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THE USE OF MODERN MEANS OF COMMUNICATION IN VARIOUS SPHERES OF SOCIO-ECONOMIC LIFE

Summary. Intense technological progress, advanced science and new information and communication technologies are increasingly important in today's social and economic phenomena. The article presents the possibility of using modern means of communication in many areas of life and economic activities (e.g. in medicine, in administration, for the police, in business, in education). Modern means of communication – computers, tablets, mobile phones and smartphones, especially those with Internet access, are an important tool for gaining information, for learning, for work and entertainment, yet may also lead to dependence.

Keywords: modern means of communication, Internet, Internet addiction, dependence on a mobile phone, the field of socio-economic

WYKORZYSTANIE NOWOCZESNYCH ŚRODKÓW KOMUNIKACJI W RÓŻNYCH DZIEDZINACH ŻYCIA SPOŁECZNO- EKONOMICZNEGO

Streszczenie. Intensywny postęp technologiczny, zaawansowany rozwój nauki i nowe technologie informacyjno-komunikacyjne mają coraz większe znaczenie dla współczesnych zjawisk społecznych i ekonomicznych. W artykule zaprezentowano możliwości zastosowania nowoczesnych środków komunikacji w wielu dziedzinach życia i działalności gospodarczych (np. w medycynie, w administracji, w policji, w biznesie, w edukacji). Nowoczesne środki komunikacji – komputery, tablety, telefony komórkowe i smartfony, szczególnie te z dostępem do Internetu, są ważnym narzędziem zdobywania informacji, nauki, pracy i rozrywki, a także mogą przyczynić się do uzależnienia.

Słowa kluczowe: nowoczesne środki komunikacji, Internet, uzależnienie od Internetu, uzależnienie od telefonu komórkowego, dziedziny życia społeczno-gospodarczego

1. Introduction

Intense technological progress, advanced development of science and new information and communication technologies are proving to have more and more influence on contemporary social and economic phenomena. There is a rapid increase in the number of Internet users, the capacity of the World Wide Web and the unlimited opportunities to use modern means of communication in various spheres of life and business activities (e.g.: in medicine, administration, police, business, education) as well. Modern means of communication – computers, tablets, mobile phones and smartphones with Internet access in particular have become a very important tool for gaining information, for education, for work and for entertainment. The Internet is an invaluable source of knowledge and is a means of trade, instant communication, and is also a source of social and cultural life. It is hard to imagine a day of a modern man without these technological conveniences. It can be argued that modern information and communication technologies (ICT) are tools used in the reduction of social inequality and in the increase of opportunities for those people experiencing exclusion.

According to the Global Digital Statistics 2015 report¹ (from January 2015), access to the Internet was available for 42% of the overall world's population, 68% of Europeans regularly use the Internet (67% of the overall population in Poland has access to the Internet). The active users of social networks account for 29% of overall world population (34% in Poland) where 23% of the world's population use mobile devices to connect to social networks (mobile phones) – for Poland it is 24%. Almost 1,366 billion people in the world are users of Facebook where 83% of them have access to social networks by mobile devices. There is a rapid growth of users of messenger services and chat apps (in January 2015 the number of active users was respectively WhatsApp – 600 million, WeChat – 468 million, Facebook Messenger – 500 million, Viber – 209 million, SnapChat – 100 million). The penetration of mobile phone networks reached 51% of the overall world population in January 2015 (132% of the population in Europe and 147% of the population in Poland). From the data of the European Commission² it is clearly visible that 1 out of 4 Europeans have never used the Internet. Moreover, consumers and companies very quickly change

¹ Global Digital Statistics 2015 (<http://wearesocial.net>).

² <http://ec.europa.eu/digital-agenda/en/informacje-o-kraju-polska>; <http://ec.europa.eu/digital-agenda/en/scoreboard>.

mobile services. The popularity of mobile Internet rose to 62%, reaching 217 million subscribers to mobile broadband networks.

2. The use of modern means of communication in various spheres of socio-economic life in Poland – opportunities and threats

Technological development influences the functioning of the economy in a broad sense, and modern information and communication technologies (ICT) exert positive and negative results on various spheres of socio-economic life.

