Citizens **Information** Board
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Digital Exclusion and E-government in Ireland

A Citizens Information Perspective

Authors
Michelle Norris, Joanne Kelleher, Jack Bwalya
School of Social Policy, Social Work and Social Justice
University College Dublin
Belfield, Dublin 4

Preface

This Citizens Information Board (CIB) commissioned research report examines the increased use of e-government in Ireland and its implications for citizens' access to public and social services. The research is informed by the experience of information providers in Citizens Information Services (CISs) acting as intermediaries in assisting people access these services. Research findings in this report present the extent, nature and causes of digital exclusion and constraint, and the overlap between these problems and social exclusion. The research drew from existing survey data, in particular the CSO Information Society Statistics: General Household Survey (GHS), an online survey involving CIS information providers, as well as CIB national caller and query datasets. Feedback from CIB funded services on the impact of the growth in digital public services on their clients, and the nature of their requests for assistance, also inform the findings.

Since the research was carried out for this report, the use of digital technologies to support the provision of public and social services increased significantly during Covid-19. These events, and the sudden loss of face-to-face services highlighted for many the significance of public and social service provision in our lives. It also required those services, many of which are integral to day-to-day living, to be innovative and expedient in adopting online and digital ways of reaching out to people in order to continue providing core services and supports.

Much of the innovation delivered since March 2020 accelerated existing e-government national[1] and international strategies. The 'Berlin Declaration on Digital Society and Value-Based Digital Government' was signed by the Minister of State with responsibility for e-government, Ossian Smith TD on 8 December 2020. The Declaration, agreed by European Ministers responsible for digitalisation of the public sector 'aims to contribute to a value-based digital transformation by addressing and ultimately strengthening digital participation and digital inclusion in our societies'.[2]

While CISs operated at a reduced capacity during the pandemic, the service experienced an unprecedented demand for information and advice in relation to the rapidly changing information environment and the new emergency welfare payments and schemes, regulations and legislation which quickly came into effect. Over the course of 2020, the service moved from a primarily face to face service to a telephone based delivery model.[3] A number of digital offerings were put in place, including a new web based Request a Call Back Service, which was made available through citizensInformation.ie and the CIB website, operated by CIS staff, where members of the pubic could provide their contact details and request a follow-up call from an information officer.

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1   'Our Public Service 2020' policy aims at making more extensive use of online services for cost effectiveness and in proving service delivery to customers.
2   https://www.gov.ie/en/press-release/61626-minister-of-state-ossian-smyth-td-signs-the-berlin-declaration-on-digital-society-and-value-based-digital-government/
3   The service handled almost 400,000 calls during 2020, including calls back from the web-based Request a Call Back service.

The *Excellence in Customer Service Case Studies Report* (DEPR, 2020)[4] sets out the range of new digital offerings delivered in 2020 by social and public services to ameliorate the negative and exclusionary effect of the national lockdown for citizens. The breath of digitally-based services offered to the public and in particular the scale of the health and social protection response demonstrates the commitment of the public service and its ability to change and innovate quickly in response to evolving citizens' needs. However, these digital developments also served in some instances to exacerbate inequalities already present in relation to digital engagement and inclusion in Ireland. While, on one hand, the pandemic magnified the benefits of digital technologies in reaching people even in the most exacting circumstances, it also heightened the challenges posed by digital offerings - and exclusively online application services - for a significant sector of society who experience digital constraint.

Pre-pandemic, the World Economic Forum identified this *digital divide* as a critical threat. In 2021 it suggested the widening digital gap exasperated by the pandemic 'can further weaken societal cohesion, already fraying in many countries, and undermine prospects for an inclusive recovery' (WEF; 2021, 30). It suggests that those who already experience digital constraint, and who cannot engage with technology, will increasingly be excluded as governments strive toward digital dependency and the automation of services.

As this report articulates, it remains that digital technology is less beneficial for those who are, for various reasons, not digitally enabled. The experience of CISs during the pandemic indicates this, and points to the existence of continuing digital constraint problems among certain client groups. These groups include people who do not have easy access to the internet, who cannot afford connectivity, who are not computer literate, people with literacy difficulties generally, non-native English speakers, and older people for whom the use of digital technologies to support the provision of public services is challenging rather than enabling. The digital issues that have arisen during the pandemic, and for which CIS staff support their clients, include assisting people create email addresses, facilitating the processing of everyday applications such as passports, driving theory tests, and immigration permits.

Solutions to digital exclusion are examined in this report and the potential role of the CIS network in contributing to these solutions. Recommendations for combating digital exclusion and constraint in Ireland are presented, including the use of digital assisted support services as well as assistive technologies, providing multiple options for communication with public services and public authorities. Arguably, while digital technologies can reinforce social exclusion, when mainstreamed with the use of assisted digital channels and assistive technologies in e-government services, there is significant potential for digital solutions, not only to enable people with disabilities, but to help many other people who are in danger of being excluded from using e-government services.

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4   Published by the Reform Delivery Office (RDO), Department of Public Expenditure and Reform. See https://www.gov.ie/en/policy-information/3274fd-quality-customer-service-initiative/

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Introduction

"The industrial revolution of our time is digital" – Andrus Ansip, European Commission
Vice-President for the Digital Single Market, 2019

Across the European Union and in Ireland, public services and information about these services are increasingly being provided online. The expansion of these 'e-government' initiatives is a major policy objective for policymakers. The Irish government's *e-government Strategy 2017–2020* envisaged that, as the lives of citizens become increasingly digital, greater transparency, flexibility, efficiency and effectiveness are required of public administration (Department of Public Expenditure and Reform, 2017). A key underlying principle of this strategy is 'digital by default', which means that government services will be delivered digitally, as the preferred option.

The increased use of e-government has many advantages, including efficient and cost-effective delivery of services, ease of access for citizens and other users, and easier interaction with government (de Brí, 2009; Connolly, Bannister and Kearney, 2010). Additionally, the use of certain types of digital technologies, such as telehealth services in Ireland, have been found to have a big impact on quality of life (Hardill, 2013). Online resources also provide a wide range of opportunities to socially vulnerable individuals and other groups such as older people in the home (Walsh and Callan, 2011; Reginatto, 2012). Schou and Pors (2019) argue that the use of e-government represents a shift from the traditional paternalistic approach, where citizens were passive recipients of welfare services, towards active engagement by citizens to obtain their statutory entitlements.

However, reliance on online delivery of services may also have the negative unintended consequence of facilitating 'digital exclusion' by reducing access to public services among vulnerable groups, such as older people, those with low incomes, disabilities, low levels of education, literacy or computer literacy, and people who live in regions where broadband access is poor (Helsper and Reisdorf, 2017; Schou and Pors, 2019). Digital exclusion problems are regularly reported by the clients of the information, advice and advocacy services provided, funded and supported by the Citizens Information Board (CIB),[5] which commissioned this research. Examination of qualitative records of client queries to the Citizens Information Services suggests that a significant number of clients encountered barriers in accessing online public services or received an unsatisfactory service when using this mechanism.

Despite these concerns, and extensive international evidence demonstrating that reliance on e-government can impede access to public services, the extent of digital exclusion in Ireland had until recently, been the subject of little research.[6] This report aims to examine the nature of digital exclusion among users of public services in Ireland from the perspective of information, advice and advocacy services provided, funded and supported by the Citizens Information Board.

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5   CIB supports a network of Citizens Information Services (CIS), which provide free, impartial and confidential face-to-face information, advice and advocacy services to the public from over 200 locations across Ireland.

6   The National Economic and Social Council (NESC) has recently published research on 'Digital Inclusion in Ireland: Connectivity, Devices & Skills' NESC 2021, which draws on this CIB research.

Background: E-government and Digital Exclusion in Ireland and Europe

The first Irish government strategy on e-government, *Supporting Public Service Reform: e-government 2012 – 2015*,[7] focused on making greater use of digital facilities and information and communications technology (ICT) to improve the experience of citizens and businesses in their transactions with government.

The e-government strategy, *e-government Strategy 2017–2020*, which builds on the achievements of its predecessor, committed government to 10 key strategic actions to increase the use and efficiency of e-government. These cover a range of themes, including presentation of services online, secure online identification of clients, and measures to ensure that the underlying infrastructure and appropriate staff up-skilling required to support e-government, are in place (see Table 0.1 for details).

The *e-government Strategy 2017–2020* highlights several contextual changes that have occurred in recent years which increase the potential and need for e-government. These include: technological innovation, a more joined-up civil service, and the Public Service ICT Strategy and its 18-step delivery plan.

Table 0.1
Key Actions Proposed in the Irish *e-government Strategy* 2017–2020

1. Develop a Digital Service Gateway

2. Maintain an overall Digital Programme plan overseen by an e-government Minister

3. Develop our e-ID capability

4. Develop similar plans to facilitate business and location identification

5. Enhance our data-sharing capability

6. Introduce legislation to support our data-sharing ambitions

7. Continue to develop our Open Data portal

8. Simplify our processes and back-office infrastructure to facilitate better, more cohesive and more cost-effective delivery of government services

9. Put appropriate governance in place to ensure that our data is managed securely, our services are joined up appropriately and we maximise the efficacy of our investments through sound stewardship of projects and avoidance of duplication

10. Ensure our people have the skills and capabilities to help us move forward

Source: Department of Public Expenditure and Reform (2017).

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7   Department of Public Expenditure and Reform, 2012.

This strategy is closely aligned with the *Public Service Reform Plan*[8] and the *Civil Service Renewal Plan*.[9] It also provides an ICT response to some of the key actions proposed in *Ireland's Open Government Partnership National Action Plan 2016–2018*[10] such as increased citizen engagement to improve policies and services, and ensuring the necessary ICT skills and resources are available to meet the current and future ICT needs of the public service

The adoption of the *e-government Strategy* by the Irish government also reflected the increased use of this approach by governments in other European Union member states and by the European Union itself. Notably, in 2011 and in 2016, the European Commission adopted *e-government Action Plans* intended to accelerate "the digital transformation of government" and remove "digital barriers to the Digital Single Market" (European Commission, 2011, 2016: 2).

However, from the perspective of both extending e-government and addressing its implications for digital exclusion, progress in Ireland has been slower than in much of the rest of the EU. According to the United Nations (UN) International E-government Survey, 2018, European countries lead e-government development globally (United Nations, 2018). Although Ireland's position in this index has improved in recent years, it remains outside the top 20 countries in terms of e-government in the world, as ranked by this survey. There is also evidence that government responses to digital exclusion are better developed elsewhere in Europe. For instance, in 2016 the European Commission adopted a Web Accessibility Directive (Directive (EU) 2016/2102)[11] which is intended to ensure that websites and mobile apps provided by public bodies in the

EU are accessible to people with physical and intellectual disabilities. The Commission has also funded research and product development pilot projects intended to promote digital inclusion, and its plans to establish the Digital Europe Programme refer to the need to promote an inclusive digital economy (European Commission, 2018). The Irish government's *e-government Strategy* promises that "we will still keep other channels open for those who are disconnected by choice or by necessity" and that "assisted digital" services will be provided for "those who feel they would benefit" (Department of Public Expenditure and Reform, 2017: 6). However, the details of these alternative arrangements are not outlined.

Aims and Objectives

As mentioned above, the aim of this research is to examine the extent and nature of digital exclusion among users of public services in Ireland and identify how this problem can be addressed. To achieve this broad aim, the research will address the following specific objectives:

- Examine the use of e-government to support the delivery of key public services and social security benefits in Ireland and the extent to which this has changed in recent years

- Identify the extent and nature of digital exclusion in Ireland by examining both the prevalence of digital exclusion (i.e. inability to access the internet regularly either at home, work or place of study because the requisite technology is not available or not affordable) and of digital constraint (i.e. inability to use the internet due to literacy or digital literacy problems)

- Assess the extent to which groups at risk of social exclusion (such as older people, low-

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8   Department of Public Expenditure and Reform, 2014
9   Progress Report, Government of Ireland, 2017
10   Department of Public Expenditure and Reform, 2016.
11   Regulation in 2020 give effect to this Directive - the European Union (Accessibility of Websites and Mobile Applications of Public Sector Bodies) Regulation 2020 require public bodies in Ireland to make their websites and mobile applications accessible by September 2020 and June 2021 respectively.

income people and migrants) are also at risk of digital exclusion and constraint.

- Identify the implications of digital exclusion and constraint and the increasing use of e-government for access to public services and social security benefits in Ireland, particularly among those at risk of social exclusion

- Examine the role of information, advice and advocacy organisations, particularly the services funded and supported by the Citizens Information Board, in enabling people to overcome digital exclusion and constraint, and access public services and social security benefits that are delivered online

- Assess the potential for amending the design of e-government programmes in Ireland to combat digital exclusion and constraint, and promote digital inclusion

Research Methods and Tasks

This study was implemented in five steps or work packages (WPs). These encompassed the following research tasks:

WP 1. **Research Evidence Review:** although there was limited research on e-government and digital exclusion in Ireland, extensive international research on this issue was used to inform the analysis in this report.

WP 2. **Policy Review:** A review of policy on e-government and digital exclusion in Ireland and in selected other European countries, which have a strong record of e-government initiatives that enable digital inclusion, was conducted.

WP 3. **Analysis of Existing Survey Data:** This study employs data from two survey sources:

a. Information Society Statistics: General Household Survey (GHS): This survey asks individuals in Ireland questions on their access to information technology and the internet, what they purchase online, their e-skills and their use of e-government. It has been conducted annually by the Central Statistics Office since 2002, although the questions asked have changed over this time. The analysis of these data presented in this report focuses mainly on 2016, 2017 and 2018 with some additional data from 2019 and 2020 and on the overlap between digital exclusion and constraint, and social exclusion.

b. United Nations' International E-government Survey: This survey of governments' use of e-government initiatives has been carried out every second year since 2001 by the United Nations (UN). It includes data both on e-government development (meaning the extent to which governments use this technology to support public service delivery) and e-participation (the extent to which populations use this technology to interact with government) for most countries in the world, including Ireland. It also includes information on relevant policy and practice developments internationally.

WP 4. **Analysis of Administrative Data:** The research also examined the Oyster[12] database of information on queries submitted by clients of the Citizens Information Services (CIS) in 2017, 2018. This analysis focused on queries and Social Policy Returns (SPRs)[13] identified by CIS information providers as flagging policy or administrative/ operational barriers that prevent clients from accessing services. This facility allows information providers to record information on the specific problems faced by individual clients and to suggest policy or administrative reforms which would address these problems.

WP 5. **Analysis of an On-line Survey of Citizens Information Service Information Providers:** To supplement the data from the Oyster database, an online survey of CIS information providers was conducted in June and July 2019.[14] This survey examined information providers' views on the proportion of clients having difficulties accessing public services and social security benefits due to digital exclusion or constraint; the characteristics of these clients, and the public services and social security benefits most affected. A total of 141 information providers responded to this survey out of a total of 290 paid employees who work in the CIS. This indicates a response rate of 48.6 per cent.

Organisation of the Report

The remainder of this report is organised into five chapters.

- **Chapter One: E-Government and Information Technology Access and Use in Ireland** examines the increased use of digital technology (often called 'e-government') to deliver or support the delivery of public services in Ireland. It looks at increased internet availability and use, and its impact on the take-up of e-government services.

- **Chapter Two: The Extent, Nature and Causes of Digital Exclusion** assesses the extent of digital exclusion in Ireland in terms of the numbers of people affected and their characteristics. The causes of both digital exclusion and digital constraint are then examined, as is the nature of digital exclusion in terms of which public services it most commonly impedes access to.

- **Chapter Three: Digital Exclusion and Social Exclusion** examines the overlap between digital exclusion and social exclusion, in terms of the population affected by both problems. The analysis focuses on the five most significant features of social exclusion in Ireland: income levels, labour-market status, age group, household type and region.

- **Chapter Four: Promoting Digital Inclusion** examines how the problems of digital exclusion and constraint can be addressed. It outlines strategies applied in other countries to overcome these barriers so as to identify what would work best in the Irish context. It also examines the views of CIS information providers on how various supports for e-government could be strengthened.

- **Chapter Five: Conclusions and Recommendations** sets out the key findings of the preceding analysis. The Citizens Information Services (CISs) responses to digital exclusion are examined, and a series of recommendations are set out which are intended to strengthen the role of government and other organisations in combating digital exclusion in Ireland.

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12 Electronic recording system used by network of Citizens Information Services - data is recorded on over a million queries to services annually.

