

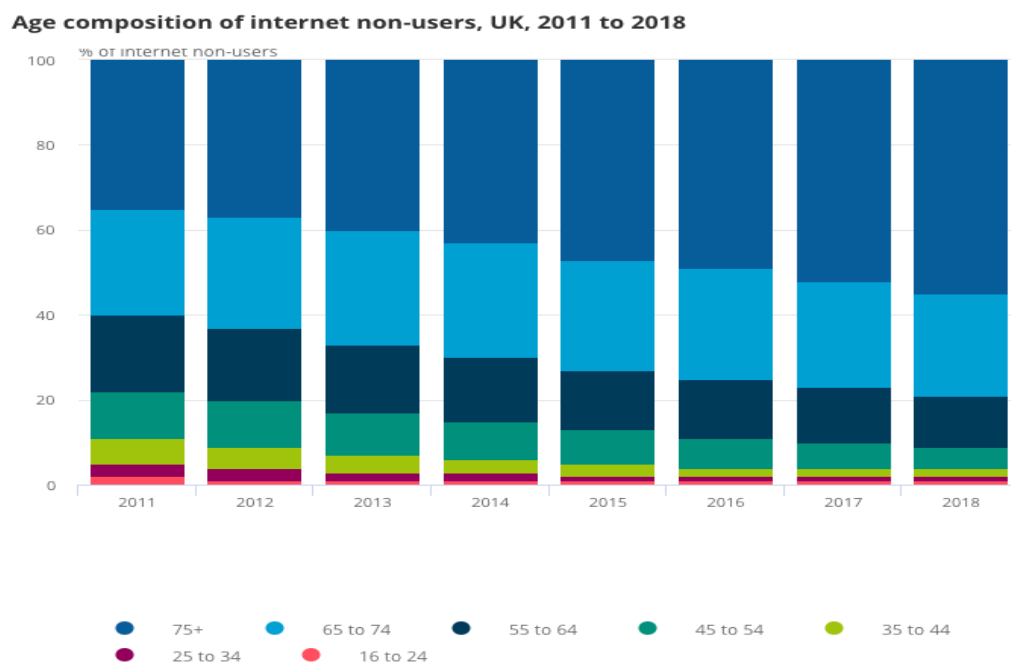


IMPACTS OF DIGITAL DIVIDE

**INFORMATION AND INFORMATION SYSTEMS
COURSEWORK**

Digital divide is the unequal access to digital technology, the impact of digital divide varies from person to person, job to job, organisation to organisation and so on. This can be caused by the lack of access to the internet, high costs of access, inadequate literacy and so on. There are numerous benefits in having the basic digital skills such as getting your services done faster and with less effort, research has also proved that a lot of time and money could also be saved this way but still a large proportion doesn't have this. The digital divide report provides a lot of information on how the technology is distributed based on various categorisations. This essay will analyse five different major digital activities and its effect on five different categories of people. Digital divide can be resolved for each of these categories by understanding the issues and developing a solution suitable for each individual and the respective difficulty faced. For instance, people in the age group 65 or above might find it hard to cope with technology, which is becoming more complex at the end of the day, while there are some other categories like women, who don't have access due to some other reason. Hence, each group requires a different approach to resolve the issues. The age composition of non-users of internet is provided in the graph given below:

Graph 1: Age composition of internet users from digital divide report



1. **Elderly people:**

1.1 Accessing and using online government and council services:

Like all the services that could be done online, government and council services are also much more convenient when done online. When statistical data was analysed, it revealed that age was a significant factor which played a major role in accessing e-government services. Studies show that the proportion of older citizens using this service is very less, the reason being their inability to use internet services, lack of interest, personal preferences and the fear of scams and losing important personal information.

They are likely to need computer assistance which even includes how to use the mouse and keyboard. Unlike the other organisations and services, it is the duty of the government to make the services available to everyone. Therefore they should present the information in such a way that is well organised, easy to navigate and provide relevant information easy to understand. They could bring policies that provide internet access for those citizens who have digital skills but don't have access to the internet. When an interview was conducted with 21 different older citizens they suggested that if the explanations of the online terminology is provided along with instructions on using primary online services such as the basic web services, it will be helpful in improving their usage.

