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Developed by Simona Matějková, Asociace poskytovatelů sociálních služeb, z. s.



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Introduction

This National report will aim at offering the ICT4Elders consortium deeper understanding, an insight into the current situation and the profile and learning background of the elderly people in the Czech Republic with respect to use of ICT services and applications.

This document summarize the main results from following project activities:

- ✓ Scoping analysis
- ✓ Interviews with the elderly
- ✓ Survey with professionals and family members
- ✓ Social experiment with the elderly

Key words:

the elderly, ICT, digital literacy, internet, social networks, communication, safety, education

1 Scoping analysis

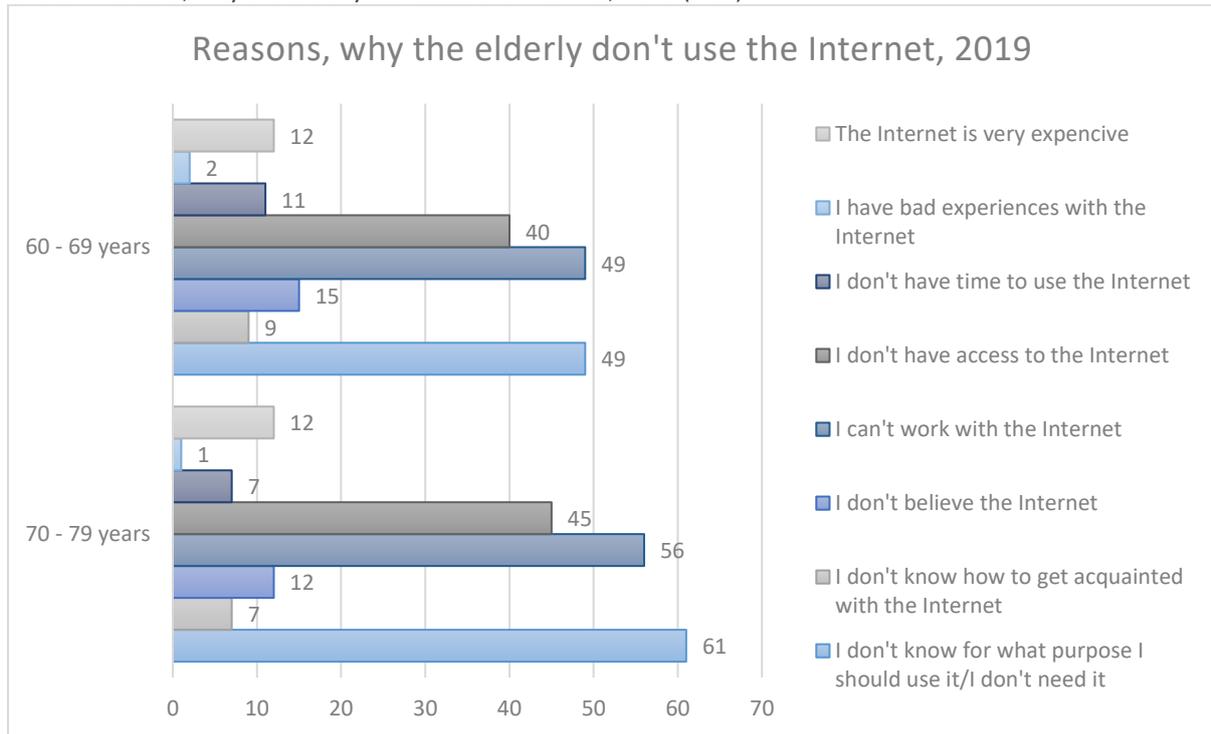
The field of science, technology and innovation is one of the key elements and it turns out that the use of ICT technologies leads to an increase in the quality of life of the whole society. However, we can still meet groups of people who are at risk of digital illiteracy, including the elderly too. That the elderly are not able to use the digital technology, is no longer true. Digital literacy of the elderly is still growing, but they can still be at risk of social exclusion. The main reason for social exclusion is not only the ignorance of technology and lack of (digital) skills, but also, for example, the content on the Internet, which is not intended for their age group. The relationship between social exclusion and digital exclusion is described in **Table 1**.

Table 1 Social exclusion vs. digital exclusion

Social exclusion	Digital exclusion
Deterioration in material condition, unemployment	Inability to find a job in the rapidly developing IT sector, inability to work in jobs that require IT knowledge.
Limited communication in society	Impossibility to stay in touch with members of information society through the tools, which this society use.
Limited possibility of using public services	Limited possibility of using e-government services (data box, citizen’s portal, public registers, etc.).
Discrimination	Discrimination based on insufficient digital literacy of people, who don’t have access to ICT.
Lack of access to public market	Inability to shop online, compare prices in stores, inability to use services such as e-banking.
Limited cultural life	Impossibility of access to digital (digitized) content.

Share of the elderly, who owns computer, smart phone or tablet and use the Internet, is still growing. But the technological barrier is still the main reasons why the elderly don’t use the digital technologies and the Internet. Very often, they don’t know to what purpose they can use it, for what reason or what activities they can do on the Internet. More reasons why the elderly do not use the Internet are described in **Chart 1**.

Chart 1 Reasons, why the elderly don't use the Internet, 2019 (in %)

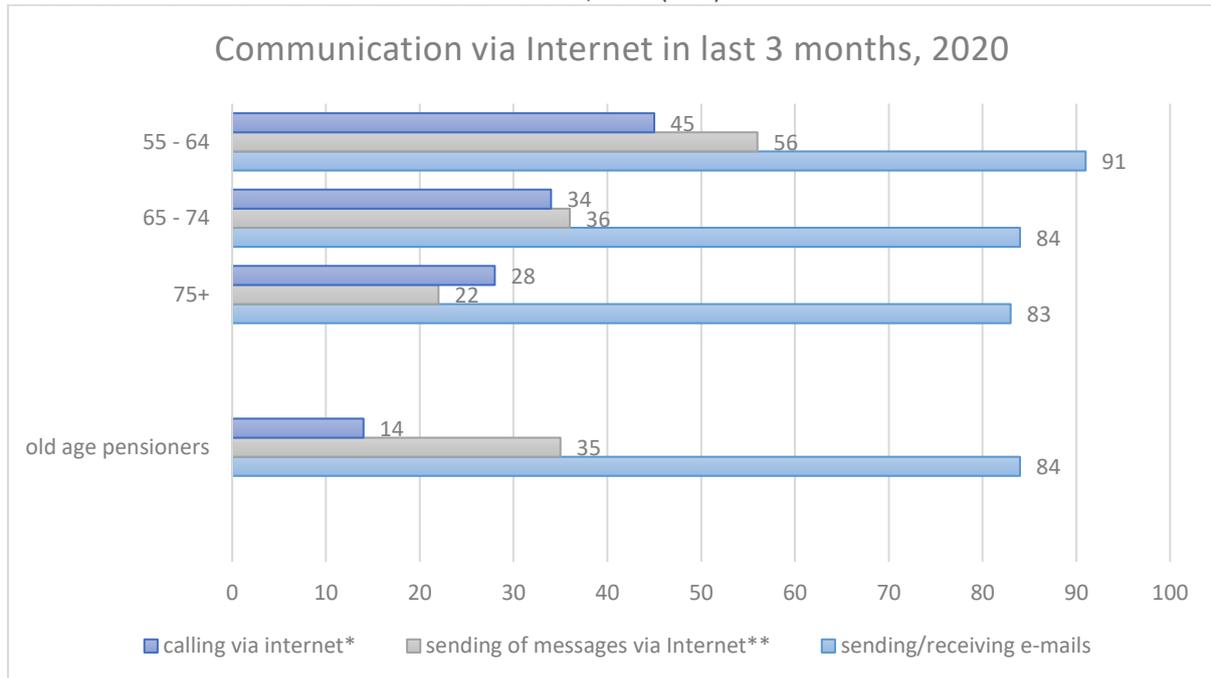


PaSource: (1)

The main activity on the Internet used by the elderly is communication, especially the e-mail communication. Using of communication applications, such as WhatsApp or Skype, is also relatively popular between the elderly. Mainly because of it, they can stay in touch with their families and close relatives, very easily. See the **Chart 2**.

Popularity of these communication techniques are still growing. But the elderly are not very active on the social networks. The reason why could be that the UI of the most of these web applications has been developed for younger groups and so it makes the gap between technology and seniors even wider. Almost two thirds of the elderly, if they have account on any of the social network, have limited public access to their profiles, photos and posts in some way. But, there is still lot of the elderly, who have all free access for public to their posts, and information. Lots of them even don't know about the security of their profile at all.

Chart 2 Communication via Internet in last 3 months¹, 2020 (in %)

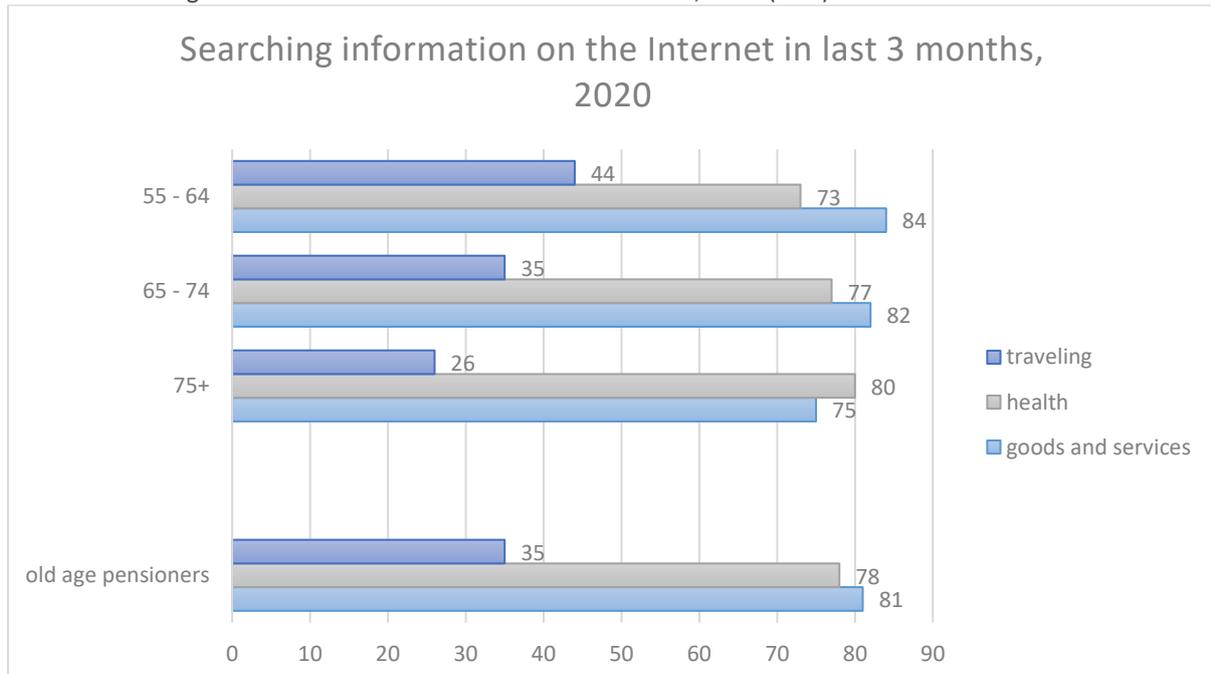


Source: (2)

*Calling via Internet, using e.g. WhatsApp or Skype
** Sending of messages via Internet, using e.g. WhatsApp or Messenger

When it comes to finding information, the elderly most often look for information about goods and services, and also about health. Considerably less of the elderly search information about traveling. See the **Chart 3**.

Chart 3 Searching information on the Internet in last 3 months², 2020 (in %)



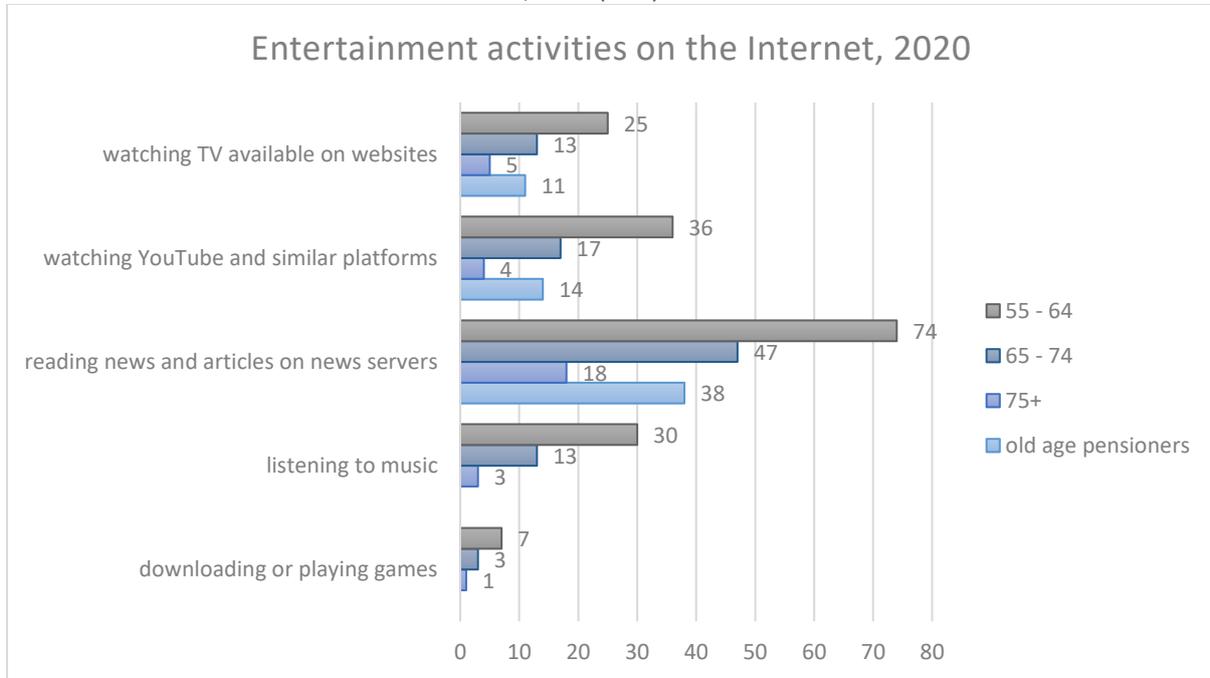
Source: (2)

¹ Period 01/2020 – 03/2020.

