry (aged 42, vulnerable circumstances, Belfast) was able to use his phone to help him secure a bank account. He used Google search to find out his eligibility for a bank account and found a legal advice site informing him that no one can be legally denied a bank account unless they have a CCJ or criminal conviction for fraud. He took his phone to the Bank of Ireland to show them the page, and was able to persuade them to help him open an account.

Skills in digital / technical troubleshooting were relatively low across the sample, particularly for individuals who had little experience of digital devices in general. These participants struggled to solve problems that arose with their smartphones – and many people put up with their device not working very well. Polly, 50, had accidentally turned down the brightness on her phone screen a few months before the interview. During this time, she had struggled to see any information on her phone, and turned off the lights at home to make it easier. During the interview, the research team showed her how to increase the brightness of the screen, which she had thought impossible. Polly had assumed it was broken and had not really explored whether there was a way to improve the situation.

Some participants weren't particularly innovative in finding solutions to offline or digital problems, and were quick to give up when things became too difficult. Benchmarks for what was considered 'difficult' varied, but were often driven by screen-size. Tasks were deemed too difficult where the font was too small; where sites were not mobile-optimised; where participants needed to scroll through a long webpage to find the relevant information; where answers did not appear at the top of Google searches, and if participants needed to compare information from multiple places. Many of these problems have already been mentioned throughout this report. Shelly (42, smartphone by choice) often worried about clicking the wrong box when she was completing forms and applications on her phone. She would ask her boyfriend to submit these on her behalf, so that he could do it on his laptop, which she felt was more accurate.

Problem-solving between the groups tended to depend on their levels of access to other devices.

'Smartphone by choice'

'Smartphone by choice' participants tended to have the greatest experience of using other devices, and generally know which problems might be easier to resolve on these devices. Their access to alternative devices also meant they tended to have more experience troubleshooting digital problems, having picked up tips from elsewhere.

'Smartphone by circumstance'

By contrast, 'smartphone by circumstance' participants were more likely to have limited access to broadband and data, and were therefore more likely to rush the completion of problem-solving tasks, or give up on them, to avoid using up data. This sometimes meant that problems were left unresolved. This was a big difference between them and the most vulnerable in our sample, whose problems were often resolved with the support of front-line professionals.

4.6 Government/council/public service websites

The smartphone's screen size, websites' input mechanisms, and the practical requirements and evidence needed, all emerged as particular concerns for individuals interacting with public and private sector websites related to housing, health and jobs.

The research specifically explored individuals' interactions with public and government websites. Some of the tasks completed as part of the interviews were specific to this, and included:

- a) completing a GP registration form;
- b) registering to vote;
- c) completing a Housing Benefit form;
- d) finding out about the Care Act;
- e) finding out how to fill out a tax return;
- f) finding out about changes to state pensions; and
- g) employment – Universal Job Match.

Many of the 'smartphone by circumstance' and some 'vulnerable circumstances' participants were attempting to use the Universal Job Match website through their smartphones as a

means of finding work. Many found the site relatively easy to use to search for job listings and read the information, as it was mobile-optimised.

The biggest challenges were at times when individuals were required to provide evidence or documentation, most notably CVs, from their smartphone. If their CV was stored on the Universal Job Match website, finding, accessing and sharing it was confusing for some participants. Beth (aged 25, from Cardiff) described her difficulty accessing her CV on Universal Job Match using her smartphone. It was saved on the website, so when she wanted to apply for a job on another website, she assumed she would have to copy and paste each individual segment. This was the point at which she gave up, unsure of what to do next.

Most participants used workaround solutions to upload other documentation – such as taking photographs of a driving licence or passport on the phone to upload later. Many also took screenshots of important information online, to remember or store for later. This suggests that, for most people, photographs rather than Word documents are the most intuitive means of storing and managing information.

Housing: Housing Associations and local authorities

Some of our ‘smartphone by circumstance’ participants had to engage with their Housing Association or local authorities in order to apply for housing, discuss their housing and rent, or manage repairs. Many felt uncomfortable emailing housing providers from their phones because they were anxious they would make mistakes typing on the screen rather than using a keyboard. As mentioned previously, discussions with ‘important’ professionals were often saved until they could access other devices.

For participants like Becca (aged 36, Glasgow) applying for housing in high demand on a smartphone was challenging on the small screen, because she couldn’t easily compare options. This meant she was unable to make decisions quickly and often lost out to people who were able to manage the process more efficiently.

“I prefer to bid for housing on a computer at work because that way I can properly see what I’m bidding for and check the other options. The problem is, I work part-time and I’m not really allowed to use my computer for personal use during the day. I often miss the good ones.”

Becca, 36, smartphone by circumstance, Glasgow, iPhone 5

Registrations: local and central government

Registrations and applications were sometimes a source of anxiety for participants completing these on a smartphone. Individuals like Shelly (42, smartphone by choice, Leeds) worried about inputting information in the right places. Some registrations were lengthy processes involving multiple pages and different types of information. As one of the tasks set during the research process, some participants attempted to register to vote, which they generally found to be a complicated task.

“I need to register to vote but it didn’t tell me I needed to know my National Insurance number. I’ve already used up too much of a data doing the form in the first place.”

Charlie, 18, smartphone by circumstance, Glasgow, girlfriend’s Samsung S4

Charlie (18, smartphone by circumstance, Glasgow) had difficulty completing the form to register to vote on the Gov.uk website. After five minutes she'd made it through three pages of information, at which point she was asked to input her National Insurance number. She didn't have the information to hand, so she stopped. She was very frustrated that she hadn't been told she'd need this, and had spent quite a bit of time on the task. She was worried about going back to complete it again in case she faced a similar problem.

Roisin (40, smartphone by choice, Belfast) was also tasked with registering to vote in her native Northern Ireland. When she found the right website, it presented her with a PDF, which needed to be printed and filled in before sending it off. Roisin repeatedly tried to input information into the PDF, becoming increasingly frustrated. In the end she felt that the task was impossible and gave up.

Health: NHS Choices

Some of our participants used the NHS Choices website to search for health care information. For the most part, participants were happy with the site's mobile optimisation, which meant that the text was large enough, and clear – but it did require them to scroll through quite extensively.

Some participants struggled to understand all the information they read online, and so returned to front-line services. Polly (50, vulnerable circumstances, Cardiff) had had a recent health scare and tried to find information online. She didn't know where to look on the NHS Choices website, or which search terms to use, so instead decided to make an appointment with her GP to discuss her options.

Section 5

Critical thinking and trust

This section considers the participants' digital understanding in more detail, in order to understand how confident and able they were to engage with and interpret the content presented to them through their smartphones.

5.1 Security and safety

The following section sets out some security risks as understood by our participants, and their mitigating behaviour.

Concerns about privacy

Although security was a big issue for many participants, few seemed aware of the risks posed by reliance on public Wi-Fi networks, in contrast to their significant concerns about hacking and privacy.

