The framework catalogue of digital competences

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1. Introduction

The development of digital competences is important not only in a continuous perspective of the development of new technologies, but also for the possibility of their use in various areas of life to more effectively handle various kinds of challenges. Since the digital technologies penetrate – or rather, it should be said: may penetrate each aspect of our lives, often allowing faster, more comfortable and cheaper handling of daily tasks: from purchases, through arranging for social meetings, professional work up to learning and paying bills.

At the same time, in Poland we are still dealing with a large group of people (estimated in 2014 at approx. 12 million) not using new technologies, namely the digitally excluded. These people are not able to use the opportunities offered by the digital technologies in everyday life. Only some of them use the network services in an intermediate manner – due to the help of a close person with the appropriate competences.

It should be stressed that the digital exclusion less frequently results directly from financial or infrastructural difficulties, namely the so-called. hard barriers. Currently, the basic barriers hindering the use of digital technologies are the lack of motivation and the lack of appropriate skills.

The purpose of this report is the preparation of the framework catalogue of digital competences, which will be the point of reference for activities aimed at ensuring and increasing the digital competences. An important assumption of the catalogue is the connection between the digital competences and the users' needs and the benefits that they may gain in the key areas of life.

We want to emphasize that the catalogue should not be treated as the list of mandatory and necessary competences for all citizens. We assume that people have various needs, which they can satisfy with the use of the Internet and digital technologies. Instead, the catalogue defines the area of the most important competences, which may be the point of reference for individual people wishing to increase their competences, trainers and educators teaching others or organizations planning activities for development of the digital competences. The broad range of competences described in the catalogue enables to freely shape programs for the development of digital competences. At the same time, as a common point of reference, the catalogue may facilitate comparison and assessment of the performed activities.

"*The framework catalogue of digital competences*" should be treated as the reference document when shaping the intervention strategy in the scope of development of the digital competences and planning of trainings and other educational activities with regard to the e-integration and the e-stimulation.

On the other hand, the catalogue does not serve for validation or certification of existing or acquired digital competences. The tools of measurement of competences are not its constituent part. However, such tools based on the catalogue can be developed in the future.

The catalogue contains a wide range of competences associated with all areas of life. At the same time, it has a general character and is not intended for defining the specialist or advanced competences. For instance, the catalogue does not mention the advanced software competences or detailed digital competences necessary in business. The modular character of the catalogue means, however that it can be easily expanded with the additional, specialized catalogues, provided that they will preserve the structure of competences' description adopted for this catalogue.

The present catalogue is the result of joint work of a team combining didactic and trainer's experience with an academic reflection. We have used the achievements of institutions previously working on similar catalogues – the important points of reference are: "*Digital Future. The catalogue of media and information competences*" prepared by the Modern Poland Foundation and the catalogue of competences and other materials, prepared as part of the DIGCOMP project by the Institute for Prospective Technological Studies, Oxford Internet Institute. An important point of reference was also the expert's report "*A functional taxonomy of the digital competences and methodology of measurement of the level of functional digital competences of people from generation 50+*" prepared by Centrum Cyfrowe Projekt: Polska upon request of the Cities on Internet Association, under the "System project – activities for development of the broadband Internet", implemented by the Ministry of Administration and Digitization and the "Cities on the Internet" Association entitled "Digital Poland of equal opportunities". This expert's report was the first attempt to develop a practical catalogue of digital competences based on the concept of the functional digital competences. The main difference is including in this catalogue the digital competences relevant for all adult Poles – the previous expert's report was concerned with only the elderly. When creating this catalogue, we also relied on the theoretical model prepared as part of the project "Beyond old and new media. The communication competences of Poles", implemented by the Digital Centre in 2012-2013.

The catalogue prepared by us is complementary in respect of the "*Digital Future. The Catalogue of Media and Information Competences*" catalogue (along with updates), prepared by the Modern Poland Foundation, especially its part concerning the competences of children and teenagers. Firstly, the "Digital Future" is the catalogue of media and information competences which from our perspective are only the basis for the functional digital competences. Secondly, it focuses on the competences provided by the education system, whereas our catalogue assumes the perspective of a lifelong learning, including the non-formal and informal education.

