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A Guide for Practical Use of Internet

in the SAT4EDU Project

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Preface

The milestones of humankind's development are marked by such inventions as the wheel, paper, the printing press, the steam engine, and electricity. We think the global network which we call the Internet will be considered the invention which defined our era.

The main attributes of the Net are its universal and democratic character, its global socialization role, and the implementation of the idea of *prosumerism* introduced in Alvin Toffler's 'Third Wave'. The Net has changed our working styles, entertainment, communications, education – almost all human activities.

The biggest challenge concerning this powerful tool is achieving access for all. Nobody should be excluded from accessing the solutions which build our civilization. Access to the Net is considered the new right of every citizen.

The mission of the EU supported project 'Satellite Broadband Internet Access for Getting Educational Multimedia Content to Unconnected Schools' is to provide broadband access for all – especially for children in schools, as they are suffering most from the lack of access. The technical and financial obstacles to that access are making these children outcasts in the modern world because they do not have access to communications, or sources of knowledge and competences.

One of the fundamental ideas of the European Union is to provide everybody with an equal chance, and equal access to culture and knowledge, especially during the early years of life.

The aim of the SAT4EDU pilot project is to provide satellite broadband access for schools situated in 'white areas', which have poor or no connectivity to the Net. For 18 months the SAT4EDU project team has provided satellite broadband access, support, and maintenance for these schools.

Our programme consists not only of providing access, we are showing teachers and pupils the wide range of possibilities offered by the Web. It opens a gateway to the achievements of civilization, especially for children in schools. At the kick-off of the project, EP Andrzej Halicki underlined that satellite access may be an effective way of raising the level of basic education and diversifying its means. 'It gives teachers and pupils the possibility to search huge resources of information and knowledge, and access to numerous multimedia educational programmes and lessons. It's very important, especially during the pandemic times we are still facing, not only in Europe, but across the whole world. I'm personally very proud of the fact this project has been implemented by a Polish company' – he said.

In today's world, the means of modern communications is usually introduced to families through their youngest members, the digital natives. We would like to support the role of school children – these digital natives – within their families as *digital teachers*, conveying digital competences not only to their mates but to their families – their parents and grandparents – as well. These young digital teachers will show them the benefits of accessing information, and conducting everyday activities – health matters, work, entertainment and communications, and sharing knowledge.

With its involvement in the project, the SAT4EDU team wants to join the effort to make the world better and friendly for all.

Robert Śmietanka
The leader of SAT4EDU project
CEO of SoftCream Company

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1. WWW – The Source of Knowledge

1.1. The World Wide Web – how to find information on the Net

The beginning of the Internet is considered to be 29 October 1969, when, at the University of California in Los Angeles, within the frame of research financed by the American agency ARPA (Advanced Research Project Agency, which coordinated research for the army), the first ARPANET network hosts were installed. ARPANET is considered to be the direct ancestor of today's Internet.

The beginning

The aim of the research at UCLA was to establish a computer network with no central control point, and which was capable of working even if part of the network was destroyed. Over the next few years additional American universities joined the project. The network was continuously expanded and new communication protocols were developed together with software supporting ARPANET's advanced communications.

Almost in parallel to the official development of ARPANET, the amateur USENET network was being created by computer science students. They used it for exchanging information and files between open user groups. At the same time, at the beginning of 70s, the so called BBS (Bulletin Board System) was born. It involved providing the space on users' computers for the advertisements of other users, which could then be read and answered using mailboxes, as well as sending and receiving files and messaging online with other users. One of the main features of BBS networks was the use of modems for data transmission along public telephone lines. As all BBSs could communicate with each other, the system provided communication all over the world, as in the case of USENET. BBSs were the basis of the next development, FidoNet, created in 1982. This was a real revolution, because to use this network there was no need to access the scientific network connecting the computers at big universities. The next obvious step was to merge the functionality of FidoNet with those of USENET and ARPANET. This was the beginning of today's Internet.

From the very beginning business was interested in making use of the Net, but it had to wait until 1991 when the National Science Foundation regulation prohibiting the use of the Internet for commercial purposes was lifted.

A short history of the Web

Finding information on this first network was very troublesome and time-consuming. The messages and posts within USENET could only be searched manually. There was a programmed search feature, but only within a given user group. The information was unstructured and not interconnected in any way. This was a serious obstacle, for example, in CERN, the main European particle physics laboratory and research centre, where thousands of scientists from all over the world cooperated with each other on their research. In March 1989, Tim Berners-Lee together with Robert Cailliau submitted a project named ENQUIRE for creating a network of hypertext documents within CERN. Hypertext is the text displayed on a computer that has references (called hyperlinks) to other text. It provides the reader with a tool for immediately accessing connected documents. This invention made it easier for the scientists at CERN to cooperate, including those who connected to the CERN network on-line from various distant locations. In December 1990,

Tim Berners-Lee proposed the definitions and procedures for the HTML language and its protocols – and the first web pages were created. Two years later, Mosaic, the first graphic web browser, was developed. In 1994, its co-developer, Marc Andreessen from the University of Illinois, established the Netscape Communications company. The company’s main achievement was its Netscape browser, which revolutionized the method for searching for information on the World Wide Web, and laying the foundations for the development of today’s browsers: Google Chrome, Mozilla Firefox, Microsoft Edge, and others. Another historic achievement was opening the vast resources of the Net to its users.

It is worth sketching a brief history of internet search engines. The first, called Archie, was developed in 1990 by Alan Emtage and Peter J. Deutsch. Its task was to quickly search for files on FTP servers. The first search software similar to today’s Google or Bing was a tool named Web Wanderer, which was developed in 1993 by Matthew Gray from MIT, and was the first web crawler to use hyperlinks. The system searched web pages and created an index of the World Wide Web, the Wandex. The idea of using web crawlers for indexing the content of web pages was further expanded in AltaVista, Yahoo, and Google. The development of browsers and search engines – offered by Google, Microsoft (Bing), DuckDuckGo etc. – resulted in a World Wide Web revolution, providing its users with tools to quickly and precisely search for information on the Net.

1.2. Where to look for knowledge

Before we look into web search tools, let’s look at the information content of web pages. The first we will look at is Wikipedia (<https://www.wikipedia.org/>), a multilingual, free-content online encyclopaedia. Anyone can edit or modify its content, but new articles and modifications need verification and approval by volunteer editors. One of the reasons for such limitations is to prevent disruption or attempts at vandalism, sometimes for political reasons. The editors are often professionals in a given area. Statistically, the majority of articles are in English (approx. 6.5 million out of 58 million articles) and English language articles are also the most extensive.

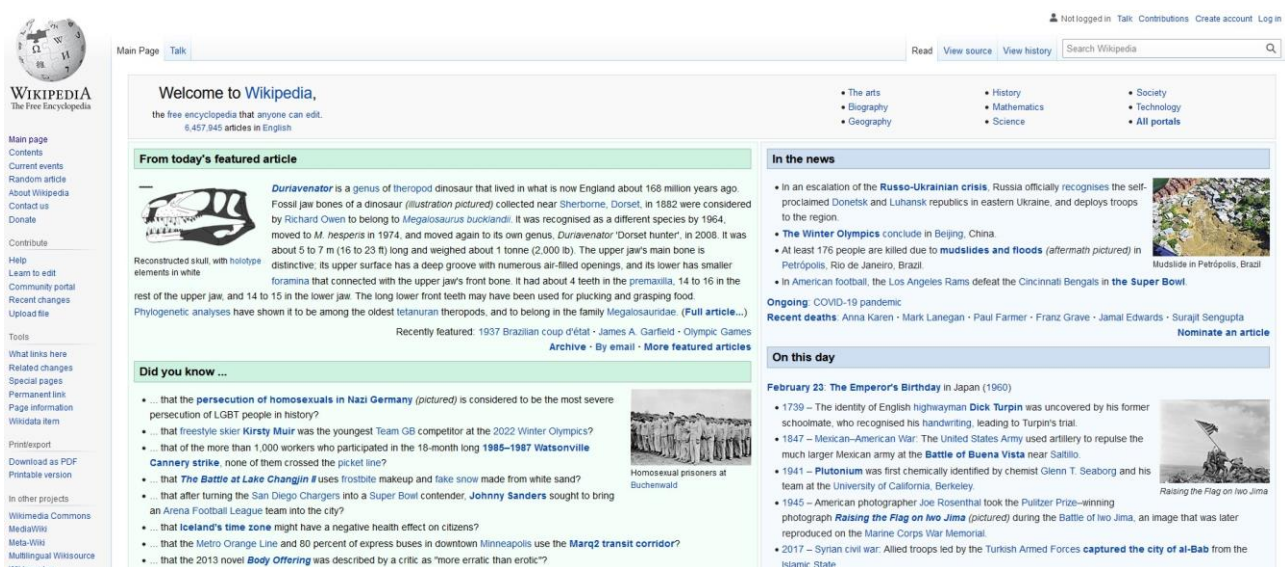


Figure 1. Wikipedia

Also worth recommending are the web versions of famous, traditional encyclopaedias such as Britannica (<https://www.britannica.com>) and Larousse (<https://www.larousse.fr/encyclopedia>). The original Britannica has a tradition extending back 250 years, while Petit Larousse's tradition is more than 115 years old. The online encyclopaedia under the obvious name of Encyclopedia.com (<https://www.encyclopedia.com/>) is supported by such renowned scientific publishers as Oxford University Press and Columbia University Press.

A range of various dictionaries and glossaries are very helpful. A good example is the multilingual The Free Dictionary (<https://www.thefreedictionary.com/>), while Lexilogos is a form of multilingual language platform (<https://www.lexilogos.com/>). The multilingual bab.la (<https://en.bab.la/>) is another very helpful site. In addition, there are numerous professional dictionaries published by professional and local publishers.

For those who want to understand longer sections of text, for example, whole web pages, even news in Chinese, Google's automatic translation system (<https://translate.google.com/>) is an indispensable tool. Microsoft has its own Bing translation system too, accessible at <https://www.bing.com/translator>.

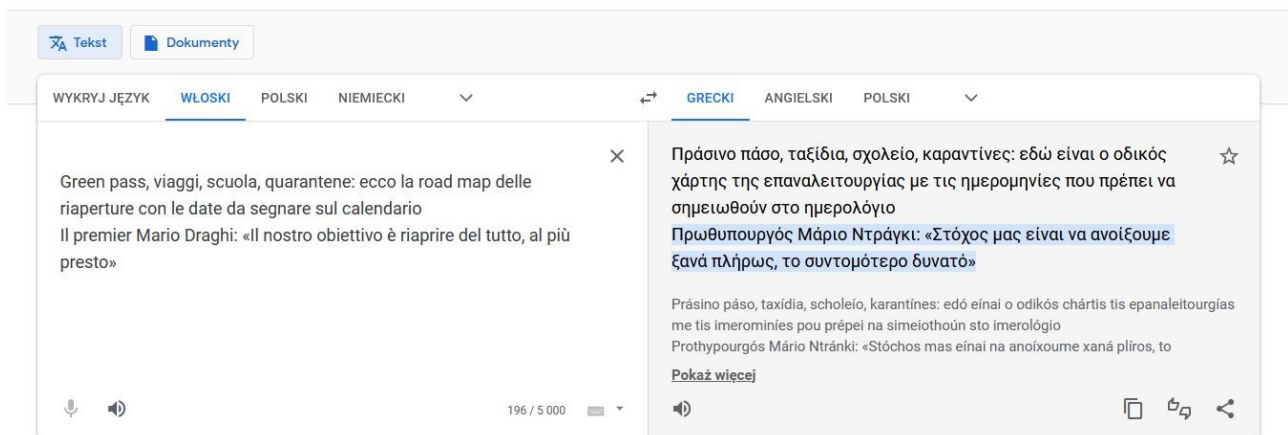


Figure 2. Google Translate

1.2.1. Newspapers on-line

A valuable source of information is news portals and the web pages of almost every newspaper and TV station, including Britain's renowned BBC (<https://BBC.com>) and America's CNN (<https://cnn.com>). And of course, not only in English; these are some examples of Italian press: La Repubblica (<https://www.repubblica.it/>), Corriere della Sera (<https://www.corriere.it/>), Il Messaggero (<https://www.ilmessaggero.it/>), and La Stampa (<https://www.lastampa.it/>).

Likewise it is worth visiting the web pages of local press, which publish lots of news and information about local and regional life and activities. Plenty of local information is published on the web pages of local administrations.

1.2.2. Specialised knowledge – science, history, tourism...

On the Net we can find thousands and thousands of web pages and portals concerning every area of science. The most famous are National Geographic (<https://www.nationalgeographic.com/>), History Today (<https://www.historytoday.com/>), History Extra (<https://www.historyextra.com/>), and Scientific American (<https://www.scientificamerican.com/>).

For those interested in academic level science, the Science (<https://www.sciencemag.org/>), and Nature (<https://www.nature.com/>) web pages are valuable resources.

In the promotion of science, open science web services and pages are very useful, such as, <http://www.openscienceonline.com/> or <https://zenodo.org/>. Some open science portals not only publish results in scientific papers, but also the research methodology too; and even so called open notebooks containing the raw data collected during research are published.

In 1999, a very interesting citizen science phenomena commenced in the form of the famous [SETI@home](#) project. Within the framework of [this](#) project, thousands of participants shared the computing power of their personal computers for 20 years in order to carry out a massive parallel computing task on signals coming from outer space. The aim of the project was to find any traces of extra-terrestrial life in these signals. Today, the world’s largest and most popular platform for citizen science is www.zooniverse.org, which labels itself ‘people-powered research’. Millions of volunteers (as of October 2021, the number of registered volunteers was 2.4 million) are active in hundreds of projects. Their involvement starts with reading and transcribing into editable formats, the Royal Navy’s meteorological data from Royal Navy logbooks recorded at the turn of nineteenth and twentieth century and other historical records and diaries; through to classifying millions of pictures of wild land and oceanic animals, galaxies and other astronomical objects, tropical cyclones, and photos from particle detectors up to discovering comets, asteroids, and exoplanets (planets outside the solar system).

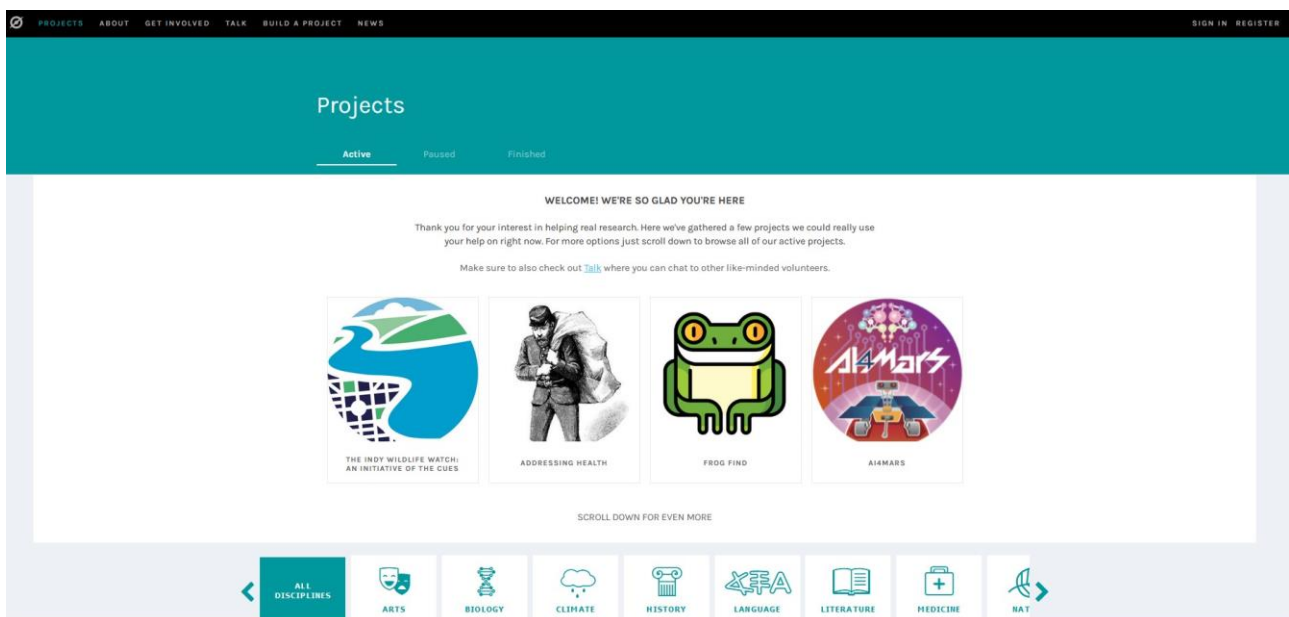


Figure 3. Zooniverse Project

These analyses and classifications prepared by volunteers will be extremely valuable in the forthcoming era of artificial intelligence (AI) and machine learning (ML), providing the big data sets needed to train AI models and ML algorithms.

Since 2007 Zooniverse projects have led to many scientifically significant discoveries and to many peer-reviewed scientific papers being published.

Tourist magazines and portals are a valuable source of information for many people, for example, World Travel (<https://www.wtravelmagazine.com/>) and The Travel Magazine (<https://www.thetravelmagazine.net/>).

1.2.3. Blogs

Individual blogs can provide a great deal of knowledge and information which is useful in everyday life, especially those published by people who have extensive knowledge in the areas they are blogging about and who are proud to share their knowledge with net communities. We will come back to this topic later in our manual, but for now, just some examples. One of the most popular Italian travel blogs is the *Pensieri in Viaggio* (<https://www.pensierinviaggio.it/>). It has a special section dedicated to Apulia, the blogger's home region and also on Thailand, which is a country she likes very much. On her blog there is a lot of lifestyle information, including food recipes for the meals she has tried during her travels. The Italian beauty blog Clio Makeup (<https://blog.cliomakeup.com/>) became so popular that the blogger got her own TV programme.

1.2.4. Fake news

When surfing the Web we have to be aware of the authenticity and truthfulness of the information we find there. Unfortunately enough, the Net is full of deceitful, manipulated and false information, and fake news. The main area in which fake news is found is social media. The source of fake news is not only the silliness or stupidity of some individuals and false prophets, because fake news is also used as a weapon in propaganda and information wars, not infrequently by various foreign intelligence services. In order to fight this flood of fake news, various governmental initiatives and non-governmental organizations emerged to try to expose fake news using fact-checking activities. An example of such an organization is the Polish Demagog society (https://demagog.org.pl/fake_news/).

