



Older people and the internet

Towards a 'system map' of digital exclusion

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Executive summary

Information and communication technology – in particular the internet – has become ever more ubiquitous throughout society in recent decades. The internet is now central to our economic, cultural and political lives, used as a mechanism for the delivery of public services, personal communication, and as a vast source of information and entertainment.

However, older people are significantly less likely to have access to the internet than the general population. According to recent research findings, 79 per cent of households below the state pension age have internet access, while only 37 per cent of households above the state pension age do so. This difference gives rise to the notion of the ‘digital divide’, between those who enjoy access to the internet and those who are excluded.

There have been a number of attempts to widen access to the internet, among older people and other excluded groups. There are ongoing upgrades of Britain’s technological infrastructure, increasing internet capacity throughout the country. There are initiatives to counter the financial barriers to inclusion, by providing subsidised equipment or free internet access, in people’s homes or in public places. The state has also supported the provision of training in ICT skills over a number of years.

It is important that policy is clearly focused on the proven causes of digital exclusion. A distinction has been drawn between the first-order and second-order digital divides, largely defined by whether the reasons for exclusion are material or non-material. Survey findings reveal that among those who do not have access to the internet, most people cite non-material reasons such as lack of skills or lack of interest to explain why they are not online. Other research has highlighted the psychological barriers preventing older people from accessing the web. These reasons appear to be more influential than material factors such as cost or lack of physical infrastructure.

However, the debate about the first- and second-order divides is not helpful in addressing exclusion. While the second-order factors appear most important, we cannot dismiss the material factors entirely. Furthermore, to subsume a wide range of second-order factors covering older people’s skills, psychology and interests into this single category is arbitrary. Finally, we also have to consider the content of the internet – which does not fit neatly into this framework – and the extent to which it meet the needs of older people.

A new analytical framework for assessing the causes of the generational digital divide – and moving us toward solutions – should be based on the ‘system map’ approach. In this, a wide range of contributory factors are considered as part of the overall cause of an individual’s exclusion from the internet. The clarity this approach provides will help policy-makers devise better strategies for tackling the digital divide.

Introduction

Technological advancement is a permanent feature of human society. However this advancement is by its nature an inconsistent phenomenon, with periods of relative stability in technological capability punctured by periods of rapid innovation that can have profound consequences for society. The past four decades have by most accounts belonged to the latter category, particularly because of the development of what can be broadly described as ‘information and communication technologies’ (ICTs) since the 1970s.

It is revealing that ‘information’ and ‘communication’ are combined in this term, because in some ways these represent two different technological spheres. For information technology, the post-war period has seen rapid developments in computing; computers have grown astronomically in terms of processing power, speed and capacity in recent decades. For communications, the progression has been toward ever more sophisticated and flexible means of communication, from the telegraph to the mobile telephone. The most crucial point to realise is that in the past 30 years these two strands have largely ceased to develop separately: it is the synergy between information and communication technology that has been most revolutionary.

The most remarkable outcome and the symbol of this transformation is the ‘internet’. This technology began life as a relatively simple means to enable communication between linked computers, and has evolved into ever more diverse forms, from websites, e-mail and social networking to telephony, video streaming and interactive virtual worlds.

This technology is used in a countless variety of ways. Among other uses, it is a mechanism for the delivery of public services, a means of personal communication, a vast source of information, knowledge, and entertainment, and an enabler for new industrial practices such as ‘remote working’. The very ubiquity of its application has encouraged researchers to develop new theories of social organisation to describe the effects, such as Manuel Castells (2006) ‘network society’, in which the web is seen to have helped bring about a shift away from hierarchical forms of organization.

It is clear, however, that use of the internet is not even throughout society. This has given rise to much discussion of a ‘digital divide’. In this think-piece, I focus in particular on the experience of older people. In the next section, I examine the evidence on internet take-up among older people. In section three, I consider various attempts that have been made to narrow the digital divide. In section four, I evaluate in more depth the potential reasons for low internet take-up among older people. In the concluding section I propose a new analytical framework and guide to action for policy-makers attempting to tackle the digital divide.



