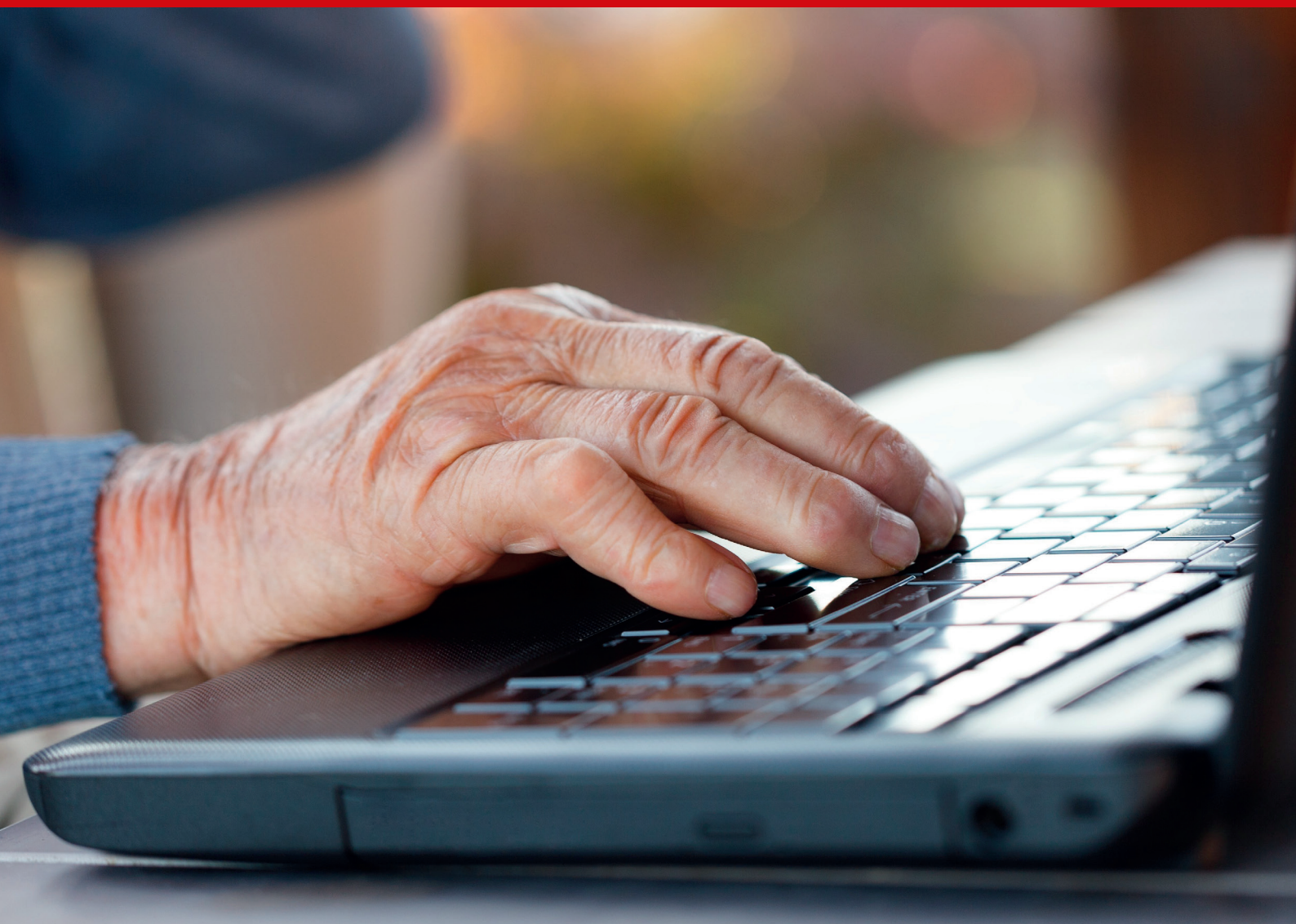
Bizkaia
nagusi intelligence center

Nagusi Intelligence Center - Behatokia
Monographic Report

How to improve the usability of digital technologies for older people?



A publication by:
NIC: Nagusi Intelligence Center
Aita Gotzon Street, 37, Floor 3 and 4
48610 Urdúliz Bizkaia
NIC@bizkaia.eus

With the collaboration of:
Antares Consulting SL
Pl. d'Urquinaona, 6, Floor 10 Office A
08010 Barcelona info@antares-consulting.com

Editorial design: CCyC

How to improve the usability of digital technologies for older people?

Executive summary: The usability of digital technologies for older people is one of the biggest challenges for the development of the silver economy. The aim of this report is to help companies in this sector address this challenge in four ways: the introduction presents the key data to understand the degree of usability of digital technologies for older people; in the first part of the analysis, we describe the five main challenges that this issue raises for actors in the silver economy; in the second part, we present the six types of strategies that respond to those challenges; finally, in the third part, we offer a range of possible solutions to concretely implement these strategies.

Keywords: usability, silver economy, digital gap, senior.

Index

Introduction: the digital gap and older people p04

1. Challenges p12

2. Strategies p20

3. Solutions to improve the usability of digital technologies for older people: eight success stories p28

4. Conclusions p36

5. Bibliography p40

Bizkaia
nagusi intelligence center

INTRODUCTION

THE DIGITAL GAP AND OLDER PEOPLE

The phenomenon of the digital gap and its components

Difficulties in accessing digital activities and services affect the right to participate fully in society

Information and communication technologies (ICT) are a key element in healthy and active ageing. These technologies enable access to information, health, healthcare and socio-economic participation, as well as other factors that promote engagement and participation in the environment as people age (1). Inequality in access to the internet and ICT is known as the digital gap. As more activities and services are incorporated into the digital space, some older people find it difficult to access these activities and services, thus reducing their right to participate fully in society.

A few years ago, a UN agency called the International Telecommunications Union (2) established the Digital Access Index (DAI) based on 5 categories of variables:

1. Quality
2. Infrastructure
3. Knowledge
4. Accessibility
5. Usage

The difficulties encountered by older people during the COVID-19 pandemic highlight the digital gap compared to the rest of the population. Since the first lockdowns, digitalisation has grown exponentially and has become widespread in all areas and sectors. In this context, older people, whose technological knowledge is lower as they are not digital natives, have started to learn how to use these technologies, but there is still a long way to go.