Almost all the participants in our sample understood that there were security and safety risks associated with going online and sharing information. A small minority, mostly those with the most limited digital exposure (often the 'vulnerable circumstances' participants), were unaware of the breadth of these potential risks. Participants like Carly, aged 41, who was living in a homeless hostel, struggled to imagine any potential threats she might face when she went online on her smartphone. Her use was centred on watching YouTube videos and sending Facebook messages, and neither of these activities caused her concern.

However, for many others, the main concerns about going online related to data and information privacy. A wide range of participants across all categories were concerned about hackers getting access to their device and stealing information, or worried that the information they had shared online could be stolen and used by others. Participants weren't sure how they had developed this anxiety, but often recognised that they had read about it in the press. It was further exacerbated by a lack of clarity around security settings and apps on their smartphones. Most participants often felt that computers could be a safer device, because of the prevalence of antivirus and malware protection downloaded on these devices. Almost none of the participants had apps or software downloaded to protect their smartphones.

"I just think this can't be as safe as a computer because of the virus protection stuff you get on computers."

Researcher: What protection software do you have on your phone?

"Nothing. I mean I don't think I have. I didn't know you could have anything on your phone. Can you get it for your phone?"

Dave, 47, smartphone by choice, Leeds, iPhone 5

In contrast, some participants felt their smartphones might be safer and more secure than a desktop or laptop computer because of the regularity of upgrades to the operating system.

“Well I just think, with how often they’re updating the operating system, there’s so many more changes than a laptop. So it’s probably actually a safer device to use.”

Carl, 34, microbusiness owner, Belfast, Samsung S5

Despite these concerns about information privacy, for the most part participants across all groups had not considered or understood the risks associated with going online and sharing data through public Wi-Fi. Many participants, especially those in the ‘smartphone by circumstance’ category, were increasingly reliant on public Wi-Fi because they didn’t have home broadband and were concerned about data use. However, almost no-one had previously considered how this might present risks associated with privacy, although a few participants raised concerns after being asked about it.

“I hadn’t thought about it until you asked, but of course they’re more dangerous than private networks. I don’t know how they compare to 4G though. Is 4G more or less safe than a public Wi-Fi network? I just don’t know.”

Sam, 25, smartphone by choice, Leeds, iPhone 5

Security behaviour

The complexity of online security and privacy meant that most participants developed behaviour to mitigate risks through intuition and fragments of information picked up from others.

In order to mitigate the perceived risks of going online through their smartphones, in particular in relation to privacy, many participants had developed their own tactics to try to improve their safety and security. The most prevalent (although not widespread) security behaviour among participants was to choose not to use mobile banking apps as a means of managing money. Some participants were particularly concerned about using mobile banking, perceiving a threat to their accounts if someone was able to hack them. Many of these people did, however, sometimes use online banking, either through their browser on their smartphone or on a public or borrowed computer.

“I don’t trust the banking app, it doesn’t seem safe to me. I’d rather call the bank or go to the branch.”

Charlie, 18, smartphone by circumstance, Glasgow, girlfriend’s Samsung S4

In relation to this, a few participants were concerned about other apps on their phone, questioning the security of a wide range of them. Robert, aged 66 from Belfast, regularly deleted or disabled apps on his smartphone that he felt he wasn’t using, in order to prevent anyone hacking his device through them.

“I don’t want anyone gaining access through the other apps, so I just uninstall them. If I really want to use them, I’ll reinstall them and then do it again just in case.”

Robert, 66, smartphone by choice, Belfast, HTC One M8

The apps that he had recently disabled and deleted included his banking app and Google Maps.

Online shopping was also seen as quite risky; a few participants were unsure about the security of payment options and personal details. A couple of people, like Shelly (age 42, Leeds), never did online shopping because she didn't quite trust that it was a safe way of spending.

"I just don't really know how you know it's safe. Obviously there's all the big brands, which, you know, I'd hope were safe. I'm just not sure enough I guess."

Shelly, 42, smartphone by choice, Leeds, iPhone 5

Alongside her privacy concerns about hacking, Shelly, like others, was equally concerned about the physical device, and often tried to keep it away from her children to prevent them from causing damage to the phone. Other participants, such as Katherine (aged 61, Glasgow) increasingly left her business smartphone at home when she went out to town or for lunch, to prevent it being stolen or lost.

"Well I think the business phone is safer because it more or less stays in the house. Mine's always out and about with me."

Katherine, 61, microbusiness owner, Glasgow, iPhone 5

Information sources and trust

Few participants fully appreciated the nuance of content production and information presentation online, often going with gut instincts or having a 'blanket approach' to whom they did, or did not, trust.

Most participants were aware that online information comes from a variety of sources and organisations, whose ambitions and intentions might influence the content presented. This was best understood with news content, as participants recognised that different newspapers had different political agendas.

"I'd look at the results and in this case, the first link is fine. I mean it's the BBC! Not like the Daily Mail or something. You've got to look at the source of the information."

Carl, 34, microbusiness, Belfast, Samsung S5

However, the complexity of information sources beyond news meant that most participants found it difficult to know who to trust. Some participants took a blanket approach in their attitude towards content. At one end of the spectrum, Pauline felt that everything that appeared online was trustworthy; at the other end, Zahra (age 20, Cardiff) was sceptical about all sources. Zahra had fallen victim to an online shopping scam in the past and was consequently very critical of information online, apart from the NHS Choices website.

"I don't trust the internet. Anyone can do it, put stuff up there. I just don't trust any of it."

Zahra, 20, smartphone by circumstance, Cardiff, iPhone 5

The 'blanket approach' often represented a means of coping with the challenge of navigating many providers and knowing which ones were trustworthy. Participants with greater digital awareness and exposure tended to be more open to the nuances of content production and to be able to interpret information based on the context in which they found it. Hannah (aged

33, Leeds) was particularly interested in health regimes for her dogs, and had explored a wide range of websites and sources of information. She now had a much clearer picture of which sources she could trust to provide accurate information.

Navigating search results

During the interviews, participants were set tasks in which they needed to search for information. The tasks were designed to ensure that participants would be searching for information in areas where they were unlikely (although this couldn't be confirmed) to already know the answers, or explore topics that were debatable, or without a clear answer. During the completion of these tasks, researchers observed a tendency to choose the top search result when the subjects were looking for information – especially when using Siri or OK Google searches, which work particularly well on smartphones. For example, Sam (aged 25, in Leeds), when asked to look up the symptoms of tuberculosis, simply clicked on the first result, which happened to be NHS Choices website.

'To be honest, I can't be bothered to scroll particularly far down. The NHS is at the top; that will do.'

Sam, 25, smartphone by choice, Leeds, iPhone 5

This resistance to scroll down further than the first one to three results was seen in a number of participants. Charlie (aged 18, Glasgow) simply scanned the top three results when asked to explore whether vaccines cause autism. These three results contradicted each other, to some extent, and all three websites were American. Charlie became somewhat flustered trying to understand the results.

