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### Opportunities and challenges of the digital lifespan

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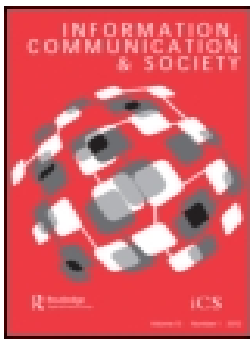
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## Opportunities and challenges of the digital lifespan: views of service providers and citizens in the UK

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### ABSTRACT

Information about UK citizens' use of digital technologies is often expressed in statistics – x% lack Internet access; y% get online to engage in online banking, update social media sites, or participate in online auctions. There are many social implications to digital technology use, however – individuals may communicate online as a major way to stay in touch with friends and family, and as Internet access rises and government and public sector budgets shrink, online services become an increasingly attractive way for government and public sector service providers to communicate with citizens. This paper presents selected results of an exploratory study designed to investigate the digital personhood of UK citizens through interviews with participants at three life transitions: leaving secondary school, becoming a parent, and retiring from work. Digital personhood in this paper implies identity information online, and some interaction with others around that information. We then report on our presentation of a selection of these results to thirteen stakeholders who represented UK government departments, public sector organisations, and industry. We found that citizen and stakeholder concerns were quite different, especially at the new parent life transition, and that stakeholders tended to *underestimate* the willingness and ability of citizens to become involved online with the government and public sector, and *overestimate* citizens' vulnerability online. Future research should investigate practical strategies for increasing communication between stakeholders and citizens, and also how to encourage stakeholders to work together to benefit their common clientele – the citizens.

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## Introduction

Old and young alike, UK citizens' engagement with digital technologies and services has skyrocketed in the past 10 years. In all, 86% of UK households currently have Internet access, and 78% of the British population spend time online every day or almost every

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day. This engagement presents opportunities and challenges to government and public sector agencies. Whilst engagement happens across all age groups, the needs of people at *different* points in their lives are underexplored. To help remedy the imbalance, this paper presents findings from our research project that involved (i) citizens and long-term residents of the UK (henceforth, citizens) who had recently lived through one of three life transitions – leaving secondary school, becoming a parent, or retiring from work; and (ii) representatives of the UK government, public sector, and industry (henceforth, referred to as our stakeholders). Our project, *Charting the Digital Lifespan (CDL)* is one of the first to incorporate both citizen and stakeholder perspectives on opportunities and challenges associated with the digital lifespan.

The two-year CDL project investigated how UK citizens create and manage their digital identities across the human lifespan, focusing on the three significant life transitions named above. Combining expertise in anthropology, design, cultural studies, and computer science, the aim was to develop a concrete understanding about how self-representation in a digital context (digital personhood) was experienced at the current time (2013–2015) by different generations, and how it was envisioned in the near future.

A central project goal was to generate social, cultural, and technical insights to inform UK policy-making and service innovation for enhancing digital literacy and enabling self-representation online. A Stakeholders' Workshop ('the Workshop') was held to support this goal, focusing on the project's qualitative insights. At the Workshop, we invited reflection on how stakeholders perceive citizens' understanding of and engagement with digital tools and media – both currently available, and envisioned. A bespoke 'Picture Book' with illustrated scenarios was designed for the Workshop as a resource to prompt questions from stakeholders about how services and systems can be designed to respond to and scaffold expressions of digital personhood made by citizens as they live through changing life circumstances.

Digital identity and digital personhood are interrelated terms; whilst digital identity refers to data or information about people created, captured, verified and used in life and death (Engineering and Physical Sciences Research Council, 2015), digital personhood assumes digital identity (both in traditional forms such as name and address, and specifically in digital forms like email addresses and online traces like photos or status updates) to feature in citizens' lives, and encourages individuals' interaction with others in digital realms – for example, by creating a profile, seeking friends online, and participating in digital friendship by validating the digital personhood of others (Lee, Goede, & Shryock, 2010).

