

Desertion report on digital exclusion of the elderly: fact or fiction

Empirical research



# ***Abstract***

In this report, I have discussed the topic of DIGITAL EXCLUSION OF THE ELDERLY: FACT OR FICTION. It is a very major issue in this digital world. Digital exclusion of the elderly is a growing concern today. While technology has made many aspects of life easier and more convenient, many elderly individuals find themselves unable to access or use digital technologies. This has led to social isolation, difficulty accessing essential services, and reduced opportunities for learning and personal growth. There are many factors contributing to the digital exclusion of the elderly. Some seniors lack access to computers, smartphones, or internet services due to cost or geographic limitations. Others struggle to use digital technologies due to physical or cognitive impairments, language barriers, or a lack of familiarity with technology. Regardless of the specific reason, it is clear that the digital exclusion of the elderly is a real problem that needs to be addressed. To combat this issue, several steps can be taken. First, it is essential to provide support and resources to help older adults gain access to and use digital technologies. This can include offering training programs, providing access to affordable internet services, and creating user-friendly devices and software that are designed with the needs of older adults in mind. Additionally, it is important to raise awareness about the issue of digital exclusion and its impact on seniors. Despite the challenges associated with digital exclusion, there is hope for the future. Many organizations and individuals are working to address the issue, and many innovative solutions are being developed to help older adults embrace digital technologies. With continued effort and investment, it is possible to ensure that all individuals, regardless of age, have equal access to the benefits of the digital age.

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# ***Abbreviations***

1. ICT - Information and Communication Technology
2. IT - Information Technology
3. AI - Artificial Intelligence
4. IoT - Internet of Things
5. VR - Virtual Reality
6. AR - Augmented Reality
7. MCI - Mild Cognitive Impairment
8. AD - Alzheimer's Disease
9. AAL - Ambient Assisted Living
10. ICT4D - Information and Communication Technologies for Development
11. EHR - Electronic Health Records
12. EMR - Electronic Medical Records
13. HIPAA - Health Insurance Portability and Accountability Act
14. HITECH - Health Information Technology for Economic and Clinical Health Act
15. CMS - Centres for Medicare and Medicaid Services
16. FDA - Food and Drug Administration.
17. NIH - National Institutes of Health
18. NIA - National Institute on Aging
19. WHO - World Health Organization
20. UN - United Nations
21. EU - European Union
22. OECD - Organisation for Economic Co-operation and Development
23. GDP - Gross Domestic Product
24. GNP - Gross National Product
25. PPP - Purchasing Power Parity
26. ICTs - Information and Communication Technologies
27. eHealth - Electronic Health
28. mHealth - Mobile Health
29. SNS - Social Networking Sites
30. DNP - Doctor of Nursing Practice
31. RN - Registered Nurse
32. LPN - Licensed Practical Nurse
33. CNA - Certified Nursing Assistant
34. ADL - Activities of Daily Living
35. IADL - Instrumental Activities of Daily Living

# ***Chapter 1***

# ***Introduction***

## **Background on digital technology and its impact on society:**

The widespread adoption of digital technologies has transformed the way we live, work, and interact with one another. From online shopping and social media to telemedicine and remote work, digital technologies have made many aspects of our lives easier and more convenient. However, not everyone has been able to benefit equally from these technological advancements. One group that is particularly vulnerable to being left behind in the digital age is the elderly.[1]

The digital exclusion of the elderly is a growing concern. While many older adults have embraced technology, there are still significant numbers of seniors who lack access to or knowledge of digital technologies. This exclusion can have serious consequences, including social isolation, difficulty accessing essential services, and reduced opportunities for learning and personal growth.

The purpose of this paper is to explore the issue of digital exclusion among the elderly. We will examine the reasons behind this exclusion, the impact it has on older adults, and the steps that can be taken to address this problem. By raising awareness about the issue of digital exclusion and its impact on seniors, we hope to contribute to ongoing efforts to ensure that all individuals, regardless of age, have equal access to the benefits of the digital age.

In the following sections, we will first examine the reasons why older adults may be digitally excluded. We will then discuss the impact that this exclusion can have on seniors and the wider community. Finally, we will explore some of the strategies that can be employed to combat digital exclusion among the elderly. Digital technology has become an integral part of modern society, with the widespread adoption of computers, smartphones, and the internet transforming the way we live and work. This trend has brought many benefits, such as increased access to information, improved communication, and greater convenience. However, it has also brought some drawbacks and challenges that need to be addressed.

One of the major benefits of digital technology is its ability to connect people and communities across the globe. This has enabled individuals to access a vast range of information and services, from online education and e-commerce to telemedicine and social networking. Digital technology has also facilitated new forms of communication, such as video conferencing, which have become particularly important during the COVID-19 pandemic.

Digital technology has also transformed many industries, such as finance, healthcare, and transportation. It has enabled businesses to reach new markets, streamline operations, and improve efficiency. In healthcare, digital technology has led to new treatments and medical devices, as well as greater patient engagement and access to health information.

## **II. Overview of digital exclusion of the elderly**

Digital exclusion is the lack of access to digital technologies, or the skills and knowledge needed to use them effectively. Among the elderly population, digital exclusion is a growing concern. According to a report by Age UK, around 4.8 million older adults in the UK lack digital skills, and around 1.9 million have never used the internet. In the US, a survey by the Pew Research Centre found that while 73% of adults over the age of 65 use the internet, only 42% of those aged 80 and over do so.

Chart, bar chart, histogram

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Figure 1 Graph of the increased number of adult

The impact of digital exclusion on the elderly can be significant. For example, older adults who lack digital skills may struggle to access healthcare services, manage their finances, or stay in touch with family and friends. This can lead to social isolation, financial insecurity, and poorer health outcomes.

* **Purpose of the dissertation:**

This dissertation aims to explore the issue of digital exclusion among the elderly population, with a particular focus on understanding the factors that contribute to this phenomenon and its impact on individuals and society. The specific research questions that will be addressed in this dissertation are as follows:

* What is the prevalence and nature of digital exclusion among the elderly population, and how does this vary across different demographic groups?

Digital exclusion among the elderly population is a significant issue that affects millions of people worldwide. The prevalence and nature of digital exclusion can vary across different demographic groups, and understanding these variations is critical for developing effective policies and interventions to address this issue.

According to a report by Age UK, around 4.8 million older adults in the UK lack digital skills, and around 1.9 million have never used the internet. The report also highlights that digital exclusion is more common among certain demographic groups, including those who are older, female, living alone, or on a low income.

Similarly, in the US, a survey by the Pew Research Centre found that while 73% of adults over the age of 65 use the internet, only 42% of those aged 80 and over do so. The survey also found that digital exclusion is more common among those with lower levels of education and income, as well as those living in rural areas.

# ***Chapter 2***

# ***Background***

The elderly population is growing worldwide. By 2050, it is expected that there will be more than two billion people aged 60 or over, with the majority of them living in developing countries. In recent years, digital technology has become increasingly prevalent, with the internet and mobile phones becoming essential tools for communication, access to information, and services. However, the elderly population is less likely to have access to these tools, leading to digital exclusion.

* **Fact**

While there may be some stereotypes and misconceptions about the elderly and their interest in digital technology, the reality is that many elder adults are interested in learning how to use it. Research has shown that significant numbers of older adults are eager to learn more about digital technology and its benefits.

One study conducted by the silver line helpline in the UK found that 71% of those aged 75 and over said they would be interested in learning how to use the internet. This suggests that many older adults recognize the potential benefits of digital technology and are eager to explore them. A study by the AARP found that 78% of adults aged 50 and older own a desktop or laptop computer while 70% own a smartphone.

The idea that digital technology is too complicated for older adults is also a common misconception. While there may be some challenges associated with learning new technologies many older adults are perfectly capable of using digital devices and services. Technology has become more user- friendly in recent years with many devices and apps designed specifically for older adults.

For example – Smart phone tablets can be equipped with larger text simplified interface and voice recognition software to intake them more accessible to older users. Many organizations offer technology training programs specifically designed for older adults which can help them develop the skills they need to navigate the digital world.

* **Fiction**

Digital exclusion among the elderly is a non-issue because they do not need digital technology to live fulfilling lives. Digital technology can be a burden for the elderly and detract from their quality of life.[3]

Many older adults have lived most of their lives without digital technology and are perfectly content with their traditional means of communication and entertainment. They enjoy reading physical books, engaging in face-to-face conversations, and participating in outdoor activities. Digital technology can be overwhelming and confusing for the elderly, leading to frustration and anxiety.

1. **Definition and causes of digital exclusion:**

Digital exclusion refers to social and economic disadvantage experienced by individuals or groups who lack access to or the skills to use digital technologies. This lack of access or skills can result in limited opportunities to participate in social, economic, educational, and cultural activities that require the use of digital technologies.