13 Social Policy Returns (SPRs) are cases that highlight administrative or operational difficulties, inconsistencies in provision, anomalies or gaps in policy and information deficits. They indicate recurrent or emerging topics that have been noted by frontline staff in CISs.

14 Survey conducted in June and July 2019.

1. E-Government and Information Technology Access and Use in Ireland

Introduction

This chapter sets out the context for the remainder of the report by examining the use of digital technology by government in the delivery of public and social services and the extent of the public's digital access to these services. It also considers the extent to which clients of Citizens Information Services, can access related e-government public and social services and secure their entitlements.

The analysis presented here is organised into four further sections. The first examines Ireland's progress in e-government and e-participation, as revealed by the results of the UN E-Government Survey. This is followed by a discussion of the Irish population's use of e-government facilities and of the internet and communications technology more broadly in recent years; this draws on the results of the Central Statistics Office Information Society Statistics GHS since 2012. The next section examines the particular e-government initiatives that CIS information providers believe are most effective in meeting the needs of their clients. This analysis draws on the online survey of information providers conducted in mid-2019. Finally, the conclusions reflect on the implications of the preceding analysis, particularly for the issues of digital exclusion and constraint which are the focus of this report.

Provision of E-government Services

As mentioned in the Introduction to this report, the United Nations has published an index of 'E-government development' and an associated index of 'e-participation'. The former index measures the extent to which governments use technology to support public service delivery; the latter measures the extent to which populations use this technology to interact with government (see Table 1.1).

Table 1.1 Key Features of the United Nations E-government Development Index and E-Participation Index

E-Government Development Index (EGDI)	This index presents the state of e-government development of the United Nations member states. It is a composite measure of three important dimensions of e-government: • provision of online services • telecommunication connectivity • human capacity These dimensions are measured with reference to: website development patterns in a country, infrastructure and educational levels. The EGDI is not designed to capture e-government development in an absolute sense; rather, it aims to give a performance rating of national governments relative to one another.
E-Participation Index (EPI)	This index focuses on the use of online services to facilitate provision of information by governments to citizens ('e-information sharing'), interaction with stakeholders ('e-consultation'), and engagement in decision-making processes ('e-decision making').

Source: United Nations (2018).

Ireland's ranking on both indexes has improved in recent years but there is potential for further improvement. Figure 1.1 outlines the E-Government Development Index results for Ireland. It demonstrates that this country's position on this ranking improved from 34th in the world in 2012 to 22nd in 2018[15]; in the latter case, it was categorised as a 'very high EGDI' country. However, despite this improvement, in the 2018 EGDI Ireland was ranked behind many other Western European countries, including Denmark, the United Kingdom, Sweden, Finland, France, Germany, the Netherlands, Norway, Switzerland, Estonia, Spain, Luxembourg, Iceland and Austria.

Figure 1.2, which outlines the E-Participation Index results for Ireland, demonstrates that this country's position has improved even more dramatically in recent years. Ireland was ranked 89th in the world on this index in 2012 but by 2018 its position had risen to 22nd.[16]

Figure 1.1 United Nations' E-Government Development Index Results for Ireland, 2012-2018
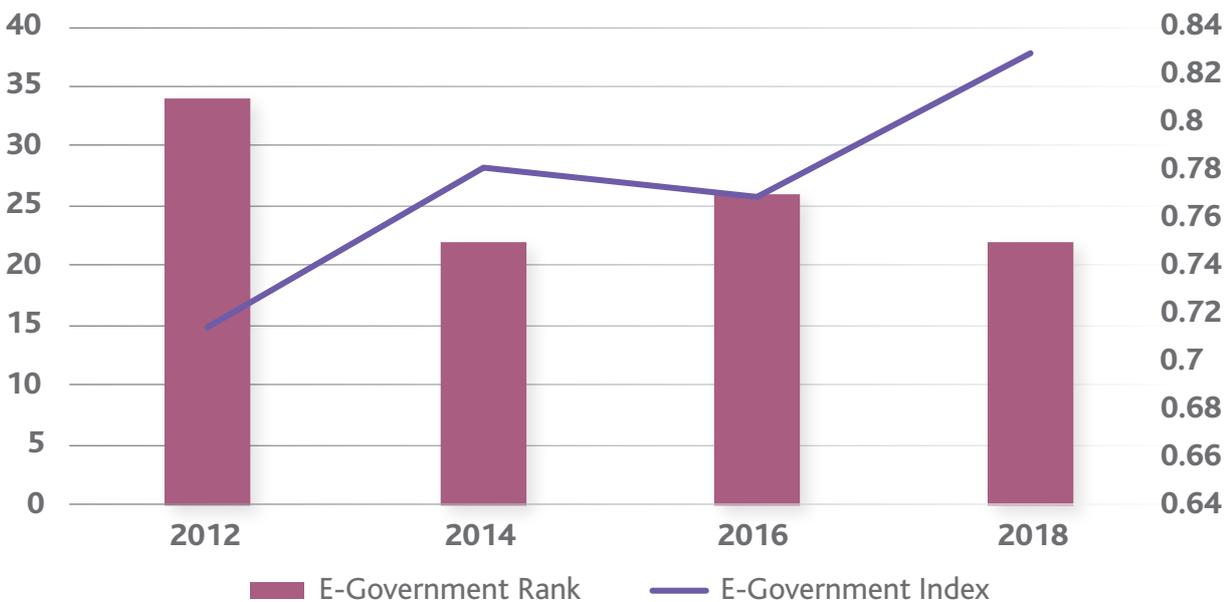
Source: United Nations (2018).

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15   However ranked 27th In E-Government Development Index in 2020 - UN E-Government Survey 2020
16   29th in 2020 E-Participation Index - ibid

Figure 1.2 United Nations' E-Participation Index Results for Ireland, 2012-2018
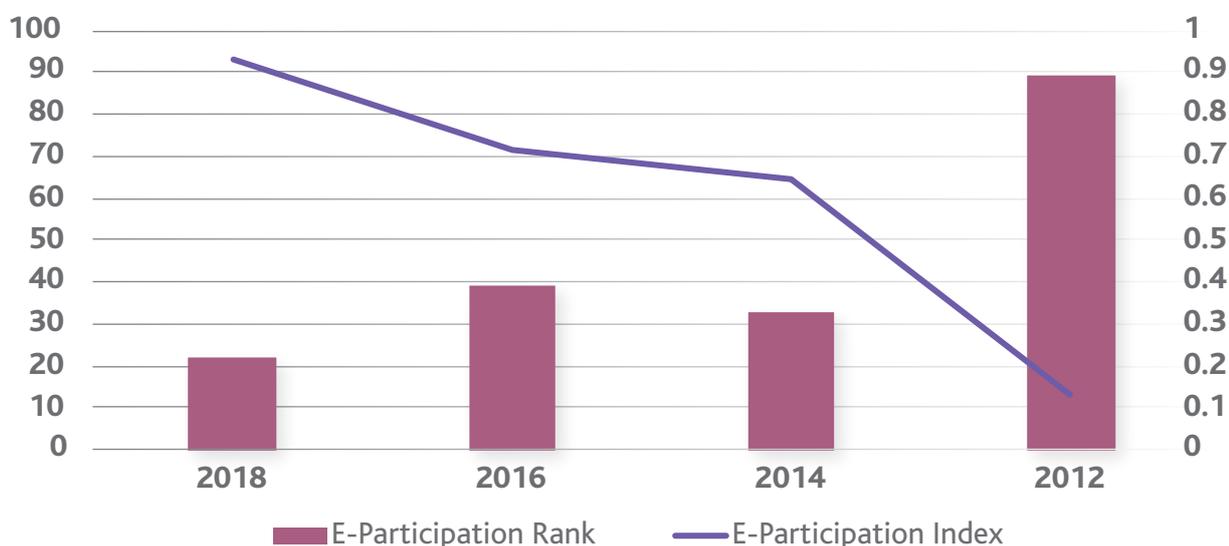
Source: United Nations (2018).

Government institutions are increasingly using digital technology for service provision. As noted above, the Irish government's strategy is that services will be delivered digitally as the preferred option. Many services are now delivered solely or primarily online, including applications for some social security benefits, tax services, medical cards and driving licences.

Internet Use and Take-up of E-government Services

The Central Statistics Office Information Society Statistics series reveals that use of the internet has increased in recent years. In 2012, 77 per cent of the individuals surveyed reported that they had used the internet within the past three months; by 2018 this proportion had increased to 82 per cent.[17] Conversely, the proportion of individuals who reported that they had never used the internet decreased from 18 per cent to 16 per cent between these years (see Figure 1.3).[18]

Internationally increased internet usage is associated with increased availability of broadband connections but also of smartphones. Liptrott (2016) reports that general access to online services in the UK has increased due to a reduction in the price of hardware, particularly as ownership of smartphones with internet access has increased. Irish statistics confirm a similar trend. The percentage of households with internet access at home has increased from 72 in 2010 to 89 in 2018. In 2018, 82 per cent of households used a fixed broadband connection to access the internet, 52 per cent used a mobile broadband connection and just one per cent used a narrowband (or dial-up) connection (as these statistics suggest, many households used more than one access method) (Central Statistics Office, various years). Figure 1.4 demonstrates that use of mobile devices such as tablets and in particular smartphones to access the internet has increased strongly in recent years. Conversely, reliance on desktop computers for this purpose has declined.

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17 Up to 89% in 2020 - Source: CSO Information Society Statistics Households 2020
18 This figure reduced to 11% in 2019 and was down to 8% in 2020 during the pandemic.

Figure 1.3 Use of the Internet by Individuals in Ireland, 2012-2018

Used within last 3 months   Used but not in the last 3 months   Never used the internet
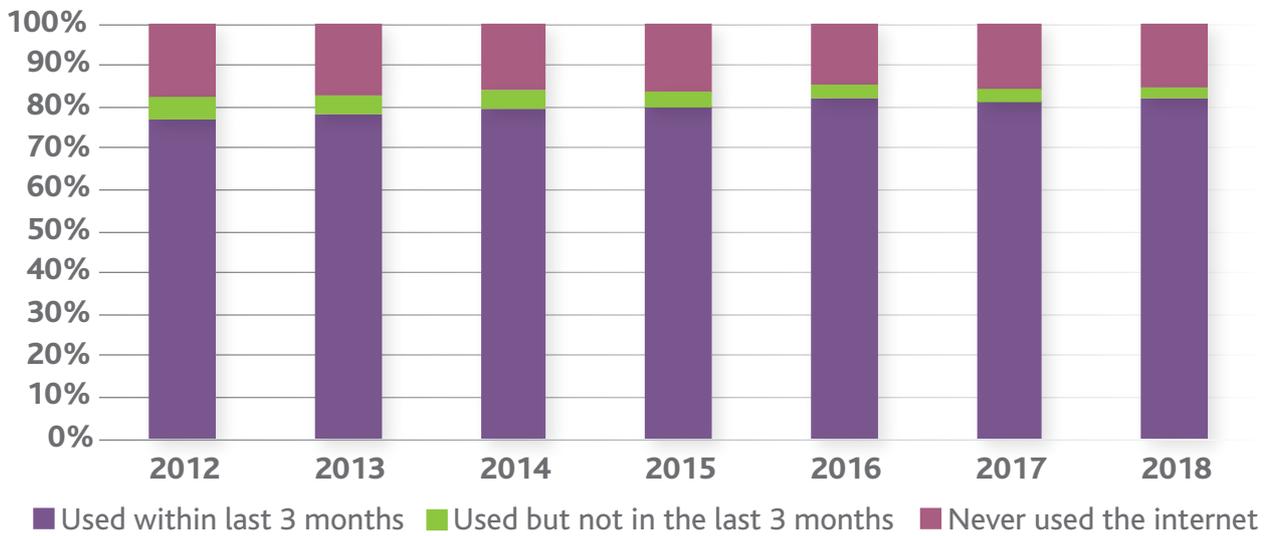
Source: Central Statistics Office (various years).
Note: data refer to individuals.

Figure 1.4 % Individuals who Used the internet in the Last Three Months Classified by Type of Device Used, 2016-2018

2018   2016
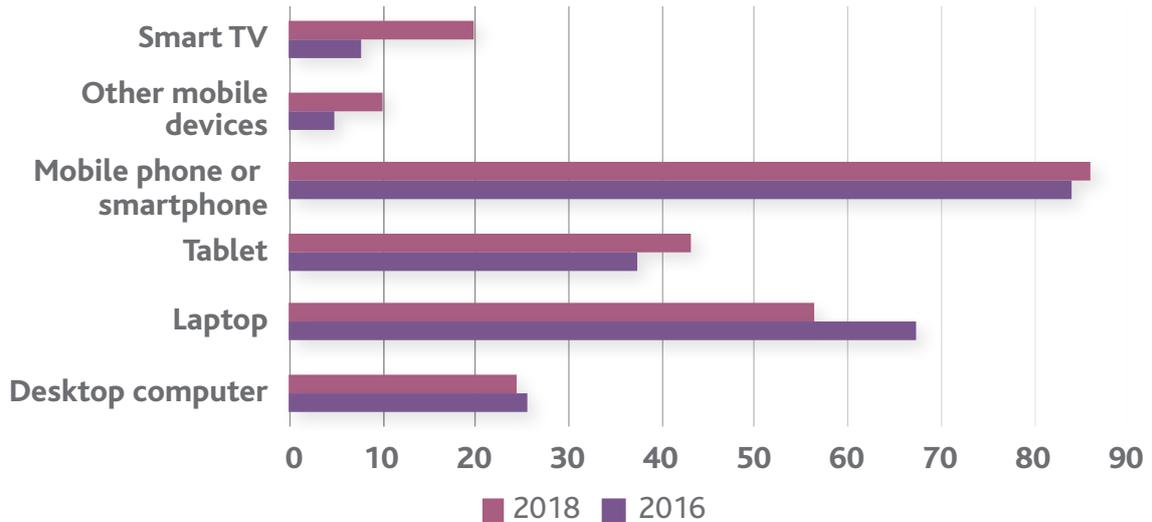
Source: Central Statistics Office (various years).

Despite growing use of the internet, e-government accounts for a relatively small proportion of individuals' internet usage. Figure 1.5 reveals that over 70 per cent of respondents reported that they had used the internet for e-mailing, internet banking and social networking during the last three months, for instance. Although this graph also reveals that 88 per cent of respondents reported using the internet for 'finding information on goods and services', a further 57 per cent had used it for seeking health information and 9 per cent had used it for making appointments with health practitioners during the last three months. Each of these categories could include e-government activities.

Since 2016, the CSO has included a specific question on individuals' contact with public authorities and public services over the internet during the last 12 months. These data, summarised in Figure 1.6, shed more light on the scale and nature of individuals' e-government activity. They reveal an increase in the proportion of individuals who have used websites or apps to find information on public services and to submit forms to government bodies in recent years. Probably as a result of the latter, the proportion of individuals who are downloading and printing forms from government websites has declined.

Figure 1.5 Type of Internet Activities Engaged in During the Last Three Months (%), 2018
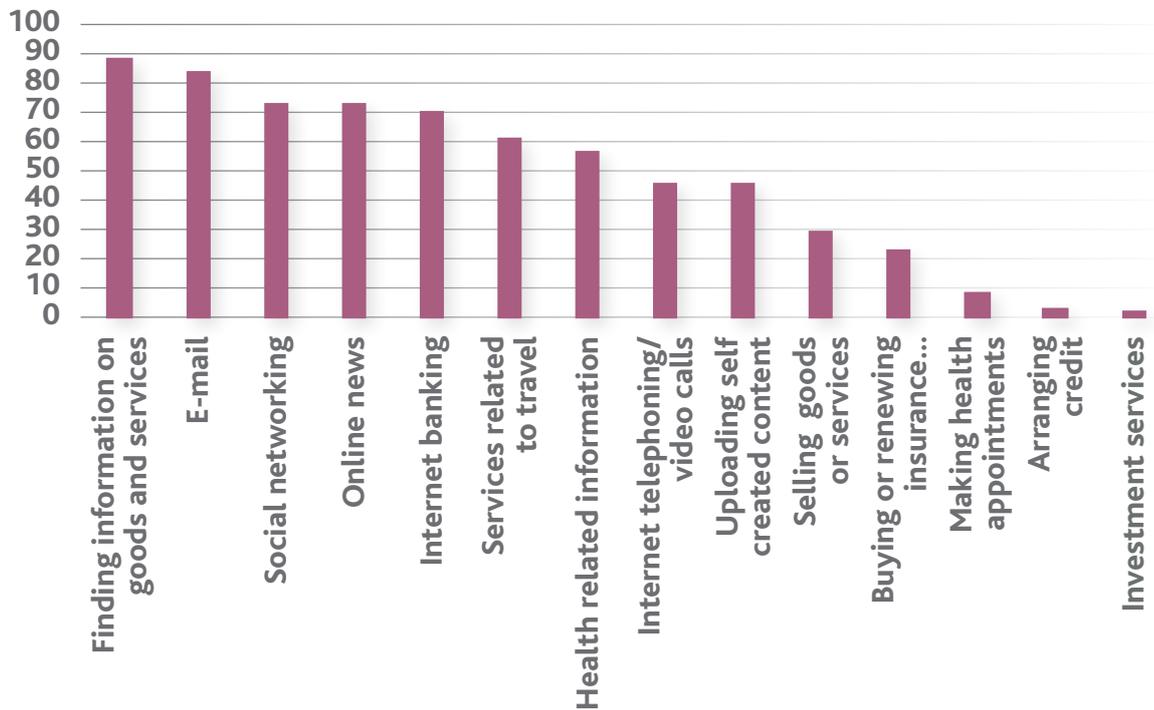
Source: Central Statistics Office (various years).
Note: Data refer to individuals.