Finally, in "*The framework catalogue the digital competences*" we have adopted the relational approach which combines the use of digital technologies with various activities and needs of both the individual people and the social groups. In this perspective, the use of digital technologies is included in various areas of activity, rather than placed next to other sets of skills. **Adoption of the theoretical concept of relational mode of competences leads to perceiving them in the functional manner as oriented on obtaining various benefits in different areas of life.** We are aware that the definition of "competences" assumes their practical nature. When using the term "functional competences" we want to emphasize this feature of the digital competences – in the event when in training programs the use of digital technologies is regarded as purpose in itself too frequently.

These functionally perceived digital competences are based above all on the narrower IT and information competences. They share the cross-sectional character with the issues and competences associated with safety, the use of e-services and the availability for people having various limitations of use. These basic skills enable efficient use of the digital technology, but are not identical with having the competences necessary for achieving various goals of life with the help of digital technologies.

We treat the present catalogue of digital competences as one of elements of guidelines enabling standardization of activities for the development of digital competences and thus a more effective implementation of the strategic objectives related to the construction of the digital society. With reference to the catalogue, the further works should include the development of tools and standards of validation and certification of competences. For this purpose, the catalogue should be connected

with the National Qualification Framework. This is particularly important in the case of more advanced competences, first of all, those associated with professional activity and running own enterprise. For this purpose, this Framework catalogue should be supplemented by additional, specialized list of competences, which would be facilitated by the modular structure of the catalogue and clearly determined structure of competences' description.

Finally, the catalogue should be regularly updated, so that the set of framework digital competences corresponds to the changing social and technological realities. For this purpose, we recommend that the below catalogue is once a year consulted and adequately altered or supplemented.

2. The strategic dimension of digital competences

The National Development Strategy 2020 [1] bases the development of the digital society in Poland on the strengthening of three pillars: infrastructure, content and services supply and demand. The latter requires, first of all, guaranteeing the basic competences to the excluded people and increasing the competences of people already using the Internet and the digital technologies related to it. Competences should be understood broadly: as the interrelated knowledge, skills, motivations and awareness.

The strategic meaning of the digital competences goes beyond the issue of sustainable development of the digital society, through building three supplementary pillars. Strong digital competences in the society, as indicated by the strategic papers, translate, among others, into the shape of the labour market and the competitiveness of Polish employees, capacity of building social and cultural capital, they can also be the source of significant savings (e.g. for Public Administration, implementing more effective solutions of e-administration).

Strategic dimension of the digital competence development is reflected in various government programmes, including the Operational Program Digital Poland. At the same time, it is the area which is still not treated as a priority - for example, there are no strategic papers setting directions of activities, which would be an equivalent of the National Broadband Plan (infrastructure) or the Integrated State Informatization Plan (supply of public services). Additionally, provided that the development of digital competences is strictly and expressly present in OP Digital Poland, there is the need for more precise definition of similar activities within the OP Knowledge, Education, Development and the Regional Operational Programs. Optimally, the activities financed in these additional programmes will supplement and comply with the activities conducted under OPDP.

3. Relational model of digital competences - theoretical outline

One of the concepts which Amartya Sen, Indian economist and philosopher awarded with Nobel Prize developed in his works from the 1980s is the so-called capabilities approach. Concerning the welfare economy, Sen observes that when supporting an individual, we need to abandon a universal idea of freedom and look more closely at the real possibilities which the individual is facing. Due to the individual differences but also the social divisions reflected in an uneven access to various resources, not everyone is able to use the offered support in a similar way. This approach was

[1] The Ministry of Regional Development: *The National Development Strategy 2020.* Warsaw, 2012. Available: https://www.mir.gov.pl/rozwoj_regionalny/Polityka_rozwoju/SRK_2020/Documents/Strategia_Rozwoju_Kraju_2020.pdf

adopted, among others, by the UN which, since 1993, has been using the human development index (HDI) created by Sen and Mahbub ul Haq, taking account of the perspective of possibilities.