1.2 Internet Banking:

The rapid development of internet services prompted the advance of internet banking. It is found that approximately 30 minutes per transaction could be saved if banking services are done online. Security concerns like losing major private information is the main barrier. The following Table 1 shows a survey that was conducted by an organisation, collecting responses from both users and non-users of internet banking:

Table 1: Survey by an organisation for elderly population

TABLE 1: DOMINATING FEATURES COLLECTED AS RESPONSE DURING THE SURVEY FROM USERS AND NON-USERS OF IB.

Questions	Response types	Non-users of IB	Users of IB
IB can make my banking activities easier?	Agree	20%	58%
	Neutral	35%	26%
	Disagree	45%	16%
Banks are providing sufficient information to adopt IB?	Agree	19%	38%
	Neutral	27%	36%
	Disagree	55%	26%
E-transactions are secure?	Agree	27%	42%
	Neutral	38%	38%
	Disagree	35%	20%
Have time to get involve in IB?	Agree	7%	56%
	Neutral	39%	36%
	Disagree	54%	8%
Discuss finance related issues with family and close friends?	Agree	22%	6%
	Neutral	24%	26%
	Disagree	74%	68%
People perceived IB includes complex transactional procedures?	Agree	50%	40%
	Neutral	32%	26%
	Disagree	18%	34%
IB provides personalized facility	Agree	15%	40%
	Neutral	35%	25%
	Disagree	50%	35%

It was found that the majority of the non-users were over the age of 55 years and found the actions involved in internet banking very complex, they preferred to have face-to-face communication. Most of the non-users were either unemployed or retired and more than 85% had privacy issues. Possible solution to this was found to be re-defining the implementations of internet banking at information and transactional level to remove the issues related to privacy and security. Financial institutions could get in touch with the elderly people with education to motivate and demonstrate the services and benefits of internet banking. Banks could improve their reliability and provide consistent services.

1.3 Online shopping:

Studies found that older citizens may not get enjoyment out of online shopping as much as they get from the offline one, another possible reason is risk involved such as the product quality, financial risks and the previous online shopping experiences, for instance, if a person faced a bad experience such as receiving a damaged product more than once, he/she will be reluctant to try the same thing again. Therefore the company could make sure to only sell those products with good quality, make people aware of the features available in their app or websites, such as the option to check the previous consumer reviews, cash on delivery

option which reduces the financial risks involved, the option to return the product and the refund policy. They could introduce products and even some features in their websites designed especially for the elder people.

1.4 Online health services:

“The gap between those who access and use health information technology and those who do not is referred to as the digital health divide.” (Hall *et al.*, 2014). Accessibility issues, increased prevalence of chronic diseases, lack of experience using technology, income, self-efficacy and other factors hinders older adult’s use of technology. Promotion educational programs to encourage older adults to use HIT, while fostering activities that would help increase their computer self efficacy. Attendees of such programs will see an improvement in their health, help to encourage sustained computer self-efficacy and the use of the internet for online health information research. Consistent evaluation of such programs is necessary to ensure sustainability of computer use and HIT engagement. Additionally, the correlation between perceived self-efficacy and willingness to engage in particular behaviours confirms the need for healthcare professionals to use validated instruments. From the study it was found that a population level digital divide initiative may have been helpful in increasing technological access. (Hall *et al.*, 2014)

Table 2: Data collected from a telephonic interview conducted in 2013 with older adults :

