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# Internet Use by Elderly People in the Czech Republic

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**Abstract.** The number of information technology users increases as fast as new information technology develops. This paper aims to analyse Internet users older than 65 years and focusing on the Czech Republic, the Visegrad group (also referred to as V4) and the European Union. Elderly people use the Internet the least from all age groups. The partial aim of this paper is to analyse whether, since 2009, there has been a constant increase in Internet users in the elderly age group in the Czech Republic and also the EU. The second scientific issue deals with the confirmation that the number of Internet users in the 65+ age group is similar to the EU-28 and V4. The analysis showed that the number of 65+ users has been steadily increasing since 2009. In the Czech Republic only 28.4% elderly people used internet in 2015 and 26.7% in 2014. According to Eurostat methodology the Internet is used in the 65-74 years age group by 33% of users. More than one third (38%) of elderly aged 65–74 used the internet at least once a week in the EU-28.

**Keywords:** Elderly people, technologies, internet, utilization, statistics.

## 1 Introduction

This millennium is marked by constant change and dynamic development. People must constantly learn new things and acquire advanced technology. This places great demands on the knowledge and also we must not neglect the psychological aspect of the matter. More and more people connect via various social networks or use the Internet for shopping, reading messages or making phone calls etc. It puts greater and greater demands on people regarding the technical and social skills. As shown by A. Toffler an optimal approach would be for the individual to acknowledge first the limits of his capacities and then go through the change.

Thus, elderly people, same as young and adult persons are submitted to a process of continuous adjustment and they need a support for that. It is rather difficult than easy, even more when a defining feature of this century is demographic ageing, growth of number of elderly people with needs. (Nistor, [4]). People learn all the time during lifetime; still, it is possible that “no one is learning at the level, with the intensity and the speed necessary for facing the complexity of modern world” (Botkin,

Elmandjira, Malița, 1981, in Paloș, et al, [5]). Communication using cyber technology is innate to generations that grew up along with it. [1]

Internet is an ever-growing communication net that connects the most computer systems of the world. It is also the growing technology which is used by people like "the information storage, sharing, and easy access". Computer and internet are large communication vehicles of nowadays and future that provide an easy, quick, cheap and safe access to a lot of information. Germany, the Netherlands are the most represented by the website dedicated to old people, where you can get different information from legal aid to purchase online (Lipov and, Roksandi, Perko, Mihok, Radaševi , Puljak, Turek, [3]). [2]

### **1.1 Literature review**

All around the world analysis and research is performed to investigate the current status of internet use by elderly and to explore their opinions toward factors associated with internet use.

Smarn [6] study was conducted with 385 elderly living in Khon Khaen Municipality, Khon Khaen Province. The finding revealed that most elderly did not use the Internet (80.7%). Numbers of female elderly who did not use the Internet were higher than male ones while the majority of elderly who were older than 70 years of age did not use the Internet at all.

Results revealed that those seniors with higher levels of nostalgia proneness used and accessed the internet less, purchased less online, had less online experience and felt less comfortable using the internet. There is also support for the impact of innovativeness on mature consumers' internet use, frequency, online purchases, experience, comfort level with the internet, and satisfaction with the internet. In terms of risk aversion, seniors with more online experience report a lower level of risk aversion to the internet than other mature consumers. [7]

Hogeboom and others [8] revealed that 62.0 % of people who were between 50-64 years old were using the Internet, but only 33.0 % of people who were 65 and upper who were still using the Internet. [6], [13]

### **1.2 Broadband development**

The European Commission's Digital Agenda forms one of the seven pillars of the Europe 2020 Strategy which sets objectives for the growth of the European Union (EU) by 2020. Europe needs competitively priced fast and ultra fast Internet access for all. To achieve this, the EU must establish next generation access networks (NGAs). The Commission is channelling some of its public funds, via different instruments, to invest in broadband infrastructure.

The EU must exploit the potential offered by the use of ICTs in the following areas:

- climate change, through partnerships with emitting sectors,

- managing ageing population, through e-health and telemedicine systems and services,
- digitisation of content, through Europeana,
- intelligent transport systems, by applying the proposed Directive. [16]

### **Main aims for broadband development**

The Czech Republic's national broadband strategy, called Digital Czech Republic v.2.0, has been adopted in 2013 and is valid until 2020.