Figure 1.6 Individuals' Contact with Public Authorities and Public Services over the Internet in the last 12 months (%), 2016-2018
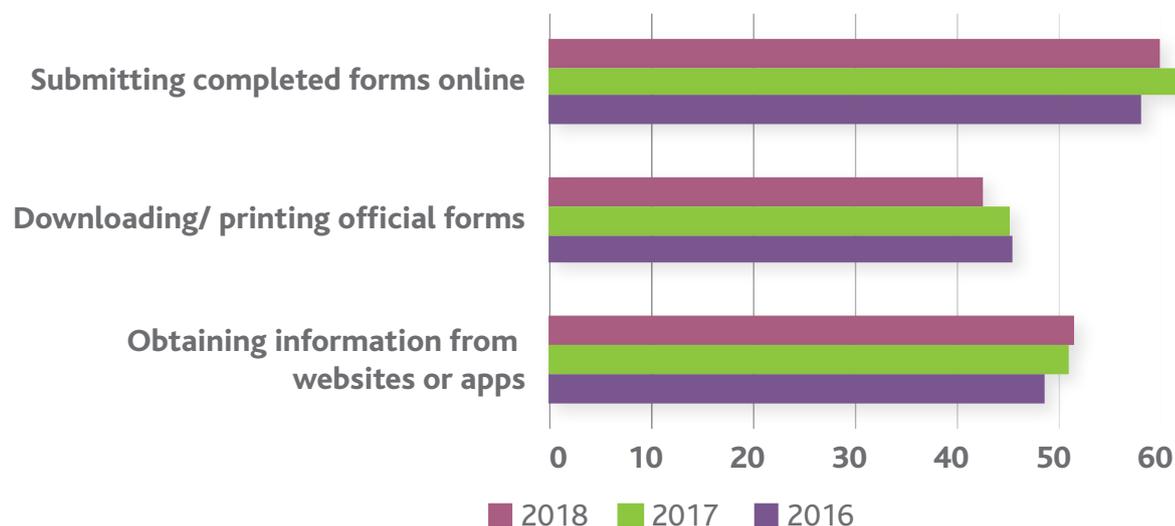
Source: Central Statistics Office (various years).
Note: Data refer to individuals.

Information Providers' Views on E-Government online services

The online survey of CIS information providers' views on clients' use of e-government[19] did not just examine problems associated with this approach to information and service provision, it also examined the benefits for clients. For instance, information providers were asked which broad service areas work best online for clients and, within these broad categories, which specific services are most effective when delivered in this medium. The results of this part of the survey are summarised in Figure 1.7 and Table 1.2 below.

Figure 1.7 demonstrates that almost half of CIS information providers (49.9 per cent) reported that 'no services work well online' for their clients. Among the service areas deemed by information providers to be working well, online education services were the most commonly mentioned category (by 26.9 per cent of respondents),

followed by tax services (mentioned by 19.3 per cent). Conversely, housing services, local government services, health services and social welfare services were each assessed by only five to seven per cent of respondents to be working well online for their clients.

Details of the specific services which CIS information providers feel work well for clients are set out in Table 1.2. The large number of respondents who reported that online services don't work well for clients was reflected in the high rate of non-response to this section of the questionnaire (the numbers of non-respondents are also detailed in Table 1.2). It also is likely to reflect the fact that CISs are seeing a disproportionately high number of clients who are seeking assistance from their services in order to access online services in the first place.

The results of this section of the questionnaire suggest that services which are likely to be availed of by higher-income groups or by younger people

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19   Conducted in June and July 2019.

work best online. In relation to the latter, 74.16 per cent of information providers suggested that applications for third-level education grants work well online. Young people are more likely to rent their homes, and 57.75 per cent of information providers thought that information on the rights of private rented tenants can be provided effectively online in the first instance.

Figure 1.7 Information Providers' Views on Which Broad Service Areas Work Well Online for Clients (%), 2019
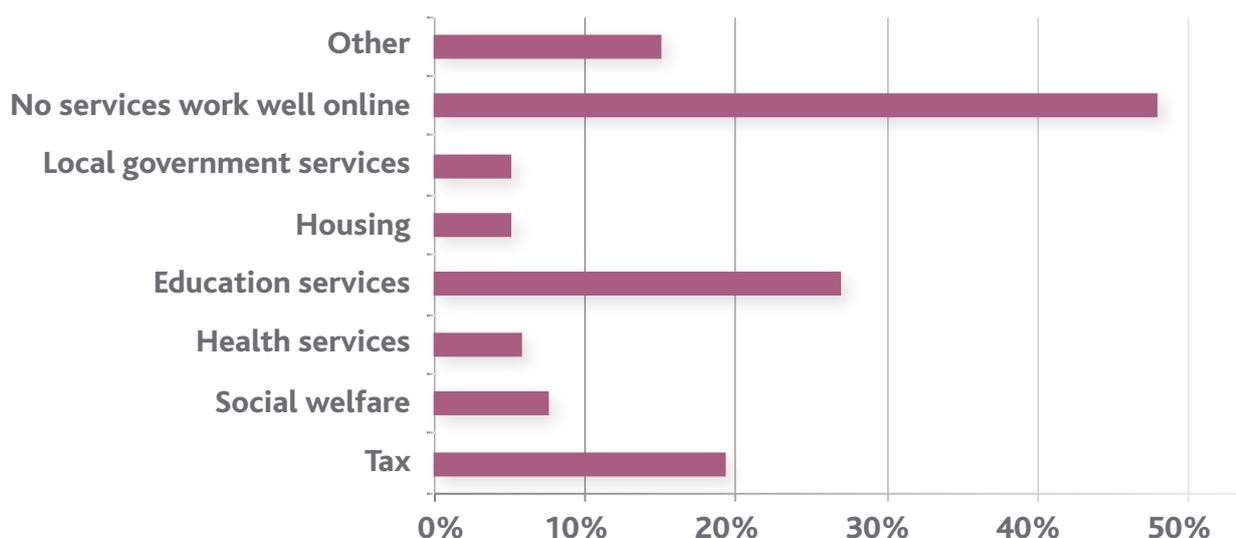
Source: Generated by the authors from an online survey of CIS information providers.
Note: N= 119 out of a possible 141 respondents.

Table 1.2 Information Providers' Views on Which Specific Services Work Well Online for Clients, 2019

Broad Service Area	Specific Service	%	N
Education Services	Third-level education grants	74.16	66
	Back to school allowances	21.35	19
	Free Pre-School Year	15.73	14
	School transport scheme	13.48	12
	Other	16.85	15
	Question skipped		52

Broad Service Area	Specific Service	%	N
Health Services	Medical card	33.78	25
	GP services	27.03	20
	Hospital appointments	17.57	13
	Eligibility for health services	17.57	13
	Other[20]	35.14	26
	Question skipped		67
Housing Services	Applications for social housing	16.90	12
	Housing Assistance Payment (HAP)	11.27	8
	Rent supplement	7.04	5
	Rights of private rented tenants	57.75	41
	Other	32.39	23
	Question skipped		70
Local Government Services	Waste collection (including private waste collection services)	17.24	15
	Planning applications and objections	8.05	7
	Libraries (reservation of books, etc)	42.53	37
	Motor tax	68.97	60
	Other	12.64	11
	Question skipped		54

20 In relation to Other, a variety of concerns were identified by information providers in their responses across the range of survey questions: these included a general consensus that the issues were less to do with the provision of the service online and whether individual services work well or not and more to do with access issues – i.e.' no online service works well for those who do not have online access'.

Broad Service Area	Specific Service	%	N
Social Welfare Service	Pensions	21.43	15
	Supports for people with disabilities	7.14	5
	Sickness benefits	20.00	14
	Child Benefit	38.57	27
	Supports for families	14.29	10
	Jobseeker's payments	21.43	15
	Other	32.86	23
	Question skipped		71
Taxation Services	PAYE taxes	45.16	42
	Property tax	47.31	44
	Self-employed taxes	21.51	20
	Tax rebate	29.03	27
	Other (please specify)	20.43	19
	Question skipped		48

Source: Generated by the authors from an online survey of CIS information providers. Note: 141 information providers answered the survey; the number of these who responded to each question is detailed in the table.

The proportion of information providers who think that taxation services such as property tax, motor tax and PAYE taxes work well online, which are more likely to be availed of by high-income earners, is also high. Conversely, Table 1.2 highlights a strong consensus among information providers that services which are more likely to be availed of by lower-income households do not work well online. Less than a quarter of information providers reported that most social welfare services or housing supports for low-income households (e.g. applications for social housing or the Housing Assistance Payment) work well online.

Conclusions

This chapter has examined the use of digital technology by government and the general public in Ireland in supporting access to public and social services in Ireland, and the extent to which this e-government strategy is successful in supporting access by clients of the Citizens Information Services.

It has revealed that use of e-government initiatives by the Irish government has much increased in recent years. This is evidenced by the dramatic improvement in Ireland's ranking in the United Nations' E-Government Development Index, from 34th in the world in 2012 to 22nd in 2018. In addition, the Central Statistics Office Information Society Statistics GHS shows a significant increase in the proportion of individuals who have used websites or apps to find information on public services and to submit forms to government bodies in recent years.

An online survey of CIS information providers reveals that in their view some services work well for their clients when provided online. Services which are likely to be availed of by higher-income groups (such as taxation services) or younger people (such as higher-

education grants and information on private rented housing) were most likely to work well online in their view. However, just under half of the information providers surveyed felt that no service works well online for their client group, and services for low-income people such as social welfare services and social housing supports were particularly likely to be assessed as not working well online. It is important to acknowledge that information providers' views on the desirability of e-government are likely to be influenced by the fact that clients seek support when they are having difficulties with these types of services and not when they are having no difficulties. Nonetheless, the information providers' views highlight important concerns about the risk that increased use of e-government will precipitate digital exclusion and constraint. These concerns are examined in more depth in the next chapter.

2. The Extent, Nature and Causes of Digital Exclusion

Introduction

Although the increased use of e-government initiatives has undoubted benefits in terms of improving the efficiency and accessibility of public services, it also has risks in terms of its potential to impede or exclude some individuals and groups from accessing services. The preceding chapter flagged concerns among Citizens Information Services (CIS) information providers that these problems are widespread among their clients. This chapter explores these issues in more depth in an effort to ascertain their extent and nature, and to identify causes.

As explained in the Introduction to this report, this analysis focuses on two problems potentially generated by e-government: digital exclusion and digital constraint. The former concept refers to inability to access the internet regularly either at home, work or place of study because the requisite technology is not available or not affordable. Measuring the extent of this problem is straightforward because the absence of broadband or personal computers is a factual question which is examined in the CSO's Information Society Statistics GHS, for instance (Bunyan and Collins, 2013). Digital constraint refers to exclusion from use of the internet due to literacy or digital literacy problems. This problem is more challenging to assess because definitions and understandings of digital literacy have evolved over time as technology and use of technology

has progressed. The ability to understand or retrieve information when presented via computer is no longer enough; high levels of digital literacy now involve "sourcing, using, evaluating, analysing, aggregating, recombining, creating and releasing knowledge online" (Littlejohn, Beetham and McGill, 2012: 547).

The discussion of these issues presented in the remainder of this chapter is organised into four further sections. The chapter opens with a discussion of the extent of digital exclusion and constraint. This is followed by an analysis of the causes of digital exclusion and constraint in Ireland and then of the nature of the e-government problems caused in terms of the online services which are most challenging to access and use.

The Extent of Digital Exclusion

The CIS information providers who were surveyed for this research agreed that difficulty in accessing public services online is widespread based on their experience of intervening on behalf of clients. As detailed in Figure 2.1 below, 34 per cent of information providers estimated that 51-70 per cent of their clients' experience difficulties in accessing public services online, and a further 29.8 per cent of information providers estimated that the proportion of clients in this category was between 31 and 50 per cent.

Figure 2.1 Information Providers' Views on the Percentage of their Clients Who Have Difficulties in Accessing Public Services Online (%), 2019
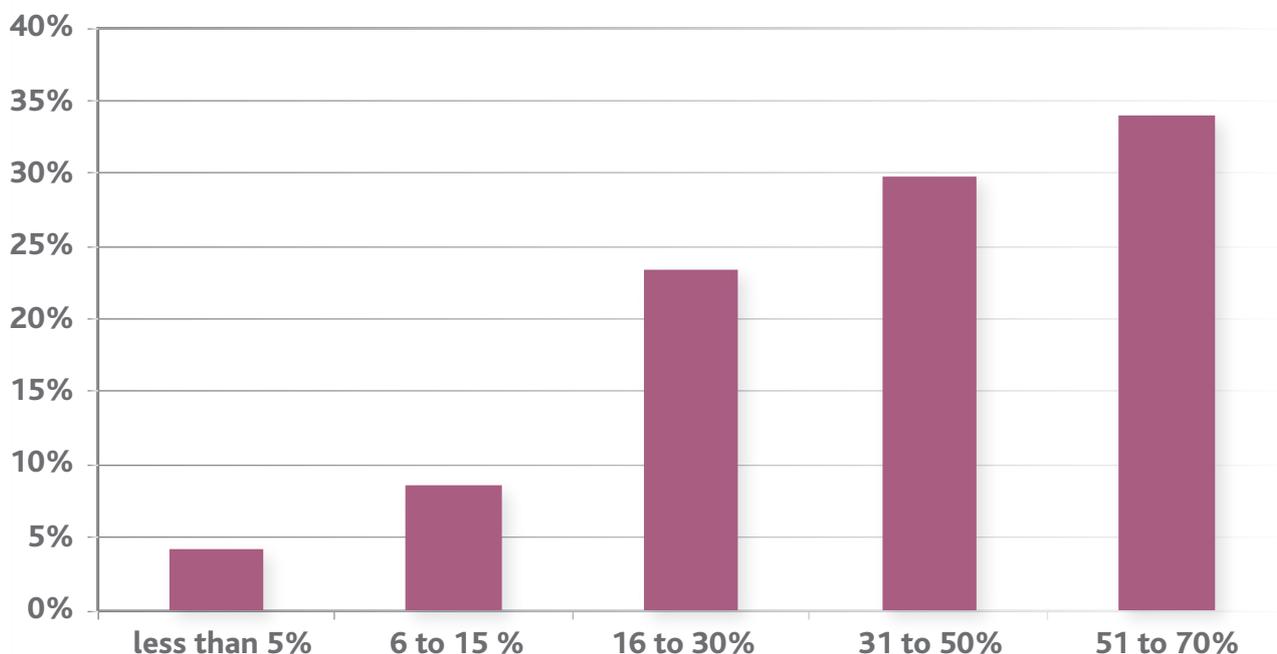
Source: Generated by the authors from an online survey of CIS information providers.
Note: N= 141 respondents answered this question out of a possible 141.

The Causes of Digital Exclusion

The survey of CIS information providers also elicited their views on the causes of clients' digital exclusion. In this question, information providers were asked to rank the barriers to clients' access to public services online from 'least serious' to 'most serious', and their views on the most serious barriers are summarised in Figure 2.2. It reveals that information providers think that digital exclusion and digital constraint-related factors make a similar contribution to impeding clients' access to public services online. A total of 40.38 per cent of respondents considered that factors related to the unavailability of computer technology (broadband, scanners and computers) are the most significant barrier to clients' access to public services. A similar proportion blamed digital constraint-related factors such as lack of knowledge of how to use websites and lack of English-language reading and writing skills.