² Period 01/2020 – 03/2020.

The Internet is also a source of entertainment. In the field of entertainment, the most common activity is reading news and articles on freely available news servers. Less often, they watch TV available on websites or use the Internet to listen to the radio. The elderly almost never download or play games. For more information see **Chart 4**.

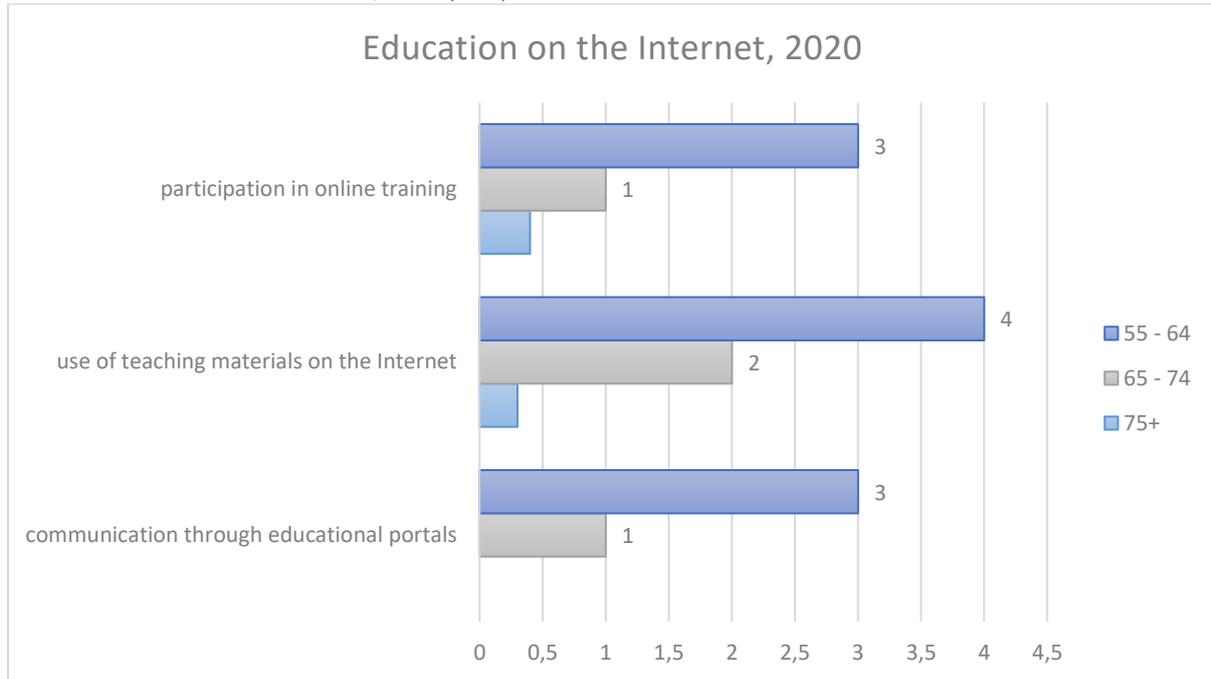
Chart 4 Entertainment activities on the Internet, 2020 (in %)



Source: (2)

Nowadays, online education is also common, all the more so when schools closed in the Czech Republic and there was no possibility to meet in large group of people, all because of the coronavirus pandemic. In general, the most often used tools for education are online training or teaching materials, which are free available on the Internet. The same is also valid for the elderly people, but the share of the elderly, who use these options is trivial. See **Chart 5** below. It's not any surprise. The technical background for online education can already be difficult to use for the elderly, especially, if the online training is organize through application in English.

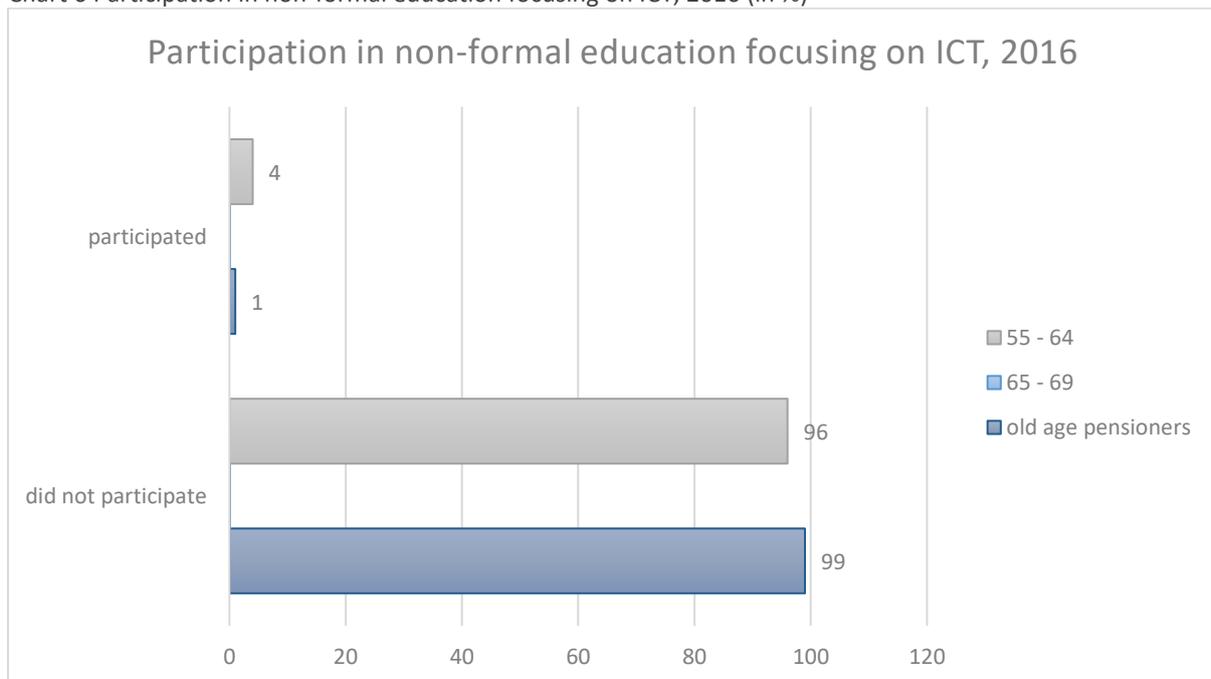
Chart 5 Education on the Internet, 2020 (in %)



Source: (2)

If we look at the offer of full-time trainings, even that option is hardly used by the elderly. In the Czech Republic, there is relatively wide offer of training focusing on ICT. The offer is intended directly to the elderly. Thematically, the trainings are focused on improving the skills related with the use of a computer, but also with smart phone or tablet. However, almost a third of the elderly say, there is no need to be educated. See **Chart 6**.

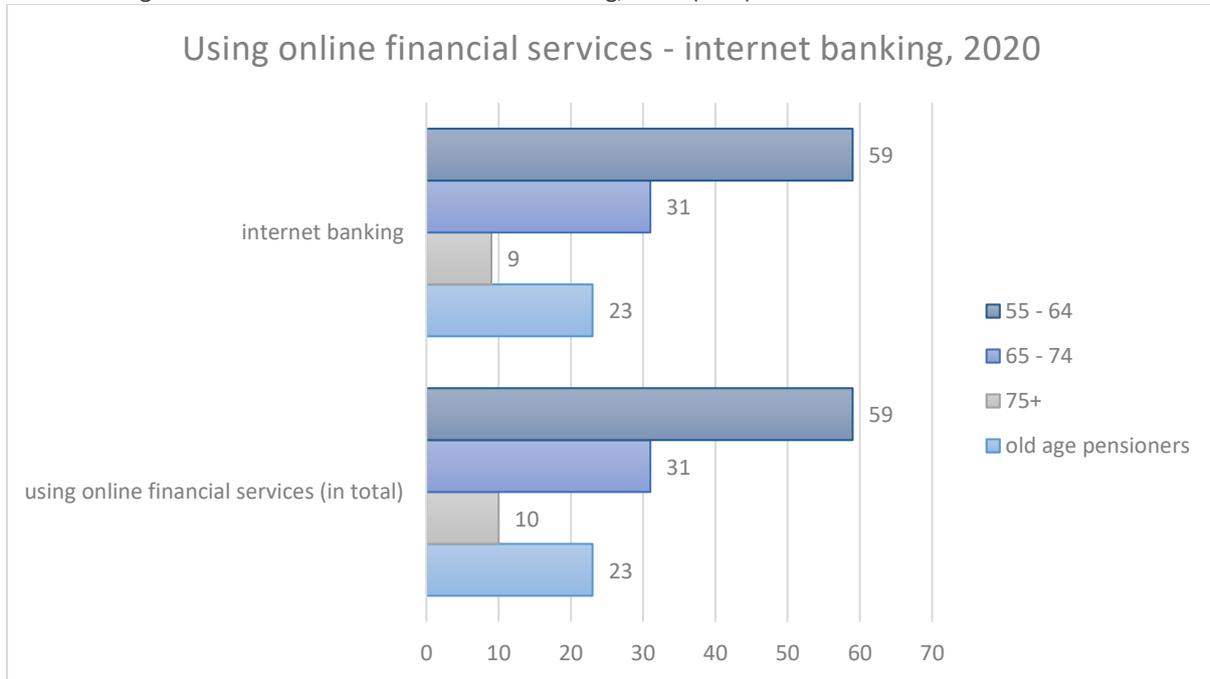
Chart 6 Participation in non-formal education focusing on ICT, 2016 (in %)



Source: (3)

On the other hand, the popularity of internet banking services, between the elderly, is growing. These types of services are used by almost a fifth of them. Other financial services, such as arranging insurance, are not nearly used. See **Chart 7**.

Chart 7 Using online financial services - internet banking, 2020 (in %)

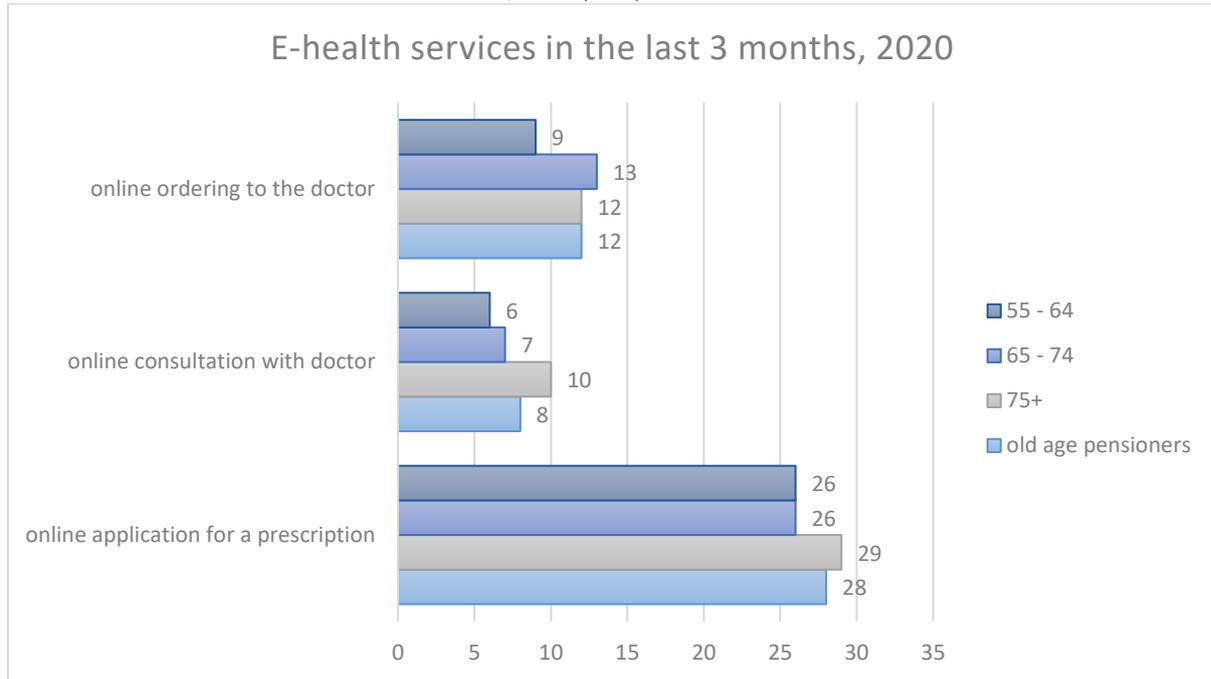


Source: (2)

Services of e-health or services for contact with public authorities are hardly used by the elderly. The most used service of e-health is the possibility of online application for a prescription, which was used by almost a third of the elderly in the monitored period³. For more information, see **Chart 8** below. Using the Internet in the relation to public authorities by the elderly has a growing tendency. But yet, the elderly still prefer personal contact at the office. For more information about the activities in relation with public authorities, see **Chart 9**.