DEMAGOG TEMATY WYPOWIEDZI FAKE NEWS SPRAWDZANI ANALIZY I RAPORTY OBIETNICE CO ROBIMY? O DEMAGOGU 🔍

POKAŹ WIĘCEJ

NAJNOWSZE FAKE NEWSY

FAKE NEWS

23.02.2022 Fake news Koronawirus
Były doradca prezydenta Dudy powieła fake newsy na temat COVID-19
 Jerzy Milewski w wywiadzie dla Radia Wnet przedsta...

FAKE NEWS

23.02.2022 Polityka społeczna Sprawy międzynarodowe
Nowy Porządek Świata do 2030 roku? To fake news!
 To nie jest oficjalny dokument ONZ.

FAKE NEWS

23.02.2022 Zdrowie Fake news
Remdesivir groźny dla pacjentów z COVID-19? Nie ma na to dowodów!
 Doniesienia pielęgniarki są sprzeczne z wynikami b...

FAKE NEWS

23.02.2022 Energetyka Ekologia
Czy wulkany są odpowiedzialne za efekt cieplarniany? To fake news!
 Samochody osobowe wytworzyły więcej dwutlenku węgla...

POKAŹ WIĘCEJ

Uczymy, jak odróżnić prawdę od fałszu

Dowiedz się więcej

Figure 4. Demagog Society

1.2.5. Pseudoscience

One particular area of fake news and information includes web pages, blogs, and social media groups that create and distribute various false theories. These theories on, for example, poisonous vaccines, extraterrestrial alien invasions, harmful 5G mobile technology, ‘reptilian’ world rule, big pharma COVID conspiracies, chemtrails, etc., are usually ‘supported’ or ‘proved’ by equally false or manipulated ‘proofs’. It is worthwhile having a look at the portals and web services describing and denouncing such pseudoscience ‘theories’ and revealed ‘truths’. Two good examples of such unmasking portals are <https://www.huffpost.com>, and the Polish <https://antyweb.pl/>.

2. WWW – The Source of Knowledge

It is not only the traditional printed press, whose circulation numbers have been falling for years now, that is being superseded by the Net; the same is happening with electronic media like TV and radio. The new electronic media has become the focus of our everyday lives and the source of all our knowledge about the world – starting with the local weather and national football league results and moving up to global politics. It can convey the content of local TV and radio stations in a way that is unavailable to traditional broadcasting technologies. People who travel or live abroad often watch or listen to their favourite TV and radio stations from home, as they are now available through the Internet.

When radio and TV stations broadcast through the Internet they usually don't need to apply for licenses from media regulatory offices, or pay costly spectrum or satellite channel fees. This is the main reason that thousands of TV and radio stations today broadcast their programmes through the Internet (of course, they cannot opt out of observing intellectual property rights). Besides TV and radio station media can be viewed on both global and local portals, as well as the portals of cities and local communities.

2.1. Television

Today, almost all TV stations have a web service that promotes their traditional TV services. An Italian example of this is Rai Uno (<https://www.rai.it/rai1/>). In contrast to Rai Uno, the British BBC (<https://www.bbc.com/>) looks more like a typical information portal. TV broadcasters have general, and information channels providing up-to-date news, complemented by videos that partly or even fully consist of TV news and services promoting their traditional TV channels. A good example is TVN media in Poland, which offers both general (<https://www.tvn.pl/>) and news (TVN24, <https://tvn24.pl/>) services on the Net.

To make it easier to watch TV on smartphones, broadcasters supply mobile versions of their web services and also dedicated mobile TV applications, which show TV content in formats more suitable to smartphones' features. These applications are available on Google Play and the Apple Store.



Figure 5. Rai Uno television

Another form of TV broadcast on the Internet is IP TV – Internet television. This is popular among TV broadcasters and cable TV networks. Users can watch the usual linear broadcasts, or they can create their own schedules and playlists. PVR (Personal Video Recorder) is another very popular service. It can record a TV broadcast onto the disk-drive of a TV decoder device or to the cloud – so users can watch their recorded TV programs at any time they like.

2.2. Video-on-Demand (VoD)

In the last few years, VoD platforms, which provide access to video content, have become very popular. VoD allows users to watch their chosen video at any time as long as they are connected to the Internet. Examples of such global VoD platforms are Netflix, Amazon Prime, Hulu, Disney+, and Apple TV+. In Poland there are PolsatBoxGo (PolsatBox media platform, <https://polsatboxgo.pl/>), Player (TVN platform, <https://player.pl/>), and TVP VOD (Polish national television TVP platform, <http://vod.tvp.pl/>). Examples of stand-alone cable TV VoD platforms operating in Poland are UPC TV Go (<https://www.upctv.pl/>) and TV Smart Go by Vectra (<https://tvsmart.vectra.pl/>).

There are many smaller platforms offering access to TV channels for few euro a month or sometimes even for free. Unfortunately, in many cases, such services are illegal from the point of view of intellectual property rights (IPR), and can sometimes even supply pirated versions of video content. Such services are usually registered in some exotic country where the control of IPR is not as strict as it is in the European Union, UK, USA, or Australia. Some even state on their web page that they don't have the rights to provide their content and that they are only providing peer-to-peer exchange of video content between their users. If you want to avoid problems it's better not to use these services.

2.3. Radio on the Net

Radio is a very popular service on the Net. A lot of audio content is provided on platforms, and grouped into various categories. We can click on an icon or other symbol to hear our favourite kind of music or audio content (rock, jazz, classical, podcasts etc.).

Another form of classification is by regional or geographical area. Users can enjoy radio broadcasts not only from their own region or country, but even from the other end of the world. An example of a platform that provides online streaming of global audio content is Radio Net. Its Polish edition, Radio PL, is accessible at <https://www.radio.pl/>, while Italian Radio IT can be found at <https://www.radio.it/>. This platform provides access to more than 30 thousand radio stations. Another good example is Online Radio Box (<https://onlineradiobox.com/>), where users can select stations by, for example, country of origin (<https://onlineradiobox.com/it/>).

The screenshot displays a list of radio stations on the Online Radio Box platform. Each station card includes a logo, the station name, genre tags, a currently playing track, and listener/like counts.

- Blues Radio**: rock · r'n'b · blues · soul. Playing: Stoney Curtis Band - Deja Vu. 59 listeners, 975 likes.
- Melodia 99.2**: folk · greek · eclectic. Playing: ΕΛΕΝΗ ΤΣΑΛΙΓΟΠΟΥΛΟΥ - Η ΦΑΝΤΑΣΙΑ. 20 listeners, 502 likes.
- Derti FM**: pop · talk · folk. Playing: Afto Na To Thimase (Mixed) - Panos Kiamos. 24 listeners, 422 likes.
- Music Factory Radio**: dance · electronic · house · deep house · nu disco. Playing: Swedish House Mafia ft. The Weeknd - Moth To A Flame (Pascal Junior Extended ...). 29 listeners, 317 likes.
- Dalkas**: pop · top40. Playing: ΑΓΑΛΜΑ - ΓΙΑΝΝΗΣ ΠΟΥΛΟΠΟΥΛΟΣ. 16 listeners, 311 likes.
- Zucca Radio**: pop · lounge · swing · bossa nova. 54 listeners, 222 likes.
- En Lefko 87.7**: electronic · rock · soul · funk · eclectic.

Figure 6. Online Radio Box

On Radio Polska (<https://www.radio-polska.pl>) the selection criteria can be by genre of music or area of Poland. Of course, all the major radio stations have their Internet channels as well, for example, Polish RMF FM radio (<https://www.rmfmfm.com/radio-internetowe.html>) and Italian Rai Radio 1 (<https://www.raiplayradio.it/radio1/>). On these web pages there are controls for managing playlists, and users can repeat parts or freeze the transmission for a few minutes and resume it later. There are many mobile radio applications for smartphones too; some examples are Radio Italia and Radio Italia FM, both available on Google Play.

There are numerous radio stations which broadcast their content only on the Net, they do not have a ‘traditional’ terrestrial broadcast system. In Poland there are, for example, Radio Nowy Świat, Radio 357, and numerous stations based on themes, playing only one style of music. Radio broadcasters publish their playlists and broadcast schedules, while there are also special web services which publish the playlists and broadcast schedules of specific stations. *This service is offered by the above mentioned Online Radio Box* (<https://onlineradiobox.com>). There are small dedicated set-top boxes available that are connected to the Internet and transmit audio content to traditional house radio receivers or amplifiers.

2.4. The press

Traditional press publishers have their Internet services as well. They publish global and local political, sports, business, and agricultural news as well as weather forecasts etc. The news items and articles published by these services are shorter and more concise than the usual articles found in the printed press: there is less analysis or overview. From the point of view of the publisher, the main aim of these services is to attract readers to their printed press, which, despite their decreasing circulation, are still more profitable than Internet editions. The internet editions of the main Italian publications can be found at <https://www.repubblica.it/>, <https://www.corriere.it/>, and <https://www.ilmessaggero.it/>; while in Greece they can be found at <https://eleftherostypos.gr/> and <http://www.enet.gr/>. The same business aims are followed by local press, which publishes both global and local news, and information which is important to local readers.

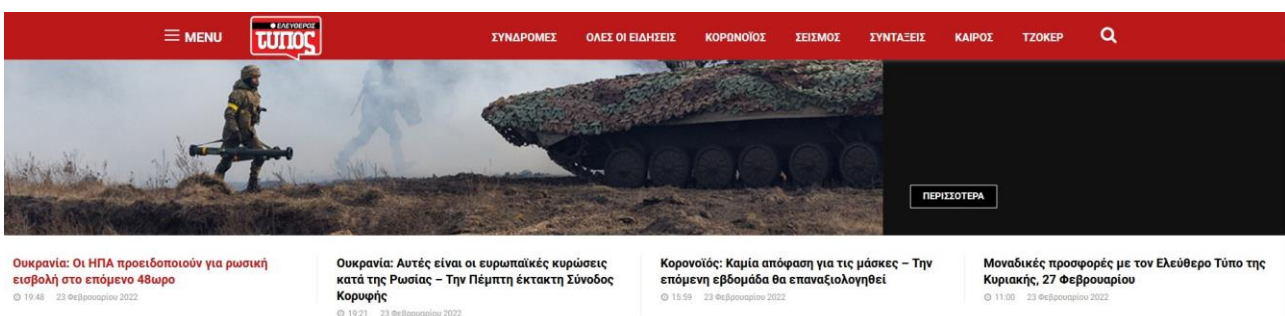


Figure 7. Eleftherostypos

It has already been mentioned that the circulation numbers of traditional printed press are falling, but the income from Internet editions is still lower than that of printed press. The publishers are

looking for ways to earn more money (i.e. to monetize) the Internet editions of their newspapers. The most popular policy is to publish sneak peaks or parts of longer, more valuable articles for free, but readers have to pay to see the rest. Readers can pay for the one article (using premium text message, PayPal, credit card or other payment service) or buy access for a week, month, year, or other subscription term. These subscription methods are used mainly to access weeklies and business, professional, or hobby press. Many publishers allow trial access for a week or a month for free. The solution of paying to access content which is behind a so called paywall is not so popular with daily newspapers as their news becomes outdated almost at once.

A lot of weeklies, monthlies, and professional or business press offer whole issues in electronic form in various formats, usually in PDF, but also, in some cases, in formats used mainly for e-books (MOBI, EPUB, or Amazon Kindle’s AZW format). Another popular format is active PDF, which can be read on a web page as it would be displayed on a desktop – one can even turn the pages. An example of such publications is the Polish regional eM Kielce (<https://emkielce.pl/>); the newspaper can be read on-line, in a browser (<https://emkielce.pl/images/tygodnik/index.php?numer=2021/22>), or downloaded in the form of a static PDF edition (https://emkielce.pl/images/tygodnik/2021/22/Tygodnik_22_2021.pdf). There is a mobile app for reading the publication on smartphones too.

Besides publishers, these electronic editions of paper press are offered by electronic ‘newspaper stands’ or bookshops, for example, the Polish platforms Publio (<https://www.publio.pl/e-czasopisma.html>), eGazety (<https://www.egazety.pl/index.html>), and e-kiosk (<https://www.e-kiosk.pl/>). A popular global platform of this kind is Issuu (<https://issuu.com/explore>).

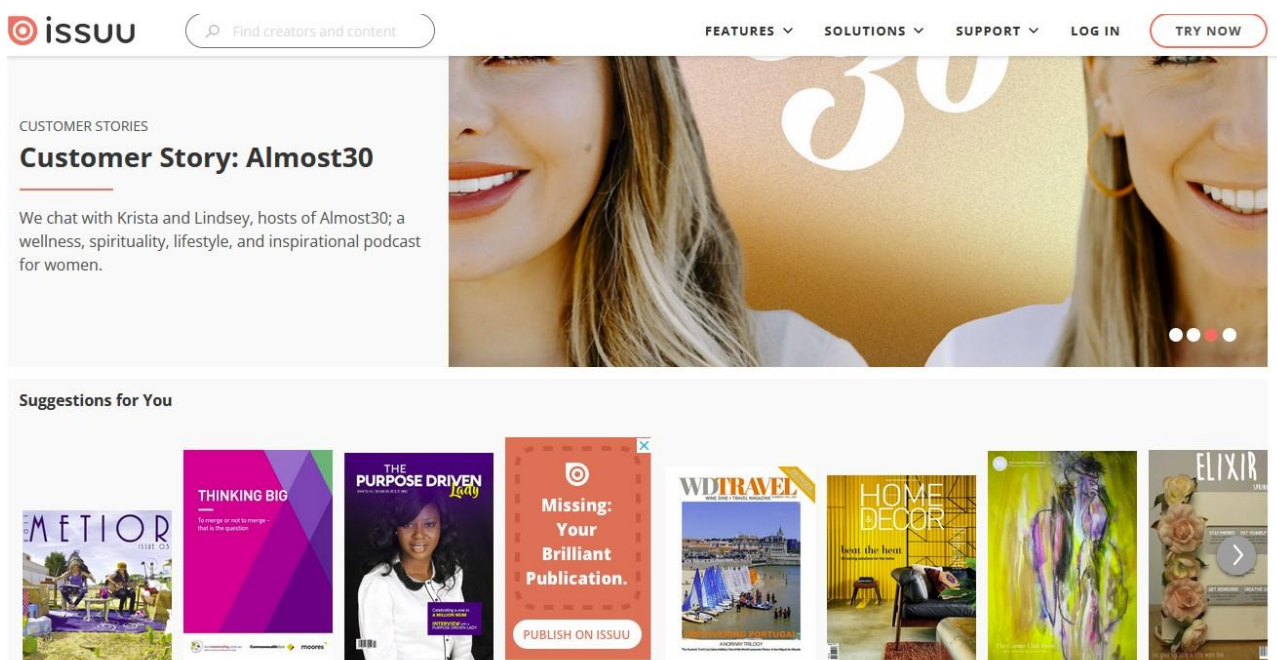


Figure 8. Issuu press platform

3. Social media – life on the Net

Social media networks have become an important part of today’s life. For many of us, the last activity before going to sleep and the first after waking up is to check what’s going on on social media – including the activities of our friends and relations. The main difference between other media and social media is the active participation of social media users and the possibility of publishing their own content – opinions, information, thoughts etc. The definition of social media points out that the main purpose of these platforms and tools is to create and support social interactions between users. There are numerous forms of these interactions: comments, likes and dislikes, ratings, attaching photos, emoticons, links to external services and so on. It’s the main reason for the huge popularity of social media. Social media has changed the ways of social communication and become a natural platform for the exchange of information.

It should be noted, though, that social media’s aim, and the way it has been designed, has been to make its users addicted in a far more intense way than other media. Not too many social media users are aware of this.

In the social media category we have social media platforms, blogs, business and social networks, discussion fora, microblogs, numerous portals for sharing photos and videos, and sites for rating products and services. On most of today’s web pages there are links and icons for connecting these web pages to social media.

In Table 1 there is a list of the top 15 global social networks as at August 2021 (published by www.dreamgrow.com). These ratings are based on the number of active registered users of the network. Of course it is not the full list, it does not include the politicians’ favourite social network, Twitter (more than 330 million users), nor the plethora of local social networks.

Table 1. TOP 15 social networks (as at August 2021)

	<i>Network</i>	<i>Number of active users (in millions)</i>
1.	Facebook	2,740
2.	YouTube	2,291
3.	WhatsApp	2,000
4.	Facebook Messenger	1,300
5.	Instagram	1,221
6.	Weixin/WeChat	1,213
7.	TikTok	689
8.	QQ	617
9.	Douyin	600
10.	Sina Weibo	511
11.	Telegram	500
12.	Snapchat	498
13.	Kuaishou	481
14.	Pinterest	442
15.	Reddit	430

Source: dreamgrow.com

It's interesting to observe that the ratings include messenger type services, which not only provide plain communication between their users, or groups of users, but various other interaction tools and services – thus they fall within the definition of social media. For example, the YouTube platform, whose primary aim is to supply video content, allows active commenting and posting other content and text as well. We will come back to this in a later part of our manual.

3.1. Facebook

As seen in Table 1, number 1 in the world is Facebook. In August 2021 the platform created by Mark Zuckerberg had 2.74 billion active users, and this number was growing by 500 thousand each day, that's 6 new users every second. It's interesting that, from the point of numbers of visits, it's only in third place, which may seem mediocre compared with Google's 92.5 billion visits a year and YouTube's 34.6 billion. Compared with other social media platforms Facebook is most popular with the 12 to 34 age group.

The highest number of active users on Facebook is registered in India (290 million), in second place is the USA (190 million), and third place, Indonesia (140 million). In the US, 73% of all (US) Facebook users use it every day, 93% at least once a week, and 98% at least once in month. Despite constant criticism for spreading fake news and disinformation, and bans applied to users for publishing content inconvenient for Facebook policy (as in the example of the posts of the former US president, Donald Trump), 36% of US users state that, for them, it is their main source of information. The average US user spends up to 38 minutes each day on Facebook.

Facebook is a typical social media platform – its registered users may create smaller networks and groups; share news, photos, and videos; and search for schoolmates from earlier days or former co-workers from previous workplaces. There is lot of additional applications available: the most popular is Messenger. We won't provide the Facebook user manual here, but we will describe its main functions.

As with almost any other social platform the first thing to do after registration is to create a profile. You can state your sex (there is a possibility to state bi- or trans-sexuality as well), education, and areas of interest, and to decide what parts of this information will be public, limited, or restricted. In order to personalize posts and other proposed information displayed on your main page, Facebook will ask you questions about your favourite films, music, sports, and hobbies, as well as more personal information, for example, on political or sexual preferences. It needs to be underlined that it's always you, the user, who decides what questions will be answered and what personal information on your profile will be visible to others.