The information providers' concern that computer technology is impeding client access to the internet is supported by the results of the CSO's Information Society Statistics GHS which reveals that use of e-government is very strongly associated with access to a broadband internet connection at home (see Table 2.1) (Central Statistics Office, various years). For instance, 53 per cent of individuals who had a broadband connection at home used websites or apps to obtain information from public authorities in 2018, compared to just 18 per cent of individuals without broadband. In the same year, 61 per cent of individuals with a broadband connection used the internet for submitting forms to public authorities compared to just 24 per cent of their counterparts in households without an internet connection.

However, the large scale of digital exclusion identified by information providers is surprising in view of the substantial increase in access to broadband technology and also of smartphones in recent years. The CSO Information Society survey reveals that, in 2018, 89 per cent[21] of Irish households had an internet connection(Central Statistics Office,

various years). Among respondents who did have internet access at home in this year, fixed broadband was the most used means of access (by 82 per cent), followed by mobile broadband (52 per cent) and a narrow broadband connection (1 per cent) (note that more than one type of internet connection may be used in households).

Figure 2.2 Information Providers' Views on the Most Significant Barriers to Clients' Access to Online Services (%), 2019

Source: Generated by the authors from an online survey of CIS information providers.
Note: N= 104 respondents answered this question out of a possible 141.

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21 That increased to 91% in 2019 and 92% per cent in 2020. https://www.cso.ie/en/releasesandpublications/ep/p-isshh/
    informationsocietystatistics-households2020/householdinternetconnectivity/

Table 2.1 Individuals' Contact Over the Internet with Public Authorities and Public Services in the Last 12 Months by Type of Household Internet Connection (%), 2016-2018

Type of household internet connection	Obtaining information from websites or apps			Downloading/printing official forms			Submitting completed forms online		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Broadband	50	55	53	47	49	44	61	68	61
Narrowband	58	*	53	52	*	49	53	*	*
No internet	29	31	18	27	20	11	30	33	24
Unknown internet	*	*	34	*	*	19	*	*	*

Source: Central Statistics Office (various years).
Note: Data refer to all individuals aged 16-74 who used the internet in the previous 12 months. Respondents may have selected more than one option. *The sample occurrence is too small for estimation, i.e., less than 30.

This survey also probed the 11 per cent of householders without an internet connection on the reasons for this: 40 per cent of these reported that they do not need to use the internet and 8 per cent that they have access to the internet outside their home. However, 30 per cent of respondents attributed their lack of internet access to lack of the requisite skills; 6 per cent reported that broadband internet was not available in the area, while high equipment costs were identified as a barrier by 5 per cent of respondents and high access costs were an issue for a further 3 per cent (Central Statistics Office, various years).

The online survey of CIS information providers conducted for this research collated their views on the categories of their clients at greatest risk of experiencing difficulties in accessing public services online (see Figure 2.3). The results of this exercise confirm the CSO's Information Society survey finding that affordability is not a widespread cause of digital exclusion in Ireland; low-income households were identified by only 4.26 per cent of information providers as being at high risk of digital exclusion. Instead, information providers identified older people as the cohort that are by far the most likely to experience digital exclusion, followed by people with literacy difficulties, those resident in rural areas and non-native English speakers.

Figure 2.3 Information Providers' Views on the Categories of Clients at Greatest Risk of Experiencing Difficulties in Accessing Public Services Online, 2019
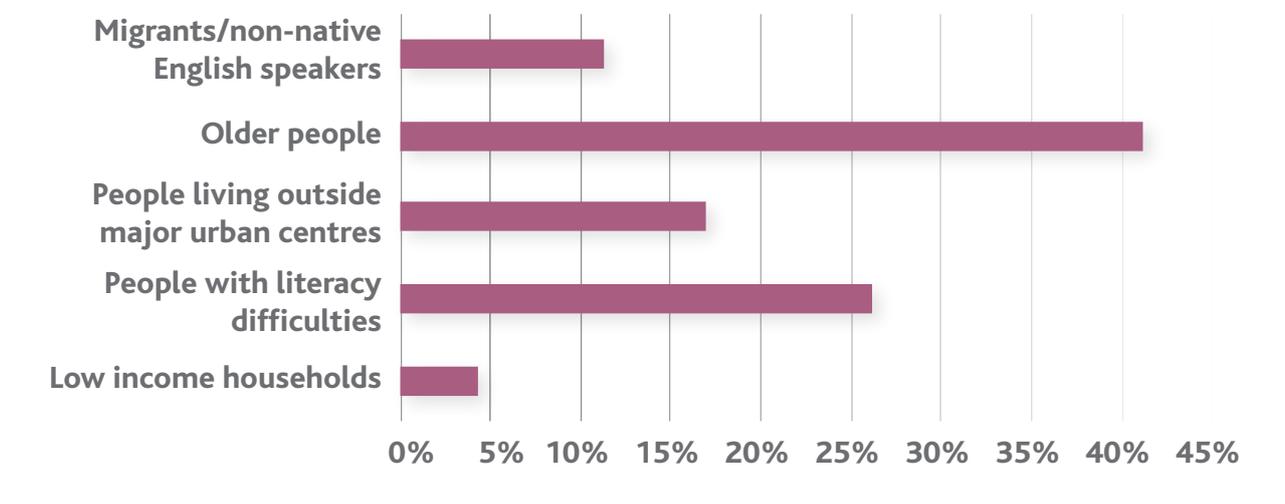
Source: Generated by the authors from an online survey of CIS information providers.
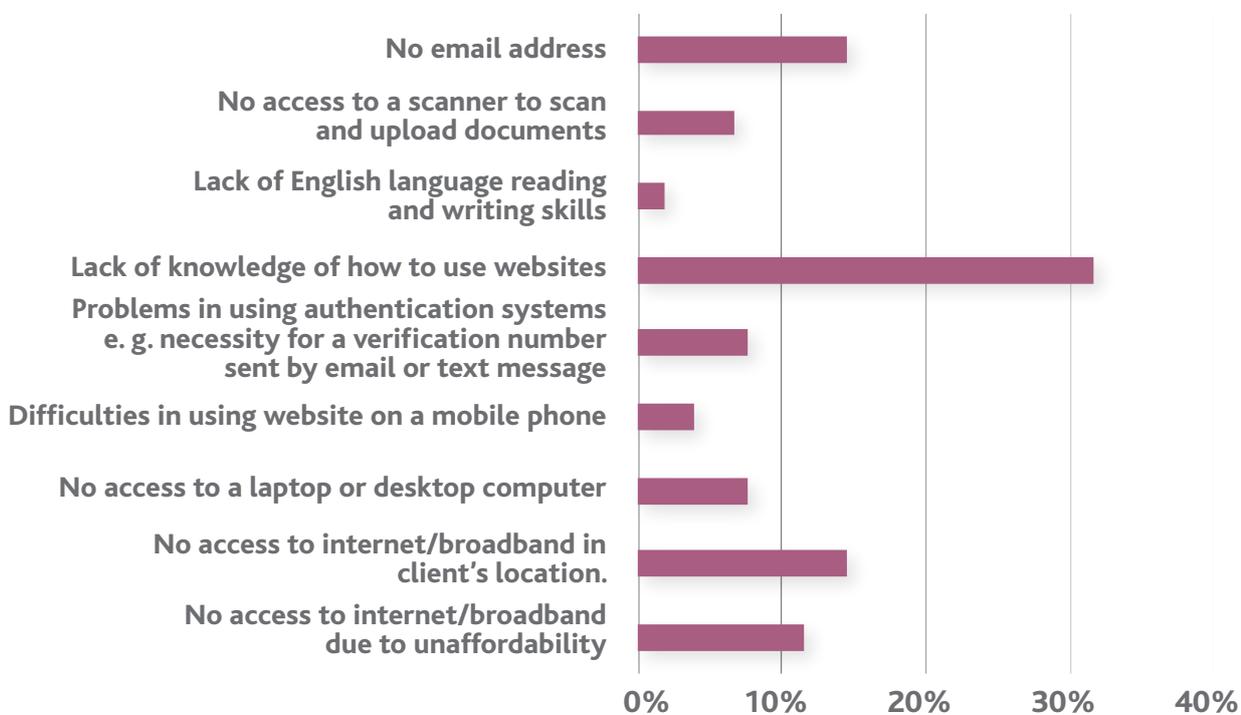Note: N= 104 respondents answered this question out of a possible 141.

Notably, a report by Age Action (2018) confirms information providers' perception of low rates of digital literacy among older people. It found that 50 per cent of Irish people aged between 65 and 74 have never used the internet. This compares to 16 per cent of the same age cohort in Britain, 9 per cent in Finland, and 39 per cent of 65 to 74 year-olds in all 28 European Union member states[22].

The Nature of Digital Exclusion

In an effort to probe the nature of digital exclusion for CIS clients, the online questionnaire of information providers asked them which broad service areas and specific services clients have most difficulty using online. The results are outlined in Figure 2.4 and Table 2.2 below.

Figure 2.4 reveals that, in information providers' opinion, online tax services cause most difficulties for their clients. A total of 45 per cent of information providers identified this broad service area as problematic when used online, while 21.67 and 11.67 per cent raised concerns about the ease of use of social welfare and local government services respectively.

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22 Eurostat figures for 2017, https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database

Figure 2.4 Information Providers' Views on which Broad Service Areas Clients Have Most Difficulty Using Online, 2019
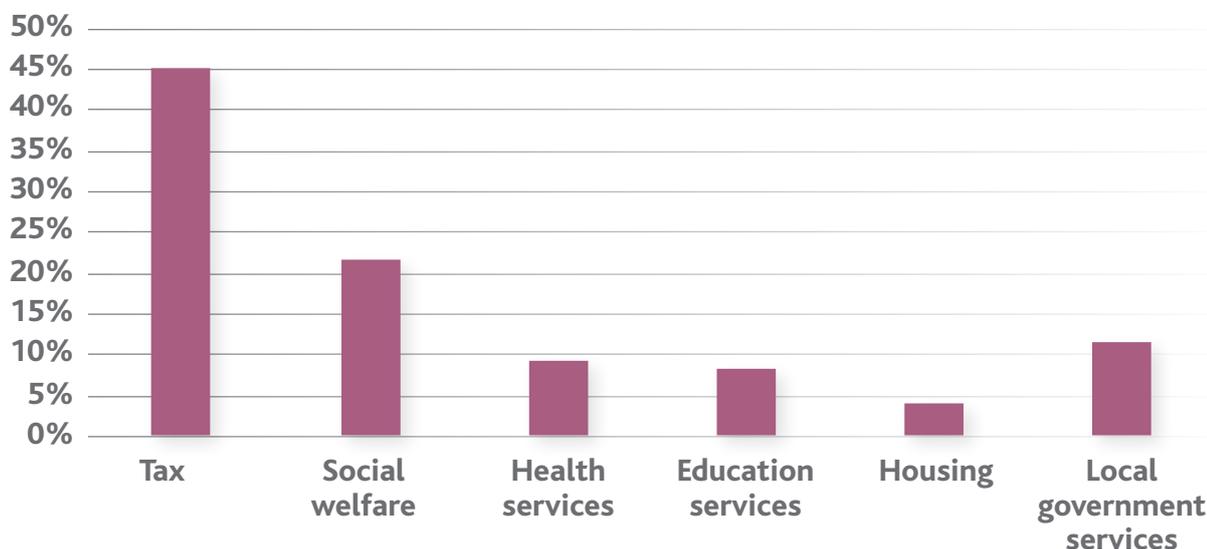
Source: Generated by the authors from an online survey of CIS information providers.
Note: 120 out of a possible 141 information providers answered this question.

As shown in Table 2.2, medical cards and pensions are the specific services that information providers feel are most problematic for clients to use online. More than half the information providers surveyed identified these specific services as difficult for clients to use online. Third-level education grants (e.g. SUSI grants), planning applications and objections, and employee taxes (PAYE taxes) were also identified by information providers as challenging for clients to use online.

Analysis of the Oyster database of social policy feedback submitted by CIS clients provides useful additional information on the nature of the challenges clients experience in using these online services. Four themes are particularly prominent in these data.

The first relates to concerns that some services are increasingly available solely online. Information providers from South Munster CIS raised concerns that receipts for payment of the mandatory Local Property Tax (LPT) are exclusively available online. Their colleagues in

Dublin-area CIS offices highlighted that those who require appointments to renew their legal status in Ireland with the Irish Naturalisation and Immigration Service must register online, as do those who require an appointment to renew their driving licence. CISs indicated that these arrangements mean that people who do not have access to computers or internet/broadband are in practice being discriminated against.

Secondly, even when alternatives to online services are provided, information providers raised concerns that clients who avail of these alternatives face delays or additional requirements which are not experienced by their counterparts who avail of the online service option. For instance, the summaries of CIS clients' experiences of specific e-government services (presented in Table 2.3) highlight additional delays for paternity benefit applicants and taxpayers who wish to deal with the relevant authorities by post rather than online.

The third theme is that the 'digital by default' approach to the provision of public services can reinforce the social exclusion of some cohorts of clients. Figure 2.3 (above) reveals that information providers identified older people, migrants/non-native English speakers and people with literacy difficulties as being at particularly high risk of digital exclusion. These groups are also at high risk of social exclusion, and the examples of CIS clients' experiences presented in Table 2.3 shows that online services can reinforce this exclusion.

Table 2.2 Information Providers' Views on which Specific Online Services Clients Have Most Difficulty Using, 2019

Broad Service Area	Specific Service	%	N
Education Services	Third-level education grants (e.g. SUSI)	45.83	55
	Applying to study at a third-level institution (e.g. via the CAO)	8.33	10
	Back to Education Initiative (BTEI) applications	15.83	19
	Free Pre-school Year	3.33	4
	School transport scheme	26.67	32
	Question skipped		21
Health Services	Medical card	65.0	78
	GP visit card	1.67	2
	European Health Insurance Card	5.0	6
	Finding local health services	10.0	12
	Clarifying eligibility for health services	18.33	22
	Question skipped		21
Housing Services	Applications for social housing	35.83	43
	Housing Assistance Payment	24.17	29
	Rent supplement	17.50	21

Broad Service Area	Specific Service	%	N
Housing Services	Rights of private rented tenants	22.50	27
	Question skipped		21
Local Government Services	Waste collection (including private waste collection services)	14.17	17
	Planning applications and objections	45.83	55
	Libraries (reservation of books, etc)	9.17	11
	Motor tax	30.83	37
	Question skipped		21
Social Welfare Service	Pensions	53.33	64
	Supports for people with disabilities	12.50	15
	Sickness benefits	6.67	8
	Child Benefit	5.83	7
	Supports for families	4.17	5
	Jobseeker's payments	17.50	21
	Question skipped		21
Taxation Services	PAYE taxes	43.33	52
	Property tax	13.33	16
	Self-employed taxes	23.33	28
	Tax rebate	20.00	24
	Question skipped		21

Source: Generated by the authors from an online survey of CIS information providers.
Note: 141 information providers answered this survey. The number of these who responded to each question is detailed above.