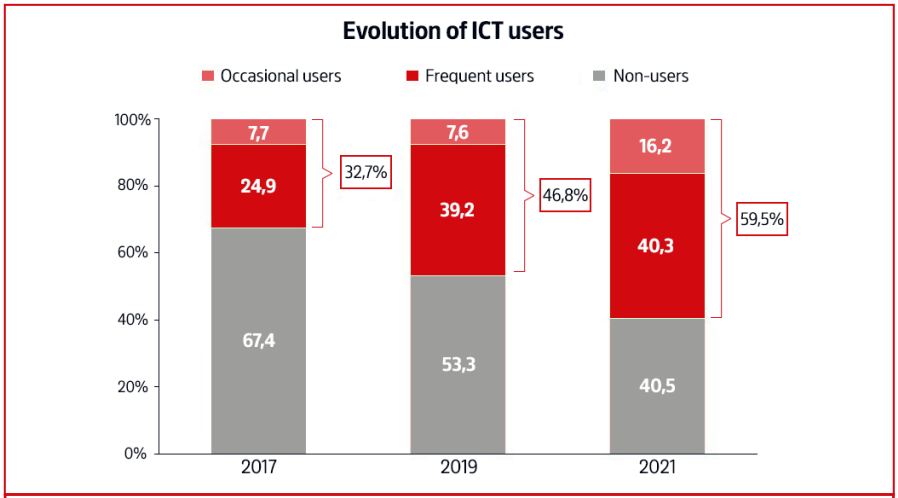
Recently, several studies have highlighted the characteristics of the digital gap in the State among older people. The Survey on ICT Equipment and Use in Households (3) of the National Statistics Institute (INE) and the Barometer on the Digital Gap and the Elderly produced by the Democratic Union of Pensioners and Retired Persons of Spain (4) provide an X-ray of the digital gap among the elderly in the State.

Older people's interaction with the digital world is slowly growing

The use of digital technologies among older people is increasing, but there remains a long way to go

Older people's interaction with the digital world is slowly growing. A study by the INE (3) provides data to support this assertion. In the three months prior to the publication of the study, 27.9% of people aged over 74 had used the internet, i.e. 1.2 million people, compared with 23.4% who did so in 2019. But the INE survey (3) reveals that only 17.1% of elderly internet users use the internet on a daily basis.

According to the UPD Barometer, the percentage of regular ICT users among the elderly is growing, reaching 43%.



SOURCE: Digital gap report by UDP

The 2nd Senior Consumer Barometer (5) also shows that older people's interaction with the digital world is slowly growing. In fact, the Barometer indicates that more than 60% of the over-55s use the internet daily, rising from 6.2 million people in 2017 to 9 million in January 2020. The 2nd Senior Consumer Barometer (5) also shows that older people's interaction with the digital world is slowly growing. In fact, the Barometer indicates that more than 60% of the over-55s use the internet daily, rising from 6.2 million people in 2017 to 9 million in January 2020.

Among older people, the most frequent use of ICT is concentrated in two activities:

- Exchanging messages with family and friends (85%)
- Getting information and reading the press (81%)

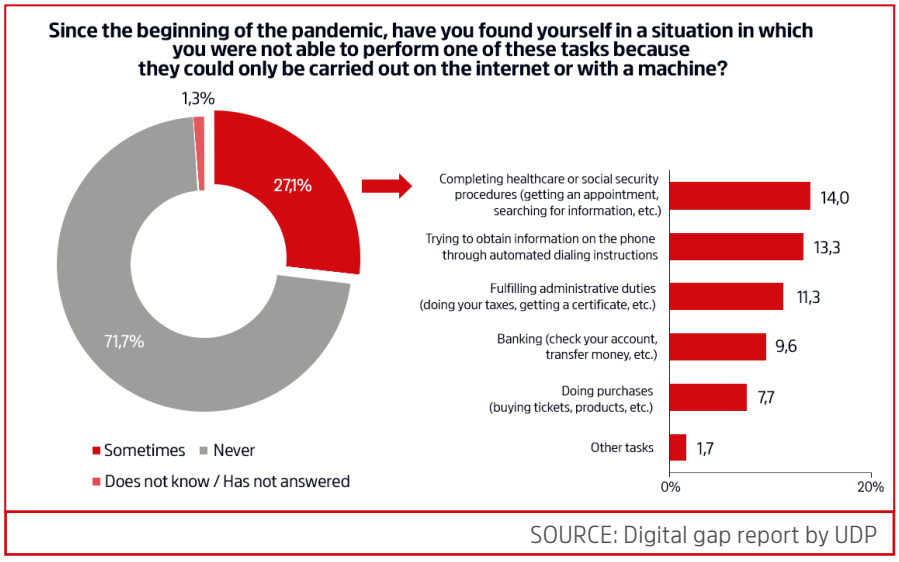
And it decreases significantly in the rest of the activities:

- Banking transactions (54%)
- Health and social services (50%)
- Administrative formalities (38%)
- Online shopping (37%)

Difficulties in accessing digital services

The UDP Seniors report (4) states that "almost three out of ten older people who do not use the internet say that they have not been able to carry out everyday tasks because they could only be done over the internet or on a machine (27.1%)".

Nearly three out of ten older people who do not use the internet say that they have not been able to carry out everyday tasks because they could only be done online



SOURCE: Digital gap report by UDP

Access through digital channels alone has made it difficult for older people to:

- Have access to health or social services
- Obtain information over the phone by following instructions from a machine
- Carry out administrative formalities
- Carry out banking transactions
- Make online purchases

There is a relationship between the digital gap, socio-economic status, gender, and age

Inequalities of use and access among older people

In addition to the digital divide between older people and society, there are also digital divides within the same group of older people.

According to the report (4), ICT access among older people is higher among men, under 74 years of age, with a university education and higher incomes. There is thus a relationship between the digital divide, socio-economic status, gender, and age.

In fact, digital literacy decreases with age, being much lower among people over 80 years old. This phenomenon explains why ICT usage among older people is progressively increasing every year: the new cohorts of young older people are statistically increasing this phenomenon.

But, in addition, chronological age is associated with cognitive decline and impaired sensory abilities (sight and hearing), increasing the digital divide among older people. A study by the Division of Geriatrics at the University of California, San Francisco published in the journal JAMA indicates that the potential gap among people over 85 is potentially seven times greater than among people aged 65-74. In the same vein, from the lens of economic income, the UDP report also highlights that this percentage rises to 58.9% among people with lower incomes, demonstrating the relationship between the digital divide and the socio-economic divide.

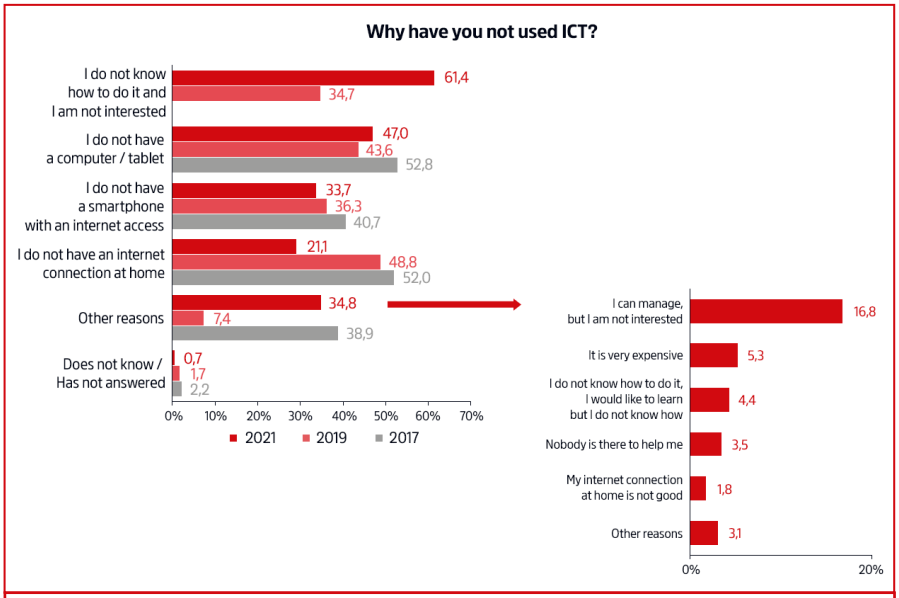
Barriers related to infrastructure and place of residence

Infrastructure-related barriers remain important: broadband internet access in rural areas and access to devices are elements to be considered.

