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SAFER SENIOR CITIZENS ONLINE

SENIORZY BEZPIECZNIEJSI W INTERNECIE

Streszczenie: Dynamiczny rozwój technologii cyfrowych znacząco zmienił sposób, w jaki ludzie komunikują się i pracują. Szybka ekspansja technologiczna oraz szeroki dostęp do Internetu sprawiają, że tradycyjne usługi są coraz częściej porzucane na rzecz usług online. Jednakże, wraz z postępem technologicznym, rośnie także ryzyko związane z zagrożeniami cybernetycznymi. Ataki hakerskie, phishing czy kradzież tożsamości zagrażają prywatności i bezpieczeństwu użytkowników online. Niniejszy artykuł koncentruje się na sytuacji osób starszych w Polsce w kontekście rozwoju nowych technologii i cyberbezpieczeństwa. W pierwszej części autor analizuje najnowsze raporty dotyczące cyberbezpieczeństwa i zagrożeń cybernetycznych wobec seniorów. W drugiej części: przedstawia wyniki własnych badań uzyskane na podstawie ankiet przeprowadzonych wśród osób w wieku 60 lat i starszych.

Słowa kluczowe: senior, cyberbezpieczeństwo, zagrożenia cybernetyczne

Abstract: The dynamic development of digital technologies has significantly changed the way people communicate and work. Rapid technological expansion and a more widespread access to the Internet mean that traditional services are increasingly being abandoned in favour of online services. However, as technology advances, so do the risks associated with cyber threats. Hacking attacks, phishing or identity theft threaten the privacy and security of online users. This paper focuses on the situation of senior citizens in Poland in the context of the development of new technologies and cybersecurity. In the first part, the author analyses the latest reports on cybersecurity and cyber threats to seniors. In the second part, the author presents the results of her own research obtained from surveys conducted among people aged 60 and older.

Keywords: senior, cybersecurity, cyber threats

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Background

The development of the modern world is strongly tied to dynamic technological advancement. Traditional services are giving way to online services, which facilitate access to various benefits and online solutions, such as online shopping, electronic payments, and electronic banking. However, the expansion of technology and the growing number of Internet-connected devices also present vulnerabilities that can be exploited by hackers and scammers.
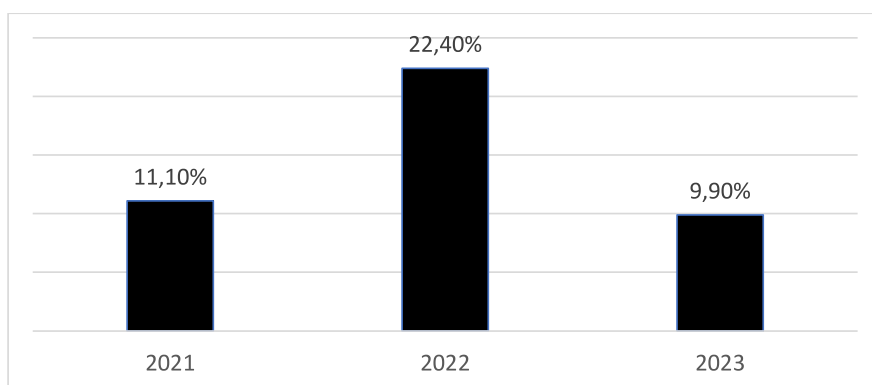
The series of studies titled "Dane osobowe — czy wiemy, jak je chronić?" (Personal Data: Do We Know How to Protect It?), prepared by ChronPESEL. pl in collaboration with Krajowy Rejestr Długów (National Debt Register) and conducted in May 2023 under the auspices of UODO (Polish Office for Personal Data Protection) and Instytut Prawa Ochrony Danych Osobowych (Institute for Personal Data Protection Law), revealed that one in three people have experienced a phishing attempt on their data via a fake SMS, telephone call, or e-mail in the past 12 months. However, just over half (55.5%) of those surveyed knew how to respond to such a situation. When asked if they knew how to keep their personal data secure, nearly 89% of respondents answered affirmatively. However, only one in eight of those surveyed was 100 percent confident in their knowledge. The youngest respondents, aged 18-24 and 25-34, showed the most self-confidence, with 20% in these groups stating they knew how to protect themselves. The groups aged 55- -64 and 65-74 fared the worst. Among those aged 55 to 64, fewer than 10 percent said they could recognize a fake message from a scammer. This is less than half the percentage from 2022, when the survey showed 22.4 percent.