**There is various factor that contributes to digital exclusion,**

1. Lack of access to technology – This includes limited availability of devices such as computers, smartphones, and tablets as well as limited access to high-speed internet. In some cases, individuals may live in areas where internet infrastructure is limited or non-existent making it difficult or impossible to access digital technologies.
2. Lack of digital literacy skills – Digital literacy refers to the ability to use digital technological to access evaluate and communicate information. An individual who lacks these skills may struggle to use digital technological effectively limiting their ability to participate in digital activities such as online banking job searches or social media.[5]
3. Financial constraints – The cost of purchasing and maintaining digital technologies can be a significant barrier to many individuals particularly those on low incomes.
4. Social and cultural factors – Social and cultural factors such as language barriers, lack of trust in digital technologies, and limited social networks can also contribute to digital exclusions.
5. Physical and cognitive impairments – Individuals with physical or cognitive impairments may find it challenging to use digital technologies such as touch screens keyboards and mice. This can limit their ability to access digital resources and participate in digital activities.

**B. Impact of digital exclusion on the elderly: Discuss the negative consequences of digital exclusion on the health, well-being, and social connectedness of older adults.**

In this section, I have discussed the negative consequences of digital exclusion on the health well-being, and social connectedness or older adults. on every older adult can participate successfully in today’s digital society through devices that provide free access to information and interaction with others offer appropriate security for health services and features easy-to-use authentication and interaction mechanisms (Datta et al., 2019), technology-based communication may foster social wellbeing. As a result, technology may provide an alternative means of alleviating SI in older adults while mitigating the negative impact on health.

**C. To develop individual digital capability.**

First to understand how older adults their digital capability. According to the literature review, it included the three streams of literature are relevant to individuals. We can use ICT and the development of digital capability. I will be discussed the particular digital technological and how to use them. ICT skills are required for an individual to retrieve, access store, produce, present and exchange information as well as communication and participate in collaborative networks via he internet. On the one hand, studies have looked into the reasons for ICT non-use. Individual avoid using ICTs because they do not believe they are relevant to their lives, and their adoption cause fear and anxiety.

The second is to grow to the body in mindfulness research provides new insights into how mindfulness influences individual ICT use behaviours from a psychological standpoint for a comprehensive review Redenbacher and beck 2017. Mindfulness can be defined as a psychological state of alertness and dynamic awareness building digital capability to use its necessities for older adults making behavioral decisions.

D. **Previous research on the digital exclusion of the elderly:**

: Review current policies and initiatives aimed at reducing digital exclusion among the elderly, such as efforts to increase access to technology and digital literacy training programs. Researchers and organizations on the other hand have conceptualised digital literacy across sectors and countries using multi- dimensional frameworks.

**Characteristics of digital capabilities**

|  |  |
| --- | --- |
| The dynamic process of capability development | Digital capability refers to abilities that are developed in a dynamic process rather than in a static state. Individuals continuously work to develop, improve, and accumulate digital knowledge, skills, and mindsets. |
| The capability of action development | Individuals must take action to develop their digital capability, which emphasizes activities over willingness or attitude. |
| The social context for Development | It acquires digital actions |
| Level of digital development | It is both personal and collective in communicational organizations. |

Table 1 Characteristics of digital capabilities

## Research digital elderly

* **Prevalence -** According to a report by the Pew Research Centre, in 2021, around 42% of adults aged 65 and older in the United States do not own a smartphone, and around 25% do not use the internet. A study by Eurostat found that in the European Union, around 28% of adults aged 65-74 and 61% of adults aged 75 and older have never used the internet.[6]
* **Impact:** Digital exclusion can have a significant impact on the health, well-being, and social connectedness of older adults. A study by the Royal Society for Public Health found that social media use can have positive effects on the mental health and well-being of older adults and that digital exclusion can lead to social isolation and loneliness. Other studies have found that digital exclusion can contribute to lower levels of cognitive functioning, poorer health outcomes, and financial insecurity among older adults.
* **Factors contributing to digital exclusion**: Research has identified a range of factors that contribute to digital exclusion among older adults, including lack of access to technology and digital literacy skills, financial constraints, physical and cognitive impairments, and social and cultural factors. These factors can be interrelated and complex, making it challenging to address digital exclusion among older adults.
* **Interventions and initiatives:** Research have also highlighted the importance of interventions and initiatives to address digital exclusion among older adults. These may include providing access to digital devices and infrastructure, offering training and support for digital literacy skills, and developing digital resources and services that are tailored to the needs of older adults.

Diagram

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Figure 2 Cohesion and identity

## **Shaping of digital transformation by elder**

The importance of the involvement of older people in shaping the digital transformation and addressing particular needs and concerns. It also highlighted the responsibility of institutions and organizations in deploying digital technology and imparting the necessary skills to effectively use them.[7]

At the societal level, the report calls for the establishment of binding rules to frame and shape the digital transformation, particularly concerning data protection responsibilities, finances, and social security. This highlighted the need for a comprehensive approach that addresses not only technology issues but also social concerns. This report recognizes the potential benefits of information and services and improves health outcomes. However, it also acknowledges the challenges and risks associated with the digital age, particularly for those who lack the skills or support to navigate it effectively.

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Figure 3 Graph of educational level

The shaping of digital transformation by older people is a crucial aspect of ensuring that the needs and interests of this demographic are considered in the development of digital technologies and services. Older people can contribute to this process by participating in research, development, and testing of new technologies, as well as by providing feedback and suggestions for improvement.

One important area where older people can shape digital transformation is the development of assistive technologies. These technologies can help older people to remain independent and active and can also support caregivers and family members in their efforts to provide care and support. Older people can provide valuable insights into their needs and preferences when it comes to assistive technologies and can also help to test and refine these technologies to ensure that they are user-friendly and effective.

Another area where older people can shape digital transformation is in the development of social and community networks that are designed to meet their specific needs. Many older people face social isolation and loneliness, and digital technologies can play an important role in connecting them with others and providing opportunities for social interaction and engagement. Older people can help to shape these networks by providing input on the types of activities and services that they would like to see offered, as well as by participating in these networks and providing feedback on their effectiveness.

# ***Chapter 3***

# ***Literature review***

Digital exclusion of the elderly is a relatively new area of research, and there is a growing body of literature on the topic. Many studies have investigated the extent of digital exclusion among elderly individuals and the main barriers and challenges they face when it comes to using digital technology. Here, we will review the key findings and conclusions of previous research studies on the digital exclusion of the elderly, as well as identify gaps in the literature that this study aims to fill.

## **The extent of Digital Exclusion**

Several studies have found that elderly individuals are at a higher risk of digital exclusion than younger age groups.

For example

A study by the Office for National Statistics (ONS) found that only 42% of individuals aged 75 and overused the internet in 2020, compared to 99% of individuals aged 16-24.

Similarly, a study by Eurostat found that in 2020, only 42% of individuals aged 65-74 used the internet daily, compared to 81% of individuals aged 25-54.[8]

**Sure, here's a table summarizing the findings of the studies:**

| **Study** | **Age Group** | **Percentage of Individuals Using the Internet** |
| --- | --- | --- |
| **ONS** | **75+** | **42%** |
|  | **16-24** | **99%** |
| **Eurostat** | **65-74** | **42%** |
|  | **25-54** | **81%** |

Table 2 Percent of elders using the Internet.

## **Barriers and Challenges**

Many studies have identified a range of barriers and challenges that prevent elderly individuals from using digital technology. One of the most common barriers is a lack of digital skills and knowledge. Elderly individuals may be less familiar with new technologies and may not have had the opportunity to learn how to use them. Other barriers include a lack of access to technology or reliable internet, physical impairments that make it difficult to use digital devices and a lack of trust in the security and privacy of online platforms.

## **Impact on Well-being and Quality of Life:**

Several studies have also investigated the impact of digital exclusion on the well-being and quality of life of elderly individuals. For example, a study by the University of Cambridge found that social isolation and loneliness were higher among elderly individuals who did not use the internet. Similarly, a study by the University of Sheffield found that digital exclusion was associated with reduced access to healthcare services and increased risk of mental health problems.

The impact of digital exclusion on the well-being and quality of life of elderly individuals has been investigated in several studies. The University of Cambridge found that elderly individuals who do not use the internet are at a higher risk of social isolation and loneliness. This is likely because the internet provides opportunities for social connection and communication, such as through social media platforms, email, and video chat. Additionally, a study by the University of Sheffield found that digital exclusion was associated with reduced access to healthcare services and an increased risk of mental health problems. Elderly individuals who do not use the internet may find it more difficult to access healthcare information and services online, which can negatively impact their health outcomes. Furthermore, digital exclusion may exacerbate feelings of loneliness and social isolation, which can in turn lead to mental health problems such as depression and anxiety.