Table 2.3 Examples of E-government-Related Problems Experienced by CIS Clients in Accessing Specific Services, 2018

This client is approaching retirement age and is seeking to request his PRSI record for the purposes of establishing an entitlement and thereafter calculating his State Contributory Pension. The client is not computer-literate and has no computer or internet access at home. Until recently, [CIS offices] could support such clients to request their PRSI record by following the link on www.welfare.ie. However, the link on welfare.ie now brings you to the new MyGov ID section whereby the client has to register before being able to request their PRSI record. Registration involves the client needing an email address and also a secondary email address (which can be added at a later date). Many clients of this age group do not have email addresses and can proceed no further without one... *(South Leinster CIS)*

Paternity benefit is now an online application... client was expected to have internet access and a public service card where client has neither. Paternity benefit section will provide form by post but had to be called to provide this. The client is delayed with the application. *(North Munster CIS)*

This client has mental health issues and needs to renew her medical card. She does not want to do it online. Instead of the renewal form (which can be filled out online), she received a new application form in the post. This needs to be fully filled in and her GP needs to sign it. Had she renewed online she would not have had to get the GP to sign. This information provider phoned the medical card section. They no longer post out renewal forms as they want people to renew online. The client feels that this is additional trouble for herself... She does not have internet and does not want an email address. *(North Munster CIS)*

A customer called to the office having changed employment and is currently on emergency Tax and USC. He had informed Revenue of his new employment by telephone approximately eight weeks previously. I was informed by Revenue staff that people who deal with Revenue through online MY ACCOUNT presently have their query sorted in approximately two working days. If a person contacts them by letter or telephone there is currently a delay of 12/14 weeks before their query is dealt with. *(North Munster CIS)*

This client has a disability and our service is assisting him to apply for disabled driver's tax exemption. He needs an email address to register with Revenue to proceed with the application. He does not have an email address and we cannot set one up for him. *(Co Tipperary CIC)*

This client is from Slovakia and has very poor spoken English and he also cannot read or write English. He was employed for a number of weeks in Ireland and had paid emergency tax. He did not understand that he had to register online for his tax credits and also due to his poor English is not capable of operating the online system from Revenue to register. He has no email account or access to a computer and printer. Even if he had he would not have been able to read well enough to register. *(South Kildare CIS)*

This client is an elderly man with hearing issues and is self-employed. He wants to make his self-assessment return and is being directed to the online system which he does not know how to use. He is not able to navigate the Revenue phone line and as the local office only sees the public by appointment now he has to make an appointment. But he had to leave a voicemail and they will return his call and now he is afraid he won't hear his phone ringing. This is a significant barrier for him as he is trying to fulfil his tax obligations. *(Co Wexford CIC)*

Source: Generated from the Oyster database of queries submitted to the CIS, 2018.

Finally, clients' experiences also shed light on why certain services cause particularly significant problems when delivered online. Table 2.2 reveals that online delivery of pension-related services were identified by information providers as particularly problematic, and analysis of client records reveals that online access to social insurance (PRSI) records to clarify eligibility for the state contributory pension is a key reason for this. For example, an information provider in South Munster CIS described these arrangements as particularly inappropriate for a service which is used mainly by older people; in his view, they are "a barrier for people who are not of the digital age" and cannot access the internet. Social policy feedback also indicates that online processing of medical-card applications and renewals poses particular challenges for those who are ill or elderly, or have a disability. In the latter part of 2017, the National Medical Card Unit launched its online application system for all applicants. CIS information providers report that this online system continues to present difficulties for applicants who are not computer-literate, who do not have access to the necessary technology to make the application or who have literacy or language difficulties. The Oyster database also reports technical difficulties with the system and delays in receiving a manual application form when this has been requested.

Conclusions

This chapter has used information from the CSO Information Society Statistics GHS, an online survey of CIS information providers and database of queries raised by their clients, to explore the extent, nature and causes of problems using e-government services in Ireland. In doing so, it has differentiated between e-government problems generated by digital exclusion (inability to access the internet because the requisite technology is not available or not affordable) and digital constraint (where literacy or digital literacy problems impede use of e-government services).

The picture painted by this analysis is a complex and multi-layered one. On the one hand, the Central Statistics Office data reveal a marked increase in the availability of broadband internet connections in Ireland, and also of smartphones, which enable internet use without broadband, over the last decade. This suggests that digital exclusion among the Irish population-at-large has decreased. On the other hand, the survey of CIS information providers conducted for this report suggests that both digital exclusion and constraint due to inability to use the internet is widespread among their clients. It is likely that this disparity partially reflects the fact that people use the CIS when they have a problem accessing or continuing to use a public service and not when the service is working

well for them. However, it also reflects the fact that users dependent on public services are more likely to be socially excluded than the population-at-large. The experience of CIS information providers highlights significant problems of digital constraint among cohorts at high risk of social exclusion, such as older people, people with literacy difficulties and non-native English speakers. Their experience is supported by extensive research evidence in other countries, which demonstrates that "digital inequalities map onto other inequalities in society" (Dobransky and Hargittai, 2016: 19). Siren and Grønborg Knudsen's (2017: 37) research on Denmark concludes that "the risk for those who are digitally disengaged is that they may miss some potentially important

information, lose contact with the authorities or risk not receiving welfare services to which they are entitled, thereby reinforcing the social health and economic disadvantages". This is also confirmed by the experience of many digitally excluded CIS clients whose access to key public services such as medical cards and interaction with the tax and state pension authorities has been impeded or delayed by their lack of access to or inability to use digital technology. Therefore, the analysis presented in this chapter suggests that social exclusion is not only one of the causes of digital exclusion, but is reinforced by digital exclusion. This important issue is explored in more depth in the next chapter.
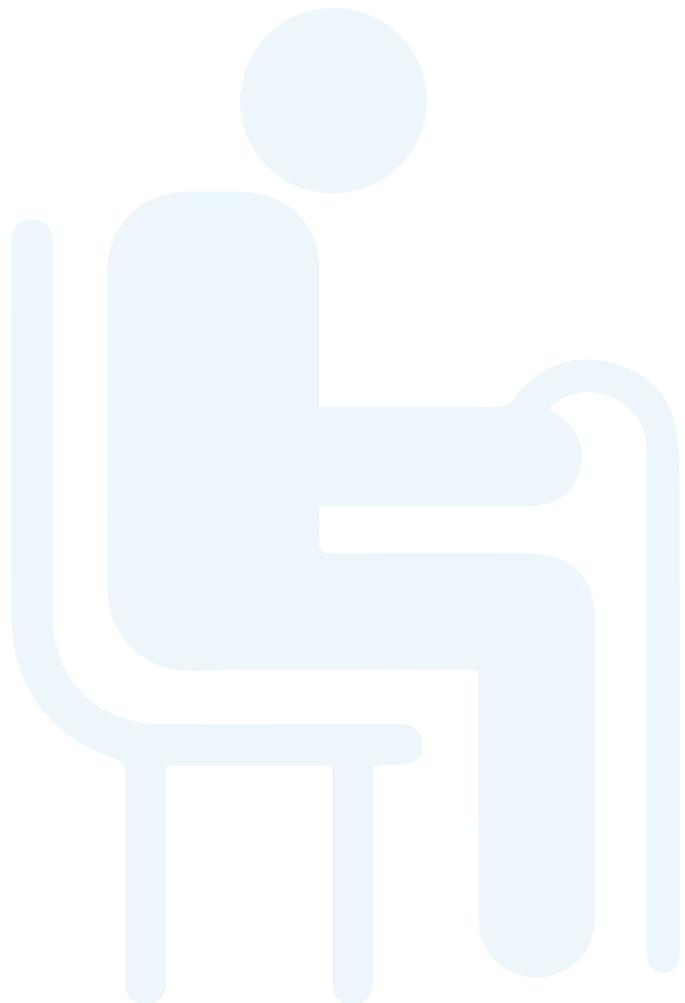
3. Digital Exclusion and Social Exclusion

Introduction

This chapter examines the extent to which social exclusion is associated with problems in using digitally delivered public services. The analysis presented draws on the Central Statistics Office Information Society Statistics General Households Survey (GHS) and focuses primarily on the key socio-economic characteristics associated with high risk of social exclusion in Ireland: low income, being outside the labour market and family structure (McGuinness et al., 2018). Some important factors that increase the risk of social exclusion, such as having a disability, are not examined in this survey and thus could not be included in the analysis presented here (Gannon and Nolan, 2006).

The relationship between age and location, and social exclusion is more complex. Pockets of deprivation exist in all regions of the country and social exclusion is not inevitable among older people, although the risk of it does increase with age (CARDI, 2014). However, the online survey of Citizens Information Service (CIS) information providers (examined in the preceding chapter) revealed that they identified from their client group high rates of digital exclusion among people living outside large urban areas and among older people, so these issues are explored in more depth in this chapter.

In keeping with the format of the preceding discussion, this chapter distinguishes between e-government challenges caused by digital exclusion and digital constraint. The main body of the remainder of the chapter is organised into five sections which examine the relationship between digital exclusion and constraint, and income levels, labour-market status, household type and age group. The conclusions identify the groups which are most at risk of having their social exclusion reinforced by digital exclusion.

Income Levels

The CSO Information Society Statistics the GHS, reveals significant levels of both digital exclusion and constraint among low-income households. The Information Society Statistics Household Survey reveals that the proportion of very 'disadvantaged households' (with incomes in quintile one, the lowest income quintile) without an internet connection at home is five times higher than among 'very affluent' households (with incomes in quintile five, the highest income quintile) (see Figure 3.1). This survey also asked these respondents why they don't have internet access at home. Table 3.1 reveals that most of the reasons cited by very disadvantaged households don't differ significantly from households in other income groups. However, very disadvantaged respondents were more likely to cite 'lack of skills' as a reason for not having access to the internet at home than the population-at-large, and they were less likely to report that they had access to the internet outside the home than other income groups – presumably because they are not in paid employment.

The same survey reveals that very disadvantaged households who do have internet access at home are significantly less likely to have a fixed broadband connection at home and more likely to rely on a mobile phone for internet access than their affluent counterparts (see Table 3.1).

Figure 3.1 Households without Internet Access Classified by Household Income (%), 2018
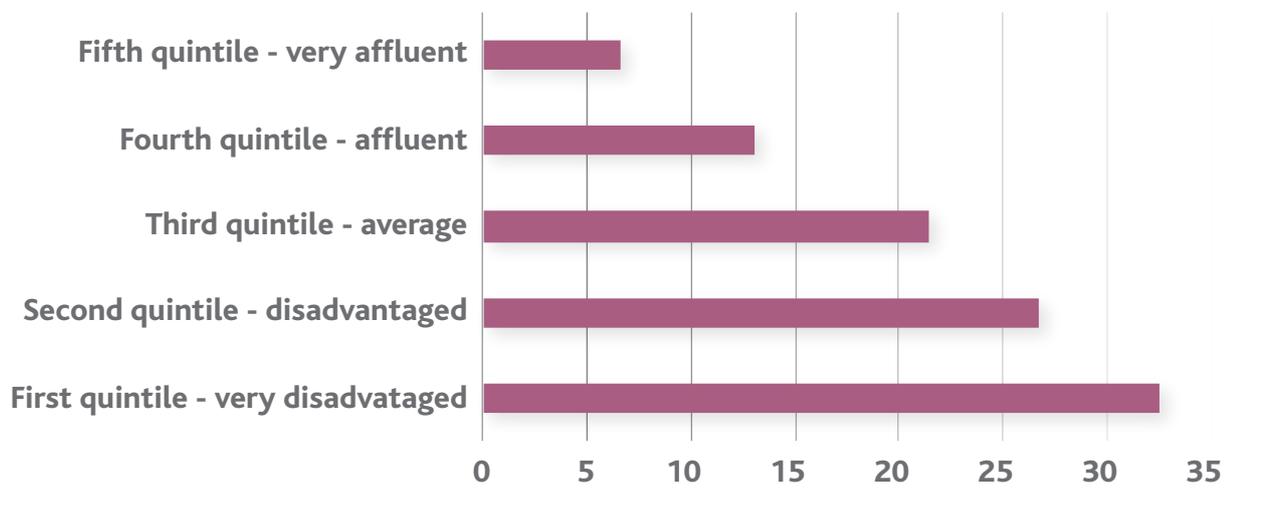
Source: Central Statistics Office (various years).

Table 3.1 Households without Internet Access Classified by Reasons for not Having Internet Access and Household Income (%), 2018

	Do not need internet	Lack of skills	Access to internet else-where	Broad-band internet not avail-able in the area	Equip-ment costs too high	Access costs too high	Privacy/ security concerns	Other
First quintile – very disadvantaged	46	33	2	1	6	3	1	9
Second quintile – disadvantaged	41	28	11	8	2	1	0	8
Third quintile – average	44	30	3	7	4	5	2	6
Fourth quintile – affluent	21	31	21	9	8	5	0	5
Fifth quintile – very affluent	47	31	7	2	3	0	0	11
Countrywide	40	30	8	6	5	3	1	7

Source: Central Statistics Office (various years).

Table 3.2 Households with Internet Access Classified by Type of Internet Access and Household Income (%), 2018

	Fixed broad-band[1]	Mobile broad-band[2]	Narrowband connection[3]	Type of connection unknown
First quintile – very disadvantaged	76	63	2	0
Second quintile – disadvantaged	78	60	0	1
Third quintile – average	81	45	0	0
Fourth quintile – affluent	82	52	2	0
Fifth quintile – very affluent	90	41	0	0
Countrywide	82	52	1	0

Source: Generated by the authors from Central Statistics Office (various years).
Note: 1 Examples include e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public Wi-Fi connections. 2 Connection via mobile phone network. 3 Either mobile or fixed connection. Examples include less than 3G, GPRS, dial-up access over older-type telephone. Households represent all private households with at least one occupant aged 16-74. More than one type of internet access may be given by households.

Labour Market Status

The Information Society Statistics GHS also includes information on differences in internet access and usage by individuals inside and outside the paid workforce. This is useful for further exploring the relationship between digital exclusion and social exclusion. These data confirm that individuals in employment are more likely to use the internet more regularly and also more likely to use the internet for interacting with public authorities than people who are unemployed. However, the most marked disparity in regular internet use is not between the employed and unemployed but between members of these groups and people who are engaged in home duties or retired.

The relevant details are presented in Tables 3.3 and 3.4 below. The first of these tables reveals that only 7 per cent of people in paid employment did not use the internet during the last three months compared to 12 per cent of unemployed people, 28 per cent of retired people and 51 per cent of those engaged in home duties. The 2018 Information Society Statistics GHS indicate that disparities between these labour-market groups have contracted in recent years - 12 per cent of people in paid employment had not used the internet during the preceding three months compared to 24 per cent of unemployed people, 48 per cent of retired people and 36 per cent of people engaged in home duties (Central Statistics Office, various years).

Table 3.4 highlights very large disparities between use of the internet to contact public authorities and public services by employed and unemployed people: 62 per cent of the former used the internet for this purpose in 2018 compared to just 32 per cent of the latter. This disparity has not diminished since 2016. The same table indicates that retired people and people engaged in home duties are less likely to use the internet for this purpose than those in paid employment.

Table 3.3 Individuals' use of the Internet Classified by Frequency of Use and Labour Market Status (%), 2018

Labour Market Status	Several times a day[1]	Every day	At least once a week (but not every day)	At least once a month (but not every week)	Didn't use in last 3 months
	2018	2018	2018	2018	2018
At work	81	86	5	1	7
Unemployed	74	80	8	0	12
Student	98	99	0	0	0
Home duties	55	62	9	6	51
Retired	26	34	8	3	28
Other	42	46	7	2	45
Countrywide	68	74	6	2	18

Source: Generated by the authors from Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who use the internet.

Table 3.4 Individuals' Contact with Public Authorities and Public Services over the Internet in the last 12 months Classified by Labour Market Status (%), 2016-2018

Labour Market Status	Obtaining information from websites or apps			Downloading/ printing official forms			Submitting completed forms online		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Employed	58	59	62	55	53	52	70	74	72
Unemployed	31	35	32	24	30	20	37	43	45
Student	25	37	26	24	34	23	29	41	28
Home duties	38	38	43	34	32	37	45	47	52

Labour Market Status	Obtaining information from websites or apps			Downloading/ printing official forms			Submitting completed forms online		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
Retired	54	47	50	48	39	38	62	58	57
Other	38	36	41	36	29	28	42	41	37
Countrywide	49	51	52	46	45	43	58	63	60

Source: Generated by the authors from Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who use the internet.

Age Group

Some information on digital exclusion by age group is also available in the CSO Information Society Statistics GHS. This is summarised in Tables 3.5 and 3.6. In view of the preceding discussion on the internet use of retired people, some of the findings flagged in these tables are surprising.

For instance, Table 3.5 demonstrates that only 3 per cent of individuals aged between 16 and 29 did not use the internet in the previous three months, compared to 52 per cent of people aged between 60 and 74. More broadly, this table points to a strong relationship between age and frequency of internet use: frequency of use decreases with age, and vice versa. This contradicts the evidence set out in Table 3.3 above, which pointed to relatively high use of the internet among retired people, but it confirms the strong consensus in the international research that digital exclusion is strongly associated with old age (see Reisdorf and Groselj, 2017).

Interestingly, maybe, Table 3.6 demonstrates that this relationship between advancing age and lower use of the internet does not apply in the case of use of the internet for the specific purpose of contacting public authorities. People aged between 60 and 75 used the internet more frequently for obtaining information from websites or apps and submitting completed forms online to public authorities than their counterparts in the 16 to 29 age group. This discrepancy may reflect a greater need to interact with public authorities on the part of older people than younger people.