The UDP report indicates that the main barrier to accessing digital services is skills and interest in using ICT, but the following are linked to infrastructure and devices:

- Not having technological devices available: computer, tablet....
- Not having a smartphone with internet access
- Not having an internet connection at home

Internet access in rural areas, and in particular to broadband networks, is also a major digital barrier



SOURCE: Digital gap report by UDP

Internet access in rural areas, and in particular broadband networks, is also an important digital barrier. The mentioned UDP document shows that older people in large cities have a higher use of ICTs (48.0%) than people living in small towns (33.6%).

What can businesses in the silver economy do to help bridge the digital divide?

Aims of this report

Knowing the growing interest of older people in going digital and the social, educational, and economic constraints observed so far, what can businesses in the silver economy do to help bridge the digital divide?

To address this issue, the first part of this report sets out the main challenges faced by actors in the silver economy in improving the usability of digital technologies for older people. In the second part, the most common strategies to respond to these challenges are presented. Finally, the third part analyses successful projects at national and international level that illustrate the feasibility of these strategies.

Bizkaia
nagusi intelligence center

1. CHALLENGES

Even though more and more older people are becoming aware of new technologies, there is still a long way to go and challenges to overcome. Older people, unfamiliar with the use of current technologies, are more likely to be digitally excluded and, consequently, face digital barriers with the implementation of online goods and services (6). These barriers also lead to a lack of connection with the environment, exacerbating unwanted isolation (3): this isolation is strongly related to depression, sadness, distress, and other symptoms of poor quality of life in older people (7).

The population over 65 may double the population under 15 by 2050

Therefore, the following are the five main challenges to overcome in order to improve the usability of digital technologies by older people:

- Knowledge and use of the digital world
- Ensuring (cyber)security
- Involvement of seniors
- Taking advantage of data protection legislation
- Strengthening infrastructures

a. Fostering knowledge and learning

Lack of knowledge of digital technologies leads to a lack of self-esteem and confidence. This feeling prevents older people from asking for help, which reinforces their technological isolation (8). Overcoming limiting factors (9) is the main challenge to consider. Lack of education and lack of interest are, in more than 60% of cases, the main reasons for older people not using the internet (4).

Almost 90% of older people have not received training in the use of digital tools (4). Considering demographic projections, which predict that the population over 65 may double the population under 15 by 2050, there may be a significant drop in demand for IT equipment and the use of new technologies if the digital skills of seniors are not improved.

An article published in the World Economic Forum (10) highlights that, countries such as China, who expects its 65+ population to comprise 30% of its total population by 2050, have started to become aware of the need to train their older

Some public institutions are starting to offer e-learning for older people

population. The article highlights specific cases, evidenced by the COVID-19 pandemic, in which older people suffered discrimination and abuse for not keeping up with the latest technologies. It highlights the case of a woman who could not receive health care because she did not have the contactless payment application on her mobile phone, or a man who was forced to get off a public transport bus because he did not have the COVID-19 passport on his phone, as it was not compatible with the new technologies.

To prevent such extreme situations, some public institutions are starting to offer digital learning training. For example, the National University of Distance Education (UNED), financed in this sense by the government of Navarre, promotes courses aimed at seniors to train them in new technologies and to give digital tools and resources to their participants.

Another example is JD, a Chinese multinational e-commerce company, which launched multiple digital assistance services for seniors in 2020: from having dedicated employees to help seniors shop digitally in its physical shops, to creating, in collaboration with ZTE (a Chinese telecommunications company), a mobile phone designed especially for seniors, with integrated telecare functions and quick access to telemedicine. JD also organised training classes for seniors to train them in the use of new technologies for digital shopping (such as the use of QR codes, downloading apps and even how to order medical appointments virtually). In doing so, JD noted that already in 2020 itself there was an increase in the volume of purchases by the over-65s on its e-commerce platforms, thus fostering the growth of the silver economy.

Therefore, continuous learning of digital technologies represents an empowerment tool for seniors. According to Agudo et al. (11), the main reason for using new technologies in senior centres is access to new activities and as a meeting place. The article also highlights that 94.4% of those interviewed considered it appropriate for the social centre to act as an enabler of information and communication technologies. Such learning keeps a person's brain functioning, equips them to stay healthy, and helps them to remain competent and engaged in society. It also offers them

the possibility to improve their quality of life through access to new cultures and new knowledge (7).

b. Ensuring cyber segurity

To support the digital learning of older people, cybersecurity is vital, as it provides peace of mind, eliminates anxieties, builds trust in the environment, and facilitates overcoming barriers (7). Indeed, cybersecurity is a human right that must be ensured through policies that guarantee privacy, informed consent, and autonomy (6).

Cybersecurity brings peace of mind, eliminates anxieties, builds trust in the environment, and makes it easier to overcome barriers

More specifically, age diversity online requires specific measures to avoid emerging risks of misinformation, cybercrime, as well as security and privacy issues (1). As an example, the American cybersecurity agency CISA publishes an educational guide on its senior education portal highlighting key points to ensure the safety of seniors who are starting to use the internet and other digital resources.

These best practice recommendations are summarised in 10 key points by Seniors Online Protect:

- Create strong and secure passwords
- Add double-checking processes on all digital accounts
- Think before you act in relation to emails and warnings that may be malicious
- If in doubt, delete potentially malicious emails or messages
- Share content with care and avoid sharing location
- Use security software
- Adjust the security settings of your Internet browser
- Use your computer's security firewall
- Be sure to log off at the end of use
- Consider asking for help from family or friends when needed

Facilitating the digital participation of seniors means finding solutions to promote interaction with each other and with other generations

c. Facilitating participation

Digital participation is defined as the use of digital resources and ICTs as tools to facilitate citizen participation.

Without technology-enabled participation, digital exclusion can occur, and active and healthy ageing is hindered (6). Facilitating the digital participation of older people means finding solutions to promote interaction among older people and with other generations, as well as preventing them from becoming inactive with digital technologies.