Internet use among older people

Unequal access to the internet is a phenomenon that has been identified across numerous different countries including Britain. The term ‘digital divide’ has been coined to describe this inequality in access. Before we begin this discussion about what the digital divide means for older people and how it can be addressed, it is important to understand some of the nuances involved in the deployment of this concept.

First of all, it is by no means the case that older people are the only social group on the wrong side of this divide. Researchers have also shown that internet use tends to be lower among people with lower incomes and lower educational attainment, disabled people, single parents, female homemakers and people living in rural communities (see Räsänen, 2006; Wong et al, 2009).

Secondly, it is vital not to assume older people can be considered as one group (see Roberts, 2010). The statistics described in the previous section reveal that a great many older people do use the internet. Even for those who do not, the reasons that prevent take-up among one older person do not necessarily apply to all older people. Indeed, the excluded social groups referred to above are not mutually exclusive categories: an individual older person may also be part of the ‘low income’ group, the ‘rural’ group, the ‘female homemakers’ group, or any combination thereof.

Research findings

Here I will introduce the available data on this topic, which is derived from two main sources: Social Trends data published by the Office for National Statistics (Randall, 2010) and the e-communications household survey by the European Commission (2010).

The data cited here predominantly focuses on internet access within a person’s home. It is necessary therefore to discount the possibility that many people choose not to connect at home because they have access elsewhere, such as at work, school or a local library. If this were the case it may mean information on household access gives a misleading picture about inequalities in access. By and large, however, it appears this is not the case. When researchers have asked people in surveys why they do not have access to the internet at home, only a very small proportion say this is because they have access elsewhere (European Commission, 2010; Randall, 2010).¹

The ONS research shows that older households are significantly less likely to have an internet connection. In fact they are only half as likely. Among one-person households below the state pension age, 79 per cent have internet access. Among one-person households above the state pension, only 37 per cent do so.²

¹ In the Office of National Statistics survey, 8% of respondents without home internet access gave this reason. In the Eurobarometer survey, 4% of UK respondents did so.

² It is likely these results under-estimate the level of connection within each group, because one-person households are generally less likely to have an internet connection than multi-person households.

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This finding is replicated in the European Commission research. This shows that while 57 per cent of all households across the European Union (EU) have an internet connection, only 17 per cent of one-person households aged over 60 are connected. These results are broken down further among different groups of older people, showing how internet connection decreases with age:

- 52 per cent of households aged 55-64 are connected;
- 35 per cent of households aged 65-74 are connected;
- 14 per cent of households above 75 are connected.

The ONS data does show that internet access has risen considerably among older people. Among households above state pension age, the number with an internet connection rose by 26 percentage points between 2000 and 2008. However this increase was outstripped by the increase among all other households, which was 40 percentage points.

Older people who do use the internet tend to do so less frequently than younger people. The ONS data shows of all internet users log on every day, while only 59% of older users (above 65) do this.

Other research has looked in older people's use of particular functions or services on the web conducted. Research by ILC-UK (2010) found that while almost half of 30-34 year olds had bought something through online shopping in the past year, less than a quarter of 60 to 64 year olds had done so. Research by Ofcom (2009) showed that while 38% of all internet users have a profile page on a social networking website (Facebook, Myspace, Bebo, and so on), only 8% of users over 55 have a profile page.



Attempts to widen access

The digital divide has been fertile territory for public policy in recent years. A wide variety of initiatives have been introduced to help address the problem, directly or indirectly. In order to inform the later discussion, a summary of interventions made in the domains of infrastructure, cost and skills – and some of their limitations – is presented here.

Infrastructure

There has been significant investment in establishing and upgrading Britain's technological infrastructure. Most recently this has focused on rolling out high speed broadband cables. This is being funded by government and carried out by BT, with a deadline of 2013. While this initiative may be important for Britain's economy, its utility in closing the digital divide is likely to be limited.³

The European Union has been active in this area over a number of years, supporting the upgrade of technological infrastructure through its regional policy. It is particularly interesting that the EU's interventions have been aimed explicitly at reducing inequalities in internet access, defined geographically: that is, disparities in access between different regions (see Berry & Berry, 2006). For Gibbs (2001), however, the policy has suffered through a focus on supply-side dimensions (providing new technologies) rather than addressing the paucity of demand for the technology. He cites the example of the Highlands Telecommunications Initiative, in which it he found that new ICT infrastructure was being provided in the region in excess of what Highlanders were able to utilise.