For the oldest group of respondents aged 65-74, there was an increase of more than five percentage points (from 12% to 17.1%) since 2022 in those who said they would not be able to recognise who they were dealing with a scam.

The authors of the research attributed this change to the ever-growing number of increasingly sophisticated methods criminals are using to scam their targets. Respondents aged 55-64 identified leaks from the databases of public institutions and private corporations as the greatest threat to data security. These concerns differed from those of the youngest participants in the survey. For the 18-24-year-olds, hackers were considered much more dangerous.

Presence and safety of seniors in the world of new technologies

The common perception is that seniors are often seen as a digitally excluded social group, unable to use a computer, the Internet or mobile devices (Garwol & Stebila 2021). A discussion on the digital exclusion and non-exclusion of seniors has been emerging in the literature for several years (Garwol & Stebila 2021). Digital exclusion as a phenomenon is considered one of the reasons for seniors' poor social participation (Fabiś, Wawrzyniak & Chabior 2015). Additionally, digital exclusion

Chart 1. The number of surveyed aged 55-64 who declared *I know how to recognise a fake message/fake phone call in which someone claims to represent a bank, an online shop, a parcel service, or a public institution*

Source: Proprietary work based on the research titled "Dane osobowe — czy wiemy, jak je chronić?" (Personal Data: Do We Know How to Protect It?) and prepared by ChronPESEL.pl with Krajowy Rejestr Długów (National Debt Register) under the auspices of UODO (Polish Office for Personal Data Protection) and Instytut Prawa Ochrony Danych Osobowych (Institute for Personal Data Protection Law), 2023.
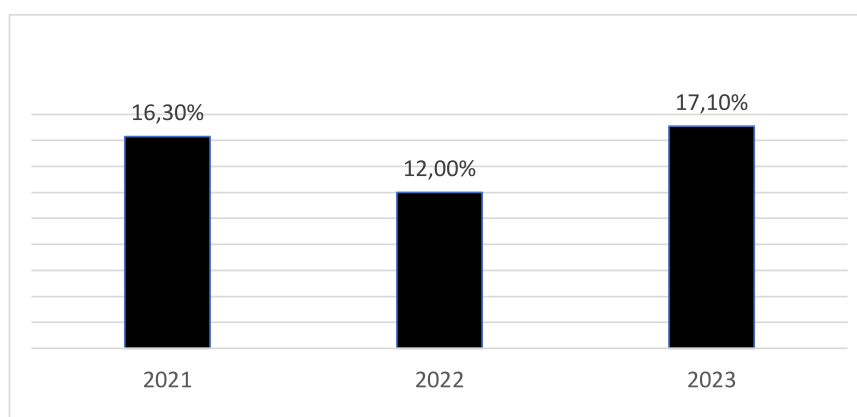
Chart 2. The number of respondents aged 65-74 who declared *I don't know how to recognise a fake message/fake phone call in which someone refers to a bank, an online shop, a courier service or a public institution*

Source: Proprietary work based on the research titled "Dane osobowe — czy wiemy, jak je chronić?" (Personal Data: Do We Know How to Protect It?) and prepared by ChronPESEL.pl with Krajowy Rejestr Długów (National Debt Register) under the auspices of UODO (Polish Office for Personal Data Protection) and Instytut Prawa Ochrony Danych Osobowych (Institute for Personal Data Protection Law), 2023.

can lead to social and economic marginalisation of seniors, such as by marginalising them in the market for consuming various goods and services, where the offerings are often communicated through digital channels. The issue, therefore, is not just one of computer literacy or Internet use, but the widespread use of new technologies both by seniors themselves and by various private, public and social actors whose operations include actions for senior citizens. (Bakalarczyk 2021)