Due to the technical limitations that mobile broadband technologies entail, the focus lies on fixed broadband networks to provide nation-wide coverage with at least 30 Mbps until 2020. Regarding the utilization of the sort of fixed broadband technologies, the Czech government's position seems neutral. Regional conditions vary, appropriate infra-structure is being discussed by the government; the infrastructure is supposed to be future proof in the long term with guaranteed high-speed connection to the Internet.

### **Current coverage of broadband networks (2015)**

Fixed: 98.5%

NGA: 72.9% [14], [17]

**Table 1.** Broadband Technologies (2014)

| Technologies   | Coverage of homes |
|----------------|-------------------|
| DSL            | 97%               |
| VDSL           | 46%               |
| FTTP           | 14%               |
| WIMAX          | 71%               |
| STANDARD CABLE | 33%               |
| DOCSIS 3 CABLE | 32%               |
| HSPA           | 97%               |

Source: Broadband coverage in Europe in 2014 by IHS and VVA [14]

Based on available data from the Czech Telecommunication Office and Czech Statistical Office, the Ministry of Industry and Trade has developed a model of availability to broadband Internet access through optic networks with speeds of at least 30 Mbit/s (see table 2). This table illustrates the very low penetration of optic networks in the Czech Republic. Moreover, in the Czech Republic unlike other countries in the EU, the formerly monopolistic operator nor the other big players in the market invest in these networks. Development of the optical network is therefore just the domain of local operators, who began as community wireless service providers in medium-sized municipalities. An important role is also currently played by cable TV network operators, who allow some of their customers to reach speed exceeding 100 Mbit/s. Problematic, however, are mainly small municipalities and localities with low population densities, because the return on investment for the private sector is very limited out of localities with high densities of people (such as housing estate). [14]

**Table 2.** The availability of broadband Internet access through optic networks with speeds of at least 30 Mbit/s in the Czech Republic, the source MIT, CTO, CSO.

| Basic indicators (excluding Prague)                        | Total   | To 199 | 200-499 | 500-999 | 1000-1999 | 2000-4999 | 5000-9999 | 10000 and more |
|--|---------|--------|---------|---------|-----------|-----------|-----------|----------------|
| Number of municipalities                                   | 6249    | 1524   | 1975    | 1356    | 723       | 400       | 140       | 130            |
| Population   | 9275612 | 189334 | 645742  | 953015  | 1009378   | 1219378   | 960042    | 4298626        |
| No. of households  | 3068385 | 64732  | 179976  | 289841  | 311408    | 398343    | 324983    | 1499102        |
| No. of households without access to high-speed network in% |         | 100    | 100     | 100     | 100       | 95        | 90        | 80             |
| No. without free access to high-speed network in%          |         | 67     | 47      | 25      | 5         | 0         | 0         | 0              |

Source: [14]

The foregoing indicated that it's meaningful to promote opportunities for the effective use of co-financing a construction from public funds as a possible complementary mechanism generating the necessary incentives for private investment in infrastructure for high-speed access to the Internet and the emergence of projects that would probably not have been implemented at all without this support. [14]

## 2 Goals and methods

This paper aims to analyse the use of the Internet in the Czech Republic and its comparison with EU-28 and V4 in connection with the use of advanced technologies by elderly people.

The research procedure followed two phases:

- The first phase deals with: the number elderly people using the Internet in the Czech Republic, at least at the average level as in EU-28.
- The second phase: every year (since 2009) the number of elderly people using the Internet has been increasing.

First it is necessary to define the term "elderly people". According to World Health Organisation: Most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person. At the moment, there is no United Nations standard numerical criterion, but the UN agreed cut-off is 60+ years to refer to the older population. [9]

For further analysis the distribution according to age 65+ will be used.