Cost

There are initiatives that appear to primarily address the issue of cost, either of equipment or subscription. Some interventions have focused on providing access to the internet in public spaces. One widespread example is the provision of free internet access in public libraries throughout Britain. Another, more sporadic scheme has been for local authorities to provide free wireless internet in particular locations. The latter was pioneered in Norwich, where in 2006 the city council distributed 200 antennae to allow free internet

³ There are concerns, too, about the suggested methods of paying for these upgrades. Levying a new tax on landline telephones and using a proportion of the television license fee have been proposed by the previous and current governments, respectively: essentially asking for users of 'old media' to pay for the rollout of 'new media'. In both cases it is likely that the infrastructure would be paid for by many people who do not have the ability to use it, particularly older people.

access throughout the city centre.

Other interventions focus on providing free or subsidised access at home. A national government scheme developed in 2008 was to give households with children vouchers of up to £700 to pay for broadband connection, software and computers, in order to help them access the internet. Another initiative involving the private, voluntary and public sectors is CommunityUK.net. This project provides free wireless internet in particular residential areas - the first is in Leigh Park, Hampshire - so everyone living in the area can access the internet without paying to subscribe.

There are limitations to these interventions. City centre wireless schemes require users to have the means to access them, such as a laptop computer or smartphone, and therefore do not target those on the wrong side of the digital divide. Library access is more socially inclusive, although for individual users there are limitations on access because of restricted time availability and terminal space. In both cases, there are also private sector alternatives that may be just as effective. Many retailers already offer free wireless internet to their customers. Meanwhile, internet cafés are in most places more widely available than public libraries: although they charge for usage, casual access is available at an affordable price through these establishments. The domestic access schemes overcome some of these difficulties although, clearly, older people could not benefit from a voucher scheme focused on children.⁴

Skills

There is a wide range of state-funded support available to adults to develop ICT skills, with a variety of providers and courses that differ in length and delivery method. Courses are offered through further education colleges, community learning providers, learndirect, public libraries, voluntary organisations and work-based learning providers and websites. There is a mixture of free and paid-for provision. There is also publicly available content - for instance the BBC's Webwise site or how-to guides produced by Which - instructing people in using computers and the internet.

A recent review of this commissioned by the government found that from the perspective of users, the provision of ICT skills was complex and difficult to navigate (Morris, 2009). It also found that since 2005 there had been a significant fall in participation in ICT courses and funding was shifted away from short courses, and greater priority was given to numeracy and literacy courses.

⁴ Research by Wong et al (2009) found that the digital divide was less pronounced among children: those from low income households had comparable levels of internet usage to those from higher income households.

Explaining the digital divide

An ongoing drawback of attempts to widen access to the internet has been an insufficient understanding of the causes underlying low take-up. Over recent years as interest in the topic has increased, however, the evidence base has improved. A summary of recent findings is presented here.

Factors that have been considered are the costs of equipment and subscriptions, knowledge of and interest in the internet, the local technological infrastructure, and privacy and security concerns.

First- and second-order divides

The reasons for low take-up are often divided into material and non-material factors. These reflect much academic discussion about the 'first-order' and 'second-order' digital divides (see Kim et al, 2009). The first-order digital divide is about materials: ownership of or access to the technology. Not everyone has the computers, modems and internet connections to enable them to go online, while some have newer, better versions of the technology than others. The material dimension can also be experienced geographically, if a particular area has no or lower quality connection: for instance the cables required for high speed broadband internet. The second-order digital divide is about skills and usage: that is, even with the materials to go online not everyone possesses the same skills in using the technology.

In a recent study Wong et al (2009) examined six social groups thought to suffer a degree of 'exclusion', comparing their access to, knowledge of and usage of the internet. They found that while these groups did have lower access to the internet than 'mainstream' society, they did not lag excessively far behind: where a mainstream, 'included' person was assumed to have access score of 1.0, most of the excluded groups had scores of 0.7 or higher and all were above 0.5. However in terms of knowledge and usage of the internet, the excluded groups were much further behind. With 1.0 representing the mainstream score, only one of the excluded groups had scores above 0.5 or higher for knowledge and usage, and three of the excluded groups were below 0.2 for both measures.