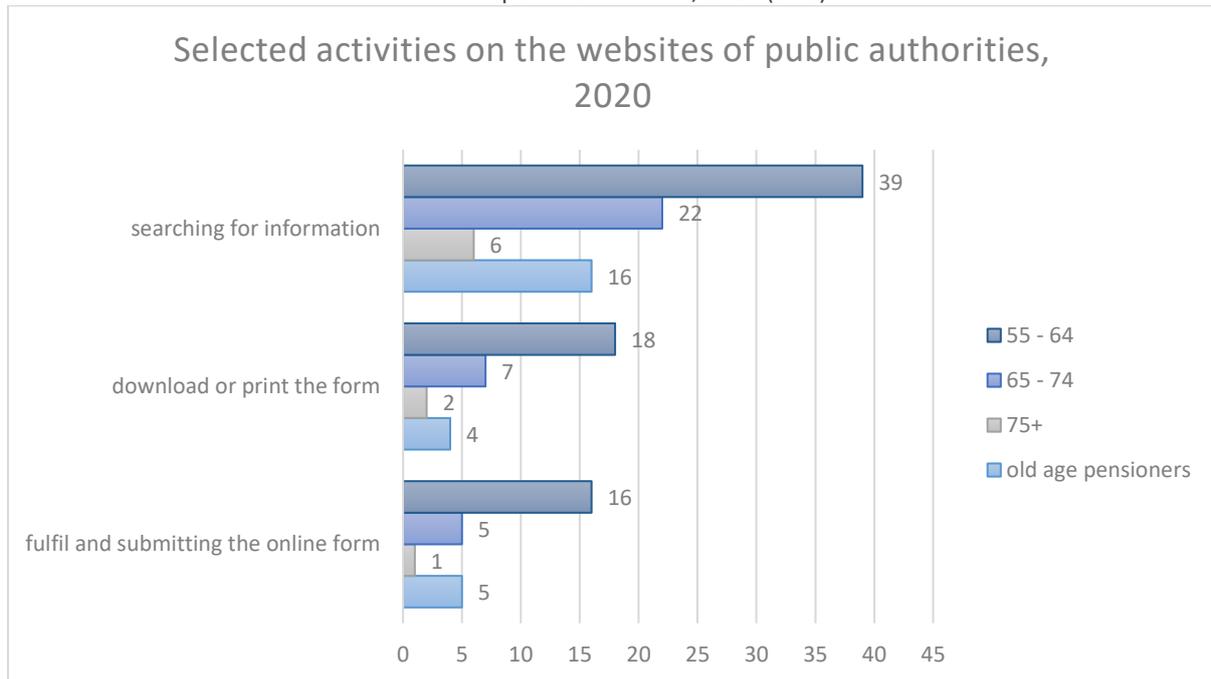
³ Period 01/2020 – 03/2020.

Chart 8 E-health services in the last 3 months⁴, 2020 (in %)



Source: (2)

Chart 9 Selected activities on the websites of public authorities, 2020 (in %)



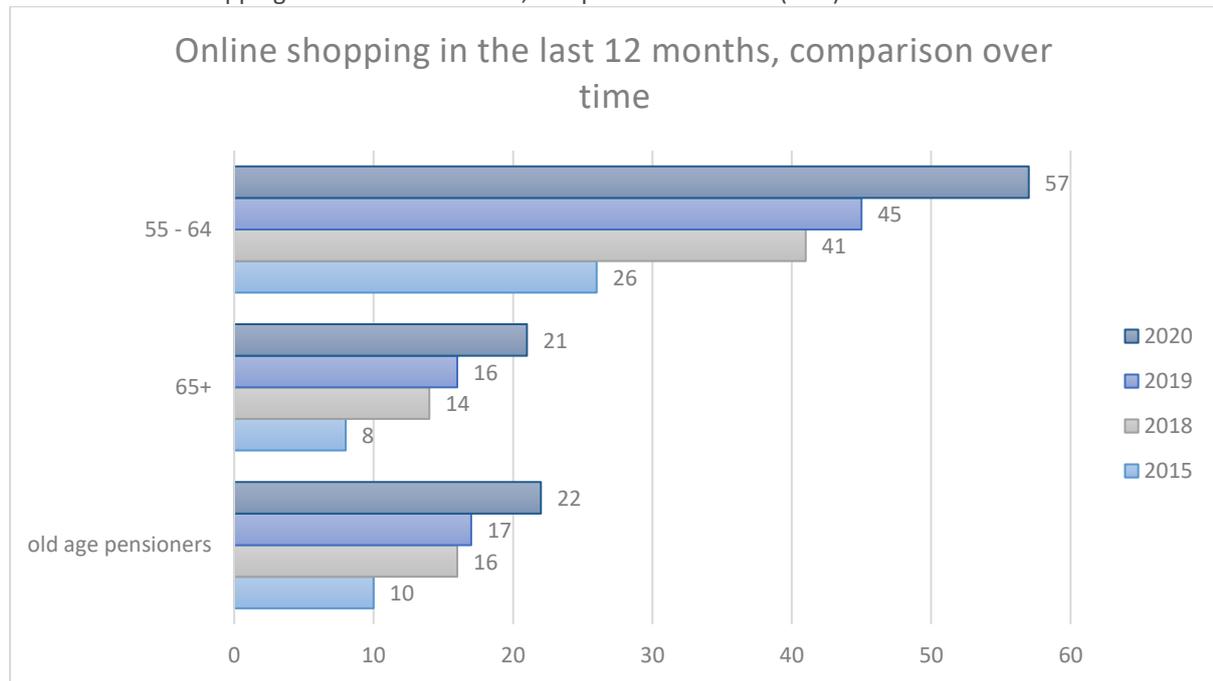
Source: (2)

Another field strongly affected by the coronavirus pandemic is online shopping, where because of the bricks-and-mortar shops were closed, there is major increase in the number of people using these services. Despite the fact, that online shopping is growing, the frequency of purchases is not very high. Only tenth of the elderly shopping online max. twice per year. The elderly via Internet the most often buy household equipment (electrical appliances, dishes and so on), and clothes or shoes. On the other

⁴ Period 01/2020 – 03/2020.

hand, elders hardly ever buy toys and board games, food from restaurants/fast foods, or just electronics and computers, also including accessories.

Chart 10 Online shopping in the last 12 months, comparison over time (in %)

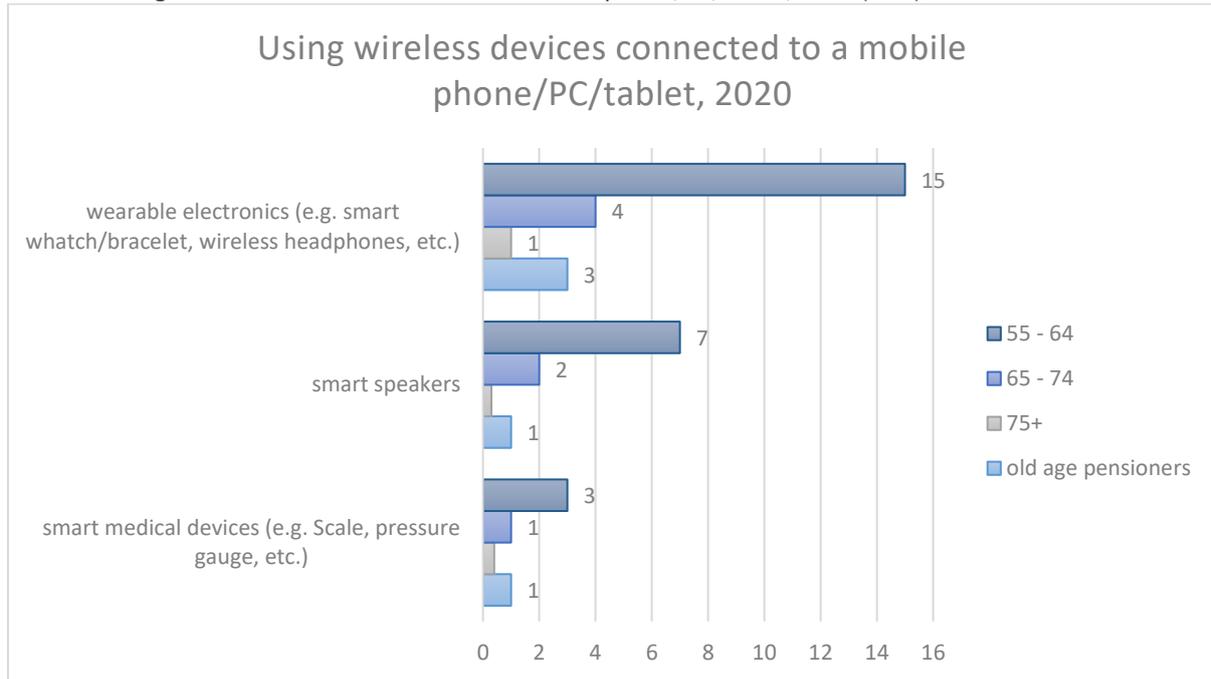


Source: (2)

Due to the Internet, is also possible to arrange services online. This option, which the Internet offer us, is used by the elderly even less, than buying goods via Internet. Buying services online, is hardly used by the elderly, whether it is the booking of transport, accommodation, purchase of tickets or services related to running household or the services of the shared economy.

The elderly also do not use the possibility to connect devices to other technologies, which use the Internet or Bluetooth technology, so-called Internet of Things (IoT). The combination of different technologies allows you, for example, to control lights, household appliances, alarms and so on. The IoT also includes the use of wireless headphones, smart watches/bracelets and so on. The main reason, why the elderly did not use this opportunities is, they do not have or do not use the Internet at all. Almost the third of them did not need to use this type of connection.

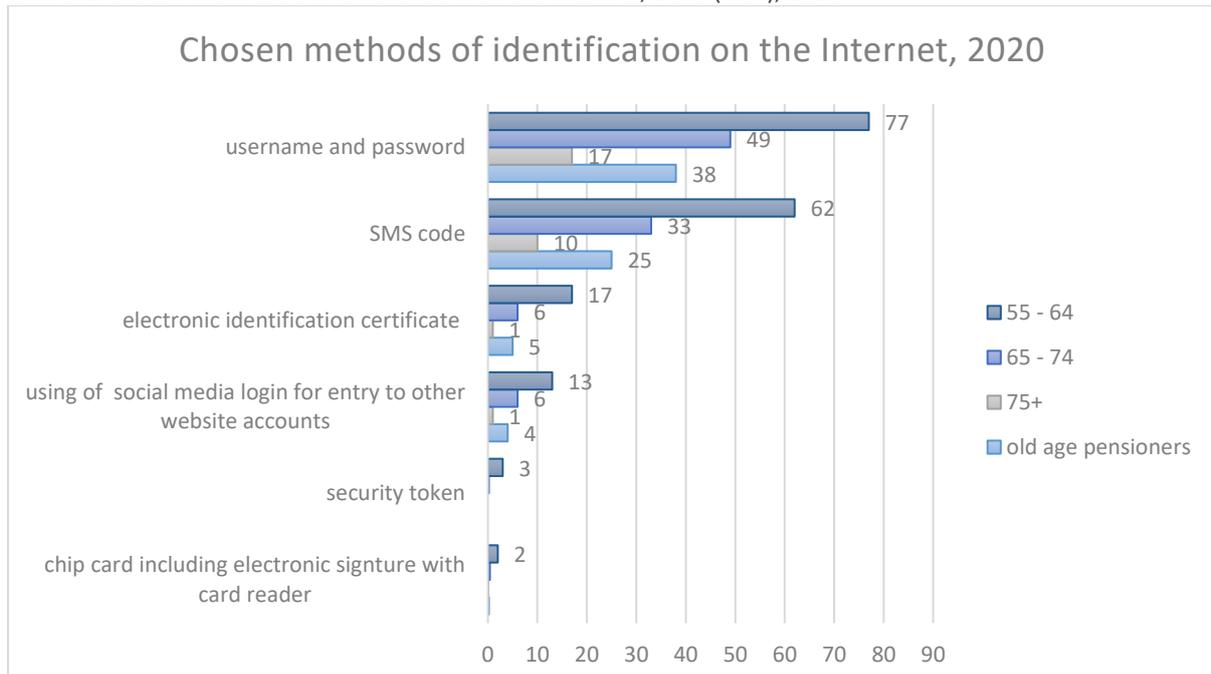
Chart 11 Using wireless devices connected to a mobile phone/PC/tablet, 2020 (in %)



Source: (2)

One of the important topics, connected with using of digital technologies, is security. To log in to websites, e-shops, social network, etc., it is always necessary to identify yourself in some way. For this purpose, the elderly most often used the username and password. A quarter of the elderly also use for verification an SMS code. The number of digital threats and the possibility how to protect your identity in the virtual world are expanding, due to digitalization. There are a lot of other options, how to protect your identity, in some cases it is a multi-level verification. However, this type of verification is not used very often by the elderly, due to their complexity.

Chart 12 Chosen methods of identification on the Internet, 2020 (in %), 2020



Source: (2)

In present time, the elderly are more and more active in the using of ICT technologies, even though they often control only basic functions and use the ICT technologies mainly for communication with their loved ones.

2 Interviews with the elderly

Interviews with the elderly were conducted in cooperation with SeneCura SeniorCentrum Klamovka s.r.o. and Život Plus, z. ú. The interviews was conducted in two ways: 1) by telephone, 2) in person. The main goal of these interviews was discovered information about using the digital technologies and the Internet by the elderly in age of 70 and over.

2.1 Researcher file

Our sample consisted of 16 elderly people (5 male, 11 female). All of the participants of interview were in retirement. Most of the participants has higher education. Almost 70 % of participants had worked with computer in their last employment. Sample of participants according to their age is described in **Table 2**.

Table 2 Interviews - Overview of participants according to their age

Age group	Count	Percentage
60–69	1	6,2 %
70–79	3	18,8 %
80–90	10	62,5 %
90+	2	12,5 %
Total	16	100,0 %

2.2 Results

Average using digital technologies and the Internet

Almost 90 % of participants own some type of digital devices, such as personal computer, notebook, tablet or smart phone. Two of the participants don't use any of digital devices, because of the lack of digital skills. The most often participants use notebook, see **Chart 13**. Most of the participants (almost 80 %) use digital devices on daily basis, see **Chart 14**. Average time, which the elderly spend with using digital devices is from 5 to 20 hours per month.