## 2.1 Development of population in the Czech Republic

The share of seniors in the Czech population has been steadily increasing since 1985 (from the level of 12%). By the end of the 20th century, the growth was slow (to 13.9% in 2000-2003), but thereafter it accelerated. The share significantly rose especially since 2007, in the connection with baby boomers born in the 40s of the 20th century across the border 65 years of age. During the years 2004-2014, the share of seniors increased from 14% to almost 18%. The last presented data (to 31. 12. 2014) states that the proportion of people over 65 years of age is in the general population 17.8% (see table 3). The current number of 1.88 million is about 243 thousands higher than at the beginning of 2011. Also the highest increases in the age groups were concentrated in the population of the age group of seniors over 65 years. Those increased by 54,900 during 2014. [2]

Due to the aging population this issue is very serious in solving economic, social and other areas.

**Table 3.** The characteristics of the age composition of 1984, 1994, 2004 and 2014 (to 31. 12.)

| Index   | 1984 | 1994 | 2004 | 2014  |
|---|------|------|------|-------|
| The share of seniors (in%)                          | 11,8 | 13,1 | 14   | 17,8  |
| The share of persons aged 80+ on 65+ years (in%)    | 17,9 | 21,0 | 21,5 | 22,3  |
| Age index   | 50,3 | 69,6 | 94,0 | 117,4 |
| Average age (in years)                              | 35,6 | 37,0 | 39,8 | 41,7  |
| Median age (in years)                               | 33,9 | 36,2 | 38,7 | 41,1  |
| The number of seniors aged 65+ years (in mil.)      | 1,22 | 1,36 | 1,43 | 1,88  |
| The number of seniors aged 80+ years (in thousands) | 219  | 285  | 308  | 419   |

Source: [2]

Despite the fact that ten years ago, there was no usual use of ICT by elderly people, the situation is in recent years evolving and changing.

Learning and using information and communication technologies (ICT) such as computer technologies and internet by the elderly is seen as an important demand for their integration in daily life and as a factor related to active aging. [11]

## 3 Results

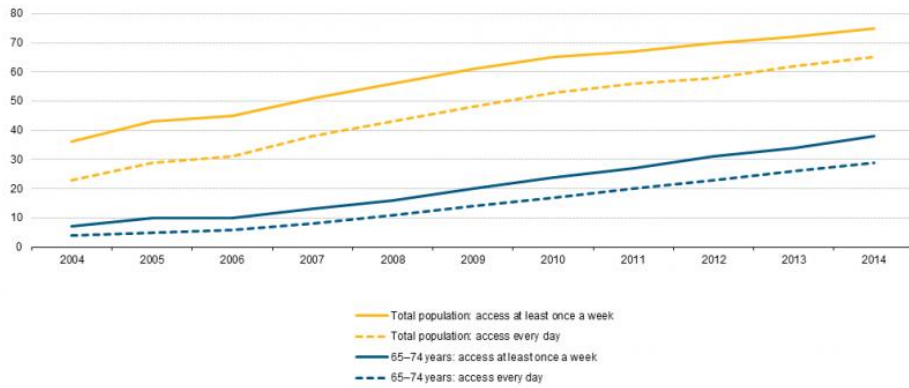
### 3.1 Elderly population and using the internet in EU-28

Statistics were obtained from Eurostat sources. Data are always stated for years that were statistically processed. Always refer to all "All Individuals". Data only for 65+ are not available at the moment. Selected data for the EU 28 and the Czech Republic together with the countries of the Visegrad Group were chosen for comparison because those countries are close to the Czech Republic. Data are always given in %. Tables are completed with graphs which will help in faster-after straightening.

It is recorded in the statistics of the statistical office of the European Union (Eurostat) relating to information and communication technologies (ICTs) that 38% which is slightly more than one third of the elderly people aged 65 to 74 in the EU-28 used the internet at least once a week. Ten years ago there were only 7% of the elderly people using the internet regularly, at least once a week.

