

FREEDOM OF COMMUNICATION IN SCIENCE IN THE CONTEXT OF THE DEVELOPMENT OF MODERN INFORMATION AND COMMUNICATION TECHNOLOGIES

Justyna Adamus-Kowalska¹

Abstract

The article presents the idea of freedom of communication and science in the context of contemporary trends related to the development of modern information and communication technologies. The research was carried out by means of literature analysis, observation, desk research, and statistical surveys, including estimated data on changes, for example in the labour market. Reference was made to the paradigm shift in the use of information and communication technologies as a result of the pandemic. Attention was also paid to the influence of technology on the sphere of scientific and public information. As a result of the research, changes related to the use of artificial intelligence have been noted, including threats related to the impact of technology on humans and the environment. Another problem is the lack of knowledge about these threats and the uncritical adoption of new technological innovations. Automated decision-making systems do not follow clear rules on accountability for the possible effects of adverse reactions. On the other hand, the development of technology is causing a revolution in the field of open access to scientific data, free of charge and without legal and technological barriers

Key words: communication, freedom, public information, open access

The feelings of kindness and gentleness, which I had entertained but a few moments before, gave place to hellish rage and gnashing of teeth. Inflamed by pain, I vowed eternal hatred and vengeance to all mankind. But the agony of my wound overcame me; my pulses paused, and I fainted.

Mary Shelley, "Frankenstein"

¹ Ph.D., University of Silesia in Katowice, e-mail: justyna.adamus@us.edu.pl, ORCID: 0000-0002-8245-7631

Introduction

To define freedom of communication we can start with the very concept of freedom, which means the ability to make decisions according to your will (Słownik Języka Polskiego PWN, 2021). In the Charter of Fundamental Rights of the European Union, Article 6 sets out the right to liberty and security of persons. Freedom of communication is a guarantee of development. Communication enables a person to function in society. Communication depends on the tools people use to consolidate and transmit their thoughts, achievements, and various activities. A significant breakthrough in communication took place thanks to the invention of writing and then printing, which was related to the wider dissemination of data, information, and knowledge. The development of tools and forms of communication can be traced through the analysis of various technologies, from the first characters of the picture script created by primitive man, through the invention of tools for processing and disseminating information, including the creation of the Internet, to the supranational corporation Google, which dominates modern communication (Boguś, 2011). The basic condition for freedom in communication is freedom of speech. This type of freedom dates back to the times of Kazimierz Wielki. In 1347 the "Statutes of the Wiślicki" were adopted (Augustyński, 2021). Today, freedom of speech is one of the key human rights and is protected by acts of international law through Art. 10 of the European Convention on Human Rights, and also through the Polish legal system, starting with the Constitution of the Republic of Poland (Articles 14, 25, 49, 53 and 54). This means that the state cannot infringe on the rights of its citizens to express their opinion and to receive and disseminate information.

An important aspect of freedom of communication is freedom of study. Science is developing very dynamically thanks to modern information and communication technologies. Scientific freedom leads to various discoveries and inventions. A certain expression of freedom and freedom in science is the development of genetic engineering. According to Józef Zabielski, the far-reaching interference of technology human nature may lead to the loss of man and the loss of the proper dimensions and perspectives of his life (Zabielski, 1996). The problem is that in a culture of consumerism, man is treated like the things that he produces. In the area of freedom of speech, the entire area of information and communication technologies achievements that dominate human development in all aspects and dimensions of its functioning is entered. At the same time, there are many unfavourable factors that dominate modern communication in connection with the freedom of speech and the development of modern technologies, including, above all, disruptions in the understanding of non-verbal messages, their interpretation and possible verification, as well as much greater interference in the privacy of people involved in communication and greater possibilities in the field of personal data processing.

In this research, attention is focused on showing the relationship between how person improve their environment and create various types of inventions, how they can develop as a result, and what risks are associated with it. Currently, new forms of remote communication and work are developing, making it possible to publish research and personal information, but also any other information, including information in science, in an unprecedented way. By using a modern, open form of transferring scientific content, the publication tools are developing very dynamically. To illustrate this phenomenon, the state of scientific repositories in Poland and around the world was examined. The scope of impact and dissemination of scientific content through open access publishing and the development of institutional repositories is increasing. Science is permeating rapidly into society. Using the desk research method, the websites collecting data on scientific repositories in Poland and around the world were reviewed, and then data on their development in recent years was collected. OpenDOAR statistical tools were used to illustrate the development of repositories in the world from 2005 to 2022. The development of repositories is associated with a specific technological revolution, both in terms of

increasing access to scientific content as well as the speed and scope of their impact (Grodecka, 2013). An analysis of the advantages and disadvantages of open access publishing was made. Another important aspect of the development of information and communication technologies in science is the speed of publication, which is related to the preprint method. This method of disseminating information consists in submitting the results of scientific research for publication before they are officially reviewed in the publishing process. Research shows that this method of publication achieves better results in terms of popularity and citations (Feldman et al., 2018). The article will discuss the impact of modern information and communication technologies on the freedom of interpersonal communication and the freedom of science. The study was carried out using the desk research technique, which consists in analysing the records of available data sources. The compilation, peer review and processing will be carried out. The analysis is the basis for developing conclusions on the freedom of communication and science in the context of the development of modern information and communication technologies.