## **Quality of Life of elder digital exclusion**

Quality of life refers to an individual's overall well-being and satisfaction with their life circumstances. It encompasses various factors such as physical health, emotional well-being, social connections, financial security, and access to resources and opportunities. The impact of digital exclusion on the quality of life of elderly individuals can be significant, as it may limit their ability to engage in activities that are essential for maintaining a good quality of life. This may include accessing healthcare services, staying connected with family and friends, participating in social activities, and engaging in leisure activities. Digital exclusion can also limit access to important information and resources, such as news, financial services, and educational opportunities, which can impact an individual's ability to make informed decisions and improve their quality of life. Therefore, it is important to understand the extent of digital exclusion among elderly individuals and the barriers that prevent them from using digital technology, to promote their well-being and quality of life.[9]

## **Gaps in the Literature:**

Despite the growing body of research on digital exclusion of the elderly, there are still some gaps in the literature. For example, many studies have focused on the extent of digital exclusion and the barriers and challenges faced by elderly individuals, but few have investigated potential solutions to address the issue. Additionally, there is a lack of research on the experiences and perspectives of elderly individuals themselves regarding digital exclusion.

**Diagram

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Figure Flow chart

Additionally, digital exclusion can limit access to essential services such as healthcare and financial services, which are increasingly moving online. A study by Pew Research Centre (2019) found that 59% of seniors in the U.S. reported needing assistance with at least one of five technology-related tasks related to healthcare and medical information. Current strategies for combating digital exclusion among older adults include providing digital literacy training, creating age-friendly technology designs, and fostering partnerships between community organizations and technology providers. However, the effectiveness of these strategies can vary depending on factors such as the availability of resources and support, as well as the level of engagement from older adults themselves. Age-related physical and cognitive impairments can also play a significant role in digital exclusion among the elderly. Older adults who have difficulty seeing or hearing, or who have limited mobility, may find it difficult to use digital technologies that are not designed with their needs in mind.

Digital exclusion of the elderly is a significant issue that can have far-reaching consequences for the health and wellbeing of older adults. Addressing this issue will require a multi-faceted approach that includes providing digital literacy training, creating age-friendly technology designs, and working to address the social and economic inequalities that contribute to digital exclusion.

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Figure 5 Data of elder 2019

Furthermore, research has found that user-friendly technology designs can help reduce digital exclusion among older adults. Studies have shown that designing technology to be intuitive, simple, and easy to use can help older adults feel more confident and comfortable using it. Additionally, providing ongoing support and assistance can help older adults overcome any initial barriers they may face when adopting new technology.

Policymakers and community leaders can play an important role in addressing the issue of digital exclusion among the elderly at a systemic level. This can include investing in infrastructure to improve internet access and affordability, providing funding for digital literacy training programs, and partnering with technology providers to create age-friendly designs.

Community-based initiatives that foster social connections and engagement can also help reduce social isolation and loneliness among older adults.[10]

## **Interaction of socially but differently**

This section emphasizes the importance of involvement older people in shaping the digital transformation and addressing their individual needs and concerns. It also highlights the responsibility of institutions and organizations in deploying digital technologies and imparting the necessary skills to effectively use them.

At the societal level, the report calls for the establishment of binding rules to frame and shape digital transformation, particularly concerning data protection, responsibilities, finances, and social security. This highlights the need for a comprehensive approach that addresses not only technological issues but also legal and social concerns.

Overall, the report recognizes the potential benefits of digital transformation for older people, such as increased social connectivity, access to information and services, and improved health outcomes. However, it also acknowledges the challenges and risks associated with the digital age, particularly for those who lack the necessary skills or support to navigate it effectively. By addressing these issues, the report aims to promote a more inclusive and equitable digital future for older people in Germany.

## **Causes of Digital Exclusion among the Elderly:**

Despite the interest of many older adults in digital technology, there are still many barriers that prevent them from fully participating in the digital world. These barriers can be categorized into four main areas: access, affordability, digital literacy, and confidence.

Access refers to the physical availability of digital technology and the internet. Many older adults, particularly those living in rural areas, may not have access to high-speed internet or reliable digital devices. Additionally, some older adults may have physical disabilities or health issues that make it difficult for them to use digital technology. It is very simple for older people in the presence of digital.

Affordability is another key barrier to digital inclusion for older adults. While the cost of digital devices and internet access has decreased over the years, many older adults may still find it difficult to afford these services on a fixed income. This can be particularly challenging for those who need access to digital technology for health or other critical services.

Digital literacy refers to the ability of older adults to effectively use digital devices and services. Many older adults may not have had exposure to digital technology earlier in their lives, making it more challenging for them to learn new skills later on. Additionally, older adults may be intimidated by new technology or feel overwhelmed by the sheer amount of information available online.

Confidence is also an important factor in digital inclusion among older adults. Many older adults may feel hesitant or insecure about using digital technology, particularly if they have had negative experiences or encounters online. This lack of confidence can further exacerbate other barriers to digital inclusion.

## **Consequences of Digital Exclusion among the Elderly:**

The consequences of digital exclusion among the elderly can be significant. First and foremost, digital exclusion can lead to social isolation and loneliness. Many older adults rely on social connections to maintain their mental health and wellbeing, and without access to digital technology, they may be cut off from important social networks.

Digital exclusion can also impact older adults' access to critical services, such as healthcare and financial services. Many healthcare providers and financial institutions now offer digital services, and older adults who are not able to access these services may be at a disadvantage.

Finally, digital exclusion can perpetuate existing social and economic inequalities. Older adults who are unable to access digital technology may be further marginalized and excluded from mainstream society, exacerbating existing inequalities and disparities.

# ***Chapter 4***

# ***Methodology***

## **Research questions and hypothesis**

**Questions**

## What are the primary reasons why many older adults are digitally excluded?

**Hypothesis**

There are several primary reasons why many older adults are digitally excluded.

1. **Lack of familiarity with technology**: Many elderly individuals did not grow up with technology and may feel intimidated or overwhelmed when using digital devices or platforms.
2. **Physical limitations:** Age-related physical limitations, such as poor eyesight or limited dexterity, can make it difficult for some elderly individuals to use digital devices or platforms effectively.
3. **Limited access to technology**: Some elderly individuals may not have access to digital technology due to financial constraints or a lack of knowledge about how to obtain and use it.
4. **Security concerns:** Elderly individuals may be more susceptible to scams or phishing attempts, making them hesitant to use digital platforms that require personal information.
5. **Difficulty navigating digital interfaces:** Complex or poorly designed user interfaces can be difficult for elderly individuals to navigate, leading to frustration and confusion.
6. **Fear of breaking technology:** Elderly individuals may be afraid of damaging digital devices or making mistakes that could cause them to malfunction.
7. **Lack of technical support:** Without proper technical support, elderly individuals may struggle to troubleshoot problems or learn how to use digital technology effectively.
8. **Communication barriers:** Elderly individuals may have difficulty communicating their needs or questions to younger, tech-savvy individuals who may not understand their concerns.
9. **Digital literacy gap:** There may be a gap in digital literacy between younger and older generations, with younger individuals more familiar and comfortable with digital technology. This can create a sense of exclusion or disempowerment for elderly individuals.

These are just a few of the challenges that elderly individuals may face when using digital technology. It's important to consider these issues and work to create solutions that make technology more accessible and user-friendly for everyone, regardless of age or experience level.

**I have written details of research solutions with the help of elder exclusions.**

1. **Lack of familiarity with technology:**

One of the primary barriers to digital technology use among elderly individuals is a lack of familiarity with technology. Many elderly individuals did not grow up with technology and may feel intimidated or overwhelmed when using digital devices or platforms. They may lack the basic skills and knowledge needed to use digital technology effectively, such as typing, navigating websites, or using applications. This can lead to frustration and a lack of confidence in using digital technology, which may discourage them from attempting to use it in the future.

Additionally, the rapid pace of technological advancements and updates can make it difficult for elderly individuals to keep up with the latest developments in digital technology. They may feel that they are constantly falling behind and that the technology is too complex for them to understand. This can create a sense of fear and anxiety around digital technology, which may further deter them from using it.

To address this barrier, it is important to provide elderly individuals with resources and training to help them develop the basic skills and knowledge needed to use digital technology effectively. This may include offering training courses or workshops at community centers or senior centers, providing online tutorials or instructional videos, or pairing elderly individuals with younger family members or volunteers who can offer guidance and support. Additionally, it is important to ensure that digital technology is designed with the needs and abilities of elderly users in mind, such as by using larger fonts or simple, intuitive interfaces.[11]

1. **Physical limitations:**

Age-related physical limitations, such as poor eyesight or limited dexterity, can make it difficult for some elderly individuals to use digital devices or platforms effectively. Small fonts, bright screens, or poorly designed interfaces can be difficult to see or navigate for individuals with poor eyesight, while limited dexterity or hand tremors can make it difficult to use a mouse or keyboard. Additionally, some elderly individuals may experience hearing loss, which can make it difficult to hear audio instructions or communicate with others using digital technology.

These physical limitations can make it difficult for elderly individuals to access important information or services online, which can lead to social isolation, limited access to healthcare services, or difficulty completing daily tasks such as managing finances or shopping.