In this paper, we provide a background to the central topics that emerged out of our qualitative studies and the Workshop, which fall under the broad heading of social implications of technology use:

- Living as digital citizens
- Privacy concerns
- Online danger and being vulnerable online
- Challenges and opportunities of connecting with citizens

We then give an overview of the qualitative studies conducted, and the subset of interdisciplinary findings generated that were subsequently presented to stakeholders. We report findings from the Workshop, and examine topics of concern to citizens and

stakeholders. We suggest ways forward that encourage communication and an integration of perspectives between these two groups, particularly highlighting research that has incorporated both citizen and stakeholder perspectives.

## **Background: social implications of technology use**

### ***Living as digital citizens***

We focused on the daily routines enacted via digital technologies of UK citizens who had recently undergone one of three life transitions. We took a ‘snapshot’ approach to citizens’ current online practices, whilst also encouraging comparison with practices enacted prior to the transition recently undergone. The transitions that we focused on were (i) leaving secondary school, (ii) becoming a parent, and (iii) retiring from work. Such life transitions are characterised by a period of instability and change, as the central actor typically makes major adjustments, learning to cope with new experiences and developing new skills (Hulme, 2014). Anderson and Tracey (2001) identify that such life transitions can have a significant effect on how people engage with and use the Internet.

For those leaving secondary school (who we also refer to as ‘emerging adults’), this period of change marks the departure from adolescence. It is distinguished by ‘relative independence from social roles and normative expectations’ (Arnett, 2000, p. 469) and is a time of exploration. Emerging adults may exhibit varying degrees of maturity and dependence (Hulme, 2014), governed in part by the age at which they begin to live independently (Furlong & Cartmel, 1997). Evidence of increasing maturity is seen through factors including leaving school, moving away from home, getting a job, or going to University, and adoption of economic responsibilities (e.g., controlling a budget) (Lenz, 2001) – factors that lead to a growing level of citizenship, and that are extensively intertwined with the use of online services.

The transition into parenthood involves a huge emotional and physical impact, and may well come at the same time as many other changes – for example, in relationships, careers, finances, and general life balance (Hulme, 2014). Gibson and Hanson (2013) identify the Internet as a helpful lifeline during this period, with new mothers using online forums and resources to assist them in developing confidence as new parents. Further, Bartholomew, Schoppe-Sullivan, Glassman, Kamp Dush, and Sullivan highlight that ‘Facebook may be a particularly important means for mothers ... to build and maintain social capital for themselves, their children, and their families’ (2012, p. 465). As well as interacting online on their own behalf, parents also manage their children’s nascent digital footprints, which begin at (or even before) birth. This management will usually tail off over time as children take over responsibility for crafting their own online personas as they get older (e.g., Ammari, Kumar, Lampe, & Schoenebeck, 2015).

Retiring from work can bring changes in health, housing, social interaction, work life, and personal finance. This transition may force individuals to reformulate their social identity, often through ‘project-like’ activities that act as stepping stones to a new identity as a retired yet still active person (Antti, Asko, Leif, Paula, & Jaana, 2010). Digital devices have been found to aid:

in coping with the transitions experienced, by making it easier to retrieve information (e.g., via the Internet), to maintain and extend social networks (e.g., through cell phones and

e-mail), and to maintain a feeling of actually being ‘connected to the world’. (Antti et al., 2010, p. 814)

Such devices have also served to sustain communication between older adults and their remotely located family (Lindley, Harper, & Sellen, 2009; Rodríguez, Gonzalez, Favela, & Santana, 2009).

### **Honesty and privacy**

UK citizens experiencing any of the life transitions described above increasingly engage online with government agencies, as well as with corporations offering products and services (Dutton & Blank, 2013). These citizens desire efficiency and ease of use from the online systems that they engage with – especially when the systems are delivered by government agencies (Connolly, Bannister, & Kearney, 2010). In turn, government agencies hope not only for citizens who are competent users, but also for citizens’ trust and honesty during online engagement. The difficulty for government agencies is that trust and honesty are typically associated with interpersonal relationships, not online efficiency and ease of use. For government agencies to inspire trust, they may need to reassure citizens that their data will not be mismanaged (Connolly, Bannister, & Kearney, 2010), and ensure that citizens feel well-informed, in control of their personal information, and have a sense of influence rather than powerlessness (Grimsley & Meehan, 2007; Smith, 2011).