2.1. The positive influence of ICT development in selected spheres of socio-economic life

The XXI century is the time of the so-called information revolution. It means that information has become the most important element of everyday life (because we are spending more and more time on the Internet – Polish people stay in front of a computer or use a tablet to browse the Internet about 5 hours a day; they use mobile phones for browsing web pages for about 2 hours a day; social networks are as well visited for about 2 hours a day – the data originating from Global Digital Statistics 2015 report), and the most important element of monitoring economic, social, trade and business matters. In a modern global economy the competitiveness of companies depends on their innovativeness and the knowledge at their possession. The great “introduction of information technology” in economic activity allows for a simpler integration of economies at the national and regional level. The use of information technology in economic activities contributes to the overall increase of performance of companies on the market due to the advance of management procedures, due to the improvement of the quality and quickness of carrying out many operations, and due to the availability of many administrative, medical or educational services.

Electronic business

The positive impact on the Polish economy brought upon by the development of electronic business, which can be conducted through the Internet and the mobile phone, is the effective exchange of data between the market participants, contracts signing, video-conferencing, trainings, advertising of products and services, and access to a wide audience and prospective customers. Online shops are coming into being and the electronic banking and teleworking are developing. Many companies in Poland use their own websites to present their catalogs, goods or services (in 2015 the share of companies with a website was 65,4%). A tool used in business in a wider form is social media. Companies use social media mainly

for marketing purposes, but also for cooperation with business partners (more than one fifth of all companies in Poland benefited from the possibilities given by social media – Społeczeństwo informacyjne w Polsce w 2015 r., GUS (Information Society in Poland in 2015, Central Statistical Office of Poland)). According to data obtained from the Global Digital Statistics 2015 report, shopping through the Internet during the last month was done by 44% of Polish people (the data from January 2015), and shopping through the Internet with the use of a mobile phone was done by 14% of Polish people.

The market of computer games

In the modern world of omnipresent computers, tablets and mobile phones, the computer games market is a rapidly developing branch of the entertainment industry, which is earning enormous profits. From the Newzoo³ research, in 2012 the value of the global gaming market was estimated at 66,3 billion USD, while in 2015 (data from October 2015) the same market was estimated at 91,3 billion USD, therefore the income in this branch of industry has increased by 38% in comparison to 2012. The highest revenue-generating region for the gaming market in 2015 was the APAC region (Asia – Pacific), generating 41,6 billion USD of income. The first three countries in terms of revenue for the computer games market are: China (22,2 billion USD), the United States (22 billion USD) and Japan (12,3 billion USD). Poland, among the 100 researched countries, takes 19th position, and the second position in eastern Europe, right behind the Russian Federation. According to the available data, the value of the Polish gaming market in 2015 was estimated at about 408 million USD. Our home games producers have a 0,98% shares in the worldwide gaming market. It is forecasted that the income of the Polish gaming branch should increase by 5,4% until 2018. From the available data 4,4 million Polish people in 2015 were the active users of the Internet, where 12,3 million used computer games. More than one half of gamers (52%) in Poland spent money on games, on average 63,74 USD per year, buying games legally in a traditional and digital way as well. The Polish gamers most frequently play on computers (98% of players) and 70% of players uses mobile phones. Tablets and portable consoles are among the popular devices and they are used by 20% of players. Of greatest popularity in Poland are social and casual games (there are 12 million people playing, with the most popular games being Diamond Dash and Farmville). Smartphones, due to their more and more specialized models and the widening of broadband Internet coverage, are used by 5,6 million people, while desktop consoles of the PS3 or Xbox 360 type are used by 6,2 million players.⁴

³ Newzoo research company researches and analyzes the computer games market. The data accessible at: www.newzoo.com, 9.11.2015.

⁴ The data accessible at: http://polygamia.pl/Polygamia/1,107162,15330472,Gra_juz_13_4_miliona_Polakow___Jestesmy_pecetowa_potega.html, 10.11.2015.