"I don't know. They're all saying different things. I'll just go with the top one. There's got to be a reason it's at the top. It says that they don't so I guess that's the answer."

Charlie, 18, smartphone by circumstance, Glasgow, girlfriend's Samsung S4

Section 6

Conclusions and implications

Smartphones can be both liberating and limiting

Smartphones are increasingly used as a flexible tool that enable people to go online, socialise, access information and make transactions. But they can also be constraining, making online access difficult and troublesome. The extent to which they are liberating or limiting appears to relate to the extent to which people are 'smartphone by default' through choice, and their potential access to other devices (in particular desktop or laptop computers).

Across all of the participants, there were a number of common benefits to using smartphones as a principal means of going online. The mobility and immediacy of smartphones - a device that participants always had with them, switched on - meant that information searching and access were often more efficient than they might otherwise have been. Communication with friends and family was seen as almost universally improved, with a number of apps and websites to maintain global contact. Navigation of local or new areas was enhanced by navigation apps and the mobility of the device. Finally, viewing either instructional or entertaining video content enabled participants to learn and try new things, and access different types of content. These were the main liberating benefits that encouraged most of the 'smartphone by choice' participants to rely on this device so heavily.

In contrast, some participants felt the impact of the limitations of being 'smartphone by default', especially those who were in this category as a result of circumstances beyond their control. The participants who needed to rely on their phones, and who had difficult or minimal access to public or borrowed devices, often felt frustrated by this. The limitations of smartphones as a primary means of going online, across all parts of the sample, included the perceived pressure to complete tasks quickly to prevent the erosion of their data allowances. Creating, editing and sharing any document of length in office software applications (e.g. MS Office) was seen as almost impossible for most participants. Participants trying to amend and share their CVs, for example, often felt the impact of this limitation and felt the need to find a different device. Collating or comparing information, products or services from a range of sources was also seen to be difficult on the small screen. In a similar vein, many participants were struggling to create information trails online, rarely using bookmark functions to save information sources, instead taking screen shots or emailing links to themselves.

The extent to which smartphones are liberating or limiting for these participants is complex, nuanced and highly dependent on their circumstances.

Do well-designed apps make a positive impact, or are there drawbacks?

Streamlined apps are convenient, but risk limiting critical thinking

Many apps and mobile-optimised websites have streamlined the user experience, making tasks easier and more efficient by 'doing the hard work'. For example, navigation apps such as Google Maps and City Mapper plan out routes on behalf of participants who simply need to input their start and end locations. As previously mentioned, banking apps were almost universally praised by participants who felt they were often the easiest way of viewing account details and conducting financial tasks.

However, participants' relatively low understanding of the functionality of smartphones often related to their lack of experimentation on their device. Few participants critically reflected on what they could do with their smartphone, or pushed it to work for effectively for them.

Do smartphones offer more or less control?

Smartphones can help put people back in control of their lives, but issues such as data limits may lead to people putting off important tasks

The unprecedented ability to go online using a smartphone seems to have a number of benefits, in particular helping people to feel in greater control of their lives, health, housing and finances. We saw a number of examples where people were able to use their smartphones to improve their situations, such as Beth (aged 25, Cardiff) who had stopped going overdrawn, and therefore avoided paying overdraft fees, since she was more easily able to look at her bank account on her app every day.

But the research also uncovered behaviours demonstrating that data poverty (perceived and real lack of data) was leading participants to rush tasks, was causing delays in completing tasks or, in the worst cases, was leading people to abandon activities like job applications. Concerns about using up their data packages meant that some participants were rushing to complete tasks when they were not connected to Wi-Fi. This trend was far more common among 'smartphone by circumstance' participants who relied on public Wi-Fi as they tended not to have home broadband connections.

These self-limiting behaviours, coupled with the perception of the smartphone as a leisure or social device, may prevent some people from attempting to complete more serious or complex tasks on their smartphones. Further, the limited awareness of data packages and contracts implies that there are some barriers to smartphone users making the most appropriate purchasing decisions.

Are smartphones supporting or inhibiting the development of digital skills?

For the most digitally excluded, smartphones can offer access to a world otherwise off-limits, and enable them to learn new digital skills. However, heavy reliance on smartphones may inhibit users from developing alternative digital skills, such as typing.

For those with limited exposure to digital technology, the ability to purchase an affordable smartphone with a call and data package offers interaction with the online and digital world that they have previously been unable to access. This was particularly true for the 'vulnerable circumstances' participants, whose chaotic lives and challenging circumstances had placed digital literacy low on their priority list, or made it almost impossible. This was also an issue for a minority of older participants, especially for those who hadn't engaged with technology during their working life. In this respect, their smartphones presented them with a steep learning curve. Participants like Anne, 60, were excited about the new things they were learning about technology and what it could do for them.

However, the research also uncovered a range of people with greater experience of digital technology who demonstrated limited computing skills. Typing skills, for example, were at times very low - in particular among the younger participants looking for work, and the 'smartphone by circumstance' participants who were not using keyboards at work. And the limited skills we witnessed in technical troubleshooting and file / information management seem to indicate that 'smartphone by default' internet users are not always developing the core skills which would potentially be beneficial in a range of work environments.

Section 7

Pen portraits

The following pen portraits aim to share the detailed experiences of a small sub-section of our sample, each with different reasons to be 'smartphone by default'.

Hannah, 33, Leeds: *Customer Services Advisor for a charity*

Hannah lives with her fiancé Harry and dog Benji, in a two-bedroom house that they own in a suburb of Leeds. The couple like to be outdoors and spend most of their free time hiking nearby in the countryside with their dog. In the near future they're hoping to move to a bigger house in the countryside. Hannah recently passed her driving test, which was something she'd been meaning to do for years.

Devices and contracts:

Phone: iPhone 5	Devices and broadband: Freeview TV, no home broadband
Contract cost: £36 per month	Package: Unlimited texts and calls, 20GB data

Hannah and Harry both have smartphones, but few other digital devices. They have a widescreen TV, which only shows Freeview channels. They don't have a home broadband connection or phone line as their dog chewed through the phone line when they moved in, and they have never felt the need to replace it. They don't own any laptops, PC computers or tablets, but Hannah does use a desktop computer at work.

Last year Hannah finished paying the cost of the phone on her contract, so she's now switched to a SIM-only contract with O2. She's happy with her contract - she uses just over half of her data each month on average, and feels safe that she'll never accidentally run out of data. O2 recently offered Hannah an upgrade to the iPhone 6, but she decided to keep her phone because she prefers the smaller size and feels comfortable with her knowledge of how it works.

If it's not broken, why fix it? That's basically why I hadn't upgraded. I'm really used to this phone and I hate getting used to new ones

Smartphone behaviour:

Hannah uses her phone throughout the day, keeping in touch with her partner via text when she's at work. She primarily uses it for socialising and for leisure activities: speaking to friends and family, listening to music and watching films. Her most-used apps are Facebook, Instagram, WhatsApp, the camera and Netflix.