The emergence of modern information and communication technologies as a new stage in the development of civilization. The first revolution was the invention of the steam engine used to drive metallurgical bellows and further, subsequent machines and devices, which was the beginning of the development of industry in the years 1760 to 1840. Mechanization and the use of increasingly faster and more perfect machines undoubtedly contributed to the dynamic development of civilization but also caused various types of accidents. Starting from the defectiveness of devices, through human error, to deliberate use for destruction. The second revolution was caused by the invention of the telegraph, the telephone and the light bulb between 1870 and 1914, which made it possible to invent more devices powered by electricity. The third revolution consisted of the creation of new information and communication technologies, including the Internet, and the creation of renewable energy sources from 1969 to 2000. The last technology currently implemented, representing the fourth revolution, is the invention and use of artificial intelligence, big data and machine learning. This revolution began in 2000. Technologies have many dimensions, ranging from practical ones that make people's lives easier, through cultural, social and economic dimensions, to the spiritual dimension, allowing people to believe in a better future, free from disease and suffering. The progress we are seeing and experiencing does not allow us to identify its effects in the future, but the implementation process of various technologies should be closely watched and cared for so that they do not become a threat to human values such as human dignity, freedom and other civil rights. The way people change together with their environment under the influence of the development of artificial intelligence does not allow us to look indifferently at the protection of freedom. Artificial intelligence is not only a technology but a dominant work tool. The entire sphere of business is transformed by the use of artificial intelligence. A new era is dawning in which the most important principles which an organization follows include a continuous change at a very rapid pace. Artificial intelligence not only automates many processes but also makes them more efficient. It enables people and machines to work together (Daugherty & Wilson, 2018). Nevertheless, among all the benefits of using artificial intelligence, there may also be abuses related to, for example, the collection and processing of large amounts of data, including personal, medical, economic data, etc. Technologies develop in the history of mankind according to certain stages. Observing the development of human civilization, it is easy to notice that new technologies are a direct response to human needs, starting from primary needs such as the need for a sense of security or health, to a sense of well-being. In all aspects of the functioning of information, it can be noted that it has its own cultural significance. The influence of information on people and their environment is also an important feature of modern information and communication technologies. It has been proven that the way we communicate, acquire information and knowledge, and ways of sharing information and knowledge have a great influence on the way we think, work

and function in many areas. For example, the reception of a book written in a traditional paper form is different from that of an electronic book. The very significant impact of discoveries and inventions, including those related to the way of communication, results from the degree of impact on humans. But it also has to do with the ability to adapt to the changing reality.

Different faces of freedom in science and communication

Mary Shelly's "Frankenstein" can be a literary exemplification of the pursuit of freedom and the impossible. It is a fantasy novel which shows how various human ideas come true through science. Created by Frankenstein, the nameless creature was to be a flesh and blood human. His work, however, did not receive the desired shape. It slipped out of the hands of the creator, as it were. Without giving details, it is worth considering the idea of scientific experiments. An important aspect here is to show what effects the lack of adequate control in the world of science can cause and what risks may arise, the size of which is not foreseeable. The invention of new communication tools resulted in their very quick application in all aspects of life. An example is the social networking site Facebook, which was founded in 2004 for Harvard University students. This website was to enable students to get to know each other without the need for personal contacts (Levinson, 2010, p. 31). According to scientific research, the popularity of this website is huge (Vogels, 2021). However, it is impossible not to notice some threats that communication via social media causes for personal communication. There are more and more ethical dilemmas formulated in the direction of too much use of social media and their impact on people. Therefore, there is talk of the need for social media ethics (Adamski, 2010). Unfavourable factors that are observed in the context of the development of information and communication technologies include:

- freedom of speech leading to aggression,
- disseminating and processing huge amounts of information, including personal data, on a global scale via social media,
- processing huge amounts of data without selection and attention to their quality,
- enforcing consent to the processing of personal data,
- problems in social contacts,
- digital exclusion,
- the collapse of traditional values.

The revolution caused by the emergence and development of information and communication technologies requires the resolution of many doubts and controversies. The problem is, among others increasing access to data, including research data. Information and data are not always used and processed properly and with an appropriate, fair intention. However, thanks to the wide availability of data, the development of humanity is also possible. The revolution we are experiencing and which is happening to us means that we have the opportunity to create our own, appropriately selected services. Human aspirations are focused on the increasing specialization of work, at the same time unprecedented excellence, purposefulness and speed of action. The information revolution quickly entered all spheres of human functioning. It is easy to obtain data and information not only for entertainment or basic needs, but also for the protection of people's health and life. This has been demonstrated by the situation of the coronavirus pandemic and the daily publicly published statistics of illness, death, recovery and quarantine. The daily statistical data allowed to create statistical summaries that were not consistent. The data provided every day by the health care points did not add up to the data of the Ministry of Health in Poland. This research was proved by one man, 19-year-old Michał Rogalski (Rogalski, 2021). In the event of disclosure of this inconsistency, it was decided not to publish the data by individual health authorities, which the Com-