These findings are corroborated in the Eurobarometer and Social Trends research. Table 1 below shows what reasons were given by survey respondents when asked why they did not have internet access:

Table 1: Reasons for lack of internet access

	Social Trends	Eurobarometer (UK respondents)
Material factors	18% Cost of equipment 15% Cost of access 2% Physical disability	14% Cost of subscription 7% Cost of computer/modem 5% Cost of installation 0% Lack of local infrastructure
Non-material factors	39% Don't need internet 21% Lack of skills 20% Don't want internet 4% Privacy/security concerns	55% Lack of interest 2% Don't know what internet is 1% Unsuitable content

Source: European Commission (2010); Randall (2010)

Older people's attitudes

Some research has examined in the more detail the psychological reasons older people may have chosen not to use the internet. For instance, Reisenwitz et al (2007) studied the internet use of older people in, and examined correlations between internet use and three personal traits. They found that older people who were more innovative, less risk averse and less prone to nostalgia were more active internet users.

Researchers for the think-tank Demos developed a typology of older people according to their psychological approach toward using the internet (Hannon & Bradwell, 2007). They identified four distinct types of older person: the *non-line outsider*, who is not generally averse to using the internet, but is hampered by fear and uncertainty; the *tech sceptic*, who is critical of technology and resentful of pressure to become connected; the *cautious toe-dipper*, who has tentatively embraced the internet for basic tasks but is wary of trying new websites, software, or deviating from trusted brands; and the *digital trail-blazer*, who is adventurous about trying out new things on the internet and is evangelical in their enthusiasm. Importantly, the Demos research identified that specific age groups within the elderly population were more likely to be in one group or another: for instance over 75s were more likely to be non-line outsiders, while 55-65s were more likely to be tech skeptics.

Content

One set of potentially significant factors determining older people's access to the internet, which has not been fully examined in research to date, concerns the content of the internet. Arguably, content is overlooked in analyses of the digital divide because research

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tends to focus on the excluded individuals themselves: their views, tastes, capabilities, location, financial circumstances, and so on. In contrast, the content of the internet is an external factor. Clearly, it would be difficult to find out from excluded individuals whether the content of the internet discourages take-up, given their knowledge of its content will be limited, although it is hinted at in the survey results discussed previously: when respondents say they "don't need the internet" or that they are "not interested in the internet."

There are several ways in which the content of the internet might encourage or discourage take-up, according to the extent to which the services available on the internet are relevant to older people. The CommunityUK.net initiative discussed in the previous section seeks to include – as well as offering free wireless internet access – a local information directory covering job and educational opportunities, business listings and information about community events. Government is already publishing much of this kind of content directly. It is possible to interact directly with a host of public services online, from booking an appointment with a doctor or renewing a library book, to reporting fly-tipping and finding a care home.

There has been content designed specifically to encourage older people to use the internet, based on the use of accessible web design. For instance, the website Finerday is a social network designed to encourage older people to use it: it has a number of the functions of other networks such as Facebook, but with high contrast colours, large font and a simplified format. There are also accreditation schemes for accessible web design, such as Age UK's AgeOK kitemark scheme (Roberts, 2010).

The utility of initiatives like Finerday and AgeOK may depend on the extent to which low take-up is a result of physical disabilities among older people, which is not proven conclusively in research, although some evidence is supportive of this approach: when older web users were asked by the consultancy webcredicle if they felt websites were designed with them in mind, only one in five respondents agreed (see ILC-UK, 2010).

We have to be wary, too, of making an assumption that older people are interested in 'older people's websites'. In social networking particularly, there is no evidence that older people want to network exclusively among their own age group. Indeed, there is a general lack of evidence on what types of internet content older people are more likely to be interested in.