In the study "Using the mass media and social divisions" [2] conducted by the Digital Centre Sen's approach was, apart from the sociology by Pierre Bourdieu, concerning, among others, the issue of social inequalities, one of the main theoretical inspirations. In the study, we tried to answer two questions:

1) why, despite a huge commitment of public funds in recent years, the level of media competences of Poles does not increase almost at all?
and
2) how to change it?

Thanks to the capabilities approach we assumed that the problem is not only the way of measurement but also, in more detail, the approach to the digital competences, focused on the universal competence matrix which every Pole should have. According to this approach, each person, regardless of his or her life's needs, should use computer and the Internet in a similar way but, after all, these are not monolithic technologies used in homogeneous manner; but rather solutions enabling to incorporate them flexibly into the individual lifestyle.

Therefore, we concluded that **a competent use of the media is the use which increases the quality of life of the individual, taking into consideration however, the ways of its functioning in various areas**. And those differ radically as demonstrated by the conducted study, the priorities of different social groups differ from one another. We determined such perspective of the issues of competences as **the relational model of the digital competences.**

This is in fact quite obvious: a retiree will use a computer connected to the Internet differently than a professionally active person. An improvement of a daily functioning for a person professionally working with a computer will look differently than that of a manual worker. Methods of measurement of the level of competence including public intervention and e-services development programs created on their basis must take account of these differences. Treating everyone the same way is simply ineffective which was proven by the recent years and measurements of the level of competence and also by the percentage of Poles not using the new technologies, described, for example, in the "Social diagnosis"[3]. We cannot pretend that everyone has equal development opportunities, because they are correlated with the individual's resources, such as money, education etc.

Of course, such a view makes the social policies more complicated. It does not completely revoke the universalistic approach, which assumes that there is a common set of significant e-competences. It is so in the case of the basic skills concerning work with information or competences related to the safety on the Internet. However, the relational approach imposes perception of use of digital

[2] M. Filiciak, P. Mazurek, K. Growiec: *The use of media and social divisions. The media competences of Poles in the relational perspective.* Digital Center Project: Poland, Warsaw, 2013. Available: http://ngoteka.pl/bitstream/handle/item/215/korzystanie%20z%20mediow%20a%20podzialy%20spoleczne.pdf?sequence=3

[3] D. Batorski, Poles in respect of digital technologies conditions availability and methods of use, [in:] Social diagnosis 2013. *Conditions and quality of life of Poles. Report, ed.* J. Czapiński, T. Panek, „Contemporary Economics 2013", t. 7, s. 337.

technologies in the context of other areas of activity. It hinders both planning of intervention and measurements and creation of indicators. It requires fitting the activities for development of digital competences into the broader frames of educational activities. This approach is highly recommended and, at the same time, more difficult than conducting simple trainings concerning e-competences. It does not mean, however that it prevents creation of consistent models, which we will show further in the text.

Furthermore, the relational approach assumed that the digital technologies are not so much the area, but rather the dimension of functioning of the citizens. This shift in the perspective results in the fact that the so called "Internet" (almost all digital communication technologies) is treated not as a separate area of life, but as a dimension present in other areas and facilitating functioning in them.

In the previously mentioned report we wrote that: "We regard competence as a skill allowing the use of a medium to support the area which an entity considers important or which is time consuming (namely, it is indicated by the individual as an important area of its life). Considering the fact that the limit of possible use of the Internet is a derivative of a social position, we assume that it is also connected to the resources that the individual can possibly use. Therefore, we want to show that people often cope with challenges emerging across their social groups and for that purpose "their" media and "their" use is sufficient enough, all of which is often different from the way of use of media by the privileged group"[4].

Hence, we do not want to stigmatize users of the Internet for the fact that they do not do something which is simply useless for them. Simultaneously, we assume that both digital inclusion of the excluded and the improvement of competences of people using the new communication technologies will be effective when provided knowledge and skills will correspond to the daily activities of the individuals. To put it simply: The aim is to show people that all of these solutions can become useful for them.