E-administration

Electronic administration is based on the use of information and telecommunication technologies in public administration in order to achieve better accessibility and to introduce improvements in the process of delivery of public services. The advantages of e-administration⁵ are among others:

- the organizational improvements, modernization and optimization of administrative processes from a perspective of the increase in effectiveness,
- standardization of e-administration systems within the framework of EU countries,
- the simpler access to services for disabled people,
- the cheapest and the most effective method for citizens to access public information, the accessibility on the Internet (24 hours a day, 7 days a week) and the possibility to check the status of the matter in any place and at any time,
- the smaller probability of making a mistake (the automation of processes eliminates the human factor).

Examples of e-administration in Poland:

- ePUAP – Electronic Platform of Public Administration Services (Elektroniczna Platforma Usług Administracji Publicznej) – provides services to the general public by electronic means,
- e-signature,
- Public Procurement System – Central Portal (System Zamówień Publicznych – Portal Centralny),
- European Document Exchange System – Poland (Elektroniczna Wymiana Dokumentów – Polska (EWD-P)),
- Electronic identification of citizens (electronic identification, project PESEL 2).

In 2014, 92,4% of companies in Poland used e-administration services at least in one of the described above areas (obtaining information, downloading forms and sending filled out forms). Almost 92% of the sampled companies sent filled out forms, 83% of companies used the Internet to download the forms and in 56% of the companies the administrative procedures were run using electronic means. In Poland in 2014, individuals using the public administration services by the Internet accounted for 27% of the population between 16 and 74 years old. The e-administration was used most frequently to browse through information on the public administration websites; the least frequently used service was the sending of filled out forms.

⁵ cf. <http://www.eadministracja.pl/>.

E- health

There are tools and services using information and communication technologies (ICT) which can improve prevention, diagnostics, treatment, monitoring and management in health care services. There are tools or solutions that include products, systems and services for authorities and employees of health care for the purpose of individual patients and citizens' needs (e.g. the services within the scope of tele-health care, applications used to monitor the health condition, portals dedicated to health). The implementation of electronic medical documentation (e-prescription, e-referral, e-doctor's leave, e-order) makes administrative customer service easier and more economical. The introduction of information technology into health care and the increase in e-services contributes to development of the electronic sector of the economy and to the creation of new places of work.

National e-health projects in Poland (Ministry of Health):

- Electronic Platform for Collection, Analysis and Sharing of Digital Medical Records (P1) (Elektroniczna Platforma Gromadzenia, Analizy i Udostępniania Zasobów Cyfrowych o Zdarzeniach Medycznych (P1)).

The main aim of the project is the creation of an electronic platform of public services in the scope of health care which will enable public administration bodies and citizens to gather, analyze and process data of medical records made available to every citizen (either citizens of Poland, the European Union or of other countries) who made use of health care services in Poland. The implementation of P1 Project will contribute to the increase of health awareness of patients by the availability of data on their own health condition, medical records, medical procedures that were used, and prescribed medicines. Patients will regularly obtain information about necessary preventive examinations in their individual inbox of their Patient Internet Account (Internetowe Konto Pacjenta (IKP)). The patient and the doctor as well will have access to medical record and the results of examinations which will advance the diagnosis and the choice over the effective treatment. Electronic prescription provides better quality customer service since it eliminates mistakes when prescriptions are handwritten. Moreover, the database of medicines and the therapeutic guide will be of help to the doctors.

- Platform for sharing services and resources of digital medical records with on-line businesses (P2) (Platforma udostępniania on-line przedsiębiorstwom usług i zasobów cyfrowych rejestrów medycznych (P2)).

This is an information technology tool used to keep registers, provide electronic services and to ensure an optimal level of safety.

- Operational Programme – Digital Poland 2014 – 2020.

This is a national programme in scope of which investments and activities connected with health will be supported:

- the expansion of access to broadband networks, common access to fast Internet and the development of services based on ICT (e.g.: e-administration⁶, e-integration, e-culture, e-health care, e-registration), electronic card of health insurance, electronic medical records of patients,
- supporting telemedicine: consultation between doctors, contact between patient and doctor, the development of digital applications supporting the monitoring of health condition, illness prevention, creation of the Telemedic Platform of Ministry of Health,
- e-blood – introduction of information technology to public blood services and increasing the supervision over the Centre of Blood Donation.