Part of citizens’ concerns about trust and honesty online may be related to online privacy, which has been the subject of increasing interest amongst UK citizens over the past 5–10 years – an interest reflected by the popular press (Bartlett, 2015). Online privacy has also been the subject of legislative changes in the European Union that affect UK citizens. For example, the ‘Right To Be Forgotten’ legislation mandates that individuals can request that search engines (e.g., Google) do not return certain content about them in online search results (Rosen, 2012). Online privacy is a somewhat plastic concept. Burkell, Fortier, Wong, and Simpson suggest that even though users of social media expect their privately posted content to leak into the public domain, privacy may be perceived to be violated ‘if publicly revealed information is used for unintended purposes by unanticipated parties’ (2014, p. 983). Ahern et al. further observe that users may lack awareness of the privacy implications associated with the aggregation of information disclosed online by either ‘the system ... or ... people examining the user’s online activity’ (2007, p. 365).

There are differing views on whether older or younger adults are most aware – and protective – of their online privacy. In a small study of eight younger adults (aged 16–33 years) and eight older adults (aged 40–64 years) in Norway, Brandtzæg, Lüders, and Skjetne found that younger adults were likely to be more aware of privacy issues than older users, and more likely to use privacy settings (2010). In contrast, in a nationally representative telephone survey of 1000 adults in the U.S.A., Hoofnagle, King, Li, and Turow found that younger and older adults are ‘more alike on many privacy topics than they are different’, but that ‘young-adult Americans ... aspiration for increased privacy’ is tempered by their desire to ‘participate in an online reality that is optimized to increase their revelation of personal data’ (2010, p. 20). Amongst new parents, Ammari et al. suggest that gender is a factor in decisions around online privacy, with mothers more likely to take the lead in decisions around sharing content about their baby than fathers do (2015), although a larger study by Bartholomew et al. finds no significant difference in the frequency with which

mothers and fathers shared photos of their baby, amongst those who engaged in photo-sharing online (2012).

### **Online danger and being vulnerable online**

To defend their online privacy and to keep their data secure, UK citizens use antivirus software and firewalls to protect themselves, check for indicators of website safety (particularly for adults aged over 35 years), and report awareness of ways to flag inappropriate or offensive content (Ofcom, 2015). However, nearly two-thirds (64%) of surveyed UK Internet users reported using the same passwords for most or all websites (Ofcom, 2015). UK citizens' attitudes to privacy are inconsistent - whilst they are cautious about revealing personal information online, 26% report not reading website terms and conditions, and 68% balance the potential risks involved in providing personal information to companies with the convenience of getting what they want (Ofcom, 2015). This may lead to unintended and unforeseen consequences in the digital technology realm (Debatin, Lovejoy, Horn, & Hughes, 2009), such as personal data being sold for use by third parties in targeted marketing.

### **Challenges and opportunities of connecting with citizens**

One of the challenges of using digital technologies to connect government and the public sector with citizens lies in understanding the needs of both service providers and service users. Few projects speak to both stakeholders and citizens: researchers more commonly seek the perspective of *either* government employees (Clarke & Margetts, 2014; Mergel, 2014; Shackleton, Fisher, & Dawson, 2004) *or* citizens (e.g., Daou, Karuranga, Thiam, Mellouli, & Poulin, 2012; Kumar, Ureel, King, & Wallace, 2013). In a case study of the Singapore tax authority, Tan, Pan, and Lim (2005) identified stakeholders and their interests, but only spoke to government employees, relying on work from the early 1990s to provide taxpayer perspectives, thus leaving a gap in the literature for the exploration of the concerns of *both* stakeholders and citizens in an increasingly digitally mediated society.

## **Methods**

### **Two qualitative studies**

Empirical findings presented at the Workshop were drawn from two linked qualitative studies that used the complementary methods of ethnography and experience-centred design (McCarthy & Wright, 2004; Wright & McCarthy, 2010). We first detail these qualitative studies, and insights generated which were subsequently presented to stakeholders, before describing the Workshop that made use of these insights.