Data are also available on the type of devices that people of different ages use to access the internet (see Table 3.7). These data reveal that older people are far less likely to use a smartphone or other mobile device (such as a smart watch or e-reader) for this purpose than younger people, and are more likely to rely on a desktop or laptop computer.

Table 3.5 Individuals' use of the Internet Classified by Frequency of Use and Age Group (%), 2018

Age Group	Several times a day	Every day	At least once a week (but not every day)	At least once a month (but not every week)	Didn't use in last 3 months
16-29	94	96	1	0	3
30-44	87	92	4	1	4
45-59	65	72	10	3	15
60-74	26	33	9	6	52
Countrywide	68	74	6	2	18

Source: Generated by the authors from Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who use the internet.

Table 3.6 Individuals' Contact with Public Authorities and Public Services over the Internet in the last 12 months Classified by Age Group (%), 2016-2018

Age Group	Obtaining information from websites or apps			Downloading/printing official forms			Submitting completed forms online		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
16-29	31	40	38	29	36	30	37	47	42
30-44	57	60	62	54	54	54	67	73	73
45-59	54	52	54	51	45	42	67	68	64
60-74	51	47	48	44	39	37	57	58	55
Countrywide	49	51	52	46	45	43	58	63	60

Source: Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who use the internet.

Table 3.7 Individuals who Used the Internet in the Last Three Months Classified by Type of Device Used and Age Group (%), 2016-2018

Age Group	Desktop computer		Laptop		Tablet		Mobile phone or smartphone		Other mobile devices[1]		Smart TV	
	2016	2018	2016	2018	2016	2018	2016	2018	2016	2018	2016	2018
16-29	18	22	68	56	33	36	96	93	6	15	7	22
30-44	27	25	68	58	43	50	92	95	6	12	10	26
45-59	30	27	68	56	36	43	75	83	4	7	6	16
60-74	28	22	62	54	34	40	52	56	2	4	3	6
Countrywide	25	24	67	56	37	43	84	86	5	10	8	20

Source: Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who used the internet in the last three months.

Household Type

The CSO Information Society Statistics GHS also contains information on use of the internet and e-government services by different types of households. These data, summarised in Figure 3.2 and Table 3.9 below, flag lower levels of usage by households without children and higher levels among households with children. Since the latter type of households are likely to be headed by younger people, this largely confirms the argument proffered in the preceding section that older people are more likely to be digitally excluded than younger people.

For instance, Figure 3.2 demonstrates that, in 2018, 68 per cent of one-adult households and 97 per cent of two-adult households had internet access at home. In contrast, more than 95 per cent of all types of households with children had internet access at home in this year. One- and two-adult households who do have internet access at home also have lower levels of use of both fixed broadband and mobile data than most categories of households with children.

Despite their lower levels of internet access, however, Table 3.9 demonstrates that one- and two-adult households had higher rates of use of the internet for making contact with public services and public authorities than households with children.

Figure 3.2 Households with Internet Access Categorised by Household Type (%), 2010 and 2018
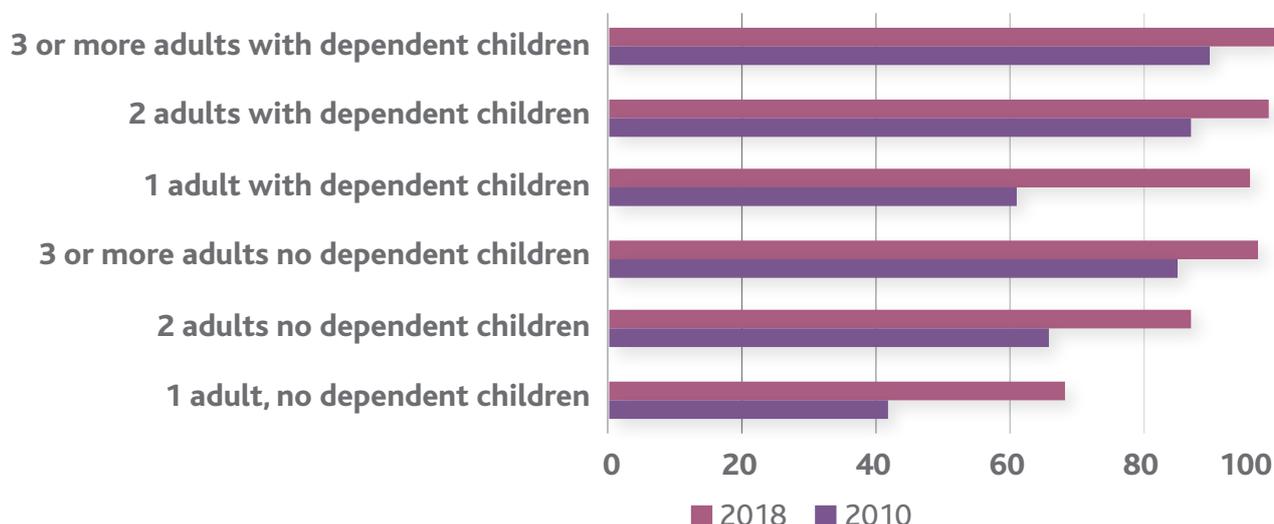
Source: Central Statistics Office (various years).

Table 3.8 Households with Internet Access Classified by Type of Internet Access and Household Type (%), 2018

Household Type	Fixed broadband[1]	Mobile broadband[2]	Narrowband connection[3]	Type of connection unknown %
1 adult, no dependent children	76	51	1	1
2 adults no dependent children	80	51	1	0
3 or more adults no dependent children	82	56	1	0
1 adult with dependent children	76	57	.	0
2 adults with dependent children	85	52	1	0
3 or more adults with dependent children	86	52	1	0
Countrywide	82	52	1	0

Source: Central Statistics Office (various years).
Note: 1 Examples include e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public Wi-Fi connections.
2 Connection via mobile phone network.
3 Either mobile or fixed connection. Examples include less than 3G, GPRS, dial-up access over older-type telephone.
Households represent all private households with at least one occupant aged 16-74. More than one type of internet access may be given by households.

Table 3.9 Individuals' Contact Over the Internet with Public Services and Public Authorities in the Last 12 Months Categorised by Household Type (%) 2016-2018

Household Type	Obtaining information from websites or apps			Downloading/printing official forms			Submitting completed forms online		
	2016	2017	2018	2016	2017	2018	2016	2017	2018
1 Adult no dependent children	49	52	52	44	44	42	56	63	56
2 Adults no dependent children	56	54	50	50	48	38	65	67	59
3 or more adults no dependent children	41	51	47	40	44	38	49	57	54
1 Adult with dependent children	38	44	41	36	36	31	46	49	49
2 Adults with dependent children	54	53	58	51	48	52	64	70	71
3 or more adults with dependent children	39	43	47	37	41	37	49	55	48
Countrywide	49	51	52	46	45	43	58	63	60

Source: Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who used the internet in the previous 12 months.

Lone-parent families in Ireland are much more likely to have low incomes and experience other forms of social exclusion (such as being jobless and experiencing barriers to joining the labour market) than two-parent families (McGuinness et al., 2018). The CSO Information Society statistics suggest that lone-parent households are also at higher risk of experiencing digital constraint, although not digital exclusion. Thus Figure 3.2 reveals that 96 per cent of lone-parent households had internet access at home in 2018. This level of internet access is higher than the average for all household types (89 per cent) and also had increased by 35 per cent since 2010 – more than for any other household type during this period. However, Table 3.9 also reveals low rates of use of the internet for contact with public services and public authorities among lone parents. This is surprising in view of the fact that lone parents are potentially more likely to depend on social security benefits than other household types. It suggests that lack of digital skills may be impeding lone parents' use of e-government services (McGuinness et al., 2018).

Region

The issue of regional disparities in access to high-speed internet has been the subject of continuing public debate. This issue merits examination here because it may have implications for access to e-government services.

Table 3.10 shows marked geographical differences in access to the internet across Ireland. Levels of access were well above the national average in Dublin and the Mid-East region but significantly below average in the Border, Midlands and South-East regions.

This table also demonstrates that broadly the same spatial patterns are evident in access to fixed-broadband technology. These findings confirm the conclusions of research in many other countries. For example, Reisdorf and Groselj's (2017) research on the UK highlights a 'digital divide' between large and affluent towns and cities and small poorer settlements. Roy et al's (2015) research on Canada reveals that inhabitants of isolated regions are less likely to be regular users of the internet than those in larger cities.

Table 3.10 Households With and Without Internet Access Classified by Type of Internet Access and Region (%), 2018

Region	No Internet access	Internet Access Classified by Type of Access			
		Fixed broadband[1]	Mobile broadband[2]	Narrowband connection[3]	Type of connection unknown
Border	15	69	55	1	0
Midlands	14	67	49	1	0
West	12	71	46	3	1
Dublin	6	90	55	1	0
Mid-East	8	86	61	1	0
Mid-West	12	78	63	0	0
South-East	14	82	40	1	1
South-West	12	82	50	0	0
Countrywide	11	82	52	1	0

Source: Central Statistics Office (various years).
Note: 1 Examples include e.g. DSL, ADSL, VDSL, cable, optical fibre, satellite, public Wi-Fi connections.
2 Connection via mobile phone network.
3 Either mobile or fixed connection. Examples include less than 3G, GPRS, dial-up access over older-type telephone.
Households represent all private households with at least one occupant aged 16-74. More than one type of internet access may be given by households.

In view of these trends, it is rather surprising that a much higher proportion of those who did not have internet access in the Border, Midlands and West regions reported that they 'didn't need internet', than was the case among householders without the internet in Dublin (see Table 3.11). Table 3.11 also reveals that a high proportion of households without the internet in the South-West region attributed this to digital capacity factors (i.e. 'lack of skills').

Table 3.12 below examines the implications of these spatial variations in internet access for use of the internet to contact public services and public authorities. It reveals that the use of the internet for this purpose was consistently higher in Dublin than in any other region of the country between 2016 and 2018. Conversely, use of the internet to contact public services and public authorities was consistently well below the national average in the Border region and to a lesser extent in the Midlands region.

Table 3.11 Households Without Internet Access Classified by Reasons for not Having Internet Access and Region (%), 2018

	Do not need internet	Lack of skills	Access to inter-net else-where	Broad-band internet not avail-able in the area	Equip-ment costs too high	Access costs too high	Privacy/ security concerns	Other
Border	48	16	7	10	7	3	0	10
Midlands	50	25	0	5	4	5	0	12
West	61	5	2	15	3	4	0	10
Dublin	30	25	25	5	5	1	1	8
Mid-East	[27]	[40]	[9]	[8]	[4]	[7]	[0]	[5]
Mid-West	59	4	12	0	7	0	0	19
South-East	43	22	4	4	11	6	0	11
South-West	31	50	7	4	3	3	2	2
Coun-trywide	40	30	8	6	5	3	1	7

Source: Central Statistics Office (various years).
Note: Households represent all private households with at least one occupant aged 16-74. More than one reason may have been given by respondents. Figures in parentheses [ ] indicate percentages based on small numbers (sample size 30 to 49) and are, therefore, subject to a wide margin of error.

Table 3.12 Individuals' Contact Over the Internet with Public Services and Public Authorities in the Last 12 Months Categorised by Region, (%) 2016-2018

	Obtaining information from websites or apps			Downloading/printing official forms			Submitting completed forms online		
Region	2016	2017	2018	2016	2017	2018	2016	2017	2018
Border	46	46	43	36	39	33	55	58	55
Midlands	49	46	47	46	39	42	55	59	58
West	47	52	57	41	45	42	51	62	65
Dublin	54	57	63	52	50	55	64	67	76
Mid-East	52	54	50	51	52	53	61	66	65
Mid-West	47	54	59	41	43	48	51	64	65
South-East	49	53	53	47	50	39	57	62	53
South-West	38	39	49	38	34	39	55	60	57
Countrywide	49	51	52	46	45	43	58	63	60

Source: Central Statistics Office (various years).
Note: Individuals represent all individuals aged 16-74 who used the internet in the previous 12 months.

Conclusions

This chapter has examined the relationship between social exclusion and problems in using digitally delivered public services. It has revealed that the relationship between the two is complex in the Irish context.

On the one hand there is a clear relationship between some markers of social exclusion such as low income and unemployment and digital exclusion and constraint. The proportion of very 'disadvantaged households' without an internet connection at home is five times higher than among 'very affluent' households. Very disadvantaged respondents were more likely to cite 'lack of skills' as a reason for not

having access to the internet at home than the population-at-large, and they were less likely to report that they had access to the internet outside the home than other income groups.

However, other groups which are not at high risk of social exclusion such as people engaged in home duties also exhibit high levels of digital exclusion. While, despite the high rates of social exclusion among lone parent households, this cohort doesn't exhibit high levels of digital exclusion.

The CSO Information Society Statistics GHS points to a strong relationship between age and digital exclusion. Frequency of internet use decreases with age and people aged 60

and over are less likely to use the internet for contacting public services and public authorities than people aged between 30 and 59 years. Furthermore, there are marked geographical differences in access to the internet in Irish homes. Levels of access were well above the national average in Dublin and the Mid-East region and significantly below average in the Border, Midlands and South-East regions. Use of the internet to contact public services and public authorities was also consistently higher in Dublin than in any other region of the country between 2016 and 2018, and consistently well below the national average in the Border region and to a lesser extent in the Midlands region. However, the relationship between age and location and social exclusion

is a complex one. Pockets of deprivation exist in all regions of the country and social exclusion is not inevitable among older people, although the risk of social exclusion does increase with age (CARDI, 2014).

The survey of CIS information providers conducted for this research revealed that, in their view, people with a disability, non-native English speakers and people with literacy difficulties are also at high risk of digital exclusion and constraint. This view is supported by research in other countries but these categories of people are not captured in the CSO Information Society Statistics GHS, so it was not possible explore this issue further using this source.

4. Promoting Digital Inclusion

Introduction

In this chapter, the focus of the analysis shifts from problems to solutions. It examines how the problems of digital exclusion and constraint can be addressed. Although this issue has not been the subject of detailed research and policy action in Ireland, this is not the case in many other countries. In his book *Technology and Social Inclusion*, Mark Warschauer (2004) explains that the strategies for digital inclusion that have been effective generally address four types of barriers to inclusion: *physical* (possession of computer and connectivity); *human* (education and ICT literacy); *digital* (relevant content in one's language or in plain, easily understandable language) and *social* (institutional and society structures supporting access and use). The analysis presented here examines the experience of devising and implementing strategies to overcome these barriers in other countries so as to identify the responses to digital exclusion that would work best in the Irish context. This discussion is organised around the main responses employed.

In Ireland, the Citizens Information Services (CIS) play a key role in combating digital exclusion. The online survey of their information providers that was conducted for this report is used to examine this role in more detail. This analysis focuses first of all on the supports provided by the CIS to clients struggling to use e-government services and on the barriers that information providers face in supporting them. Information service providers' views on how these and other supports for e-government could be strengthened are then outlined.

Information Providers' Role and Challenges in Combating Digital Exclusion

In many countries, information, advice and advocacy services play a key role in combating digital exclusion. Ireland is no exception. Figure 4.1 below details the supports provided by CIS information providers for clients who experience difficulties in using e-government services. It demonstrates that a wide variety of support services were provided, among which the following were most commonly provided: telephoning the public services provider directly on behalf of clients; writing to or emailing the public service provider directly on behalf of a client; filling out online forms or applications on behalf of clients, and explaining the online application process to clients or guiding them through online information. Over 80 per cent of the information providers who responded to the survey reported that they provided these services to clients.