missioner for Human Rights found inconsistent with the Constitution (Rzecznik Praw Obywatelskich, 2020). The Chief Sanitary Inspector has introduced a ban on publishing data on the number of SARS-CoV-2 virus infections by voivodship and powiat sanitary and epidemiological stations, despite the fact that such information is considered public information. On the other hand, there are indications that the provision of detailed data at individual points of the Department of Health could violate the protection of personal data. Information and communication technologies cause a high degree of personalization and automation of data processing. Offers and services provided on the Internet are performed taking into account the personal preferences of network users. This is the fundamental factor that can lead from the technology of freedom to the technology of enslavement. When browsing various content on the web, it is observed that a whole set of personalized advertising is offered, but the user has no influence on the services and products offered. Advertising, however, is a necessary condition for the functioning of many websites and mobile applications.

Human communication is considered a basic life skill, necessary in ensuring biological and psychological needs such as: the need for identity and affiliation, or the need for love, security and self-realization and satisfaction (Ciupińska, 2005, pp. 153-157). When a person communicates with other people a relationship is created. By definition, interpersonal relationships are "relationships that occur between people or social groups". Interpersonal communication is a special type of mutual interaction between people in the course of transmitting and receiving information (Ciupińska, 2005, p. 153). The beginning of the 21st century is followed by discussions on the influence of technology on access to content. As a result of disputes related to the functioning of online copyright and the circulation of content on the web, the ACTA commercial agreement was adopted, which in 2012 caused mass social protests in Poland over the limitation of rights and freedoms on the Internet (European Union, 2011; Mileszyk, 2019). Other unfavourable phenomena that may occur in connection with the development of information and communication technologies include, for example, the creation of the so-called panopticon.

The panopticon phenomenon is based on observation and monitoring, and it more and more often affects not only the street, but also the network. The Panoptykon Foundation described online tracking and profiling (Szymielewicz, 2019). According to research conducted by this foundation, the Internet uses various data about users. The purpose of information processing is to categorize and prioritize users, mainly by analysing their interests. Thanks to this data, customers are acquired, which is directly related to commercialization on the Internet. In addition, there are such activities as (Szymielewicz, 2019, pp. 4-8):

- default settings unfavourable for users,
- an extension of the path to change privacy settings,
- the use of pop-up windows with privacy settings in which key information has been omitted or presented in a misleading way,
- threats to lose important functionalities or delete the account if the user does not accept the provision of additional data,
- often interpreting random actions (e.g. slight mouse movements) in favour of the application/service.

Smartphone users most often in various applications have to agree to Szymielewicz (2019, pp. 8-9):

- access to your contacts,
- access to the calendar,
- access to the history of viewed pages and bookmarks,
- access to sensitive system application logs,
- access to applications active on a given device,

- access to the history of dialled numbers,
- access to all user profiles on a given device,
- access to the content and metadata of sent SMSes,
- access to e-mail attachments,
- the ability to change general phone settings.

Another phenomenon in the context of technological development is paranoia about conspiracy theory, also known as technophobia due to technological advances. A society dominated by information and communication technologies is beginning to notice many disadvantages of mediation in interpersonal communication. Technologies are assigned various functions, from smartphone tracking to taking control of electronic devices, observing and eavesdropping without users' knowledge. Finally, the threats to traditional culture, which are being replaced by the culture of postmodernism, are also noticed. According to Miczyńska-Kowalska, in postmodern society, consumption means more than just the acquisition and use of things (Miczyńska-Kowalska, 2013, p. 210). It becomes the primary way for individuals to create their own identities. According to this author, consumption becomes the goal of human activity. A man living in the culture of consumerism strongly contradicts the notion of freedom with his attitude, because a citizen, in order not to remain on the margins of contemporary trends and prevailing fashions in a consumer-oriented society, must assume the role of a consumer assigned to him. As a result, human values are lifestyles are changing. This evolution proceeds from the traditional value system without the dominance of materialistic values for the expression of one's own identity, to materialistic values (Miczyńska-Kowalska, 2013, p. 210). As noted by Miczyńska-Kowalska, in postmodernism the role of authorities, universal truth, and a specific goal of the development of history ends. The traditional role of the intellectual is also denied. Chaos, fragmentation and randomness appear in this culture. Postmodernity is characterized by the lack of designated directions for action, the lack of a specific sense. All states of reality are temporary (Miczyńska-Kowalska, 2013, p. 210). The essence of this world is that the real world merges with the world of fiction. At the same time, there is a rejection of the individual's transcendence due to the search for new values. Man looks for stimuli in life that bring temporary relief and forgetfulness. Culture and the lives of individuals in postmodernism are mainly aimed at experiencing fun and consumption. According to Miczyńska-Kowalska (2013, p. 211), postmodern culture can be described as "daub". In the world of science, this results in faster and faster access to data and information, but it may mean a lack of attention to their quality. Information and knowledge operate in the general circulation. This means more and more often the lack of an appropriate level of authorization, evaluation and verification of data and information, because the most important thing is the speed of dissemination and availability. On the other hand, the services offered in scientific information are increasingly better suited to the needs of users. Doubts that occur in the application of modern information and communication technologies include primarily the use of information channels such as social media, YouTube channels, etc. Considering the issues of communication in science, it is possible to review the advantages and disadvantages of scientific communication in an open form on the Internet.