### **Study 1: ethnography to understand today's digital life across the lifespan**

The first author conducted an ethnographic inquiry (Schensul, Schensul, & LeCompte, 1999, p. 1) into participants' online lives *as they are lived now*. This involved individual,

semi-structured interviews (1 ½ to 2 hours), with 46 research participants (Sample 1). Interviews were augmented with participant observation, including informal conversations with individuals about technology use and observing technology use in public locations within the city. Interviews and observations all took place in the same mid-sized city (~150,000 residents) in the UK between December 2013 and December 2014. Participants were recruited through community contacts, maximising diversity in terms of occupation within each group. The University of Dundee granted ethical approval for this project.

### **Study 2: experience-centred design to inspire new strategic design directions**

The third and fourth authors adopted an experience-centred design approach to study how another set of 18 participants (Sample 2) made sense of the technology they use in their daily lives, with the aim of *inspiring new design directions*. Participants took part in an initial interview about their everyday experiences with technology through the life transition being studied, and their perspectives on supportive technologies for their future online life. Design prototypes were designed and then ‘deployed’ for these participants to live with for up to a month between January 2014 and May 2015 (Trujillo-Pisanty, Durrant, Martindale, James, & Collomosse, 2014). These designs were interventions that provided new interfaces to the participant’s online representations of self, inviting reflection and ideation on the research topic. Each deployment was followed by an exit interview about the participant’s experiences and perspectives on future technology opportunities. This study took place in a UK city of ~300,000 residents. Newcastle University granted ethical approval for this project. Demographic characteristics of both the ethnography and experience-centred design participants are summarised in [Table 1](#).

### **Data analysis**

The ethnographic studies were analysed using a grounded theory (GT) approach (Charmaz, 2011; Strauss & Corbin, 1990), which involved letting theory develop out of the collected data. This approach allowed us to identify individual perceptions and actions in the context of everyday life experiences, without preconceptions. The experience-centred design studies adopted an interpretative phenomenological analytical framework (Smith, Flowers, & Larkin, 2009). This involved the researcher coding transcribed interview data to understand participant ‘sense making’ at interview and about the design deployment. Further details about our data analysis can be found online in [Supplementary Table A](#).

**Table 1.** Participant demographics.

Group	Young adults	New parents	Older adults	Total participants
<i>Sample 1: Ethnography Participants</i>				
Male	8	6	8	22
Female	7	10	7	24
Age range	18–23 years	17–50 years	59–70 years	
<i>Sample 2: Experience-centred Design Participants</i>				
Male	2	3	3	8
Female	2	5	3	10
Age range	19–21 years	25–35 years	57–73 years	



## Findings

### *Distilling findings from qualitative studies*

After data collection, we selected those of our research findings that were relevant and useful for stakeholders. Research insights to focus on in the Workshop had to:

- (1) Be related to stakeholders' known interests.
- (2) Be common across the ethnographic and experience-centred design research strands.
- (3) Open up discussions on service design.

Based on these criteria, we chose a subset of concerns raised by participants to focus on. In the qualitative data presented below, participants are identified using a pseudonym, followed by their group (Young Adult – YA, New Parent – NP, and Recent Retiree – RR), and age at the time of interview.

### *Young adults' concerns*

One of the major concerns of young adults was *building and adding to an online persona* – including sharing attitudes and beliefs online, resharing and remixing online content, and having their digital identity shaped by others. Lauren talks about this concern in discussing why her use of online services has increased since she left school:

... when I was in sixth year, I think because I was still at school with everyone I didn't feel like I needed to ... really catch up or look at what everybody was doing, because I saw them every day. I was constantly in contact with them ... at the weekends. We'd even go out and things like that. Whereas now we're in different jobs, different cities, doing different courses, so there's more of a need to be online ... (YA19)

A second major concern was *getting things done online* – chiefly not only through communication with friends, but also by engaging in administrative activities online such as using banking apps or University course management systems.