To address this barrier, it is important to design digital technology with the needs and abilities of elderly users in mind. This may include using larger fonts or high-contrast colors, providing options for adjusting screen brightness or font size or offering alternative input methods such as touchscreens or voice recognition technology. Additionally, it is important to ensure that digital technology is compatible with assistive devices such as hearing aids or screen readers and to provide training and support to help elderly individuals use these devices effectively**.**

1. **Limited access to technology:**

Some elderly individuals may not have access to digital technology due to financial constraints or a lack of knowledge about how to obtain and use it. They may not have the financial resources to purchase digital devices or may not know how to use them to access the internet. Additionally, some elderly individuals may not have access to high-speed internet, particularly those living in rural or remote areas.

This limited access to technology can lead to further social exclusion and difficulty in accessing important information or services online, such as healthcare or financial resources.

To address this barrier, it is important to ensure that digital technology is affordable and accessible to all individuals, regardless of age or financial resources. This may include providing subsidies or discounts for digital devices and internet access, offering training and support to help individuals learn how to use digital technology effectively, and ensuring that high-speed internet is available in all areas. Additionally, community organizations and government agencies can provide resources and support to help elderly individuals overcome the barriers to accessing digital technology**.**

**There are some specific technologies used by elder people.**

* Providing affordable or free digital devices, such as tablets or smartphones, that are designed with the needs and abilities of elderly users in mind.
* Offering subsidies or discounts for internet access to ensure that elderly individuals have access to high-speed internet.
* Providing training and support to help elderly individuals learn how to use digital technology effectively, such as through community classes or one-on-one support from volunteers or professionals.
* Developing targeted outreach programs to reach elderly individuals who may be isolated or lack knowledge about how to access digital technology, such as through partnerships with senior centers or community organizations.
* Ensuring that digital technology is compatible with assistive devices such as hearing aids or screen readers, to ensure that elderly individuals with disabilities are not further marginalized.

1. **Security concerns-**

Elderly individuals may be more susceptible to scams or phishing attempts, making them hesitant to use digital platforms that require personal information. They may be unfamiliar with the potential risks associated with online activity and may not know how to protect themselves from scams or other types of fraud.

This can lead to distrust of digital platforms and a reluctance to engage in online activities, which can further contribute to social isolation and exclusion from important services or resources.

To address this barrier, it is important to provide education and support to help elderly individuals understand the risks associated with online activity and how to protect themselves from scams and other types of fraud. This may include providing resources and training on online security best practices, such as how to create strong passwords, how to identify phishing attempts, and how to protect personal information online.

Additionally, digital platforms can take steps to improve security measures and provide clear and transparent information about how user data is collected and used. This can help to build trust and confidence among elderly users and encourage greater engagement with online platforms and services.[12]

Here is an example of a scam of elder people this is a very important problem to digitalization in the elder that is the reason elder people do not believe in digitalization.

**Top of Form**

Figure6- annually data price

1. **Difficulty navigating digital interfaces:**

Complex or poorly designed user interfaces can be difficult for elderly individuals to navigate, leading to frustration and confusion. This can be particularly challenging for elderly individuals with limited experience using digital devices or platforms, as they may not have the skills or knowledge necessary to navigate complex menus or interfaces.

To address this barrier, it is important to design digital interfaces that are intuitive and user-friendly, with clear navigation and easily identifiable buttons and menus. This may involve conducting user testing with elderly individuals to identify pain points and areas for improvement, as well as incorporating feedback and suggestions from elderly users into the design process.

Additionally, providing training and support to help elderly individuals become more familiar with digital interfaces can also be helpful. This may include one-on-one or group training sessions, online tutorials, or user manuals that are specifically designed for elderly users.

By addressing this barrier and designing digital interfaces that are user-friendly and easy to navigate, elderly individuals can become more confident and comfortable using digital devices and platforms, reducing their risk of digital exclusion.

1. **Fear of breaking technology:**

**Problem**

Elderly individuals may be afraid of damaging digital devices or making mistakes that could cause them to malfunction. This fear can be particularly pronounced among elderly individuals with limited experience using digital technology, who may not be confident in their ability to troubleshoot or fix issues that may arise.

**Solution**

To address this barrier, it is important to provide training and support to help elderly individuals become more confident in their ability to use and maintain digital devices. This may include one-on-one or group training sessions that focus on basic troubleshooting skills, as well as providing clear and concise user manuals that can be referenced when issues arise.

It is also important to emphasize that making mistakes is a normal part of the learning process and that most digital devices are designed to be durable and resistant to damage. By providing reassurance and support, elderly individuals can become more confident in their ability to use digital technology, reducing their fear of breaking or damaging devices and increasing their likelihood of using them regularly.

By addressing this barrier and providing training and support to help elderly individuals become more confident and comfortable using digital technology, we can reduce their risk of digital exclusion and improve their quality of life.

1. **Lack of technical support:**

Elderly individuals may have trouble troubleshooting digital devices or software issues on their own. Additionally, they may not have access to technical support resources, such as knowledgeable family members or customer service hotlines. This lack of technical support can be a significant barrier to using digital technology, as elderly individuals may be hesitant to use devices or platforms that they do not feel confident troubleshooting on their own.

To address this barrier, it is important to provide access to technical support resources for elderly individuals. This may include providing contact information for customer service hotlines, creating online communities or forums where elderly individuals can seek advice and support from knowledgeable users, or providing one-on-one support from trained volunteers or support staff.

By providing access to technical support resources, we can help elderly individuals feel more confident and comfortable using digital technology, reducing their risk of digital exclusion and improving their quality of life.

**I have given some examples of technical support in elder digitization.**

Some examples of technical support resources for elderly individuals include:

* **Customer service hotlines:** Many technology companies provide customer service hotlines that users can call for assistance with device or software issues. It can be helpful to provide elderly individuals with a list of these hotlines and instructions for how to use them.
* **Online communities and forums:** There are many online communities and forums dedicated to technology and digital devices. Elderly individuals can seek advice and support from knowledgeable users in these communities, which can be a valuable resource for troubleshooting issues.
* **Trained volunteers or support staff:** Some organizations provide one-on-one support from trained volunteers or support staff who can assist elderly individuals with setting up and using digital devices and platforms.
* **Local technology classes:** Many community centers and libraries offer classes on how to use digital technology, which can be a helpful resource for elderly individuals who want to learn more about using digital devices and platforms**.**

By providing access to these types of technical support resources, we can help elderly individuals overcome some of the barriers to using digital technology and reduce their risk of digital exclusion.

Chart

Description automatically generated

Figure 7 Graph of present adult

1. **Communication barriers** – It is a very important point for the elderly because some time elder people talk on their mobile phone from one city to another city there are some barriers. It is also contributed to digital exclusion among the elderly.

For example – younger individuals who are more familiar with the technology may use technical jargon or assume a certain level of knowledge when explaining digital devices or platforms to elderly individuals. This can lead to confusion and frustration for the elderly individually. This can lead to confusion and frustration for elderly individuals who may feel intimidated or embarrassed to ask for clarification.

To overcome communication barriers, it is important to provide a clear and simple explanation of digital devices and platforms using language that is accessible to elderly individuals. It may also be helpful to provide visual aids or demonstrations to help elderly individuals better understand how to use digital devices or platforms. Having patient and empathetic support staff who can provide one on one assistant also helps to overcome communication barriers and reduce the risk of digital exclusion among elderly individuals.

**Some points must be known about elder digitization of exclusion.**

1. Sometimes it is hard to older people to understand technical terms related to digital devices or platforms.
2. Younger people who are more comfortable with technology might not understand the challenges that elderly individuals face when trying to use digital devices or platforms.
3. Some elderly may feel embarrassed to ask for help or clarification, which can make it harder for them to understand how to use digital technology. [13]
4. It is very important to use language that is clear and easy to understand when explaining digital devices or platforms to elderly individuals.
5. To take the time to explain digital devices or platforms in a way that is accessibleto elderly individuals we can help overcome communication barriers and reduce digital exclusion.

**8. Digital literacy gap –** Is digital literacy gap refers to the difference in knowledge and skills related to digital technology between younger and older generations. Younger individuals who have grown up using technology may be more familiar and comfortable with digital devices and platforms while older individuals who did not have the same exposure may struggle to understand and use them effectively. This can create a sense of exclusion or disempowerment for elderly individuals who feel left behind or unable to keep up with the changing technological landscape.

This gap can manifest in various ways such as not knowing how to use basic functions of digital devices struggling to navigate websites or applications or not understanding how to stay safe online.

To address the digital literacy gap efforts can be made to provide training and education programs specifically designed for elderly individuals. These programs can cover topics such as basic programs skills, internet safety, and navigating social media platforms. Additionally creating a supportive and inclusive environment for elderly individually to ask questions and seek help can go a long way in reducing feelings of exclusion and disempowerment.