The following reasons are often cited for digital exclusion: lower digital competence among seniors compared to younger people, financial constraints leading to insufficient hardware, technological constraints (no Internet connectivity in rural areas), health problems, low motivation due to lack of interesting services (or knowledge about them), reluctance to change, and concerns for using new technologies. The poor use of modern media by seniors, the incompatibility between online government services and their usability for seniors, and the lack of sufficient systemic solutions to address these issues are also cited as problems that prevent seniors from effectively using welfare services via ICT (Czarnecka, Kelm & Koczur 2023).

Despite the aforementioned restrictions and concerns, there has been a steady increase in the number of seniors using the Internet in recent years. According to the results of the study "Społeczeństwo informacyjne w Polsce w 2022 r." (The 2022 Information Society in Poland) provided by GUS (Central Statistical Office), there is a consistent increase in the number of people aged 55-64 and 65-74 who regularly use the Internet. Comparing 2022 and 2021, an increase in Internet use was 4.2 percentage points for the 55-64 age group, and 5.1 percentage points for the 65-74 age group. Although this increase was the highest among all age groups, seniors remain the group that uses the Internet the least.

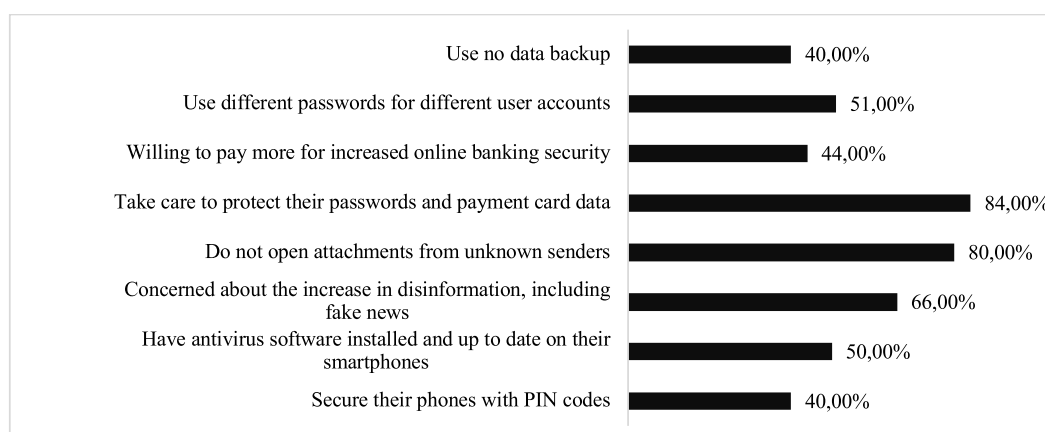**Table 1. Regular Internet users by age group**

Specification	2018	2019	2020	2021	2022
	% of total group population				
16-24 y.o.	98.8	99.3	99.2	98.4	99
25-34 y.o.	96.5	97	98.4	98.9	98.7
35-44 y.o.	90.6	94.5	95.2	96.7	97.1
45-54 y.o.	73.4	78.1	84.3	89.1	91.1
55-64 y.o.	50.4	59.9	65.8	71.3	75.5
65-74 y.o.	29.8	33.3	40.4	45.9	51

Source: Proprietary work based on the study "Społeczeństwo informacyjne w Polsce w 2022 r." (The 2022 Information Society in Poland), GUS (Central Statistical Office), 2022.

Seniors are also the social group most susceptible to scams and manipulation, so it is necessary to raise their awareness of the risks associated with sensitive data theft, including personal data, logins, passwords, and more (Adamczyk & Lisiecka-Bednarczyk 2022).