The World Economic Forum (10) pays particular attention to the importance of designing inclusive technologies for the elderly. In addition, it cites five barriers to digital participation that must be overcome if greater integration is to be achieved among the older population:

- The design of the tool and the user experience
- The interest of users in the tool
- The cost of acquiring the tool, as well as the method of acquiring the technology
- The method of installing or adopting the tool for optimal use
- The trust and privacy offered by the technology

When these barriers can be overcome, digital inclusion is easier and favours the use of technologies by older people. As a result, digital participation strengthens social ties between generations and boosts older people's self-esteem. Seniors who feel that they contribute to society feel younger, less afraid, more confident, bolder, and less isolated (7).

d. Taking advantage of data protection legislation

Organic Law 3/2018 on data protection and guarantee of digital rights (LOPD) seeks to provide a solution to the processing of personal information, regardless of the platform on which it is held (12). It also assigns control of the law to the Spanish Data Protection Agency (AEPD) with the power to sanction offenders. In this way, it prevents the total or partial automated or non-automated processing of personal

data. However, at the same time, the LOPD may hinder the development of technologies that are more adapted to a specific public by limiting the collection of data from users.

The LOPD may hinder the development of technologies more adapted to a specific public by limiting the collection of data from users

Current legislation does not only imply complications, but also benefits for older people. As an example, some articles of the Royal Decree 1494/2007 of 12 November 2007, on the basic conditions for access to technology for people with disabilities, apply to both older people and people with disabilities:

- Article 8.1 makes it compulsory for computer equipment and software used by public administrations to be easily accessible for the elderly and persons with disabilities.
- Article 8.2 states that "awareness-raising and dissemination measures should be promoted so that manufacturers of computer hardware and software incorporate into their products and services [...] the criteria of accessibility and Design for All, which facilitate access to the information society for the elderly and people with disabilities".

e. Strengthening infrastructure

The infrastructure establishes the basis and possibility of digital connections. In this way, it makes it possible to overcome the challenges posed. The continuous work carried out in both the public and private sectors allows for an improvement of the infrastructure over the years. This improvement is evidenced by the indicators provided by the Ministry of Social Rights and Agenda 2030 in the Digital Divide Report (4).

In 2021, the percentage of older people using the internet reached 59.5% (down from 50% in 2019 and 32.7% in 2017). Driven by COVID-19, the use of digital tools on an occasional basis has increased. However, lack of internet access is still a cause of non-use in 29.1% of cases (compared to 52% in 2017). Broadband internet service needs to be robust and affordable (13), particularly in rural areas, where a high proportion of older people live.

The continuous work carried out both in the public and private sectors allows for an improvement of the infrastructure over the years

These results, although positive in terms of their evolution, show that there is still a segment of the population that suffers from a lack of optimal access to digital tools, also reinforced by a lack of resources. According to the Digital Divide Report (4), in 2021, 58.9% of people with "insufficient spending power" were unable to carry out everyday tasks, compared to 27.1% of people with a balanced economic capacity and 17.9% of people with a high spending power.

The process of improving infrastructure is costly and can take considerable time to put in place. Therefore, nearly two thirds of the older people who took part in the survey of the Ministry of Social Rights believe that having some form of face-to-face assistance in public administrations, public services and banks or service companies would help to make it easier for them to carry out their formalities.

Bizkaia
nagusi intelligence center

2. STRATEGIES

Usability challenges for older people require the creation of an enabling business ecosystem

The challenges posed by the usability of digital technologies for older people are so diverse and interdependent that they require the creation of an enabling business ecosystem that allows the appropriation of these technologies by this specific audience. Such an ecosystem cannot be generated spontaneously. Its construction requires the implementation of a series of complementary strategies that make it possible to act simultaneously on the different key factors of usability. Therefore, the concrete strategies developed by the actors of the silver economy to improve usability are often very complex.

However, despite this complexity, six possible strategies can be identified that mobilise similar types of resources in order to enhance the usability of digital tecnologies. These six strategies successively focus on:

- The knowledge of technologies
- Technical support
- Design adaptation
- Comunication
- Infrastructures
- Public policies for e-inclusion

In the following, each of these strategic guidelines is presented in a different way, so that the different logics behind them can be understood. The third chapter of this monograph will present examples of practical solutions that successfully combine these strategies.

a. Offering training courses

One of the possible strategies to improve the usability of digital technologies for older people is to offer digital literacy training (1). According to Edix, a digital training school, digital literacy can be defined as "a person's ability to perform different tasks in a digital environment. This skill includes the competence to locate, research and analyse information, as well as being able to produce content and design proposals, through digital media" (14). This type of training is usually delivered face-to-face, or via online platforms or applications (13).

Digital literacy strategies help to improve the self-esteem and autonomy of older people

Digital literacy strategies can improve older people's self-esteem and autonomy. Research carried out after COVID-19 concluded that older people want to be independent in communicating with their families and feel integrated into modern life (8). This study also confirmed the variety of needs of this audience and the importance of providing subjects appropriate to these needs to achieve individualised learning. The research found that, as a positive consequence of the experimentation, there was an increase in motivation to continue to engage in the digital world after the training.

To achieve this individualised learning goal, some key points should be considered when designing digital literacy programmes for adults (15):

- Diagnosing, prior to the training, the digital skills and predisposition of the participants.
- Identifying the participants' motivations for going digital and the use they wish to make of digital technologies.
- Promoting the implementation of activities among the participants.
- Evaluating the use of the learning obtained by the participants.

To promote lifelong digital learning for older people, beyond one-off training courses, the intergenerational dimension is a key element, as younger generations can accompany older people in their technical and practical inclusion (1). This type of intergenerational collaboration can be a form of technical support, which is not redundant, but complementary to training.

b. Providing technical support

One of the essential elements in the technological inclusion of older people is the technological support offered to them (13). Remote communication by telephone, videoconference or e-mail is a tool which, under certain circumstances and with appropriate training, can be effective (16). However, it cannot fully replace direct care, because face-to-face care is still predominant among older people (17, 18).

Whatever the mode of support, the purpose of technical support for seniors should be to enable them to do digital transactions themselves, rather than doing them for them (19). To this end, three useful tactics for developing a digital support strategy tailored to seniors are proposed (19):

- Understanding the purpose. It is essential, before providing any support, to ask the person receiving it what they want to achieve with the technology. It should be remembered that older people do not always have a good command of the vocabulary associated with new technologies. Therefore, the first step is to help them express their needs in simple terms.
- Eliminating the superfluous. Many seniors feel lost by the multiplicity of information they see on their screens. Therefore, to make it much simpler for them to use digital devices, teach them which applications can be useful to them and leave out the rest.
- Overcoming fear. Some older people are afraid or panic-stricken when faced with technology with which they are not comfortable. To combat this apprehension, the person providing assistance should ensure that the person remains calm at all times and minimise the number of operations that need to be carried out to achieve their goal.

The purpose of technical support aimed at senior people should be to get them to do digital operations by themselves, rather than doing these operations for them

Technical support work also depends on the type of digital device that senior citizens use. Therefore, good adaptation of the design of digital devices to the specific needs of this audience facilitates the provision of good technical support.

c. Adapting design

As Gálvez (17) stresses, designing technologies adapted to older people goes "beyond the design of devices with large buttons and loud sounds". It is true that the size of the keys or letters must be considered in order to prevent older adults from automatically discarding digital tools due to inaccessibility. However, gerontotechnology or AgeTech is not just about designing digital devices for seniors, but with them.