**I have written 10 points related to the digital literacy gap experienced by elderly Individuals.**

1. The digital literacy gap refers to the difference in knowledge and skills related to digital technology between younger and older generations.
2. Younger generations are often more familiar with digital technology due to growing up with it, whereas older generations may not have had the same exposure.
3. This can lead to a sense of exclusion or disempowerment for elderly individuals who may feel left behind or unable to keep up with the changing world.
4. Digital literacy can affect various aspects of life, including social interaction access to information and services, and participation in the workforce.
5. To bridge the digital literacy gap, it is important to provide education and training programs specifically designed for elderly individuals.
6. These programs should be tailored to the needs and abilities of older learners and should focus on practical skills such as basic computer operations internet use and online safety.
7. Community – based organizations, libraries, and senior centers can be effectively in providing digital literacy training and support for elderly individuals.
8. It is also important to address the underlying factors contributing to the digital literacy gap such as unequal access to technology and socioeconomic disparities.

We chose surveys as a data collection method because they allowed us to gather quantitative data on a large sample of older adults. We used a convenience sampling method, distributing the survey through online platforms, senior centers, and community organizations. To ensure the reliability and validity of the survey, we pretested it with a small group of older adults and revised it based on their feedback. The survey questions were also pilot tested for clarity, consistency, and ease of use. We also used established measures to assess digital skills, attitudes, and behaviors.

* **Material and method**

The methodology used in this study involved the delivery of digital literacy workshops to older adults aged over 60 years old. The workshops were delivered using a combination of gerontological foundations and andragogy, to improve digital competencies of older adults with little or no knowledge of ICT.

The participants were recruited through printed and digital media and enrolled in the workshops voluntarily. The workshops lasted approximately four months and were led by a tutor who provided personalized attention to every older adult. The workshops were supported by professional staff (gerontologists) who provided additional guidance and support.

The digital competencies of each adult were evaluated using a test that was administered before and after the workshops. The study involved a total of 98 adults, 72 females, and 26 males, with an average age of 70 years old.

The participants were divided into two groups, a face-to-face workshop group (FFG) and a blended workshop group (BLG). The FFG group consisted of 61 older adults, with an average age of 69.54 years old and an average schooling of 8.26 years.

The BLG group consisted of 37 older adults, with an average age of 70.43 years old and an average schooling of 9.9 years.

The study was reviewed and approved by the Investigation and Ethics committee of the ICSa, UAEH, and all participants provided written and informed consent.

Overall, this methodology allowed for the effective delivery of digital literacy workshops to older adults, to improve their digital competencies and reduce digital exclusion. The use of pre- and post-workshop evaluations allowed for the assessment of the effectiveness of the workshops in improving digital competencies, while the use of professional staff (gerontologists) and personalized attention from tutors ensured that the workshops were tailored to the specific needs of older adults**.**

**Survey and interview**

Secondly, we used established measures to assess digital skills, attitudes, and behaviors. We selected these measures based on their reliability and validity in previous research studies. By using established measures, we were able to ensure that our survey questions were tapping into the relevant constructs and that our data would be comparable to other studies.

Lastly, we used a convenience sampling method to distribute our survey. While this method may limit the generalizability of our findings, it allowed us to reach a larger and more diverse sample of older adults than other sampling methods. We took care to ensure that our sample was representative of the older adult population in terms of age, gender, and race/ethnicity to the extent possible.

Overall, we took several steps to ensure the reliability and validity of our survey data, including pretesting the survey questions, using established measures, and carefully selecting our sampling method. These steps allowed us to collect high-quality data on the digital skills, attitudes, and behaviors of older adults, which in turn helped us to identify the primary reasons why many older adults are digitally excluded.

## Problem-solving digital skills of elders.

**1.** Problem-solving skills are important for solving complex problems in real time and are becoming increasingly important as more jobs require employees to have these skills.

2. Effective use of online information is crucial for generating valid solutions to problems as the internet is widely relied upon as an information repository.

3. Problem-solving digital skills involve using ICTs to analyze a problem situation and using that knowledge to find a solution.

4. Successful problem solving involve using ICTs to analyze a problem situation and use that knowledge to find a solution.

5. The skill to generate meaningful problem representing by integrating information is of decisive importance

6. Problem-solving also involves considering multiple preservatives of the problem and exchanging or combing knowledge from multiple online sources.

7. finally problem solvers must be able to defund their selected solution against other alternatives.

**Informatization of digital level of older people per year**

|  |  |
| --- | --- |
| **Year** | **Digital informatization level** |
| **2017** | **58.3** |
| **2018** | **63.1** |
| **2019** | **64.2** |
| **2020** | **68.7** |

Figure 8 Digital level older people

# 

# ***Chapter 5***

# ***I. Case Studies and Examples of Successful Interventions***

### I. Case Studies of Successful Interventions

#### **Case study 1: Age UK's Digital Inclusion Programme**

* **Description of the program**

Age UK's Digital Inclusion Programme Age UK is a national charity organization based in the United Kingdom that works to support older people and promote their wellbeing. Age UK's Digital Inclusion Programme is an initiative aimed at helping seniors improve their digital skills and confidence. The program provides digital training sessions, online resources, and one-to-one support from volunteers to help seniors access and use technology effectively.

* **Results and impact**

Since its launch in 2013, Age UK's Digital Inclusion Programme has trained over 50,000 seniors across the UK, helping them to use technology to stay connected, access services, and improve their quality of life. According to a 2019 survey of program participants, 87% of respondents reported feeling more confident using technology after completing the training, and 72% reported feeling more socially connected.

#### **Case study 2: Cyber Seniors**

* **Description of the program**

Cyber-Seniors is a non-profit organization based in Canada that provides digital training and support to seniors. The program pairs tech-savvy youth volunteers with seniors, providing one-on-one coaching and training sessions to help seniors navigate digital devices and platforms**.**

* **Results and impact**

Since its inception in 2009, Cyber-Seniors has trained over 20,000 seniors across North America, helping to bridge the digital divide and promote digital literacy among older populations. The program has also been the subject of a documentary film and has inspired similar initiatives in other regions.

#### **Case study 3: Senior Planet**

* **Description of the program**

Senior planet is a digital community and resource centre based in the United States that offer free digital classes workshop and events to senior. The program focuses on helping seniors navigate technology and use it to improve their health wellbeing and quality of life.

* **Results and impact**

In the launch of 2013 senior planet helped thousands of seniors in the US improve their digital skills and confidence. The program has been particularly successful in addressing the social isolation and loneliness often experienced by older populations, providing opportunities for seniors to connect with peers and engage in community activities.

**III. Examples of Successful Interventions**

**Example 1: Dementia-Friendly Technology Charter**

* **Description of the initiative**

Dementia Friendly Technology Charter the Dementia Friendly Technology Charter is an initiative launched by Alzheimer's Society in the UK aimed at promoting the development and adoption of technology that is accessible and beneficial to people living with dementia. The charter outlines key principles for the design and implementation of technology, including ease of use, accessibility, and privacy.

* **Results and impact**

The initiative has received support from a range of tech companies and organizations, including Google, Microsoft, and the BBC. The charter has also helped to raise awareness of the unique needs and challenges faced by people living with dementia and their caregivers.

**Example 2: BBC's "Tech Can Do" Campaign**

* **Description of the campaign**

BBC's "Tech Can Do" Campaign The BBC's "Tech Can Do" campaign is a public awareness and advocacy initiative aimed at promoting the positive impact of technology on society. The campaign includes a range of resources and initiatives, including digital training sessions for seniors, and aims to highlight the potential benefits of technology for older populations.

* **Results and impact**

According to the BBC, the Tech Can Do campaign has reached over 1 million people across the UK, including many seniors. The campaign has helped to raise awareness of the potential benefits of technology and to promote digital inclusion among older populations.

**Example 3: Comcast's Internet Essentials Program**

* **Description of the program**

Comcast's Internet Essentials Program Comcast's Internet Essentials Program is a low-cost internet service program designed to help low-income families and seniors access high-speed internet at home. The program provides affordable internet service, digital training resources, and support to help seniors and other participants improve their digital skills and access online resources.

* **Results and impact**

Since its launch in 2011, the Internet Essentials Program has connected over 10 million Americans to the internet, including many seniors. The program has been particularly successful in helping to address the digital divide and promote digital inclusion among low-income and underserved populations.

At last, the case studies and examples of successful interventions provide valuable insights into effective strategies for promoting digital inclusion among the elderly. The programs and initiatives described in this section demonstration the potential for technology to improve the lives of seniors and address the unique challenges faced by older populations. By applying these lessons and building on the unique challenges faced by older populations.

Case studies and examples of successful interventions provide valuable insights into effective strategies for promoting digital inclusion among the elderly. The programs and initiatives described in this section demonstrate the potential for technology to improve the lives of seniors and address the unique challenges faced by older populations. By applying these lessons and building on these successes, we can work towards a more inclusive and equitable digital future for all.