The basic consequence of acceptance of such relational model is the need to redefine the digital competences. **They have to be treated functionally** - their acquisition is not a goal in itself, but it serves fulfilling various needs and obtaining benefits in various areas of life.

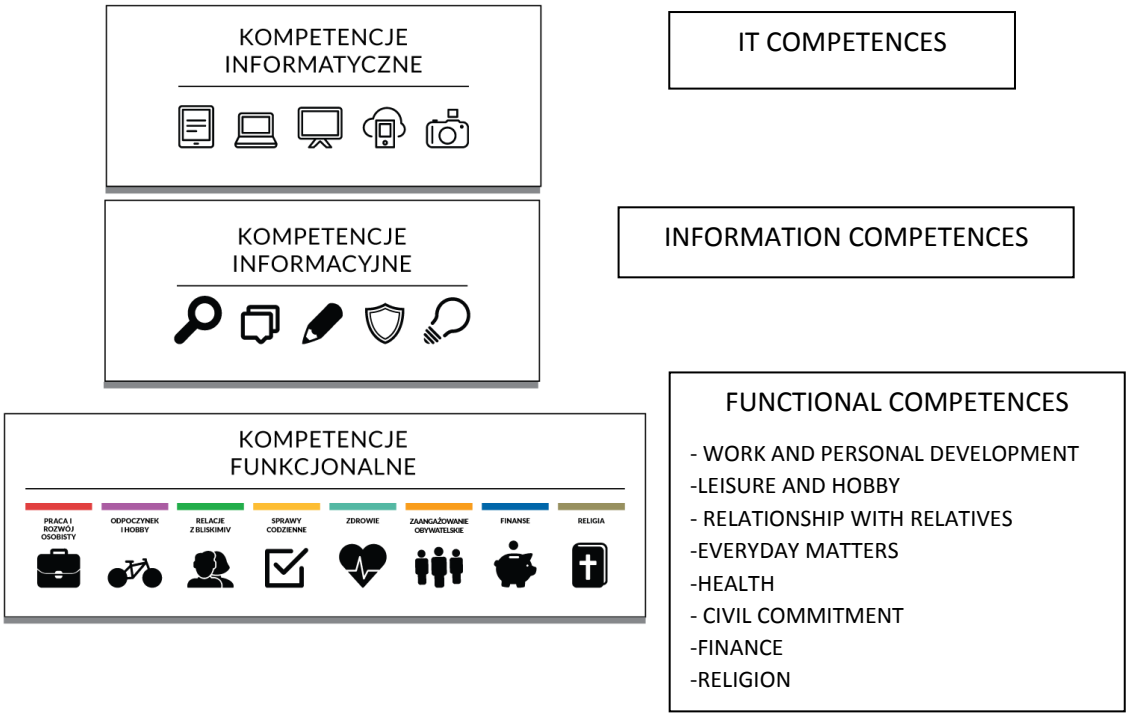
4. Three levels of competences: IT, information and functional

By competences we understand a bundle of skills, knowledge and attitudes that enable us to effectively use the digital technologies. The catalogue of competences concerns above all the transfer of skills and the knowledge related with them.

In the relational approach, we assume that functional competences are based on the IT and information competences, which constitute the base for implementation of specific activities and achieving benefits as a result of the use of the digital technologies. IT competences are thus a base for information competences which, in turn, are necessary to acquire functional competences.

The division of competences into three levels serves as a presentation of the components of the catalogue. In practice training and educational activities must include a parallel acquisition of competences on all three levels.

[4] M. Filiciak, P. Mazurek, K. Growiec: *The use of media and social divisions..., p. 5.*



4.1.IT competences

According to the report *Information society in figures*[5] of the Ministry of Administration and Digitization (2014): "**Digital competences** are defined as a set of ***information competences*** covering the ability to search for information, interpret it and to evaluate its credibility and suitability as well as the ***IT competences***, which include the skills of using a computer and other electronic devices, handling the Internet as well as the use of various types of applications and software, and creating digital content". On a more general level, it can be thus said that IT competences include the skills related to the correct use of hardware, software and the Internet.