AgeTech is not just about designing digital devices for older people, but with them

In their systematic review of the scientific literature on the adoption of mobile devices for older people, Aranha et al. (20) highlights that, products designed with groups of older users are more accessible to this audience. Co-design allows for better understanding and addressing not only physical but also cognitive barriers that limit or prevent the use of digital technologies for this age group.

This conclusion means that the strategy of adapting the design implies a usability study specific to each digital device. However, Aranha et al. (20) have found several common features among digital products that older people have easily appropriated:

- Considering the high prevalence of mobility impair-ment among the elderly, portable devices are the most practical so-lutions for seniors. Therefore, large devices are not al-ways suitable for them. What mat-ters is not so much the size of the de-vice, but its acces-sibility. For in-stance, voice con-trol or zoom func-tions can better simplify the use of digital devices than larger key-boards or bigger screens.
- Device interfaces should be as intuitive and minimalistic as possible. Designers of digital products for seniors should remember that age also affects cognitive functions. Therefore, devices aimed at seniors should require a minimum of mental effort.
- Beyond conception, the collection of the experience of senior user's experiences are key to the development of products that senior users can handle. This requires digital device companies to seek means of communication that allow for the ongoing involvement of users in the design of their products.

Therefore, making progress in the design of senior-friendly digital devices means strengthening communication between companies in the digital world and the older population.

d. Communicating and disseminating

Communication strategies towards senior citizens should involve all media, both traditional and digital

Communication strategies towards seniors should consider all types of media, both traditional and digital, used by older people (21). To this day, watching television remains the favourite entertainment activity of older generations (22). However, computer, tablet and smartphone use are also becoming more widespread among this age group (7).

Regardless of how it is disseminated, communication about products specifically for older people must avoid any stigmatisation (23), which implies:

- Breaking down stereotypes associated with older people
- Not infantilizing older people with representations that put them in a position of dependency or ignorance
- Promoting an intergenerational and inclusive approach that treats older people as a group of people active in society
- Not limiting the dissemination of information for older people to specific times but prioritise continuous dissemination

In general, as demonstrated by Fundación MAPFRE (5), senior citizens are high consumers of information. The Foundation used Google to detect two trends among people over 55. Firstly, they are 40% more likely than other age groups to be informed about current affairs. Secondly, they are also 40% more likely than other age groups to be online readers of business news. Thus, news is a privileged information dissemination channel for companies in the silver economy.

However, many older people living in rural areas encounter digital communication problems due to lack of connectivity (24). The success of communication strategies thus depends on the quality of infrastructures that enable the use of digital technologies.

Improving telecommunications infrastructure in rural areas must be a fundamental pillar to facilitate older people's access to digital technology

e. Improving physical and digital infrastructures

A large part of the older population lives in rural areas, where digital infrastructures are more often of lower quality, which can represent a barrier to the use of digital technologies. Therefore, in order to benefit older people's digital access, improving telecommunications infrastructure in rural areas should be a fundamental pillar of such strategies.

From this perspective, the Spain Digital 2025 Plan (25) is a good example of a strategic framework for the development of digital infrastructures. Driven by the European Digital Transformation Plan, the first objective of this plan is to "ensure adequate digital connectivity for 100% of the population, promoting the disappearance of the digital divide between rural and urban areas" (4). Although the plan does not specifically focus on older people, achieving this aim would contribute to facilitating the use of digital technologies for this age group.

Indeed, the plan envisages strengthening broadband communications infrastructures in rural areas, historic city centres and industrial areas. In addition, the plan contains measures to continue the deployment of 5G technology, in which the State will be positioned as a leader in Europe. Finally, the plan also incorporates a review of the legal infrastructures that delimit the use of digital technologies. To this end, a Charter of Digital Rights was published in 2021. The twelfth equality right of this Charter requires the promotion of "specific public policies aimed at tackling access gaps by addressing possible discriminatory biases based on existing age differences, (...) to ensure full digital citizenship and participation in public affairs for all groups at greater risk of social exclusion, in particular the elderly, as well as the use of the digital environment in active ageing processes".

Therefore, the improvement of digital infrastructures is one of the public policies that can favour the e-inclusion of seniors.

f. Promoting public policies on e-inclusion

Fostering a public-private approach is essential in achieving digital equity

No single entity can solve these challenges alone (21), so collaboration and a public-private approach are essential to achieve digital equity.

The World Economic Forum emphasises the different actors that should be involved in the process and gives examples of how they can help to promote digital inclusion (21).

Thus, the World Health Organisation's (WHO) action plan for 2020-2030 (26) details the actions to be taken by member states. For instance, these actions may consist in:

- Creating knowledge, understanding ageing, and promoting intergenerational dialogue
- Promoting the social activity of older people
- Providing training, education, and funding for digital literacy
- Promoting opportunities for training and continuing education.

WHO itself is committed to extending the global network of age-friendly cities and communities by promoting age-friendly centres using UN funds.

WHO calls on its international partners in the private sector to promote the age-friendly concept, as well as to support the development of communities that facilitate information exchange and education of the population. This support can be both technical and financial.

A good example is the collaboration between JD and ZTE in China (10), where an e-commerce company and a telecommunications company joined forces to promote digital innovation and the inclusion of older people in society, as well as to facilitate communication between generations with a range of age-friendly products.

Bizkaia
nagusi intelligence center

3. SOLUTIONS

TO IMPROVE THE USABILITY OF DIGITAL TECHNOLOGIES FOR OLDER PEOPLE: EIGHT SUCCESS STORIES

There are already many successful cases of solving challenges related to the usability of digital technologies by older people. The eight projects that have been identified have not purely adapted one strategy, but rather have been hybrids of several of them. However, each initiative focuses on one dimension of usability, which is its main strategic focus. These projects have therefore been selected because they illustrate the variety of possible solutions to the five major challenges outlined in the first part of the report:

- Help Age International demonstrates how the knowledge of older people about digital technologies can be improved through public training policies.
- Laia Salom's fieldwork shows how adapting the design of a cognitive stimulation application for the elderly can improve learning skills in this age group.
- Project DEFINE is an example of a training strategy aimed at strengthening cybersecurity.
- ExpertClick teaches us how to promote the participation of older people in society through support and training programmes.
- Vincles BCN addresses the same challenge of social participation, but in a different way: it tries to solve it with an application that puts older people in contact with each other.
- EmancipaTIC proves that support for seniors in the use of digital technologies can go beyond technical support to include legal assistance.
- Orange explains how communication infrastructures can be adapted to the needs of older people.
- 3S Senior Designs is dedicated to adapting physical infrastructures to the needs of older people.