Table 1. Advantages and disadvantages of scientific communication in electronic form.

Advantages	Disadvantages
Publication speed	No publication review or evaluation process
Ease of publication	Posting false content without scientific evidence
Availability without time and territorial restrictions	Publish and quickly distribute dangerous content

No fees	Publishing content of little scientific value
Universal access for everyone	Changing the reading culture
Fast knowledge exchange	Changing the role of libraries
Greater interdisciplinarity	Changing the rank and importance of scientific journals
Greater openness	The blurring of the line between science and popular science activity
Possibility of receiving feedback	Digital exclusion of people not using information and communication technologies
Freedom of expression	Changing the teacher's ethos
No communication barriers	Unjustified criticism, not supported by scientific evidence

Source: The author's study.

Changing the paradigms of using information and communication technologies as a result of a pandemic

During the pandemic, much of the work was done remotely using electronic devices and internet connections. Changes in interpersonal contacts were observed as a result of the introduction of remote work. First of all, business contacts were mediated through the constant use of computer devices, telephones and Internet connections, which was associated with the permanent recording of everything that a person does. As a result of this mediation, the division between real life and virtual life was merged. Science, work and family moved their activities to the virtual world and thus began to fulfil all needs, from food, medicine, and cleaning products, through education, work, and health protection, to family and social gatherings. Before the pandemic, social networking sites and online content aggregators began to displace traditional sources such as television. At the same time, these websites use algorithms that personalize the offer for each user. A symbol of this approach may be the Spotify music service, which at the beginning of the week presents each user with a personalized playlist for a given week, generated by an algorithm. The second example is Facebook, which algorithms select the content visible to the user. As a result of content selection, information overload can be overcome. On the other hand, users are closed in a kind of information bubbles (Pariser, 2011), which can make the image of the world distorted and subject to the control of algorithms recommending content. The biggest problem is the lack of transparency in the algorithms. In social networks such as Facebook, it is not known what input data is used to select the content shown to users, and in fact, the users themselves have little control over the scope of the information bubbles in which they are closed (Facebook, 2019). In the virtual world, users of information turn into prosumers, which means that they not only have the ability to receive information but also to produce and create them according to their own needs. Prosumers create an appropriate space for themselves and for others, they can share information and experiences, as well as observations and opinions, conduct an open dialogue as well as absorb different content from others (Jankowska, 2019, p. 47). Among the news available online, in addition to authentic reports, there is also so-called fake news – false, often sensational news, disseminated as an objective information message (Iwasiński, 2018, pp. 2-4). The harmfulness of this content in the virtual world is that before the truth is discovered, many people learn fake news and consider it true. Dealing with false information can be very harmful, especially if it is health information, as is the case in a pandemic. The paradigm shift in the use of information and communication technologies is based on the fact that among the entertainment

functions that have so far been associated with the use of information and communication technologies, there is greater use of these technologies for purely business and more formal than personal purposes. This also requires more attention when it comes to the sphere of security.

Making decisions in an automated manner

Algorithms used in the creation of artificial intelligence allow for the automation of many activities, including more and more often automatic decision-making (ADM for short). Algorithms make decisions faster than humans, and it's not that expensive. The quality of the decisions made is also different due to the lack of human prejudices (Baer & Kamalnath, 2021). Nevertheless, automatic decision-making is highly controversial due to the potential for errors in decision-making and problems with determining accountability. An example to illustrate the problem of approving such systems can be the drug certification system, which consists of the application of a multi-stage clinical trial process. The goal is for the drug manufacturer to prove that the substance actually works and treats, and on the other hand, the goal of many rounds of clinical trials is to investigate potential side effects. ADM systems do not have the potentially severe direct side effects of administering inappropriate chemicals (Baer & Kamalnath, 2021). Nevertheless, the use of algorithms and their effects are social processes dependent on many variables, often difficult to predict. Classic regulatory models do not always work well in the case of technology development; therefore it is necessary to search for mixed regulatory models. It is also emphasized that the law should guarantee appropriate appeal mechanisms and the possibility of repairing damages.

Explaining the operation of ADM systems involves the possibility of appealing against the algorithmic decision and ensuring that any wrongs are compensated. The appeal trail can be guaranteed in various models, including not only court and administrative proceedings, but also mediation or alternative dispute resolution. According to the British organization Doteveryone.org.uk, ensuring the possibility of appeal should be one of the tasks of the new entity – the Office for Responsible Technology. Providing verification of algorithms along with the possibility of revocation would significantly increase social control over ADM systems (Miller et al., 2018).

