e-Protect project

Consumer and data protection skills for the elderly

IO1.A1 Desk research

Cyprus

Partnership

CARDET	CARDET	www.cardet.org
INNOVADE	INNOVADE LI	www.innovade.eu
The Rural Hub	The Rural Hub	www.theruralhub.ie
KMOP	KMOP	www.kmop.gr
eSeniors	eSeniors	www.eseniors.eu
SVEB FSEA	SVEB	www.alice.ch

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The profile of the elder society[1]

In Cyprus, the older society, aged 65+, is a population group of particular interest because of its unique characteristics. In 1974, Cyprus was violently divided into two communities (Greek-Cypriot and Turkish-Cypriot) after several conflicts during the previous years (e.g., in 1963). That catalytic event forced many people from both societies to leave their homes and move to safer locations. Specifically, Turkish-Cypriots relocated to the northern part of the island, even under illegal Turkish occupation. Similarly, Greek Cypriots were displaced from that area and moved to the southern part of the island. The southern 58% is controlled by the Republic of Cyprus, as declared by the Cyprus Constitution of 1960 (Central Intelligence Agency, 2020).

Therefore, these conditions had unfavorable consequences for the young generation at that time, while they unexpectedly lost their properties, fortunes, and belongings, as well as their trust, peace, and hope. Many needed to start a new life in new environments without the basics, and others needed to overcome the psychological calamity of war. These experiences marked the lives of the Cypriot elder society, and those scars are still present and visible. However, with the societal and economic developments of the country in the years that followed 1974, as well as several targeted government efforts to support the most affected population, society has recovered, at least financially to a large extent.

Today, Cyprus is considered a developed country with an open and dynamic economy. Since 2004, the Republic of Cyprus has been a full member of the European Union, and it entered
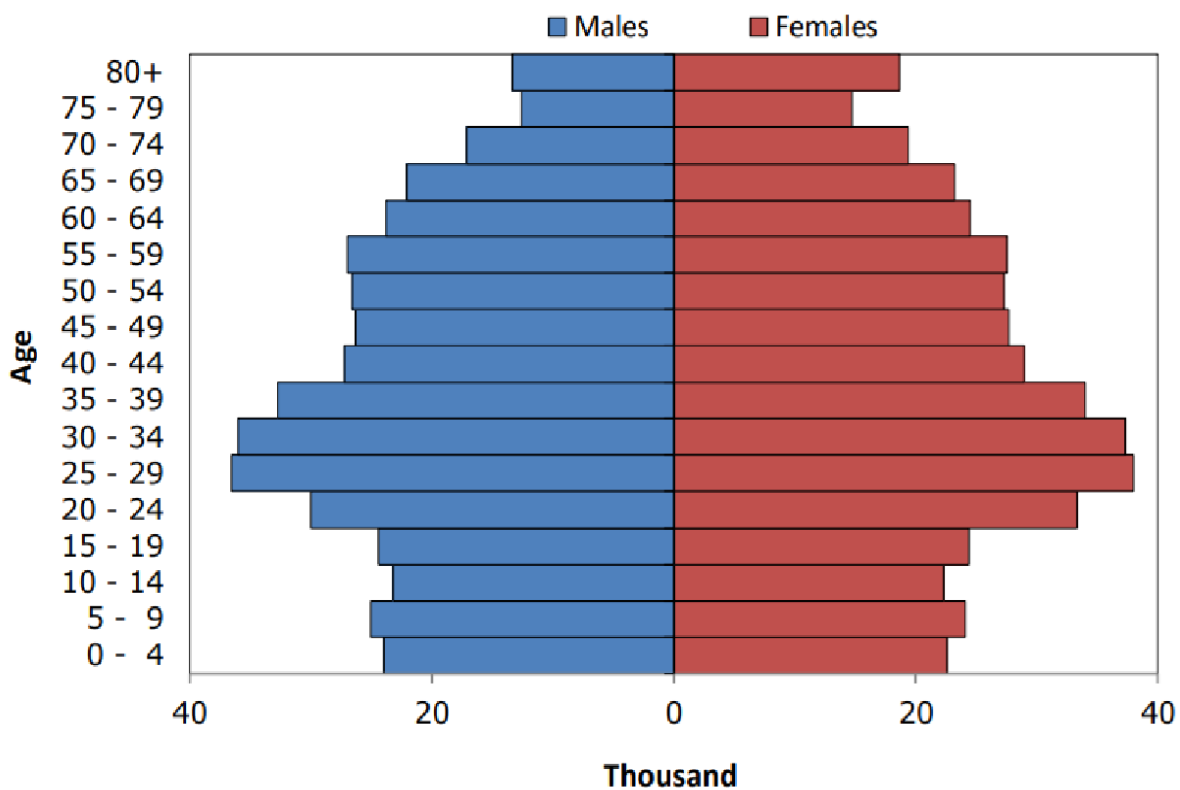

Figure 1. Population by age and sex in 2018 (Statistical Service, 2019)

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[1] All data and figures do not include illegal settlers from Turkey.

the Eurozone in 2008 when the Euro was adopted as the official currency. According to the National Statistical Service (2019), the population of the Government-controlled area for 2018 was estimated at 875,900. In addition, the Turkish Cypriot community, which is not included in the above data, is estimated to comprise another 91,800 people. The current age pyramid in Cyprus is shown in *figure 1*. There is a particularly appreciable ageing trend during the last decades, as the proportion of children below 15 years old decreases, while the percentage of people over 65 years old increases gradually. Today, the median age in Cyprus is 37.9 years old (Eurydice, 2019). The percentage of people aged 65 years old and above reached 16.1% of the total population in 2019. This corresponds to 155,800 citizens that comprise the elder society of the country. In 2000, this percentage was at 11.3% (National Statistical Service, 2019). The over 65 population has increased by 3.6% in Cyprus in the last decade (2009-2020).

A relatively low percentage of the elderly live alone in Cyprus (17.6%), compared to the EU average of 32.1% (Eurostat, 2016). This means that most of them continue living with their families (or family members) or have a personal carer. According to the same data source, one in ten (10.4%) remains economically active after retirement, a percentage that is slightly above the EU average, and four out of ten (42.8%) maintain leisure activities by travelling.

	Cyprus		EU-27	
People over 65 years old (% of the total population)	**2009**	2019	2009	2019
	12.5	16.1	17.4	20.3
Increase in the share of the population aged 65 years or over between 2009 and 2019	3.6%		2.9%	
Additional years expected to live at the age of 65 (In years) *	**2009**	2019	2009	2019
	18.4	20.8	17.9	21.2
Share of the elderly living alone*	17.6%		32.1%	
Share of the elderly aged 65 to 74 years economically active*	10.4%		9.5%	
Share of the elderly who travel*	42.8%		48.8%	
*Data for 2016 (Eurostat, 2016)				

Table 1. General information for the elderly in Cyprus

The use of the internet and digital devices among the elderly

Internet users, digital devices and households with internet

The elder society in Cyprus is generally less familiar to the internet and digital devices compared to other European countries. As shown in T*able 2*, according to Eurostat (2021a) the percentage of elderly (65 to 74 years old) in Cyprus who make regular use of the internet (i.e., who use the internet at least once a week) is constantly below the EU-28 average. This indicates a lower engagement to online activities, which probably implies low levels of digital competence and awareness of consumer and data protection practices among their community. However, elderly Cypriot internet users are increasing at a higher rate than the EU-28 average, which makes this gap smaller every year. Therefore, there are indications that online activities are vastly becoming more popular in Cyprus. From 2016 to 2020, the corresponding percentage has doubled, showing that 57% of elderly Cypriots use the internet more frequently today. Furthermore, the number of households with internet connection in Cyprus has also increased by 18% during the corresponding period, reaching coverage of 92% of the total households (Eurostat, 2021b). Therefore, within the next few years, it is expected that almost all people will have access to the internet, making the need for digital competence in all age groups more urgent.

	2016	2017	2018	2019	2020
Percentage of individuals (65 to 74 years old) who used internet in the last 3 months					
Cyprus	26%	34%	38%	44%	57%
EU-28	45%	48%	52%	57%	n/a
Percentage of households with internet connection (broadband)					
Cyprus	74%	79%	83%	84%	92%
EU-28	83%	85%	86%	89%	n/a

Table 2. Elderly who uses the internet and households with internet connection (Eurostat, 2021a, 2021b)

Additionally, it is expected that recent governmental reforms will have an important impact, further increasing the number of elderly users and how frequently they use the internet. For example, the General Healthcare System (GHS), effective since 2019, has transferred a lot of its activities online, including registrations, booking appointments with doctors, communication, payments etc. In addition, the current pandemic (COVID-19) has forced many public agencies and banks to move their services online, a fact that is expected to increase the demand for digitalization for all, including the elderly.

During the period between 2016-2018 for which data are available, one can also observe a large increase in the elderly who use the internet through their mobile devices, at least occasionally (i.e., in the last 3 months). In particular, in Cyprus this percentage has doubled within these two years, reaching 32%, almost equal to the EU-28 average (34%). On the other hand, those who accessed the internet through different devices (desktop, laptop or tablet), either in Cyprus or Europe, have not significantly increased (Eurostat, 2021c). This

demonstrates that the target group of this project recognizes the possibilities that exist online but finds it more convenient to access the internet through their mobile phones.