Figure 4.1 Supports Provided by CIS Information Providers to Clients who Experience Difficulty in Using E-government Services (%), 2019
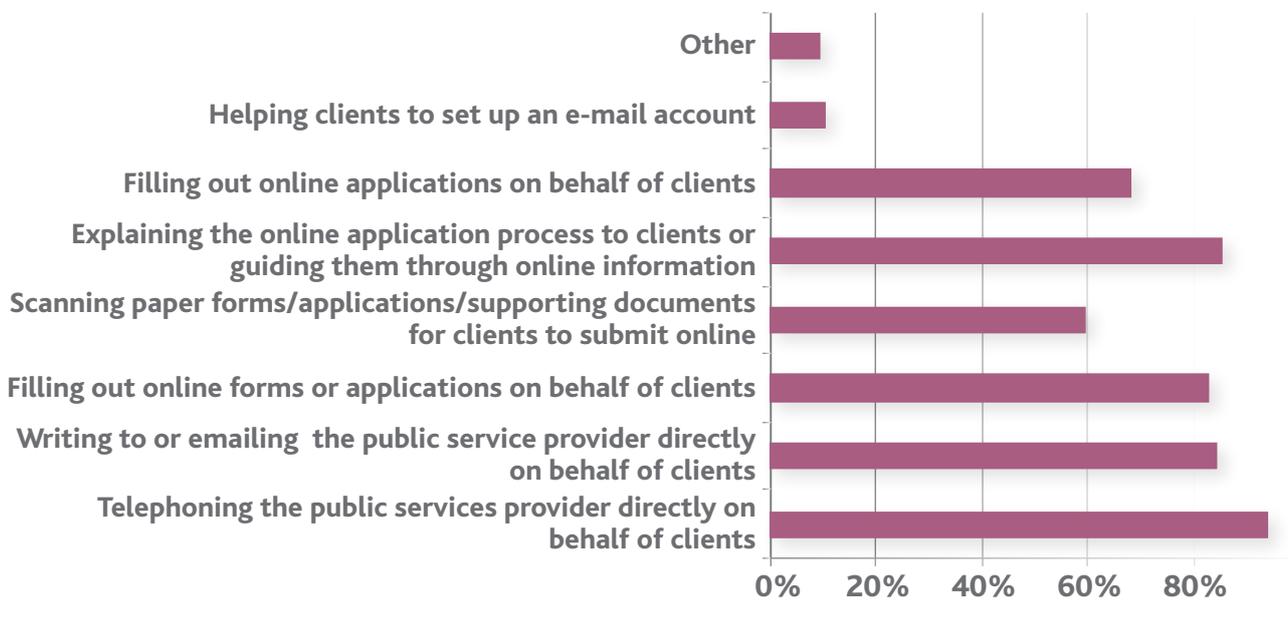
Source: Generated by the authors from an online survey of CIS information providers.
Note: 104 out of a possible 141 information providers answered this question.

Information providers were also asked about the barriers they face in supporting clients who are experiencing difficulties in using e-government services. Their answers are summarised in Figure 4.2 below. It shows that the most serious problem cited by information providers is that 'government departments and agencies provide no telephone support or won't answer calls' (cited by 37.50 per cent of respondents). The next most serious problems are: 'Inadequate time available to help clients' and 'GDPR/data protection concerns' (both cited by 12.5 per cent of respondents). In contrast, only 5.77 per cent of respondents identified limitations in their own digital literacy as a barrier to supporting clients' e-government needs.

Figure 4.2 Barriers that CIS Providers Face in Supporting Clients Experiencing Difficulty in E-government Services Online (%), 2019
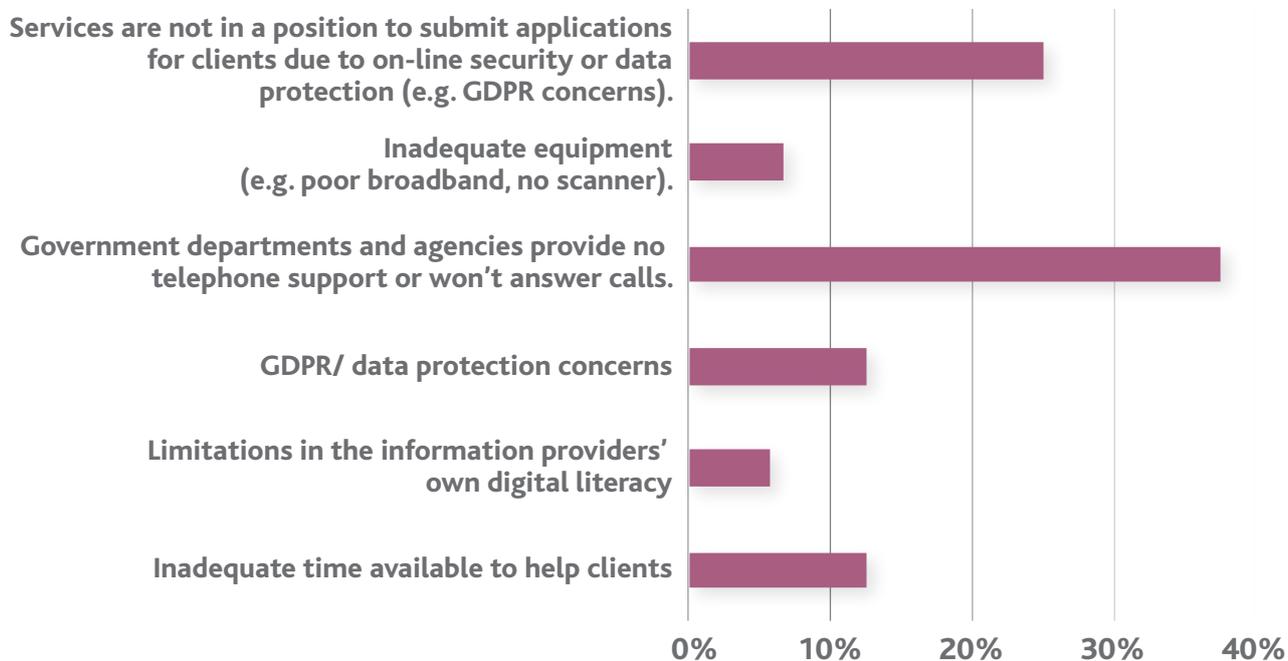

Source: Generated by the authors from an online survey of CIS information providers.
Note: 104 out of a possible 141 information providers answered this question.

Information Providers' Views on How Digital Exclusion Can be Addressed

In the online survey, CIS information providers were also asked how digital exclusion can be most effectively addressed. Their opinions are summarised in Figure 4.3. It is striking that their preferred solutions centre strongly on maintenance of alternative mechanisms to enable clients who experience difficulties in using e-government mechanisms to contact public services and public authorities.

For instance, 41.35 per cent of information providers proposed that 'government departments and agencies continue to accept written applications from clients'. A further 19.23 per cent proposed that 'government departments and agencies continue to enable clients to make queries at a public desk' and 14.42 per cent recommended that 'government departments and agencies maintain telephone support to clients'. In contrast, only a quarter of information providers proposed client-focused measures (e.g. better broadband infrastructure, access to computers and scanners in public libraries, and digital literacy training for individuals who lack these skills) as the best solutions to digital exclusion.

Figure 4.3 CIS Information Providers' Views on How Digital Exclusion from E-government Services Can be Addressed (%), 2019

Source: Generated by the authors from an online survey of CIS information providers.
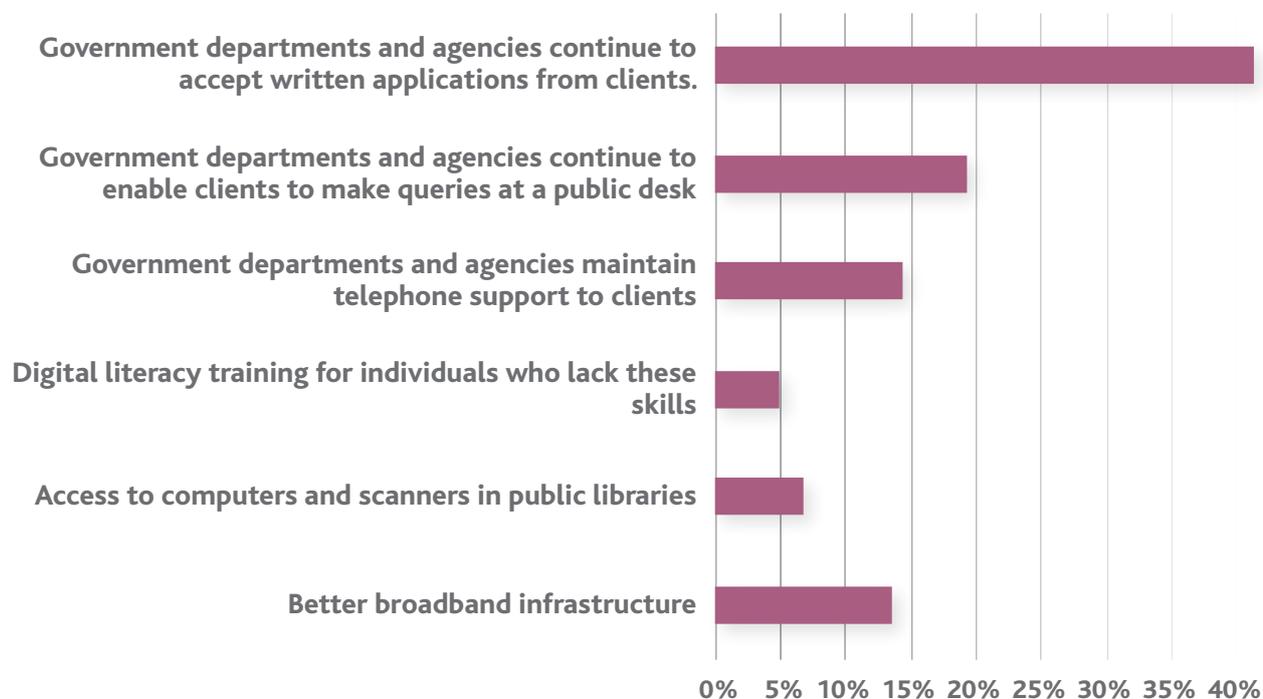Note: 104 out of a possible 141 information providers answered this question.

International Experience of Combating Digital Exclusion

Use of mobile technology

Chapter Three explained that the use of mobile technology to access the internet, particularly smartphones but also tablets and e-readers, has much increased in Ireland in recent years. This development reflects international trends. Strategies to combat digital exclusion, therefore, often focus on making e-government services mobile-phone-compatible, often by developing apps for this purpose.

In addition to their greater accessibility, mobile-phone aps have benefits in terms of ease of use and compatibility with inclusive technologies. For these reasons, more use of apps was recommended in a report on Preventing Digital Exclusion from Online Justice in the UK. This report makes the point that:

Many people identify smartphones and tablets as their most important device for accessing the internet. Across all age groups, more people are using smartphones – and they are being used for more activities. While by no means a complete answer, mobile technology offers [government] an opportunity to make people less digitally excluded. For instance, young people at risk… might go to a public library, or borrow a friend's computer – but a high-quality mobile application could reduce the need for them to do so. Further, apps are often simpler and more streamlined. Our consultation suggested that these design features could be particularly beneficial for some people with disabilities (Justice, 2018: 55-56).

However, there is research evidence which indicates that mobile technology alone is not a digital exclusion panacea and must be accompanied by other measures to provide a comprehensive solution to this problem. This is because those who rely solely on mobile technology for internet access are more likely to be digitally excluded than those who use multiple devices for this purpose. For instance, research by Citizens Advice Scotland (2018) on its clients who only used a smartphone for internet access found that they used the internet and emails less often, were less likely to say that they can use a computer 'very well' and were less likely to be able to undertake basic internet tasks such as downloading, completing, uploading and saving forms than other clients.

Assistive technology

Although this report focuses on the problems that e-government initiatives create for those who suffer digital exclusion and digital capacity problems, digital technologies can support the inclusion of previously excluded groups. They have been successful in doing so, particularly in the case of people with disabilities as part of a wider suite of 'assistive technologies' (Enable Ireland, 2016).

There is a strong argument for mainstreaming use of assistive technologies in e-government services, not only to enable their use by people with disabilities (indeed the Disability Act, 2005 requires public service organisations to ensure that electronic communications are accessible to people with visual impairments to whom assistive technology is available) but also because these technologies can support users who face other barriers to digital inclusion. For instance, the use of text-to-speech tools, live web chat support and screen sharing support on websites can help people with a visual disability and people with literacy difficulties or digital literacy problems to use these sites (Justice, 2018).

Assistive digital technologies are developing rapidly. Keeping up with the pace of this development and deciding which new technologies are most effective, best value for money and most likely to remain in use over the long term can be a challenge for governments. However, there is evidence that the latest developments in assistive digital technology such as natural language processing (a field of linguistics which enables humans to communicate with computers more easily) and the use of voice-enabled digital assistants on websites can play a valuable role in overcoming digital capacity problems.

Design for ease-of-use and universal design

There is evidence that user-unfriendly design of e-government services can impede their use, particularly by those who have weak digital capacity. Ensuring that the design of these enables ease of use is a central focus of government efforts to promote digital inclusion in many countries. The Web Accessibility Initiative – a global consortium of individuals and organisations working to promote the accessibility of the internet – has compiled a comprehensive list of web accessibility requirements intended to ensure that websites, web applications, browsers and other digital tools are accessible and easy to use. These requirements, summarised in Table 4.1, provide a useful best-practice guide for the design of e-government mechanisms.[23]

Use of plain language and availability in multiple languages

As well as good website design, the web accessibility requirements set out in Table 4.1 emphasise the importance of using plain language to ensure the accessibility of e-government mechanisms and of making information available in languages other than English where required.

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23 New European regulations (2020) give effect to the EU Web Accessibility Directive 2016/2102 and require public bodies to make their websites and mobile apps accessible to all and to ensure that content is 'perceivable, operable, understandable and robust'. As of September 2020, public bodies' websites covered by the 2020 Regulations should be accessible. Public sector mobile apps must be accessible by 23 June 2021. Source: http://nda.ie/publications/communications/eu-web-accessibility-directive/

Table 4.1 Web Accessibility Initiative Accessibility Principles

Design features	Explanation
Text alternatives for non-text content	Text alternatives are equivalents for non-text content. They convey the purpose of an image or function to provide an equivalent user experience. Examples include description of data represented on charts, diagrams, and illustrations and of non-text content such as audio and video files. These can be presented in a variety of ways. They can be read aloud for people who cannot see the screen or have reading difficulties, enlarged to custom text sizes, or displayed on braille devices.
Captions and other alternatives for multimedia	People who cannot hear audio or see video need alternatives. Examples include: • Text transcripts and captions for audio content, such as recordings of a radio interview • Audio descriptions, which are narrations to describe important visual details in a video • Sign language interpretation of audio content, including relevant auditory experiences
Content can be presented in different ways	Meeting this requirement allows content to be correctly read aloud, enlarged, or adapted to meet the needs and preferences of different people. For instance, it can be presented using custom colour combinations, text size, or other styling to facilitate reading.
Content is easier to see and hear	Distinguishable content is easier to see and hear. It includes: • Colour is not used as the only way of conveying information or identifying content. • Default foreground and background colour combinations provide sufficient contrast. • Users can increase text or image size and can adjust the audio played on a website.
Functionality is available from a keyboard	Many people don't use the mouse and rely on the keyboard to interact with websites. Enabling keyboard access to all website functionality helps keyboard users, including those using keyboards with ergonomic layouts and on-screen keyboards, as well as people using voice recognition to operate websites and to dictate text.

Design features	Explanation
Users have enough time to read and use the content	Some people need more time to read and use web content. They can be facilitated by providing mechanisms to: • Stop, extend, or adjust time limits, except where these are necessary • Pause, stop, or hide moving, blinking, or scrolling content • Re-authenticate when a session expires without losing data
Content does not cause seizures and physical reactions	Content that flashes at certain rates or patterns can cause photosensitive reactions, including seizures. Flashing content is ideally avoided entirely or only used in a way that does not cause known risks. Also animations and moving content can cause discomfort and physical reactions.
Users can easily navigate websites	Well-organised content helps users to orient themselves and to navigate effectively. Such content includes: • Pages have clear titles and are organised using descriptive section headings. • There is more than one way to find relevant pages within a set of web pages. • The purpose of a link is evident, ideally even when the link is viewed on its own.
Provide different input modalities beyond keyboard	Providing input modalities beyond keyboard, such as touch activation, voice recognition, and gestures make content easier to use for many people.
Text is readable and understandable	Content authors need to ensure that text content is readable and understandable to the broadest audience possible, including when it is read aloud by text-to-speech. Such content includes: • Identifying the primary language of a web page and all parts of the page • Providing definitions for any unusual words, phrases, idioms and abbreviations • Using the clearest and simplest language possible, or providing simplified versions Meeting this requirement helps software, including assistive technology, to process text content correctly and helps people with different types of cognitive disabilities.