Development of artificial intelligence

All digital tools, including those for communication, can use artificial intelligence technologies. The international definition of artificial intelligence, adopted by the OECD, indicates that it is a system based on the concept of a machine that can affect the environment by formulating recommendations, predictions or decisions regarding a given set of goals (Organisation for Economic Co-operation and Development, 2021). The purpose of using machine or human data is to:

- perceive real or virtual environments,
- summarize the perception of this environment in models in a manual or automatic way,
- use model interpretation to formulate output options.

In Poland, a policy for the development of artificial intelligence has been adopted in 2020 (Polish Council of Ministers, 2020a). This policy indicates ethical problems related to the development and use of artificial intelligence. The most important issues are maintaining or strengthening trust and ensuring conditions for the design, development and use of digital machines (Polish Council of Ministers, 2020b, pp. 80-81). The main challenge in this respect is:

- the need to maintain the personal (psychophysical) integrity of man in the environ-

ment of digital machines and to maintain his autonomy in the conscious self-determination of his choices in relation to these machines;

- taking care to maintain the hierarchy of ethical values in a competitive environment of economic and political rivalry.

The policy assumes that the AI system should comply with ethical principles aimed at building trustworthy AI (High-Level Expert Group on Artificial Intelligence, 2019). These rules provide for:

- the supervisory role of man,
- technical reliability and safety,
- privacy protection and data management,
- diversity, non-discrimination and justice,
- social and environmental well-being,
- transparency,
- accountability and responsibility.

In the development of artificial intelligence, the issues of intellectual property protection should also be considered (Polish Council of Ministers, 2020b, pp. 114-115). It is assumed that solutions based on artificial intelligence are divided into the following categories:

- artificial intelligence strict meaning (it includes computer programs - software - which are i.e. machine learning algorithms and physical devices - software + hardware - i.e. autonomous cars or robots for picking fruit), the protection of which under the applicable law is indisputable,
- artificial intelligence largo meaning (works created with these programs and devices, such as computer-generated photographs, scientific texts, inventions, or pictures painted by robots), the intellectual property of which remains problematic.

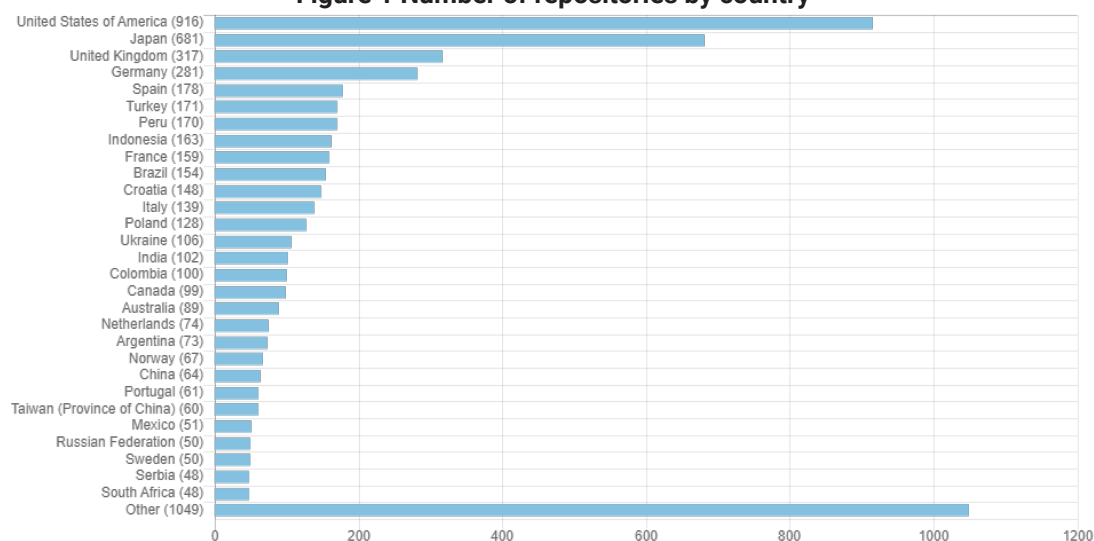
In this context, the issue of machine authorship is considered, depriving a given product of protection from intellectual property rights and granting the right to work or invention created by artificial intelligence to the author of an algorithm, regardless of the person who uses it. The theoretical assumption that the copyright for the work belongs to the AI itself is (at least at present) unacceptable, because artificial intelligence devices do not have legal subjectivity, i.e. they cannot be subjects of rights and obligations. Both the first and the second assumptions have numerous advantages and disadvantages. It is necessary to strive as soon as possible to develop an international consensus to regulate the issue of intellectual property protection of works and inventions produced by artificial intelligence. Artificial intelligence combined with automation will also have a large impact on the labour market (Polish Council of Ministers, 2020a, p. 15).