Towards a system map

Beyond the first- and second-order divides

It is apparent from survey findings that that non-material factors predominate in the reasons people give about why they do not have internet access. Research into the psychological drivers of internet take-up add even further weight to the idea of a 'second-order' digital divide. This helps us to understand the limitations of some efforts to close the digital divide that have focused on the 'first-order' issues of cost and infrastructure.

However, it would too simplistic a conclusion to merely endorse the notion of a second-order digital divide, for several reasons. The first is that we cannot dismiss material factors entirely. In particular, cost is given as a reason for lack of access by a significant minority in both the Social Trends and Eurobarometer research. Because the responses to this question are not mapped to age, it is not clear whether this is an even more significant factor for older people.

Secondly, there are many nuances within the notion of a second-order digital divide that have to be fully explored. We should not subsume different explanations for low take-up – some based on the need for skills, some on psychology, some on privacy concerns, and so on – under this single heading just for the sake of convenience. That is, to argue that low internet take-up among older people is caused by a lack of the necessary skills is not the same as arguing that low take-up is caused by a psychological aversion to risk. These are distinct issues that should be treated as such.

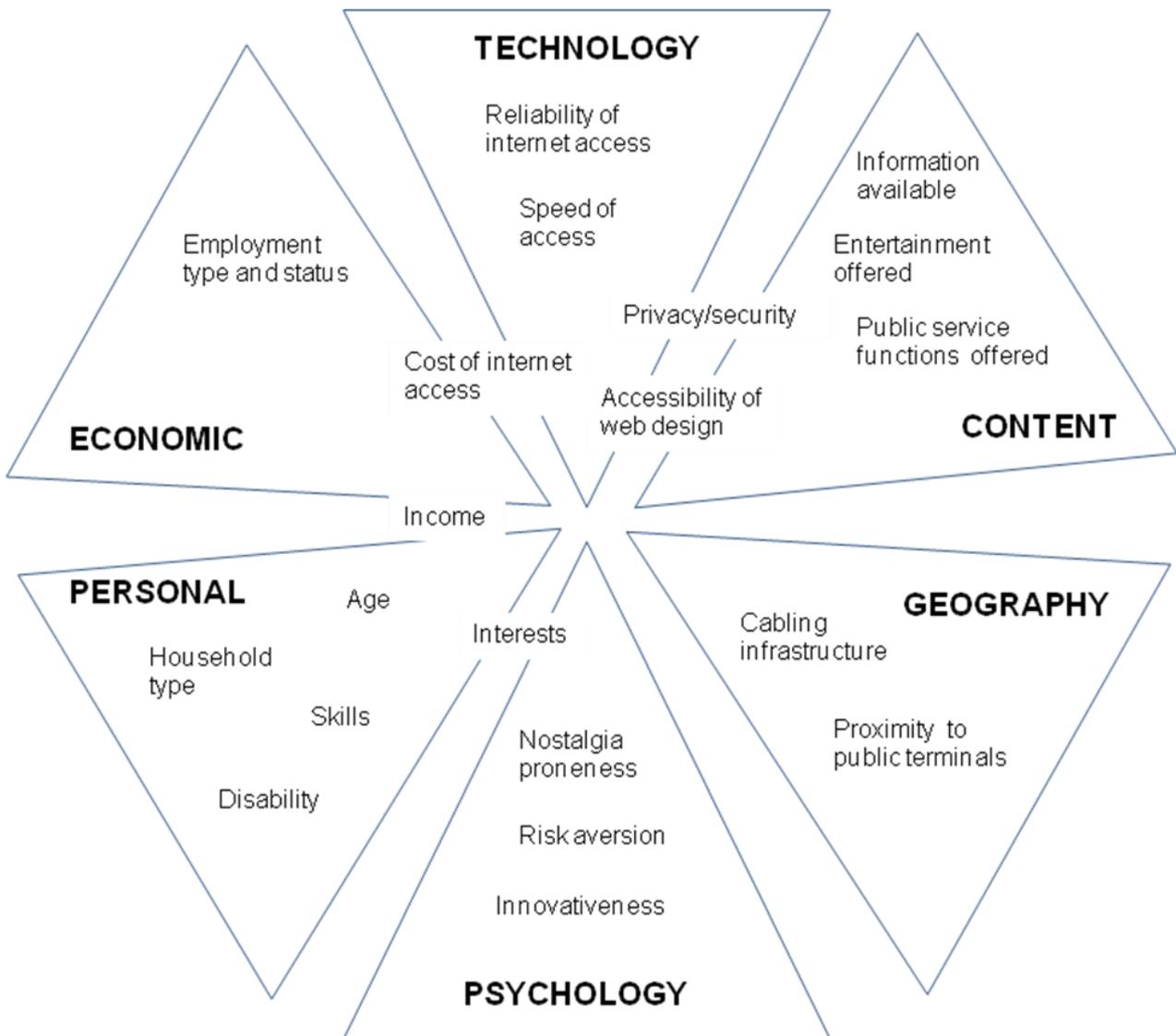
Thirdly, discussion of the first and second-order digital divides does not seem to help us factor in the impact of internet content. As content is not a direct material factor for an individual, we might say it belongs to the domain of the second-order divide. But this would make the mistake of thinking that the second-order category is simply a repository for everything else that is not related to cost or technological infrastructure. In some ways content can be a 'physical' concern – when we consider the accessibility of website design – which is suggestive of the first-order category. Factor in content as a potential cause of low internet take-up can probably only be achieved by rethinking our analytical framework.