- Hannah chooses to do quite a lot of her daily life tasks using non-digital services that might be more efficient on her smartphone. She continues to do her banking in the branch and pays her utility bills over the phone.
- Hannah and Harry have started to look at new homes and contact a few estate agents. They much prefer to manage the process in branches rather than looking online or managing contact through email or apps.

Chester, 50, Leeds: *Unemployed, receiving ESA*

Chester lives alone in privately rented one-bedroom house. He is currently unemployed and suffers from depression and anxiety following a difficult divorce and subsequent health problems. He previously ran his own business, but ran into financial difficulties, having to downsize his home and cut back on living expenses. Chester's shorter-term goals are to stabilise his mental health and work towards a more productive and healthy lifestyle. In the longer term, he would like to get back into employment and start to rebuild his financial situation.

Devices and contracts:

Phone: Samsung S4	Package: SIM-only contract, 2000 minutes, unlimited texts and 2GB of data
Contract cost: £13 per month	Devices and broadband: Has a laptop but no home broadband.

Chester owns his phone handset because he paid the full amount for it during his previous monthly contract. He also owns a laptop that he used to use to run his business, but doesn't have any home broadband. He cancelled his broadband package while trying to cut back on monthly bills, as he felt it was a luxury he couldn't afford. As a result, he rarely has any reason to use the laptop.

Chester tries to maximise his access to public Wi-Fi by sometimes using the library and local cafes, and has asked if he could access his neighbour's broadband (this was turned down). He is very conscious of running out of his 2GB of data before the end of the month, so keeps his mobile internet switched off unless he's actively using the phone.

Smartphone behaviour:

Chester uses his phone daily to check emails, online banking, look at Facebook and read the news. He also uses his phone for navigation and maps, managing his LinkedIn profile and job-hunting several times a week.

- While he uses his phone to browse job websites and stay on top of new opportunities, he doesn't like to spend too much time doing it because he's worried about using up his limited data allowance. He often takes screenshots of jobs he plans to apply for and then saves them up until he visits the library or café every week. This is a big constraint for Chester as he is obliged to travel away from home in order to complete these tasks.
- Chester misses being able to use Skype on his phone without broadband, because he would regularly use it to stay in touch with his daughter, who is away at university.

Carly, 41, Glasgow: *Unemployed, receiving ESA*

Carly has been homeless and in and out of hostels throughout her life. She has lived a chaotic lifestyle and regularly struggled with addiction. She is currently trying to stabilise her housing, health and finances and rarely plans her life more than a few weeks in advance.

Devices, access and contracts:

Phone: Samsung S4 mini	Package: Pay-as-you-go
Contract cost: £13 per month	Devices and broadband: No other devices

The only digital device Carly can easily access is her smartphone. She has owned older Samsung models in the past, all of which she's purchased at pawn shops. She tops up £10 per month at her local Vodafone shop when she can, either using cash or WH Smiths' vouchers that she gets as handouts from hostels. Carly is hoping to get a long-term contract phone so that she can get a newer and more advanced model, such as the iPhone 6. Her current goal is to open a full bank account that would allow her to do this.

Carly has access to desktop computers at community centres and hostels but rarely takes advantage of this as she doesn't really understand how to use them, and acknowledges that social media is often blocked because the devices are intended for job and housing applications.

Smartphone behaviour:

Carly almost exclusively uses her phone for social contact with friends and family – mainly through text, phone calls and Facebook Messenger. She sometimes watches music videos on YouTube, but is anxious about using too much of her data and running out before she's able to buy another top-up.

- The main benefit Carly's phone gives her is the ability to stay in contact with friends and family, despite her chaotic and disrupted lifestyle. She's anxious that when she changes phone she might have to change her phone number; this has been a stable point of contact for many people over the years and she's worried she might not be able to re-establish these connections if it changed.
- Carly's understanding of the functionality of her own phone, and of digital technologies more broadly, limits what she is able to do. For example, she struggles to use Google and has never been able to access emails.

Carl, 34, Belfast: *Microbusiness, booking entertainment events*

Carl lives alone in Belfast with his pet rabbit, Jessica, in a house he recently inherited from his grandfather. He runs a microbusiness booking music and entertainment acts. He needs to do a lot of admin on the go, and stay in constant contact with his team in Belfast. His job involves travelling abroad, which he factored into his decisions to make sure he got the right roaming package.

Devices and contracts:

Phone: Samsung S5	Package: Unlimited texts and calls, free unlimited data in UK, roaming
Contract cost: £30 per month	Devices and broadband: Super fibre optic BT broadband package, smartwatch, laptop that he uses while DJ-ing because of the storage needed for music.

Carl believes his Samsung ticks all the boxes – it does exactly what he expects and hopes for from a smartphone. He has a laptop at home which he rarely uses. He also ordered a Samsung smartwatch (from China, so he could get it cheaply), which he used like a smartphone and found especially useful for talking while driving.

His contract gives him unlimited texts, calls and data, which is important as he uses all of these on the go. It also offers roaming, which is important as he spends a lot of time abroad. Carl has a Vodafone Traveller package which gives him unlimited data for £3 a day. He is happy to pay this for short trips. If he were going on a long trip he would consider buying a SIM card in the country he was visiting.

Smartphone behaviour:

Carl uses his phone all the time, for both work and leisure activities. He mostly depends on his phone for banking, product purchasing, booking flights and OK Google. He also uses the video and camera function in order to quickly share information about acts with his staff back home.

- Carl's phone enables him to do his job more efficiently, although there is a risk he will lose information, so he likes to keep it down to the 'bare bones'.
- Storage space is also a limiting factor for Carl – when DJ-ing he has to use his laptop as it has a much greater storage capacity.

