ANALYSIS OF BROADBAND INFORMATICS SERVICES PROVIDED VIA THE INTERNET, AND THE NUMBER OF INTERNET USERS ON A GLOBAL SCALE

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Abstract: The article presents information on informatics services in the environment of individual and institutional clients in Poland, including a review of the most popular Internet services, as well as information on the number of Internet users in the world based on the analysis of the latest reports, including the reports of the European Union (EU) containing information on broadband services. On this basis it is possible to identify the areas where Internet access as a leading service is provided. Thus, the aim is also to analyze the number of Internet users on a global scale.

Keywords: Internet services, the number of Internet users, development trend function.

Introduction

In the present times of ubiquitous globalization, the development of societies is influenced primarily by access to modern information and communication technologies. Both wired and wireless links are used for data transmission, with the number of broadband radio systems, including terrestrial and satellite access systems, increasing in recent years. Many of these are used for the distribution of radio and television broadcasts as well as for the provision of Internet access. The delivery of multimedia services is important in this context, which is understood as the combined presentation of different data sources (primarily text, sound and images). It is worth noting that wireless links can be an alternative to terrestrial links to ensure global connectivity, which is particularly relevant in the event of natural disasters. Another application may be areas where the building of traditional terrestrial links is not economically justified (e.g. remote taiga settlements due to low population density in sparsely populated areas and inadequate technical infrastructure). Moreover, such links can be a back-up (emergency) link for traditional radio networks. In this paper, in the light of the latest national and international reports, an cumulative overview of Internet services in Poland and worldwide (including the number of Internet users) with particular emphasis on Internet access is presented. Therefore this article fills a gap in this context.

Overview of Internet services in Poland

Information on the state of computerization in Poland can be found in the publications of the Office of Electronic Communications (UKE), which publishes annual reports on the functioning of broadband services in Poland and the preferences of individual and institutional consumers (e.g. "Raport o stanie rynku telekomunikacyjnego w Polsce w 2016 r.", 2017; "Raport o stanie rynku telekomunikacyjnego w Polsce w 2017 r.", 2018, "Raport o cyfryzacji kraju. Fakty. Wnioski. Działania", 2018). In practice, Internet access opens up many possibilities of using various types of services. In this sense, it can be considered a leading service. Based on the latest research conducted in November 2018, 72.7% of Poles use the Internet ("Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów indywidulanych", 2018). In 90.7%, access is provided by mobile phone, in 66.7% by fixed-line connection, and in 22.7% by other technologies (mobile Internet via devices other than telephones). It turns out that Poles use mobile Internet most frequently in mobile phones – 9/10 of respondents. Two-thirds of respondents use the fixed Internet and the least popular is mobile Internet access via other mobile devices. Only 0.1% of respondents use telephone access. Internet access is otherwise declared by 0.8% of Internet users. As the number of satellite Internet users is small, it was not included in the report. A graphical representation of the frequency of use of particular websites in Poland in 2018 is shown in the Figures 1 and 2.