Design features	Explanation
Content appears and operates in predictable ways	Many people rely on predictable user interfaces and are disoriented or distracted by inconsistent appearance or behaviour. Examples of making content more predictable include: • Navigation mechanisms that are repeated on multiple pages appear in the same place each time. • User interface components that are repeated on web pages have the same labels each time. • Significant changes on a web page do not happen without the consent of the user. Meeting this requirement helps people to quickly learn how to operate websites according to their specific needs and preferences.
Users are helped to avoid and correct mistakes	Forms and other interaction can be confusing or difficult to use for many people. As a result, they may be more likely to make mistakes. Examples of helping users to avoid and correct mistakes include: • Descriptive instructions, error messages, and suggestions for correction • Context-sensitive help for more complex functionality and interaction • Opportunity to review, correct, or reverse submissions if necessary
Content is compatible with current and future user tools	Robust content is compatible with different browsers, assistive technologies, and other user agents. Meeting this requirement helps maximise compatibility with current and future user agents, including assistive technologies. In particular, it enables assistive technologies to process the content reliably, and to present or to operate it in different ways. This includes non-standard (scripted) buttons, input fields, and other controls.

Source: Adapted from https://www.w3.org/WAI/fundamentals/accessibility-principles/.

This advice is also emphasised in the web design guidelines for public services contained in the *Customer Communications Toolkit for the Public Service — A Universal Design Approach,* published by the Department of Public Expenditure and Reform and the National Disability Authority in 2017 and updated 2019. These guidelines were one of the recipients of the Plain English Awards for Ireland from the National Adult Literacy Agency in 2019.

Research and user feedback

There is a strong consensus in the international research and also in policy statements on digital exclusion published by governments of other countries that a strong evidence base is required to inform good digital inclusion practice. This requires research; several governments, including that of New Zealand, have established research programmes to inform their digital inclusion strategy (New Zealand Government, 2019).

Research required to inform strategies to combat digital exclusion can be organised into three broad categories:

- **Large-scale surveys:** These may be conducted especially to form the content of digital inclusion strategies or involve the inclusion of some additional questions in an existing survey. Conducted by governments in almost every developed country, they are useful for examining the scale and nature of digital exclusion among the population-at-large.

- **Qualitative research:** On occasions, qualitative research such as in-depth interviews and focus groups has been used to examine the experience of digital exclusion in depth. This research generally focuses on groups at high risk of digital exclusion.

- **User pilots and user evaluations:** Citizens Advice Scotland recommends that more e-government services should be piloted prior to their establishment, particularly with groups wo are likely to have digital capacity problems such as older people (Beattie-Smith, 2014). User evaluations of e-government services have been conducted in several countries, but these rarely focus on digital exclusion concerns.

- **User monitoring:** The nature of e-government facilitates easy monitoring of the use of these services and the collation of data on, for instance, the number of unsuccessful attempts to use the service, and client errors. Subject to ensuring compliance with data protection legislation, this information should be marshalled to inform reforms to the design of e-government services and the content of digital inclusion strategies (as is proposed by Justice, 2018). However, this is rarely done in a systematic way.

Multi-channel approach to service provision

The earlier sections of the chapter explained that CIS information providers are strongly in favour of providing alternatives such as accepting paper applications for public services and facilitating telephone queries from applicants and clients. *The Preventing Digital Exclusion from Online Justice* report proffers the same recommendation, in terms of a multi-channel approach to service provision (Justice, 2018). It argues that there does not "need to be a binary choice between channels: users can start off using paper or telephone, and move to online services, or vice-versa" (Justice, 2018: 58). This report also mentions that the relevant ministry in the UK accepts that such an approach is appropriate in the case of justice provision and the need to provide 'offline' alternatives to e-government provision, and it is reiterated in British Government Digital Strategies (Cabinet Office: various). However, this approach is not the norm among governments internationally. As mentioned in the introduction to this report, governments in most countries are increasingly adopting a 'digital by default' approach to contacting public services and public authorities, and may not provide alternatives.

Assisted digital

The British government's *Digital Strategy* also proposed that, in "some cases, people may be offered help to use the digital channel" and terms this approach "assisted digital" (Cabinet Office, various). Although this policy statement does not specify how this assisted digital support will be provided, common mechanisms used include: support from information service providers, libraries and private sector providers contracted for this purpose.

Citizens Advice Scotland argues that, if this assisted digital approach is to be successful, "It is vital that local information about public access computers, skills support and third sector activity is collated and shared in an open and accessible way for all who need it" (Beattie-Smith, 2014: 3).

Digital skills and digital literacy acquisition

As mentioned earlier in this chapter, the online survey of CIS information providers did not identify supporting digital skills acquisition among clients as a major priority for combating digital exclusion. However, this view is not supported by the international research on this issue. For instance, Siren and Grønborg Knudsen's (2017) research on use of ICT and e-government among older people in Denmark indicates that attitude is a more important determinant of usage rates than age, gender or socio-economic status. They conclude that "non-use of ICT often results from the lack of willingness to use it rather than from material or cognitive deficiencies" and on this basis recommend that "policy measures for bridging the digital divide should focus on skills and confidence rather than on access or ability" (Siren and Grønborg Knudsen, 2017: 35). This view is supported by Citizens Advice Scotland, which recommends that funding for further-education colleges should be increased to enable them to run courses that would increase digital skills (Beattie-Smith, 2014). The research evidence also indicates that digital skills are strongly correlated with frequency of use of the internet, so, rather than formal training, it may be sufficient for CIS information providers to show clients how to use e-government services and practise using these and other digital technologies more frequently in order to strengthen their digital skills.

Conclusions

This chapter has examined solutions to digital exclusion and constraint identified by CIS information providers, as well as ones used in other countries. It demonstrates that mechanisms are available to resolve this problem, although its scale, complexity and intractability means that no single solution will be adequate for to the purpose. A suite of measures to promote digital inclusion will be required. Furthermore, alternative arrangements will still be necessary to ensure that people with no or very low digital capacity can access all public services.

In terms of technological solutions, mobile technology has the strongest potential for reducing digital exclusion. Its use is increasing rapidly and penetrating sections of the population that had previously not been online. Therefore, ensuring that e-government services work well on mobile phones is a logical first step to promote digital inclusion. However, since those who rely solely on mobile technology to access the internet are more likely to have digital constraint issues, additional supports are likely to be required to ensure that they can use e-government services correctly. Assistive technologies developed to support internet use by people with disabilities might provide some of these additional supports. If assistive technologies such as live web chat support and screen sharing support on e-government websites were mainstreamed,

this would not only help people with a visual disability but also those with literacy difficulties or digital literacy problems to use these sites. Ensuing that e-government services are designed for ease-of-use, use of plain, clear language and multiple languages also supports their use by clients with weak digital capacity. User feedback and research on e-government services would help to inform these design considerations.

Nevertheless, a proportion of the population still face strong challenges in using e-government services independently. Although the size of this group has contracted in recent years and is likely to contract further in future, there was a strong consensus among CIS information providers surveyed for this research that offline supports have to remain in place to enable the non-digitally engaged population to use public services and public authorities. In particular, the option to telephone a public service provider for information or submit applications by post must remain available. In addition, these information providers play a vital role in supporting digitally excluded people and enabling them to engage with public services. The analysis of work presented in this chapter highlights several additional supports that could be provided to information providers to enable them to fulfil this role more effectively; for instance, information and training on the data protection implications of supporting clients to use e-government services.

5. Conclusions and Recommendations

Introduction

This report has examined the increased use of e-government in Ireland in recent years and its implications for access to public services and public authorities. It acknowledges the undoubted efficiency and effectiveness benefits of using digital technology to support public service delivery. However, it also highlights and examines two important potential drawbacks: that problems in accessing the internet and other required computer technology lead to digital exclusion, and that challenges in using the internet even when it is available lead to digital constraint.

This final chapter sets out the findings of the preceding analysis in terms of the extent, nature and causes of digital exclusion and constraint in Ireland, and the overlap between these problems and social exclusion. Solutions to digital exclusion are examined, and the potential role of the Citizens Information Services (CIS) in implementing these solutions is examined in depth. On this basis, a comprehensive series of recommendations for combating digital exclusion and constraint in Ireland are put forward.

Declining Digital Exclusion but Continuing Digital Constraint

Although the title of this report refers to 'Digital Exclusion and E-government', the analysis presented here indicates that digital exclusion has declined substantially in Ireland in recent years and the use of digital technologies to support the provision of public services has risen. The CSO Information Society Statistics

General Household Survey (GHS) demonstrates that the percentage of households with internet access at home has increased from 72 in 2010 to 89 in 2018[24] (Central Statistics Office, various years). Furthermore, the variety of methods and devices used to access the internet has increased concurrently as reliance on desktop computers for this purpose has declined and use of tablets and in particular smartphones to access the internet has increased. This same survey demonstrates that increased availability of the internet is reflected in a marked increase in its use in recent years. In 2012, 77 per cent of the individuals surveyed reported that they had used the internet within the past three months; by 2018, this proportion had increased to 82 per cent.[25] Conversely, the proportion of individuals who reported that they had never used the internet decreased from 18 per cent to 16 per cent between these years.[26]

On the other hand, the survey of CIS information providers conducted for this report suggests that a large proportion of their clients have difficulty in using e-government services. Indeed, 49.9 per cent of the respondents to this survey reported that 'no services work well online' for their clients. In their view, this problem reflected both higher levels of digital exclusion among their clients and also digital constraint due to inability to use the internet. It is likely that this disparity partially reflects the fact that people use the CIS when they have a problem accessing or continuing to use a public service and not when the service is working well for them. However, it also reflects the higher levels of social exclusion among users

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24 The percentage of households with internet access further increased to 91% in 2019 and 92% in 2020: CSO Information Society Statistics 2020.

25 89% by 2020 during pandemic.

26 Further decreased to 11% in 2019 and 8% in 2020.

of public services compared to the population-at-large. The experience of CIS information providers points to the existence of significant problems of digital constraint among cohorts at high risk of social exclusion such as older people, people with literacy difficulties and non-native English speakers. Their experience is supported by extensive research evidence in other countries which demonstrates that "digital inequalities map onto other inequalities in society" (Dobransky and Hargittai, 2016: 19).

Digital Exclusion Overlaps with Social Exclusion

More detailed analysis of the overlap between digital exclusion and social exclusion using the CSO Information Society Statistics GHS reveals a complex pattern of interaction between the two.

Some groups at high risk of social exclusion also experience high levels of both digital exclusion and constraint. For instance, the proportion of 'very disadvantaged households' (with incomes in quintile one – the lowest income quintile) without an internet connection at home is five times higher than the rates seen among 'very affluent' households (with incomes in quintile five – the highest income quintile). Moreover, very disadvantaged respondents were more likely to cite 'lack of skills' as a reason for not having access to the internet at home than the population-at-large.

Some groups at high risk of social exclusion do not experience high rates of digital exclusion but do suffer digital constraint. Lone-parent households are an example. They are more likely to have access to the internet than other household types but less likely to use the internet for contact with public services and public authorities. This is surprising in view of the high level of benefit dependency among lone parents and may signal digital constraint problems.

The CSO Information Society Statistics GHS points to a strong relationship between age

and digital exclusion. This finding is supported by the international research on this issue (see Reisdorf and Groselj, 2017). For instance, frequency of internet use decreases with age and vice versa. People aged 60 and over are less likely to use the internet for contacting public services and public authorities than people aged between 30 and 59 years. Furthermore, there are marked geographical differences in access to the internet in Irish homes. Levels of access were well above the national average in Dublin and the Mid-East region and significantly below average in the Border, Midlands and South-East regions. Use of the internet to contact public services and public authorities was also consistently higher in Dublin than in any other region of the country between 2016 and 2018, and consistently well below the national average in the Border region and to a lesser extent in the Midlands region. However, the relationship between age and location and social exclusion is a complex one. Pockets of deprivation exist in all regions of the country and social exclusion is not inevitable among older people, although the risk of social exclusion does increase with age (CARDI, 2014).

The survey of CIS information providers conducted for this research revealed that, in their view, people with a disability, non-native English speakers and people with literacy difficulties are also at high risk of digital exclusion and constraint. This view is supported by research in other countries but these categories of people are not captured in the CSO Information Society Statistics GHS, so it was not possible explore this issue further using this source.

Digital Exclusion Reinforces Social Exclusion

Siren and Grønborg Knudsen's (2017: 37) research on Denmark concludes that the risk for those who are digitally disengaged is that they risk not receiving welfare services to which they are entitled, thereby reinforcing

the social health and economic disadvantages. This is also confirmed by the experience of the CIS information providers surveyed for this research. Their experience indicates that social exclusion is not only one of the causes of digital exclusion, but is reinforced by digital exclusion.

The survey of CIS information providers revealed that, in their view, online tax services, social welfare services and local government services are the broad service areas that clients have most difficulty using online. They also identified several specific online services that are challenging for clients to use. These include medical cards, pensions, third-level education grants, planning applications and objections, and employee taxes (PAYE taxes).

Analysis of the Oyster database of information on queries submitted by CIS clients provides useful additional information on the nature of the challenges clients experience in using these online services. These data flag concerns that some services are now only available online, which may discriminate against service users who do not have access to or cannot use the internet. Even when alternatives to online services are provided, information providers raised concerns that clients who avail of these alternatives face delays or additional requirements that are not experienced by their counterparts who avail of the online service option.

Recommendations: Promoting Digital Inclusion

The analysis of strategies for promoting digital inclusion examined in this report has identified the measures that are most effective in achieving this objective. This suggests that the following reforms to e-government policy and practice in Ireland should be prioritised.

Recommendation 1. Irish e-government Strategy: The next iteration of the Irish government's e-government strategy, which will cover the period from 2020, should include plans for promoting digital inclusion and make provision for funding to implement these plans. This should be aligned with policy on social inclusion strategies

Recommendation 2. Apply and Develop the Customer Communications Toolkit for the Public Service: The digital communications sections of these guidelines, which were produced by the Department of Public Expenditure and Reform and the National Disability Authority, provide a valuable starting point for the development of a digital inclusion strategy. In addition, these guidelines and universal design principles, including use of plain language, should be adhered to in the design of all government digital communications mechanism in future.

Recommendation 3. Use of Assistive Technologies: There is a strong argument for mainstreaming use of assistive technologies in e-government services, not only to enable their use by people with disabilities but because they can help many other people with weak digital capacity to use e-government services.

Recommendation 4. Provide Multiple Options for Communication with Public Services and Public Authorities: The proposed digital inclusion strategy should make provision for offering clients other options for communicating with government. Citizens Information Services information providers feel that continuing to accept written applications for public services and social welfare benefits and enquiries via a public desk or telephone is a particular priority. These options must be adequately resourced and their availability actively promoted.

Recommendation 5. Prioritise Mobile Technology: The proposed strategy for digital inclusion should prioritise use of mobile technology in e-government services because this is the most affordable, accessible and ubiquitous mode of digital interaction.

Recommendation 6. Provide Assisted Digital Support: In some cases the provision of additional supports is all that is required to enable people with poor digital capacity to use e-government services. These should be provided for in the proposed digital inclusion strategy. In addition to informal support from family members or friends, assisted digital supports could include:

a. Web chats: whereby users are offered online support to enable them to use e-government services

b. Telephone support or 'call back' facilities which provide the same services and can be advertised automatically when users get 'stuck' during online facilities

c. The use of intermediaries such as the Citizens Information Services which provide face-to-face or telephone support

Recommendation 7. Role of the Citizens Information Services in Providing Assisted Digital Support Services: CIS information providers play a key role in providing assisted digital support services. The CIS should be resourced and supported to extend their provision, and their availability should be advertised to the public. As well, additional information and training is likely to be required by information providers to enable them to provide this support. For instance, the data protection implications of providing different types of assisted digital support services for clients should be clarified to information providers.

Recommendation 8. Strengthen the Digital Inclusion and E-government Evidence Base: To ensure they are effective, the proposed strategy for digital inclusion and e-government initiatives more broadly must be evidence-based. The following avenues could be used to generate the requisite evidence:

a. Ongoing analysis of the Central Statistics Office's Information Society Statistics General Household Survey

b. Qualitative research such as in-depth interviews and focus groups to examine the experience of groups at high risk of digital exclusion

c. User pilots and user evaluations of e-government initiatives focused in particular on groups that are likely to have digital capacity problems, such as older people

d. User monitoring and the collation and analysis of data on, for instance, the number of unsuccessful attempts to use the service, and client errors

Recommendation 9. Digital Skills and Digital Literacy Acquisition: The proposed digital inclusion strategy should also include plans to promote digital skills and digital literacy acquisition among groups that tend to have weak digital capacity.

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The Citizens Information Board provides independent information, advice and advocacy on public and social services through **citizensinformation.ie**, the Citizens Information Phone Service and the network of Citizens Information Services. It is responsible for the Money Advice and Budgeting Service and provides advocacy services for people with disabilities.