Chart 13 Which type of digital devices are used by the elderly? (in %)

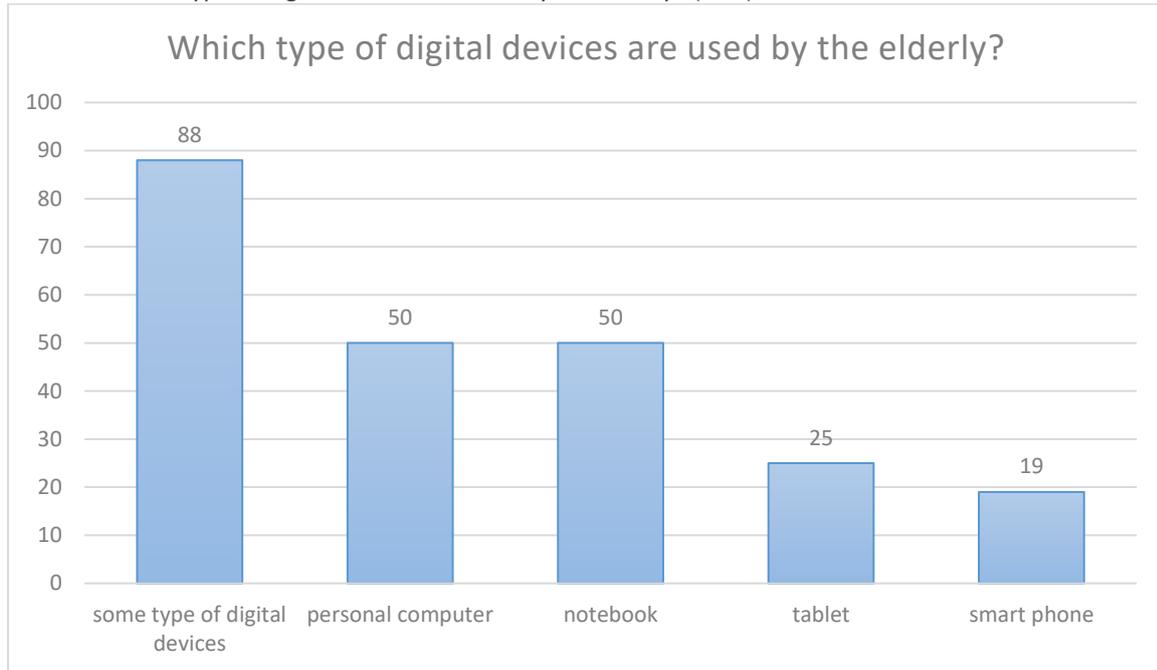
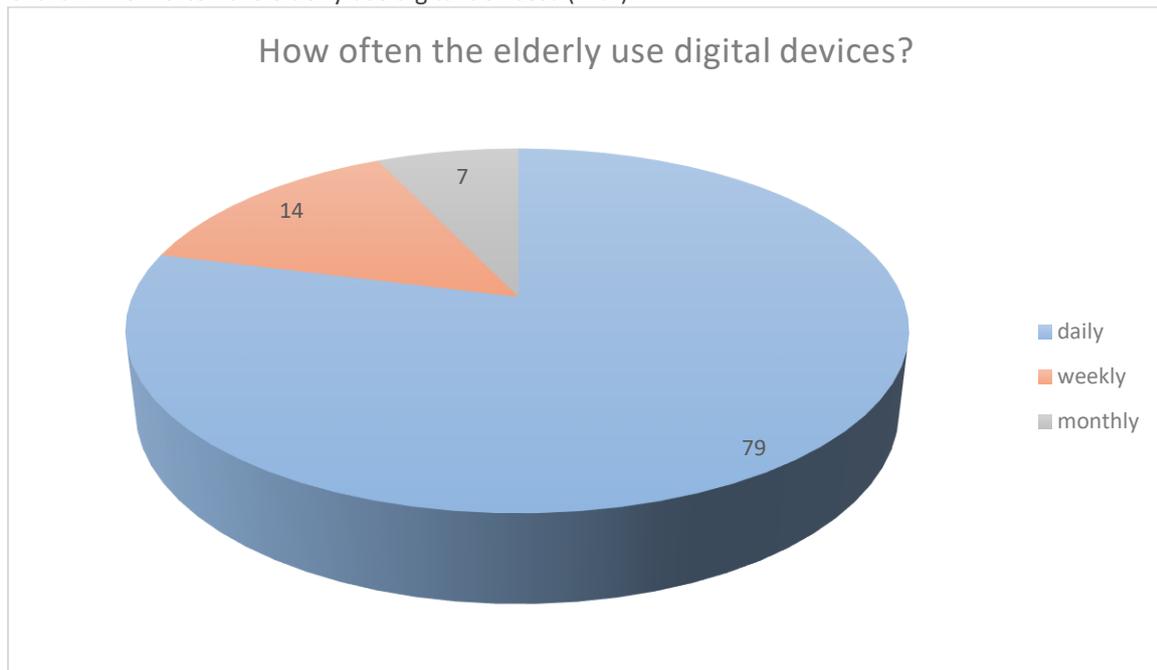


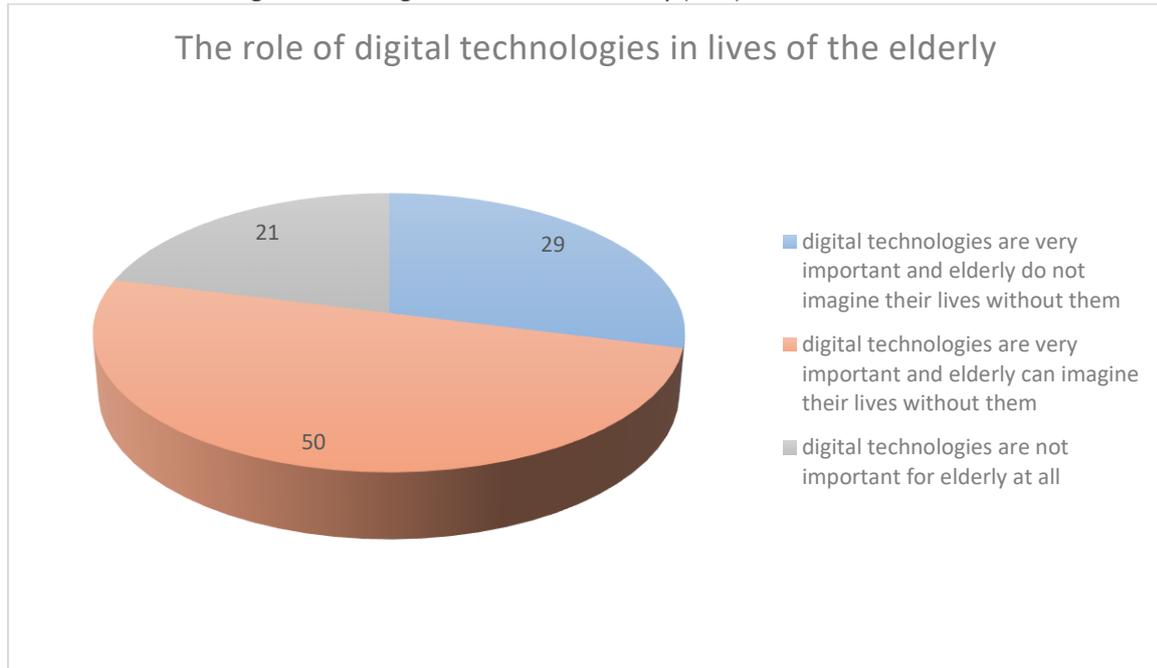
Chart 14 How often the elderly use digital devices? (in %)



The importance of digital technologies for individuals

The importance of digital technologies for the elderly is described in **Chart 15**. For quarter of the elderly are digital technologies very important and they cannot imagine their lives without it. All of these participants using the digital technologies on daily basis. For 50 % of the elderly are the digital technologies very important, but they can imagine their lives without them. For the rest of participants digital technologies are not important at all. Those participants do not use digital technologies very often, approx. 1 hour per month.

Chart 15 The role of digital technologies in lives of the elderly (in %)



The most of the elderly are totally agreed, that the digital technologies are very important to them, because they present the way, how to communicate with their relatives and love ones. Approx. 50 % of the elderly mentioned, they also used digital technologies for e-mail communication, reading the news, or for internet banking. No one from participants did mentioned, that they use digital technologies for entertainment, such as playing games or another applications of this type.

The advantage, mentioned by participants of interviews, was how easily they can stay in touch with their relatives and love ones. The second advantage is, for them, that digital technologies can make their lives much easier. About two thirds of the elderly also mentioned some disadvantages. The main disadvantage is, how quickly the development of digital technologies is processing. The main problem in this case is the environment of applications/software. They learn how to use it, but after some time the environment will change and they are not able to use it anymore.

The main reasons for using digital technologies and used applications

Over two third of participants using e-mail, and applications such as Skype, or another type of these communication platforms. Some of the elderly do not use communication platforms only for the (video) calls, but also for messaging. Lot of participants as a way, how to communicate, prefer video calls instead of calling and messaging. Other purpose of using digital technologies are: 1) searching news (71 %), 2) watching films and videos (36 %). Relatively fewer elderly people use their devices for online shopping, social media, or for communication with public authorities. Internet banking is the least used service. More in **Chart 16** and **Chart 17**.

Chart 16 Purpose of using the Internet by the elderly (in %)

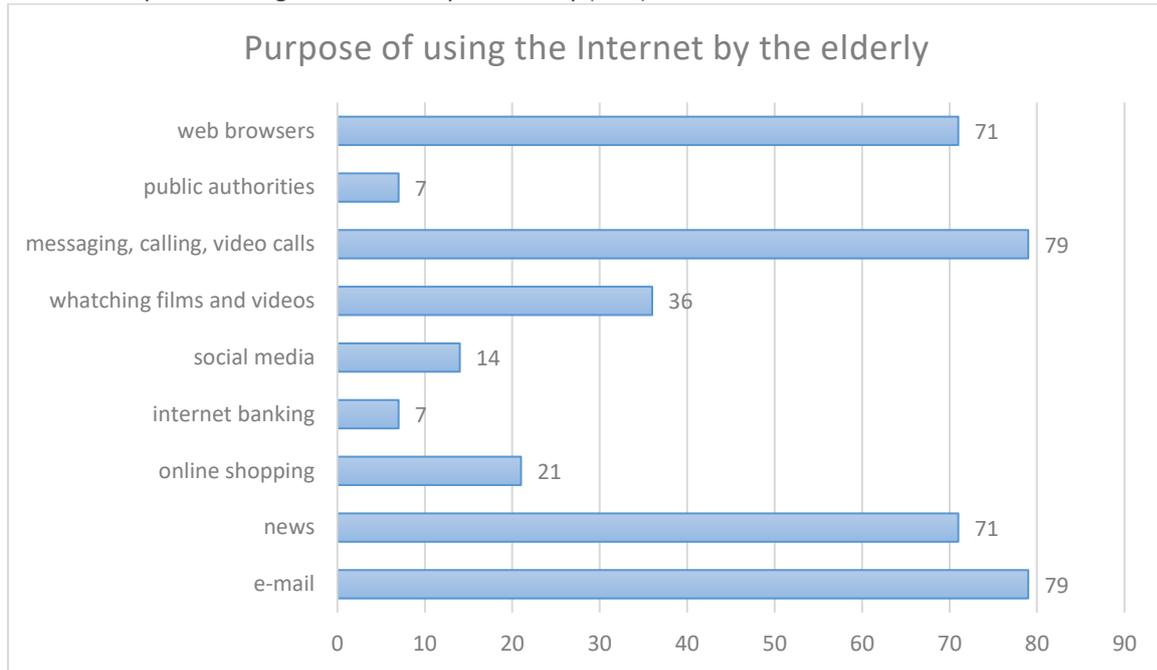
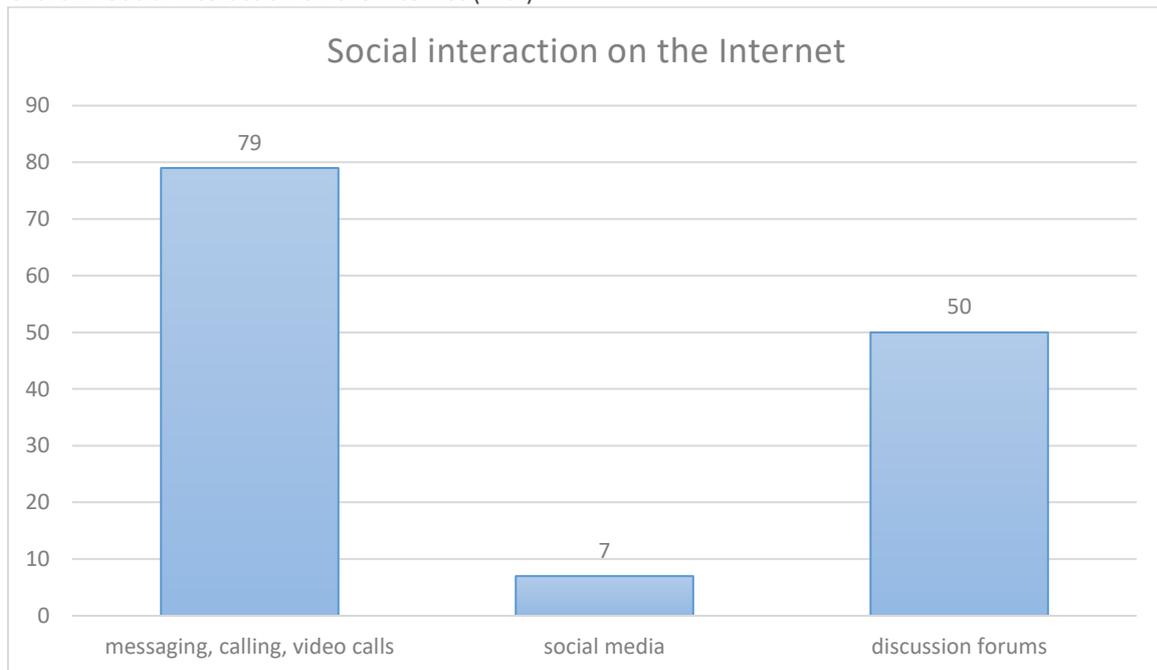


Chart 17 Social interaction on the Internet (in %)



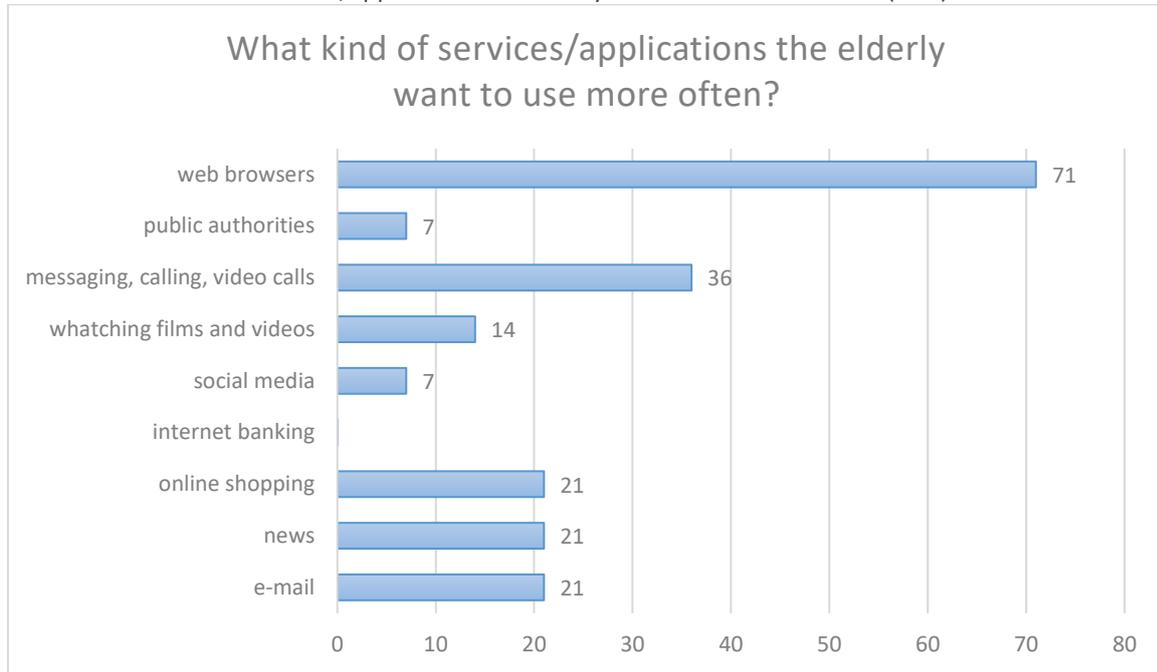
Vulnerability towards social exclusion

Over two third of participants want to use digital technologies more often. But, almost one half of the elderly mentioned that they have limited opportunities in their lives, because of lack of their level of digital skills. But these participants highlighted, that the limits have not significant influence on their lives.