First of all, it is estimated that 130 new jobs will be created for the current 100 jobs (Gartner Research, 2017). Another forecast says that by 2030 as much as 49% of working time in Poland can be automated using already existing technologies (Gartner Research, 2017). This creates an unquestionable opportunity for an increase in productivity, and on the other hand, it creates new requirements for the education system of young people and adults. It is necessary to meet the challenges related to the adaptation of employees and their competencies to the new labour market and to create tools for counteracting technological unemployment. It is anticipated that in the short term, AI-based solutions may lead to job losses in certain sectors and, in the long term, to overall employment growth and quality (i.e. higher-quality job creation). The information revolution had a very strong impact on the sphere of scientific and public information. One of the manifestations of this revolution is open access, which provides free access to the full content of peer-reviewed scientific publications on the Internet, without legal and technological barriers including without logging (Majdecka, 2018, p. 21). In one of the basic programming documents on open access (the so-called Budapest declaration),

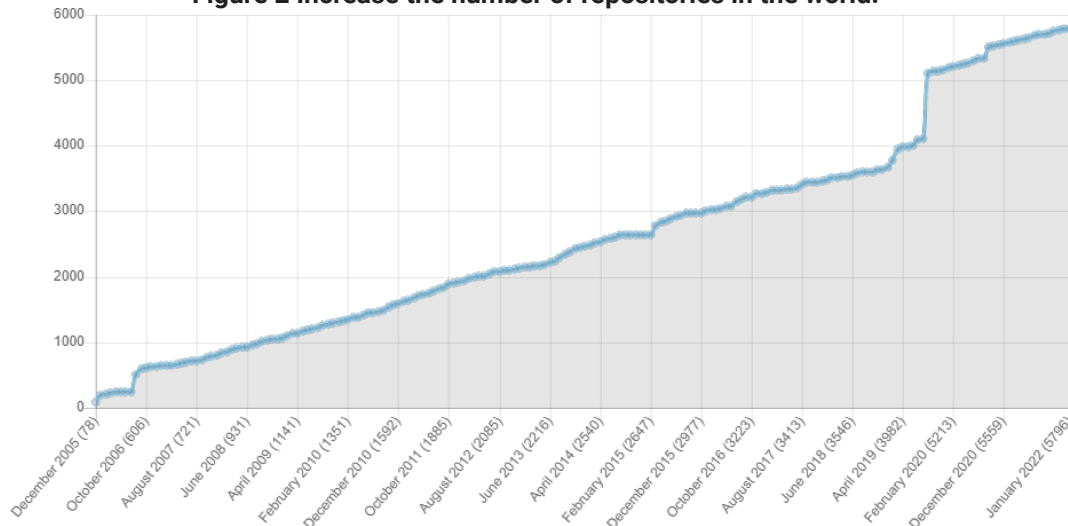
open access is defined as follows: “By” open access “to peer-reviewed scientific literature we understand its free availability on the public Internet, allowing any user to read, download, copy, disseminating, printing, searching for and linking to full-text articles, reading them for indexing, uploading data to software, or using them in any legal manner without financial, legal or technological barriers other than those inherent in internet access itself. The only possibility of restricting copying and dissemination and copyright protection – in this aspect – may arise from the necessary copyright control of the integrity of his work and the preservation of the right to be correctly labelled and quoted” (Budapest Open Access Initiative, 2012). The meaning of open access has also been defined as “dissemination of the work in such a way that everyone can have access to it at a place and time chosen by them and the possibility of free and technically unlimited use of it in accordance with the relevant regulations” (Nieżgódka et al., 2011, p. 264). Open science and open access to scientific publications play an important role in the process of disseminating knowledge in society and contribute to the implementation of the mission of social responsibility of science. Moreover, publishing in open access contributes to building the image of individual scientists and individual universities or research institutions. Research funding organizations and leading universities and research centres in the world adopt open access policies on the premise that opening up research results (publications, research data) fosters science and innovation and allows citizens to better understand the importance of science.

According to the data collected on the open DOAR website, there are 128 institutional repositories in Poland (Open DOAR, 2022). On a global scale, this number places Poland in 13th place. The largest number of repositories is created in the United States (916), followed by Japan (681) and the United Kingdom (317) (https://v2.sherpa.ac.uk/view/repository_visualisations/1.html)

Figure 1 Number of repositories by country



Source: https://v2.sherpa.ac.uk/view/repository_visualisations/1.html (access: 14 December 2022)

Figure 2 Increase the number of repositories in the world.

Source: https://v2.sherpa.ac.uk/view/repository_visualisations/1.html (access: 7 December 2022)

Among other things, Open Access contributes to:

- disseminating the latest knowledge in society (for example for students, doctors, engineers, journalists, teachers), so that you can access the latest research results,
- implementation of the mission of the social responsibility of science (citizens understand better what the work of scientists is for),
- transparency and better quality in science (it is much easier to detect plagiarism in a publication if it is open and available on the Internet),
- faster innovation in society and economy (open publications and open data can be used to create innovative products and services or can be a source of ideas for new projects and businesses),
- better use of public money (the taxpayer does not pay twice for the same, i.e. first for funding research, then for buying a license for an article that was created as a result of this research).

Any activities aimed at opening access to scientific research, despite the fact that its purpose is extremely beneficial for the development of science, should also be fully controlled. Artificial intelligence tools can contribute to tracking the paths of information flow and the transfer of knowledge and technology to the economy. This is a very important issue in light of intellectual property protection.