		Cyprus		EU-28	
Share of the elderly who used the internet on a **mobile phone or smartphone** in the last 3 months*	2016	2018	2016	2018	
	16%	32%	23%	34%	
Share of the elderly who used the internet on a **desktop computer or laptop or tablet** in the last 3 months*	2016	2018	2016	2018	
	26%	29%	47%	51%	
*Individuals from 65 to 74 years old					

Table 3. Use of digital devices among the elderly (Eurostat, 2021c)

Reasons for using internet and online purchases

An overview of the main reasons Cypriot elderly use the internet is presented in *figure 2* (Eurostat, 2021d). This information is presented using the percentage of elderly who have used the internet during the last five years. Today, the most popular reasons are for communication through telephoning or video calls with others (43%) and for reading online news sites/newspapers/news magazines (40%). However, the main reasons for the average of the other European countries are sending/receiving e-mails (47%) and finding information about goods and services (43%). The Cypriot elderly use the internet to search for information about goods and services often (37%) and watch video content from commercial or sharing services (33%). Less popular reasons are for sending/receiving e-mails (20%), for travel and accommodation services (18%), internet banking (15%) and listening to music (15%).

As expected, internet purchases are not a habit among the elderly in all European countries, with even less activity in Cyprus (*figures 3 and 4*). Among Cypriots between the ages of 55-74 who used the internet before, 72.3% have never placed any order for goods and services online for private use (Statistical Service, 2020). According to Eurostat (2021e), the most popular reason for online purchases was for travel and holiday accommodation both in Cyprus (6%) and EU-28 (17%). However, this is represented by a deficient percentage of the target population. Even fewer elderly used the internet to buy clothes and sports goods (4%), books/magazines/newspapers/e-learning material (3%), electronic equipment (3%), household goods (2%), tickets for events (1%) or food/groceries (0%). The percentages in all internet purchase categories mentioned above remain stable from 2016.
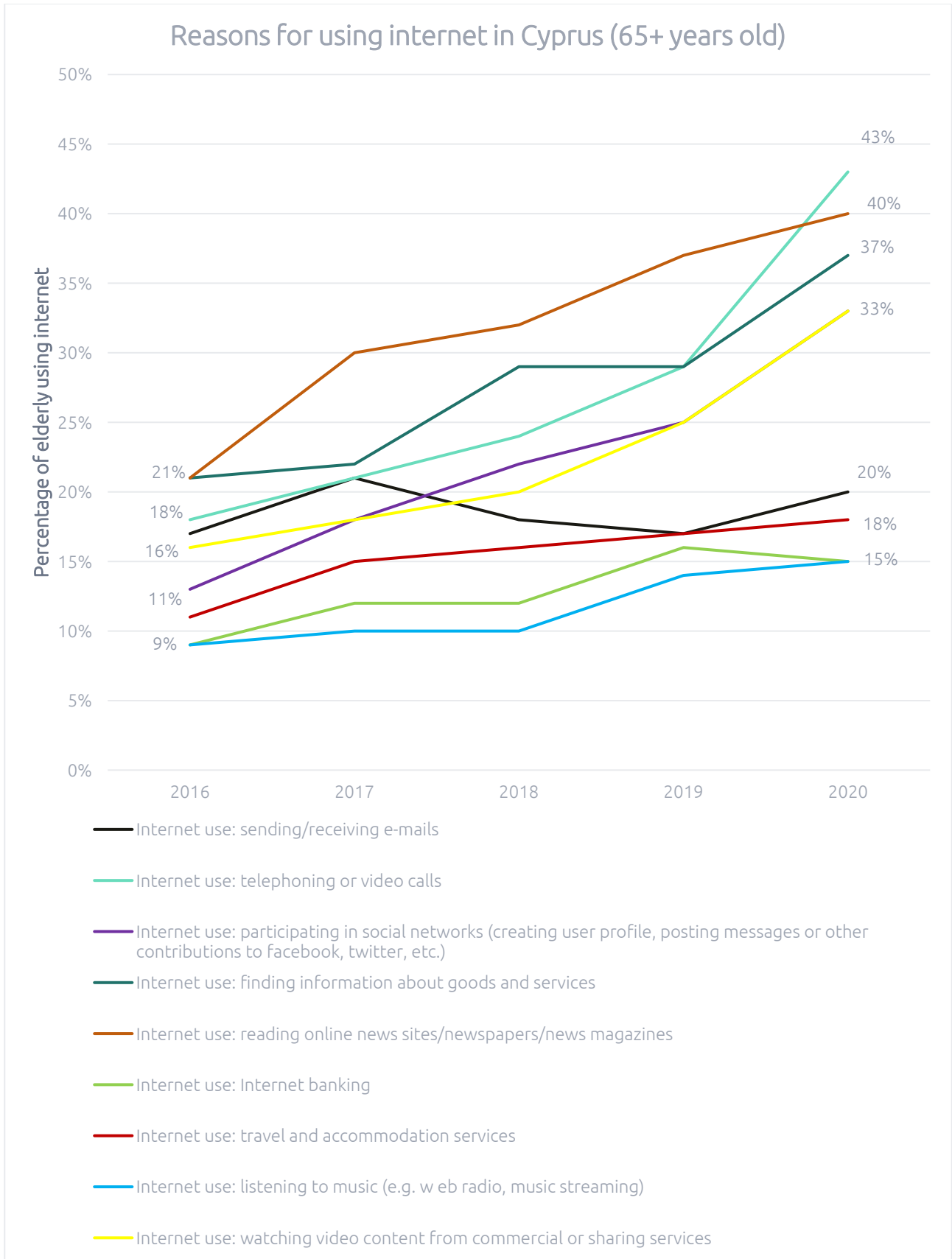
Figure 2. Reasons for using internet in Cyprus (65+ years old) (Eurostat, 2021d)
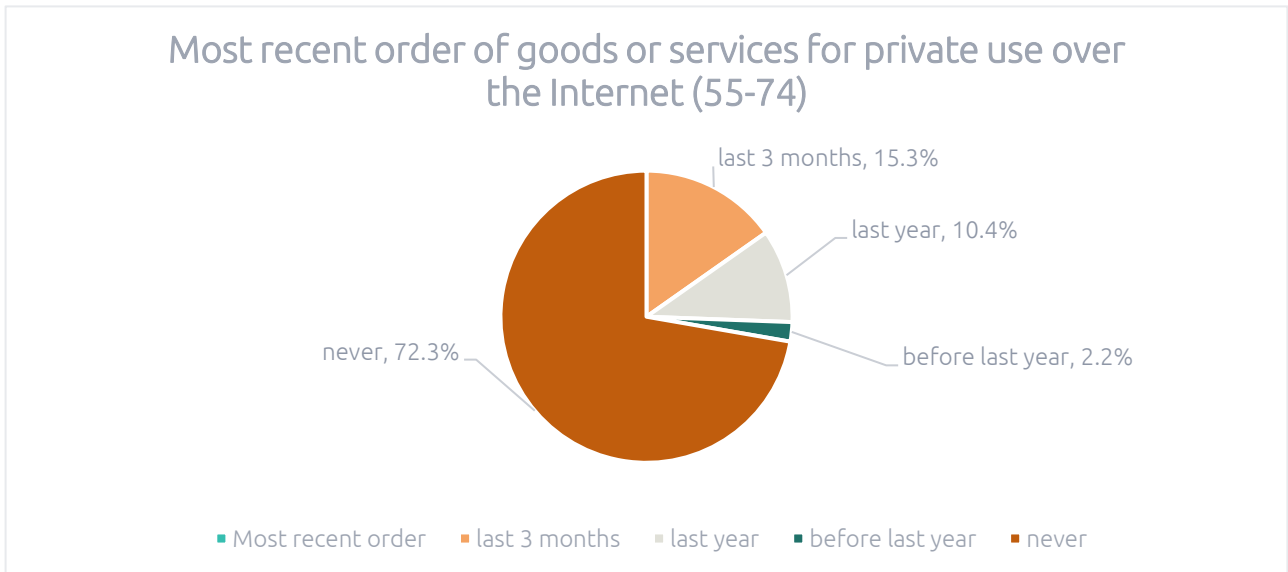
Most recent order of goods or services for private use over the Internet (55-74)

last 3 months, 15.3%

last year, 10.4%

before last year, 2.2%

never, 72.3%

■ Most recent order　■ last 3 months　■ last year　■ before last year　■ never

Figure 3. Most recent order of goods or services for private use over the Internet in Cyprus (55-74 years old) (Statistical Service, 2020)