### *New parents' concerns*

New Parents had deep *privacy concerns*. These included a focus on the appropriateness and security concerns associated with sharing photos of babies, concerns about a hypothetical near future with pervasive monitoring, and concerns about realities of visibility on Facebook that meant their past could not ever really be left behind as long as they stayed on social media (e.g., Fox & Tokunaga, 2015).

I'm not paranoid but I just don't feel the need ... I mean you hear these things about once stuff is online, basically ... you've got no control of it ... I've got ... an album of pictures of her month-by-month, and every month I use my cheap camera to shoot a little video snippet that demonstrates some sort of a milestone, but again this is not online. This is purely for us, and in private. (Laura – NP34)

New parents also focused on *developing their new role as parents*, seeking advice online. As they were often holding their baby, some parents adopted devices that allowed them to access the Internet one-handed, for example, preferring phones and tablets to laptop computers for most online tasks. Parents *maintained their own digital identities as they raised children*.

... although Facebook sounds like one of things that should [be the first to] go it tends to be one of the first things to keep because that is my contact with friends, family, where I get all my advice that is baby related ... through my groups, that is kind of why [I keep it]. (Alison - NP21)

### **Retirees' concerns**

Recent retirees' concerns included *online privacy*, ideas of what information was appropriate to share online, and knowing whom to trust.

I think there's always a risk that whatever you think is private may suddenly become non-private, because you can be hacked. We all know people who've had their mailboxes hacked, so the best thing is not to have anything on there that they don't want people to see. I mean you wouldn't put your bank statement on for example, or your medical records ... (Stuart - RR66)

Retirees also wanted to *maintain and strengthen social ties with friends and family at a distance*, which led to discussions with retirees of what would empower them to stay in touch.

I put my iPad on, that sits on the kitchen table so I just pop it on. It's a habit I've got into from my working days just [to] check emails. [Then] probably just catch up with the news there, watch television. And then probably about tea-time, I [check] my emails again. See if there's any news I want to catch up with, if I want to have a look at on my iPad or Mac to get further information. Mostly sports and news that I want to catch up with. (Tom - RR69)

Retirees engaged in daily routines with digital technology, and tended to browse and exchange information.

### **Organising the Stakeholders' Workshop**

Our intent was to create a highly interactive, discursive workshop, with a format that our stakeholders could relate to and identify value from. To achieve this, we drew upon the 'Seven Questions' technique in the 'Futures Toolkit for Policymakers and Analysts' (Cabinet Office & GO-Science, 2014) developed by the UK Government as part of its approach to Futures work, focusing on three of the seven questions:

- (1) *What would you identify as critical issues for the future related to this scenario?*
- (2) *If things went wrong, what factors would you worry about – what are the risks you identify for your organisation?*
- (3) *Looking at your organisation, how might processes need to be changed to bring about desired outcome(s)?*

To enable stakeholders to respond to these questions required an engaging and effective distillation of our research insights. To achieve this, we developed a bespoke 'Picture Book' that presented three narratives, each representing one of the three life transitions. Each narrative consisted of a character-driven scenario alongside selected empirical research insights (as described above) and service design implications. These were used to prompt stakeholder dialogue. The design and use of the Picture Book are the subjects of a separate publication (Durrant, Moncur, Kirk, Trujillo-Pisanty, & Orzech, 2016).

## Workshop planning and execution

The planning and delivery of the Stakeholders' Workshop was a multi-stage process that involved iteratively developing and testing resources; logistical planning; inviting the right mix of stakeholders; and careful scripting, facilitation, and evaluation of the event. This process is summarised online in [Supplementary Table B](#). Details of participating stakeholders are presented in [Table 2](#).

On the afternoon of the Workshop, we welcomed Stakeholders and introduced the project. Each stakeholder was directed to one of three tables. At each table, a facilitator focused on a specific life transition and associated narrative from the Picture Book. Stakeholders first read the Picture Book narrative to contextualise, ground, and open up the facilitated discussion. They were then invited to respond to Futures Toolkit questions (described previously). Responses were captured on flip-chart paper by the table's facilitator. Stakeholders rotated around each of the three tables in turn. After engaging with all three life transitions, the stakeholders regrouped, and responses from the three tables were shared and further discussed. This final discussion was audio-recorded for later analysis. Data collected from the Workshop included the flip-chart notes and audio recordings. We analysed data from the Workshop using a GT approach, as described above for the ethnographic data. Further information about data analysis for the Workshop may be found in [Supplementary Table A](#).