The research titled "Postawy Polaków wobec cyberbezpieczeństwa (Poles' Attitudes Towards Cybersecurity), developed as part of "Bezpieczeństwo w Cyberprzestrzeni" (Security in Cyberspace) project by the WIB Foundation (Warszawski Instytut Bankowości) and Związek Banków Polskich (Polish Bank Association) in June 2023, shows that the most common age group that does not

use any data backup is those aged 65 and over (40% of seniors do not make any backups). However, this group performs best in using different passwords for different accounts, with as many as 51% of the seniors surveyed declaring that they use varied passwords across accounts. Additionally, almost half of the seniors surveyed (44%) stated they were willing to pay more for increased online banking security, including allocating small amounts monthly for the purpose. As many as 84% of people over 65 years old said they took care to protect their passwords and payment card details, while 80% of the group would not open attachments from unknown senders. The surveyed seniors appeared to be the most concerned group in Poland about the potential increase in disinformation, including fake news, in connection with the parliamentary elections in Poland (66% of them expressed apprehension). Half of the people aged 65+ had antivirus software installed and up to date on their smartphones and 40% of these seniors secured their phones with a PIN code.

Use no data backup	40,00%
Use different passwords for different user accounts	51,00%
Willing to pay more for increased online banking security	44,00%
Take care to protect their passwords and payment card data	84,00%
Do not open attachments from unknown senders	80,00%
Concerned about the increase in disinformation, including fake news	66,00%
Have antivirus software installed and up to date on their smartphones	50,00%
Secure their phones with PIN codes	40,00%

Chart 3. Cybersecurity Attitudes of people aged 65+

Source: Proprietary work based on the research titled "Postawy Polaków wobec cyberbezpieczeństwa (Poles' Attitudes Towards Cybersecurity), part of the project "Bezpieczeństwo w Cyberprzestrzeni" (Security in Cyberspace), the WIB Foundation (Warszawski Instytut Bankowości) and Związek Banków Polskich (Polish Bank Association), 2023.

The research project

The research that formed the basis of this paper was performed in the form of a standardised interview (Kwieciński & Śliwerski 2004). The interviews were conducted from May to December 2023. Fifty-five people aged 60 and over (as defined by the Polish Senior Citizen Act of 11 September 2015) participated in the survey.

The population of interest was predominantly represented by people living in urban areas (73%), with women accounting for 62%. Basic vocational education was held by 25% of the seniors, primary education by 4%, secondary education by 9%,

secondary vocational by 20% and university education by 42%. The respondents most often rated their computer literacy as good (40%) or basic (35%). Similarly, they rated their ability to use a smartphone as good (42%) and basic (32%). Among the respondents, 22 were members of the Association of University of the Third Age in Płock, who had taken computer and mobile device courses.

As part of the survey, seniors were asked multiple questions, including their use or non-use of computers and smartphones, the purpose of the usage, their use or non-use of the Polish Trusted Profile, online banking services, and the IKO (Online Patient Account), as well as whether they shop online. The seniors were also surveyed about the barriers to their use of novel technological solutions.

In the interviews conducted, 84% of the seniors declared that they were cautious about using novel technological solutions, while 60% admitted that they were afraid to use them, despite generally rating their computer and smartphone skills as good or basic. Those who did not express any caution in using new technologies in (the remaining 16%) were generally respondents who did not use computers or online services.

Chart 4. Seniors' attitude towards cyber threats

Caution in using novel technologies was most often linked to fear of losing money (22%). These concerns were raised by respondents regarding the use of online banking services and online shopping. As a result, some of these seniors have either abandoned such services altogether or have become dependent on their relatives to manage their online banking, online shopping or interactions with institutions through online portals.

Example survey statements:

> I am ashamed of not keeping up with technology. I do a lot of things the old-
> -fashioned way out of concern. When I hear that someone clicked something
> somewhere and got scammed, I am scared. I work too hard for my savings […].

> […] I always have a bit of fear that I will be cheated or robbed, for example. But all in all, I'm not that dumb, I can verify if the business or seller is reliable. Still, there is always some anxiety.

> Bank transfers are currently handled by my wife. I don't do transfers. I prefer to pay on delivery. I just don't trust online payments. If my wife goes on strike, I'll have to learn how to do these things.