Internet purchases among elderly in 2019

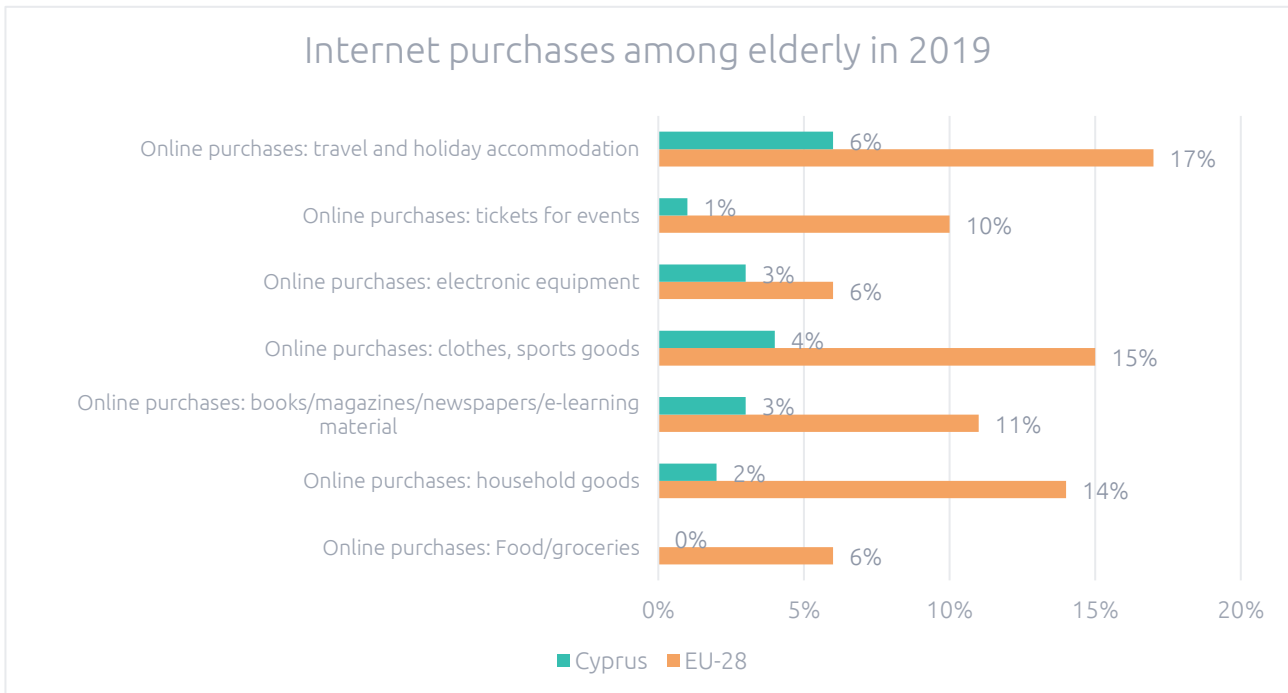| Category	Cyprus	EU-28
Online purchases: travel and holiday accommodation	6%	17%
Online purchases: tickets for events	1%	10%
Online purchases: electronic equipment	3%	6%
Online purchases: clothes, sports goods	4%	15%
Online purchases: books/magazines/newspapers/e-learning material	3%	11%
Online purchases: household goods	2%	14%
Online purchases: Food/groceries	0%	6%

■ Cyprus　■ EU-28

Figure 4. Internet purchases among elderly n Cyprus and EU-28 in 2019 (Eurostat, 2021e)

The Statistical Service of Cyprus gives a more detailed picture of the online commercial activity of the elderly (see *figure 5*). Among the individuals (55-74 years old) who ordered goods or services the last three months (15.3%), the large majority did it to buy clothes, shoes or accessories (47.4%), for deliveries or pick up from restaurants, fast-food chains, catering services (34.9%) and electronics (computers, tablets, mobile phones or accessories, TV-sets, stereos, cameras or household appliances e.g., washing machines; 30%). They also preferred using the internet to order cosmetics, beauty or wellness products (27.7%) and

furniture, home accessories (e.g., carpets or curtains) or gardening products (e.g., tools, plants; 21.9%).

Types of goods and services ordered over the Internet for private use

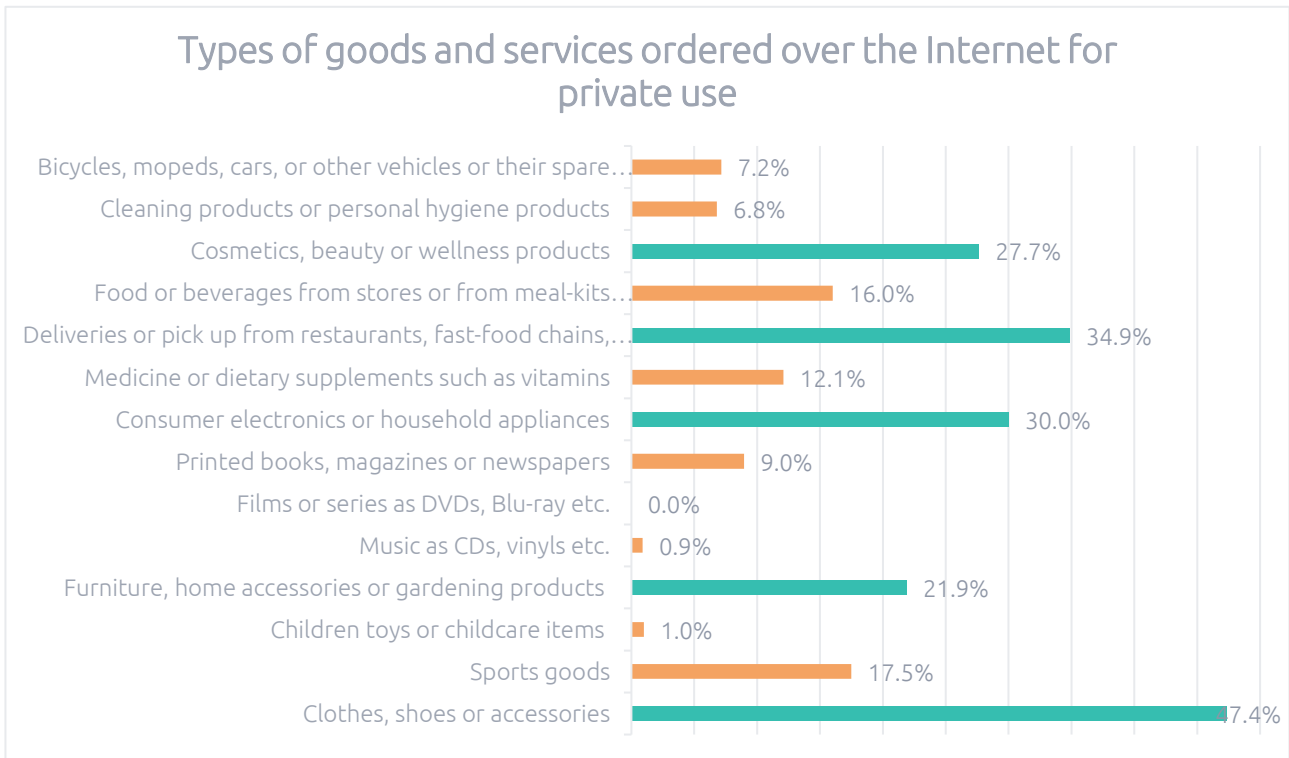| Category	Percentage
Bicycles, mopeds, cars, or other vehicles or their spare…	7.2%
Cleaning products or personal hygiene products	6.8%
Cosmetics, beauty or wellness products	27.7%
Food or beverages from stores or from meal-kits…	16.0%
Deliveries or pick up from restaurants, fast-food chains,…	34.9%
Medicine or dietary supplements such as vitamins	12.1%
Consumer electronics or household appliances	30.0%
Printed books, magazines or newspapers	9.0%
Films or series as DVDs, Blu-ray etc.	0.0%
Music as CDs, vinyls etc.	0.9%
Furniture, home accessories or gardening products	21.9%
Children toys or childcare items	1.0%
Sports goods	17.5%
Clothes, shoes or accessories	7.4%

Figure 5. Types of goods and services ordered over the Internet for private use (55-74 years old, % on individuals who ordered goods or services in the first quarter of 2020) (Statistical Service, 2020)

The elderly who used the internet to buy or order goods and services for private use during the first quarter of 2020 (15.3%) are moderate customers, as shown in *figure 6* below. Most of them conducted online activities for these purposes, only 3-5 or 1-2 times in the past (Statistical Service, 2020).

From the same share of people (i.e., who used the internet to buy or order goods and services for private use during the first quarter of 2020; 15.3%), the majority made purchases of around €100-300. However, the existence of elderly who spend much more should not be ignored (*Figure 7*).

Frequency of orders or purchases of goods or services over the Internet for private use

1 - 2 times, 32.0%   3 - 5 times, 43.6%   6 - 10 times, 18.5%   More than 10 times, 5.9%

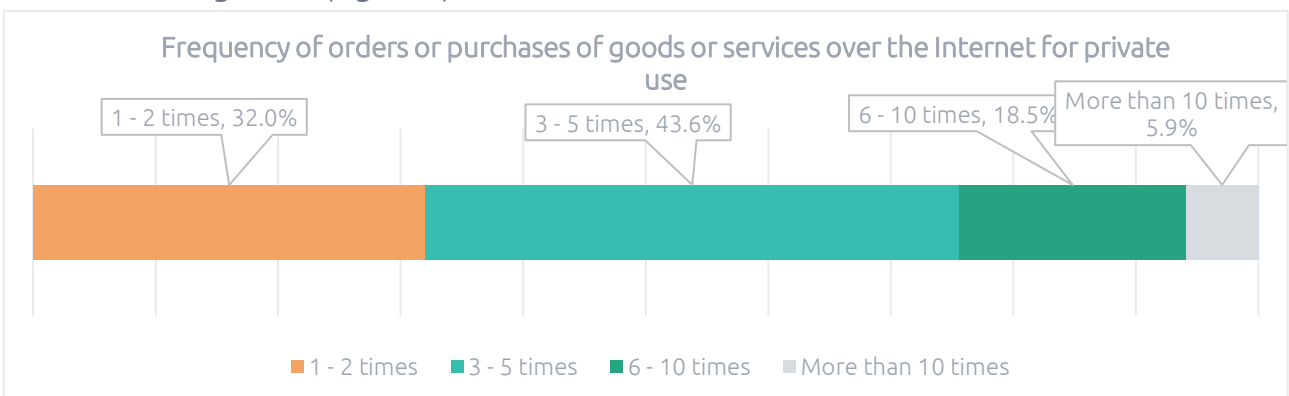■ 1 - 2 times ■ 3 - 5 times ■ 6 - 10 times More than 10 times