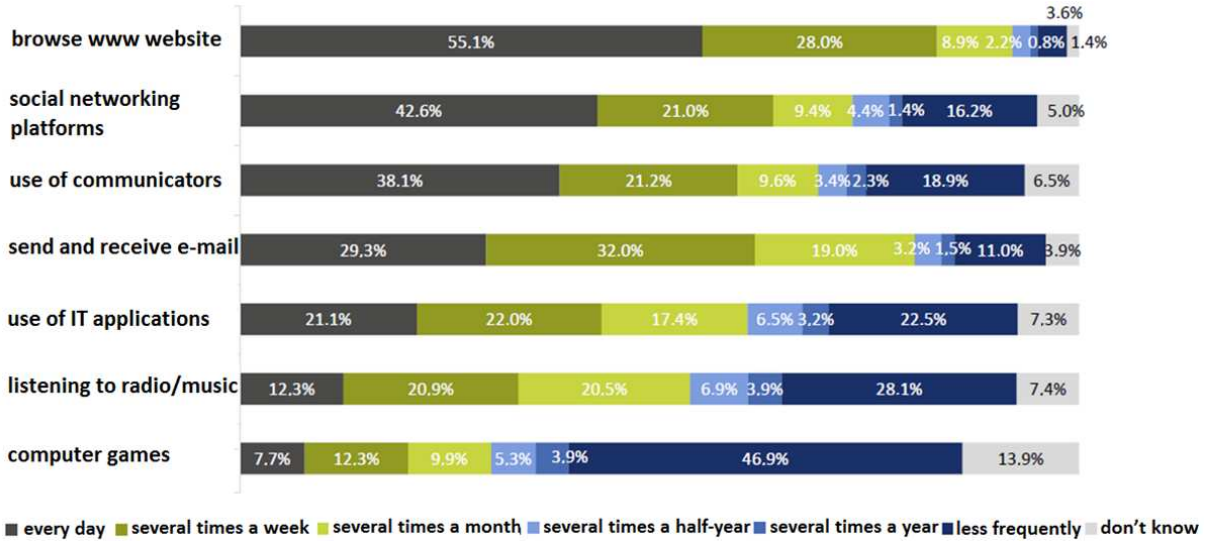

Figure 1. Information on the frequency of use of Internet services in Poland in 2018

Source: adapted from UKE, "Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów indywidulanych", 2018.

As shown in Figure 1, in 2018 Poles most frequently use Internet services in the following fields: (1) browse WWW websites; (2) social networking platforms; (3) use of communicators; (4) send and receive e-mails; (5) use of IT applications; (6) listening to radio and music; and (7) computer games. In addition, the following Internet services are most popular (Figure 2): (1) eBanking; (2) watching

TV and films; (3) content sharing; (4) eShopping; (5) selling products online; and (6) official issues. It is notable that the questionnaires are conducted on a sample of 1040 respondents.

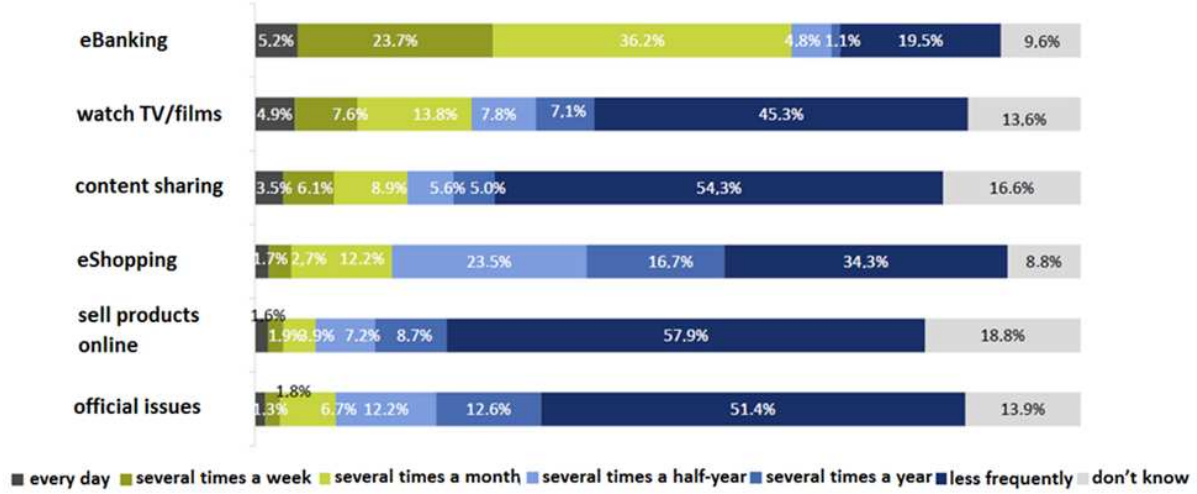

Figure 2. Information on the frequency of use of Internet services in Poland in 2018

Source: adapted from UKE, "Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów indywidulanych", 2018.

Approximately half of the respondents (53.2%) are familiar with the notion of digital media, and 38.2% declare that they do not use this type of services (see Figure 3, in this research 1600 respondents were included in the sample). The most popular digital media is presented in Figure 3. In the light of the report, these are: (1) social networking platforms and Internet portals; (2) digital TV and Internet TV; (3) digital radio and Internet radio; (4) Internet newspapers; (5) blogs and videoblogs; and (6) VoD.