Annex 1

Sample specification and screener

1.1 Sample specification

SAMPLE BREAKDOWN			
TARGET GROUP	1. LOWER INCOME / SPECIFIC VULNERABILITY	2. MORE MAINSTREAM	3. MICRO-BUSINESSES
Suggested Total interview numbers	10-12 participants	6-8 participants	4 - 6 participants
Key sampling variables	<ul style="list-style-type: none"> ■ Smartphone is their exclusive/almost exclusive means of accessing the internet ■ All to be lower income (C2DE) ■ Some participants to have infrequent and minimal access to the Internet via other means 	<ul style="list-style-type: none"> ■ Smartphone is their exclusive/almost exclusive means of accessing the internet ■ All to be active internet users – doing daily tasks via their smartphone ■ Any internet access on other devices to be limited to work-based tasks at work 	<ul style="list-style-type: none"> ■ Smartphone is their exclusive/almost exclusive way of accessing the internet ■ All to be working in businesses with under 10 employees, including freelancer / single person businesses, 2-4 employees and 5-9 employees
Additional sample considerations (across the sample)	<ul style="list-style-type: none"> ■ All to have personal use of an Android, Windows Phone or iPhone smartphone ■ At least five participants to claim out of work benefits of some kind (JSA/ESA/UC/DLA/PIP) ■ All to be living in social housing, shared housing or temporary accommodation ■ To include at least one homeless participant ■ To include at least two low-income families / individuals that cannot afford a telephone line and broadband connection. ■ To include at least two participants with challenging financial 	<ul style="list-style-type: none"> ■ All to have personal use of/own an Android, Windows Phone or iPhone smartphone ■ All to be using their smartphone to be the default means for accessing the internet for their personal tasks ■ To include individuals for whom smartphone internet use is more of a 'choice', rather than a necessity ■ They can occasionally use other devices and internet connections for personal activities (e.g. café, school, library, work) 	<ul style="list-style-type: none"> ■ All to have personal use of/own an Android, Windows Phone or iPhone smartphone ■ All to be using their smartphone to complete the majority of their internet activities for work purposes ■ At least two to work in more manual roles or where IT capabilities are not a requirement of the job ■ They can occasionally use other devices and internet connections for personal activities (e.g. café, school, library, work)

	<p>circumstances</p> <ul style="list-style-type: none"> ■ To include at least two new migrants, asylum seekers or refugees ■ To include at least one low income BAME/English as a second language participant ■ To include at least one participant with poor literacy or learning disability 		
<p>Across the sample:</p>	<ul style="list-style-type: none"> ■ All participants to use the internet daily, or almost daily, through their smartphone ■ All to have personal access to an iPhone, Windows Phone or Android smartphone ■ 50:50 male : female ■ A range of ages, including participants spread between 18-65 <ul style="list-style-type: none"> ○ At least 6 participants aged 60+ ○ At least 6 participants aged 18-25 ■ Spread of 3G, 4G and Wi-Fi access ■ If participants use PAYG phone, all to have data contracts ■ Range of locations across the UK – 6 x Cardiff, 6 x Belfast, 6 x Glasgow, 6 x England (outside of London, possibly 2 x locations) 		

1.2 Recruitment screener

Ownership and access

Q1. Which of the following devices do you have personal access to and is currently in working order? (Tick all that apply)

- Desktop computer
- Laptop computer
- Computer tablet
- Smartphone
- Tablet computer
- Other (please specify)

***All participants to have personal access to a working smartphone**

Q2. Which of the following best describes how often you go online on your **smartphone** (through browsers or apps)?

- I go online multiple times a day
- I go online once a day
- I go online every few days
- I go online once a week – **screen out**
- I go online once a month – **screen out**

***All participants to go online on their smartphone at least every few days**

Q3. Which devices do you most often used to complete each of the following **personal tasks** or activities in the past month?

NB. Only need to ask each participant for the devices they have personal access to.

	MAINLY ON LAPTOP/COMPUTER/ TABLET	COMPLETE ON A RANGE OF DEVICES	SMART PHONE ONLY	NEVER DO THIS!
A. Keep in touch with friends or family				
B. Purchase products or services (such as insurance)				
C. Pay bills (such as electricity, council tax, water, phone contract)				
D. Complete form / application				
E. Work out how to get somewhere, or plan a journey				
F. Shop (such as clothing, food and household items)				
G. Bank				
H. Complete online classes and education programmes				
I. Search or apply for jobs				
J. Watch TV				
K. Find local events or services				
L. Access social media				
M. Read the news				
N. Check the weather forecast				

O. Play games				
P. Watch movies				
Q. Find recipes				
R. Use online dating sites (such as Match.com)				

***All participants to have used their smartphone to complete at least five of these tasks in the past month**

***Number of activities completed on 'MIX OF DEVICES' or 'MAINLY ON ANOTHER DEVICE' to be less than number of activities completed on smartphone only (Smartphone to count for majority of tasks completed when compared with sum of all other tasks completed on other devices)**

Q4. How often do you access the internet to complete **digital personal tasks** in the following locations or situations?

	Never	Less than once a month	Several times a month	Once a week	All the time
A. Computer/ device in an internet café					
B. Computer/device in the library					
C. Computer in a housing or council office					
D. Computer at a family or friends house					
E. Your own personal work computer					
F. A communal work computer					
G. Computer or device at a school/college/university					
H. Borrow a laptop or tablet of a friend or family member					
I. Communal computer in your residence					

J. Computer in another location					
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- *Aim for at least 12 participants to answer 'never' to any statements.
- *No participants to answer 'all the time' to any statement A-J
- *Participants to answer 'once a week' for no more than 2 statements; if 3-6 please refer; if 7+ exclude

Q5. Which operating system does your current smartphone use?

- Android
 - IOS
 - Windows Phone
 - Blackberry
 - Other (please specify)
- *Broad spread across Android, IOS or Windows Phone**

Q6. Which of the following best describes your smartphone package?

- Monthly contract
 - Pay as you go – data bundle included
 - Pay as you go – no data bundle – **screen out**
- *Broad spread of those with a monthly contract and data bundle**

Q7. How do you access the internet when you are at home? (Tick all that apply)

- Wi-Fi/ broadband
 - 3G
 - 4G
 - Other (please specify)
- *Spread of access to Wi-Fi, 3G & 4G**
***At least two 'lower income' households who don't have Wi-Fi/broadband**

Q8. How confident are you that you would be able to complete the following tasks online on any device?

	VERY CONFIDENT	QUITE CONFIDENT	SOMEWHAT CONFIDENT	QUITE UNCONFIDENT	VERY UNCONFIDENT
A. Use a search engine to find the information you need					
B. Teach yourself a new task using online videos					
C. Keep in touch with a friend using email					

D. Manage your bank account					
E. Write a social media post					
F. Order your shopping					

***Broad range of abilities across the each of the categories (e.g. mix of those who are more and less confident with internet tasks).**

***At least three 'more mainstream' participants to rate 'very confident' or 'quite confident' for at least five tasks**

Demographics

Q9. Can I ask your gender?

- Male*
- Female*
- Other (Please specify)
- Prefer not to say

***Broad spread across the sample (including those who specify otherwise if relevant)**

Q10. Can I ask what age band you fall in to?

- Under 18
- 18 – 25
- 26 – 40
- 42 – 60
- 61 - 79
- 80+

***At least six participants aged 60+**

***At least six participants aged 18-25**

***Broad spread of ages among final 12 participants**

Q11. What is your current work situation?

- Self-employed
- Employed full-time (30+ hours a week) –
- Employed part-time (fewer than 30 hours a week)
- Not working
- Full-time student
- Part-time student
- Retired
- Other, please specify

***Record only**

Q12. Which of the following best describes your current area of employment?

- Executive or board (e.g. CEO, Managing Director)
- Senior management
- Mid-level management
- Professional
- Business owner or partner

- Clerical or administrative staff
- Skilled worker
- Semi-skilled worker
- Casual or manual worker
- Home maker
- In full-time education
- Retired
- Not working

***At least five participants across 'lower income' and 'micro-businesses' to work in 'casual or manual worker'**

***Other participants, record only**

Q13. How many people are employed at your place of work?