In Poland, people using the Internet in cases related to health browse for information about themselves. The percentage of such people reached 38,9% in 2015. The respondents used the Internet on rare occasions to order health related products (3,8%) and to make an appointment with a doctor (4,3%) (Central Statistical Office of Poland (GUS) 2015).⁷

2.2. The threats as a result of technological advance, popularization of communication and the Internet

Internet crime

UN defines computer crimes as: illegal procedures made with the use of electronic operations, aimed against the safety of computer systems and processed by databases, including illegal possession, making the information public and distributing the information with the use of systems or computer networks (more information:⁸).

Cybercrime is defined as “forbidden action committed in cyber space”⁹.

The kinds of cybercrimes are as follows:

- cyberbullying – the use of violence through persecuting, intimidating, plaguing and deriding people with the use of the Internet or a mobile phone (SMS, e-mails, discussion forum, social network portals),
- cyberstalking – is plaguing or tormenting of individuals or groups of people or whole organizations with the use of the internet, false accusations, illegal monitoring,

⁶ Odlanicka-Poczobutt M.: Rola technologii informacyjno-komunikacyjnych (ICT) w sądownictwie powszechnym – wyzwania i możliwości, [w:] Buko J. (red.): Ekonomiczno-społeczne i techniczne wartości w gospodarce opartej na wiedzy. Zeszyty Naukowe, Nr 808, tom II. Uniwersytet Szczeciński, Szczecin 2014, s. 93-101.

⁷ Społeczeństwo informacyjne w Polsce 2015, GUS (<http://stat.gov.pl>).

⁸ Suchorzewska A.: Ochrona prawna systemów informatycznych wobec zagrożeń cyberterroryzmem. Oficyna Wolters Kluwer business, Warszawa 2010.

⁹ Polityka ochrony cyberprzestrzeni Rzeczypospolitej Polskiej. Warszawa, 25.06.2013.

threats, identity theft, damage of equipment or data, inflicting oneself with sexual intentions and gathering information about the aggrieved party in order to torment this person,

- grooming – the actions taken with the use of the Internet by an adult person in order to make friends and establish emotional connection with a child and finally in order to sexually abuse the child,
- cyberpornography and cyberterrorism,
- phishing (password harvesting fishing – obtaining passwords) – in other words obtaining confidential information from the individual person (e.g.: login, the cash machine PIN, credit card number) pretending to be a trustworthy person (e.g.: bank employee),
- SMiShing (SMS phishing) – sending text messages to a victim with the instructions for actions that should be made on a website which later will cause the unwanted installation of malware on the computer,
- pharming – redirection of the Internet user to a fabricated website (very similar to the real bank or online shop website) in order to gain data and to steal money from the bank account,
- Internet fraud and computer hacking,
- telecommunication crimes (e.g.: cloning IMEI numbers of mobile phones),
- hacking e-mail accounts and profiles on social networks, pretending to be the owner of the account.¹⁰

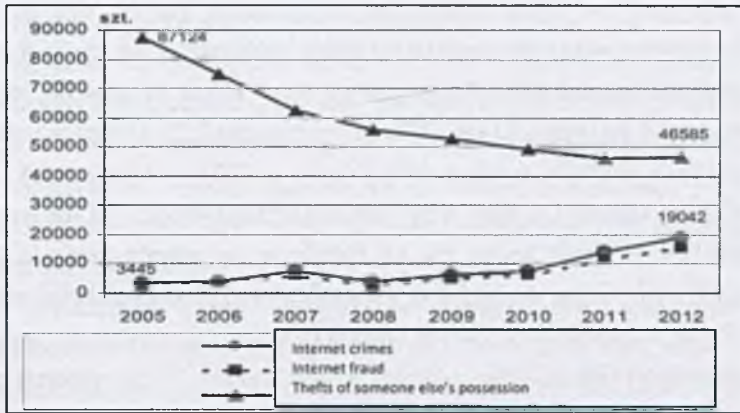
The amount of crime connected with modern technologies and fraud inside networks in Poland is shown in Figure 1. As it is shown in Figure 1, during the last 8 years the amount of Internet crime has increased 5 times (crime rose year by year, on average, by about 1,943 incidents) including Internet fraud (increasing year by year, on average, by about 1,533 incidents). According to Polish police, the amount of cybercrime will increase in connection to the growing number of Internet users.