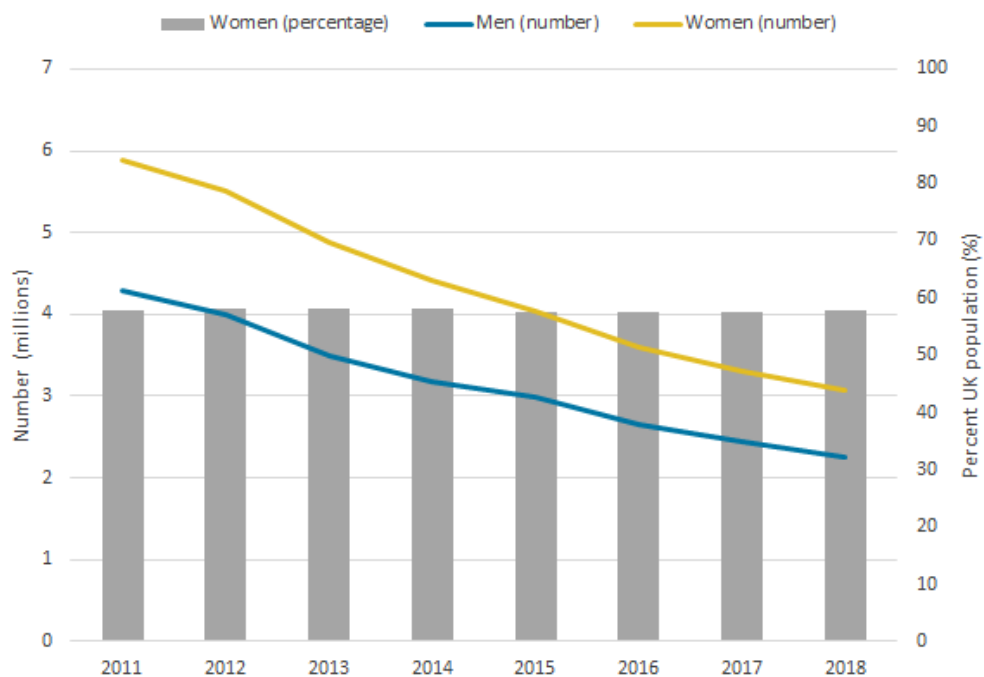
Technology access and use	Users of online health information (n = 105)	Nonuser of online health information (n = 119)	Total (N = 225)	p ^a
Access to Internet (%)	99.1	56.3	76.0	<.0001
50-64 (years)	100	75.8	90.0	
65-74 (years)	100	56.3	80.3	
75+ (years)	94.7	46.0	58.6	
Technology use				
Desktop computer	77.1	55.9	65.6	.0009
50-64 (years)	72.3	66.7	70.0	
65-74 (years)	76.9	51.6	65.7	
75+ (years)	89.5	52.0	61.4	
Laptop computer or netbook	76.7	43.2	58.6	<.0001
50-64 (years)	87.0	68.8	79.5	
65-74 (years)	73.7	56.3	65.7	
75+ (years)	57.9	20.0	30.0	

1.5 Online communications using social media:

Maintaining relationships is a crucial element for ageing well. The number of older people living alone is increasing and social media helps in engaging in meaningful social contact. Limitations in using social media include functional limitations such as limited cognitive and perceptual abilities, blindness, computer anxiety etc. An important prerequisite in using any online platform is web proficiency, knowledge on how social networks and websites use personal and other information and how to consume, create, and share social media content. However, with the increasing problems of data privacy protection, people are not interested in using them. Some solutions include, tailoring social media applications according to user's needs, providing an option in such applications to provide and receive social support, organising educational classes to teach the basic skills required in using them and also making people aware about the negative impacts of increased usage. (Leist, 2013)

2. Women

Graph 2: The graph below is from the digital divide report which shows the variation in the number of non-users of the internet of both men and women over the years:



2.1 Online government and council services:

There are accessibility issues for women in rural areas and even in developing countries. Possible ways to increase the usage of e-government services by women are, the government could develop it in such a way that is accessible to all the citizens, organise campaigns to bring gender equality, ICT training which are free of cost/ very little cost for girls and women, internet connection at homes and development of centres where they can access a system with internet connection and other necessary facilities, instruction could be provided in their local language if language is a barrier. In a small project conducted in Jordan, many women benefited from that, hence change is possible if necessary support is provided.

2.2 Internet Banking:

Gender is a major factor that influences the adoption of internet banking. In 2008, in a study it was found that men are more likely to use internet banking than women. The reason is that women are more concerned about their privacy than men, social influence also plays a role in internet banking acceptance.

Possible solutions are: Web developers could concentrate in providing relevant and accurate information to attract more females into this.

Concise and simple wordings should be used for each individual to understand the benefits of internet banking while covering all the key features, interactive user guides and demonstrations for banking transactions could be developed.