Figure 6. Frequency of orders or purchases of goods or services over the Internet for private use in the first quarter of 2020 (55-74 years old, % on individuals who ordered goods or services during the first quarter of 2020) (Statistical Service, 2020)
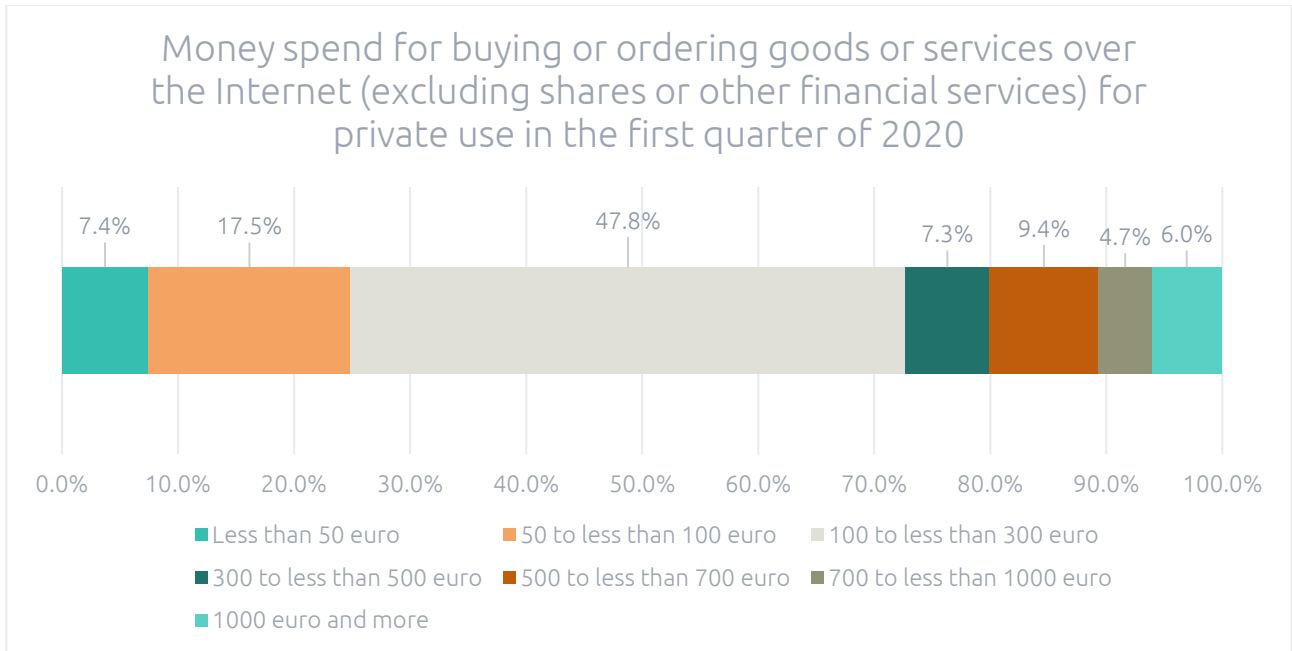
Figure 7. Money spent buying or ordering goods or services over the Internet (excluding shares or other financial services) for private use in the first quarter of 2020 (% on individuals who ordered goods or services during the first quarter of 2020) (Statistical Service, 2020)

Reasons for not using the internet

The main reasons for not using mobile internet among the elderly in Cyprus is because they do not feel the need to use it away from home (86%). However, the other important reason relates to the lack of competence in using mobile internet because they think it is too complicated (40%). Those two reasons were also the main barriers for other European countries (*figure 8*; Eurostat, 2021f). However, the below data are from 2012 and more recent data are not available.
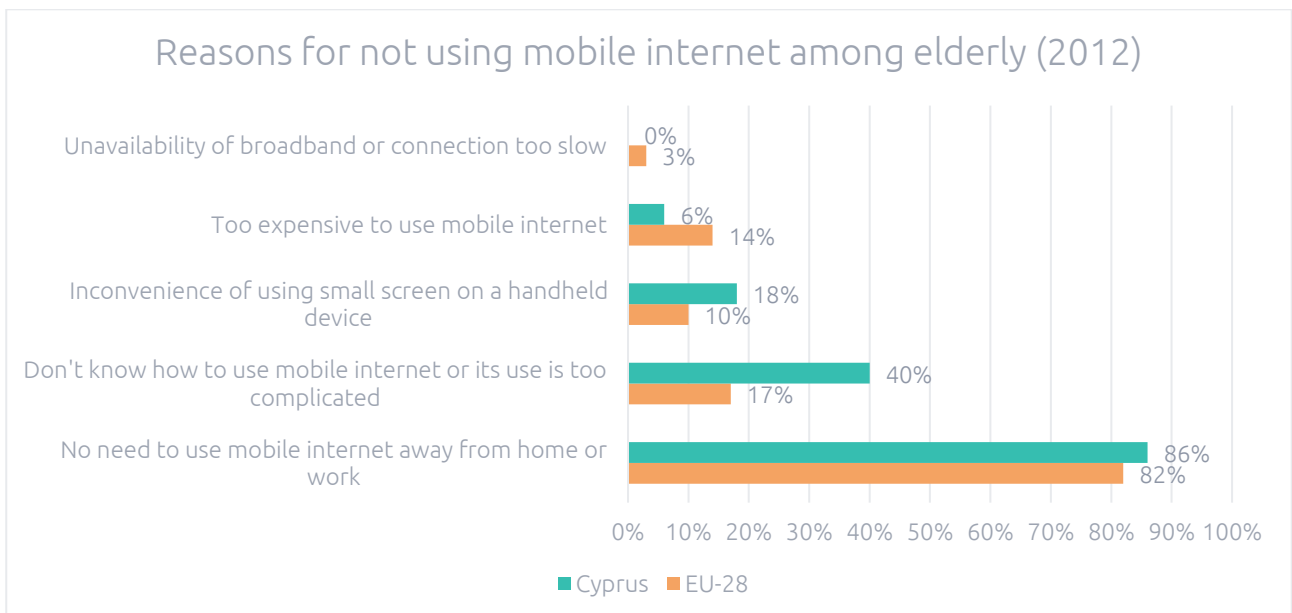

Figure 8. Reasons for not using mobile internet among elderly in 2012 (Eurostat, 2021f)

Common threats and problems in using the internet

Internet users who go online and/or make online purchases are faced with several threats regarding the protection of their personal data and other psychological threats. However, this is not always clear to older individuals. For example, as shown in *table 4*, the most senior age group (55-74 years old) in Cyprus is less aware and careful in all protection activities presented. Meanwhile, the same age group is more concerned, indicating high levels of suspiciousness and/or lower competence in these activities (Statistical Service, 2020). Further data on cybersecurity threats (e.g., hacking, scamming, frauds) and measures are not available.

	Age group		
	16-24	25-54	55-74
Did you know that cookies can be used to trace movements of people on the internet, to make a profile of each user and service them tailored ads?	88.5%	76.7%	44.7%
Have you changed the settings in your internet browser to prevent or limit cookies on any of your devices?	12.2%	10.1%	4.5%
Have you ever refused allowing the use of personal data for advertising purposes?	77%	67.5%	49.4%
Have you ever checked that the website where you provided personal data was secure (e.g., https sites, safety logo or certificate)?	29.8%	25.1%	11.8%
Have you ever read privacy policy statements before providing personal data?	56.3%	59.2%	44.4%
How concerned are you of online activities being recorded to provide with tailored advertising? (% of individuals answered "very concerned")	13.6%	20.3%	24.8%

Table 4. Privacy and protection of personal data in 2020 in Cyprus (percentage of individuals who used the internet in the first quarter of 2020 by age group) (Statistical Service, 2020)

Compared to the EU-28 average, Cypriot elders tend to share personal information over the internet less (*table 5*; Eurostat, 2021g). This relates to different types of personal information such as details (e.g., age, address), contact details (e.g., phone numbers, emails), or payment details (e.g., card number). However, further investigation is needed to explore the reasons that drive them to these decisions and identify whether knowledge and skills development of internet safety could make them more open to providing personal information, if needed. Considering the data presented in previous sections, Cypriot elderly lack familiarity, awareness and competence with relevant issues.
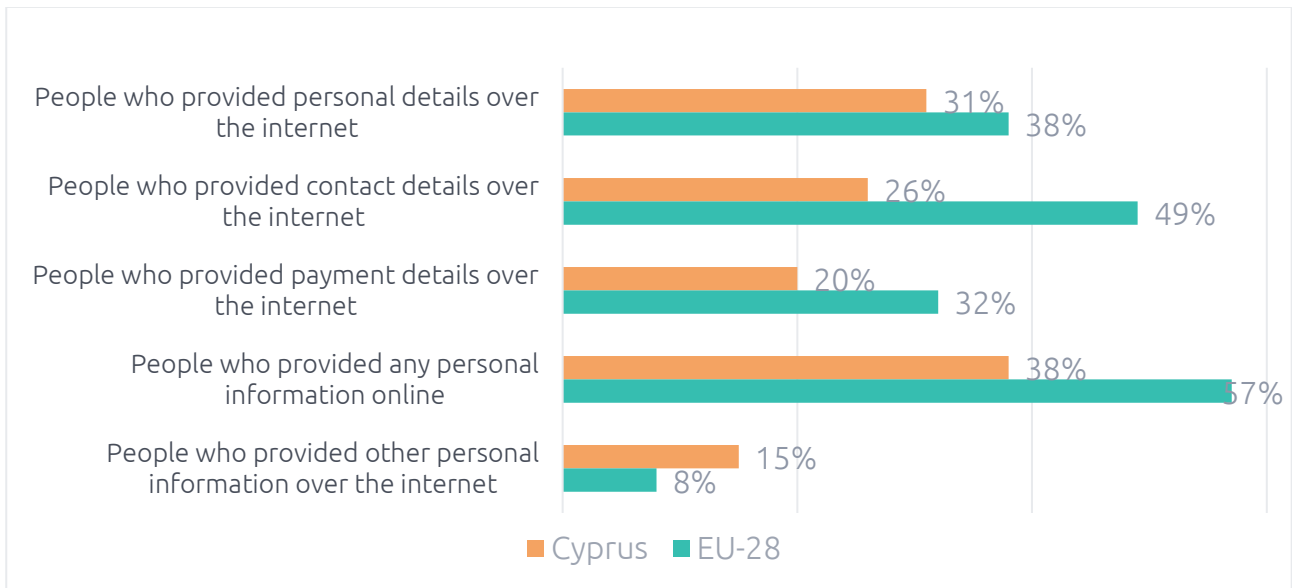
Figure 9. Privacy and protection of personal information in 2016 (percentage of individuals who used the internet last year, 65 to 74 years old) (Eurostat, 2021g)