In relation with information mentioned above, participants told us, what kind of services or applications they want to use more. Participants would like to use more often the web browsers and

use more opportunities, which they offer to us. One third of the elderly would like to also use more often applications for messaging, calling and video calling. More information is described in

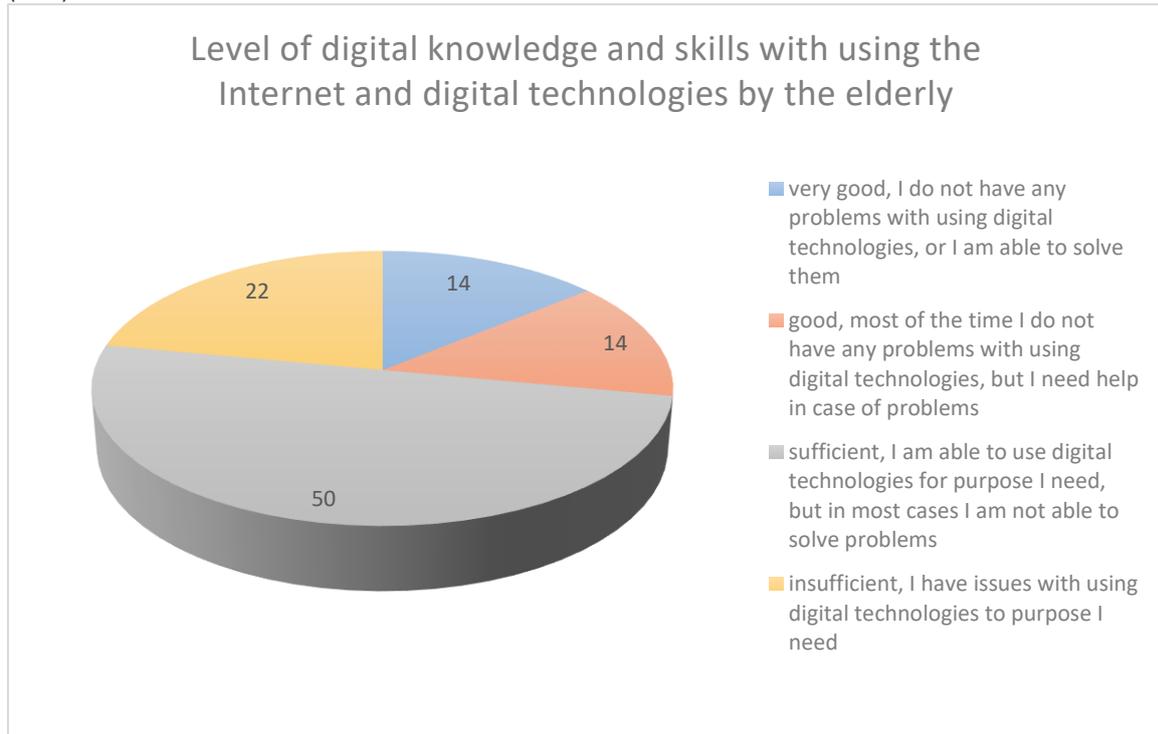
Chart 18 What kind of services/applications the elderly want to use more often? (in %)



ICT knowledge, skills and challenges

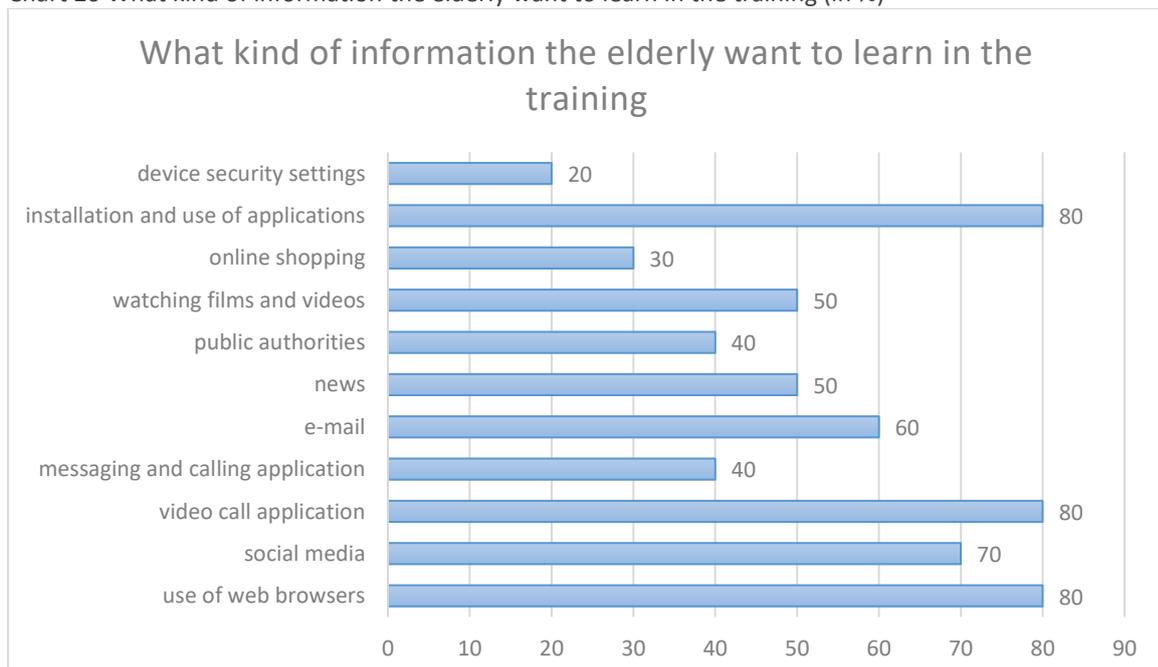
This part of the interview was focused to current level of knowledge and skills of participants on the Internet and with digital technologies, what challenges they are facing in this area and what knowledge is important to them and would like to make them better in the training. Half of the participants think, that their level of knowledge and skills is sufficient. They are able to use digital technologies to purpose they need, but they are not able to solve problems connected with their using. Quarter of participants think their level of skills and knowledge is insufficient and they have problems with using of digital technologies. Most of the participants mentioned, they have to ask for help, in case of any problem with using of digital technologies or the Internet. More information is described in **Chart 19**.

Chart 19 Level of digital knowledge and skills with using the Internet and digital technologies by the elderly (in %)



Half of the participants mentioned, they completed some training focusing on how to use digital technologies. It quite interesting, that some participants who completed training, think that their level of knowledge and skills is insufficient. Three thirds of participants would appreciate some type of training focusing on using the Internet and digital technologies. The most of the elderly would appreciate training about how to use social media and e-mail. Jus few of them would like to know more about the security on the Internet and about the setting application. For more information see **Chart 20**.

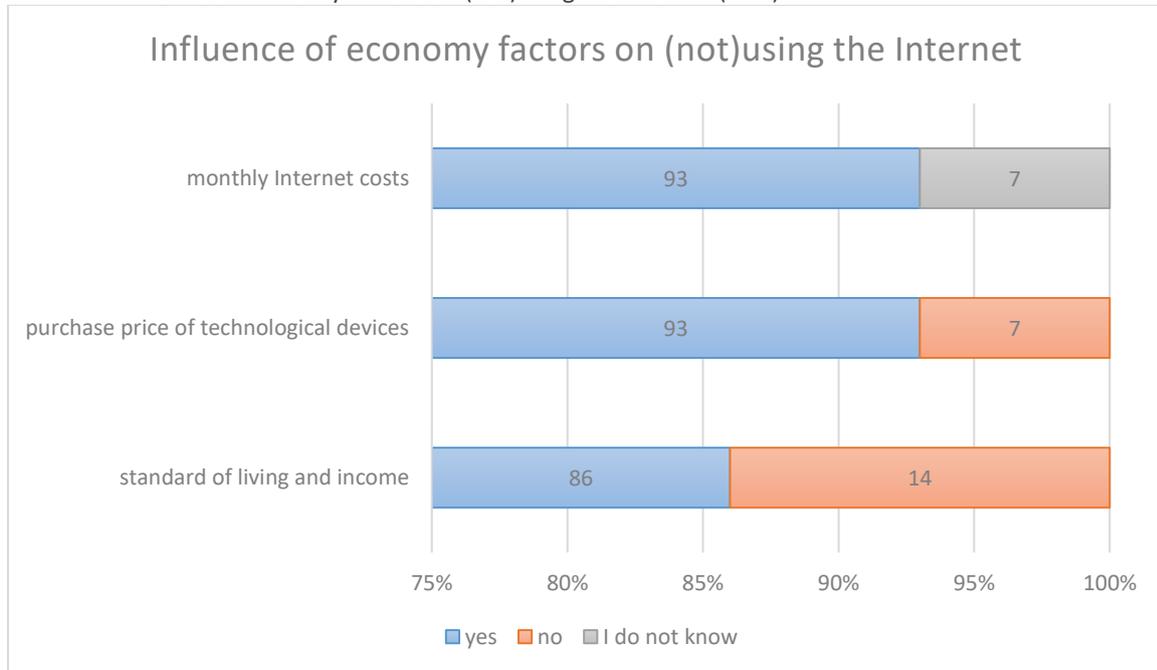
Chart 20 What kind of information the elderly want to learn in the training (in %)



Economic factors

Using of the Internet is also affected some economic factors. This is something agreed also among participants. In total 93 % of elderly people think that monthly spends affect using the Internet and also buying technological devices. See **Chart 21**.

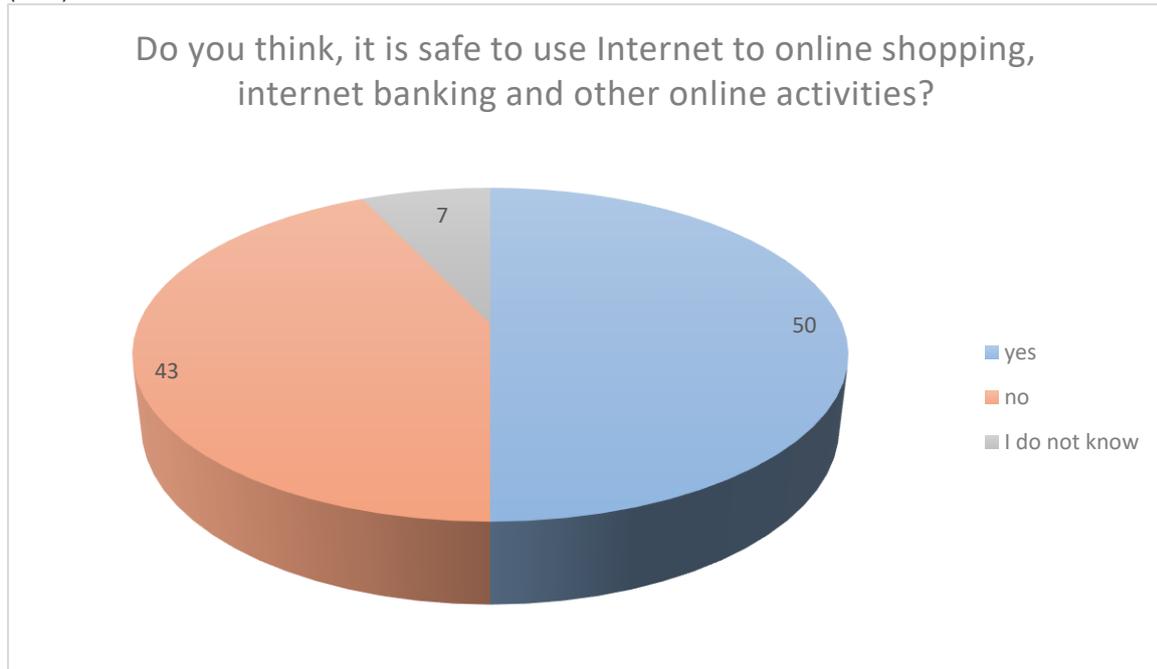
Chart 21 Influence of economy factors on (not)using the Internet (in %)