After the usual login on a smartphone or computer, you will first see the main page of the platform (the News Feed) with information about other users' activities, new members in your groups, new photos, news, and suggestions for events and activities. All users can comment and share posts and express her/his opinions using emoticons. Comments and sharing will be visible directly under the post that is being commented on, and relates only to this post – you cannot comment on more than one post at a time. The platform's integrated search function helps you find your friends and

colleagues' profiles. You can add these people to your contact list and they will be displayed as 'Friends' once the invitation to become a Friend has been accepted.

There is plenty of thematic groups: school or university alumni, employees of companies, followers of politics and politicians, and people interested in numismatics, stamp-collecting, horse riding, snorkelling, geography, science, art and many other hobbies. Interest groups can be searched by topic using the search engine provided by the platform. When an interesting group is found, you can join it or ask to be admitted in cases where the group isn't publicly open to everyone. Sometimes, you are asked to fill in a questionnaire or answer a few questions.

On your News Feed, various events and social activities are displayed which you can join. You can also be invited to an event by friends, or find an event and join it independently. Events and activities can be searched using tags and keywords, and scrolled through and reviewed; you can also check who joins a given event or activity. Facebook also has a Wall to display various messages to the public, and a Marketplace where classified ads offering products, services, jobs etc. are posted.



Figure 9. Social Media

3.2. Instagram

Instagram, known as IG or Insta, is another platform for sharing photos and videos. Since 2012 it has been part of Facebook. The platform provides functions to add, edit, filter, and organize multimedia content. Content is organized using hashtags and geographical tags. Posts can be accessible to all users or only users invited or accepted by the owner. The search engine provides advanced search features. Users can review content made public by celebrities, influencers, and trendsetters. Content may be 'liked', and users can follow other people who are watching their posts on their own Personal Table.

The registration procedure and profile creation on Instagram is similar to Facebook's (described above). As a registered user, you can personalize your profile by adding your name or nickname, a photo, or even a short CV, or provide a link to your personal web page. Instagram users may interact with others in various ways: following, commenting, liking, tagging, and sending private messages. Other users' activities can be shared or re-posted by clicking on the paper plane found under each post. The video content which can be uploaded cannot exceed 60 seconds, and photo albums can have a maximum 10 items. There is a channel for the newest Relations and Stories, displayed as an additional information channel at the top of the main page. All content in the Stories section 'lives' for 24 hours and then disappears. There is a separate section connected with a dedicated IGTV (Instagram TV) application for posting longer videos – up to 60 minutes.

3.3. Twitter

Twitter is an example of a micro-blogging platform and service. It's easy to use and very popular with public figures: politicians, diplomats, publicists, journalists etc. Newspapers, organizations and institutions, companies, and celebrities all have their own profiles on Twitter. The Twitter accounts of public figures are often managed by their PR managers. Users may post their messages (tweets) using a web page service or a smartphone app. A tweet is a message that is limited to 280 characters. The tweet is displayed on the author's profile page and is displayed to the followers of the author. Tweets may be hash-tagged (preceding the message with the # symbol and a word – the tag) and replied to/re-tweeted using the form @username = message. Tweets are usually displayed publicly, or tweeters may restrict them to be viewed by their followers only. Users may subscribe to the tweets of other users, or forward (re-tweet) them for their followers/subscribers. As in other social media, users may put their 'likes' under the tweets they like by using the heart icon. The authors of tweets may suppress tweets from users they do not want to communicate with, and block users from seeing all tweets.

3.4. TikTok

The Chinese TikTok is an example of a social network which has gained huge popularity in a very short time. It is a platform that gives users space for very short videos (generally 15 seconds, up to 60 seconds for some users). These short videos are categorized in various ways: dance, comedy, education etc. The TikTok mobile application supports video recording and provides basic editing tools (for example, for slow motion or accelerated shots, sound mixing etc.) and plenty of filters. Users can create their own music videos using a wide range of background music. Other users may comment on these creations, 'like' them, or send messages with hashtags to followers.

To become an active user of TikTok, registration is needed (but an email address is enough).

4. Streaming audio-video

The streaming of content created by users has become very popular, especially during this pandemic.

For non-professional, hobbyist creations, for example, 'made to show friends our birthday party', it is enough to create the content using a smartphone or laptop with a built-in camera. For such creations, no professional devices are needed; the tools provided by almost all social media platforms are good enough.

Streaming is the direct transmission of audio/video content in real time. Today the speed of broadband connections (even mobile, especially in the case of LTE technology) is suitable for such transmissions. There is also plenty of streaming platforms and software applications available (a lot of very good streaming software is open source, and available for free).

Below, you will find a summary of the main streaming platforms and services.

4.1. YouTube

To stream your creations online, you must register your own channel on the YouTube platform. During registration you must verify that, in the previous 90 days, there has been no restrictions imposed on you due to spamming, streaming content which is illegal, promoting hate, offending other people etc. During this verification process you will be asked for your phone number, which is then used for verification via a call or text message containing a code. It usually takes 24 hours to activate an account for live streaming. Once a your account has been verified, you can upload up to 15 minutes of video to the platform, add thumbnails, stream on-line in real time, and use the Content ID system. The Content ID system identifies and manages content on YouTube by supporting authors (copyright owners). Videos uploaded to YouTube are compared with the original video files submitted by content owners.

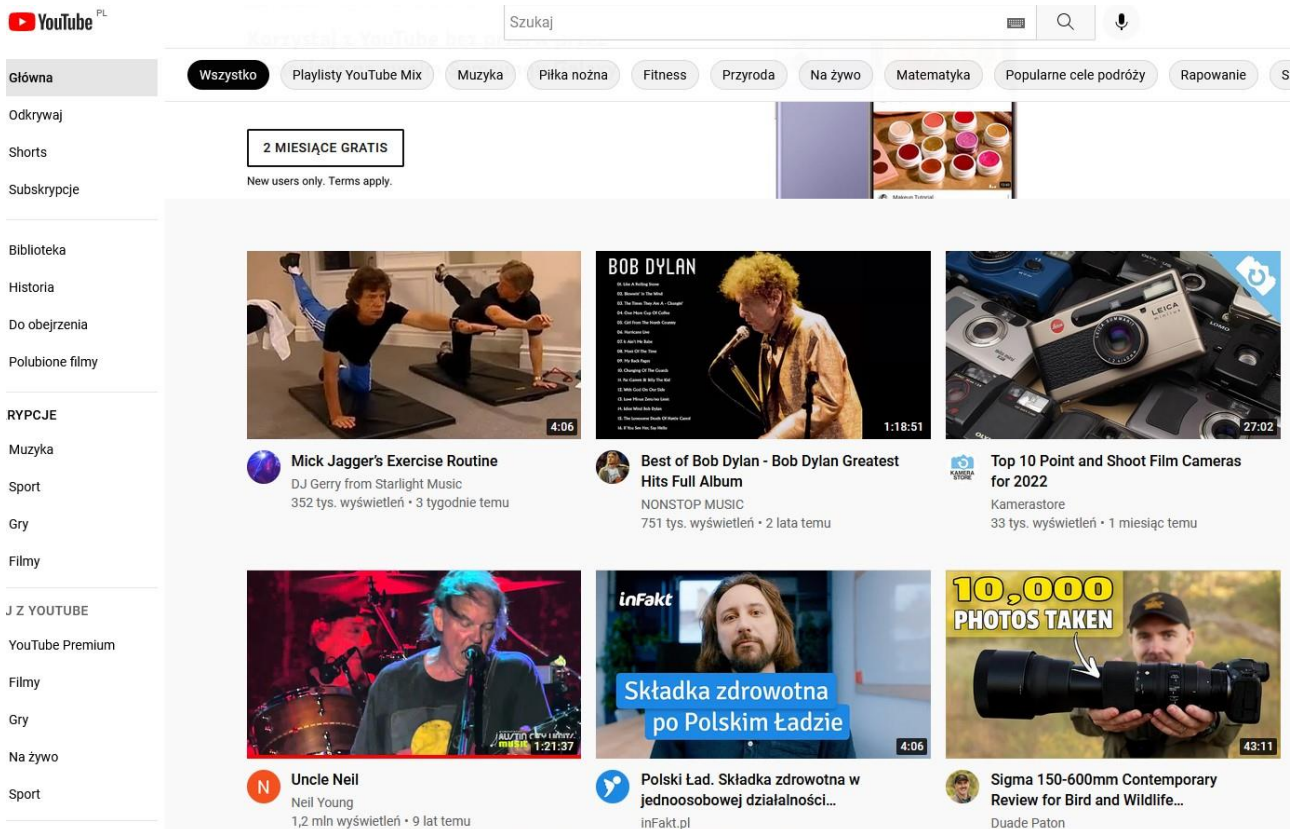


Figure 10. YouTube

When the system finds YouTube video content that matches that of a video in the database, the owner is notified and can decide whether they want the content that was copied from their own video to be removed, or if they want to receive the money generated from the advertisements YouTube displays with the video, or to only track the video's viewership statistics.

YouTube video content can be created and uploaded to the platform from smartphones, from laptops with small web cameras, or from professional devices (encoders, which we won't describe here).

4.2. Smartphones (mobile devices) and YouTube

This option is used mainly for video-blogs (vlogs) and other short videos sent from smartphones or tablets showing, for example, a school team's volleyball match, a charity event in the local area etc. However, on YouTube, there is a limitation for such online streaming: you can only stream from a mobile app if you have at least a thousand subscribers.

From the technical side, streaming using a smartphone or tablet is very simple. After opening the YouTube application on a smartphone, users you can set a schedule for the streaming event, or go live right away. In order to start streaming tap *Create. Go live*. Then follow the instructions displayed on the screen. If you chose a later date for the streaming event, information on the date and time will be sent to the your subscribers.

To end the live stream, tap on *End Stream*. What is important is that a copy of the stream will be saved.

4.3. Laptop with webcam, and YouTube

Streaming from a computer that has a webcam is even easier than from a mobile device. After opening the YouTube webpage in a browser, click the camera icon in the top toolbar and click *Go live*. Then choose whether to stream *Right Now* or at a *Later Date*. If *Right Now* is selected, the next question is for *Built-in Webcam* or *Streaming Software*. If the webcam option is selected, title, description, and privacy settings may be set. Clicking *Go Live* will start the stream. When done, click *End Stream* at the bottom of the screen.

4.4. Facebook

The Facebook platform provides a tool called Live Producer (<https://www.facebook.com/live/producer>) for live streaming from desktop or laptop computers with a webcam. External software can be connected to this feature too, but using Live Producer from a browser is very easy (Firefox or Chrome is recommended). On the Facebook main page click *Live*, choose your web camera and the source of the content you want to stream. Then select the people who will see your stream (friends only, a specific group, public, public above a given age limit etc.). You can allow viewers to rewind the live-stream, allow commenting by followers, or even allow longer discussions. You can even create polls or pose questions to viewers. Spammers and trolls can be deterred from commenting by setting the *Restricted* or *Protected* option. When ready, click *Go Live* to start the stream. To end Facebook live streaming, click the red *End Live Video* button. Almost the same system applies to live streaming from smartphones. There is an interesting feature for inviting friends to live stream – this way, you can stream together from different places.

4.5. Twitch

The Twitch (<https://www.twitch.tv/>) platform started as streaming for games and e-sport competitions, but now it's so popular among younger users that they identify it as their main streaming service. There is a free application called Twitch Studio (<https://www.twitch.tv/broadcast/studio>), but external software like OBS or Xsplit can be used too.

4.6. Twitter

Periscope used to be the streaming application used by Twitter, but it has been replaced recently by the Twitter Live function (<https://twitter.com/twitterlive>). It is very easy to use on mobile devices. In the Twitter app there is a camera icon; after choosing this, click on *Live*. Here, you can add an optional description which will appear as a tweet, a location can be added too, and a *Sound*

only option with no video can be chosen. Then tap on *Go live*. The live broadcast (with description and location if any) will appear in a Tweet on the your profile and in the timelines of your followers. To end the stream tap on the *Stop* button.

5. Video-on-Demand and TV on the Net

The VoD (Video-on-Demand) services available on the Net give us the opportunity to watch our favourite films, series, documentaries, or any other video material, not at a set broadcast time, but whenever we choose to. The film the user is watching can be stopped, replayed, forwarded etc., at any time. These features are shared by DVD and Blue-Ray players – the main difference is, VoD is streamed directly from the Net. In the beginning, such services were provided by only a few cable TV networks; now they are offered by almost all the cable TV networks, with all the features mentioned above. A few years ago, special OTT (Over-the-Top) services began. The most popular of these are Hulu, Netflix, HBO Go, Amazon Prime, Apple TV, and Disney+. OTT refers to the way video content is provided ‘over the top’ of existing broadband connections run by other operators. The main OTT providers mentioned above are now offering not only films produced by major film-studios but their own productions. Besides these main ones, there are many smaller OTT providers offering content they buy from bigger distributors. Such services remind us of the video cassette or DVD rentals that were popular decades ago, but with the difference that we don’t need to leave home to get a film. An example of an OTT platform in Italy is Chili Cinema (<https://it.chili.com/>). The VoD platforms have their mobile applications as well, so content can be watched not only on home TVs and PCs but when out of the home on smartphones and tablets.

YouTube – presented in one of the previous parts of our manual – and the Vimeo platform (<https://vimeo.com/>) offer VoD functions too. Besides video-bloggers presenting their own content – fashion, cooking, tourism, hobby, history, science, commentary on politics etc. – a lot of TV broadcasters are also present on such platforms. There are channels for major and alternative music producers, individual artists, documentaries, old movies, and so on. Platforms recommend playlists based on our preferences, while we can also build our own playlists too. As an example, Vimeo runs a ‘film rental’ VoD service (<https://vimeo.com/ondemand>) with advanced search features.



Figure 11. Chili Cinema, Vimeo, Netflix

5.1. Netflix

Today, the world leader in VoD/OTT services is Netflix (<https://www.netflix.com/>). Netflix services are available via a subscription model, based on an account registered by the user. All the content chosen by the user is registered on this account, together with usage recording and tracking. An account can be registered through a mobile application on the Netflix web page. After registering, there used to be a free 30-day trial period, but this has now been withdrawn; but in some markets a new free trial has been announced: instead of a time trial period, a limited part of the Netflix catalogue is offered to trial the service. The subscription fee can be paid automatically by a credit card or PayPal account registered to the user's Netflix account; there are pre-paid coupons available as well. Every registered user has their own space on the platform. The content being watched is also recorded there, as is the user's viewing progress, so the user can pause watching a film and resume in the same place any time. Each account can have several separate spaces (profiles), i.e. for other members of the family. Each profile can be personalized, and age restrictions can be imposed by parents on children's profiles. The Netflix algorithm suggests playlists for each profile based on an analysis of the films and videos watched by the user of the profile. Depending on the type of subscription, the content may be watched on from one up to four devices at the same time, in SD, Full HD, or 4K quality. The user may stop watching the film on one device and resume on other. After resuming, a few seconds of the previously watched section will play to remind the user of what they were previously watching.

5.2. Amazon Prime Video

Amazon Prime Video is a VoD service by Amazon, run on a subscription model. The service is connected to other Amazon services – if you already have an Amazon account because you bought something from the Amazon e-store or are using an Amazon registered Kindle e-book reader, this account can be used for the Prime Video service too. If not, you need to register an account by setting-up an account name, password, and credit card number. There is a 30-day free trial period, but if the you don't want to use the service anymore, at the end of the trial you need to cancel the account – otherwise the subscription charge will apply automatically.

Films and series recommended by Amazon can be seen in several categories on the main page. Each category can be expanded to see the details of the films and the IMDb ([Internet Movie Data Base](#)) community ratings.

You can also create your own playlists, and, as in the case of other such services, you can stop watching a film and resume it at any time.

5.3. HBO Go

HBO Go, another popular VoD platform can be subscribed to directly or as part of a subscription for broadband connection, mobile telephony, cable TV network, or satellite TV platform services.

Registration with HBO Go can be done at the hbogo.com web page. In the registration form the information provided by the current broadband operator can be given, or, in the case of

independent registration, you will need to supply your data. A free 30-day trial option is available. The features are similar to those described above: categories, search features, setting etc. Content can be viewed on 5 devices (on 2 devices at the same time).

6. Video-communication online

Video-communication using the Net is actually one of the most popular forms of contact for families, friends, and co-workers. The importance of such forms of communication has grown substantially during the COVID pandemic; during hard lockdowns especially, it was practically the only possibility to see friends and relations – at least on the screen of a computer or smartphone. The most popular tools for video-communication are Skype, WhatsApp, Facebook Messenger, and such platforms used for group work and videoconferencing as Microsoft Teams and Zoom.

6.1. Skype

Skype is the most popular, most widely known, and most used of the video-communication applications. It appeared on a market in 2004, and in 2011 was acquired by Microsoft, which then allowed it to be used with Microsoft accounts. Now it has become multiplatform software which can be used with Android, iOS, Mac OS, Windows, Linux, and other system environments. It can be utilized for video-communication on smartphones, tablets, laptops, Xbox One or Sony PlayStation 5 consoles, smart TVs, and even supercomputers in research centres. This multiplatform aspect is considered to be one of the main advantages of Skype, which has gained more than 700 million registered users. Communication between users – both voice and video – is free of charge (except for the usual cost of the broadband connection). Skype can be used to connect to fixed and mobile telephones too, but these connections are paid, either by adding money to the user's Skype account or by subscription. It is even possible to have a 'real' phone number in the Skype app in the form of the numbering configurations for dozens of countries – which may be useful, especially for micro- and small companies. Skype registered users have their own unique identifiers, which can be found in the Skype register.

Skype's numerous features include video-communication at HD quality, screen sharing, recording, connections to fixed and mobile phone numbers, sharing data and video files, creating polls, and such functions as chat, instant messaging, and managing contacts. The Meetings function allows video-conferencing for up to 24 participants. The voice quality – which uses special mechanisms which adapt the transmission parameters to the speed of the connection – is outstanding. Each user has their own profile and their current presence status is displayed in the app for other users where they appear in their contact lists.

The easiest way to start a call with other users (voice or video) is to have their contact card in the Contacts list. Contacts already stored in Windows 10/11 are automatically imported into the Skype contact list, but contacts can be added manually as well. Users can be found on the Net by searching for their email address, phone number, or Skype user name; but to actually call somebody who is not in your contact list requires him or her to accept a request. Users who accept an invitation to another's contact request can call each other for free and will be able to see the current users' statuses (active, away, do not disturb).