Another indication that the elderly in Cyprus might be less educated on trust, security and privacy issues than the younger population is the use of identification procedures for online services (e.g., social media accounts, online banking, public services, ordering or buying goods or services online). As shown in *table 5* below, a consistently lower percentage of elderly use such procedures during their online activities.

	Age group		
	16-24	25-54	55-74
Simple login with username and password	88.4%	85.5%	**66.6%**
Social media login used for other services	33.3%	33.3%	**27.6%**
Procedure involving your mobile phone (a code received via a message)	28.7%	34.5%	**14.5%**

Table 5. Use of identification procedures for online services for private purposes. (% on individuals who used the Internet in the first quarter of 2020) (Statistical Service, 2020)

Current strategies, policies and programmes for providing relevant education and training

National strategies and synergies in the internet safety

The dangers of cyberspace are vast and creating a cybersecurity culture is one of the thematic areas of the Cybersecurity Strategy of the Republic of Cyprus, which is currently being reviewed. However, this strategy is directly targeting children, educators, and parents, intending to help children make better use of the internet and develop children's horizontal skills (Digital Security Authority, 2021; Υφυπουργείο Έρευνας, Καινοτομίας και Ψηφιακής Πολιτικής, 2020).

To increase awareness and provide easier access to resources on internet safety, a website has been created where people can access documents and audio-visual material to find out how they can navigate the internet more safely. The website also includes regulations and strategies on cybersecurity, events, videos, a free line for help and complaints, and any other relevant news (Cyprus Pedagogical Institute, 2021).

Data protection policies

In line with EU regulations, in 2018, Cyprus published a law that protects natural persons regarding processing their data and the free movement of those data. The Commissioner for Personal Data Protection is an independent and public body that monitors the implementation of GDPR and other relevant laws and offers relevant information to the public and data controllers. It provides information regarding laws, guidelines, and data breaches among other things, and it is also a representative of the Republic of Cyprus at various EU Committees (Commissioner for Personal Data Protection, 2021).

Best practices and good examples

A good example of actions taken to ensure internet security in Cyprus is the CyberSecurity Project. CyberSecurity offers information about internet safety, a helpline for questions, and a hotline where people can report issues.

ProADAS is another European project which aims to enhance the digital competences and skills of the elderly, by offering educational practices and learning materials to professionals working with them.

CSICY is a recent project co-funded by the European Commission that proposes the design and development of an inclusive, interactive, and user-friendly digital platform to equip and improve digital health literacy for the elderly European population (over 50 years old).

Challenges on addressing the gaps

Challenges and main areas with difficulties

Taking into consideration the results presented in previous sections, it is obvious that the elderly society in Cyprus is not modernized enough in using digital technologies and accessing the internet, in comparison to other EU countries. There is a need to further explore the reasons why they appear cautious and also explore ways to engage them with these technologies safely. Although there is no need to force them to use the internet, they might identify opportunities and convenient solutions to make their lives easier.

Moreover, the Cypriot elderly appear more traditional in their consumer habits as shown by their tendency to avoid online purchases. However, with the recent situation due to COVID-19 they could probably consider alternative and more modern services that exist online. At the same time, considering their low levels of digital competence any training in these domains should be placed critically, informing them about all possible risks.

Another significant finding is the growing number of elderly that possess smart mobile devices every year. This makes the internet and its services very accessible, however it implies several risks. The elderly need to be well informed about the threats that exist regarding the exposure of their personal information, as well as financial frauds.

Critique of the effectiveness of existing programmes

The strategies and actions proposed to address the dangers of the unsafe use of digital technologies mostly target the public in general and a few of them are specific to certain population segments, such as children. The digitalization of the elder society in Cyprus has not previously received any particular attention. Any governmental efforts to address the technological advances, either in terms of infrastructures or in terms of human resources for productivity and growth, do not directly address the target group of the e-protect project.

Identified gaps in consumer and data protection skills

Apart from the low share of elders that are familiar with online purchases (15.3% in 2020), many of them still appear suspicious and cautious. They rarely share personal information and payment details online, which is not a problem per se, but they might need further training to evaluate online sources and make responsible choices.

Skills validation systems and processes

National Qualification Framework (NQF)

The National Qualification Framework (NQF) of Cyprus, also referred to as CyQF, includes digital skills among its key competences (Ministry of Education and Culture, 2017). However, the implementation of the NQF of Cyprus is still at an early stage, and a competency-based system of vocational qualifications is a future goal (Cedefop, 2019). The current state of the CyQF Framework is presented in the table below.

NQF LEVELS	Educational/Academic Qualifications		Occupational/Vocational Qualifications	EQF Levels
8	DOCTORAL DEGREE			8
7c	MASTER'S DEGREE			7
7b	POST GRADUATE DIPLOMA			
7a	POST GRADUATE CERTIFICATES			
6	UNIVERSITY DEGREE (PTYCHION/BACHELOR'S DEGREE)		SVQ Level 6	6
5c	HIGHER CERTIFICATES AND DIPLOMAS (3 years or more)		SVQ Level 5	5
5b	POST SECONDARY CERTIFICATES AND DIPLOMAS (2 years)			
5a	POST SECONDARY CERTIFICATES AND DIPLOMAS (1 year)			
4	UPPER SECONDARY GENERAL EDUCATION AND EVENING SCHOOLS CERTIFICATES (12th Class- or 12&13th for some private schools)-APOLYTERION	UPPER SECONDARY TECHNICAL AND VOCATIONAL EDUCATION AND EVENING TECHNICAL SCHOOLS CERTIFICATES (12th Class)-APOLYTERION	SVQ Level 4	4
3	LOWER SECONDARY EDUCATION CERTIFICATE 10th Class	NEW MODERN APPRENTICESHIP CERTICATE	SVQ Level 3	3
2	COMPULSORY LOWER SECONDARY EDUCATION CERTIFICATE 9th Class	PREPARATORY PROGRAMME (NEW MODERN APPRENTICESHIP)		2
1	COMPULSORY EDUCATION CERTIFICATE (Elementary School Leaving Certificate, and/or graduates of 7th and /or 8th Class)			1

Table 6. The Cyprus Qualifications Framework (CyQF) (Ministry of Education and Culture, 2017)
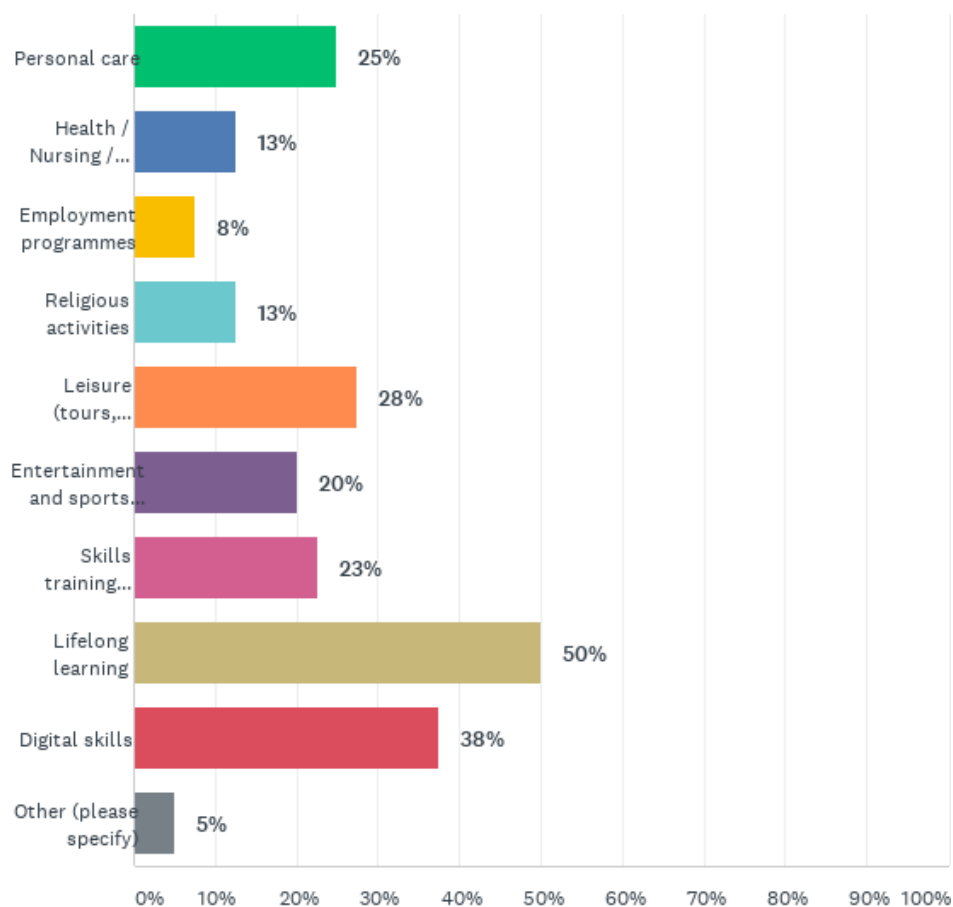
Field research