The IT competences so understood constitute a component of any kind of digital competences. It can be said that they are both the starting point and that they penetrate other types of competences related to the digital technologies.

They include the following skills of handling devices: switching a computer on, using keyboard, mouse or touch screen. They apply to the use of stationary as well as mobile devices. We should not forget that in the case of the digitally excluded that never had a closer contact with digital technologies, these basic skills do not have to be obvious. In addition, the limited motoric abilities associated for example with the advanced age may be a serious barrier for the implementation of the activities. IT competences are also related the correct use and installation of proper applications and software. The basic skills include creation of content (e.g. creating files with the use of relevant options of programs, saving files), organization of the content (ordering files in folders), browsing for content.

A number of the IT competences that require special attention is related to the correct use of Internet. The team of Dutch researchers which for years has been studying the digital competences,

[5] Ministry of Administration and Digitalization. *Information society in figures, Warsaw, 2014.* Available: https://mac.gov.pl/files/spoleczenstwo_informacyjne_w_liczbach_2014_srodek_lekki.pdf

in publication *Measuring Digital Skills*[6] described which competences are included in the operational competences associated with using the Internet. In this case, the term "operational" has similar meaning as the term "IT " used by us. They are divided into three types of competences. The first type is related to the use of Internet on mobile devices and includes knowledge about how to: connect with the Wi-Fi network, download applications on a mobile device, install applications on mobile device, monitor the costs of using the applications and turn the mobile device off. The second type of the competences is related to an effective functioning in the Internet environment which requires knowledge about how to: open a new window in the web browser, backspace to the previously viewed page, reload the viewed page, correctly use the keyboard abbreviations (e.g. CTRL-C copying, CTRL S-saving), add a tab to a website, download files, send files to the Internet, use privacy settings, download or send a picture, open the downloaded files, distinguish between the applications safe and unsafe to download, programs, block popping-up windows with advertisements, protect the computer against viruses and if during the use of Internet a technical problems appear, how to cope with them. As a separate type, there have been listed the competences related to the knowledge about how to open websites using the breadcrumb bar and how to fill in the online forms (Van Deursen, Helsper, & Eynon, 2014)[7]. The quoted list of the IT competences related to the Internet is detailed, however it is still possible to find elements to supplement it, e.g. knowledge about how to use such programs, applications as the instant messaging.

4.2.Information competences

Information competences as an issue and a research problem have been present in the subject literature since the mid-1970s. Initially they were associated with active and efficient use of traditional sources of information as well as tools which facilitate reaching them, including library catalogues, indexes, bibliographies etc. Along with the development of the digital technology, information competences are more often connected with the active use of informational resources of the Internet. However, it is worth emphasizing that active and effective use of any resources and sources of information is determined by a relevant level of information competences.

Information competences are defined in many ways, however, the most complex definition was prepared by the American Library Association in 1989. According to it, the information competences are understood as **the set of skills allowing the user to determine when information is necessary and to find, assess and use the information coming from various sources**[8]. Extended definition of information competences is based on the set of practical skills enabling:

- to specify the type and scope of the information need,
- to ensure an effective access to sources of information,
- to critically assess the information and its source and to integrate the selected information with the so far possessed knowledge and system of values,
- to selectively use the information in a manner fostering the implementation of the specified purpose,

[6] Van Deursen, A.J.A.M., Helsper, E.J. & Eynon, R.: Measuring Digital Skills. *From Digital Skills to Tangible Outcomes project report.* Oxford, 2014. Available at: www.oii.ox.ac.uk/research/projects/?id=112

[7] Ibidem.

[8] *Presidential Committee on Information Literacy: Final Report, 1989.* Available: http://www.ala.org/ala/mgrps/divs/acrl/publications/whitepapers/presidential.cfm.

- to specify and understand social, economic, legal aspects of access to information and the use of it[9].

Searching for the information is one of the basic activities performed in the Internet environment, and at the same time penetrating all areas of other actions conducted on-line. Establishing a deposit, selection of a hotel and its access route, making purchases or even baking a cake is more often related to a prior use of the information available on the Internet.