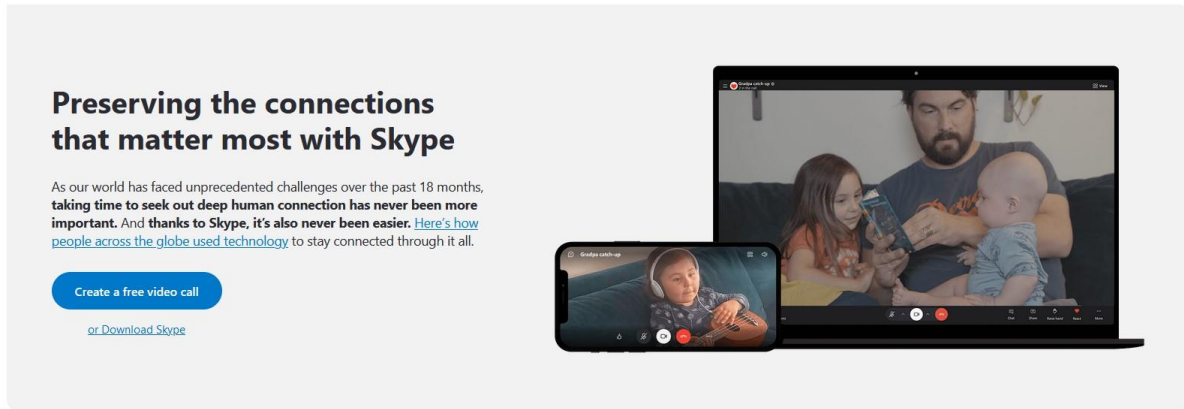


Figure 12. Video-communicators

6.2. WhatsApp

Another popular communication service is WhatsApp. Basically, the WhatsApp application was designed to be used on mobile devices but there is version for desktop computers and notebooks (both Mac and Windows versions) that uses communication through the app's web page: <https://web.whatsapp.com/>. However, communication through the web page is only possible if the WhatsApp application on the mobile device (smartphone, tablet) is active at the same time. WhatsApp was created by former developers of the famous Yahoo search engine. Currently, WhatsApp has more than 2 billion active users and in lot of countries is in number one position on the popularity list of communication services. For example, in Spain 97% of smartphone users have WhatsApp installed, in Germany it is 84%, and in Poland more than 50%.

In WhatsApp, there are all the features of modern communicators available: text messaging; sending and sharing files, photos, videos; voice messaging, and video chat. All the connections in WhatsApp are encrypted, providing users with a high level of privacy and security.

A mobile number is needed to register an account. Once installed, WhatsApp has access to all the other contacts in the phone's contact books, marking those contacts who also have WhatsApp accounts. To make a voice call or video call, or to send a text-message, just tap on the recipient's WhatsApp account icon and choose the form of communication to use.

6.3. Facebook Messenger

Facebook Messenger is a part of Facebook's social media platform, but it is also available to those who don't have a Facebook account. Basically Facebook Messenger is used to communicate with friends (separately or in groups), and to send them text messages, files, and voice or video messages etc. Voice and video calls are possible too. Animated pictures (in GIF format) and emoticons can be added to the text messages. Facebook Messenger is preinstalled by the supplier or operator in many smartphones. But if it isn't, it can be downloaded from Google Play (for

Android) or the App Store (for Apple) and installed on the phone. On the start screen of the app there are two options: to log in using a Facebook account, or to use a dedicated Messenger account that isn't connected with Facebook. If you don't want to use your Facebook account, a phone number, and name with surname have to be entered. Then a photo or other picture can be chosen, which will be seen by other users. You can choose this from a gallery or take a photo just for this purpose. Your smartphone's contact book can be added to Messenger's list of contacts, with the possibility for adding only those contacts who have a Messenger account.

Messenger can be used on desktop or laptop computers too, and no Facebook account is needed to install and use the Windows or Mac applications. Messenger can even be used without installing the application at all, just by using it directly through its web page.

On the main page of the application your message and chat history can be seen, together with the contact data of the individual people or groups you communicated with.

Besides voice and video calls, which can be started by tapping on the phone or camera icon in Messenger and ended with a tap on the red circle icon, chatrooms can be set up to simultaneously chat with up to 50 users.

6.4. Microsoft Teams

Microsoft Teams is one of the most used platforms for group work. It supports messaging, voice and video calls, video-conferencing, and the sending and sharing files and other information. Users can work in workgroups, while using private or group messaging and chat. A user's screen view can be shared with others. There are numerous options, which have already been mentioned earlier in Chapter 2 on *Electronic Communications*. The maximum number of users depends on the type of licence purchased – in the free version it is 300. Guest can be invited too.

6.5. Zoom

Zoom is one of the most popular video-conferencing platforms. It can be used not only in schools, organizations, and companies, but also for video calls with family or friends.

To use Zoom's services you will need a registered account. To register (at the 'Sign in' option on the main screen) you need to enter an e-mail address and password; or registration is also possible using an existing Google or Facebook account. The Zoom application can be installed on a computer but it can be used through the platform's web page too.

Users may join a meeting only if they are invited (by getting a link sent by the user who organized the meeting) or they can organize a meeting themselves and invite others (video-conference). If a user is invited but has no Zoom account, they can join the meeting as a guest (though some information has to be provided). For professionals (organizations and business users) various licencing plans are available.

7. Buying on the Net

7.1. How to find, order, and buy a product online: e-Commerce and auctions

e-commerce has quickly gained in popularity over the last few years, but the restrictions on traditional commerce during the COVID pandemic have increased this trend enormously. Buying on-line saves time; today, almost everything can be ordered on-line without leaving home, and e-commerce shops are usually open 24/7 – no breaks.

Another advantage of e-commerce is the ability to access products and services from anywhere in the world. We can buy products that aren't available in the 'real' shops in the places where we live. Anything can be ordered from e-commerce shops, even rare or niche products; for example, spare parts for vintage cars or motorbikes. In most countries the buyer has the right to return a purchased item within a specified period of time. In EU countries, there are regulations specifying this time as 14 days. This is a very important, for example, when shoes or clothes purchased online turn out not to be our size or they don't look as advertised.

e-Commerce doesn't mean only buying brand new products. There is a huge on-line market for used items too, a kind of online jumble or garage sale. Everything can be found here, outgrown children's clothes, books, various tools, car accessories, garden furniture, kitchen appliances and so on. The majority of such 'garage sales' are done on platforms like [ebay.com](https://www.ebay.com), or [allegro.pl](https://www.allegro.pl) in the case of Poland. For used items, most transactions take the form of auctions, which are won by the buyer offering the highest price. This model was introduced years ago by professional art auction houses. Now these auction houses are present on the Net too; in this way auctions in the most famous art houses of London or New York can be attended by people living on the other side of the world – of course, after registering for the auction and submitting the bid bond, usually 10–20% of the planned bid amount.

The items bought are usually delivered to the buyer by various parcel or courier services. In most cases the items in online shops are cheaper than the same items in traditional shops. The main reason for this is that running an e-shop is cheaper than even a small traditional shop located in a shopping mall. e-shops can be run with no warehouse at all, the products can be ordered at the same time the customer buys them. Of course, in such cases the delivery time is usually longer than it is from e-commerce giants such as Amazon, which has its huge distributions centres and warehouses in various locations all over the world.

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3 Utilizzi max per utente

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- Zdrowie
- Kultura i rozrywka
- Sport i turystyka
- Motoryzacja
- Nieruchomości
- Kolekcje i sztuka
- Firma i usługi
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- Allegro Lokalnie

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Festiwal Radości Wiosna w ogrodzie Dla miłośniczek fotografii Elektronika do -70% Telewizor 32" za 599 zł

Warto zobaczyć



Allegro Smart!



Galaxy S22



Wiosenne zakupy



Prezenty na Dzień Kobiet



Okazje na zdrowie



Moda

Figure 13. e-commerce platforms – eBay, Allegro

7.2. The practice of buying on the Net

Buying on-line is very easy, and the procedure usually looks very similar for any e-shop. As a potential buyer, you can search for a particular item in the store's online catalogue. You can use the search features, or browse through categories etc. The chosen item may be bought at once or put into a virtual 'basket' together with any other chosen products. Then the type of payment and means of delivery are set. Payment can be made using various payment platforms (e.g. PayPal), or by credit card. In the case of food products and other FMCG (*Fast Moving Consumer Goods*) the products may be supplied and delivered by the closest local shop who cooperates with the e-commerce platform, or by a dedicated delivery service cooperating with local shops.

7.3. Amazon.com

Amazon ([amazon.com](https://www.amazon.com)) is the most popular e-commerce shop in the world, it's almost a symbol for the e-commerce idea. It was established by Jeff Bezos in 1994 as an Internet bookshop selling traditional books online. For many people the name of Amazon is still associated with that Internet bookshop, but today Amazon sells almost everything and provides a sales platform for its partner companies. Amazon, as a global company, has its branches in many countries, so – at least theoretically – a product can be bought from Amazon.com (US), Amazon.co.uk (UK), Amazon.de (Germany) or Amazon.it (Italy) etc. In practice it's not always true, because some limitations may apply (i.e. tax or custom regulations). Some American, Canadian, and UK e-commerce shops do not deliver products to the EU. In the case of Amazon, practically any product can be bought in any of the Amazon shops located in an EU country. It is very rare that the place where we live is not serviced by a branch, but in such cases the you will be informed of the situation and advised what to do.

To be able to buy on Amazon, a registered account is needed. During the preliminary registration only a login email address and a password are needed; and there is no need to confirm the address by responding to an email sent by Amazon. When purchasing a product the you give your delivery address and the payment details (usually credit card details). The whole purchase can be done on the Amazon web page using a browser, or by using the Amazon mobile application for smartphones and tablets (these apps are available for Android and iOS systems).

The purchasing process looks much the same as most other e-commerce platforms and shops. The purchase is supported by advanced search features and filters (by categories, by ratings etc.). For each product there is the option to *Buy now*, or, alternatively, it can be 'put into the shopping basket'. In the upper section of the screen you will see '*Today's deals*'; this shows the products that are on special promotional prices. There is information on future promotions too. *Warehouse Deals* are products that have reduced prices because, for example, they have been returned by other buyers (so its packaging has been opened) or they are refurbished. These products have been inspected and tested, and all Amazon's consumer regulations still apply (including the option to return the products within 30 days).

When all the products you are purchasing are in the basket, choose your delivery address and delivery option. You will then be informed of the expected time of delivery. The last step is to choose the method of payment. The basic option is to charge the credit card registered with your Amazon account. For bigger purchases it is important to make sure that the one-time or daily

transaction limit of your card is enough for the given purchase. Besides credit card there are other options, for example, PayPal as well as other payment types. For customers from EU countries who don't belong to the Euro zone, the payment can be made from a euro bank account. The full list, for example, for Amazon.de (Germany) is published at <https://www.amazon.de/cpe/managepaymentmethods>. After logging in, users can see the methods available for each country. If the buyer's native currency is not the euro, Amazon will display the price in euros (at Amazon's exchange rate). The price includes the VAT tax which is to be paid. For buyers living in countries outside the euro zone it may be useful to have a credit card in euros or use such services as Revolut (<https://www.revolut.com>).

The delivery price depends on the method of delivery, type of product, and the country of delivery. For example, the price for express delivery (one day) from Amazon Germany to any EU country is from 11.99 to 14.99 euro, and standard delivery (one week) costs 5.99 euro.

7.4. Ebay.com

The [eBay.com](https://www.ebay.com) auction and e-commerce platform started in 1995. Today it has country and regional sites across 200 countries, carrying out more than one million transactions each day. As with other such services, you will need an eBay registered account. Registration is very easy, only your personal data and e-mail address have to be given, then you need to create a password. Your Facebook or Google account can be used to login too. The account has to be verified by clicking on a link in an email sent from eBay to the e-mail address given in the registration. If you plan to sell on eBay.com, a PayPal account also has to be created; this will collect any payments for items sold on eBay.com. There are two kinds of sales account: basic (the offer will only be shown on eBay for the user's country) or advanced, which allows offers to be visible across all eBay.com platforms worldwide.

As a registered user, you can search for items you are interested in using either the basic or the advanced search feature, which has many options and filters. There are numerous categories. Filters for location, used or brand new products, etc. can all be applied.

A purchase is done in one of three ways: auctions, offer, or straight purchase. Auctions, where the highest bid wins, are used mainly for art and various collectibles (coins, postage stamps etc.) and for used goods. With offers, the person who is selling the item is approached directly, but still through the eBay system. If the seller accepts the offer it proceeds just like a straight purchase. A possible disadvantage of this option is that sometimes the seller wants the whole transaction to be done outside the eBay.com platform, and, so, it will lack eBay's user security and safeguarding features. Most of the transactions are simple purchases, and in this system you simply click on 'Buy Now', without bidding or contacting the seller.

The forms of payment possible are set by the seller. On eBay there are PayPal, bank transfer, cash on delivery, or pickup in person with cash payment.

Buying on eBay is safe enough but it is worth following a few basic rules. The first thing is to collect some information on the seller before a purchase: check all the positive and negative comments from other buyers. It's worth remembering, though, that these are not official ratings, but only comments that are not always impartial or objective.

It's worth asking the seller about the item of interest. The answers, behaviour, and attitude of the seller may give additional information about their honesty and the quality of the item. If in doubt, for example, if the seller does not answer questions, it's better to search for another offer. The whole transaction should be done on the eBay platform. Do not accept any proposal to finish the purchase outside the platform, because, in this case, there is no guarantee and no protection provided by eBay regulations and procedures. It's better to ignore offers stating that the purchase has to be done off-platform. The most secure payment option on eBay is PayPal, which is a quick procedure with good protection. The PayPal algorithms automatically identify high-risk transactions and will delay transfer of the payment to the seller until it is certain there are no problems with the transaction. In cases where you don't receive the purchased item, or its quality is much worse than advertised, a full refund is guaranteed.

It should be noted that for items purchased from a country outside the EU, for example, from the USA, Canada, Japan, or China, there are obligatory customs and tax charges. Customs charges are imposed on purchase exceeding 150 euro. The usual tax rate is approximately 5%. VAT payment is obligatory when the value exceeds 45 euro (in the case of gifts) or 22 euro (in other cases). In Poland, the VAT is 23% and applies to the total value of the parcel (value of the item, shipping cost, insurance, and custom tax). These charges usually have to be paid on delivery. For purchases in the USA, eBay offers the *Global Shipping Program* so it is worth checking the information under 'Shipping and payment'.

7.5. AliExpress.com

The AliExpress service was established in China by Jack Ma as part of his alibaba.com platform. Alibaba.com is a B2B (business to business) type service for Chinese exporters to present their offers to international wholesale buyers. In 2010 the owner decided to offer the platform's services to consumers as well. The AliExpress service quickly attracted more than 5 million registered users. The main advantage for customers is the possibility of buying directly from Chinese manufacturers without intermediate traditional or Internet shops. This, together with the usually lower cost of manufacturing in China substantially reduces the prices of products offered on AliExpress. This is partly a side effect of the fact that many Chinese manufacturers do not observe intellectual property rights 'too strictly', so a lot of counterfeited products can be found on AliExpress. Of course, the manufacturers do not officially admit this. The same problem exists for art objects and 'archaeological items'. There is also quite a wide range of items for adults only.

Out of the more than 100 million products offered on AliExpress, the majority are consumer and professional electronics, household appliances, cosmetics, sport accessories, jewellery and watches, and clothes. The products are presented in 13 categories, and the web pages are multilingual, presently in 12 languages: Arabic, English, French, German, Hebrew, Italian, Korean, Polish, Portuguese, Russian, Spanish, and Turkish. For all other countries, the web pages automatically switch to English.

To buy on AliExpress.com, you will again need a registered account. Registering starts by clicking 'Join' on the 'Account' tab. Submit your location, phone number or e-mail address, and create a password. You can also register using Google, Facebook, Twitter, or some other social media account. Registration has to be verified by clicking on the verification link sent to the address/network provided during registration. Your delivery address has to be submitted at time of

purchase. Registering and purchasing can be done on AliExpress' web page or by using the mobile application available on Google Play or the Apple Store.

On the left side of the web page there are the main product categories. Searching for products is supported by both basic and advanced search features. After you have found a product, photos, details (colours, versions etc.), delivery and payment options etc. are displayed. You can purchase your product immediately, put it in the 'virtual basket', or just added it to the *Wish List* and tag it with a heart icon. For standard delivery times, many items are available with no additional postal charges, even for delivery outside China; but in these cases the delivery time is quite long, from 30 up to 50 days. Courier service delivery is substantially quicker, but for cheaper products the cost of delivery may be more than the value of product being purchased. There are many payment options, depending on payment methods available in the buyer's country, for example, credit card, PayU, Yandex.Money, WebMoney, Mobile Payment, QIWI Account, SOFORT, Bancontact, as well as other payment platforms. All payments made on AliExpress are secure and protected. The seller will receive payment only after the buyer has clicked on 'Confirm Goods Received'. There is a 75-day buyer protection program: if the purchase has not arrived within 75 days, there is 100% refund. Refunds are given in cases of damaged products, or if the product has been incorrectly or mistakenly described by the seller.

7.6. Buying clothes and consumer electronics

Nowadays, there are not only platforms like Amazon.com, eBay.com, and AliExpress.com, but practically all vendors of clothes, computers, smartphones, RTV and house appliances, sports and tourism accessories, pet food etc. are involved in e-commerce – from small shops and outlets to well-known big sellers who can be found in real malls. To find a product just put its name or its maker's name into Google or Bing search engines, together with other data (for example price limit). The search will find many internet shops offering the product. Among the biggest European networks are MediaMarkt (<https://mediamarkt.de/>) and ePrice (www.eprice.it) – consumer electronics and household appliances; Zalando (www.zalando.de), Yoox (www.yoox.com), H&M (www.hm.com), and Zara (www.zara.com) – clothes and shoes. The purchase procedure is similar to the ones described above. In many places you can buy something without even registering or having an account with the shop.

7.7. Food and medicines

The pandemic has raised the popularity of even such everyday online shopping as food and medicine. Usually, the quickest deliveries are from the shops and pharmacies in our local area, and quick delivery guarantees that the food will be fresh. All the bigger supermarkets, Carrefour, Kaufland, and Auchan have their online sales services. There are dedicated companies too, specialized in the online delivery of everyday shopping, and who cooperate with local shops and supermarkets. You can pay by cash or credit card on delivery. As mentioned, for medicines, OTC medicines (Over-the-Counter – which does not need prescription) can be purchased in the same way as food or any other product. But in the case of prescription medicines, it depends on the regulations in a given country – in some countries a purchase can be made by submitting an e-prescription code.