## Findings from the Stakeholders' Workshop

Below, we present the major concerns of the stakeholders voiced at the Workshop, relating to the use of digital technologies by young adults, new parents, and recent retirees. For each life transition, stakeholders touched on some, but not all, of the themes uncovered through our ethnography and experience-centred design work. Some stakeholder concerns spanned multiple life transitions; we present these at the conclusion of this section.

### Young adults

Young adults were perceived by stakeholders as true *digital citizens*, and so our workshop participants were generally concerned with veracity online amongst young adults. This included a perception that young adults were creating a 'synthetic, artificial' version of self, which could embellish the truth about their lives for an online audience. Two reasons that stakeholders suggested for this perceived lack of veracity were (1) that online was perceived as a playful rather than a truthful space and (2) the view that others [online] have 'perfect' lives, leading to aspirations amongst young adults to make their own lives seem more perfect. Collectively, stakeholders perceived young adults as having their digital identities shaped by others, and expressed concern that young adults could be sharing attitudes and beliefs related to radicalisation or crime online. Following on from this,

**Table 2.** Stakeholder (service provider) demographics.

Group	Government civil servant	Employee of public sector organisation	Employee of an industrial enterprise	Total participants
Male	3	4	1	8
Female	3	1	1	5

stakeholders worried that young adults might not trust the government, and might fear that engagement with online services could open a window for government surveillance on their lives.

Stakeholders also expressed concern that familiarity with the online environment and doing so much remotely (rather than face to face) could *increase danger* for young adults. Young adults were seen as especially vulnerable to online risk, with our stakeholders concerned by their perceived inability to notice when they crossed a line into risky online behaviour. There were also concerns raised around vulnerability to crimes such as rape that resulted from meeting online acquaintances face to face without taking steps to ensure personal safety or verify that the acquaintance was who they claimed to be. A further perceived risk lay in citizens (especially but not exclusively young adults) not knowing who they are really interacting with online, as the contextual clues provided by offline interactions, including non-verbal signals and a network of trust based on personal relationships and local knowledge, are largely absent online.

This overall negative view of young adults online amongst stakeholders was mediated by a few *opportunities presented by connecting with citizens* – namely, how the perceived ‘always online’ status of young adults could be harnessed for civic good, through mentoring, advocacy, or as a communication network in an emergency.

### **New parents**

Stakeholders mentioned only one concern particular to new parents – *privacy*. Stakeholders briefly discussed how individuals could give consent for data sharing, especially in the case where the individual was a young child. They did not single out this life transition group as particularly *vulnerable to online danger*, or as associated with particular *challenges in connecting with citizens*. New parents were seen as young enough to be familiar with the online environment, but old enough to be wary of the danger they could find there.

### **Retirees**

Stakeholders were particularly concerned about retirees’ *vulnerability online*, buying into the stereotype of older computer users as unfamiliar with the online world and more likely than younger individuals to *reveal private information online* to individuals with malign intent. Several stakeholders noted that scams may target citizens at crisis moments, suggesting that even cautious older adults could fall prey to well-designed scams.

Stakeholders were worried about *connecting with retired citizens online* and concerned that retirees would not want to engage with online services, although they acknowledged that the digital literacy and connectivity of some retirees may be positively affected by their housing situation (multigenerational housing in London) or by relationships with children or other digitally literate friends.

Based on our interactions with digitally engaged retirees, who sometimes overtly asked to be involved in helping to develop services targeted at them, we asked stakeholders ‘How could government harness the civic participation (and time) of retirees?’ Stakeholders responded by brainstorming *opportunities presented by connecting with retired citizens*, ways that older UK citizens might help each other and their communities. For example, digital channels could offer opportunities for recent retirees to make use of their skills, perhaps enabling them to act like ‘a Civil Society Mechanical Turk’, carrying out socially

valuable tasks on an ad hoc basis and volunteering online – subject to careful vetting. Stakeholders suggested the provision of an ‘Outduction’ (as opposed to an Induction) when citizens retired, helping them to (continue to) be digitally engaged. This could contain advice on the digital aspects of life from getting a pension to avoiding online fraudsters.