The projects that have been identified have not purely adapted one strategy, but rather have been hybrids of several of them

HelpAge offers awareness-raising and training initiatives for older people to create an intergenerational and friendly society

In the table below, cases are listed that illustrate possible strategies to address the usability challenges identified above:

CHALLENGES	STRATEGIES	CASES
Fostering knowledge and learning	Offering training	Help Age International and cognitive stimulation app
Ensuring cyber security	Providing technical support	DEFINE Project, EmancipaTIC, and Orange
Facilitating participation	Adapting design	ExpertClick and Vincles BCN
Taking advantage of data protection legislation	Promoting public policies on e-inclusion	EmancipaTIC
Strengthening infrastructure	Improving physical and digital infrastructures	3S Senior Designs
	Communicating and disseminating	Orange

a. Help Age International

Help Age International is a global network with a presence in 86 countries that carries out multiple initiatives to build a society that is friendly and sensitive at all levels to the reality of older people (27). The network offers awareness-raising and training initiatives on older people, with the aim of creating an intergenerational and friendly society. The relevance of the network lies in its proposal to being multinational, taking into

account the necessity of every state but without forgetting the institutional neglect of older people in the least developed countries should be taken into account.

HelpAge Spain was created with the support of the Spanish Government and Imserso. Some of the virtual courses currently available (as of 30 May 2022) are: Mujeres mayores, buen trato y derechos, Derechos y buen trato de las personas mayores con necesidades sociosanitarias or Derechos y buen trato de las personas mayores en el ámbito nacional e internacional (28). E-inclusion has gained momentum since the beginning of the COVID-19 pandemic, so they have started to offer initiatives to raise awareness of the problem of the digital divide, as well as training programmes to teach older people how to use technological tools.

Globally, HelpAge has been able to expand to more than 80 countries, collaborate with national governments and raise awareness of the lack of inclusiveness of older people in all parts of the world. In addition, it has supported 400,000 older people in more than 6,000 associations with training, financial support or agricultural inputs.

Laia Salom's work has demonstrated how a cognitive stimulation cognitive stimulation application helps to improve and preserve memory, orientation, language and improve mood

b. Cognitive stimulation application for the elderly

This case uses the strategy of adaptive design to overcome the barriers that age imposes on older people (cognitive impairment) to help them participate or integrate into society.

The work of a psychology student, Laia Salom, has shown how a cognitive stimulation application for the elderly can help improve and preserve memory, orientation, language and improve their mood (29). The design of this application has been adapted to the technological capabilities of the elderly. It has been awarded a prize by the Colisée Foundation with a financial endowment.

One of the limitations that Laia Salom has detected in her study offers a valuable revelation: there is not enough older people who know how to use the mobile phone in order to test the application. Their conclusion adds further weight to

Managing finances is one of the activities most frequently undertaken by older people

the need for the training strategy discussed in the previous pages.

c. The DEFINE Project

The DEFINE project is also part of the training strategy, but with a slight nuance: training in digital finance. The management of finances is one of the activities most frequently carried out by older people (30). This fact is compounded by the serious problem of cybersecurity today, whose potential victims grow with age. The importance of this project is a result of the two facts mentioned above.

Banco Santander has joined forces with the University of Alicante to create the project, which is co-funded by the European Commission. The main objective of the project is to encourage the participation of senior citizens in the financial markets, reducing the costs of participation by improving their computer literacy and, as a result, their investment possibilities and understanding. This reinforcement of seniors' digital skills helps to limit the number of mistaken transactions and fraud.

The project has already been well received by the public: since 2020, more than 700,000 people have been trained in digital financial literacy.

d. ExpertClick: ICT training for older people in rural areas

ExpertClick is an online or face-to-face training programme for older people, especially in rural areas. It has been created by the Cibervoluntarios Foundation and the AEB Foundation of the Spanish Banking Association (AEB), with the support of the Ministry of Social Rights and the Social Agenda. 2030 (31). Using the training strategy, the aim is to increase the independence and personal autonomy of this audience when communicating, carrying out formalities and participating actively in society, thus improving their self-esteem and promoting active and healthy ageing.

The courses, both face-to-face and digital, have a duration of 6 hours in which they learn how to use the tools to get to know the facilities they offer. For example, they learn how to make video calls, make bank transactions, make medical appointments, shop online or manage their social networks.

The programme has been supported by more than 200 organisations, has held more than 500 workshops and has trained more than 3,000 people. It has also received very favourable feedback from its participants.

The Vincles app aims to connect older people with each, prevent and avoid isolation thanks to technology

e. Mayors Challenge: Vincles BCN

In this case, the project aims to solve the challenge of social participation of senior citizens through a digital application.

Mayors Challenge is a competition with a financial prize to develop a creative and innovative project that solves social and economic problems (32). The winning project in 2014 was a company from Barcelona that created an app called Vincles to connect seniors with each other and avoid isolation thanks to technology (33). The app consists of chats or instant messaging groups to foster social development among older people, thus enabling active ageing and combating isolation.

No data is known on the favourable impact of the project, but there is an intention to extend its geographical range to other cities.

f. EmancipaTIC

EmancipaTIC offers another example of a hybrid strategy between training and technical support for older people. EmancipaTIC is a non-profit organisation focused on the inclusion of older people through access to technology (34).

In addition to offering technological training services for the over 50s, EmancipaTIC proposes to solve legislative and cybersecurity problems. To this end, it offers free legal assistance and senior digital consultancy to facilitate the

EmancipaTIC offers free legal assistance and digital counceling to facilitate the accessibility of digital service by senior citizens

accessibility of digital service providers' products.

This initiative has established partnerships with the National Police, Cabify, Nextdoor and HelpAge International Spain, among others.

g. Orange en Persona and Mi Fijo

Orange presents two projects aimed at the senior public: Orange en Persona and Mi Fijo (35). The first is based on the strategy of training and the second follows the strategy of technical support.

Orange en Persona is a practical training for seniors with the aim of boosting their participation in society. This project focuses on training in digital skills for life and employment. Through personalised classes in Orange shops, the project offers literacy support in the responsible and safe use of ICT. The initiative aims to help bridge the digital divide between generations by learning everyday tasks such as making video calls or searching on Google.

Orange also has another initiative called Mi Fijo which offers elderly people to associate their landline with a mobile phone line so that they do not lose any communication. In this way, Orange manages the configuration and facilitates that the elderly are not left isolated in their homes waiting for a call, but can be contacted while out and about, whether they are called on a landline or mobile phone.

With these projects, they have managed to attract and retain the loyalty of elderly people who did not have these specialised services in other companies.

h. 3S Senior Designs

Finally, 3S Senior Designs is an example of business development based on a strategy of adapting technologies and digital infrastructures to the needs of the elderly.

3S Senior Designs is a design studio specialising in the conception of residences, institutional spaces, urban planning projects and interiors for the elderly (36). The adaptations are varied and depend on the type of project to be executed but can range from a type of flooring that prevents slipping to domotic systems with camera sensors in all rooms of the home in order to have instant assistance if something should happen. 3S Senior Designs' portfolio of projects includes housing for dependent seniors, developments for independent seniors, and medical centres for seniors.

Some of these projects have received recognition, such as the Lomas de los Monteros complex, which has been declared of heritage interest by the Andalusian Regional Government.

3S Senior Designs is a design studio specialized in the conception of spaces for the elderly

Bizkaia
nagusi intelligence center

4. CONCLUSIONS

In this report, the main challenges of usability of digital technologies that concern older people have been raised, and possible strategies and concrete solutions to respond to these challenges have been identified. The purpose of this work was not to provide an exhaustive portrait of the current situation, but rather to offer lines of reflection and action that can help transform this reality. In summary, five conclusions can be drawn based on the challenges, strategies and solutions identified in this work.