8. e-Administration

e-Administration, or e-governance, is a common term for government services and the exchange of information between public administration and citizens, entrepreneurs, and other public administration offices, delivered through the Internet. The level of e-Administration, and the range and extent of the procedures at central and local levels which can be serviced remotely using electronic communication varies from country to country. In many cases the only service available is to set a date and hour for visiting a government office. At the other end of scale are procedures that allow various government forms to be filled in and submitted with all other required documents, pay charges or taxes if applicable, and to obtain an administrative decision or solution remotely, all without personally visiting the office. The regulatory and administrative procedures for a given country depend on what kind of identification, authentication, and authorization are used for both sides of the administrative process. This may be an advanced digital signature, or a login and password strengthened by an electronic token sent by text message etc. In Poland the most popular type is a simplified form of electronic signature based on a trusted profile, a tool supplied and managed by the central administration.

8.1. Identification and authentication

The crucial feature in electronic administration is a trusted information platform which supports the users' identification and authentication. In Poland, this service is a trusted profile, supplied and managed by central administration. This service provides the basis for a simplified form of electronic signature (free of charge) which can be used for administrative procedures by clerks, citizens, and entrepreneurs. A *qualified electronic signature* may be used too.

Registering for a public trusted profile is not complicated. Your personal data, phone number, and e-mail address have to be submitted on a registration form. The phone number and e-mail address will be used for identification and official communication with the public administration. After submitting the form, an 'authentication of identity profile' procedure is needed: for this, you will need to go, in person, to one of the so called identity confirmation points. These include offices of the public administration, tax offices, post offices, and offices of the National Health Fund and Social Insurance Institution. Some of the biggest banks provide a remote identity confirmation service for customers who have an internet bank account with them (i.e. identity was confirmed when the bank account was created for this customer).

The qualified electronic signature mentioned above (compliant with the EU's eIDAS Regulation) is considered to be the digital equivalent of a handwritten signature as defined in all relevant law. It can be used not only in administrative procedures, but also in civil and commercial court actions and procedures: in commercial contracts, and legal and financial documents (except for notarial acts in Poland). It's worth pointing out that a qualified electronic signature not only confirms the identity of the signer, the electronic signature's algorithm also secures the consistency and integrity of any document signed electronically as it ensures that any change in the signed document is detected and revealed during verification. A qualified electronic signature is a paid tool which can be purchased from state-certified vendors. It consists of a card (in credit card or SIM card form) containing a dedicated cryptography chip, a card reader, and supporting software.

There are also some simplified versions of the electronic signature, for example, smartphone applications which can be used to sign documents in particular formats only, for example, PDFs. In some countries, a citizen's ID card with cryptographic chip may serve as a personal electronic signature tool. In Poland, the new personal ID cards are equipped with a signature chip, but legally, this is not yet a qualified signature but rather defined as a so called personal signature, and can be used in communication with the public administration.

8.2. Public administration portals

In Poland, once you have a trusted profile, you can use it to login to any public administration portal providing e-Administration services. Some examples are the Social Insurance Institution, the National Health Fund, and the tax office. The Polish general e-Administration platform is called ePUAP. It gathers together in one place (one web site) various services for citizens and entrepreneurs. It also acts as a platform for communication and the exchange of documents between offices of public administration.

Because of the services it offers, many administrative matters can be handled from home without visiting the offices – also, virtual visits are not limited to official office hours. Forms and other document can be signed by applicants using an electronic signature based on their trusted profile, or with a qualified electronic signature.

Examples of current services provided by public administration on the ePUAP platform are,

- local administration: application for a personal ID card, notification of a lost or damaged ID card or driver's licence, notification of the sale of a car, application to be listed on the electoral role;
- registry office: obtain a copy of a marriage, birth, or death certificate, or other official documents registered with the registry office, notification of births;
- NFZ (National Health Fund): request for a European health insurance card,
- Tax office: checking a tax declaration or return, registering a received inheritance, notification of a donation;
- The National Criminal Record: application for a certificate of 'no criminal record';
- Labour office: registering as unemployed, search for job offers, registration for retraining;
- PESEL (Personal ID Number) and ID card registry: verification of personal data;
- Other public administration offices: registration of businesses, application for the so called Large Family Card, sending general letters to public administration where there is no applicable form for a given procedure.

A separate online services is run by the Social Insurance Institution. On its platform – called PUE ZUS – all data concerning social security is available; for example, paid or missing pension and health contributions, registration of employees and the employees' family members who are entitled to health insurance, future pension estimations, registering sick leave for health insurance etc.

8.3. The European Union on the Net

All the European institutions, such as the European Parliament, the European Commission and its advisory bodies (European Committee of the Regions and European Economic and Social Committee), the European Central Bank, and other bodies and agencies supporting the activities of the EU (e.g. Eurostat statistical office and Frontex - European border and coast guard agency) are present on the Internet and in social media. All information published by EU institutions and all of its regulations are available online in all the official languages of the countries of the European Union.

The official EU web portal is [Europa.eu](https://europa.eu), and all the EU institutions' official web pages are registered under the europa.eu domain. All publications and documents are published on the EU web site in all official languages, for example, https://europa.eu/european-union/documents-publications_pl. The text of all the EU's legal acts, in all the languages of EU countries, can be found at <https://eur-lex.europa.eu/>, together with EU jurisprudence and the judgments of national courts relating to the EU, preparatory documents for directives, regulations and decisions, proposals, the opinions of EU bodies, impact assessments etc. This legal service is supported by advanced search mechanisms.

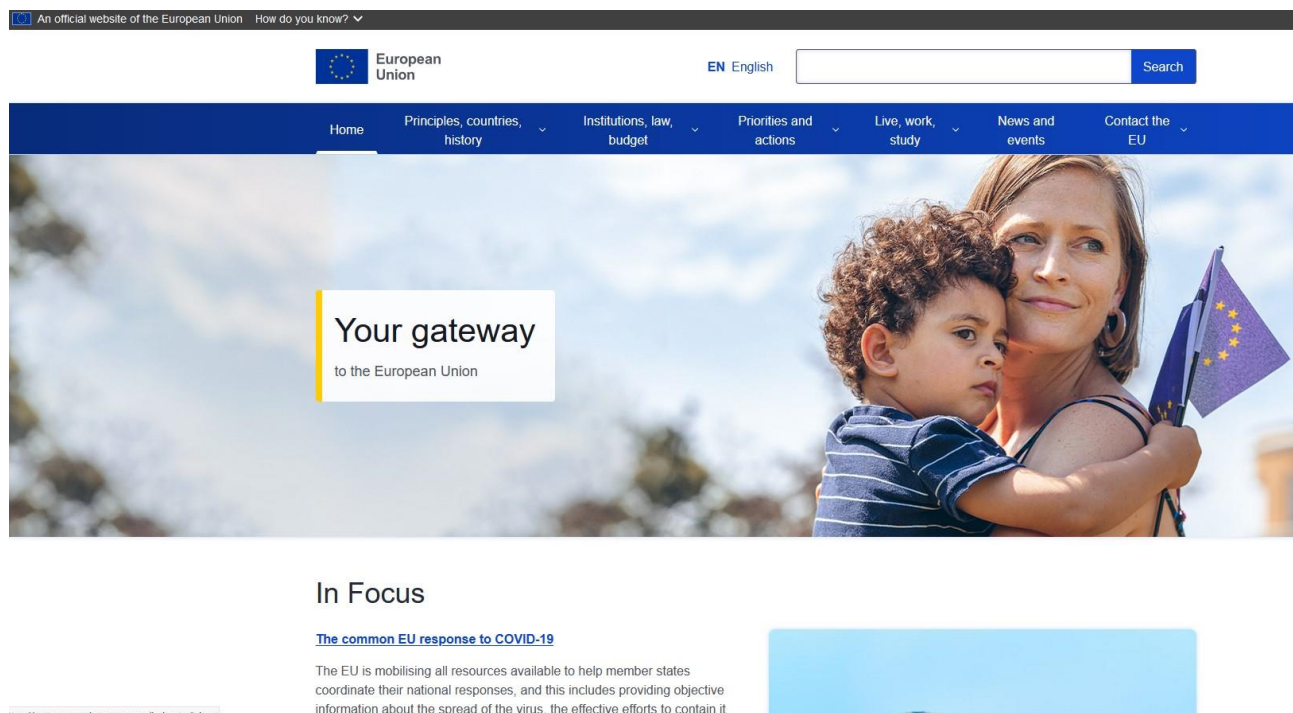


Figure 14. Europa.eu

On the EU home page there are links to almost all the web and social media pages of the EU institutions, departments, and offices. It's worth visiting EU social media channels as news and other information is usually published there earlier than on the main official web pages. Followers of EU social media channels can join discussions on published posts. These discussions are moderated so nobody is able to offend others, and insults and other bad manners are noted and removed.

8.4. European Parliament

The European Parliament (EP) is the forum for political debate and decision-making at the EU level. Its members are directly elected for 5-year terms by voters in all the Member States. It is a kind of analogue of the unicameral (one chamber) parliaments at the national level. The official seat of the European Parliament is in Strasbourg, but a lot of preparatory work is done in Brussels, where the parliamentary commissions, offices of members and parliamentary groups are located. The General Secretariat, the library, and part of the technical and organizational support offices are in Luxembourg.

The European Parliament acts as a co-legislator, cooperating with representatives of EU governments in the Council to adopt and amend EU legislation and EU budgets. Unlike national parliaments, the EP has no independent legislative initiative. The legislative initiative is in the hands of the European Commission, and the Parliament may only call for the Commission's initiative. It also supervises the work of the European Commission and other EU bodies, cooperates with the national parliaments of EU countries, and has some rights in regard to electing the officials of some other EU bodies and agencies.

The home page of European Parliament is at <https://www.europarl.europa.eu/portal>; while it also has Liaison Offices in the capitals of EU countries, for example, the Warsaw office can be found at https://ec.europa.eu/poland/services_pl.

8.5. European Council

The European Council is the EU body which defines the EU's general political direction and priorities. The predecessor of the Council was an informal meeting of the heads of European states, which started in 1961. The status of the European Council as an EU body was confirmed in the Lisbon Treaty. The Council consists of the heads of state or government of the each EU Member State, together with the Council President and the European Commission President.

The term of elected President of the Council is 2.5 years. The High Representative of the Union for Foreign Affairs and Security Policy also takes part in European Council meetings on foreign affairs issues. If necessitated by the issues being discussed, Council members may be accompanied by a minister. In such cases representative of European Commission may be accompanied by one of the members of Commission. The Council may invite the President of European Parliament to its meetings. As the main role of the Council is to define the EU's political direction and priorities, it sets strategic targets in the area of joint policy for foreign affairs and security, and may decide on such issues as, for example, joint European defence powers. The Council has decision-making powers in some areas of EU citizens' rights, security, and justice.

The home page of European Council is at <https://www.consilium.europa.eu>

8.6. European Commission

The European Commission is the EU executive body responsible for the operational implementation of EU strategy. It supervises all EU agencies, and manages the EU budget. Only the Commission has legislative initiative: it proposes new EU laws and policies, and monitors their implementation. The headquarters of European Commission is in Brussels. The Commission works like a typical cabinet government. Its 27 Commissioners are an analogue of government cabinet ministers. Since 2004 each Member State has one commissioner. One of these commissioners is nominated by European Council for the post of President of Commission. This election has to be confirmed by the European Parliament.

The Commission deals with the operational activities and functions of the EU – the implementation of the agricultural, economic, social, defence, and foreign policies of the EU. Only the Commission has legislative initiative, preparing and submitting proposals for treaties, directives, and other regulations to the European Council or Parliament, it also has direct regulatory power. After adopting an EU act, the Commission supervises its implementation and its observance by Member States. The Commission also conducts preparations and negotiations with candidate countries.

The President of the European Commission acts as the official head of the EU, representing the Union in its dealings with international contacts.

The Commission is responsible and accountable only to the European Parliament.

In practice, the term European Commission is used to refer to the whole Commission – not just the College of Commissioners, and its President but also Commissioners' offices and staff.

The official web page of European Commission is at <https://ec.europa.eu>

8.7. European Central Bank

The European Central Bank (ECB) is the central bank of the euro financial system. It controls and coordinates the production of the euro, currently the single common currency of 19 EU Member States. The ECB safeguards the value of the euro and the stability of prices within the euro zone, where it also supervises and monitors the soundness and resilience of the banks. The ECB supervises big banks directly, but oversees and monitors smaller banks in cooperation with the supervisory authorities for national banks. It collects the data needed for money production and for joint monetary policy, monitors payment systems, sets key interest rates, and lends to national banks to support the flow of credit to households and businesses. Together with the 19 national central banks, the ECB continues to prepare new series of euro banknotes, updating security features against counterfeiting. The ECB itself conducts economic research across a wide range of topics, including electronic money and blockchain solutions.

The homepage of the ECB is at <https://www.ecb.europa.eu>

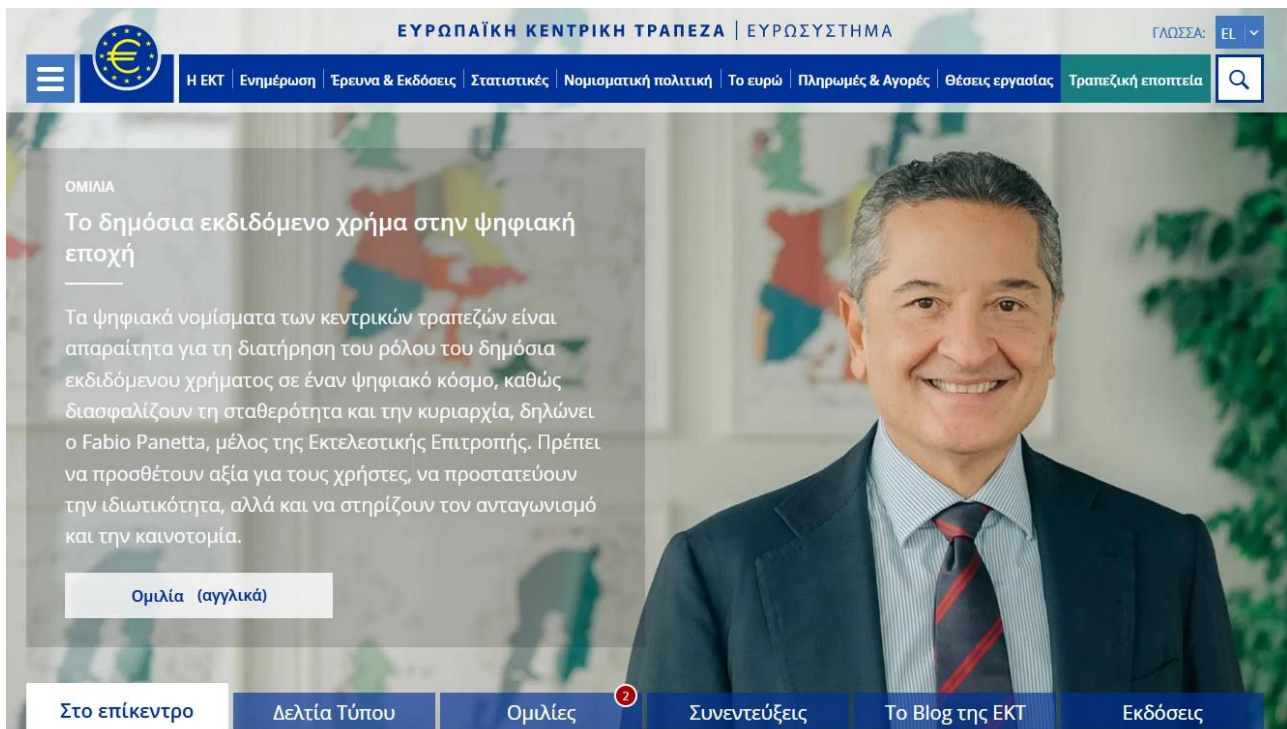


Figure 15. European Central Bank

8.8. Eurostat

Eurostat is the statistical office of the European Union and was established in 1972, replacing the Statistical Office of the European Community. Formally, Eurostat is one of the Directorates-General of the European Commission. Eurostat produces European statistics in partnership with national statistical offices and other national authorities of the EU Member States. This partnership forms the European Statistical System (ESS), and also includes the statistical authorities of the countries of the European Economic Area: the EU Member States, the three EFTA states (European Free Trade Association – Iceland, Liechtenstein, and Norway), and Switzerland.

Eurostat coordinates statistical activities at the EU level and within the European Commission. It prepares statistical analyses and forecasts that are crucial for creating, performing, and evaluating EU policies. Eurostat ensures that national statistics observe established rules and principles, and the data collected maintains its consistency and quality. Eurostat maintains the databases with advanced search features and produces many publications in both traditional and interactive electronic forms. Eurostat’s activities are organised in seven directorates responsible for resources, standards, macro-economic statistics, government finance statistics, sectoral and regional statistics, social statistics, and business and trade statistics.

The Eurostat homepage is at <https://ec.europa.eu/eurostat>

8.9. Open data

Access to information gathered by administration is extremely important for effective and beneficial cooperation between public administration, and citizens and entrepreneurs. Access is needed not only in order to know how administration fulfils its duties and how public money is used, but of equal importance is allowing NGOs and entrepreneurs to re-use public information in order to create new services and products.

Central and local administration may make public information available in traditional ways, for example, in written responses to the written requests of citizens under a procedure described in law on access to public information. Far more effective, cheaper, and more convenient for both parties is to make information accessible through the administration's web pages and portals. In the EU, a new regulation entered into force in 2019: the Open Data Directive (Directive (EU) 2019/1024 on Open Data and the Re-Use of Public Sector Information). The directive sets the minimum requirements for EU Member States for making public sector information available for re-use. In Poland the law on open data and the re-use of public information was modified accordingly in 2021 in order to implement this directive. Current Polish regulations define and describe on dedicated web pages called Public Information Bulletins what information has to be published, and in what structures and formats, and for which agencies and offices of the public administration this is an obligation. The information may be published in standard web page format (HTML), but at a minimum, scanned images of formal documents must be published. Meanwhile, for re-use, the most important thing is that the data and information available on the administration's web pages and services should not need to be read, collected, or re-entered manually for further use. The most effective way to re-use information is to get access and download this data automatically to services and platforms created by citizens, NGOs, and entrepreneurs. The administration can make this very easy by creating electronic interfaces called APIs (Application Programming Interface) on public registers, web pages, and electronic services that describe the formats and procedures necessary to obtain and automatically download data from public registers. The most convenient format for re-use is so called open data. There is a simple system defined by Tim Berners-Lee (creator of the http protocol which web pages are based on): it classifies open data on a 5-grade scale, how open the data is, is marked by stars. The classification, called '5Star Open Data', is available at <https://5stardata.info>. The highest and most valuable grade (5 stars) defines a format of open data in which not only the data is available, but its relations with other data and the information's context is also provided via appropriate links.