Questionnaire (Quantitative data)

Partners from Cyprus (CARDET and INNOVADE) distributed a questionnaire to **40 adult trainers and educators** around the country who work directly with people over 65 years old. The purpose of the questionnaire was two-fold. On the one hand, it attempted to identify the training needs and challenges that the elderly people face when it comes to training and education using digital means as they are perceived from their educators. On the other hand, through the questionnaire another attempt was to identify the competences and practices of adult educators with clear and regular enough statements on how to guide educational action. The national results are presented below.
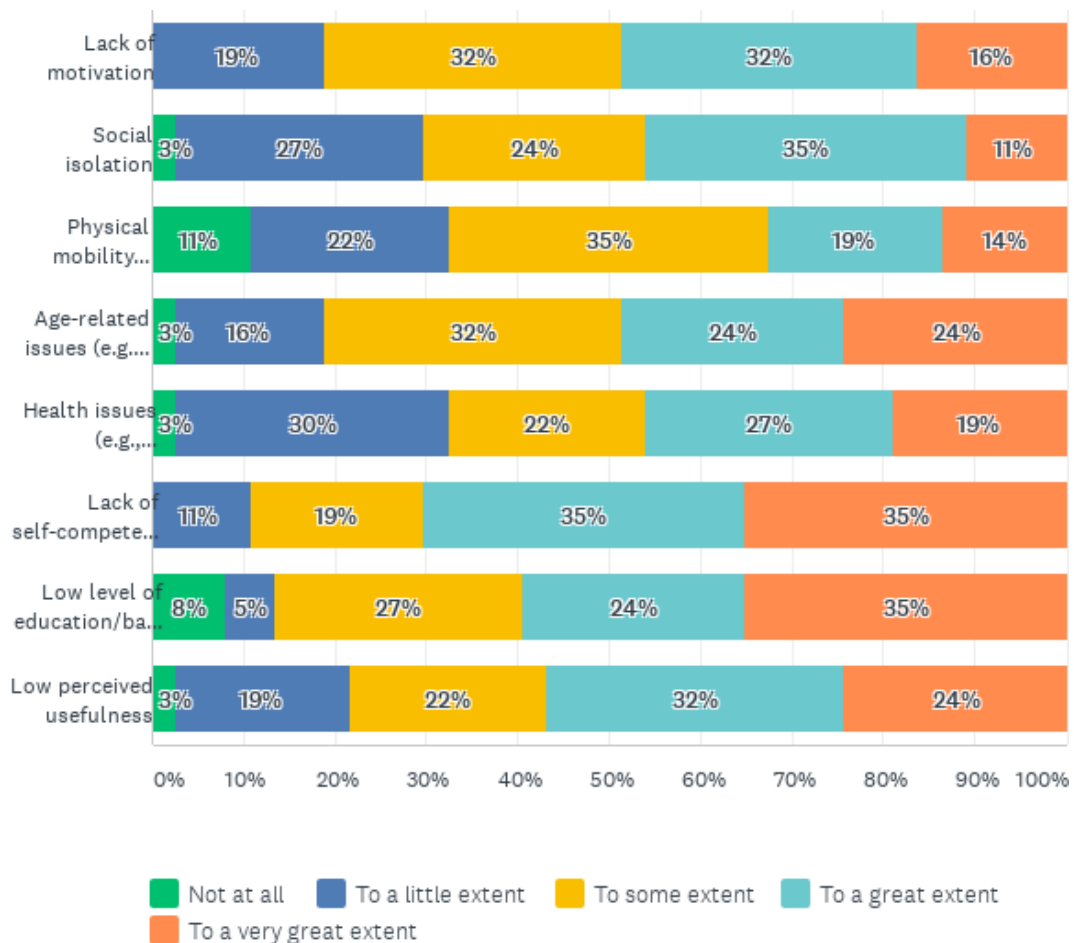
First, as shown in Chart 1, respondents come from numerous sectors offering a variety of training and services to the elderly. They were also able to select more than one kind of training. The majority are practitioners in lifelong learning development (50%) and another large share offer digital skills training (38%), which is very relevant to the thematic area of the project. Other popular categories of education and services offered by the sample are leisure activities (tours, travels, events), personal care, skills training (e.g., music, art, crafts, sewing etc.), and entertainment (sports, theatre, dance, yoga, etc.).

Chart 1. What kind of education/training do you offer to the elderly? (select all that apply)
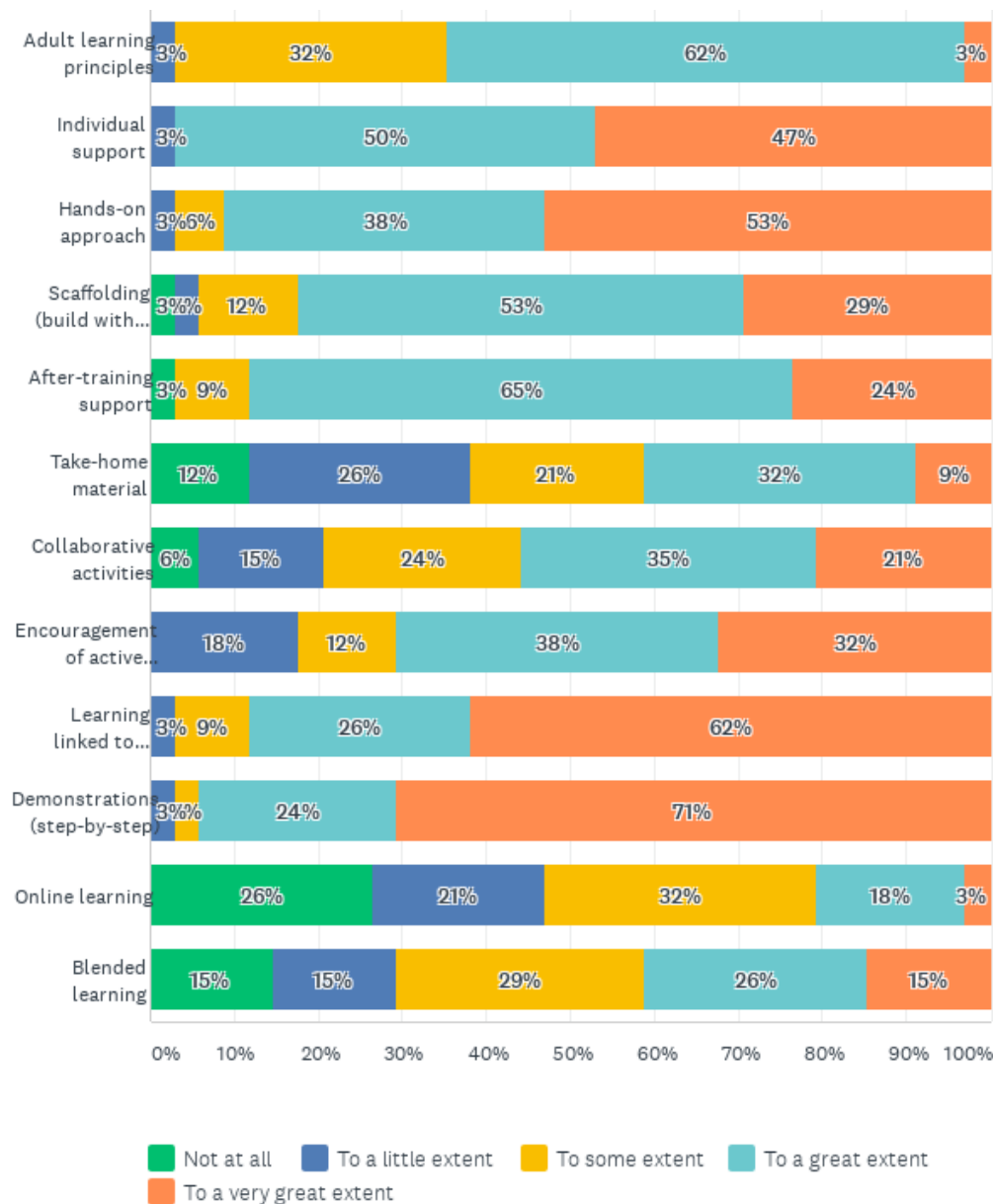
In line with the primary goal of the questionnaire, participants were asked about the most important challenges of the elderly that might affect their participation in digital skills training. The most important factors according to adult trainers, as shown in Chart 2, is elderly's lack of self-competence in digital settings ($x = 3.95$) and low level of education/basic skills ($x = 3.73$). These two factors are interconnected in some way, indicating a multidimensional issue addressing not only that they are not familiar with new technologies, but also that they do not have the appropriate basis in terms of skills and knowledge to build upon. Such issues, in combination with their lack of motivation ($x = 3.46$), are not easy to be combated as upskilling is a process that required simultaneous steps from more than one level (e.g., individual, educators, policies etc.). Interestingly, the next challenge that could possibly affect elderly's participation in digital skills training is its low perceived usefulness ($x = 3.57$), meaning that they do not value that much knowledge and skill for the digital world. Health-related issues were also a concern of adult educators forming a group of limitations, such as age-related issues (e.g., eyesight and hearing; $x = 3.51$), health issues (e.g., diseases; $x = 3.30$) and physical mobility limitations ($x = 3.03$). As all answers, social isolation had also received a relatively high weighted average ($x = 3.24$) giving the sense that all the reasons addressed are important barriers for elderly's participation in such trainings.