The second most frequent response cited concerns about receiving phone calls from unknown callers (15%). This concern was driven by the seniors' awareness that unknown phone calls could be attempts to extort personal information or money. Example survey statement:

> When I get text messages or calls on my mobile from unknown callers, I try to approach it very cautiously and with a lot of restraint […].

Anxiety about using new software was reported just as frequently (15%), which was generally caused by the lack of digital skills among the responders. The surveyed seniors were aware of their limitations, but they were unable to overcome these shortcomings. This was due to a lack of help from others, reluctance on the part of the seniors s to change, or resignation caused by memory problems. Example survey statements:

> It's too late to learn. My memory is getting weaker and weaker. I should have learned how to use a computer when I was still at work. In retirement, at home, you're alone, afraid, and don't want to go too far with these things in order not to mess something up.
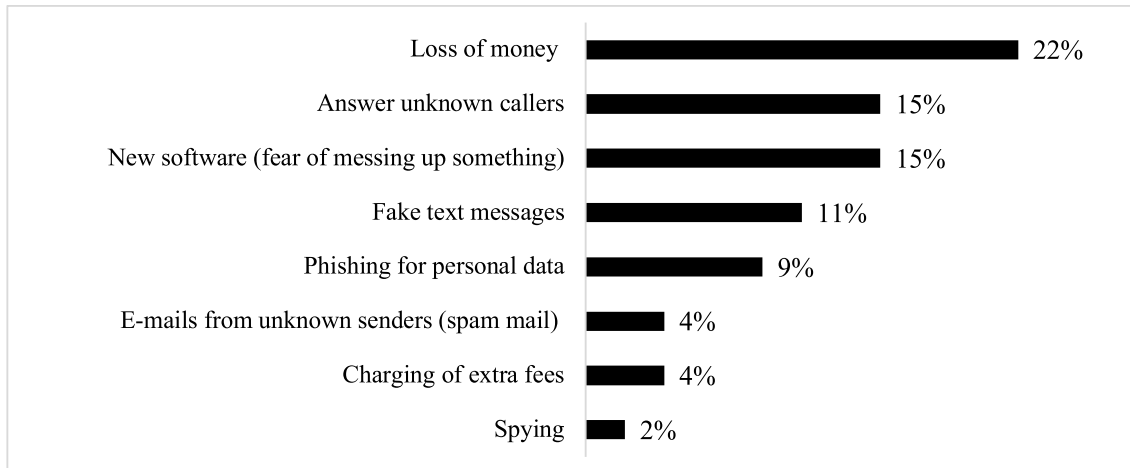
> I'm very scared that I'll do something wrong and lose money. I would very much like to use the Internet because it is a great convenience, especially when I am ill and it's a problem for me to go to the post office or other payment service. I seem to know a bit about this, but I have a fear in me that I will stop at something and be unable to proceed. I would very much like to be independent and use what I want and what helps in my daily life. I am getting older and will become increasingly senile; it would be great to navigate the web better and not rely on others to do it.

As additional reasons for concern, the respondents cited text messages with false information (11%), the danger of phishing for personal data (9%), emails from unknown senders (spam), which often contains dangerous links (4%), the risk of being charged extra fees (4%), and fear of being spied on (2%). Example survey statements:

> I read reviews on my phone, I delete unknown e-mails, and I don't click on any links. I don't use app payments; I don't have any apps at all because you have to provide your details in all of them. I don't have an account on Facebook or Instagram or the like for the same reasons. I respect my privacy.

> I don't use the Internet on my phone because I'm afraid of big charges. Once, when changing phones, the mobile data turned on and I had a big bill to pay.

Loss of money	22%
Answer unknown callers	15%
New software (fear of messing up something)	15%
Fake text messages	11%
Phishing for personal data	9%
E-mails from unknown senders (spam mail)	4%
Charging of extra fees	4%
Spying	2%

Chart 5. What are seniors afraid of in the IT world?