Fig. 1 illustrates the share of the elderly people who use the internet daily. It is revealed in these statistics that if elderly people become acquainted with ICT and consequently reach a desirable computer competency they begin to use the internet actively, like younger generations. In 2004 there were 57% of the elderly using the internet weekly, ten years later there were already three quarters (76%) of elderly people utilizing the internet at least once a week. [12]

**Fig. 1.** Proportion of the population accessing the internet, by age and frequency of use, EU-28, 2004–14 (%)

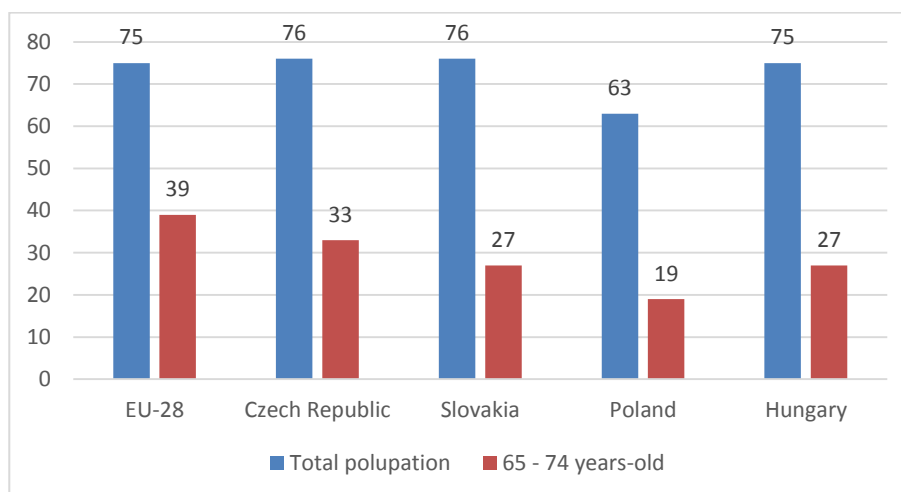


Source: Eurostat [12]

Figure 2 analyses the situation in the field of utilisation of using the Internet by elderly people in the Czech Republic and to compare the use of social networks in the Czech Republic with other countries of EU-28 and V4. (Visegrad group /V4/ is the association composed of Czech Republic, Slovak Republic, Poland and Hungary focuses on foreign policy activities and the group aims to promote co-operation and stability in the broader region of Central Europe) and EU28. [20]

Fig. 2 shows that in comparison with the average the Czech Republic is more or less at the same level as EU-28 as well as V4 in the use of the Internet by overall population and elderly. The elderly age group in the Czech Republic is more active than in the other V4 countries. Compared to the average of the EU-28 however, the use by the elderly age group is lower by 5%.

**Fig. 2.** Proportion of the population using the internet in Visegrad group in 2014 (in %)



Source: own elaboration based on Eurostat [12]

### 3.2 Individuals using the Internet in the Czech Republic

99% of students use the Internet, 93.9% of housewives use the Internet. Only 32.8% elderly people use it. The difference is also among employed people who use the Internet 17.7% more than the unemployed. The results are comparable with other international studies (e.g. Lian and Yen, [12]).

Only 32.8% of pensioners in the Czech Republic use the Internet, which is 61.1% less than in the group of students (see table 4). Elderly people in the Czech Republic are mostly represented in the lowest-income quartile.

**Table 4.** Individuals using the Internet in the Czech Republic (in %)

| Indicator                | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 <sup>2)</sup> |
|--------------------------|------|------|------|------|------|--------------------|
| Total                    | 61,8 | 65,5 | 69,5 | 70,4 | 74,2 | 75,7               |
| Males                    | 65,8 | 69,2 | 72,3 | 72,8 | 77,3 | 77,9               |
| Females                  | 58,1 | 61,9 | 66,8 | 67,7 | 71,3 | 73,5               |
| Age group                |      |      |      |      |      |                    |
| 55–64 years              | 42,1 | 46,3 | 56,0 | 57,6 | 64,0 | 68,0               |
| 65+ years                | 13,2 | 16,2 | 16,8 | 18,9 | 26,7 | 28,4               |
| Economic activity status |      |      |      |      |      |                    |
| Employed                 | 77,8 | 81,0 | 87,5 | 87,9 | 90,4 | 91,7               |
| Unemployed               | 53,8 | 62,2 | 63,7 | 66,2 | 79,4 | 74,0               |
| Pensioners               | 16,5 | 19,7 | 20,5 | 23,5 | 30,8 | 32,8               |

1) Share in the total number of individuals in a given group.

2) Preliminary data.