In Poland, an example of public administration open data is the service found at <https://dane.gov.pl>, which contains not only public data and links to public registers, but also the technical descriptions of standards and formats, together with general information and training material on public open data. Open data is available on the services and platforms of numerous Polish cities too, for example <https://www.wroclaw.pl/open-data/>. In Italy, a dedicated service for public open data can be found at <https://developers.italia.it/en/datigov/>. Another example of open data, published by a central bank, is the open data service for the Central Bank of Greece at <https://opendata.bankofgreece.gr/>.

The open data service of the European Union is at <https://data.europa.eu>.

Home | Data | Studies | data.europa academy | News | Contact

7 February 2022 Launch of competition | 31 March 2022 Deadline to submit ideas | 25 April 2022 Preselected teams announced | 26 June 2022 Deadline to submit full proposals | 15 July 2022 Finalist teams announced | 20 October 2022 Competition finals

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The official portal for European data

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Search datasets

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Economy & Finance | Education, Culture & Sport | Energy | Environment | Government & Public Sector | Health

Trending datasets

- Consolidated list of persons, groups and entities subject to EU financial sanctions
- Number of COVID-19 people killed by age
- CORDIS - EU research projects under Horizon 2020 (2014-2020)
- The European Commission's Oil Bulletin

Figure 16. European Open Data portal

8.10. e-Health systems

In Poland a central e-health system provides access to medical information. This service is available at <https://pacient.gov.pl/>. It gathers together all information in one place, making it easy to access health services. In a separate part of the system, there are users' individual accounts: <https://pacient.gov.pl/internetowe-konto-pacjenta>. These contain information on patients' past and present medical treatments, and procedures and services planned for the future. These accounts provide such services as,

- a list of electronic prescriptions issued by doctors, nurses, or midwives – there is no need to obtain a paper copy as pharmacies accept them in electronic form, for example, on a smartphone;
- get text messages concerning issued prescriptions, referrals for examinations, appointment dates;
- authorizing family members' access to the user's medical data and to manage their healthcare procedures (for example, for an older person);
- getting information on what healthcare facility is closest to the user's location, and which has shortest waiting times for a given treatment;
- giving formal consent for treatment (for example, surgery);
- choosing or changing the user's dedicated general practitioner and/or nurse;

- granting a pharmacy or healthcare facility access to treatment history, e-prescriptions, and referrals;
- applying for a European health insurance card.

The pacient.gov.pl system acquires its information from several National Health Fund and Social Insurance Institution’s IT systems and registers: data for e-prescriptions and examinations, accessed treatments, the total cost of treatment and the amount subsidised from the resources collected by National Health Fund. Personal accounts may also be used to register the members of families with the National Health Fund. During the pandemic, a very important feature of the system was being able to register for vaccinations, information on COVID tests, quarantine requirements etc.

In Italy, Fascicolo Sanitario Elettronico (Electronic Health Record –at <https://www.fascicolosanitario.gov.it>) is a similar system, and is a tool that citizens can use to trace and check the entire history of their healthcare life, and to share information and data with healthcare professionals. The Italian system is provided and managed by individual regions. Currently 21 regions provide services via this system, and more than 57 million Electronic Health Records (patient accounts) have been activated. In Greece, the National Organization for the Provision of Health Services (Greek acronym EOPYY) developed and maintains the Health Atlas system, which is accessible at <https://healthatlas.gov.gr/>.

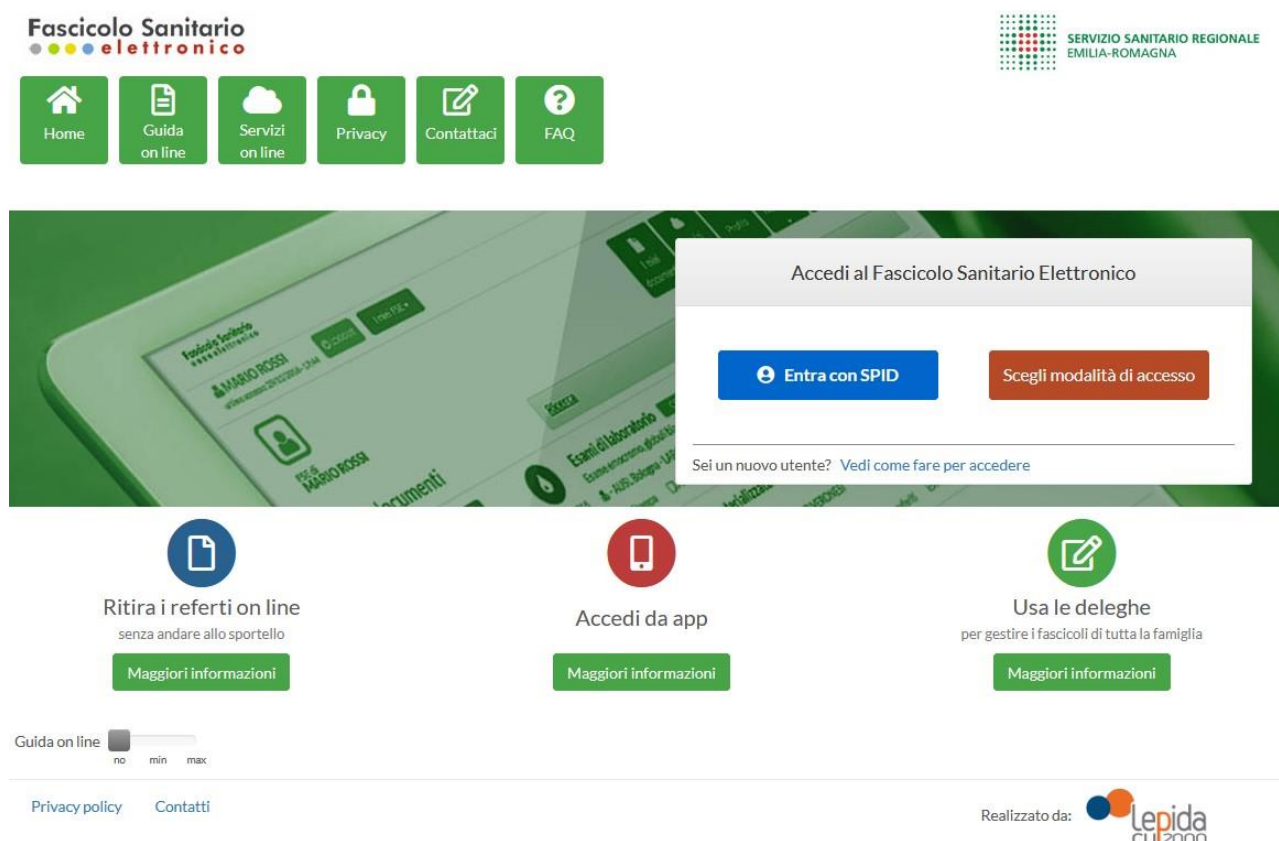


Figure 17. Fascicolo Sanitario Elettronico

9. Banking and financial services

Practically every bank in Europe provides access to its services through the Net. You can make payments and transfers orders, make deposits, control card spending, all without leaving home – all you need is a computer or smartphone and access to the Internet

For years, traditional banking was based on in-person contact between bank personnel and customers. To make a payment or bank transfer, customers had to visit a bank branch, fill in a form or directly tell the teller what they wanted to do. Electronic banking allows all these activities to be done remotely, and today, almost exclusively through the Internet: that's why it's usually called 'Internet banking'. This includes using bank cards and other non-cash transactions. Electronic banking operations can be passive (checking account balances or scrolling through a list of transactions), or active (making deposits, payments, or transfers etc.).

Electronic/internet banking has many additional features, for example, direct debit payments, payments using tokens/codes, standing orders etc. Electronic/Internet banking applications are becoming more and more user friendly, and more secure. You can access your bank accounts through bank web pages or by using dedicated mobile applications.

9.1. Setting up an account

Usually you will have to visit a bank branch in person to set up an account. During the visit the consultant prepares all the documents to be signed, and hands over your login data and your initial, temporary password. It should be noted that this data is prepared in such a way that bank personnel have no access to it. Some banks have worked out procedures which allow accounts to be set up remotely, without visiting a branch. In this case, your identity would be confirmed by, for example, a photo taken with a smartphone.

When logging in to accounts or carrying out account related operations additional confirmation is usually needed. In most cases, for this purpose, the bank sends you a text message with a numerical code. In some banks, today, mostly for business accounts, the confirmation or security code is generated by a special device called a *hardware token*. Security in banking and financial operations will be presented in later parts of this manual.

9.2. Additional services

Besides the basic functions of Internet and mobile banking, various additional services are offered by banks, usually in cooperation with their partners; for example, services provided by brokerage houses with investment accounts. Some other very practical services are parking fees, tickets for public transport, motorway tolls etc. Additional mobile payment services such as Apple Pay and Google Pay allow payments to be made in shops using a smartphone in the same way as a credit card.

The user interfaces of the various banking systems and mobile applications are very different, so no general instruction advice can be given about them, but many banks provide demo accounts so you can get acquainted with the account functions.

9.3. Brokerage houses and investment accounts

Internet financial services like investment accounts and brokerage service provide users with the possibility of investing remotely. Internet investment services are supported by financial market information: trends, share and commodity prices, and the various investment instruments used to help investors make decisions. Currently, a lot of these tools are in the form of mobile applications which provide access to European and world stock exchanges, share trading, investment instruments, investment funds, and cryptocurrencies. The most popular brokering services are eToro (<https://www.etoro.com/>) and XTB (<https://www.xtb.com/>). Brokerage applications and services offer demo accounts using fictional money to help users learn how to invest.

9.4. Financial institutions

The European Central Bank (ECB) has already been mentioned in a previous chapter. As well as the ECB, on the Net we can find central banks, financial market regulatory bodies, and special institutions that support economies, for example, the European Investment Bank (<https://www.eib.org>). A lot of information is available on their web pages about subjects like the economy, financing projects, financial policies etc.

9.5. Cryptocurrencies

Cryptocurrencies are virtual digital money which do not exist in physical form, and which are not issued by a central authority (central banks). Cryptocurrencies are generated using cryptographic algorithms and are built on blockchain technology. They are generated using high-powered computers in a computing process called *mining*, and exist only online. They utilise advanced encryption to authenticate and protect transactions. There is more than one thousand six hundred kinds of cryptocurrency already in use; the best known are Bitcoin, Ethereum, Litecoin, and Ripple. Bitcoin, the first and most popular cryptocurrency, appeared in 2009. The idea of generating bitcoin is attributed to an enigmatic person with the nickname Satoshi Nakamoto.

10. Culture on the Net

We have plenty of opportunity to spend our free time culturally on the Net. In previous chapters we talked about social media, currently one of main afterhours internet activities, and we presented video streaming including VoD services. In this chapter we will concentrate on the traditional areas of culture on the Net: music, theatre, and literature.

10.1. Music on the Net

The music content found on general social media is the easiest way to reach the music we like. Plenty of music can be found on YouTube (<https://www.youtube.com/>); or there are also dedicated services like Teledyski.info (<http://teledyski.info/>). On Shazam's (<https://www.shazam.com/>) website there is a very useful database of the most popular music in the world and what's popular in particular countries. Other popular dedicated music services are Spotify (<https://open.spotify.com/>) and Deezer (<https://www.deezer.com/>). Both provide music streaming, mainly for mobile devices such as smartphones.

10.2. Music on YouTube

YouTube, the world's biggest video service, provides a platform for films and other video, both amateur and professional. Each day millions of people watch videos uploaded to YouTube – the most popular videos have been watched billions of times. All users – both registered and unregistered – will see on the homepage of the service links to YouTube's most popular videos as well as to videos proposed by YouTube's algorithms.

There is plenty of music on YouTube, often supplied by big labels, radio stations, and by musicians and entertainers themselves. A lot of music is uploaded by the fans of performers or genres of music. Fans upload music compilations for easy listening as background music. Usually such compilations are replayed as 'sound only' with a static background (no video content), not as typical music videos. These may last anything from few minutes up to several hours. Classical music, operas, and videos from festivals or live streaming from concerts can be found on YouTube as well.

10.3. Spotify

Spotify is one of the most popular streaming services for music and podcasts, and operates under the freemium model. This means that users have to be registered, but the basic service – listening to music streamed online – is free, but these users will hear commercials between songs. Downloading songs in order to listen offline is a premium (paid) service. There is a 30 day trial period for the premium service.

10.4. Shazam

The Shazam app has an interesting feature: it can identify a song – the genre, title, and performer – after analysing only a part of a song. This identification method works whether a song is played through speakers or headphones. Shazam records information on songs, which can then be found on YouTube or Spotify.

Both Shazam’s application and website gives access to lists of top music by country, genre of music, or popularity (number of listeners). The Shazam application can also be integrated with Facebook accounts, thus people can exchange opinions, and share information and songs with their friends. A similar service is provided by SoundHound (<https://www.soundhound.com/soundhound>).

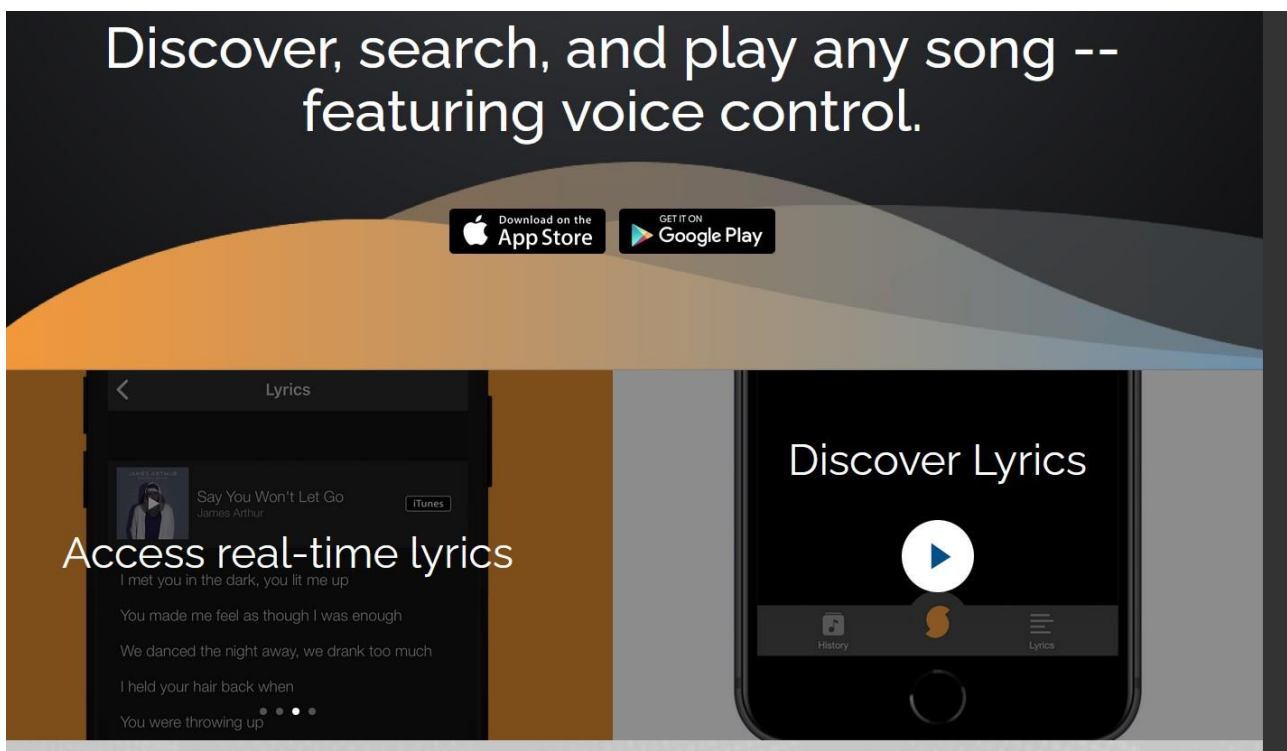


Figure 18. SoundHound service

10.5. E-books and audiobooks

In Internet bookshops (which work in a similar manner to any other e-shop), where not only traditional books and tickets for various cultural events can be bought, but also books in electronic form (e-books) and audiobooks. Audiobooks are for listening, with the text being read aloud by a narrator – sometimes even by famous actors. Besides Internet bookshops, electronic books can be purchased on websites run by publishers or dedicated companies.

Audiobooks are available mostly in MP3 electronic file format, which can be read by almost any electronic device – desktop or notebook computer, smartphone, home or car audio system, dedicated MP3 or MP4 player etc. Some audiobooks are published on CDs as well.

E-books are usually read on dedicated e-book readers, for example, the Amazon Kindle. Special formatting adjusts the content to the characteristics of device (screen dimensions, resolution etc.). AZW, AZW3 (the native format for Amazon Kindle readers), MOBI, and EPUB are the most used file formats. All these file formats can be read on computers or smartphones, using appropriate software. Some e-books are available in PDF format too, but this does not allow pages to be adapted/scaled to the dimensions of the reader – each page looks like it was printed on paper.

Aldiko is a very popular application for reading e-books on Android smartphones. It recognizes EPUB, PDF, and Adobe DRM formats. Another application which is very often preinstalled on new Android smartphones is Google Books – it reads e-books and audiobooks too. A very practical feature of this app is synchronisation with Google Play store, so it is possible to see or listen to the samples of e-books or audiobooks before deciding to buy them. The Google Books application can work offline too.

On computers, reading e-books is very easy with the free IceCream Ebook Reader for Microsoft Windows. It can read EPUB, CBR, CBZ, MOBI, FB2, and PDF file formats, and can additionally manage your e-book library.

10.6. Books for free

Having an e-book reader device gives us access to an uncountable number of e-books and audiobooks. On many e-book shops and platforms free e-books can also be found. An example of such a services is the Polish WolneLektury.pl website, a collection of books both of Polish authors and world classics – which are in the public domain, meaning books whose copyright has expired. Audiobooks can also be found on WolneLektury.pl, free to use under the Creative Commons licence – which means their authors have decided to allow free use of their works under this licence. The biggest online library for free e-books is Project Gutenberg (<https://www.gutenberg.org/>). US copyright law applies to all works collected on Project Gutenberg as their servers are located on US territory. According to American copyright law which were published 95 years ago or earlier are in the US public domain.