- 1 – **screen to micro-business**
- 2-4 people – **screen to micro-business**
- 5-9 employees – **screen to micro-business**
- 10 – 50
- 51 – 250
- 251 – 1000
- 1001+
- Don't know

***At least 6 participants to work in micro-businesses**

***Other participants, record only**

Q14. What is the highest level of education you have completed?

- Primary school/equivalent or less
- Some secondary school or equivalent
- Finished secondary school or equivalent
- Vocational school/Technical college
- Some university/higher education
- University degree
- Graduate or Post-graduate degree
- Professional qualification
- Not sure

***At least six participants to have gone no higher than Vocational School / Technical College**

***Broad spread of educational abilities across the sample**

Q15. Which of the following ranges best describes your total annual **household** income?

- Less than £25,000 – **screen to 'lower income' / 'micro-business**
- £25,000 - £50,000 – **screen to 'lower income' / micro-business**
- £50,000 - £80,000 – **screen to 'more mainstream' / micro-business**
- £80,000 - £100,000 – **screen to 'more mainstream' / micro-business**
- £100,000 - £120,000 – **screen to 'more mainstream' / micro-business**
- £120,000+ – **screen to 'more mainstream' / micro-business**

***Broad spread across the sample**

***Screen to appropriate target group**

Q16. Which of the following ranges best describes your total annual **personal** income?

- Less than £15,000 – screen to ‘lower income’ / ‘more mainstream’ / micro-business dependent on Q15
 - £15,000 - £30,000 – screen to ‘lower income’ / ‘more mainstream’ / micro-business dependent on Q15
 - £30,000 - £50,000 – screen to ‘more mainstream’ / micro-business
 - £50,000 - £80,000 – screen to ‘more mainstream’ / micro-business
 - £80,000+ - screen to ‘more mainstream’ / -micro-business
- *Broad spread across the sample**
***Screen to appropriate target group**

Q17. Which of the following best describes your current living arrangements?

- Homeless
- Living in temporary accommodation such as refuge or traveller site
- Sharing in rented accommodation
- Single in rented accommodation
- Living with parents
- Living in student accommodation or halls
- Living in social housing
- House or flat owner
- Other, please specify

- *To include at least one ‘lower income’ participant who is homeless**
***Most ‘lower income’ participants to be living in social housing, shared accommodation, or with parents**
***Record only for other participants**

Target group questions

Target 1: Lower income / vulnerability

Q18. How well would you say you are managing financially these days?

- Living comfortably
- Doing alright
- Just getting by
- Finding it quite difficult
- Finding it very difficult

- *To include at least two participants with challenging financial circumstances**
***Broad spread across other participants**

Q19. Are you currently claiming any of the following benefits? (Tick all that apply)

- Jobseeker’s Allowance (JSA)
- Employment and Support Allowances (ESA)
- Disability Living Allowance (DLA)
- Personal Independence Payment (PIP)
- Carer’s Allowance
- Income Support
- Housing Benefit
- Council Tax Benefit
- None
- Don’t know

- *At least five participants who are claiming JSA/ESA/DLA/PIP**
***At least three participants not claiming benefits**

Q20. Would you describe yourself as having a disability or learning difficulties?

- Dyslexia
 Learning difficulties / disability
 None of the above

***At least one participant with learning difficulties**

***Other participants without any learning difficulties**

Target 2: MICRO-BUSINESSES

Q21. Which business-related tasks do you complete on the following devices? (Tick all that apply)

	DESKTOP	LAPTOP	TABLET	SMARTPHONE	OTHER
A. Talk to co-workers or clients					
B. Purchase products or services					
C. Sell products or services					
D. Organise payroll					
E. Make work travel arrangements					
F. Make business arrangements					
G. Update calendar					
H. Answer and send emails					
I. Contact suppliers					
J. Online bank					
K. Organise accounting					
L. Advertise business					
M. Update social media					
N. Make and send invoices					

O. Use work-specific apps					
P. Other tasks					

***All participants to tick most tasks for smartphone**

Annex 2

Discussion guide

2.1 About the guide

The interviews were structured around the following topics:

- a) Personal circumstances and background – to understand the participant’s lifestyle, routines and needs
- b) Access and ownership – devices within the home and those they could access elsewhere
- c) Digital skills and media literacy – exploring and testing these based on the Go On UK ‘basic digital skills’ framework
- d) Reflections – exploring the role and impact of a smartphone on the participant’s lifestyle

During the course of the interviews the research team set a number of structured tasks for participants to complete on their smartphone. These tasks were split into five main groups:

- a) Basic life tasks
- b) Product comparisons
- c) Forms and applications
- d) Information searching
- e) Trust and critical thinking

Each participant was asked to complete at least one task from every section, so that researchers could observe the skills of participants and the challenges they faced in doing these tasks. The tasks were designed to be new to participants, so that the researcher could observe them navigating fresh challenges, rather than repeating learned behaviours and habits. More detail can be found on these tasks and the other questions asked in the discussion guide which follows here.

2.2 Discussion guide

1. PERSONAL BACKGROUND (15-20 mins)

SECTION OBJECTIVE: To understand the lifestyle, finances, work and personal circumstances of the research participants and the relationships between these aspects and their internet-based needs

LEAD QUESTION: Could you tell me a bit about yourself?

- How long have you been living here?
 - How does this compare to other places you've lived?
 - What is the area like?
 - How do you feel about your neighbourhood?
- What do you do for a living?
 - And how long have you been working in this area?
 - What are your main responsibilities?
 - How long have you been doing this?
 - Do you enjoy your work?
- Do you know many people locally?
 - Do you have family nearby?
 - How do you keep in touch?
 - How would you describe your friends?
- What does a typical week look like for you?
 - How busy is your lifestyle?
 - What keeps you busy?
 - What do you do in your spare time?
 - Do you have any hobbies or other activities?
 - Do you need to use internet for these activities?

LEAD QUESTION: How have things been recently?

- What have been the biggest milestones or achievements?
 - What have been the biggest challenges you've experienced recently?
 - What things have made the greatest impact?
 - What could be improved?

FLASHCARDS:

Desktop computer, laptop computer, smartphone, computer tablet, personal digital assistant, games consoles, TV, e-reader

- If unemployed, how long have you been unemployed?
 - What did you do before?
 - Are you currently looking for job?
 - How do you go about it?
 - Do you need to use internet in your job seeking?
 - In what ways?
 - PROBE: Sending applications, searching for offers, registering on recruitment sites, corresponding with job centre, managing benefits etc.

ACCESS AND OWNERSHIP (20 mins)

SECTION OBJECTIVE: To explore how the participant engages with technology at home and in other locations, either through personally owned devices or others they have access to

LEAD QUESTION: How do you tend to access the internet?