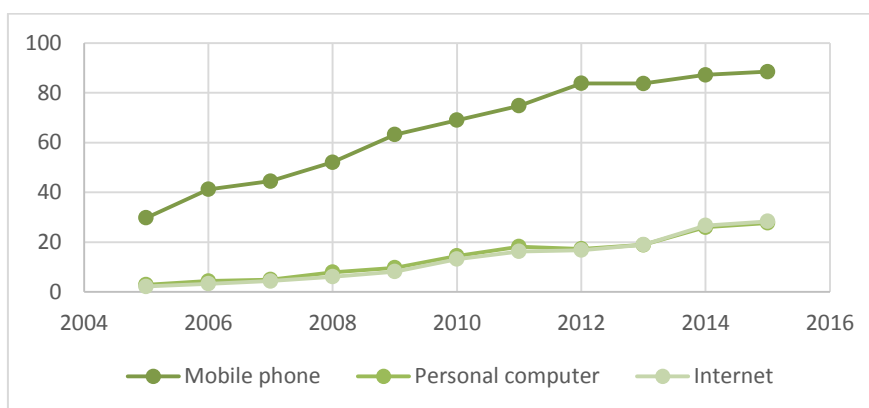
Source: Czech Statistical Office [19]



Since 2015, the Czech Statistical Office moved to a similar methodology for calculating elderly people. Previously it distinguished 65+ age group, currently it uses the same age group as Eurostat, i.e. 65-74 years and 74+. This leads to different values in % of users using the Internet. After the division into two age groups, the results from the Czech Republic match the results from Eurostat.

Figure 3 shows the data for the 65+ age group regarding the use of mobile phones, personal computers and Internet for a period of 2005 – 2015.

**Fig. 3.** Individuals aged 65+ years (in %)



Source: Czech Statistical Office

While in 2005 landline telephones were more commonly used and mobile phones were used only by approximately thirty percent of the population, in 2008 more than half of this group already used a mobile phone, and in 2015 it reached the provisional maximum of 88.5%. Regarding the use of computers and the Internet, there has also been a significant change. Of the original 2.2% using a computer, the use increased to 27.7% and for the internet from 2.2% to 28.4%. From the results it can be expected that elderly people do not always own a computer, and that they also connect to the Internet from public computers. The trend in the use of computers and the Internet is very similar.

It can also be interesting to watch the frequency of the Internet use. While according to the Eurostat statistics in the EU-28 the internet in 2014 was used by 65% of individuals aged 16 to 74 daily on average and 10% at least once a week. In the Czech Republic, the ratio is 60% a day and 15% at least once a week. In the Slovak Republic, Hungary and Poland the use is lower. The lowest usage is in Poland, where 51% of citizens use the Internet daily and 12% at least once a week.

## 4 Conclusion and Discussion

There is always a share of elderly people who are rather cautious or distrustful about utilization of new technologies, in particular computers and the internet. Anyway the

proportion of senior citizens who go online is increasing; younger generations who used the internet are getting old and move to the older age category and beside that there is a significant group of elderly people willing to learn and gain computer skills and benefit from the internet with its numerous new opportunities and services.

In 2015, more than 3.1 million Czech households (73%) were equipped with a computer and the Internet. In 2015, the Internet was used for the first time by more individuals than the computer. "In terms of the proportion of Internet users in the Czech adult population in 2014 it even exceeded the EU-28 average. The Internet was used in the Czech population aged 16-74 years by 79.7% people, while the average of EU countries amounted to 78.0%", said by President of CSO Iva Ritschelová. [15]

The analysis showed that the number of users older than 65 years has been steadily increasing since 2009. In the Czech Republic the Internet was used only by 28.4% elderly people in 2015 and 26.7% in 2014. More than one third (38%) of the elderly aged 65-74 used the internet at the least once a week in the EU-28.

The question for the discussion is whether the increasing number of elderly people in the Czech Republic will lead to the increase in the number of the Internet users and social networks in the 65+ group, or a personal communication will be still a bigger benefit.

Another question is whether a greater impact on the number of users will be the growing number of population in the group of 55-64 or natural aging of population of users who at this moment use the Internet 40% more than the 65+ age group.

Further research will analyse how busy the use of the Internet is in connection with the use of social networks.

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