During the survey interviews, some seniors (18%) reported incidents of scam that they or their relatives had personally experienced. In their own words, such incidents influenced them to be more cautious in their use of new technologies or to abandon them altogether. The scams involved text messages and phone calls with false information designed to phish personal details from the seniors and/or steal their funds. The criminals pretended to be parcel couriers, bank employees, power utility service technicians, the police, or real estate agents. Another scam reported in the survey was the "Army doctor" scam used on a dating site, which also ended in an attempt to swindle money from a senior. Another incident involved online shopping, where one of the surveyed seniors was a victim.

Example survey statements:

> I was told on the phone that they were going to turn off my power meter because I had an overdue payment, and they provided a link that I did not open. I checked with the power company's customer office. They confirmed to me that there have been such fake calls concerning power or gas service, advising people to be cautious. And I am. […] I have all the data on my PC and phone protected by anti-virus software […] that alerts me if something could be spam, and then I check and block the caller.

I'm afraid to use the various insecure instant messengers on my mobile phone. I don't use computers much either, I'm afraid to operate one alone, and I need to have someone next to me while doing it. Something like this happened in my family – there was a phone call […] concerning a summons to appear at a police station, and the caller introduced himself by name. So, they called the police again and it turned out that the caller did not work for the police.

A few years ago, I had a phone call. The caller presented himself as a courier claiming he had a parcel from the bank, but it was a scam because I always deal with the bank directly at their branch. […] When I reported this to the bank, it turned out that I was the sixth person someone had tried to con, and I was told that it was good that I reported the matter. I am behind with electronic devices because of my concerns.

I have personally experienced a case of fraud. The scammer called, telling me about a bought-out flat in Toruń. When this case was reported to the police the scammer stopped calling. My husband and I have been careful ever since.

A female friend met an army doctor on a dating site. First, he would adore her. When she and me met for coffee, I began telling her it was more of a scam. […] She's lonely and kept it going until the man suggested she should send dollars to him for he couldn't pay some customs. Now this scam is well-known, but this thing happened almost 10 years ago […] I am cautious by nature; maybe even too cautious.

I used to shop online, but I got jacked once. After I sent a payment, the seller went dark, did not answer e-mails or phone calls, and I never got my order; it was just a plain scam. From now on I prefer to shop normally, in a shop, because at least there is no one will trick me, and I pay for the goods I get in my hand.

When asked, "What would help you use information technology more in your everyday life?" the seniors indicated a need to for software that is easier to use on the one hand, and safer on the other. The respondents also pointed to the need of improving their digital skills and increasing their knowledge of cyber threats. In the interviews, they voiced a need for assistance from institutions in getting things done online. Additionally, the respondents residing in rural areas reported problems with Internet access.

Example survey statements:

The software should be simple, not so complicated as they are now, and they should also be protected against scammers. Sometimes I look for a user

manual, and it is just missing. There are no full instructions on the mobile phone.

What would help? More training information, more manuals, and web pages on how the procedures look like. Practical knowledge and experience.

The institutions should help in the virtual world. Yet, the seniors have been left alone with this. If someone close had not helped me, I would not have been helped by any institution.

There should be blocks for senior people. For example, when persuading for a loan that is on poor terms, they really should mind the age of the customer.

More social campaigns warning of the dangers of the Internet would be useful.

Better Internet access in my village.

Conclusions

We live in a time of digital expansion, the dynamic growth and spread of technology in society and the economy. Technology is becoming more commonplace, more accessible and is influencing different aspects of people's lives, business and culture. As technology advances, the number and complexity of cyber threats continue to grow, requiring increasingly sophisticated security measures.

The level of digital skills and experience still varies widely in Poland, especially by age group. The oldest age group is still the weakest performer. However, there is a noticeable increase in seniors using computers and the Internet.

The biggest threat to this group is phishing, where criminals impersonate various institutions or companies. Reports indicate that seniors are the weakest in terms of recognising fake messages from scammers. The seniors surveyed also emerged as the most concerned group of Poles, fearing an increase in disinformation, including fake news.

It is particularly noteworthy that seniors demonstrate awareness of online safety principles. They take care to protect their passwords and payment card details, and do not open attachments from unknown senders.