Chart 2. To what extent the following challenges affect the participation of the elderly in digital skills training?
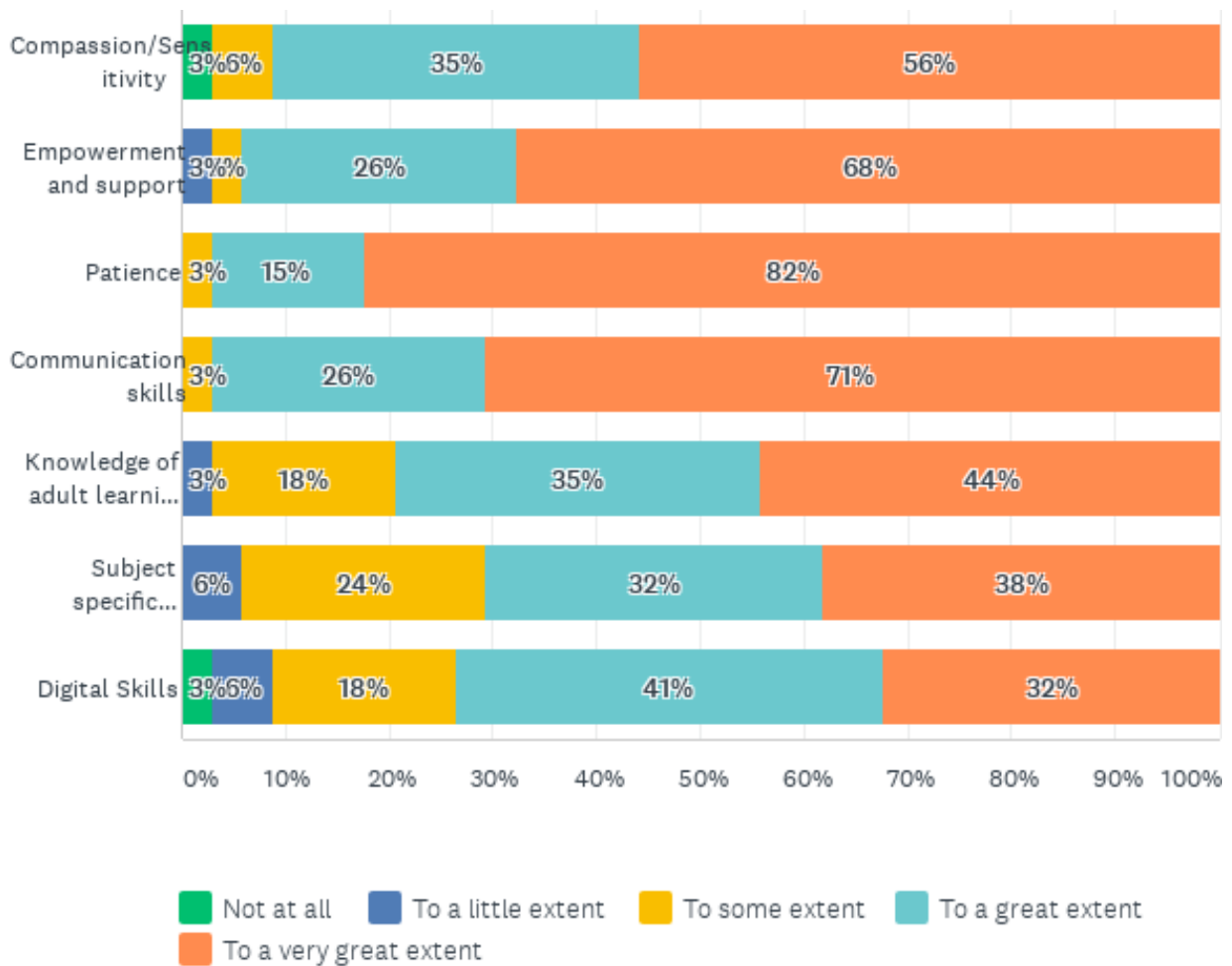
Next, adult trainers were asked on the teaching practices that better respond to the needs of the elderly. As shown in Graph 3, step-by-step demonstrations were considered most effective, along with learning linked to real-life experiences. Individual support, hands-on approaches, and after-training support were also reported as suitable teaching techniques. Additionally, the methodology of scaffolding (building with small, manageable steps), and more generally adult learning principles could be helpful during the accumulation of new knowledge considering elderly's low level of existing skills. Similarly, the encouragement of active participation could be a great way to engage them during trainings. On the other hand, online and blended learning are not perceived as very effective ways of learning according to adult trainers, neither take-home material would serve much in the case of elderly.

Chart 3. To what extent the following teaching techniques/practices respond to the needs of the elderly during digital skills training?

Regarding the necessary competencies of trainers during digital skills training, all given options were considered important. As shown in Chart 4, soft skills such as patience, communication skills, empowerment, and compassion were given the most merit. Furthermore, some knowledge of adult learning principles/methods is also beneficial while teaching the elderly. Interestingly, digital skills by the educator and subject specific knowledge were the least important competences from the given list, but in no case, they should be considered uncritical.

Chart 4. To what extent are the following competences of trainers necessary during digital skills training for the elderly?

The questionnaire included two more questions regarding the competence of adult trainers and the elderly on the three thematic areas of the project (i.e., Online consumer behavior and protection, Online payments and transactions, and Online data protection, privacy and security). In the case of themselves, respondents feel more competent on payments and transactions compared to the other two categories. However, as shown in Chart 5, at least half of them is competent in all areas. In the case of the elderly, as shown in Chart 6, adult trainers believe that they do not have the skills in none of these areas. Most unknown field was reported data protection, privacy and security probably because it involves some level of unclarity and complexity.

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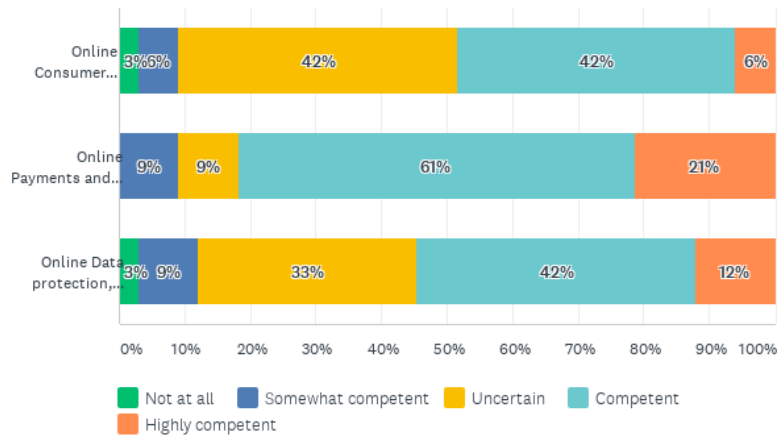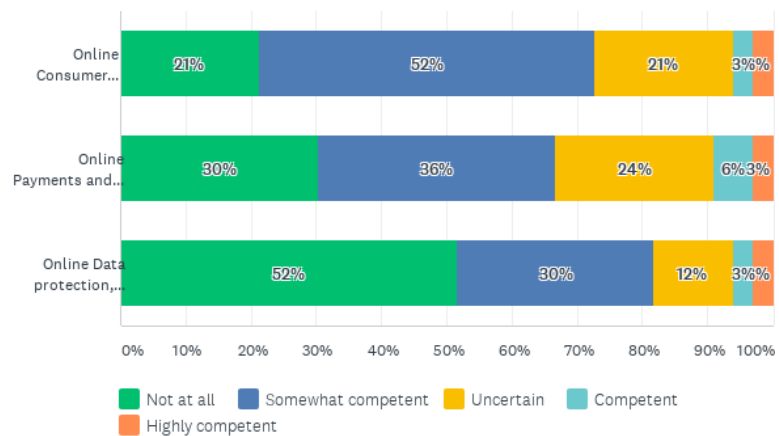## Chart 5. How competent are you in?

Chart 6. How competent do you think elderly are in?

Last, participants were given the opportunity to state any recommendations that need to be considered during the digital skills training of the elderly in open questions. The collected answers are presented below:

Answer 1: Many of them face health problems that might affect learning, such as mobility issues, Parkinson's or eyesight and hearing limitations.