- How do you access it at home?
 - PROBE: Broadband, WiFi, mobile networks

- How much time do you spend online on a typical day?
- How good, would you say, your home internet access is?
- Are there any restrictions/limitations?
- What could be improved?
- Which devices do you typically use?
 - Which of them do you use most frequently?
 - Which devices do you use the most?
 - What do you use them for?
- Which devices do you own?
 - Which devices could you access if necessary?
 - PROBE: laptop, computer, tablet
 - How often do you access them?
 - Did you have access to other devices in the past?
 - What kind?
 - Why do you no longer own / have access to / use them?
 - How do they compare to the ones currently used?
- How often do you use internet outside the home?
 - Where are you typically when you use the internet?
 - PROBE: In the library, Café or coffee shop, Outside, Shop, Friends
 - How do you typically connect to internet?
 - PROBE: Broadband, WiFi, 3G, 4G
 - Which connection do you use the most?
 - How much time do you spend online outside the house?

LEAD QUESTION: What do you typically use the internet for?

FLASHCARDS:
 Browsing, travel arrangements, emails, shopping, online banking, posting photographs, social media, instant messaging, Skype calls, news, weather, reference, friends and dating, gaming, videos, music, social media,

- What personal tasks do you typically complete online at home?
 - PROBE: browsing, travel arrangements, emails, shopping, online banking, posting photographs, social media, instant messaging, Skype calls, news, weather, reference, friends and dating, gaming, videos, music, social media, comments and posts, recipes, learning new skills, applications etc.
- How important do you feel your smartphone is for managing daily life?
 - How does using a smartphone to go online compare with using other devices, such as a tablet, laptop, desktop or games console?
 - What's better about using a smartphone?
 - What's worse?
- What personal tasks do you tend to complete on your phone?
 - What work-related tasks do you usually do on your phone?
 - How has this changed over time?
- What are the most common webpages that you currently visit?

Smartphone Audit

- What type of smartphone do you have?
 - What type of smartphone is it? What operating system does it use?
 - How long have you had it?
 - What type of contract do you have on it? (PAYG / monthly) PROBE: How did you choose your contract?
 - How much do you pay for it over an average month? (PAYG / monthly)
 - How much memory does it have? Is it full or not?
 - How good is the signal in your local area?
 - Who is your phone provider?

- Have you ever had to call up your mobile provider? PROBE: How do you feel about dealing with your phone provider?
- What apps have you got?
 - What do you have on your 'home screen'?
 - Which ones do you use the most? And the least?
 - Why did you download the most / least popular apps?
 - Which ones have you paid for? How much were they?
 - What apps have you downloaded but not really used? Why / Why not?
 - Which ones are difficult to use?
- How do you think using apps compare to using a browser?
 - What's better / worse about apps compared to a browser?
 - Which browser do you tend to use?
 - When would you use a browser rather than an app? Probe: vice versa
- **AUDIT TASK:** browsing history, recent downloads, recent websites, recent services used online (e.g. governmental)

LEAD QUESTION: Could you tell me about the cost of using your smartphone?

- Are you on PAYG or contract?
- How much mobile data have you got?
 - Is this sufficient?
 - How much do you think you need?
 - Do you ever have problems with your data limits?
 - How do you manage these?
- How good is your tariff?
 - How expensive is it?
 - Who pays for it?
- How happy are you with your tariff?

LEAD QUESTION: How long have you had your current smartphone?

- When did you get it?
 - How did you choose this type of smartphone?
 - What were you looking for?
 - What influenced your decision to get this one?
 - How happy are you with it?
 - Why? Why not?
 - How do you feel about the performance of your current smartphone?
 - How happy are you with your storage and space?
- Where did purchase it?
 - PROBE: online / in store / over the phone
 - Did you get any cash back with your purchase?
 - What provider do you use? What are they like?

LEAD QUESTION: How important is internet for your work?

- How do you access internet for work?
- What work tasks do you complete online?
 - PROBE: Keep in touch with clients, purchase or sell products or services, payroll, make work travel or business arrangements, online banking, accounting, advertising, invoicing, social media updates etc.
- What devices do you use?

For micro-business participants

LEAD QUESTION: How important is your smartphone for your business?

- How does it help with your daily work routine?
- What work tasks do you use only your smartphone for?
- Where do you use it?
- When?
- How mobile-friendly is the content you need to use for work?
- Do you have any work-related apps?
- What kind?
- What benefits does it bring to your working life?
- What are its constraints?

DIGITAL SKILLS (20-30 mins)

SECTION OBJECTIVE: To understand the interviewee's internet use and briefly assess the participant's digital skills and challenges in performing core activities related to managing information, communicating, transacting, creating and problem solving online

LEAD QUESTION: How tech savvy do you think you are overall?

- Why?
- How does it compare to other people around you?
PROBE: family members, people at work, school
- Do you find anything difficult?
- What kind of things?

LEAD QUESTION: How would you describe your approach to browsing and finding information online?

- What do you typically look for? PROBE: searches for directions, events, weather, news, recipes, information etc.
 - How often do you search online?
 - What type of search engine do you use?
 - Do you usually find what you need?
- Do you keep information about websites and documents found online?
 - How does your phone work for storing and organising information?
 - How easy / difficult is it?
 - Do you store data on a device or in the cloud?
- Do you find it easy to find a website you have visited before?
 - Do you bookmark useful websites and services you use often?
 - Do you often save photos, documents or video found online?
- Do you experience any challenges with getting information you need?
 - PROBE: opening downloaded files, online search

LEAD QUESTION: To what extent do you go online to keep in touch with people?

- Who do you keep in touch with?
 - How often?
 - Do you send personal messages?
- What do apps or websites do you typically use?
 - What do you use the most?
 - What do you use the least?
 - Why?
- Do you share information or content with others?

DATA CAPTURE:

Map social network
Record social media usage and main forms of communication e.g. Email, Skype, WhatsApp, Facebook, Instagram, Snapchat, Twitter, chatrooms

- What types of information do you share and with whom (e.g. friends, friends of friends, companies)?
- What type content do you share?
- PROBE: Comments. Photos, videos
- How do you feel about social media?
 - What role do social media play in your life?
 - What type of social media are you using?
 - How often?
 - Do you have any problems with using any apps/social media?
 - What kind?
 - PROBE: Technical issues, data protection

LEAD QUESTION: How often do you do online shopping?

- What have you bought online recently?
- How often do you buy items or services from a website?
- What kind of devices do you use for shopping?
- What kind of shopping sites do you use?

LEAD QUESTION: How often do you compare prices for products online?

- What have you recently compared the prices for?
 - How do you tend to do this?
 - Do you use price comparison websites or apps?
 - Which ones do you use? Website or apps?
 - How do the websites and apps compare?
- How often do you compare prices online?
- Do you encounter any challenges related to shopping online?
- What kind of problems?
 - Probe: technical issues, navigation, safety

LEAD QUESTION: How do you feel about online advertising?