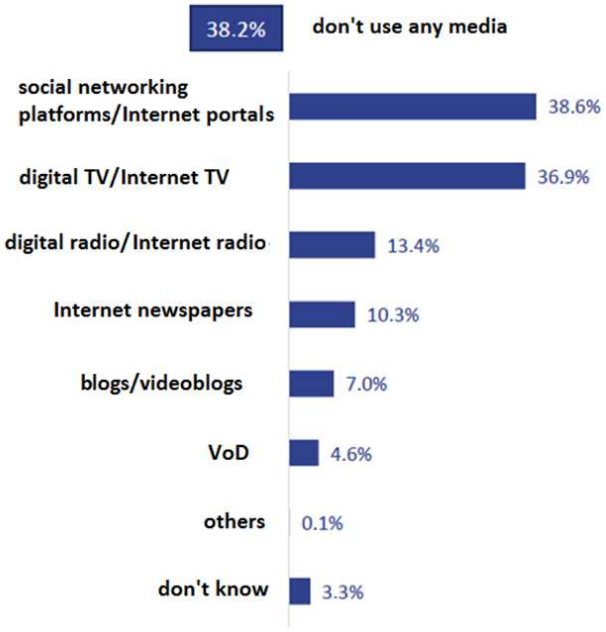

Figure 3. Information on the use of digital media in Poland in 2018

Source: adapted from UKE, "Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów indywidulanych", 2018.

In this context, the results concerning institutional clients are also interesting ("Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów instytucjonalnych", 2018). According to the analysed report, 85.7% of companies in Poland had access to the Internet in 2018, of which 53.3% used fixed-line Internet, 31.4% used mobile Internet, 62.7% used mobile Internet over the phone and 0.7% used dial-up access. Over half of institutional customers use fixed-line Internet, almost one third of companies use mobile Internet, and almost 63% of institutional customers use mobile Internet on their mobile phones. Dial-up access is not a popular method of accessing Internet services. The objectives of using the Internet by institutional customers are presented in Figure 4. This research covers 353 companies with Internet access. Most companies used the Internet for the following purposes: (1) acquiring the necessary information; (2) using information portals; (3) communicating with customers; (4) reaching new customers and advertising; and (5) internal communication.

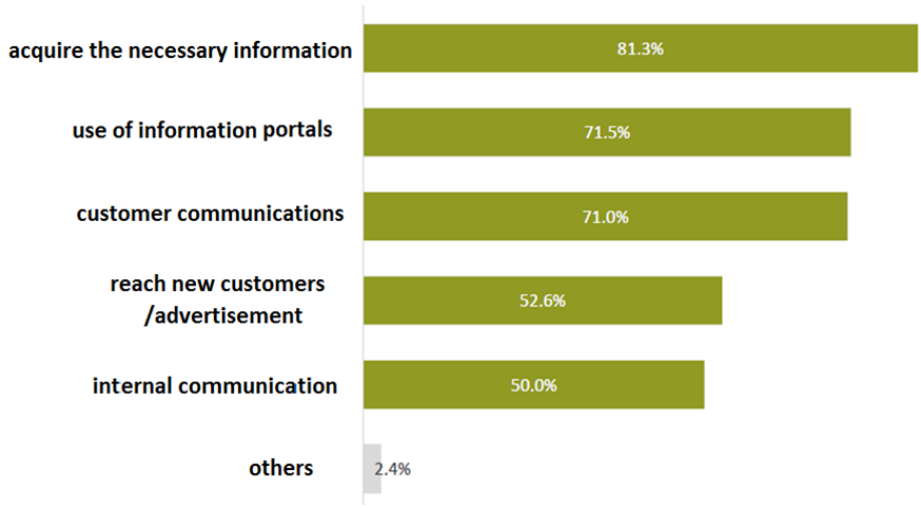

Figure 4. Information on the use of Internet in companies in Poland in 2018

Source: adapted from UKE, "Badanie opinii publicznej w zakresie funkcjonowania rynku usług telekomunikacyjnych oraz preferencji konsumentów. Raport z badania klientów instytucjonalnych", 2018.

In the perspective of the latest report prepared for the European Commission Directorate – General Communications Networks, Content & Technology ("Broadband Coverage in Europe 2017. Final report. A study prepared for the European Commission DG Communications Networks, Content & Technology", 2018), it is possible to see the percentage coverage of particular technologies in the EU countries, including Poland, such as: satellite technology, DSL, VDSL, FTTP, WiMAX, Cable, DOCSIS, HSPA, LTE (see Figure 5).