Answer2: Personalized education - practice

Answer 3: Equipment during training

Interviews (Qualitative data)

Upon the field research activities, **10 interviews** were implemented with people over 65 years old in Cyprus. Questions were formulated in a semi-structured interview guide to allow in-depth discussions on their everyday life issues related to the project areas. Using this approach, respondents were also encouraged to reflect on their past experiences, opinions and suggestions on topics such as internet use, online purchases and payments, and data protection. All interviews were recorded to facilitate the extraction of accurate and appropriate data, but no personal details were asked during the recordings. The interviews were conducted by phone, so participants declared their consent verbally at the beginning of each interview. The structure of the interviews followed three main thematic areas: Consumer behavior and protection, Online payments and transactions, Data protection and privacy. The purpose was to investigate the real-world issues of the elderly in these areas. The three main research questions were:

1. What are elderly's habits and challenges during online consuming and data protection?
2. What are the key competences and areas where they need more training?
3. What are their main training needs on these topics?

Most of the interviewees (9 out 10) were frequent users of the internet, because they like or need to go online daily. They usually access the internet from their smartphones as the most convenient way, and more rarely from a desktop computer, laptop, or tablet. Generally, they evaluated themselves competent enough for the limited range of online activities they usually do. In other words, their perceived competence is satisfactory to the extent they use the internet. However, as shown by their answers later, although aware of some online functions and threats, they could not clearly state any techniques or methods to protect themselves. Sometimes they were also confused on distinguishing online or offline functions of their smartphones, and other basic knowledge considering internet activities. Adding to this, according to the experts (The Harris Poll, 2020) increased time online means increased risk of threats and frauds, even for the most informed and competent.

The most frequent reason reported for connecting to the internet was communication, either from chat/call apps (e.g., Viber) or through social media (mostly facebook). They particularly emphasized the need to contact friends and family members, especially during the social isolation due to the current situation of the pandemic (covid-19).

> *Participant 4: When used the right way, internet is extremely useful because I can communicate with my relatives and friends. In this way, internet is a blessing these times.*

Social media was also noted as a means to learn the news and get informed on current events. In some cases, the internet is also used for gathering information on personal interests (e.g., recipes, religious content etc.) using Google and YouTube search. Only those who were presented as the most confident in using the internet (3 out of 10) referred to consumer and payment activities (e.g., online banking, purchases, and payments) and email account possession.

Half of them (5 out of 10) have never made any online purchase alone. However, three out of five asked for help from children or friends more than once to buy (or pay) something online. Although not competent to initiate transactions, they referred to many categories of goods and services they were interested in buying if they were able to. Some indicative examples of goods and services are clothes, shoes, kitchen or garden products, books, small electrical devices, tickets for events, or flights. However, they had contradictory opinions on some products to purchase online. Some supported that clothes and shoes need to be tried before bought, so their desires were limited to more standardized products or brands they already know and purchased many times before from other stores. With the same rationale, buying medical products online was not considered a good practice. In most of the cases, price was not generally perceived as a motive because differences are practically minor. Therefore, the biggest concern was about the reliability and quality of the delivered product.

> *Participant 2: I would not dare to buy shoes or pants online. I want to try them first. But I could buy the battery of the grass machine if I find the same brand, model, and code.*

These participants admitted that they do not have the digital skills to make online purchases. However, they did not show any intent to acquire them supported by arguments such as their preference to buy products in person, the fact that they simply do not need to, and in other cases because of online risks (e.g., of delivery, of trust and reliability, of online threats during payments). Those who were completely indifferent with these topics described autonomous online payments as a very far-fetched scenario. Although aware of some practices like returns, or refunds, they could not state any buyer rights or seller responsibilities, because they did not have any experience before. Similarly, they all heard cases of frauds, so they were particularly suspicious, summing up their inconvenience to manage payments safely and securely.

> *Participant 9: I am no longer interested to learn how to make any payments online. I am too old. Whatever I might need, I have the support of my children.*

Those who made online purchases in the past (5 out of 10) stated more benefits, such as the opportunity to find products not available at the local market, lower prices, and the ease to see many products without visiting any store. They also referred to some more categories of products such as accessories, gadgets, mobile phones, food orders or other services (e.g., utility bills). In general, it seems that they all prefer the traditional model of face-to-face purchases for certain products (e.g., clothes). Regarding their buyer rights and seller responsibilities, they admitted no full awareness because these are complex, and each time differ according to the website or the retailer. In other words, they recognize the complexity of rules, terms and conditions on each online store, but they are not willing to spend much time to read everything, allowing some risk to their purchase out of control. Therefore, they usually rely on the reliability of the retailer. The most frequent way to evaluate the reliability of the seller was reputation i.e., if it is a well-known website and others recommend it. Only two of them were prompt to state more details about the evaluation of the seller noting product brand, specifications, and prospectus, seller rating (e.g., stars) and payment

methods available (e.g., Pay Pal). They also credited their previous experience on selecting the right seller, making evaluation every time simpler. For example, they referred to famous trustworthy websites, increased accountability to European websites, and price comparisons between retailers. Last, they were all aware of the power and influence of advertisements, but they stated with confidence that these do not affected them. In general, they appeared more competent to recognize marketing messages and hidden advertisements than their peers who never bought anything online.

Participant 6: I know that advertisements are targeted and attractive. But I control any impulse by thinking critically. I am not affected by them.

Interestingly, respondents presented particular interest in making online payments and managing relevant financial services. They recognized the benefits of paying off their obligations through the internet rather than the old way. Four out of ten were not competent in making such payments, but they are willing to learn. Only one participant stated that she does not have any essential reason to make online payments and prefers to avoid further internet activities because of regular threats. Adding to this, more than one noted that they prefer to limit their online payments to the most essential activities and serious reasons (e.g., internet banking to monitor accounts, car insurance and registration, taxes, and utility bills). In general, they were all aware of online frauds and threats but only few of them appeared confident to control and avoid them. They also admitted that sometimes they fear making any mistakes and expressed suspiciousness on the safety provided during payments. In all cases, they were not able to categorize or name any of those threats. Those who feel more competent to make online transactions (four out of ten) expanded more on methods to manage risks and referred to several security measures (PINs, OTPs, verification codes, passwords etc.). Although being aware of threats and frauds, they did not consider them a deterrent factor to not enjoy the benefits of online payments and emphasized the importance to just be careful. Two of them reported some ways to ensure safety such as owing an internet card and charging it only when doing online payments with the exact amount or looking for known channel mediators on the website (e.g., JCC smart, PayPal). There were also some misconceptions stated during the interviews such as 'all online retailers are probably valid', or 'frauds are coming from third-world countries and not from European websites.

Participant 10: There are always risks during payments and those who have bad intentions have always more advanced skills than us. We need to be careful.

Regarding data protection, most of them admitted that they are not competent to manage privacy, therefore they were all hesitant on providing personal information online. They could not refer to any regulations that secure their personal data (e.g., GDPR) or other techniques from websites to obtain them (e.g., cookies). In addition, they were not able to identify the reasons why websites track our online activity and 'force' us to accept their terms and conditions. Only a few of them referred to misleading information and marketing purposes. They also appeared ambivalent on the intentions of websites and the privacy policies they declare. Therefore, they generally limit their activity (e.g., the number of

visiting websites) to reduce risks. Moreover, half of them have accounts in one or more social media (mostly facebook or twitter), but only two of them thoroughly stated security measures to protect their accounts such as saving passwords and authentication controls.

> *Participants 7: I don't provide personal details on open-source websites. I only provide them directly to a specific company. Therefore, I know that any leak of data the responsibility goes to that company. But anyway, I don't use to provide personal information.*

Last, although many times they admitted to not having advanced levels of digital skills related to the discussed online activities, they generally did not show any intention to learn more or acquire more skills. Half of them were satisfied with their knowledge and competence because 'it is enough to what they need'. Some key areas reported from the other half to learn more were safe navigation to the internet, safe payments, recognition and management of threats/risks, how personal data are used from third parties and basic digital skills. Two of them expressed the need to get simplified instructions on how to use the internet and manage their activity (e.g., remembering passwords) because 'many things are complicated'.

> *Participant 1: I want to learn about the existing threats and how to pay utility bills or car insurance.*
>
> *Participant 3: I think I know all I need for the online activities I do.*

Recommendations

Key areas that can be transferred and adapted to the project

According to the findings of this report, several recommendations can be considered for the development of the educational material within the context of the e-protect project. Since national strategies and public initiatives are limited, there are important gaps identified regarding the engagement of the elderly in the online world:

- Digital devices and internet access
- The digital economy of the 21st century
- Online purchases and consumer behavior
- Digital marketplaces – rules, regulations and legislations
- Digital marketplaces – rights and responsibilities of sellers and buyers
- Online safety, threats and frauds
- Digital marketing and advertisement practices
- Online financial operations and transactions
- Personal data protection and privacy (regulations and procedures)
- Social media/digital communities and marketing

Key skills that need to be involved in the Competency Scale

In order to respond critically to the emerging requirements of digital practices regarding consumer and data protection skills, the elderly need to be equipped with a certain and comprehensive set of competences. This report suggests considering the below competences during the development of the educational material in the following activities of the e-protect project:

- Familiarity with digital devices and internet access
- Awareness of opportunities and threats while using the internet
- Access of information in digital marketplaces
- Identification of sources on goods and services
- Evaluation of the reliability of digital sources on goods and services
- Assessment and comparison of commercial offers and advertisements
- Recognition of digital marketing strategies and advertisement methods, as well as their influence
- Management of personal identity in digital marketplaces
- Adoption of a responsible and sustainable consumption
- Conscious and cautious use of digital marketplaces
- Recognition of different digital business models and their differences (e.g., c2c, b2c)
- Management of payments and finances
- Familiarity with copyrights, licenses, and contracts of digital marketplaces
- Effective use of protective measures (passwords, terms and conditions, privacy policies)
- Online management of personal data and privacy

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