### **Across the lifespan**

#### **Living as digital citizens: trust**

Stakeholders raised questions about *trustworthiness online*, with the discussion touching on questions such as ‘Can citizens trust government online?’ ‘Can government trust citizens?’ and ‘How does the government know citizens are who they say they are?’ The provision of dishonest information by citizens to government was viewed as generating negative social and economic consequences. Worries also arose about services such as peer-to-peer mentoring, which might be seen as Government ‘just trying to deliver services cheaply’.

#### **Privacy concerns**

The topic of privacy was intertwined with discussions on digital literacy, online vulnerability, and persistence of online content. Stakeholders perceived efforts at policing online content as potentially problematic. However, the European Right to Forget legislation,<sup>1</sup> which excludes content from online search results, was seen as potentially beneficial in helping individuals to protect themselves from unwelcome reputational damage. Stakeholders also raised the issue of Government working with the ‘really private’ data of individuals, debating whether citizens will be less honest in the provision of private personal data if they are concerned that their privacy will be compromised.

#### **Online danger and vulnerability online**

Many aspects of online life were seen as beneficial, including instant access to information and facilitation of social interactions that are linked to better mental health (Kawachi & Berkman, 2001). However, danger online was understood to go beyond inappropriate sharing and privacy breaches to far more sinister activities, including radicalisation and criminal activity. Social isolation caused by spending time online rather than in face-to-face social interaction was seen as creating vulnerability and a potential pathway into radicalisation for lonely young adults, who could be more willing to connect with unknown others online. Examples given of sophisticated scams and schemes conducted partly or totally online included identity theft, romance fraud, property theft, frauds involving diversion of bank transfers, and creation of fake profiles to meet and ‘groom’ potential victims online. ‘Digital vigilantes’ were also seen as creating problems by taking the law into their own hands, for example, by posting pictures of suspected paedophiles online. The stakeholders emphasised how citizens need to be empowered to behave responsibly and in ways that keep them safe online.

#### **Challenges and opportunities of connecting with citizens**

Connecting with citizens was a central concern for the stakeholders. They expressed concern that connecting with all citizens to an equal extent is challenging, since citizens have a diversity of skills and interests, as well as a range of attitudes about online communication

channels. The stakeholders also speculated about effective delivery of Government and other ‘official’ communications to citizens. They asked, ‘Is an email as good as a letter in the post, or will it be ignored as part of the digital deluge?’ without a clear answer.

The stakeholders saw education to raise digital literacy as a central opportunity for government to digitally enable UK citizens. Such education might include providing guidance on how to behave online and how to identify online danger, including a ‘primer’ on trusting people who were met through online channels. They suggested that easy-to-use online government services could reduce digital literacy challenges faced by citizens. This ease of use could be increased by helping citizens to complete online forms through the use of Artificial Intelligence or ‘In-interface’ tutorials.

They also described wishing to increase citizen engagement with Government by understanding and engaging with the diverse experiences of digital citizens. Stakeholder suggestions for new ways to engage – particularly around payment of taxes – included moving towards digital communications (and evaluating their effectiveness) such as paperless reminders to all and tailored communications to predicted ‘bad payers’, and tying Her Majesty’s Revenue and Customs (HMRC) services with banks. This discussion leveraged our findings about how citizens express a high level of use and trust of online banking across age groups.

## Discussion

Talking to stakeholders from government, industry, and the public sector raised interesting points about their perceptions of UK citizens living as digital citizens today, coping with privacy concerns, vulnerability and danger online, and potential challenges and opportunities of connecting with citizens. We found that citizen and stakeholder concerns were quite different. For example, our project participants placed a strong focus on communicating with friends and family, and maintaining relationships over time and distance. On the other hand, our stakeholders hoped to connect to citizens they (often) had little prior relationship with, and persuade them to use new software for a ‘business’ purpose such as preparing tax returns or providing other sensitive information to the government.