- How often do you encounter online adverts?
 - In what form?
 - Do you use any ad blockers? Which ones? How did you come across them?
- What do you know about how adverts appear online?
- Do you buy products advertised online? Why / not?

LEAD QUESTION: How safe do you think you are online?

- How would you describe your approach to online safety?
- Do you do anything to keep yourself safe?
 - Do you use any safety measures?
 - What are they?
PROBE: changing passwords, not opening anonymous emails, considerations around sharing personal information
- What privacy settings and data protection tools do you use?
 - Does this differ according to the circumstances, e.g. on Facebook/ signing up for online offers?
 - Is it different for specific devices?
- How do you know what information to trust?

- What are the markers of trustworthy information online?
 - PROBE: brand / organisation that you know, up-to-date information, check information across multiple websites, general appearance of the site, ask someone else if they've used the site, quality standard symbols, padlock symbol for security, link to it from another trusted site, country of origin, end of the website name is .com, .co.uk, or .org.

LEAD QUESTION: How do you know about who creates the information on different websites?

- What is better or worse about different types of people creating the information?
 - PROBE: government, businesses, newspapers, TV channels, ordinary people, artists
- What do you know about 'user-generated content'?
 - What type of content do you think is 'user generated'?
 - Are there any websites you use where you think there is user generated content?
 - What makes you think this is user generated content?
- How do you think this compares to the content and information you see on other websites, like the ones we've just been looking at?
 - How does this type of content compare to BBC / Netflix / ITV / All4?
 - What is better about UGC? What is better about the other websites?
- How trustworthy do you think user generated content is?
 - What makes it trustworthy?
 - What makes it untrustworthy?

LEAD QUESTION: How much would you say do you use the internet for writing or creating content?

- Have you been writing anything online recently?
 - What kind of things? PROBE: blogs, posting comments, reviews, notes, etc.
 - Do you tend to complete them in an app or a browser?
 - How easy or difficult are these things to do on the smartphone?
 - What are the challenges? What works well?
- Have you used the smartphone internet to complete applications and forms?
- What kind of forms have you completed recently?
 - PROBE: Application forms (e.g. jobs, benefits, driving license, care, passport, housing), bookings and registrations
 - Are there any apps or do these tend to be browsers?
 - How easy or difficult are these to complete on a smartphone?
 - What are the challenges? What works well?

LEAD QUESTION: How creative would you say you are online?

- What makes you say that?
 - What kind of things do you create?
 - Do you create something new from existing online images, music or video
 - PROBE: Apps, YouTube, email images, Photoshop
- To what extent does internet allow you to be creative?
- Does it restrict your creativity in any way?

LEAD QUESTION: How do you feel about using the internet to solve life's little problems and challenges? solving problems via the internet?

- How often do you look for solutions to issues online?

- Probe: issues with a bank / provider, fixing something that's broken, making a complaint.
- How often do you use online tutorials / instructions?
- Have you ever used digital service using online help? E.g. live chat functions?
- What websites do you tend to use?
- How easy or difficult is this to do?
 - Which websites / apps are easy to use / more difficult to use?

SMARTPHONE TASKS (20-40 mins)

SECTION OBJECTIVE: To understand more about the details of the interviewee's smartphone internet-based activities and how they relate to their needs.

Researcher to select 1-2 tasks from each of the following categories:

DATA CAPTURE:

During the completion of the chosen tasks from the selection tasks, ESRO researchers will be observing how individuals navigate their digital options, what habits and behaviours they exhibit and if there are types of content they are drawn to more than others (e.g. short form content) because of the screen / mobile-optimised sites. Focus will be on skills and gaps in digital abilities

- Basic life tasks:
 - Checking the symptoms of tuberculosis
 - Installing digital banking app
 - Walking directions to the main city train station
 - Finding out the opening times for the nearest library to / Glasgow Queen Street / Cardiff Central / Belfast City Hospital
 - Booking the cheapest train tickets for Tuesday morning
- Product comparisons:
 - Comparing prices of DVDs – David Attenborough *Life* Series
 - Identifying the best credit card options for their need
 - Comparing ticket prices for an upcoming gig across multiple providers
 - Comparing gym membership prices at different local gyms
 - Comparing the cost of mince in multiple local supermarkets
- Forms & applications
 - Registering for Parkrun
 - Completing GP registration form
 - Registering to vote
 - Reviewing a recent restaurant / hotel
 - Completing Housing Benefit form for Leeds City Council / Glasgow City Council / Belfast City Council / The City of Cardiff Council
 - Registering your interest in becoming a volunteer at a local Citizen Advice Bureau
 - Purchase tickets for a theatre show
- Information searching
 - Finding information on what the APR means on a credit card
 - Finding out what does the new Care Act change for social workers
 - Finding out how to fix a burst bicycle tire
 - Finding out how to fill out a tax return
 - Finding out changes to State Pension
 - Find out how to put together an Ikea table
- Trust & critical thinking - Please verify or disprove the following information:
 - Eating nuts during pregnancy causes baby allergies
 - What are the future consequences of global warming?
 - A photograph online without a copyright notice is free to use
 - Even if you are not married, you can still inherit your partners assets
 - Vaccines cause autism
- PROBE: Which results would you not click on?
 - Why those ones? What made you choose which link to click on?
 - Which of these websites / links do you trust?

- How much do you trust the information on these links? Why / why not?
- Which of these websites / links don't you trust?
 - Why? What about them makes you not trust them?

REFLECTIONS (10-15 mins)

SECTION OBJECTIVES: To understand more about the details of the interviewees' smartphone tasks and reflect about their relationship to his/her needs

LEAD QUESTION: Overall, how able are you to do everything you want and need to do on your smartphone?

- Are there any things that are difficult / you can't do?
- How does it compare to other devices?
 - What's better / worse?
 - To what extent is the content different?
- How well do you think your smartphone functions for the following activities:
 - Accessing information and advice?
 - Staying in touch with people?
 - Writing and completing forms?
 - Shopping and product comparisons?
 - Navigation?
 - Being creative?
- To what extent would you say your smartphone enables you to complete life tasks?
To what extent is it restrictive?
 - What would you like to do that you currently can't on a smartphone?
 - How do apps versus browsers compare?

LEAD QUESTION: Overall, how able are you to do everything you want and need to do for work on your smartphone?

- What are the advantages of using smartphone for work and business?
- What are the frustrating parts?
- What content is hard to access?
- Overall, how well, do you think, does your smartphone internet satisfy your needs?
- Why?
- Are there any other things you wish you could use the internet for?
- What device would be better suited to cover these needs?

LEAD QUESTION: How would you describe your relationship with your phone provider?

- How easy are they to contact?
- What are they like as an organisation?
 - How do you feel about talking to them?
- How confident are you that they could help you resolve problems?

Annex 3

Links and sources

3.1 Bibliography: desk research

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