There are more and more sellers who offer various goods and services via Internet. Illegal Internet trade is growing and it is among others: drugs and arms trafficking, designer drugs or endangered species of animal trade.¹¹ The Internet websites contain materials and contents connected with pedophilia, instigation to terrorist actions. There are mass attacks on information systems, institutions and individuals. According to police statistics, the theft of physical mobile phones are less frequently the subject of crime since they are now available at reasonable prices and they are no longer objects desired by the thieves. The amount of theft

¹⁰ Czyżak M.: Cyberprzestępczość a rozwój społeczeństwa informacyjnego, Pluciński M. (ed.). Zeszyty Naukowe, No. 852, s. Ekonomiczne Problemy Usług, No. 117. Uniwersytet Szczeciński, Szczecin 2015.

¹¹ Ibidem.

of personal possessions in 2012 compared to 2005 was down almost by half. This was a gradual year by year decrease (between 2005 and 2012 declining by about 5,600 incidents each year).



*The theft of someone else's possession including crimes where a mobile phone was the main object of the crime (although not necessarily the only one)

Fig. 1. The number of Internet crimes, Internet fraud incidents and thefts of someone else's possession in Poland between 2005- 2012

Rys. 1. Liczba przestępstw w sieci, oszustw i kradzieży cudzej rzeczy w Polsce w latach 2005- 2012
Source: Own work.

The threats of Internet and mobile phone addiction

Mobile phones and computers with Internet have access became indispensable equipment and the main means of communication of modern man due to their affordable price. Prolonged surfing of the Internet or using mobile phones in connection to web browsing leads to negative changes in a teenager's mind and may lead to addiction. Research made by Rutland¹² and his team on a group of students showed that there are people addicted to sending text messages in such a way that they were even writing messages to themselves. According to Lu¹³ and his team, 3,1% of men and 5,4% of women in Japan are close to becoming addicted to sending text messages from their mobile phones. However, other research conducted by Ha¹⁴ and his team show that there are people who pathologically buy new models of mobile phones which enter the market. The pathological use of mobile phones

¹² Rutland J.B., Sheets T., Young T.: Development of a scale to measure problem use of short message service: the SMS problem use diagnostic questionnaire. "CyberPsychology & Behavior", No. 10, 2007.

¹³ Lu X., Watanabe J., Liu Q., Uji M., Shono M., Kitamura T.: Internet and mobile phone text-messaging dependency: Factor structure and correlation with dysphoric mood among Japanese adults. "Comput Human Behavior", Vol. 27(5), 2011.

¹⁴ Ha J.H., Chin B., Prk D.H., Ryu S.H., Yu J.: Characteristics of excessive cellular phone use in Korean adolescents. "CyberPsychology & Behavior", No. 11, 2008.

in Italy is visible in 6,3% of teenagers¹⁵ and in 20% of Spanish teenagers between 13-20 years old, including 26,1% of women and 13% of men.¹⁶ When it comes to British teenagers, 10% of those between the age 11-18 pathologically uses mobile phones.¹⁷ On the basis of the author's own research¹⁸ on a group of 319 of Silesian students with a given criteria for being at risk of addiction and being addicted to using mobile phones, one out of four persons fulfilled the criteria; while the criteria for being addicted to the Internet were fulfilled by 2,2% of respondents, and 42% of respondents were at risk of addiction to using the Web. Dividing the group according to sex, 29% of women and 22% of men were at threat of being addicted or were addicted to using mobile phones, and 42% of women and 58% of men were at threat of being addicted or they were addicted to the Internet. On the basis of Pawłowska and Potembska's research about 3% of Polish young people between 13-24 years old (including 2,9% of women and 2,5% of men) fulfill the criteria of being addicted to mobile phones, 3,5% of respondents fulfill the criteria of being addicted to the Internet and 34% of respondents were at risk of being addicted to the Internet.¹⁹ The research indicates that the problematic use of mobile phones is connected with young age, extroversion, low level of amicability and a high level of depression.²⁰

¹⁵ Martinotti G., Vilella C., Di Thiene D. et al.: Problematic mobile phone use in adolescence: a cross-sectional study. "Journal Public Health", Vol. 19(6), 2011.