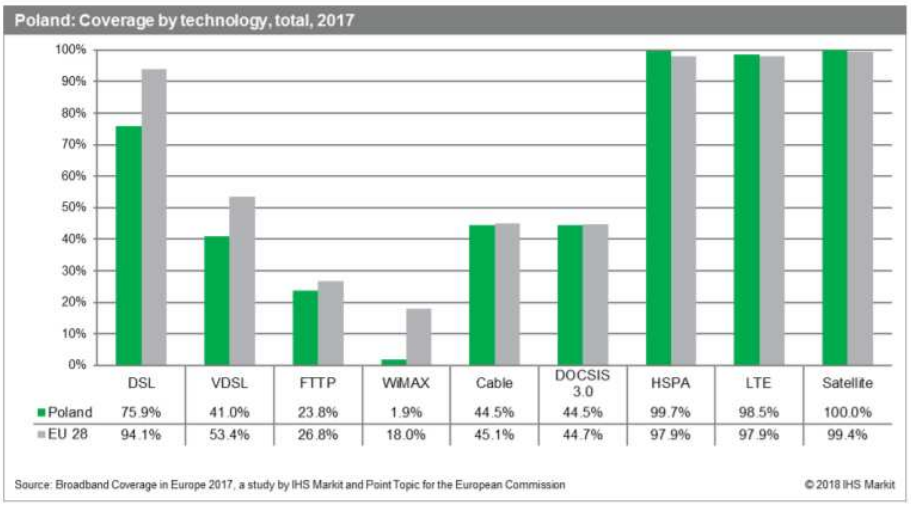

Figure 5. Technological coverage in Poland in 2017 compared to the EU28 average.

Source: borrowed from "Broadband Coverage in Europe 2017. Final report. A study prepared for the European Commission DG Communications Networks, Content & Technology", 2018.

On this basis it is possible to conclude that the coverage of LTE in Poland is higher than the EU average, as well as the scope of satellite technologies, which is mainly due to the fact that the coverage is restricted to only some areas in the Baltic States (Estonia, Latvia and Lithuania). For example, Iceland is the only country that does not have access to satellite networks (only 20% of the territory is covered by satellite coverage). Numerous government programmes are improving the information and communication infrastructure. An example is the Digital Poland Operational Programme 2014-2020, from which EUR 2.2 billion from the European Union funds has been allocated for the purpose of building an appropriate technical infrastructure for e-government and improving digital skills of the society. Together with the national funds, 2.66 billion euros have been allocated for this purpose. The main objective of the programme is to ensure universal access to the Internet in Poland and to eliminate digital exclusion. Over €1 billion has been earmarked for improving access to Next Generation Access (NGA) broadband networks. In mid-2018, many actions were taken to eliminate all the white spots in Poland (e.g. Mejssner, "Satelitą w białe plamy", 2015; "Białe plamy raz na zawsze znikną z internetowej mapy Polski", 2018). Almost 2 million households and 13.2 thousand institutions providing educational services were identified as beneficiaries. It is worth noting that these projects are in line with the universal broadband access strategies of at least 30 Mbps by 2020 and broadband access strategies for 50% of households with speeds of at least 100 Mbps by 2020, which are currently being implemented in EU Member States (e.g. "Broadband Coverage in Europe 2016", 2017).

Global upward trend in the total number of Internet users in the world

The global results are also interesting, because they allow seeing an upward trend in the total number of Internet users (Figure 6). In January 2018, 4.021 billion people have access to the Internet, which is almost 53% of the total population of the Earth ("Digital 2019: Global Internet use accelerates", 2019). It is noteworthy that in 2018, i.e. a year earlier than it results from eMarketer's forecasts, the level of 50% of the network population was exceeded (eMarketer, April 2017). The systematic upward trend is caused by an increase in the number of Internet users in the poor and rural areas of Asia-Pacific, Central and Eastern Europe, Latin America, Africa and the Middle East. The upward trend in the number of Internet users can be observed in Figure 6.