In connection with the above, the information competences are of particular importance in view of the development of digital technologies and common access to vast resources of electronic information. At the same time, the skills condition the activity in almost all areas of use of the digital technologies. Therefore, they are, apart from the IT competences, safety issues and the use of technology by people with various kinds of disabilities, a horizontal issue, penetrating all areas of life, benefits and competences specified in the catalogue.

4.3. Models of IT and information competences

In 2014, the Institute for Prospective Technological Studies (IPTS) of the European Commission developed, under the DIGCOMP project, a comprehensive IT and information competence model. The Digital Competence Framework (DIGCOMP) Model[10] at the same time, synthesizes traditional models by developing them into the form of a complex model, which divides 21 core competences into 5 areas and various levels of advancement. The DIGCOMP Model is attached in the form of an annex to this study. We recommend its use as the catalogue of the basic IT and information competences, necessary for building the functional digital competences.

Considering a wide range of competences included in the DIGCOMP model, there is a need to define a narrower standard of the basic digital competences. It means a compact set of skills necessary for the use of basic functions of the network technologies. Such a catalogue is particularly necessary to work with the excluded people who so far were often trained on excessively advanced competences.

Meeting the condition of having these basic competences is at the same time a much better index of the use of the Internet than the adopted traditionally measure: using the Internet at least once a week. An example of such catalogue of the basic competences is prepared in the UK the Basic Digital Skills model[11], including the following competences for individual users (the model also considers the basic competences of employees of SMEs and non-governmental organizations):

- sending an e-mail
- browsing for content
- browsing websites
- filling in the online forms
- identification and removal of spam
- determination which services are reliable
- determination of the privacy settings.

We want to emphasize that trainings concerning the basic competences should also assume the functional perspective – stressing that the acquisition of these competences is not a goal in itself.

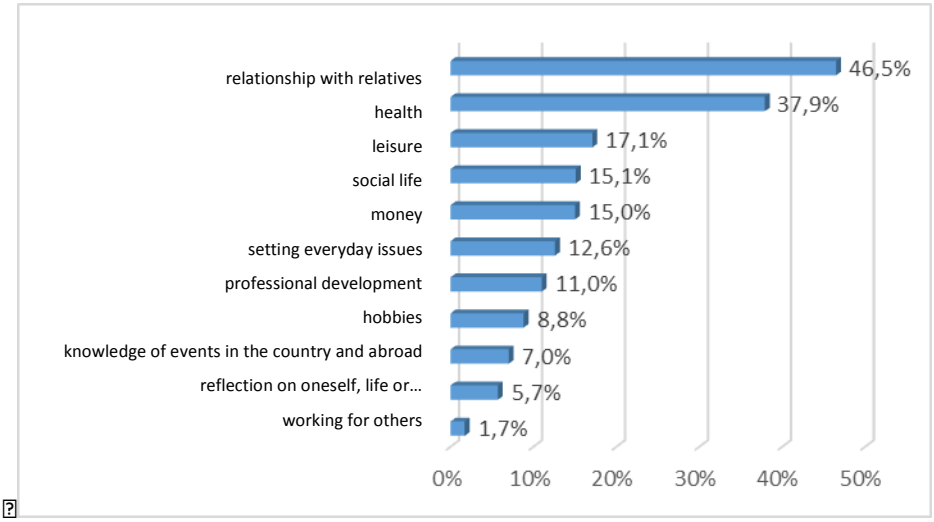
[9] *Information Literacy Competency Standards for Higher Education, American Library Association, 2000.* Available: http://www.ala.org/ala/mgrps/divs/acrl/standards/standards.pdf.
[10] *Digital Competence Framework, 2013.* http://is.jrc.ec.europa.eu/pages/EAP/DIGCOMP.html
[11] Basic Digital Skills, b.d. http://www.go-on.co.uk/basic-digital-skills/

We recommend adoption of the DIGCOMP and the Basic Digital Skills models in Poland as standards, after a possible consultations aimed at their verification in Polish conditions.

5. The functional model - areas of life, benefits and competences

To be able to associate the competences with areas of activity of the Internet users, it is necessary to specify these areas. During the study "The use of media…" on the basis of the in-depth interviews with the recruited people from groups with very various position in social stratifications, we have constructed a list of eleven areas, presented on the below chart no. 1.