The increase in the number of seniors using digital technologies creates new needs for support and accompaniment

1. The first conclusion is that the digital divide between generations is narrowing, and that this narrowing represents both an opportunity and a challenge for companies in the silver economy. The increase in the number of senior users of digital technologies creates new needs for support and accompaniment. While training is important to strengthen the digital skills of seniors, it is not enough: the continuous evolution of technologies requires lifelong learning, which can be facilitated by innovative technical support solutions such as those developed by Orange. Rather than multiplying communication channels, Orange has simplified access to new technologies by offering a single telephone number for fixed and mobile lines, while providing personalised digital literacy classes.

2. This case illustrates the second conclusion of our analysis: developing a concrete strategy to improve the usability of digital technologies for older people requires choosing and combining different approaches. Indeed, the complexity of the usability challenges requires multi-factorial strategies. However, it does not imply that all these challenges have to be addressed at the same time. Therefore, the strategic challenge for technology companies in the silver economy is to select the relevant factors for each type of product or service and to create synergy between these factors. Thus, for example, Banco Santander has prioritised cybersecurity, which is a key condition for digital usability in its sector of activity, but has developed a training strategy to fulfil this purpose. In addition, Laia Salom's study shows that adapting the design of digital applications to the needs of the elderly

Technology usability solutions should not only be made for older people, but also with them

can facilitate learning for this audience. In short, each company must find the most appropriate strategic mix for its own products or services.

3. While there is no universal solution to all the challenges of digital usability in the elderly population, a common thread can be identified among all successful solutions in this area: co-creative innovation methodologies, such as Design Thinking, that incorporates the elderly and future users from the first design phase. It is very important to understand what the barriers of older people are in concrete and operational situations of everyday life, and to redesign the tools to solve them correctly according to their needs. Applying these principles, EmancipaTIC, as well as Vincles BCN or ExpertClick, are based on the participation of older people in the development of solutions adapted for them. The main lesson learned from these experiences is that technological usability solutions should not only be made for older people, but also with them.

4. Moreover, these examples underline that the group of elderly users is diverse, as within this group there are very heterogeneous situations. Therefore, the choice of the profiles of older people to be involved in the design of usability solutions is a critical point in the design phase of the solutions. At the end of this phase, it is also necessary to develop prototypes and test them with as many users as possible in order to fine-tune usability issues. To ensure representativeness of the target population, representatives of the three segments of the target population should be included in the design and testing of digital solutions: active seniors, maintain a physically active life; chronically ill seniors, who require medical care on a regular basis; and dependent seniors, who need assistance in their daily activities. The following table describes the profiles involved in the development of each of the solutions selected in this report.

SOLUTIONS	ACTIVE ELDERS	CHRONICALLY ILL ELDERS	DEPENDENT ELDERS
Orange en persona	☑	☑	☒
Help Age International	☑	☑	☒
DEFINE Project	☑	☑	☒
ExpertClick	☑	☑	☒
Mayors Challenge	☑	☑	☑
Cognitive stimulation app	☒	☑	☑

Improving the usability of digital technologies requires creating ecosystems that facilitate the use of these technologies by all audiences

5. The examples of Vincles BCN and ExpertClick illustrate that the involvement of these users must be organised at the local level, in rural or urban communities where older people live. Improving the usability of digital technologies in these age groups therefore requires the creation of ecosystems that are conducive to the use of these technologies by all types of audiences. Authorities can play a decisive role in the implementation of such ecosystems. Initiatives such as Help Age International or 3S Senior Designs rely on the support of state or regional governments. Therefore, cooperation between the public and private sector seems essential to boost and sustain digital usability solutions for older people.

Bizkaia
nagusi intelligence center

5. BIBLIOGRAPHY

[1] Akinola S. How can we ensure digital inclusion for older adults? World Economic Forum [Internet]; 2021. [Accessed 26 May 2022]. Available in: https://www.weforum.org/agenda/2021/10/how-can-we-ensure-digital-inclusion-for-older-adults/

[2] UIT. Nuevo Índice de Acceso Digital. [Internet]; 2022. [Accessed 28 May 2022]. Available in: https://www.itu.int/itunews/manager/display.asp?lang=es&year=2003&issue=10&ipage=infrastructure&ext=html

[3] INE. Población que usa Internet de manera frecuente (al menos una vez a la semana). [Internet]; 2021. [Accessed 22 May 2022]. Available in: https://www.ine.es/ss/Satellite?L=es_ES&c=INESeccion_C&cid=1259925528559&p=1254735110672&pagename=ProductosYServicios%2FPYSLayout

[4] Mayores UPD. Informe sobre brecha digital. [Internet]; 2021. [Accessed 15 May 2022]. Available in: https://www.mayoresudp.org/wp-content/uploads/2021/07/54461I-SAS01-Baro%CC%81metro-Mayores-2021_I.pdf

[5] Fundación MAPFRE. II Barómetro del Consumidor Sénior. [Internet]; 2021. [Accessed 27 May 2022]. Available in: https://documentacion.fundacionmapfre.org/documentacion/publico/es/media/group/1299.do

[6] Leite A. Envejecimiento en la era digital: estrategias para lograr la inclusión. [Internet]. Reab; 2021. [Accessed 20 May 2022]. Available in: https://www.reab.es/envejecimiento-en-la-era-digital-estrategias-para-la-inclusion-digital-y-el-empoderamiento/

[7] Alcaide JC. Tecnología y ocio digital en las personas mayores. CENIE Centro Internacional sobre el Envejecimiento [Internet]. 2021 [Accessed 26 May 2022]; Available in: https://cenie.eu/es/blogs/silver-economy-una-realidad-abierta/tecnologia-y-ocio-digital-en-las-personas-mayores

[8] Montserrat I, Castillejos Hernández G. Curso-taller para la enseñanza de la tecnología a las personas adultas mayores. Programa de rezago tecnológico. [Internet]; 2020. [Accessed 18 May 2022]. Available in: https://www.researchgate.net/publication/352520187_Curso-taller_para_la_ensenanza_de_la_tecnologia_a_las_personas_adultas_mayores_Programa_de_rezago_tecnologico

[9] Arroyave Zambrano PM, Ocampo Arias J, Sánchez Velásquez SP, Vega AO. Inclusión digital como opción aportante al envejecimiento activo. E-Ciencias de la Información [Internet]. 2020 [Accessed 26 May 2022]; 10 (2): 123-136. Available in: https://www.redalyc.org/journal/4768/476864884006/html/

[10] Kidron E, Yang V. How to close the digital gap for the elderly. [Internet]. World Economic Forum; 2022. [Accessed 22 May 2022]. Available in: https://www.weforum.org/agenda/2021/01/too-old-is-simply-a-myth-tech-companies-narrow-the-digital-gap-for-the-elderly/

[11] Agudo Prado S, Fombona Cadavieco J, Pascual Sevillano M. Magister. La alfabetización digital de las personas mayores en Asturias. [Internet]. 2016 [Accessed 25 May 2022]; 28 (1): 1-6. Available in: https://www.sciencedirect.com/science/article/abs/pii/S0212679616300068