Summary

The changes in the human environment identified in these considerations give rise to a new type of culture. In a world dominated by information and communication technologies, everything seems more accessible and feasible. This conditions and ensures continuous development, but also causes a cultural change. Looking at culture as the totality of what people believe, trust and where man is going. In this sense of culture, it is obvious to note the changes in freedom. Total independence from place and time, and unrestrained freedom of expression encourage reflection on the essence and sense of interpersonal contact. Scientific repositories, social media, the Internet, artificial intelligence technology and other rapidly developing tools and methods of communication and information processing have revolutionized the world. The Internet is a medium that is not only a source of information and entertainment but above all a tool for communicating between people. The development of new technologies, and the emergence of

communicators, including social media, meet social expectations. Information technologies also transform the surrounding reality and cover practically every aspect of human existence (Bałk, 2016, p. 136). Due to the fact that technology is developing, you can see the world from a wider perspective as if you were experiencing it yourself. In 1967 Marshall McLuhan pointed out that electronic technology – as the medium of our time – transforms and changes the nature of social relations and affects all spheres of our lives. People must to reconsider every idea, every action, and every institution they were known. Everything changes, family, neighbourhood, education, and relationships with other people (McLuhan, 1967, p. 286). As a result of the development of social media, the freedom of communication reaches a level not yet seen in the development of mankind. All technological revolutions contributed to the improvement of the quality of life and allowed for further development. An interesting question in this context is the question of the future of humans and possible benefits in all spheres of life. Undoubtedly, the current information revolution, despite the fact that it creates new opportunities and development opportunities, is also becoming a kind of threat. Above all, it is necessary to ensure greater transparency, accountability and security in cyberspace. The more so because it is allowed to use devices that use artificial intelligence mechanisms and operate beyond human control, including making decisions in an automated manner. Freedom of communication, despite the fact that it has contributed to the dynamic development of science, also causes many undesirable consequences. There is no doubt that the technology that was designed to shorten the flow of information and ensure unprecedented speed in its transmission also limited the time people spent contacting each other. During the pandemic, direct interpersonal contacts were very limited and the transfer of many activities to the virtual space. It was extremely safe in the situation of the spread of the new coronavirus, but it could also cause a lot of dependence on technology and electronic devices. The effects of these actions are not yet identifiable and assessed. The technological revolution that we experience often places man on the margins of any actions, which in the philosophical dimension leads to many new questions and doubts about the role of man in today's world. Reflections on the development of modern technologies are interdisciplinary and should not be limited only to their advantages and benefits for the development of science and economy. It is also necessary to observe with full responsibility what threats may be caused by such a dynamic and often uncritical way of adopting these technologies to all spheres of human functioning.

References

- ADAMSKI, A. (2010). Internet a polskie prawo – stan obecny i propozycje zmian. *Kultura i historia*, 17. <http://www.kulturaihistoria.umcs.lublin.pl/archives/1686>
- AUGUSTYŃSKI, W. (2021, August 17). *Wolność słowa*, *Dziennik Wreza*. <http://www.augustynski.eu/wolnosc-slowa>
- BAER, T., & KAMALNATH, V. (2017, November 10). Controlling machine-learning algorithms and their biases. *Risk & Resilience Insights*. McKinsey & Company. <https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/controlling-machine-learning-algorithms-and-their-biases>
- BAŁK, A. (2016). Serwisy społecznościowe – efekt Facebooka i nie tylko. *Media i Społeczeństwo*, 6, 134-146. http://www.mediaispoleczenstwo.ath.bielsko.pl/art/06/06_bak.pdf
- BOGUŚ, M. (2011). Proces kształtowania się korporacji ponadnarodowej Google. *Przedsiębiorczość – Edukacja*, 7, 28-145.
- Budapest Open Access Initiative. (2012, August 12). *Prologue: The Budapest Open Access Initiative after 10 years*. <https://www.budapestopenaccessinitiative.org/boai10/>
- CIUPIŃSKA, B. (2005). Doskonalenie relacji międzyludzkich wyzwaniem społeczeństwa XXI wieku. In Z. Ziolo & T. Rachwał (Eds.), *Współczesne wyzwania cywilizacyjne*, (pp. 153-157). Wydawnictwo "MiWa".
- DAUGHERTY, P. R., & WILSON, J. H. (2018). *Human+ Machine, Reimagining work in the age of AI*. Harvard Business Review Press.