10.7. Theatre, opera, and other online cultural events

The pandemic has accelerated the expansion of theatre, opera, concerts, and other cultural events onto the Net. Performances can now be watched on YouTube, Facebook, on the websites of theatres and opera houses, and on websites dedicated to cultural events. – both free and paid VoD access (for example <https://belairclassiques.com/>). One of the biggest dedicated services is Dramox (<https://www.dramox.tv/>), offering performance recordings via a monthly subscription model. The Metropolitan Opera in New York offers its performances as a VoD service at <https://www.metopera.org/season/on-demand/>, with 7-days free trial period. A Polish VoD example is Warsaw’s National Opera (Teatr Wielki) <https://vod.teatr Wielki.pl/ too>. The famous Teatro alla Scala in Milan (<https://www.teatroallascala.org>) offers free online streaming of some of its performances. While paid live streaming is provided by the National Theatre of Greece at <https://livestream.n-t.gr/>.



Figure 19. Teatro alla Scala

10.8. Museums on the Net

There are many museums on the Net too – on YouTube, Facebook and other social media platforms, as well as those that have their own websites. Their collections can be viewed as pre-recorded videos about various topics, or as virtual museum visits. Many of these virtual visits use Google Street View mechanisms, for example, the British Museum in London (<https://britishmuseum.withgoogle.com/>) or the Guggenheim Museum in New York.

There are even guided virtual tours as can be seen at the Guggenheim Museum in New York (free for New York City public schools; offered through Zoom or Google Meets <https://www.guggenheim.org/group-visits#schools>). Google provides a special cultural service at <https://artsandculture.google.com>, with virtual visits to such famous cultural institutions as the National Gallery of Art in Washington DC, the Musée d’Orsay in Paris, the Rijksmuseum in Amsterdam, and famous Italian sites such as Pompeii, the Colosseum, Saint Mark’s Basilica in Venice, the Leaning Tower of Pisa etc. There are websites where you can find many of the world’s museums grouped together in one place, like <https://joyofmuseums.com/>.

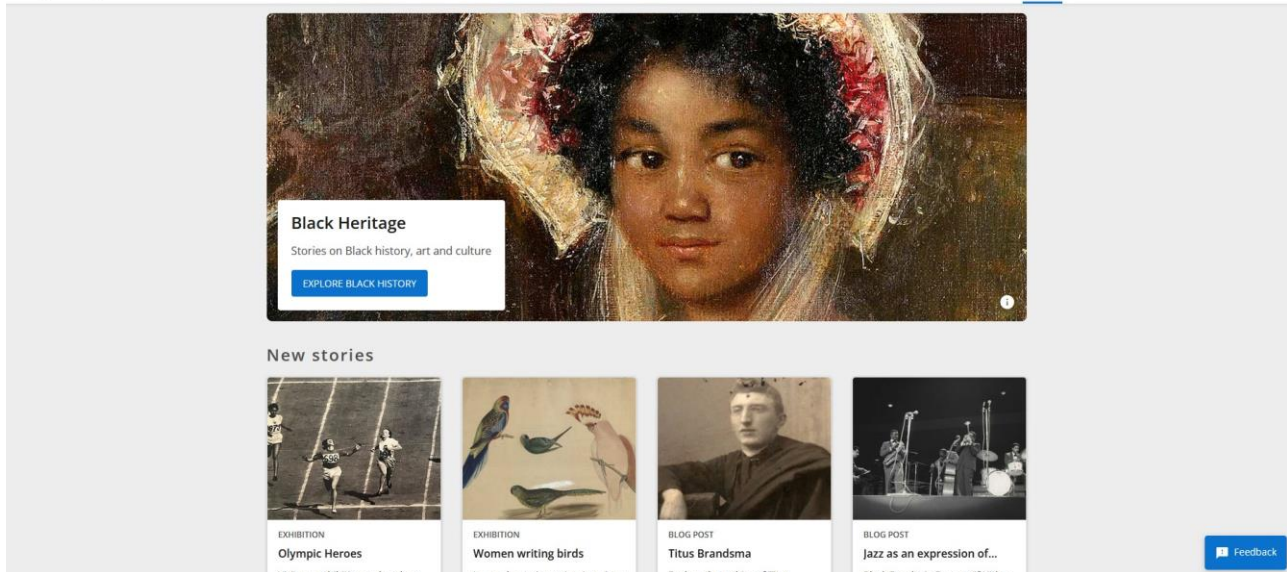


Figure 20. Europeana

A great joint project by EU countries is Europeana (<https://www.europeana.eu>). It's a virtual library which provides professionals, teachers, students, and researchers with digital access to European cultural heritage material. It allows online access to over 3,700 different institutions across Europe and their collections of artworks, books, music, and videos on art, newspapers, archaeology, fashion, science material, sport memorabilia, and more. Besides the professional collections and galleries there are exhibitions of items provided by individual donors. Europeana supports cultural heritage professionals and institutions by creating and providing dedicated services and tools for them to use. Europeana is operated by the Europeana Foundation, a non-profit organisation financed by the European Union's Connecting Europe Facility and European Union Member States, and supported by a consortium of 21 partners.

11. Politics on the Net – political parties and civic movements

The Internet has given political parties, individual politicians, the various political and civic organizations who are carrying out projects and programs, and institutions the opportunity to present their attitudes and programs directly to the public, bypassing the traditional media channels – press, TV, and radio. What is very important for all political actors is the fact that web services, streaming services (e.g. YouTube), and social media, especially Facebook, Twitter, and Instagram, give parties and civic organizations two-way interaction with their supporters, followers, and opponents. The mechanisms provided by social media help in analysing social mood, monitoring citizens' attitudes, and even neutralising negative messages and opinions that have been expressed on social media.

11.1. The Twitter phenomenon

In Europe, the opinion is that Twitter is used only by politicians and journalists. The reason for this is that their presence and high levels of activity are clearly noticeable in this medium; however, there are many other categories of Twitter users, including various specialists and professionals.

The main difference between Twitter and other social media platforms is that there are no 'friends' and 'relations' type connections. The main objective of using it is to observe current events, and comment and express opinions on these events. Users decide which tweets are of interest and what they want to follow and comment on.

The results of research done on Twitter, in both the US and Europe, show strong interactions between politicians and their Twitter followers. This is widely used by politicians and political parties to gain the support of their followers (potential voters), especially during the peak of an election campaign.

Unfortunately, there is a lot of negative PR and aggression on Twitter particularly, and on social media generally. Such practices have a very negative impact on social life in the country and abroad.

11.2. Political parties on Facebook

Many political parties, non-governmental organizations (NGOs), and charities are active on Facebook. Politicians are aware that, nowadays, dominance in social media channels means victory at the elections – independent of position and potential advantages in traditional media. This has been proven by the results of numerous studies, for example, in a research project on political micro-targeting in Poland, carried out jointly by the Panoptykon and ePaństwo foundations, and the SmartNet Research & Solutions company.

On Facebook we can find the official profiles of parties and politicians, video and live streaming from election rallies and other events, information on proposed bills, videos of politicians'

speeches in parliament and at various other events etc.; together with comments from supporters and opponents. The impact of this type of media activity can be seen in such examples as the number of 'likes' given on the profiles of Italian politicians. According to Statistica, in 2021, Matteo Salvini had 4.5 million 'likes', Giuseppe Conte – 3.7 million, and Luigi di Maio was third with 2.3 million. A very important form of activity for political parties on Facebook are groups, created officially by parties or by the politicians themselves, or by their supporters.

11.3. The websites of political parties

All major political parties also have their own websites, despite the fact that this form of activity has lost its impact in recent years. The parties' basic information and their programs etc. can be found on their websites, but in contrast to the parties' social media channels, their websites contain less information and it is often not kept up to date. Thus the main online communication channel for parties is now social media. Currently, websites play a role in providing official information which doesn't need to be updated in real time, as their main goal is not the direct communication with supporters it was 5 or 10 years ago.

11.4. NGOs and charities

Almost all NGOs, foundations, and charities use websites and social media channels. The type of websites used widely on the Net by these organizations are fundraising platforms and services. Some examples of such platforms are GlobalGiving (<https://www.globalgiving.org/>), Causes (<https://www.causes.com/>), Chuffed (<https://www.chuffed.org/eu>), Fundly (<https://fundly.com/>), GoGetFunding (<https://gogetfunding.com>), and in Poland, Patronite (<https://patronite.pl/>). The last organisation supports creators and artists as well. On Patronite, the donor becomes a patron (thus the name of the platform). Another Polish example is zrzutka.pl for any kind of fundraising, including charities.

11.5. Internet voting

The Internet makes it possible to arrange remote voting. Voters can vote from any place in the world, the votes are then collected, and checked and counted by a central system. Voting by Internet is regulated by law in Australia, Estonia, Canada, and Switzerland. Estonia was the first to do so, and modified its voting law accordingly as early as 2005. In parliamentary elections there in 2019, the proportion of Internet votes was 44% (with a general voter turnout of 63%), in local elections in 2017 it was 32% (with a 53% turnout). Voting is done using a special voting application, the identity of voter is confirmed using a personal ID card with microchip or a 'mobile personal ID' saved in the smartphone. An Internet vote can be sent within the 7 days from the beginning of voting to the time the ballot boxes are closed. Voters can change their Internet vote by voting in the traditional way at polling point.

12. Security on the Net

As in real life, on the Net there are also various dangers – beginning with viruses and other malware, through digital identity theft and having money stolen from our bank accounts, up to having our computer's disk drive encrypted for a ransom demand. And as we do in real life – avoiding districts with a bad reputation and crowded places, which are pickpockets' favourite hunting grounds; not leaving our keys in a pot on the porch or wallet on a deck chair at the beach; and not venturing into dark alleys at night – we should also avoid visiting risky places and doing risky things on the Net.

12.1. Antivirus software – the foundation of security

Regardless of our knowledge of computer security, the first step after we switch on a new desktop or laptop computer, tablet, or smartphone, should be to install and configure antivirus software. We can buy commercial versions of antivirus software, install free versions downloaded from the servers of computer security companies, or sometimes it comes pre-installed on our new hardware. Free versions usually have less functions than full commercial versions, and some are limited to non-commercial use only, but even these free versions provide a basic shield against malware. There are trial versions as well, usually for 30–90 days, which allow us time to decide whether the software fulfils our needs.

Some examples of free antivirus software recommended by user and business media are Kaspersky Free (<https://www.kaspersky.pl/kaspersky-free>), AVG (<https://www.avg.com/pl-pl/free-antivirus-download#pc>), Avast Free (<https://www.avast.com/pl-pl/free-antivirus-download#pc>), Comodo Free Antivirus (<https://www.comodo.com/home/internet-security/antivirus.php>), and Sophos Home (<https://secure2.sophos.com/en-us/products/free-tools.aspx>) among others. Most of these are available not only for computers but for smartphones as well. Basic but effective security features are provided by Windows/Microsoft Defender/Windows Security App, which are included in Windows 10/11.

In the case of both free and paid antivirus software, the key is to keep the virus database up-to-date, as new malware appears every day. Damage caused by malware that isn't recognized by out-of-date antivirus software may be hard to recover from.

12.2. Firewalls

Another important element of computer security is the firewall. Usually, software firewalls monitor incoming and outgoing network traffic on our computers (for professional computer networks there are hardware firewall devices along with appropriate software). Firewalls check network traffic and help to defend our computers against break-ins and data theft, as well as blocking suspicious or dangerous network traffic. Firewalls can be installed independently, but are usually integrated into one package with antivirus. In Windows 10/11, a firewall comes with the Windows system as a system feature. You should keep it on even if you have another firewall program.

12.3. The biggest security threat is ourselves

It is very important not only to have antivirus, a firewall, and other security software installed on our computers; but just as important is to observe basic security guidelines. Currently, the most dangerous security threat is phishing. The formal definition in the Merriam Webster dictionary says that phishing is ‘the practice of tricking Internet users (as through the use of deceptive email messages or websites) into revealing personal or confidential information which can then be used illicitly’ (<https://www.merriam-webster.com/dictionary/phishing>). To minimize this risk, the following rules must be observed:

1. Always use hard-to-guess passwords;
2. Do not open mail or attachments from senders whose mail address looks strange or suspicious;
3. Do not click, without thinking, on any advertisements appearing in your mailbox, desktop, or browser;
4. Do not give your personal data to websites that are not secured by an SSL certificate (these sites will show a padlock icon on the browser address bar);
5. When you have finished using a service you’ve been logged into (email, banking etc.), always logout, don’t leave it logged-in;
6. Only download files, especially software, from trusted sources and services;
7. When downloading and installing software make sure that you are not installing additional unwanted software or tools along with software you want to install;
8. Do not use the same email address for different purposes;
9. Do not act instinctively or emotionally – always think first;
10. Do not visit suspicious websites, and warn others against doing this;
11. Only use original, legal operating systems and other software;
12. Do not open files on an external storage medium (CD, DVD, pen drive) without scanning it with antivirus software first;
13. Protect your tablet and smartphone as well as your computer.

13. Anonymity on the Net

A lot of people think they are anonymous when they are on the Net; that registering an email or social media service with false personal data is enough to stay anonymous and assume that their real identity won't be revealed. This can be true for the average user of the Internet who is trying to find out the identity of a person. But this sort of trick is not an obstacle for professionals. And it is not only professionals and various institutions that can figure out the identity of Internet users. Using small files called 'cookies', every website collects some information on us when we visit their webpages. These cookies are used by advertising and media companies to personalise the advertisements that will be displayed in our browsers. Personalisation is based on the information gathered using these cookies, which contain details about users' activities, preferences, webpages visited etc. When we visit a webpage we usually see a warning telling us about the collection of information using cookies. The cookies used by webpages can easily be blocked, but blocking cookies stops webpage content from being displayed properly, thus making surfing the Net practically impossible.

Another problem for anonymity is geolocation data. More and more services offer functions based on the geographical location of the place where we are connecting to the Net. An example is indicating where our closest pizzerias or shops are. Our data is collected from our smartphones too. On the basis of this collected data, not only service providers but others too, may find out who we are; where we go to school, work, and shop; and when and where we go walking, jogging, or biking. In the next part we can show you how to retain at least some of your privacy.

13.1. Incognito – the browser's private mode

Incognito mode gives us the possibility to surf the Net while retaining some of our privacy. When your browser is in this mode the webpages you visit are not recorded in your browser's surfing history, nor does the browser record Google searches, logins, passwords, or the data you enter when filling out various forms. After you've finished your browsing session, all the cookies are deleted and the browser's cache (kind of temporary memory) is cleared.

This private mode is useful, but it doesn't mean that when we use it we are anonymous. Despite clearing the traces of our activities in our computers (browser) – deleting the cookies of the webpages we visited – our activities are still recorded in the registers of our internet provider or telecom operator. It also has to be underlined that the private mode doesn't protect us against malware or cyberattacks.

13.2. VPN – Virtual Private Network

A VPN (Virtual Private Network) is a kind of separate channel or tunnel connecting the sender and the receiver of data. VPNs are used widely by companies for securing their employees' remote access to company resources. VPNs can be used to raise our level of privacy too. All traces of the activities usually left on the Net and the webpages visited are masked or removed by rerouting the

connections between us and the website. The traffic (connection) goes through a separate VPN server. Somebody tracing our connection will only see that the connection was set up using a VPN server and will see only the VPN server's IP address, not ours.

VPN services are provided as paid or free services. Usually, in the free services, the amount of traffic (data transfer) is limited, for example, on a monthly basis. Some examples of VPN services are ExpressVPN (<https://www.expressvpn.com>), NordVPN (<https://nordvpn.com>), Surfshark (<https://surfshark.com>), CyberGhost (<https://www.cyberghostvpn.com>), and IP Vanish VPN (<https://www.ipvanish.com/>).



Figure 21. VPN services

13.3. Tor

The Tor network (The Onion Router) is another way to anonymize web browsing. The term 'onion routing' is derived from the layered technology used in this network, which resembles the nested layers of an onion. Tor users' data and their communications are protected by advanced, secure, encrypted protocols. Tor users have to use special software, i.e., TorBrowser (<https://www.torproject.org/>), which instead of connecting the user's computer directly to a given website, it connects it to a random number of other Tor users' computers (Tor hosts) before

passing it on to the final website destination. Individual users can offer their computer for use in the role as a Tor host, thus helping the development of the Tor network. Utilising the Tor network, it is possible to provide various hidden web services anonymously. These services are available with pseudodomain '.onion'. Tor is legal and free to use, as it was not designed or intended to be used to break the law, either by users or Tor network operators. But there is a problem with the Tor network, as part of the hidden web services constitute a 'dark side of the Net', the so called Dark Net. It is not advisable to enter this 'dark' part of Internet, as in the Dark Net we may find not only hidden but also illegal content, as well as dangerous services.

14. Buying a desktop, laptop, tablet, or smartphone – how to choose

Buying a computer or mobile device is not an easy task. The hardware should be adequate to our needs and what we plan to use it for. Buying a device insufficient for our use will become a source of frustration instead of joy at using new hardware. Especially if it is the first such device for a senior citizen – the wrong choice may discourage them from using information and communication technology. On the other hand, there is no use in spending a lot of money on an extremely powerful configuration, which would be like using a sledgehammer to crack a nut, especially as, during the pandemic, the prices of devices have one up. Thus we should strike a balance between our needs and the price of the device.

14.1. Desktop computers

Desktop computers are slowly becoming a thing of the past, and being replaced by laptops. There are of course areas where desktop computers are still used, and will still be used in foreseeable future: first as graphical or computational workstations for the professional creation or processing of graphics, music, videos, and films; and for computer aided design in architecture, engineering etc. A new area where very powerful desktop computers are being used is in gaming and e-sport. Desktop computers are also still generally used in corporations and banks as basic terminals in office networks. In all other everyday activities laptop computers are sufficient and more practical to use.

14.2. Laptops

Laptops are currently widely used in the office and in the home, and their portability allows us to take them anywhere, and even to work while travelling. Depending on the configuration (processor, memory, disk, graphics, battery capacity), they can be used not only for usual home, education, and office tasks, but also for gaming and streaming, or for processing graphics, music, or video. We can use them for classes at school and university – actually in the classroom or remotely.

For such general use, a laptop doesn't need to be from the top shelf, but it is advisable to have at least an Intel Core i3/i5 or AMD Ryzen 5/7 class processor, 8 GB of RAM memory, and a 256 GB SSD storage device. The cheapest and least powerful laptops should be avoided both for their quality and usability. The batteries in laptops belonging to the middle-range segment allow the laptop to operate under normal conditions of use (for example, a few hours of travel or lectures at university) as their processors and other hardware components have low energy consumption. Professional gaming and e-sport is another story. There are laptops dedicated to such use, equipped with powerful processors and dedicated graphic cards with powerful cooling, at least 16 GB of high-speed RAM, big disks etc. For example, the dedicated graphic cards in such laptops are as powerful as the graphic cards for graphic desktop workstations: 4 GB of dedicated memory and a number of special graphic processors (GPUs: graphics processing units). Gaming and e-sport

require such graphics in order to display video content at a minimum of Full HD or even at 4K quality and frame rates of more than 60 fps (frames per second).