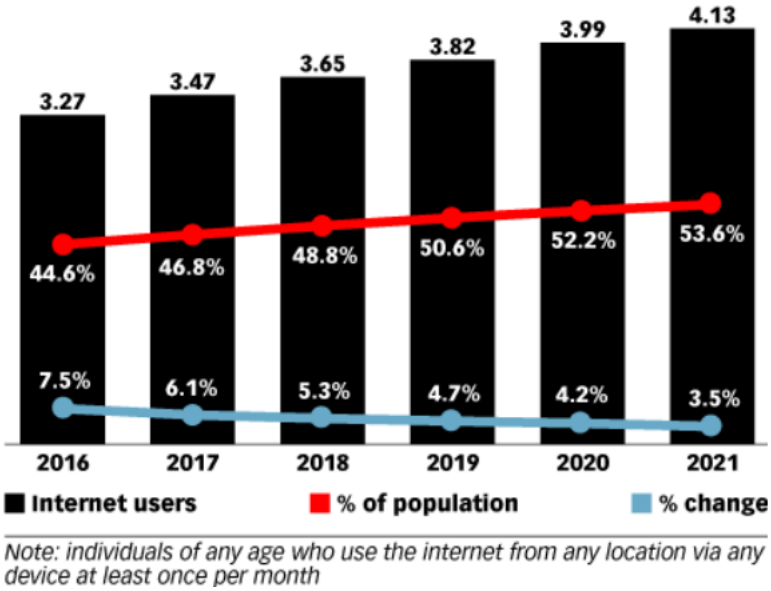

Figure 6. Internet users and penetration worldwide in 2016-2021 (in billions, % of population and % change).

Source: borrowed from eMarketer, April 2017.

The number of Internet users has grown by 7% in relation to the previous year (increase by 248 million people). In Northern Europe 94% of the population use the Internet. For the rest of the world, the ratios are respectively: in Western Europe – 90%, in North America – 88%, in Southern Europe – 77%, in Eastern Europe – 74%, in Oceania – 69%, in South America – 68%, in Western Asia – 65%, in Central America – 61%, in South-East Asia – 58%, in East Asia – 57%, in South Africa – 51%, in Central Asia – 50%. Analyzing the rest of the territory, less than half of the population use Internet access (North Africa – 49%, West Africa – 39%, South Asia – 36%, East Africa – 27%, Central Africa – 12%). In comparison with the previous year, the largest increase in the number of Internet users was recorded in Africa (35% of the population have access to the Internet). In Europe the ratio is 80%. Poland is 24th in the world ranking. In the light of the newest special report, the number of Internet users has increased to 4.388 billion people, which constitutes 57% of the total population of the Earth. The increase is therefore around 4% compared to the previous year ("Digital 2019: Global Internet use accelerates", 2019).

The report shows that the number of Internet users remains stable in: Central Asia, Central Africa, South Africa and Oceania. Southern Europe has the highest growth rate of 11%. In addition, the following increases in the number of Internet users were noted: 7% in North America, 6% in Eastern Europe and South Asia, 5% in Southeast Asia, South America and East Africa, 4% in Western Europe, 3% in East Asia, 2% in Central America and West Africa, 1% in North Europe, West Asia and North Africa. Analyzing the report, it should be noted that in some areas, despite a slight increase in the number of Internet users, the number

of people using the Internet is very high. The best example can be Northern Europe, where is only a 1% increase in the number of Internet users, but there is the highest number of people using the Internet as 95% of the total population (the position is the same as last year).

Conclusions

The analyses carried out in this paper allow for a number of conclusions: (1) there is the noticeable increase in the number of Internet users; (2) as the number of Internet users is growing, it results in an increase in the interest in informatics services related to the Internet. In practice despite many investment programmes announced by governments and telecoms operators, it is predicted that by 2030 several million households in Europe will still be deprived of a high-speed fixed Internet connection. In case of natural disasters, the use of satellite links is a good solution. For this reason, it is useful that the reports prepared for the European Commission by DG Communications Networks, Content & Technology cover many different data transmission technologies, including satellite links. It can be noted that satellite infrastructure has become an effective way for public authorities to achieve the objective of reducing the digital divide and white spots. This is particularly important because, as the paper shows, services provided via the Internet are becoming more and more popular, which is reflected in the number of Internet users. It may cause a change of scale in the ICT market. For this reason, strategic planners of many IT and communication companies carry out such forecasts.

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