Towards a digital divide system map

To gain a fuller insight into the reasons for lack of internet access, we would need to understand the full range of factors that contribute to take-up and consider how these relate to each individual. This kind of approach has been developed in other policy areas, particularly in health. For instance, researchers analysing the reasons for the increase in obesity have devised an obesity 'system map' (Government Office for Science, 2007). In

this model, the 'system' is "a structured set of objects and/or attributes together with the relationships between them", and it is mapped in order to help understand the complex set of variables that contribute to the existence of a particular attribute (either for a single individual, for a group of people, or for society as a whole). The obesity system map contains 108 separate but inter-connected variables affecting the likelihood of a person becoming obese. These variables are divided into seven overarching domains, including individual psychology, food production, the physical activity environment and physiology.

The same could be done for digital exclusion. Variables that would need to be incorporated include age, income, geography, education level, household type, employment status and type, psychological factors, computer skills, the local technological infrastructure, and the cost of equipment and subscriptions. The factors could be mapped as a whole, moving away from distinctions between first- and second-order factors. The diagram below sets out the first step toward a system map for the digital divide:



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Here I have identified a number of variables in the digital exclusion 'system', and placed them within one of six overarching domains. This is a starting point; the approach would need to be refined by further analysis and research. Additional variables will surely need to be included, the relationships between variables identified, and the relative strength of each variable determined.

The utility of this approach is that it allows us to focus on the individual and assess the range of factors that contribute to their digital exclusion. For each person the contributory variables are likely to differ. Among older people in particular, we can begin to differentiate between those of different generations, between those in different income groups, between those who live with family and those who live alone, between those who live in urban and rural communities, those who have a physical disability and those who do not, and so on.

For policy-makers, this approach supports the development of coherent, multi-faceted strategies to address the digital divide. If the impact of a range of different variables can be assessed, then policy can be designed to take many of these into account. This should lead to a shift away from the isolated initiatives that seem to characterise most efforts to increase inclusion.

Recommendations

1. Researchers should conduct more comprehensive studies into the factors causing digital exclusion among older people, using surveys with large sample sizes and qualitative research. The aim should be to develop a more detailed understanding of the factors influencing older people specifically.
2. Researchers should conduct more comprehensive studies into the influence of internet content on digital exclusion among older people. These should explore what types of content are likely to encourage older people to use the internet.
3. Website providers, including in the public, private and voluntary sectors, should assess whether their content meets standards of accessibility required by many older people, and where necessary take steps to ensure this is the case.
4. Policy-makers should develop a coherent, multi-faceted strategy to address the digital exclusion of older people, based on the best evidence about the complex causes of digital exclusion. The strategy should cover education and skills, financial issues, infrastructure, internet accessibility and other relevant factors.
5. A cross-government team should lead the implementation of the strategy. The team should map all existing initiatives divide at the local, national or supranational levels that aim to address the digital, and ensure that their delivery is in line with the objectives of the strategy.

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