Online dangers and threats

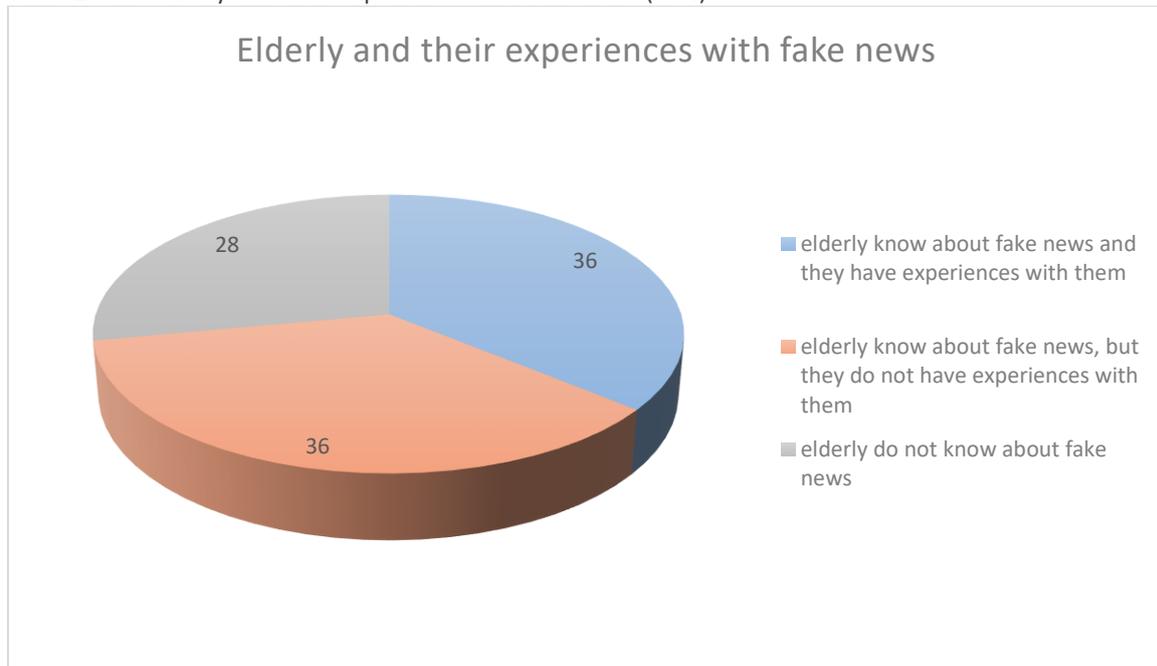
Last part of interviews with the elderly was focusing on online dangers and threats. Half of the participants think that online shopping, internet banking or other online activities on the Internet are safe. In the opinion of elderly people, the biggest advantage is saving your time and wide options of choice. On the other hand, as disadvantages participants mentioned problems with refunding the money from fraudulent e-shops and stealing of access data. For more information, see **Chart 22**.

Chart 22 Do you think, it is safe to use Internet to online shopping, internet banking and other online activities? (in %)



Most of the participants do not care at all about the truthfulness of the online information and sources. In total 15 % of elderly people study the information and sources, when they are in doubts. Experiences with fake news are totally different among the elderly. Over one third of them have read/seen some type of fake news. Same share of the elderly have not already read/seen any fake news, but they know that they are exist. See **Chart 23**.

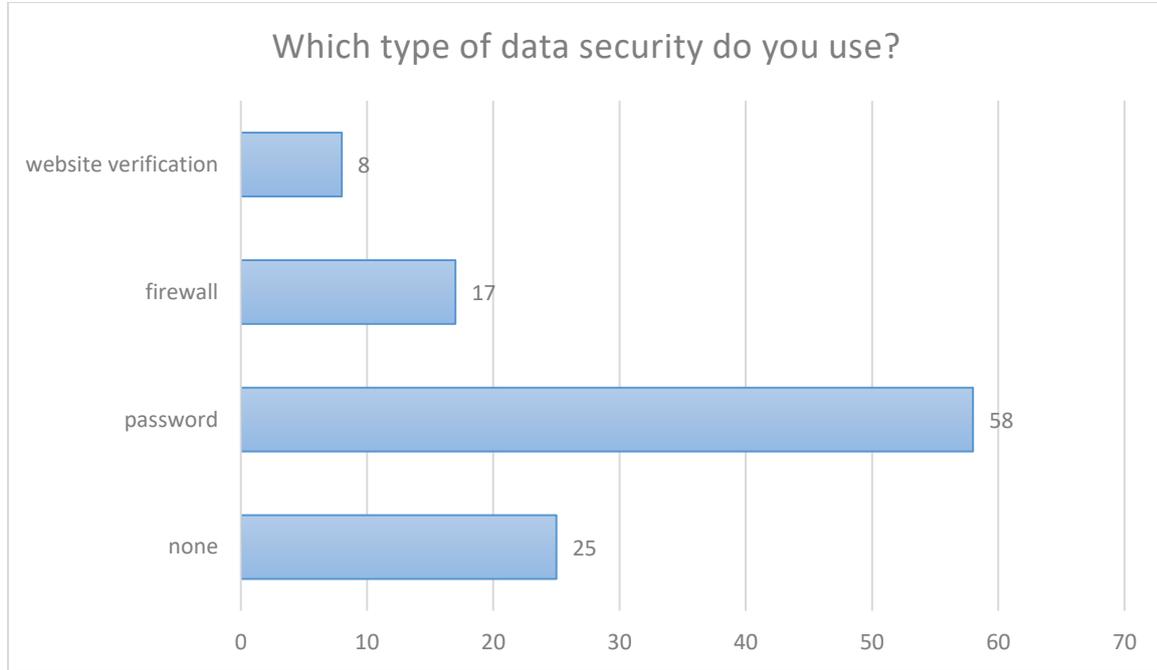
Chart 23 The elderly and their experiences with fake news (in %)



The highest share of participants for data security use most often password. The share can be probably higher than 58 %, but if participants have set up to login automatically, there is possibility they do not realize that they use this type of data security. In total 17 % of elderly people also set up firewall in

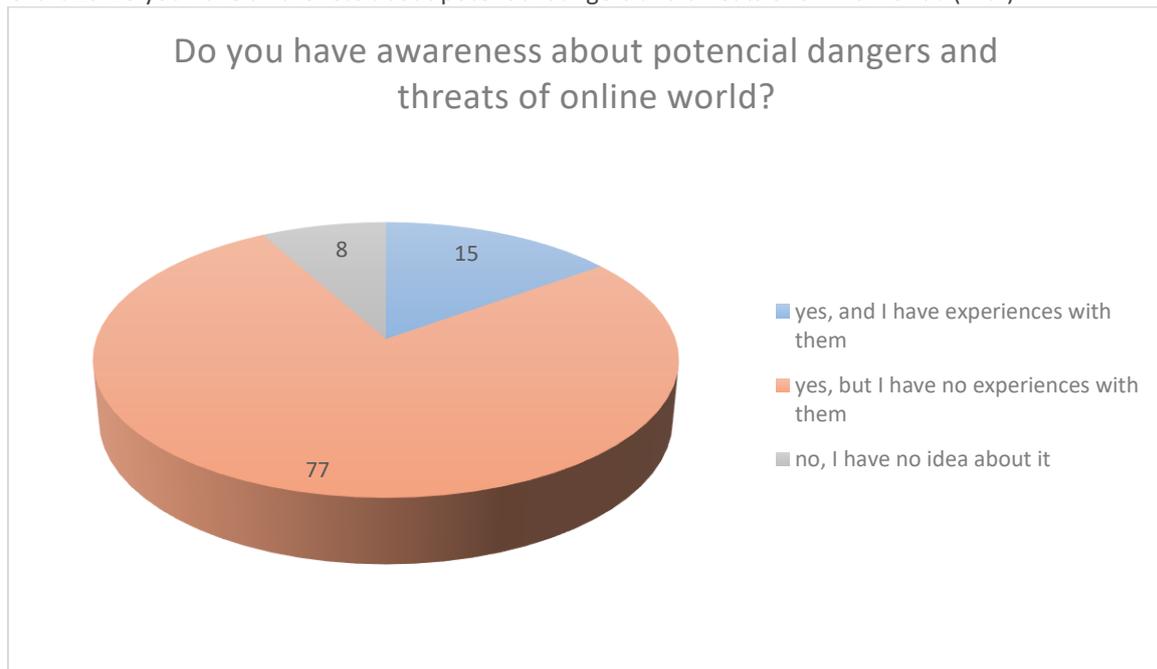
their devices. However, this type of data security is quite complicated for the elderly, and there is possibility they use it without their knowledge. Quarter of participants do not use any tool for protection of their data. For more information, see **Chart 24**.

Chart 24 Which type of data security do you use? (in %)



Among the elderly was found out relatively high level of knowledge about the threats, such as phishing, scam, and identity thefts. In total 77 % of elderly people, mentioned they know about online dangers and threats, but they do not have any experiences with them. Only 8 % of participants did not know about the dangers and threats of online world at all. See **Chart 25**.

Chart 25 Do you have awareness about potential dangers and threats of online world? (in %)



2.3 Key findings

Although the elderly would be able to live without digital technologies, they are very important to them, especially for communication with their relatives and loved ones. The elderly also often use e-mail and search news through web browsers. For these activities they most often use laptop or personal computer. However, most of the participants would like to make more use of the opportunities that the Internet and digital technologies offer us. As a main obstacle for them is development of technology, which is quite fast and they have problems to adapt to new environment/functions. In addition, they often need help from another person to solve problems. In some cases, for someone, the economic reasons can be an obstacle.

According to answers, the elderly would like to focus, in their personal development, on how to use:

- ▶ the web browsers;
- ▶ services and applications for messaging, calling and video calling.

In accordance with the results about the digital security in online world, it would be also appropriate to focus training on this topic. The training should be individual, taking into account previous experiences and their pace of learning.

3 Survey between professionals and family members

The survey with professionals and family member was conducted in cooperation with SeneCura SeniorCentrum Klamovka s.r.o. and Život Plus, z. ú. The questionnaires was distributed in printed and online form. The aim of the survey was completion of the information, which we found out during interviews with the elderly. We want to get deeply insight on issues the elderly have to face in connection with using digital technologies. Next aim of this survey was to find out, what needs elderly people may have and need to develop in the field of ICT skills.

3.1 Researcher file

Our sample consisted of 34 professionals or family members (22 professionals, 12 family members). All respondents were from the Czech Republic, but according to their nationality some of them were Slovak, Ukrainian, and American, rest of them were Czech nationality. Sample of participants according to their age is described in **Table 3**.

Table 3 Survey - Overview of participants according to their age

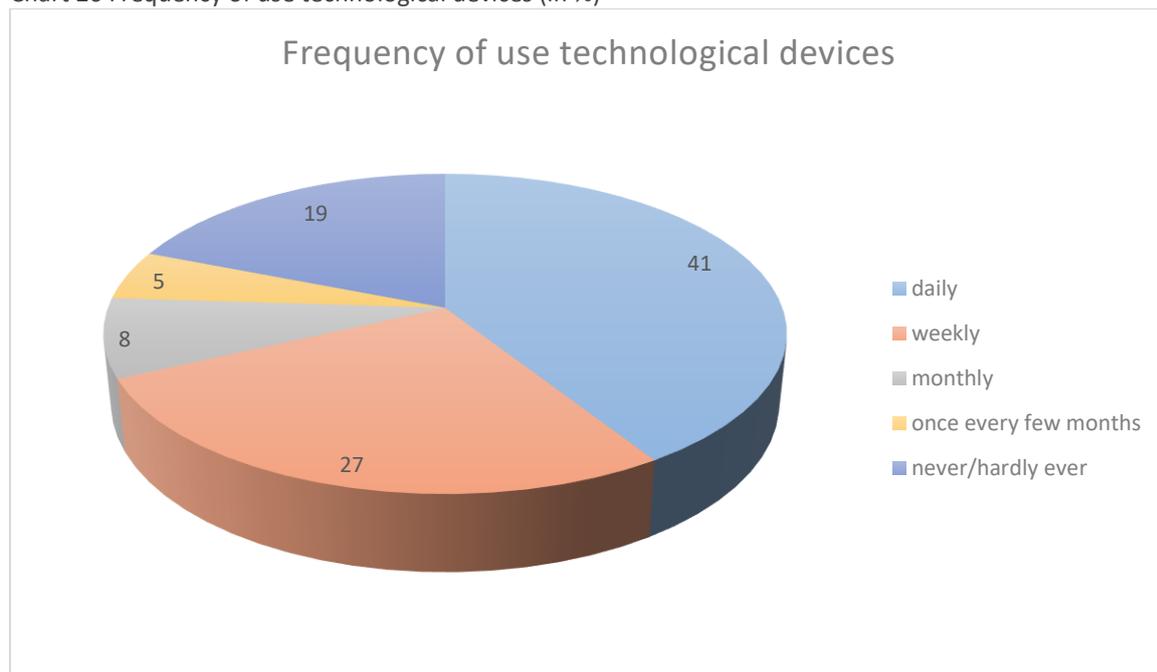
Age group	Count	Percentage
18–24	4	11,8 %
25–39	12	35,3 %
40–60	11	32,3 %
60+	7	20,6 %
Total	34	100,0 %

3.2 Results

Ownership of electronic devices and their use by the elderly

According to answers of the respondents (only professionals), almost 70 % of the elderly do not own some type of technological devices at all. As a main reasons, why the elderly do not own any technological devices are lack of digital skill, or they simply do not have interest in. Almost half of the elderly use their technological devices on daily basis, only 20 % of the elderly use devices never/hardly ever. For more information see **Chart 26**.

Chart 26 Frequency of use technological devices (in %)



ICT knowledge and skills of the elderly

In this part of survey respondents decided, on scale from 1 (strongly agree) to 5 (strongly disagree), if they agree or disagree with statement about ICT knowledge and skills of the elderly.

The most often respondents **agreed** with statements that the elderly:

- ✓ can find support and assistance in case of technical problem, or when they use new device, program or application (38 %), and
- ✓ know, how to solve routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection) (33 %).