The survey shows that the majority of the surveyed seniors expressed caution and fear concerning the use of modern technologies, even though they generally rated their computer and smartphone skills to be good or basic. It appears that seniors' fears often lead seniors to abandon modern digital services, which may explain their limited activity in the domain of information technology. These seniors are becoming dependent on their relatives to manage their online banking, online

shopping or contacting institutions through online portals. In contrast, seniors who do not have access to such assistance tend to forgo using new technologies, leaving them digitally– and increasingly – socially excluded.

A frequently cited reason for the situation is the seniors' fear of being scammed, which includes concerns about losing money, personal data leaks, and the uncertainty caused by new software. In particular, the respondents who have personally experienced or had near-misses with fraud declared that they are more cautious or have abandoned these technologies altogether.

The author believes that to improve the current state of seniors' use of new technologies and address the cyber threats they face, seniors should be supported in increasing their digital competence through dedicated courses and training. The assistance of institutions, like banks and government agencies, in helping seniors use online services may prove crucial. Additionally, IT systems should be improved to protect customers and reduce the number of frauds. It is also worth intensifying campaigns on cyber threats as their prevalence continues to grow.

References

Web 1. „*Dane osobowe — czy wiemy, jak je chronić?*" przygotowane przez serwis ChronPESEL.pl i Krajowy Rejestr Długów pod patronatem Urzędu Ochrony Danych Osobowych oraz Instytutu Prawa Ochrony Danych Osobowych. (2023). Available at: https://uodo.gov.pl/pl/file/4378.

Web 2. „*Postawy Polaków wobec cyberbezpieczeństwa 2023*" w ramach projektu *Bezpieczeństwo w Cyberprzestrzeni*, Fundacja Warszawski Instytut Bankowości (WIB) oraz Związek Banków Polskich, Aleksandra Czyrkowska, Bartłomiej Chlabicz. (2023). Available at: https://zbp.pl/getmedia/25293b1c-aca7-40e6-beec-9b6139ce3b66/Raport_Cyberbezpieczenstwo-2023_do-publ.

Adamczyk M.D. & Lisiecka-Bednarczyk A. (2022). *Obecność i bezpieczeństwo osób starszych w cyberprzestrzeni*. Available at: https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.ojs-doi-10_35467_cal_157184/c/

Bakalarczyk R. (2021). *Seniorzy – niewidzialni – obecni? Starzejące się społeczeństwo – prognozy, wyzwania, możliwości*. Available at: https://caritas.pl/wp-content/uploads/2021/09/caritas-raport-senior.pdf

Czarnecka M., Kelm H. & Koczur W. (2023). *Wykluczenie cyfrowe seniorów w zakresie korzystania z usług społecznych w Polsce w dobie demograficznego starzenia się ludności*. Available at: https://repozytorium.uwb.edu.pl/jspui/bitstream/11320/15023/1/Optimum_1_2023_M_Czarnecka_H_Kelm_W_Koczur_Wykluczenie_cyfrowe_seniorow.pdf

Ustawa z dnia 11 września 2015 r. o osobach starszych (The Senior Citizen Act of 11 September 2015). Dz. U. z 2015 r. poz. 1705, z 2024 r. poz. 834.

Fabiś A., Wawrzyniak J.K. & Chabior A. (2015). *Ludzka starość*. Kraków: Impuls

Garwol K. & Stebila J. (2021). *Seniorzy „niewykluczeni" cyfrowo*. Available at: http://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.ojs-doi-10_15584_nsawg_2021_2_7

Kwieciński Z. & Śliwerski B. (2004). *Pedagogika. Podręcznik akademicki*. t. 1. Warsaw: PWN

GUS. (2022). *Społeczeństwo informacyjne w Polsce w 2022 roku*. Available at: https://stat.gov.
pl/obszary-tematyczne/nauka-i-technika-spoleczenstwo-informacyjne/spoleczenstwo-
-informacyjne/spoleczenstwo-informacyjne-w-polsce-w-2022-roku,1,16.html