[12] Ley Orgánica 3/2018, de 5 de diciembre, de Protección de Datos Personales y garantía de los derechos digitales. [Internet]. Boletín Oficial del Estado; 2018. [Accessed 19 May 2022]. Available in: https://www.boe.es/eli/es/lo/2018/12/05/3/con

[13] Pessoa C. ¿Por qué es importante la inclusión digital para las personas mayores? [Internet]. Reab; 2022. [Accessed 1 Jun 2022]. Available in: https://www.reab.es/por-que-es-importante-la-inclusion-digital-para-las-personas-mayores/

[14] Edix. La alfabetización digital. [Internet]; 2021. [Accessed 17 May 2022]. Available in: https://www.edix.com/es/instituto/alfabetizacion-digital/

[15] Juárez BF. La alfabetización digital para adultos mayores. [Internet]. Universidad Autónoma de México; 2016. [Accessed 27 May 2022]. Available in: http://132.248.9.195/ptd2016/septiembre/0750603/0750603.pdf

[16] Fontalba A. El poder de una llamada. Gestión Clínica Varela. [Internet]; 2021. [Accessed 27 May 2022]. Available in: http://gestionclinicavarela.blogspot.com/2021/06/el-poder-de-una-llamada.html

[17] Gálvez G. Edadismo y riesgo de darwinismo tecnológico. Gestión Clínica Varela. [Internet]; 2022. [Accessed 27 May 2022]. Available in: http://gestionclinicavarela.blogspot.com/2022/03/edadismo-y-riesgo-de-darwinismo.html

[18] Inzitari M. Salud digital: acerca de desigualdades en los ancianos. [Internet]. Gestión Clínica Varela; 2021. [Accessed 20 May 2022]. Available in: http://gestionclinicavarela.blogspot.com/2021/11/salu-digital-acerca-de-desigualdades-en.html

[19] Blog ruralvía. Cómo ayudar a las personas mayores a utilizar la tecnología. [Internet]; 2020. [Accessed 27 May 2022]. Available in: https://blog.ruralvia.com/como-ayudar-a-las-personas-mayores-a-utilizar-la-tecnologia/

[20] Aranha M, James K, Deasy C, Heavin C. Exploring the barriers and facilitators which influence Health adoption among older adults: A literature review. Gerontechnology [Internet]. 2021 [Accessed 26 May 2022]; 20 (2): 1-16. Available in: https://journal.gerontechnology.org/archives/2e0cb6b8554b4b50a1077f1449c06fe8.pdf

[21] Tyagi P. 4 ways to improve the lives of older people. [Internet]. World Economic Forum; 2021. [Accessed 27 May 2022]. Available in: https://www.weforum.org/agenda/2021/10/healthy-ageing-older-people

[22] Westcott K, Arbanas J, Arkenberg C, Auxier B. Digital media trends, 16th edition: Toward the metaverse. [Internet]. Deloitte; 2022. [Accessed 26 May 2022]. Available in: https://www2.deloitte.com/us/en/insights/industry/technology/digital-media-trends-consumption-habits-survey/summary.html

[23] Diputación Foral de Bizkaia. Las personas mayores y los medios de comunicación en Bizkaia. [Internet]; 2011. [Accessed 23 May 2022]. Available in: https://www.bizkaia.eus/home2/Archivos/DPTO3/Temas/Pdf/medios_WEB_ca.pdf?hash=52f94f76a7c547c-3b21a88aa0e6177c9

[24] Cedeño MAM, Barreiro LMÁ. Conectividad en tiempos de pandemia en el adulto mayor Centro Gerontológico Santa Gema de Galgani. Socialium [Internet] 2021 [Accessed 27 May 2022]; 5 (2): 266-281. Available in: https://doi.org/10.26490/uncp.sl.2021.5.2.929

[25] Gobierno de España. España Digital 2025. [Internet]; 2020. [Accessed 29 May 2022]. Available in: https://www.lamoncloa.gob.es/presidente/actividades/Documents/2020/230720-Espa%C3%B1aDigital_2025.pdf

[26] World Health Organization (WHO). Decade of healthy ageing 2020-2030. [Internet]; 2019. [Accessed 18 May 2022]. Available in: https://cdn.who.int/media/docs/default-source/decade-of-healthy-ageing/final-decade-proposal/decade-proposal-final-apr2020-en.pdf?sfvrsn=b4b75ebc_25&download=true

[27] Help Age International. Annual report. [Internet]; 20201. [Accessed 22 May 2022]. Available in: https://www.helpage.org/who-we-are/annualreport/

[28] *Help Age España. Help Age España. [Internet]; 2022. [Accessed 25 May 2022]. Available in: https://www.helpage.es/helpage-espana/*

[29] *Geriatricarea. Un estudio sobre una app de estimulación cognitiva para mayores premiada por la Fundación Colisée. [Internet]; 2022. [Accessed 17 May 2022]. Available in: https://www.geriatricarea.com/2022/05/26/un-estudio-sobre-una-app-de-estimulacion-cognitiva-para-mayores-premiada-por-la-fundacion-colisee/*

[30] *Banco Santander. Santander se suma al proyecto DEFINE con la Universidad de Alicante para la educación en finanzas digitales de los mayores de 60 años [Internet]; 2021. [Accessed 26 May 2022]. Available in: https://www.santander.com/es/sala-de-comunicacion/notas-de-prensa/2021/10/santander-se-suma-al-proyecto-define-con-la-universidad-de-alicante-para-la-educacion-en-finanzas-digitales-de-los-mayores-de-60-anos*

[31] *Expertclick. Ejemplo de programa en activo para enseñar. [Internet]; 2022. [Accessed 20 May 2022]. Available in: https://expertclick.org/#project*

[32] *Bloomberg. Mayors Challenge. [Internet]; 2022. [Accessed el 27 May 2022]. Available in: https://www.bloomberg.org/government-innovation/spurring-innovation-in-cities/mayors-challenge/*

[33] *Johns Hopkins University. In Barcelona, an app with a personal touch keeps seniors connected. [Internet]; 2022. [Accessed 23 May 2022]. Available in: https://bloombergcities.jhu.edu/news/barcelona-app-personal-touch-keeps-seniors-connected*

[34] *EmancipaTIC. Conócenos. [Internet]; 2022. [Accessed 30 May 2022]. Available in: https://www.emancipatic.org/*

[35] Montoto Sánchez M. Orange ofrece acompañamiento y formación digital a los mayores en sus tiendas. [Internet]. NOBBOT; 2022. [Accessed 27 May 2022]. Available in: https://www.nobbot.com/personas/personas-mayores-orange-formacion/

[36] 3S Senior Designs. Proyectos Senior Living. [Internet]; 2022. [Accessed 29 May 2022]. Available in: https://3sspain.com/proyectos/senior-living/



NIC: Nagusi Intelligence Center
Aita Gotzon Street, 37, Floor 3 and 4
48610 Urdúliz Bizkaia
NIC@bizkaia.eus