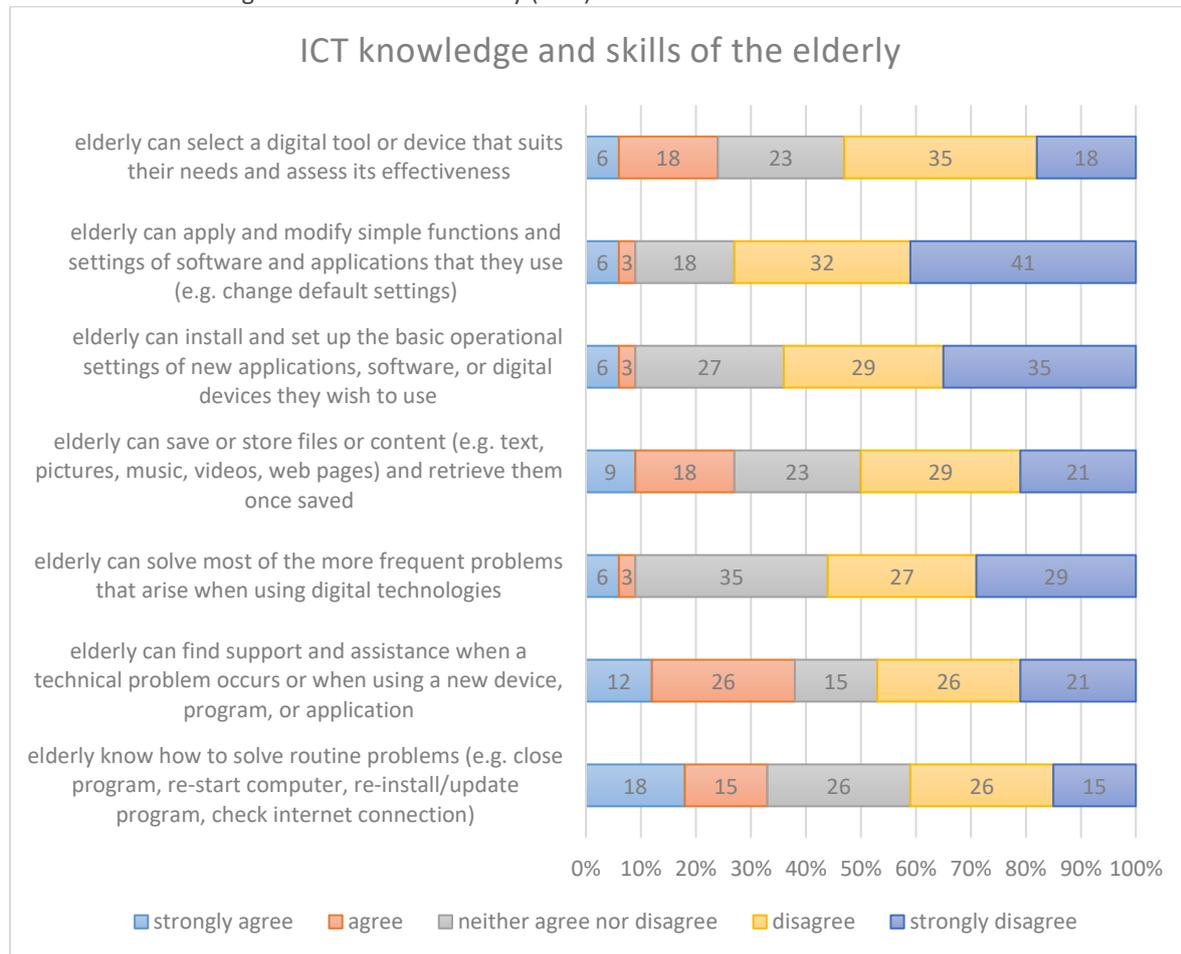
On the other hand, respondents **disagree** with statements that the elderly can:

- ✓ apply and modify simple functions and settings of software and application that they use (e.g. change default settings) (73 %), or
- ✓ install and set up the basic operational settings of new applications, software, or digital devices, they wish to use (64 %).

However, for all of the statements, there were a lots of respondents, who strongly disagreed with the statements. From the answers of respondents, we can see that, in their opinion, the elderly rather do

not have this ICT knowledge and skills, or only to limited extent. More information is described in **Chart 27**.

Chart 27 ICT knowledge and skills of the elderly (in %)



On the same scale, respondents also decided, how they agree with statements about online safety of the elderly.

The most often respondents **agreed** with statements that the elderly:

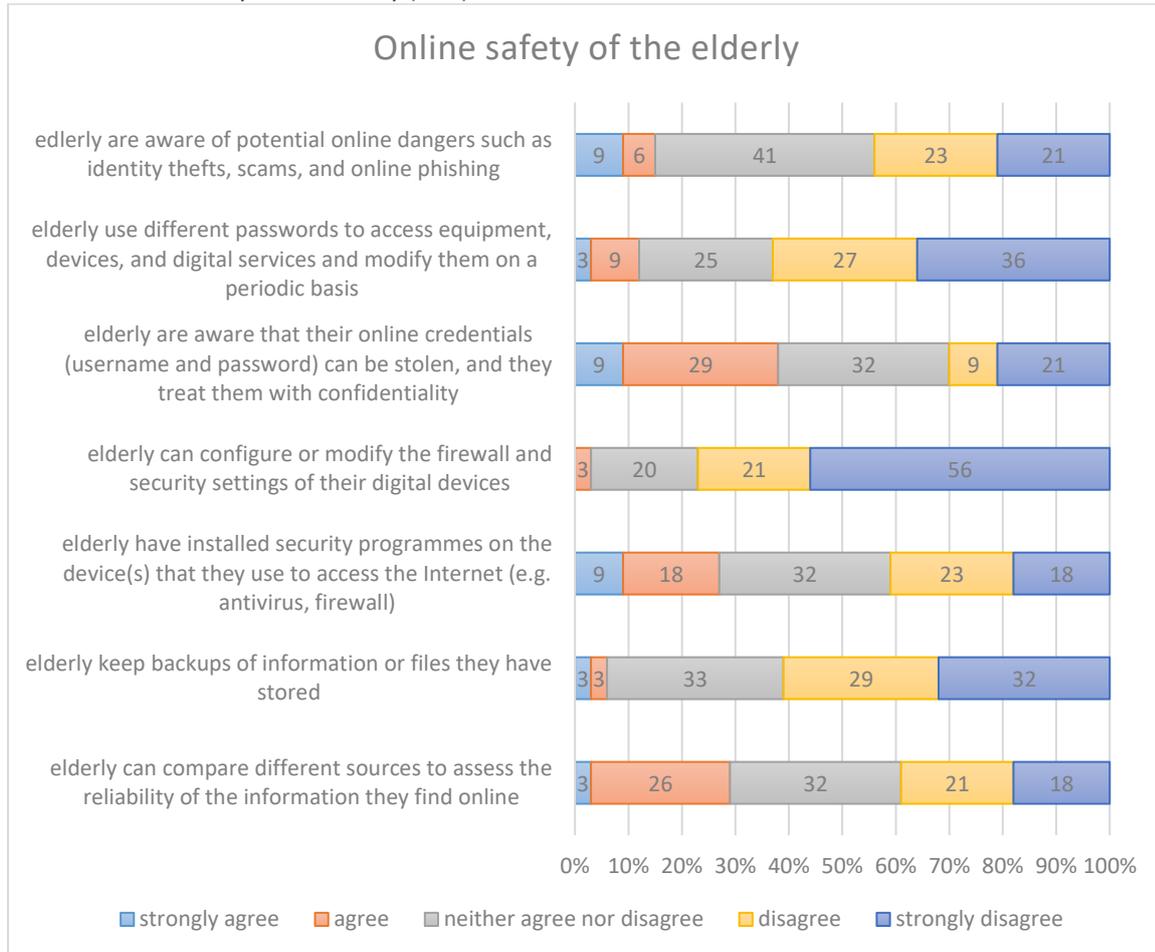
- ✓ are aware that their online credentials (username and password) can be stolen, and they treat them with confidentiality (38 %), and
- ✓ can compare different sources to assess the reliability of the information they find online (29 %).

On the other hand, respondents **disagree** with statements that the elderly:

- ✓ keep backups of information or files they have stored (61 %), or
- ✓ can configure or modify the firewall and security setting of their digital devices (77 %).

The answers of respondents show us, that the elderly have basic awareness about online safety at least, but practically, they are not able to apply this knowledge (beyond comparing various sources and verifying the reliability of information). For more information see **Chart 28**.

Chart 28 Online safety of the elderly (in %)



About half of the elderly, according to respondents, have very adequate or adequate knowledge about the opportunities, which the Internet and digital technologies can offer us. The second half of the elderly do not have awareness about the opportunities at all or very inadequate. This fact, can affect share of the elderly who are using the Internet and digital technologies. See **Chart 29**. More than one third of elderly people, according to respondents, take advantage of opportunities very adequate or adequate. For more information see **Chart 30**. Half of the respondents was not able to say, if the level of ICT knowledge of the elderly affect their lives or not. Quarter of respondents think that level of ICT knowledge affect elderly people lives, as well as the quarter of respondents do not think so.

Chart 29 What knowledge do elderly people have about the opportunities offered by the Internet and digital technologies? (in %)

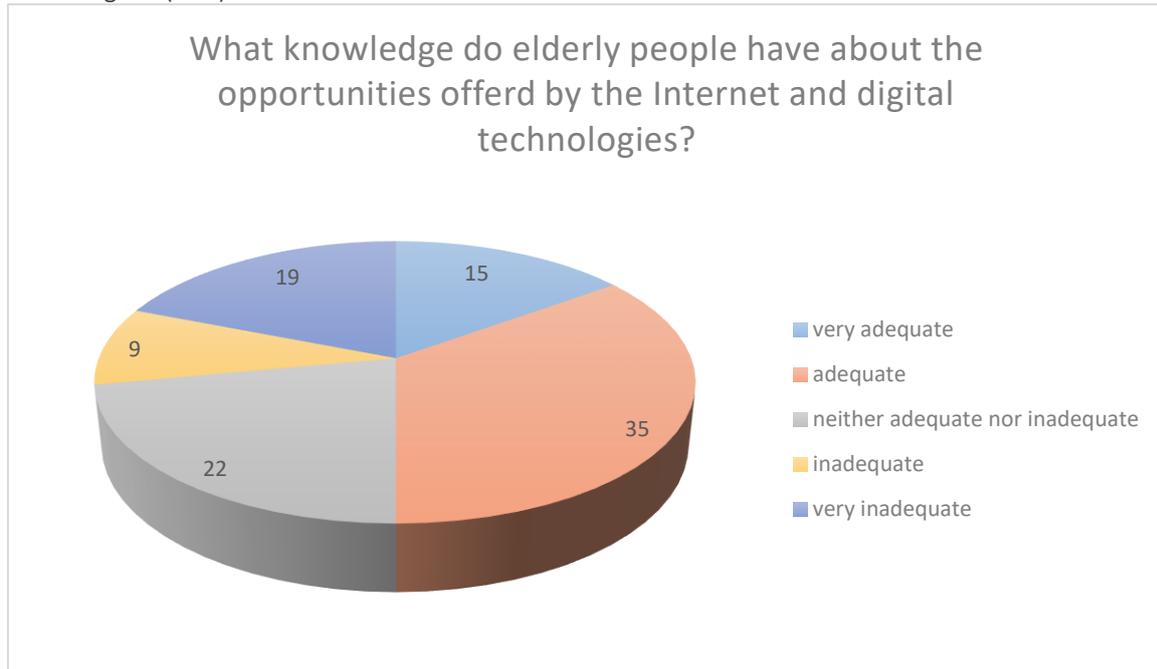
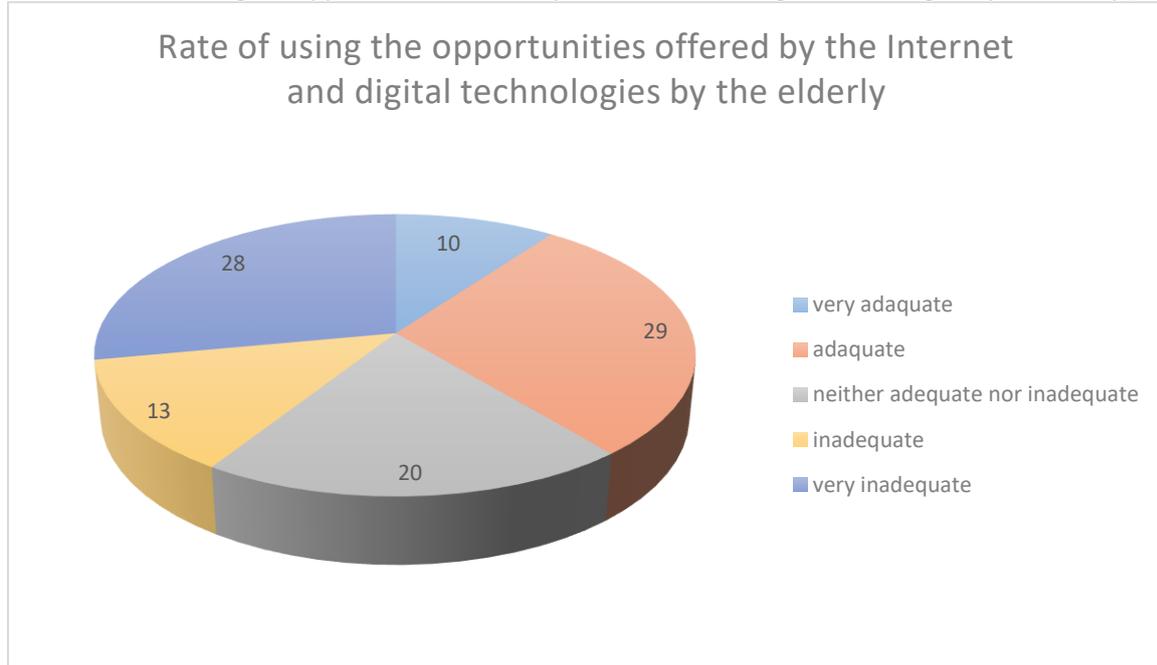


Chart 30 Rate of using the opportunities offered by the Internet and digital technologies by the elderly (in %)