- European Union (2011). *Anti-Counterfeiting Trade Agreement. ACTA*. [https://www.europarl.europa.eu/RegData/etudes/etudes/join/2011/433859/EXPO-INTA_ET\(2011\)433859_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/etudes/join/2011/433859/EXPO-INTA_ET(2011)433859_EN.pdf)
- Gartner Research (2017, November 28). *Predicts, AI and the future of work*. <https://www.gartner.com/en/documents/3833572/predicts-2018-ai-and-the-future-of-work>
- GRODECKA, K.** (2013). *Udane projekty open access w Polsce: studia przypadków*. Stowarzyszenie EBIB.
- High-Level Expert Group on Artificial Intelligence. (2019, April 9). *Ethics Guidelines for Trustworthy Artificial Intelligence developed by the independent High Level Expert Group on Artificial Intelligence established by the European Commission in June 2018*. <https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>
- IWASIŃSKI, Ł.** (2018). Fake news i post-prawda. Krótka charakterystyka. *Przegląd Edukacyjny*, 2,2-4. <https://depot.ceon.pl/handle/123456789/15579>
- JANKOWSKA, J.** (2019). Social media naszych czasów. W kierunku oversharingu i ekshibicjonizmu życia codziennego. In V. Tanaś & W. Welskop (Eds.), *Mass media we współczesnym świecie* (pp. 43-56). Wyższa Szkoła Biznesu i Nauk o Zdrowiu w Łodzi.
- LEVINSON, P.** (2010). *Nowe nowe media*. Kraków. Wydawnictwo WAM.
- MAJDECKA, E., & STRYCHARZ, K.** (2018). *Otwarta nauka: prawo autorskie i wolne licencje*. Centrum Cyfrowe. https://ngoteka.pl/bitstream/handle/item/362/Centrum-Cyfrowe_otwarta%20nauka_www.pdf?sequence=1
- MCLUHAN, M., & FIORE, Q.** (2001). *The Medium is the Message*. Gingko Press.
- MICZYŃSKA-KOWALSKA, M.**, (2013). Kultura konsumpcyjna cechą społeczeństwa ponowoczesnego: zacieranie granic między kulturą niską a wysoką. *Zeszyty Naukowe KUL*, 56, 2–3, 199-214.
- MILESZYK, N., PASZCZA, B., & TARKOWSKI, A.** (2019). *AlgoPolska: Zautomatyzowane podejmowanie decyzji w służbie społeczeństwu*. Fundacja Centrum Cyfrowe Klub Jagielloński.
- MILLER, C., OHRVIK-STOTT, J., & COLDICUTT, R.** (2018). *Regulating for Responsible Technology: Capacity, Evidence and Redress: a new system for a fairer future*. Doteveryone. <https://doteveryone.org.uk/project/regulating-for-responsible-technology>
- NIEZGÓDKA, M., CZERNAWSKA, D., LESZCZYŃSKI, K., SZPROT, J., FENRICH, W., BARTECKI, P., & SIEWICZ, K.** (2011). *Wdrożenie i promocja otwartego dostępu do treści naukowych i edukacyjnych. Praktyki światowe i specyfika polska. Przewidywane koszty, narzędzia, zalety i wady*. ICM. <https://depot.ceon.pl/handle/123456789/1545>
- Open DOAR. (2022). https://v2.sherpa.ac.uk/view/repository_by_country/Poland.html
- Organisation for Economic Co-operation and Development. (2021, August 17). *Artificial intelligence*. <https://www.oecd.org/digital/artificial-intelligence/>
- PARISER, E.** (2011). *The Filter Bubble. What The Internet is Hiding from You*. Penguin Press.
- Polish Council of Ministers. (2020a, December 28). *Uchwała nr 196 Rady Ministrów z dnia 28 grudnia 2020 r. w sprawie ustanowienia „Polityki dla rozwoju sztucznej inteligencji w Polsce od roku 2020”* (M. P. 2021 poz. 23).
- Polish Council of Ministers. (2020b, December 28). *Policy for the Development of Artificial Intelligence in Poland from 2020. Appendix to the Resolution no. 196 of the Council of Ministers of 28 December 2020* (item 23). <https://www.gov.pl/web/ai/polityka-dla-rozwoju-sztucznej-inteligencji-w-polsce-od-roku-2020>
- ROGALSKI, M.** (2021, November 18). *COVID-19 w Polsce*. <https://docs.google.com/spreadsheets/u/1/d/1ierE-hD6gcq51HAm433knjnVwey4ZE5DCnu1bW7PRG3E/htmlview>
- Rzecznik Praw Obywatelskich. (2020, November 25). *Koronawirus, Sanepidy nie podadzą już danych o liczbie zakażonych*. <https://bip.brpo.gov.pl/pl/content/koronawirus-rpo-sanepidy-nie-podadza-juz-danych-o-liczbie-zakazonych>
- SHELLEY, M.** (2017). *Frankenstein*. Vesper.
- Słownik języka polskiego PWN. (n.d.). Wolność. In *Słownik języka polskiego PWN*. Retrieved December 12, 2022, from <https://sjp.pwn.pl/sjp/wolnosc;2537405.html>
- SZYMIELEWICZ, K., & IWAŃSKA, K.** (2019). *Śledzenie i profilowanie w sieci. Jak z klienta stajesz się towarem*. Fundacja Panoptykon. https://panoptykon.org/sites/default/files/publikacje/-panoptykon_raport_o sledzeniu_final.pdf
- VOGELS, E. A.** (2021, May 19). *Americans and 'Cancel Culture': Where Some See Calls for Accountability, Others See Censorship, Punishment*. Pew Research Center. <https://www.pewresearch.org/internet/2021/05/19/americans-and-cancel-culture-where-some-see-calls-for-accountability-others-see-censorship-punishment/>
- ZABIELSKI, J.** (1996). Wolność a prawa człowieka w postmodernistycznej kulturze końca XX wieku. *Studia Teologiczne*, 14, 75-86