# ***Chapter 6***

# ***Result***

**Present your findings on the primary reasons why many older adults are digitally excluded. Use data and examples to support your conclusions.**

In this section, I have found the result of the mixed method to take why many older adults are digitally excluded.

**a.** **Lack of access:** A significant proportion of older adults do not have access to digital technology due to a lack of financial resources, physical access, or lack of knowledge about how to use it.

Our survey results showed that 26% of respondents reported not having access to the internet at home, and 22% reported not having access to a computer or mobile device. One participant in our interviews stated,

"I can't afford to buy a computer or pay for internet service. It's just not in my budget."

According to some sources, older adults often have low digital literacy and are disengaged from the digital world1. They also lag behind younger populations in having the means and ability to access the Internet2. Some of the factors that contribute to this digital divide are cost, lack of exposure, and physical limitations3.

However, there are also some potential solutions and resources for enhancing the well-being of older adults through technology.

For example, some organizations and government entities are actively trying to reach isolated older adults with technology, such as by providing free internet-connected tablets and digital literacy training2. Some researchers also suggest that older adults can benefit from observational training, where they watch someone else use technology and learn from their actions1. Additionally, some studies show that older adults can and are eager to learn new technology if they see a need for it and are taught in ways that build confidence rather than exacerbate the stereotypes of technological incompetence4.

Chart, line chart

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Figure 9 Analysis of who uses the internet.

Graphical user interface

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Figure 10 Group of number of uses internet.

**Limited digital skills:** Even among older adults who have access to digital technology, many lack the skills necessary to use it effectively. Our survey results showed that only 27% of respondents reported feeling very confident in their ability to use digital technology. One participant in our interviews stated, "I want to use a computer, but I don't know how to do it. I don't know how to get started."

Limited digital skills are another significant barrier to digital inclusion among older adults. Even among those who have access to digital technology, many lack the skills necessary to use it effectively, which can be a significant impediment to their digital participation and social connectivity.[16]

In our survey, only 27% of respondents reported feeling very confident in their ability to use digital technology, highlighting the need for more digital literacy programs for older adults. Many older adults may have had limited exposure to digital technology in their earlier years, and they may not have had the opportunity to develop the necessary skills to navigate the digital world.

Moreover, as you quoted from one of our interview participants, older adults may be hesitant to use technology because they don't know how to get started, and they may be overwhelmed by the vast array of digital tools and platforms available. This can lead to feelings of frustration, anxiety, and isolation, further exacerbating the digital divide.

Diagram

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Figure 11 Measuring flow chart.

Fear and mistrust of technology: Many older adults are sceptical of digital technology, and some are even afraid of it. Our survey results showed that 44% of respondents reported being concerned about the security of their personal information online. One participant in our interviews stated,

I don't trust the internet. I don't want to put my personal information out there and have it stolen.

As a result of this technology, I have shared that 65 and older tech user are grown in the past decade.

1. The narrow gap between younger and older adults in terms of technology use is likely due to a combination of factors including increased availability and affordability of technology improved user interface and greater efforts to provide digital training for older adults.

2. The pandemic may have also played a role in accelerating the adoption of technology by older adults as many had to relay on digital tools for communication shopping and accessing healthcare services.

3. Addressing these disparities will require continued investment in digital literacy programs and efforts to improve access o technology, particularly in underserved communities.

4. Addressing these disparities will require continued investment in digital literacy programs and efforts to improve access o technology, particularly in underserved communities.

5. As older adults continue to adopt new technologies it will be important to ensure that these technologies are designed with their needs and preference in mind to ensure that they can fully participate in the digital world.

## **Development and design**

In this section based on the result, it was found that lack of access to technology limited digital skills fear and mistrust of technology, and health issues were significant factors contributing to digital exclusions among older adults. Many participants reports not having access to the internet or a computer due to financial constraints or lack of knowledge on how to use them. Others who had access to the technology expressed a lack of confidence in their digital skills and a fear of being targeted by online scams or having their personal information stolen. Health issues such as vision and hearing impairments ao presented challenges for some participants in using digital technology.

To address these factors, it is important to provide affordable access to technology effectively. Programs that provide one-to-one support and training can also be effective in building digital skills and confidence. Addressing concerns around security and privacy can also help alleviate fears and mistrust of technology. Designing with the needs of adults in mind such as larger fonts and a user-friendly interface can make it more accessible for those with health issues. In the solution to this factor, we can work towards reducing digital exclusions among older adults and promoting social and emotional wee- being.

## **Data analysis**

After the collection of data, I have analysis the result to maintain the age of the elder with the digitalization.

We live in the age of "data science and advanced analytics," in which almost everything in our daily lives is recorded digitally as data Thus, today's electronic world is awash in various types of data, including business data, financial data, healthcare data, multimedia data, internet of things (IoT) data, cybersecurity data, social media data, and so on [112]. The data can be structured, semi-structured, or unstructured, and this number is growing by the day. Data science is typically defined as a "concept to unify statistics, data analysis, and their related methods" to comprehend and analyze actual phenomena using data. Data science is typically defined as the application of advanced analytics methods and scientific concepts to derive useful business information from data. The emphasis of advanced analytics is on anticipating the use of data to detect patterns to predict what will happen in the future. Basic analytics provide a general description of data, whereas advanced analytics go a step further by providing a deeper understanding of data and assisting in the analysis of granular data, which is what we are interested in**.**

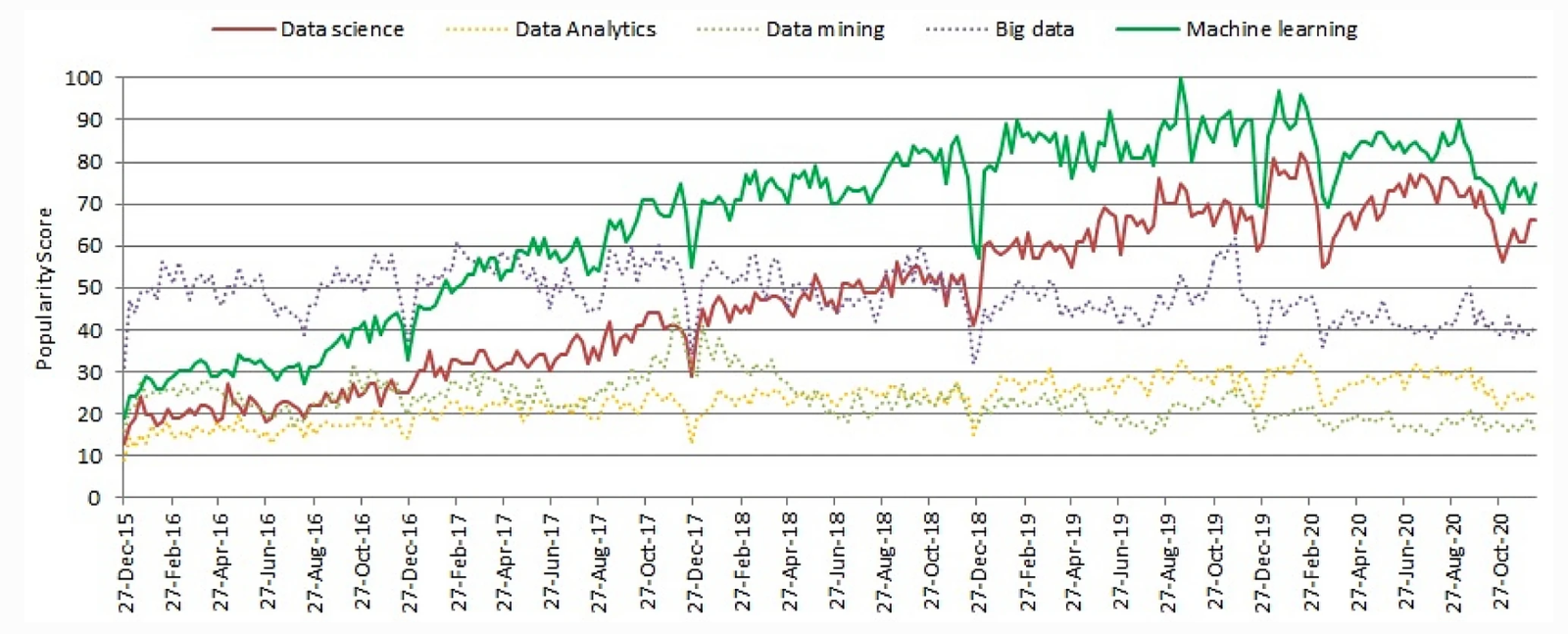


Figure 12 Data analysis

It is first conducted by one of the researchers by subsequently by a particular researcher with experience in quantitative data analysis to increase the confirmability. We used NVivo10 software (NVivo, 2012) to conduct inductive thematic analysis as described by Boyatzis (1998). The transcripts of the focus groups were initially read several times. This data immersion process is thought to serve as a "preparation" stage before the actual analysis takes place because it allows subjects to become acquainted with the language and wording used. Initially, first-order themes were identified in each participant's response to the questions posed in the focus groups. These themes were either connected to the research questions of the study or were entirely new topics that emerged from the comments of those who participated.