Different requirements are usually needed for business laptops. The basic business laptop's configuration may not differ substantially from a mid-range laptop for general use, though an 'executive class' laptop may have a lightweight but durable carbon-fibre housing, various ports for displays and other devices (Thunderbolt, miniDP, USB Type-C), connections to office docking stations, a special TPM device (Trusted Platform Module – a dedicated cryptographic microprocessor), integrated fingerprint reader or software for face recognition, and very efficient connectivity features (Wi-Fi 6, 5G modem, 2.5G gigabit Ethernet port).

14.3. Smartphones

The main challenge in choosing a smartphone is the multitude of brands and models available on the market. Nowadays we don't buy a smartphone for life, so even when the one we've chosen is not the best one, we may wait a two or three years and then look for another one. As in the case of any other market product we have to consider and balance our needs: features versus price.

Currently the majority of smartphones feature quite a large screens – greater than 6 inches (diagonal dimension). Using such smartphones is usually more comfortable than using a tablet (being smaller), but a 6-inch smartphone is a little harder to put in your pocket than an old, small cellular phone. From the point of view of colour rendering and resolution the best type of screen is AMOLED technology, but this is usually a feature of the most expensive models. The most popular screen technology for mid-range smartphones is IPS; its colour rendering is a bit weaker than AMOLED, but has good contrast, brightness, and viewing angle. For the cheapest smartphone models, TFT screens are used.

Typical processors found in mid-range smartphones are the Snapdragon 600/700 series or the MediaTek G90/G95. The most powerful units use a Snapdragon 800, Exynos 990/2100 5G, or Apple A14 Bionic. In the lower segment, the Snapdragon 400 series is used. An important factor when choosing a phone is the amount of internal RAM installed (memory used by the system). In low-end smartphones this is usually not more than 2 GB; for the mid-range, 3–4 GB; and at the high-end, 6–12 GB. The amount of memory available for the user is an important feature too. At the low-end it is currently 32 GB, mid-range smartphones can have 64 GB, while high-end models are equipped with 128, 256, or even 512 GB of memory. Users who like to collect a lot of photos or video with their smartphones should choose models with a port for an external microSD card, which are capable of storing up to 1 TB of data.

15. Mobile life – do we need a computer?

Nowadays portable devices are quickly increasing their share of web services use. For the majority of us, at least half the time we spend on the Internet is spent using smartphones and tablets rather than desktop or laptop computers. One of the reasons for this is the price of mobile devices – a mid-range smartphone cost less than a computer. Another reason is that our smartphone is always with us, ‘at hand,’ so it’s far quicker and easier to find or check information we need immediately – a timetable or public transport route, or the location of the nearest ATM or pizzeria.

15.1. Smartphones vs. computers

The main issue to consider is the availability of the applications we want to use. Currently, there is a plethora of applications available for all smartphones – both Android and iOS – starting with games and moving up to professional engineering software. We can install basic Office apps like Word, Excel, and Power Point; small notepads, including notepad apps which support handwriting or voice recognition; and there are hundreds of applications for graphics and even video editing.

Anyway, it should be noted that the majority of the software versions for smartphones are limited in their functionality compared to their computer versions. This is especially true in the case of more advanced software such as 3D designing, and graphics or video editing. Smartphones can easily substitute for computers in basic home and office applications, but in this case we have to be aware of some limitations. Smartphones work almost perfectly for such basic use as surfing the Net, reading emails, buying and paying online, using social media, or navigation support. Nowadays, we can use smartphones to control coffee machines, vacuum cleaners, and house air-conditioning and heating, as well as to find and pay for a parking place, book and pay for tickets (events, public transport etc.), and use basic e-Administration services. But, for more sophisticated use, computers are still better and more efficient.

15.2. Popular mobile apps

As mentioned above, smartphones owe their popularity to the richness of the applications available. Some have already been presented in previous chapters, below we mention some of the most popular and most interesting applications, chosen from the millions to be found in the app stores. These apps prove that a smartphone is far more than just a plain mobile phone.

15.2.1. Google Maps

Google Maps, in its mobile version, is a free app based on the Google Maps web service, and is supported by GPS satellite positioning. The mobile version usually uses A-GPS (Assisted GPS): in this version of the technology, in addition to GPS, the smartphone uses mobile telephony base stations to quickly geolocate the phone. We can view more than 100 million places worldwide using the map and satellite view, or street view. The function used by the majority of smartphone

users supports navigation for walkers, bikers, users of public transport, motorists, and even yachtsmen.

Google Maps is generally designed to work online, which means that, for normal use, an Internet connection is needed. There is an offline mode which allows the maps for a given area to be used, but they need to be downloaded first.

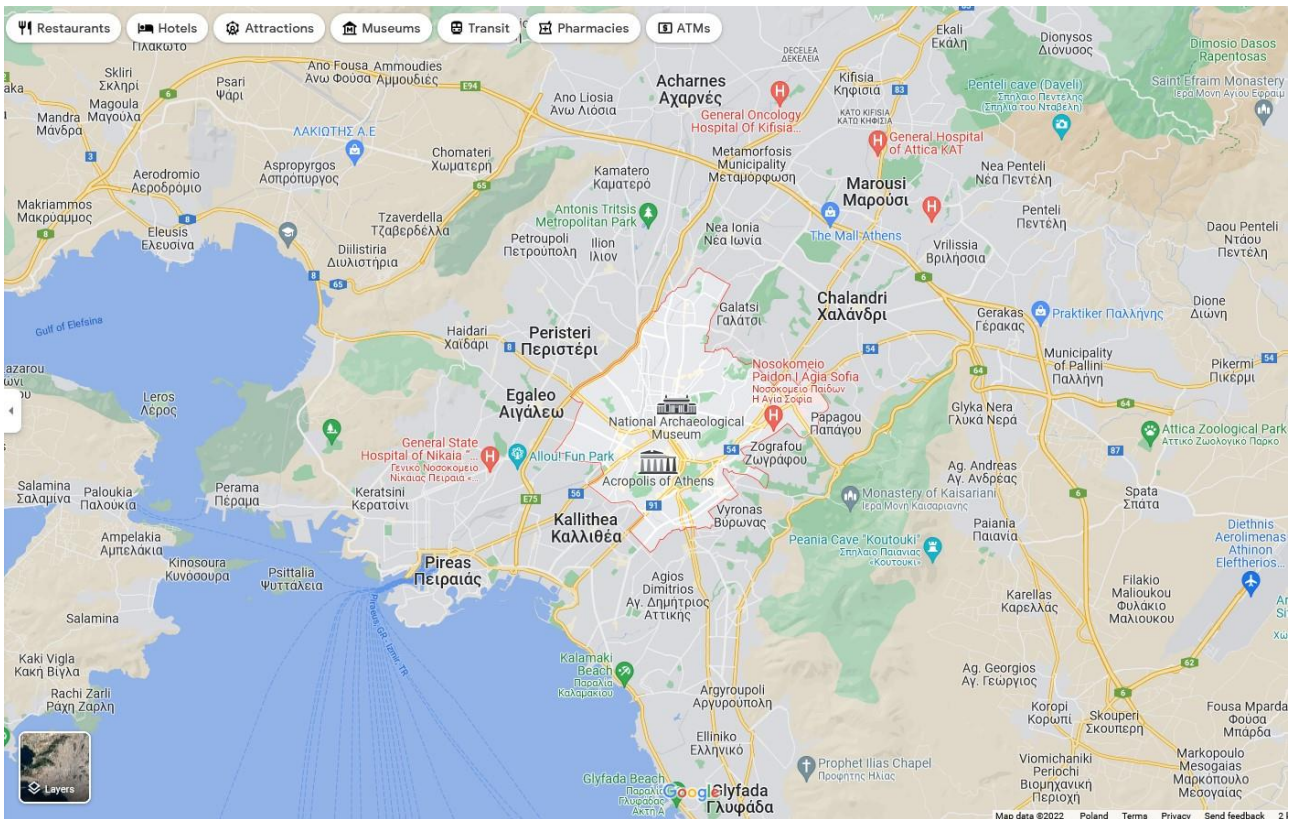


Figure 22. Google Maps

15.2.2. BirdNerd

Shazam and SoundHound were mentioned earlier – they are apps that find the title and performer of a piece of music heard or recorded by a user. The BirdNerd app uses the same technology to recognize bird species based on their song – either directly or recorded. It can even distinguish between several birds singing at the same time. The app sends the recorded sound to a server where the engine of app runs an advanced neural network solution trained on bird song.

15.2.3. Photo Tools

Photo Tools is a free tool for professional photographers and advanced amateurs of photography. It calculates the depth of field for a given aperture, defines the field of view, and provides a lot of other settings needed to take a good photograph, including settings for flash photography etc. The numerous functions include a light-meter which uses the smartphone’s camera, and even a calculator to work out what time the so called “golden hour” (the last hour before sunset) and the

“magic hour” (first hour after sunrise) occur – when there is perfect light for making the best photos, especially landscapes.

15.2.4. Light Meter and Sound Meter

There are many apps which can measure sound level and the intensity of light. Usually the sound level, measured using the smartphone’s microphone, is given in decibels, while the intensity of light is measured by the smartphone’s light sensor, and is given in lux (lumens per square meter).

15.2.5. Snapseed

One of the best photo editing apps available is Snapseed. You don’t need to register, and it’s free to use. Snapseed offers a rich palette of functions and advanced options for editing and correcting photos. Snapseed comes with Style – a ready-made set of parameters for quick editing.

15.2.6. Polarr

Polarr is another free photo editing tool for smartphones with a rich set of functions. You can correct colours, modify the intensity of light, shadows, white balance; and there are a lot of different kinds filters and tools available for removing distortions and other faults, photo retouching, cropping, removing unwanted objects etc. The settings used in editing one photo can be copied for editing another one, for example, if they were taken in similar light conditions. There is a morphing function too. Text can be superimposed on photos in various forms (typeface, position of text etc.).

15.2.7. Air Quality – AirCare

This application collects data on air quality and pollution in real time from more than 40 countries, including North America, Europe, and Australia. The data is displayed in a clear and comprehensible manner, so it’s easy to read and understand air pollution’s main components (PM10, PM2.5, O3, CO, NO2, SO2) in raw data form as well. The AQI (Air Quality Index) is given too. For some countries, data on the concentration of flower pollen is also provided (e.g. for birch, olive tree, grass, ragweed). All information is presented in easy to comprehend charts and maps.

16. Vocabulary

Android – an operating system used on mobile devices (smartphones, tablets), smart TVs and other network appliances.

Antivirus software – a program which scans the memory and storage of a computer or mobile device, and recognizes and removes viruses and other malware.

Application – any computer program which can be started and run in a given system environment, i.e. in Android (smartphones), MS Windows, Linux (computers).

Authentication – the process or action of verifying the identity of a user of a computer service or program.

Benchmark – the result of a computer, mobile device, or software performance test.

Bit (binary digit) – the basic unit of information representing a logical state with two possible values, usually 1 or 0 (yes/no, true/false).

Blog – a webpage containing discussion or information that is published mainly by an individual person – a kind of informal diary covering various topics. Blogs are published by politicians, youngsters, company employees, cat lovers, and many, many others. There are also video-blogs (vlogs), containing short or long videos. Blogs are of an informal nature, and are usually written/spoken in everyday language.

Browser – a computer program for accessing the World Wide Web or a local website. The web browser retrieves content from a web server and displays it on the user's computer or other device. Currently the most popular browser is Google Chrome.

Byte – a unit of information consisting of 8 bits.

Computer virus – a computer program of a harmful nature (malware). The name 'virus' comes from its ability to replicate itself, usually by using another computer program (executable file) or a part of the operating system, to which it attaches itself. Computer viruses are capable of not only copying their code (replicating) to the other computers connected to a network, but can also be harmful to the programmes and data stored on an infected computer. The virus may steal data and send it to the person who implanted the virus; it may take control of infected computers and use them for criminal activities such as breaking into bank accounts, attacking other computers, servers, or networks; it might delete or encrypt data on infected computers etc. A similar category of malware are worms – programs that can work on their own and can replicate their own code without other programs acting as carriers. They can carry out the same harmful activities as viruses.

Domain name – a name defining a virtual space on the Internet along with its content. A network domain, an Internet resource (a computer that accesses the Net), a server which hosts a website, the web site itself etc., can all be identified using domain names. Domain names are organized in the following structure: generic top-level domains (.com, .info, .net, .edu, .org), the country code

top-level domains (.gr for Greece, .it for Italy, .pl for Poland); below these top-level domains are functional domains (.net.pl or .com.gr) and regional domains (waw.pl for Warsaw).

Downloading – receiving data (to a computer or device) from a remote web server, FTP server, email server etc. A download is a file that can be downloaded or that has been downloaded from a server to a computer or smartphone.

e-book – is a book in electronic form, readable on the screen of a computer, smartphone, tablet, or e-book reader.

email (electronic mail) – an electronic mail service for exchanging text and multimedia messages between users of local and global (Internet) computer networks. The email's address usually has the following form: username@domainname, where the domain name is formatted as outlined under the *Domain name* entry above.

Firewall – a program or device which secures a computer against unwanted or unauthorized access and activities. A firewall controls the transfer of data from the computer to the network and the other way round.

HTML (HyperText Markup Language) – the set of symbols/codes inserted into a file to be displayed on web pages. A file containing HTML markup tells the web browser how to display a web page's words, images, videos etc.

HTTP (Hypertext Transfer Protocol) – the transmission protocol used for communication between a WWW server and a web browser.

HTTPS (Hypertext Transfer Protocol Secure) – a secure version of the HTTP protocol, using SSL or TLS encryption techniques for encrypting every data packet transmitted between the user and a web server.

Internet – according to Oxford Languages, the Internet is 'a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols'.

Internet address – a place on the Net where information is located. Formally it is referred to as a URL (Uniform Resource Locator). The URL consists of the scheme (np. http, https), domain name (e.g. www.podreczniki-ue.pl), path on the server (e.g. /noweksiazki/), the name of the webpage (e.g. Internet-dla-pocztakujacych.html), and any additional parameters (e.g. ?status=ok). An example of a full URL would be: <https://www.podreczniki-ue.pl//noweksiazki/Internet-dla-pocztakujacych.html?status=ok>.

Internet forum (discussion group) – a place where registered users can exchange ideas, messages, and opinions on topics of interest. Its members can post to discussions and read and respond to messages from other participants. Internet fora may be run as a separate service or as a subservice of individual users' website or their groups (communities), organizations, companies, and administration offices.

IP address (Internet Protocol address) – numerical label, such as 192.168.1.1, that identifies a computer network that uses the Internet Protocol. It contains network interface identification and

location addressing. One public address may be shared by a number of computers connected as a subnetwork. Each computer in this subnetwork is given a private address within the subnetwork. For the majority of computers belonging to individual users, these addresses are assigned dynamically, and are only valid for the duration of the connection. After the computer is switched off its dynamically assigned IP address can be used by another computer.

Internet protocol (IP) – this is the method (protocol) for defining the rules for sending data from one computer to another on the Internet. The data, for example, the text of an email message or the content of a webpage, is divided into chunks called packets, which are then sent and received.

The IP delivers the packets from the source computer to the destination computer based on the IP addresses in the packet headers.

Internet shop (online shop) – strictly speaking it is an electronic catalogue of various products or services published on the Internet. This allows users to browse through the catalogue and choose the product or service they want to buy. The system supports ordering and purchase, requiring details such as payment, delivery address and method, etc. Usually this is all done as it is in real shops – by adding items to basket and then paying for it.

ISP (Internet Service Provider) – an operator providing access to the Internet, usually a telecom operator, cable TV network operator, mobile telephony operator, or other operators of access networks.

LAN (Local Area Network) – a local computer network in a house, school, university, office, factory, home etc.

Link (hyperlink) – a clickable reference (icon, word etc.) connecting to data on a webpage . A link may point to a whole webpage or to an element of the webpage.

Login – according to [dictionary.com](https://www.dictionary.com), login is:

- a) the act of logging in to a database, mobile device, or computer, especially a multiuser computer or a remote or networked computer system.
- b) a username and password that allows a person to log in to a computer system, network, mobile device, or user account.

Mobile application – the general name for applications used on mobile devices.

Online – describes the status of a computer or program currently connected to a network.

Operating system – the program that manages a computer, smartphone, or tablet's hardware, software, and services for programs, and supports communication between the user, and the hardware device and its software.

Password – according to [dictionary.com](https://www.dictionary.com), it is:

- a) a secret word or expression used by authorized persons to prove their right to access, information, etc.

- b) a word or other string of characters, sometimes kept secret or confidential, that must be supplied by a user in order to gain full or partial access to a computer, computer system, or electronic device.

Privacy policy – a statement on a web page informing users of what personal data is collected by that web page or web service, how it is used by this service, who is responsible for processing this data, and what the extent of this responsibility is.

Server – a computer that serves various requests for information, webpage content etc., coming from other computers on the Net. The server provides access to files, programs, services etc. (e.g. email).

Social media – a service (web service) providing communication between its users. Users can invite their friends, publish their opinions (texts), videos, music etc., and comment on the posts of other users. The most popular social media service is Facebook.

Software – a set of code controlling computers, smartphones, tablets smart TVs, and other programmable devices.

SSL (Secure Socket Layer) and TLS (Transport Layer Security) – are encrypting techniques that secures the communication transmitted between a user's computer and a web server, against interception.

TCP (Transmission Control Protocol) – one of two basic communication protocols (the other is Internet protocol) used on the Internet. It enables communication between an application program and the Internet Protocol. The IP handles the actual delivery of the data, the TCP manages the segments – the individual units of data transmission that a message is divided into. Each TCP segment is packed into an IP packet by adding a header that includes the destination IP address. When the destination computer receives the packets, the TCP software reads the segments and sets them in the correct order.

URL – see: **Internet address**

Web server – software installed on a computer (sometimes called an internet server) which provides access to the webpage content of stored on the server.

Web pages – a set of electronic documents prepared using HTML or XML language, hyperlinked and located within the same internet domain (Internet address). Often called website or web service.

WWW (World Wide Web) – the global information system combining all resources and users on the Internet that use the Hypertext Transfer Protocol (HTTP), open IETF, or W3C standards. Strictly speaking the WWW is an Internet service (web service) very often identified (or confused) with the whole Internet network.