¹⁶ Sánchez-Martínez M., Otero A.: Factors associated with cell phone use in adolescents in the community of Madrid (Spain), "CyberPsychology & Behavior", Vol. 12(2), 2009.

¹⁷ Lopez-Fernandez O., Honrubia-Serrano L., Freixa-Blanxart M., Gibson W.: Prevalence of Problematic Mobile Phone Use in British Adolescents. "Cyberpsychology, Behavior and Social Networking", Vol. 17(2), 2014.

¹⁸ Warzecha K.: Internet w życiu współczesnego studenta. Cele i intensywność korzystania a zagrożenie uzależnieniem, [w:] Buko J. (ed.): Ekonomiczno-społeczne i techniczne wartości w gospodarce opartej na wiedzy. Zeszyty Naukowe, No. 809, s. Ekonomiczne Problemy Usług, No. 113, tom II. Uniwersytet Szczeciński, Szczecin 2014; Warzecha K.: Telefon komórkowy w komunikacji i edukacji śląskich studentów [w:] Cyfryzacja i wirtualizacja gospodarki, Pluciński M. (ed.). Zeszyty Naukowe, No. 852, s. Ekonomiczne Problemy Usług, No. 117. Uniwersytet Szczeciński, Szczecin 2015; Warzecha K.: Aktywność wykazywana w sieci przez śląskich studentów niezagrożonych i zagrożonych uzależnieniem od Internetu – analiza statystyczna, Barczak A.S., Warzecha K. (red.). Studia Ekonomiczne. Zeszyty Naukowe, No. 220. Uniwersytet Ekonomiczny, Katowice 2015.

¹⁹ Pawłowska B., Potembska E.: Objawy zagrożenia i uzależnienia od telefonu komórkowego mierzonego Kwestionariuszem do Badania Uzależnienia od Telefonu Komórkowego, autorstwa Potembskiej i Pawłowskiej u młodzieży w wieku do 13 do 24 lat. „Curr. Probl. Psychiatry”, Vol. 12(4), 2011.

²⁰ Izdebski P., Kotyško M.: Personality variables and depression as determinants of problematic use of mobile phones in Poland. "Polish Journal Appl. Psychol.", No. 11, 2013.

3. Conclusions

The modern means of communication used in various spheres of socio-economic life give opportunities for socio-economic development, yet they can also be treated as a threat.

The ICT solutions are very attractive as regards the economic factors which leave great reserves resulting from the opportunity to use integrated information distribution and to manage it effectively. The interlinking of many software programs leads to lowering the cost of many associated tasks and processes, as is the case for functioning of the e-administration and e-health care platforms. Mobile applications are replacing traditional ways to transfer knowledge. E- and m-learning are innovative and modern forms of teaching which are gaining more and more supporters.

The proper development of the e-economy is dependent upon many external factors, including the pathological phenomenon – cybercrime. Cybercrime has a negative impact on the general financial results of companies, trade, competitiveness and innovation. The actual scale of this phenomenon is difficult to determine because of the various forms of criminal activity. The world's economic loss caused by cybercrime was estimated at 445 billion USD, which results in a decline of GDP at the level of 0,9% in developed countries and the loss of 150,000 work positions in the European Union in 2013.²¹

The modern means of communication are as well a threat resulting from the improper and dysfunctional way of using them. In modern times it is very important to monitor the exploited use of modern means of communication in populations which are at risk (young people in particular who frequently spend many hours talking on the phone or using the phone to surf the Internet, playing games and spending time on social networks). It is necessary to educate young people, their parents and guardians that a computer and a mobile phone, with access to the Internet in particular, can play a useful role, and that applications (which are widely available) and computer programs can be used to broaden knowledge and to facilitate the lives of young people in the modern world.

²¹ 445 mld dolarów strat z powodu cyberprzestępczości (445 billion USD loss because of cybercrime), www.ekonomia.rp.pl, 21.06.2014.

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