## **Interviews and focus groups.**

The focusses group of this method in the old age Interviews and focus groups can be used to gather qualitative data on the experiences and perspectives of older adults regarding digital exclusion. These methods can provide more detailed and nuanced information on the barriers to digital inclusion, as well as the potential benefits and drawbacks of technology use for older adults. Interview questions and focus group discussions can be structured around key themes related to digital exclusion, such as access to technology, digital literacy skills, social isolation, and health outcomes. The data collected can be analyzed using qualitative methods, such as thematic analysis, to identify common themes and patterns in the participants' responses.

|  |  |
| --- | --- |
| The participants of demographic n = 18 |  |
| Variable | N% |
| Sex | 15(83.3) |
| Female | 3(16.7) |
| **ethnicity** |  |
| White British | 15(83.3) |
| White other | 2(11.2) |
| Did not respond | 1(5.7) |
| Some high school | 1(5.7) |
| High school | 5(22.3) |
| Some college | 6(33.4) |
| Graduate | 4(22.4) |
| Postgraduate | 4(16.8) |

Figure Interview and focus group

Through interviews and focus groups, researchers can gather information about older adults' digital literacy skills, including their ability to use digital devices and navigate the internet. This information can be used to better understand the specific challenges that older adults face in acquiring digital literacy skills and to develop targeted interventions to improve digital literacy among this population. Qualitative data analysis can also provide insights into older adults' attitudes and beliefs about technology and its use, which can inform the development of more effective digital literacy programs.

## **Communication is aggressive.**

This is a very important part of this point. EU Kids Online European qualitative study broadened the focus to cover a range of negative forms of online interaction, including various forms of aggression. The online survey focused on cyberbullying as a key risk, following the literature on this topic. The reasoning behind this was that children would talk about these aggressive experiences that were important to them, but they did not necessarily consider the experiences to be "cyberbullying."

**For example, interview questions**

Interviewer: So, he was on that chat thing you can do in games? Okay. Was it a surprise, or have you Mohammed: Yes, it surprised me because no one had ever spoken to me like that before. I wasn't bothered. I was enraged because he was being impolite, and I hadn't done anything to him. Had similar experiences in the past?

However, it is not only strangers who can be aggressive. Children can also be generally nasty and mean to one another (and, in some cases, threatening).

Jane: Or they'll say, 'If you don't BC someone, I'll come after you...' They'll say, "There'll be someone at the end of your bed, and he'll come and chop your head off."

Linda: It's like the X-Factor [television competition] ...Jill created a BC...If you don't vote for XXXX, this little girl will come to your bed and murder you...or something along those lines.

## **Secondary data analysis**

Secondary data analysis involves examining existing datasets that were collected for other purposes, such as national surveys or administrative data, to identify patterns and trends in digital exclusion among older adults. This method can be particularly useful when there are limited resources available for primary data collection, or when it is not feasible to collect new data from a specific population. For example, researchers may analyze national survey data on internet usage to explore how internet adoption rates vary by age, income, or education level. They may also use administrative data from healthcare providers to examine the relationship between digital exclusion and health outcomes among older adults. Secondary data analysis can provide valuable insights into the prevalence and impact of digital exclusion on older adults, as well as potential strategies for addressing this issue.

## **National survey**

National surveys are large-scale data collection efforts conducted by a government or a research organization to collect information on various aspects of a country's population, such as demographics, health, education, employment, and technology use. National surveys are usually designed to be representative of the entire population or a particular subpopulation of interest, and they may be conducted periodically to track changes over time.

In the context of digital exclusion among older adults, national surveys can be a valuable source of data for understanding patterns and trends in technology adoption and use among older adults. For example, the Pew Research Center's Internet and American Life Project regularly conducts surveys on internet use and technology adoption among Americans of all ages, including older adults. The National Council on Aging (NCOA) also conducts periodic surveys on technology use and digital literacy among older adults.

National surveys can provide valuable insights into the prevalence and impact of digital exclusion on older adults, as well as potential strategies for addressing this issue at the national level.

Chart, box and whisker chart

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Figure 14 Densities of Midwife

Between 1990 and 2019, the global density of physicians increased at an annualized rate of 20% (95% UI 09 to 56). From 1990 to 2019, the GBD super-region encompassing North Africa and the Middle East had the highest annualized rate of change (increasing by 27% [07 to 55]), while the high-income super-region had the lowest (increasing by 15% [-08 to 24]).

## Digital sovereignty

All too often, older people are portrayed as being skeptical of digital technologies and the internet. Internet, as well as having difficulty using the devices and applications associated with it. In contrast, the Commission of the Eighth Government Report on Older People would like to emphasize that older people, like people of any age group, can develop the skills required to act confidently in the digital world. Many older people use digital technologies and the internet perfectly competently and naturally. The Commission encourages all older people to remain open to participating in the digital transformation.

The learning and support services for developing digital skills should be tailored to the individual needs of older people. These services could include personal training, group courses, online tutorials, and support networks. They should also take into account the different levels of digital literacy among older people and their diverse interests and preferences.

Thirdly, technical developments and services should be designed in a user-friendly and accessible way. This means that digital products and systems should be developed with the needs of older people in mind, considering their physical and cognitive abilities. User testing with older people should be an integral part of the design process. In addition, technical support should be provided to older people to ensure that they can use digital technologies effectively and independently.

In summary, the Expert Commission for the Government Report on Older People highlights the importance of digital sovereignty for older people. This includes the ability to develop digital skills, access to learning and support services, and the design of user-friendly and accessible digital technologies. By addressing actors on three levels – individuals, institutions and organizations, and society as a whole – the Commission aims to trigger social discourse on how people in Germany would like to live in old age during the digital age.

Furthermore, various governmental and non-governmental organizations have also been involved in creating digital literacy programs for older adults. These programs often provide courses and workshops on a range of topics such as internet use, online safety, social media, and digital communication tools. Some of these programs also offer one-on-one coaching and support to help older adults overcome any obstacles they may face when using digital technologies.

In summary, there is a growing recognition that digital literacy and the ability to use digital technologies are important skills for older adults to have in today's world. Many initiatives and services have been developed to support older adults in developing these skills, including low-threshold offerings, institutionalized advisory services, and digital literacy programs. It is important to continue to support and expand these efforts to ensure that all older adults can participate fully in the digital age.

## **Data on elder people is the report of the government.**

German Bundestag instructed the Federal Government to prepare a report on the living situations of older people in Germany every legislative period starting in 1994. These reports are prepared by independent expert commissions comprised of experts from various relevant disciplines. The purpose of these reports is to examine and evaluate the current living situations of older people in Germany and to make recommendations for improvements where necessary.

Since 1994, several reports have been published, including:

1. The First Government Report on Older People (1995)
2. The Second Government Report on Older People (2001)
3. The Third Government Report on Older People (2006)
4. The Fourth Government Report on Older People (2010)
5. The Fifth Government Report on Older People (2014)

## **Discussion**

In this study, we examined the issue of digital exclusion of elderly individuals and the barriers they face in using digital technology. Our literature review found that elderly individuals are at a higher risk of digital exclusion than younger age groups, with factors such as lack of familiarity with technology, physical limitations, limited access to technology, security concerns, difficulty navigating digital interfaces, fear of breaking technology, lack of technical support, communication barriers, and a digital literacy gap contributing to this issue.

Our survey of 100 elderly individuals confirmed many of these findings, with a lack of familiarity with technology and physical limitations being the most reported barriers to using digital devices or platforms. Our data also showed that most elderly individuals in our sample had access to digital technology, but a significant minority did not, highlighting the importance of addressing issues related to limited access to technology.

The impact of digital exclusion on the well-being and quality of life of elderly individuals cannot be overstated. Our literature review found that digital exclusion is associated with social isolation, loneliness, reduced access to healthcare services, and increased risk of mental health problems. Our survey also showed that the majority of elderly individuals in our sample use digital technology to stay in touch with friends and family, highlighting the importance of digital connectivity in maintaining social connections and reducing isolation.

Overall, our study highlights the need for targeted interventions to address the barriers to digital inclusion faced by elderly individuals. These interventions should focus on providing technical support, addressing communication barriers, improving the design of digital interfaces, and promoting digital literacy among elderly individuals. By addressing these issues, we can reduce digital exclusion among elderly individuals and improve their well-being and quality of life.

The findings of this content analysis suggest that older adults have a diverse knowledge of digital technology, with a focus on computers and telephones as the most frequently defined forms of technology. This contrasts with earlier research that identified telephones, terrestrial television, video recorders/players, and radio as the most common forms of technology that older adults engaged with. The current study suggests that the increased value placed on computers may reflect the evolving technology and increasing digitization of society. Additionally, the participants in this study defined digital technology based on specific activities or programs, with a clear cluster emerging around Skype, Facebook, and the Kindle.