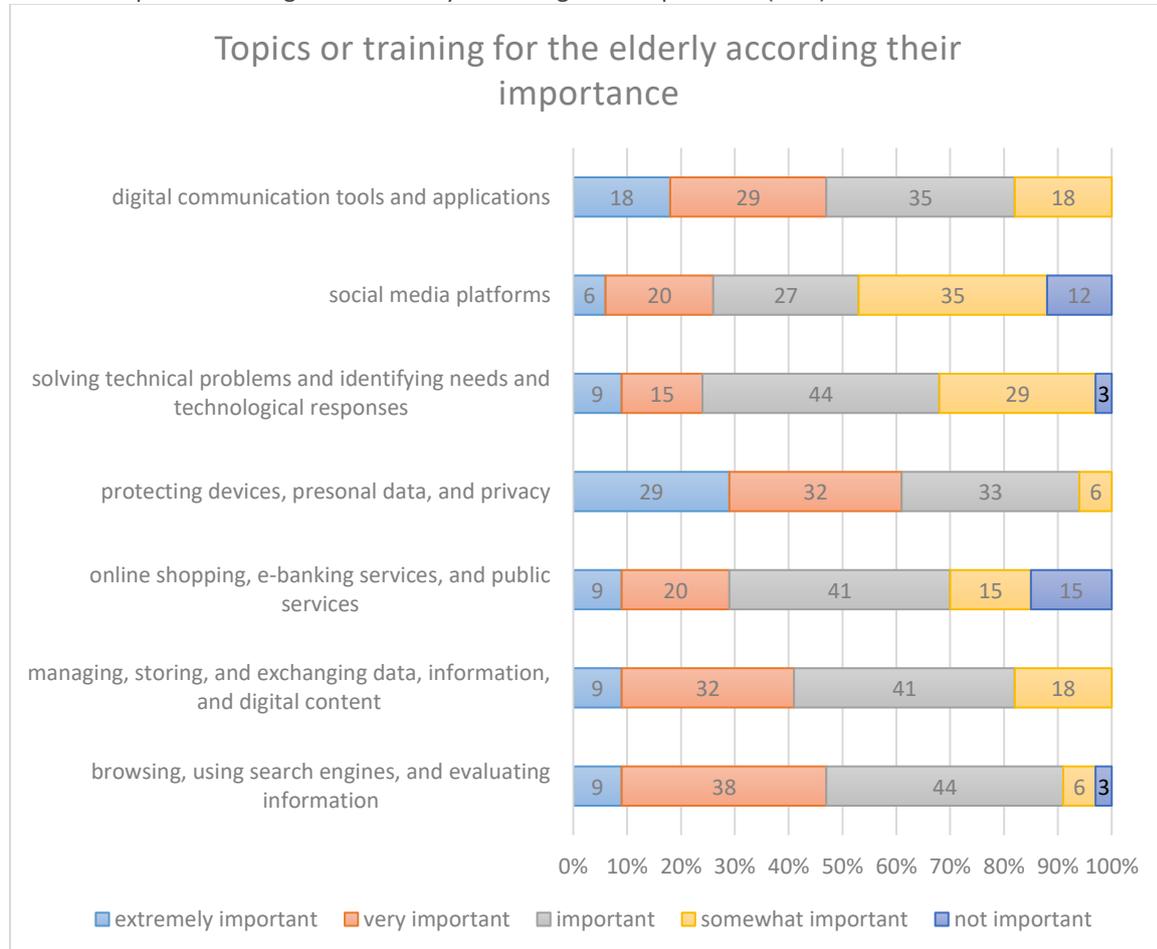


ICT training program for the elderly

Next part of the survey aims to determine the importance of individual topics for training program for the elderly, which focus on raising the level of ICT knowledge and skills of the elderly. According to the respondents, the most important topic for training is: *Protecting devices, personal data and privacy* (61 %). As (extremely) very important respondents also consider: *Digital communication tools and applications* (47 %), *Browsing, using search engines, and evaluating information* (47%), and also *Managing, storing and exchanging data, information, and digital content* (41%). On the other hand, according the respondents, the less important topics for training are: *Online shopping, e-banking*

services, and public services (30 %), Social media platforms (47 %), or Solving technical problems and identifying needs and technological responses (32%). Detailed information shows **Chart 31**. Respondents also think it is important to include topic such as *Orientation in the operating system of devices and its basic use*, or *The Internet and its use*.

Chart 31 Topics of training for the elderly according their importance (in %)



According to the respondents, there are a lot of challenges, which the elderly have to face. The main obstacle, in their opinion, is that the field of ICT technologies is very complicated and complex. The applications, also software, have very often new updates or functions and some elderly people do not understand the virtual world. This is related to ignorance of this area. According to the respondents, the elderly are not informed enough about the ICT technologies and they can fear them.

Finally, in accordance with the opinion of the respondents, the most effective methods of training in the field of ICT technologies is individual training. One-to-one training should use practical examples and include several repetitions for each area or topic.

3.3 Key findings

About 70 % of the elderly do not own the technological devices at all. The main reason for that is not only financial, but especially lack of digital skills and interest. The elderly rather do not have the necessary ICT knowledge and skills at all, or the knowledge is very limited. The most often problems in the field of ICT technology, according to participants, are:

- ✓ the elderly cannot apply and modify simple functions and settings of software and applications, which they use, or
- ✓ they cannot install and set up the basic operational setting.

The elderly have basic awareness about online safety at least, but they are not able to apply this knowledge in practice (beyond comparing various sources and verifying the reliability of information).

The most important topics for the training are:

- ▶ Protecting devices, personal data and privacy,
- ▶ Digital communication tools and applications,
- ▶ Browsing, using search engines, and evaluating information,
- ▶ Managing, storing and exchanging data, information, and digital content.

The main obstacle for developing ICT knowledge and skills of the elderly is, that the field of ICT technologies is very complex. The elderly are not informed enough about the ICT technologies and opportunities they can offer us, so they can fear them and they could not understand them and the virtual world.

The most effective way, how to improve elderly people's ICT knowledge and skills is one-to-one training with practical examples and several repetitions for each topic or area.

4 Social experiment with the elderly

Social experiment with the elderly was prepared by Život Plus, z.s. with cooperation of SeneCura SeniorCentrum Klamovka, s.r.o. The social experiment has two basic objectives. The first objective was to assess the susceptibility and vulnerability of the elderly who have limited ICT knowledge and skills. The second one was raise the participants' awareness and sensitivity regarding the dangers and potential harmful effects of the digital world if they do not possess the required skills and access to verify potentially misleading information.

4.1 Research files

Our sample consisted 12 elderly people (3 male, 9 female) in average age 89 years. Participants were divided into two groups. The social experiment was led by an activation worker of SeneCura SeniorCentrum Klamovka. The participants were more open minded and felt more comfortable because they know interviewer very well. The participants did not want to record this, so two employers of Život Plus wrote notes.

4.2 Articles

For the social experiment was created 6 articles, 3 fake and 3 real.

The real news headlines were following:

1. Anyone can buy a tracking program, sometimes the victims have no choice, but to change their phone.
2. Where is the risk of covid-19 infection? New evidence from scientists will not please you.
3. The effectiveness of AstraZeneca after a single dose is 76 percent.

The fake news headlines were following:

4. Czech children will now learn multicultural education instead of the laws of physics
5. Vegetarians getting tougher! Meat and the salami will disappear from stores after their pressure for a month! It's a test.
6. In the Czech Republic, business has grown with covid-19 tests, their results are known in advance! According to the obtained information, the regions also took part in the machinations.

4.3 Results

As you can see in **Table 4**, participants did not have much difficulties to recognize real news. The average accuracy was about 80 %. The highest accuracy was 100 %, and the lowest was 50 %. The average accuracy of fake news was a little bit lower than for real news. The average accuracy of fake news was around 75 %. More information contain **Table 4** below.

Table 4 Social experiment - Answers by participants

News Participant	Answers								
	Real News				Fake News				Total accuracy rate
	1	2	3	Accuracy rate	4	5	6	Accuracy rate	
Group 1									
1	R	R	N	100,0 %	N	F	N	100,0 %	100,0 %
2	U	R	N	50,0 %	N	F	N	100,0 %	66,7 %
3	U	R	N	50,0 %	N	F	N	100,0 %	66,7 %
4	R	R	N	100,0 %	N	F	N	100,0 %	100,0 %
5	R	R	N	100,0 %	N	F	N	100,0 %	100,0 %
6	U	R	N	50,0 %	N	F	N	100,0 %	66,7 %
Group 2									
1	R	R	R	100,0 %	U	F	R	33,3 %	66,7 %
2	R	U	R	66,7 %	F	F	U	66,7 %	66,7 %
3	R	R	R	100,0 %	F	F	U	66,7 %	83,3 %
4	R	R	R	100,0 %	F	N	R	50,0 %	80,0 %
5	R	R	F	66,7 %	F	F	R	66,7 %	66,7 %
6	R	R	N	100,0 %	F	N	U	50,0 %	75,0 %

Answers		Description
R	Real	
F	Fake	
U	Unsure	considered as wrong answer in the statistics
N	No answer	not included in the statistics of rate accuracy

1st group of participants

The most interesting, for participants, was article no 2 about covid-19. After short discussion all participants agreed that the content must be true, because the conclusions of this article was based

on scientific studies. But participants mentioned, it is very important from which country the study is. For example, they do not believe studies created in China.

Next article, which started discussion was article no 5 about vegetarians. All participants agreed the article is fake. Participants also explained reasons, why it is not possible that the article is real.

Another article, was article no 1 about tracking program. Participants did not have any doubt about the truthfulness, based only on the headline. They discussed about it and they agreed it could be true. But, the discussion was mostly about their fear from digital technologies and their worries about the hacker attack. Because of this reason they do not want to use for example internet banking.

2nd group of participants

The most interesting, for participants, was article no 1 about tracking program. More than the information in the article, they discussed about their online safety. They, think that the username and password is sufficient protection and hacker must have very experienced to break the password. But the participants agreed that they believe information in the article and they did not questioned them in any way.

Next article, was article no 6 about the fake covid-19 tests. The participants were not be really sure, if information in the article is really true or not. Some of them mentioned that there is lot of information about covid-19 pandemic, that he/she do not know, what to believe, so this article could be real. Also, when they saw photographs, they consider it as real news.

With another article related with covid-19, article no 6, some participant had same problem as it was mentioned above – he/she does not know, what to believe. But most of the participants agreed, that information in the article are real.

Participants also talked about article no 5. They agreed that information in the article are fake, but the topic of the article was not interesting to them, so they did not discuss it for a long time.

Another article, was article no 4 about multicultural education. Most of the participants agreed that the article is fake, because it is not possible to cancel education of physics.

4.4 Key findings

The social experiment showed that elderly people can relatively correctly estimate, if presented information in the articles are truthful or not. It was absolutely obvious, that participants questioned information contained in all fake news and they do not want to accept information in the article. By contrast, in most cases, they did not see any mistakes in true articles, or they only questioned just part of them or just specific information. However, we have to keep in mind that some of the participants may have been influenced by what another participant said about the article before them. The reason is, that not all of the participants was so active during the discussion. The desire for discussion was significantly different among the elderly, so more active participants could influenced the less active. Also the activity to discuss was bigger, when the topic of the article was interesting to them.

Participants, very often assessed the truthfulness of presented articles based on their personal experiences and knowledge of the topic. When participants did not have these skills and knowledge, it was very difficult for them to say, if the presented articles are true or not.

5 Conclusions and recommendations

The field of science, technology and innovation is one of the key elements and the use of ICT technologies leads to an increase in the quality of life of the whole society. However, we can still meet groups of people who are at risk of digital illiteracy, including also the elderly. The notion that the elderly are not able to use digital technologies is no longer true. Digital literacy of the elderly is continuously growing, but they can still be at risk of social exclusion. The main reason for social exclusion is not only the unfamiliarity with technology and lack of (digital) skills, but also, for example, the content on the Internet, which is not intended for their age group.

The number of the elderly, who own computers, smart phones or tablets and use the Internet is still growing. But the technological barrier is still the main reason why the elderly do not use digital technologies and the Internet. The elderly mostly do not have the necessary ICT knowledge and skills at all, or the knowledge is very limited. So, for example, they cannot apply and modify simple functions and settings of software and application, or install and set up the basic operational settings. In connection with these difficulties, the main obstacle in improving their ICT skills, is the technology development, which is quite fast and they often have difficulties with adapting to new environment and functions of software and applications. Also, they very often lack awareness with regard to the purposes for which they can use ICT technologies, for what reason or what activities they can use them for, so, they are not able to take advantage of what ICT technologies can offer.

The elderly most often use ICT technologies for communication, especially via e-mail or applications such as WhatsApp or Skype. But, we have to keep in mind, we did not look into the content of the e-mails. Based on limited digital literacy of the elderly, many e-mails sent by them could be a spam as well. In general, they use the communication applications to stay in touch with their families and close relatives as well as an e-mail, and thus, the popularity of these communication techniques are still growing. For many elderly people digital technologies are very important and they are cannot imagine their lives without them, because they use them to stay in touch with their loved ones, especially in times of the covid-19 pandemic. However, most of the elderly would like to make more use of the opportunities that the Internet and digital technologies offer us.

The use of ICT technologies, even just for communication, is connected with safety. The elderly are well aware that their online credentials (username and password) can be stolen, and they treat with them confidentiality. On the other hand, for example, they are not able to configure or modify the firewall and security settings of their digital devices. Generally, we can say, that the elderly have very basic awareness about online safety but they are not able to apply this knowledge in practice, beyond comparing various sources and verifying the reliability of information. In general, we can say that digital skills in the topic of online safety is very low among the whole Czech population and it is even worse with the elderly since they are missing basics due their age they growth.

5.1 Recommendations for training

According to the analysed data, the most important topics for the training are:

- ▶ Protecting devices, personal data and privacy,
- ▶ Digital communication tools and application,
- ▶ Browsing, using search engines, and evaluating information,
- ▶ Managing, storing and exchanging data, information, and digital content.

The most effective way, how to improve the elderly ICT knowledge and skills is one-to-one training with practical examples and several repetitions for each topic or area of the training. Another way how is possible to make education more attractive to the elderly is gamify the technology and thus come closer to their age group.

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