2.3 Online shopping

According to a study, 22% of men shop online at least once a week compared to 14% of women. It was also found that women largely shop for social benefit, hence combining online shopping with social networking will have a positive impact, it will attract more females as the site will be easier and effortless to use, which every person is looking for in any website as it saves a lot of time.

Table 3: Analysis of women's attitude towards online shopping

Table 2: Factor analysis of women's attitudes towards online apparel shopping

Item	Factor loading	Eigenvalue	Percentage of variance explained	Cronbach's alpha
Ease of use		1.55	7.51	0.70
Shopping online is easy for me	0.78			
Shopping online is clear and understandable	0.73			
I am capable of shopping online	0.69			
Security (safety)		2.78	12.00	0.82
Shopping online is a safe way to shop	0.79			
Online retailers are trustworthy	0.67			
Shopping online is very risky	0.25			
I don't trust the Internet service providers to give personal details online	0.62			
User's relative advantage		4.22	19.65	0.85
Online shopping makes me feel proud	0.68			
Shopping online improves my shopping confidence	0.65			

Shopping online gives me control over what I buy	0.62
Shopping online fits well with my status	0.67
Shopping online enables me to shop very quickly	0.61
Shopping online is compatible with my lifestyle	0.58
Shopping online allows me to get a better price	0.54
Shopping online enables me to view variety of other items before buying	0.52

This table shows the data collected from women. Lack of credit card security and concerns about the product quality was also a major concern. The company could provide information on their website about their financial security and protection of personal information. They should put the benefits and offers of shopping online compared to physical outlets and also information which guides the users to use the website without difficulty.

2.4 Online health services:

When an online survey was conducted to the NHS users, the results showed that women were more likely to access the service rather than men. Hence a lot of women use the internet as a source of information and for advice whenever they need them. But for those who do not use it, the reason is that they are worried about the confidentiality of their personal information, or if they might get misinformation from other users and others found it uncomfortable to do consultation online. For this an option could be created in the website to not reveal their identity or any private information, qualified doctors could verify the information provided by the other people.

2.5 Online communications using social media:

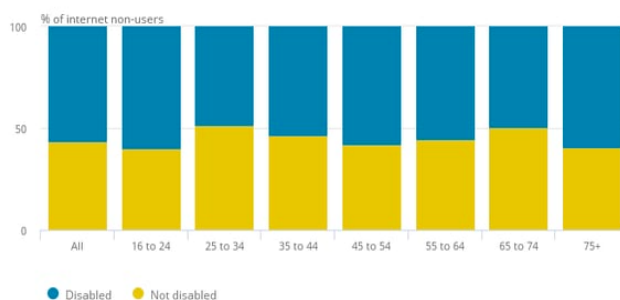
53.8% of social media users in the UK as of February 2022 were female. Therefore the majority of the women who have internet access and other technologies required use social media. For those who do not use social media, the reasons are they do not have the digital skills, access to the internet, some did not use it by choice. A program could be organised where digital skills and how to use the social media in a good way, protect their personal information they provide in the social media platforms and so on.

3. **People with disabilities**

Graph 3: Composition of adult internet non-users by age group and disability by digital divide report

Figure 11: Across all age groups, a large proportion of adult internet non-users are disabled

Composition of adult internet non-users by disability and age group, UK, 2017



3.1 Online government and council services:

Disabled people cannot access most of the online government services that are available to those without disabilities. In October 2010, blind people were not able to access the emergency readiness information provided in ready.gov, they didn't even know it was there. The laws give more importance to websites than the users. Companies have started to add features useful for disabled people in operating systems like Microsoft Windows 7, Apple iPad, accessed by millions. Text-to-speech and screen magnification come pre-installed so extra assistive technology need not be installed. But this is not enough, the government should make the laws and regulations more powerful and enforce it for all people to get equal rights. (Lazar and Jaeger, no date)

3.2 Internet Banking:

The problems faced include: On-screen keyboards menus introduced into online banking authentication, when using them without a mouse or screen readers, they are challenging. Lack of usability of security systems results in unexpected security hazards, disabled people pass on password, PIN etc to family and friends which is very risky. Websites which do have accessibility features are not maintained. New websites ignore the accessibility issues of disabled people. ATMs are often set too high to be accessed by wheelchair users. In some cases the lack of awareness and training is the barrier.