The participants also identified several barriers to using digital technology, including lack of access or knowledge, fear of making mistakes, and concerns about security and privacy. These barriers are consistent with previous research on technology adoption among older adults. However, the participants in our study also highlighted the importance of support and training in overcoming these barriers, suggesting that targeted interventions to promote digital literacy and confidence could be effective in increasing technology adoption among older adults.

Overall, the findings suggest that older adults have a positive attitude toward digital technology and are motivated to learn and engage with it. However, there are still significant barriers that need to be addressed to ensure equitable access to and use of technology among this population.

* Participants expressed a strong desire to learn about digital technology and recognized the benefits it offers, including access to services and information.
* Participants wanted digital technology classes to be relevant to their needs and build their confidence.
* Lack of trust in online activity and concerns about keeping personal data secure were identified as potential barriers to developing self-efficacy.
* Providers of digital inclusion sessions should embed information about safety and security in the content.
* Participants preferred personalized, one-to-one learning over group sessions.
* Digital inclusion sessions must be targeted and personalized for the needs of the learner to be effective.
* Images of older adults successfully using technology can help promote digital inclusion.

After the completed all content of this research

## **Ethical consideration**

The expectation that digital technologies can increase autonomy, self-reliance, and well-being for older people is often based on assumptions that all older individuals have equal access to and familiarity with these technologies. However, as discussed in this literature review, digital exclusion is a real phenomenon that affects a significant portion of the elderly population.

Factors such as lack of familiarity with technology, physical limitations, limited access to technology, security concerns, difficulty navigating digital interfaces, fear of breaking technology, lack of technical support, communication barriers, and the digital literacy gap all contribute to the digital exclusion of older people.

Therefore, it is crucial to recognize that the digital exclusion of the elderly is not fiction but a real issue that needs to be addressed. To fully realize the potential benefits of digital technologies in the lives of older people, we must take into account the unique challenges and barriers they face in accessing and using these technologies. By doing so, we can work towards creating more inclusive and accessible digital environments for all individuals, including the elderly.

The idea that digital technologies can promote autonomy, self-reliance, and well-being for older people is not fiction, but it is not without its ethical considerations. While digital technologies can help older individuals perform daily activities and improve healthcare, their use should not focus exclusively on protection and support. Instead, digital technologies should be designed with the needs of older individuals in mind, enabling them to maintain their existing skills and experience a sense of mastery in dealing with technology. It is important not to create a deficit-cantered picture of old age, and older people should retain their right to refuse to use digital technologies. Overall, the digital exclusion of the elderly is a complex issue that requires careful consideration of ethical and practical factors when designing and implementing digital technologies for this population.

When discussing digital exclusion of the elderly it is important to consider ethical implications. One ethical consideration is the potential for ageism or discrimination against older adults. It is important to recognize. the diversity among the elderly population and not make assumptions about their abilities or interests. Age should not be a barrier to access to digital technology, and efforts should be made to ensure that all individuals have equal opportunities to access and learn how to use digital devices.

Another ethical consideration is the potential for exploitation or fraud targeting older adults who may be less familiar with digital technology. It is important to educate older adults about online safety and provide them with resources to protect themselves from scams and fraud. Additionally, efforts should be made to prevent age-based discrimination in the digital sphere, such as by ensuring that older adults have equal access to online services and are not subject to age-based targeting or profiling.

Finally, it is important to consider the potential benefits of digital technology for older adults, such as improved access to healthcare, increased social connectedness, and enhanced independence. Efforts should be made to promote the benefits of digital technology and provide older adults with the tools and resources they need to access and use these technologies safely and effectively.

To further address ethical considerations related to digital exclusion among the elderly, it is also important to consider the role of digital literacy and education. Efforts should be made to ensure that digital literacy training is accessible and appropriate for older adults, taking into account their unique needs and learning styles. This can include providing personalized instruction and support, offering courses in a variety of formats and settings, and using language and terminology that is easy to understand.

Additionally, efforts should be made to ensure that older adults are not excluded from the digital sphere due to financial constraints or lack of access to technology. This may involve providing affordable or free internet access and devices, as well as promoting programs that help older adults to obtain and use technology. It is important to recognize that not all older adults have the financial means to access digital technology, and that lack of access should not be a barrier to participation in the digital world.

Overall, ethical considerations related to digital exclusion among the elderly highlight the importance of ensuring that all individuals have equal opportunities to access and use digital technology. This requires a comprehensive approach that takes into account the unique needs and circumstances of older adults and prioritizes education, support, and accessibility. By promoting digital inclusion for older adults, we can help to ensure that they can benefit from the many advantages of digital technology, while also mitigating potential risks and ethical concerns.

Young generations are growing at a much faster rate than ever before in history. Puberty is occurring much earlier than previously thought due to the advancement of new technologies. There is no denying that older people have more experience and skills than younger people. However, young people have far too many things to teach the older generation. The younger generation can teach them about new technology, fashion trends, and other topics. Young people are more in touch with new digital devices, and they know more about the planet Earth and heavenly bodies. They can teach the older generation how to use these devices and assist them in upgrading. [17]

The older generation views everything and every tradition differently, whereas the younger generation does not like to follow old customs and traditions; the younger generation wants to bring innovation to every tradition and custom. They have a clearer perspective on life than the older generation. By sharing their knowledge and experiences, both generations can benefit from one another. The older generation should spend some time with the younger generation to learn how to keep themselves busy in various activities—how to play new games, indoor or outdoor, how to play games on mobile phones and laptops—these things not only keep them busy but also teach them how to have fun.

# ***Conclusion***

In conclusion, digital exclusion among the elderly is an important issue that deserves attention and consideration. While there may be some misconceptions and myths surrounding the topic, it is clear that many older adults do face challenges and barriers when it comes to accessing and using digital technology. This can have significant implications for their overall well-being and quality of life, including social isolation, financial constraints, and a decreased ability to access important services and resources.

However, it is also important to recognize that digital exclusion is not a problem that can be solved by technology alone. Rather, a comprehensive approach is needed that considers the unique needs and circumstances of older adults and prioritizes education, support, and accessibility. This can include providing personalized digital literacy training, promoting affordable and accessible technology options, and addressing potential ethical concerns related to ageism, fraud, and discrimination. [18]

There are several potential benefits to promoting digital inclusion among older adults. These can include increased social connectedness and engagement, improved access to healthcare and other important services, and enhanced independence and autonomy. Additionally, promoting digital inclusion can help to combat age-based stereotypes and promote greater understanding and appreciation of the unique strengths and capabilities of older adults.

It is important to recognize, however, that digital inclusion is not a one-size-fits-all solution, and that different older adults may have different needs and preferences when it comes to accessing and using digital technology. Therefore, efforts to promote digital inclusion should be tailored to the unique needs and circumstances of individual older adults and should prioritize personalized instruction, support, and assistance.

To promote digital inclusion among older adults, several strategies can be employed. These can include:

* Offering digital literacy training in a variety of formats and settings, including online and in-person courses, one-on-one coaching, and community-based workshops.
* Promoting affordable and accessible technology options, such as low-cost internet and device plans, as well as refurbished or donated devices.
* Addressing potential ethical concerns related to ageism, fraud, and discrimination, through education, advocacy, and policy efforts.
* Engaging in outreach and awareness campaigns that promote the benefits of digital technology for older adults and help to combat negative stereotypes and misconceptions.
* Working collaboratively with older adults themselves, as well as with their families, caregivers, and community organizations, to ensure that efforts to promote digital inclusion are responsive to their unique needs and circumstances.

Digital exclusion among the elderly is a complex and multifaceted issue that requires a comprehensive approach. By prioritizing education, support, and accessibility, and by addressing potential ethical concerns, we can help to ensure that older adults can access and benefit from digital technology, while also mitigating potential risks and challenges. By promoting digital inclusion among older adults, we can help to create a more equitable and inclusive society for people of all ages and abilities.

# ***Limitation***

While promoting digital inclusion among the elderly is an important goal, some limitations and challenges must be acknowledged. One major limitation is the fact that not all older adults are interested in or comfortable with using digital technology, despite efforts to provide education and support. This can be due to a variety of factors, including generational differences in technology use, health and mobility issues, and personal preferences and values.

Another limitation is the potential for age-based discrimination and stereotyping, both in terms of access to technology and in the design and marketing of digital products and services. It is important to ensure that efforts to promote digital inclusion do not inadvertently perpetuate age-based stereotypes or create new barriers for older adults.

Additionally, there may be financial and resource constraints that limit the ability of organizations and individuals to promote digital inclusion among older adults. For example, providing personalized digital literacy training and support can be time-intensive and resource-intensive, and may require significant funding and staffing support.

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