Our research aligns well with previous work investigating the perceptions of citizens and government stakeholders regarding e-government, although our findings suggest a need to move beyond theorising about stakeholders (e.g., Rowley, 2011) to begin to incorporate the concerns of both parties when seeking digital technology solutions acceptable to the widest possible group.

We found that our stakeholders tended to *underestimate* the willingness and ability of citizens to become involved online with the government and public sector and *overestimate* citizens’ vulnerability online. Part of this seemed related to common stereotypes of particular citizen groups – for example, believing that retirees will uniformly find it hard to get online. Our project data did not support the characterisation of older adults as averse to getting online or naive to what they might find there; instead, we found that our participants were extremely cautious about revealing any personal information online because they *were* aware of online risk. This risk awareness of older adults is also supported by several investigations into older adults’ privacy behaviours on social media cited above.

Finally, we realised that one of the main benefits of the Workshop for the stakeholders was the opportunity to meet together to talk through a range of concerns about digital

technology and its use at various life transitions. Stakeholders were able to hear what others were doing with digital technology at the Workshop, and walk away with ideas of how to improve their own services, and how to harmonise offerings across government departments.

In addition to seeking citizen and stakeholder perspectives, future research should investigate practical strategies for increasing communication between these two groups. The Workshop discussions identified that Government engagement needs to be developed to take into account the diversity of the UK's digital citizens, preferably tailored to individual and (age) group differences, and target information to specific kinds of users by customising the medium and the message. Citizens themselves have a role to play here by engaging in bidirectional communication with Government. If citizens provide feedback to Government on new digital services and are acknowledged, the Government may be seen as more effective and approachable as a result. Suggestions for new ways to engage with citizens – particularly around payment of taxes, that emerged from the Workshop discussions included:

- Evaluating the effectiveness of paper versus digital communications in communicating with UK citizens, including sending paperless reminders out to taxpayers towards financial year-end;
- Tying HMRC (tax) services with banking services;
- Sending automatic, tailored communications to predicted 'bad payers' to encourage payment;
- Deploying new approaches and communication channels specific to young adults – for example, helping them to understand their responsibilities regarding making tax payments.

We also encourage further research into ways to encourage stakeholders to work together to benefit their common clientele – the citizens. Through the Workshop, it emerged that common goals exist within Government departments of protecting UK citizens, and of making citizens more aware of the risks inherent in online life. Although stakeholders identified an existing reticence to share data about citizens, even within the same Government department, there was enthusiasm towards the potential to share knowledge and instigate coherent cross-department initiatives, ensuring future integration and cohesion of data and combined knowledge of UK citizens. Inter-agency cooperation around citizens' engagement with digital technologies was seen as desirable.

By seeking perspectives from citizens and stakeholders, and encouraging the two groups to work together, as well as encouraging stakeholders to work together across government, the public sector, and industry to create a more streamlined e-government experience, we encourage researchers and others interested in this subject matter to address the social implications of digital technology use *along with* statistical data to create better e-governance systems for the future.

## Conclusion

In this paper, we have provided a summary of the qualitative findings about digital personhood and digital technology use generated from CDL studies of UK citizens after

they have experienced one of the three life transitions: leaving school, becoming a parent, and retiring from work. We have further described how these findings were presented to a group of stakeholders in the research for further sense making about the CDL subject matter, reporting on their responses and perspectives.

Findings from the first studies revealed how individual participants were concerned with building an online persona and getting practical things done online. However at the Workshop, stakeholders from Government, the public sector, and industry showed more concern for the privacy implications of citizens' behaviours, and how to reach out to citizens to encourage them to use (and be honest with) government services. Our project is one of the first to incorporate both citizen and stakeholder perspectives on risks and opportunities associated with the digital lifespan in an increasingly digitally mediated age, an area that presents fertile ground for further inquiry.

## Note

1. <http://ec.europa.eu/justice/data-protection/files/factsheets/factsheetdataprotectionen.pdf>.

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