Steps taken by the banking industries in UK are:

- Special high visibility credit and debit cards with arrows for people with issues with eyesight.
- Sign video to allow sign language users to connect
- Development of talking ATMs.
- Voice Biometrics for which there is no need to remember passwords, to help people with dyslexia.
- Apps that share disability and identity information to customer service staff. (Gor and Aspinall, 2015)

3.3 Online shopping:

People with disabilities are less likely to buy things online. Most websites do not consider the disabled people when designing them. Mouse based navigation is also difficult to handle by disabled people. Lack of accessible features is the main reason disabled people are excluded.

Different modes could be created, each mode specifically designed for a different impairment. For instance, an option to switch to audio could be added to websites, people who are visually impaired could use audio to access all the information. Other possible features include:

- Enlargement of text size and image
- Search by voice
- Captions in videos for hearing impaired people (Hussain *et al.*, 2016)

3.4 Online health services:

During the COVID-19 pandemic, disabled people were the worst affected due to the limited access to routine health care. There were a few reasons why this happened:

- Lack of access to technology.

Computers and other necessary technology could be lent out or offered at a discount. Public access point networks could be created.

- Internet access could be provided at public places such as libraries. Like this more access points could be brought up and make it universal access.

3.5 Online communications using social media:

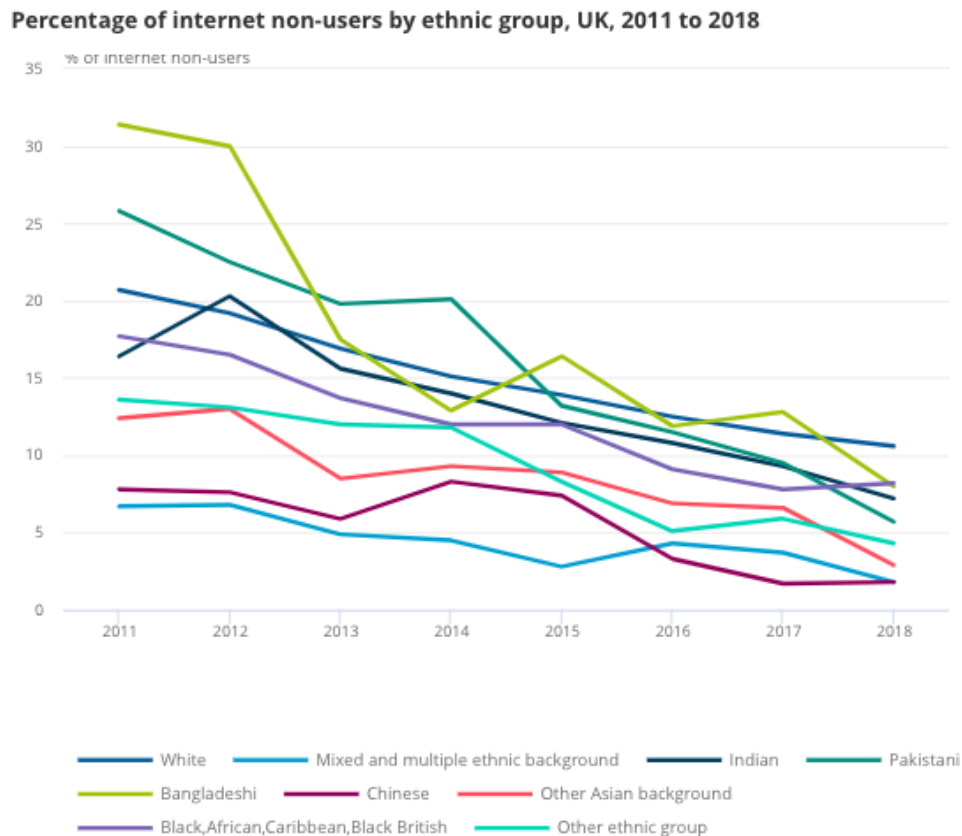
Social media platforms can be used as a space for disabled people to find entertainment and get encouraged. It facilitates access to information and makes life a bit easier. Although not all disabled people are able to access social media in the same extent, some who really benefit are deaf people, people who are unable to speak, people who struggle with socialisation like autistic people and so on are able to make use of this platform to meet new people, to tell the world about disability, promote business etc.

However, online abuse such as trolling, cyber-stalking, damaging of reputation etc was faced by a lot of people which is highly disappointing. As a solution, the government should represent disabled people in publications and advertisements, promote disability awareness in schools, acknowledge the importance of the internet to disabled people, strengthen the laws for online abuse, include disabled people in online safety,

provide guidance and support etc. (*Online abuse and the experience of disabled people - Petitions Committee - House of Commons*, no date)

4. People from ethnic minorities

Graph 4: Percentage of internet non-users by ethnicity, UK by digital divide report



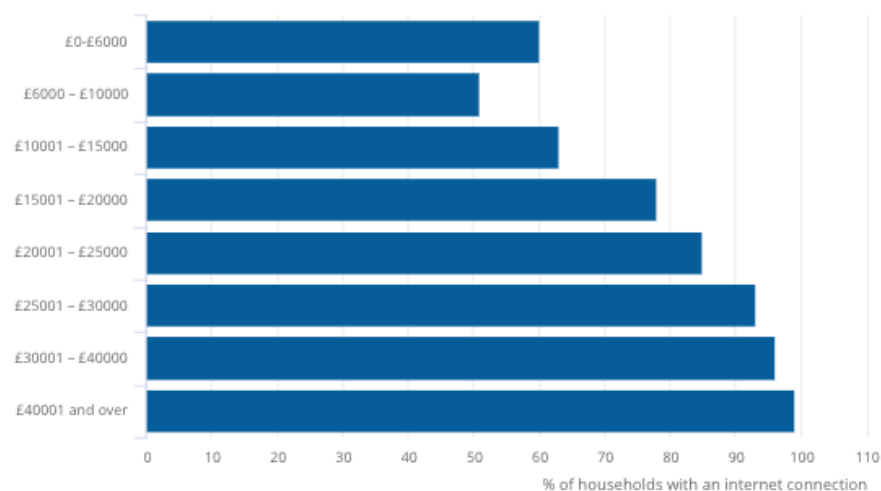
Although the proportion of internet non-users have reduced over the years, there still remain problems that need to be resolved. The digital divide is more prominent in the older ethnic minority adults. Insufficiency of internet literacy was the primary obstacle stated by the minorities living in the UK. Economic and financial barriers were also a disproportionate barrier. Even the covid-19 vaccination intake was least for people from ethnic minorities, digitally excluded people were unable to use the online booking websites. Use of the internet could be promoted with necessary support, CTCs could be developed with free access to the internet, programs to teach basic digital skills could be developed.

5. People with low income

Graph 5: Percentage of households with internet connection, by digital divide report.

Figure 15: The percentage of households with an internet connection increases with income

Percentage of households with internet connection by annual household income band, Scotland, 2014



People of this category do not engage in much digital activities due to their low income, because of this the facilities that they get such as internet connection, as shown in the graph provided above, calculated in the digital divide report, also varies and highly depends on the income level. The digital exclusion severely impacts the low income households. The covid-19 pandemic had a bad effect on them as they were not able to access health care, education, employment opportunities, social interaction and other services due to lack of internet connection. Few ways to narrow the digital divide among them are: An educational trust fund could be developed to provide education in schools, universities about basic digital skills. Development of community technology centres (CTCs) like in the United States, where access to computers which contain portals, computer-related technology, and user support are provided.

Conclusion

We have looked into the digital divide and the various services accessed by different groups of people along with the problems faced and the corresponding solutions. Although the proportion of people who don't use the internet has been declining over time, a large portion of the population still lacks the basic digital skills needed, and the majority of these people are elderly or disabled. The major problems faced by most groups were: Inability to use internet services, lack of digital skills, lack of interest, fear of scams, misinformation, health issues, security concerns, lack of resources, support, economic and financial barriers. The solutions for all of these problems were discussed in each section.

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