Chart 1. Relevant areas of Poles' life.



Source: Prepared by the author on the basis of: M. Filiciak, P. Mazurek, K. Growiec, The use of media and social divisions. Digital Centre Project: Poland, Warsaw 2013.

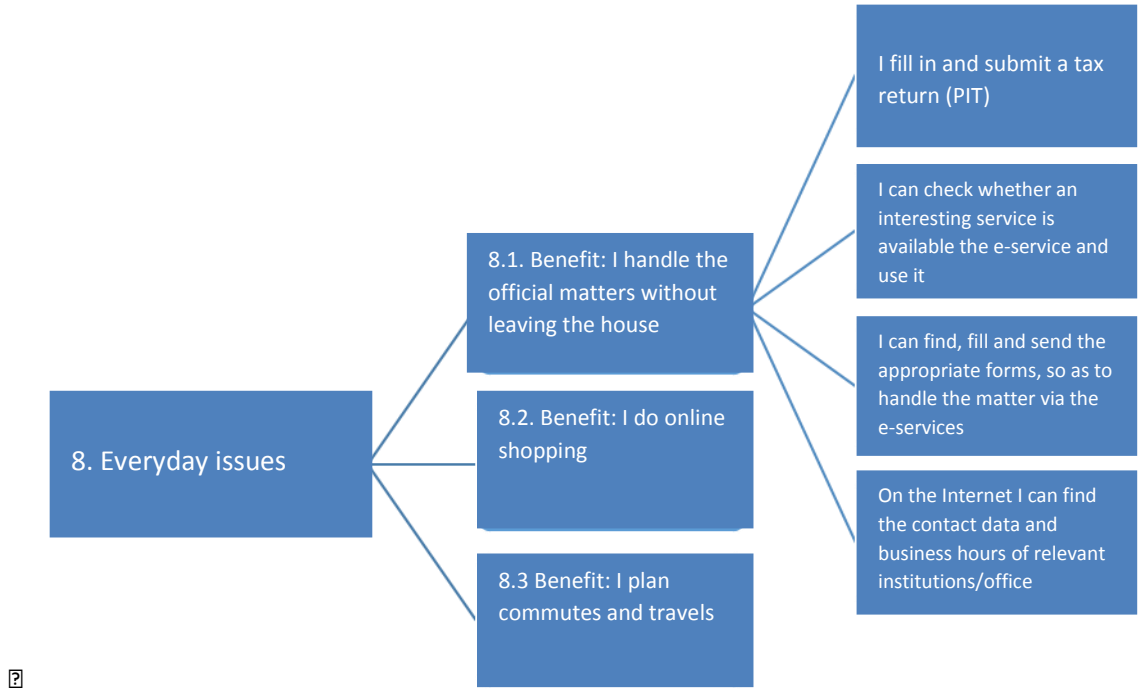
In the presented *"Framework catalogue of the digital competences"*, as well as in the *"Taxonomy of the functional digital competences"* previously prepared for the purposes of the Cities on Internet Association, we define eight key areas. These are:

1) work and professional development,
2) relationship with relatives,
3) implementation of interests,
4) health,
5) finance,
6) religion and spiritual needs,
7) everyday issues,
8) civil commitment.

Of course the boundaries between the areas are not rigid, some of them permeate each other; however, creating such typology is important from the methodological reasons. It should be also emphasized that a specific application of the media and thus precisely defined competences may significantly vary also within one area.

Subsequently, inside every specified area of life we identified the benefits which may refer to people supporting their activity in particular areas of digital technologies. Lastly, we determined which digital competences are necessary to gain a given benefit. Thus the catalogue has a tree structure: Relevant areas of life - > benefits resulting from the use of digital technologies - > digital competences. On the following diagram no. 1. a selected fragment of the catalogue of digital competences was presented in the structure of a tree – this is a fragment of the area of "everyday issues".

Diagram 1. The principle of construction of the framework catalogue of digital competences.



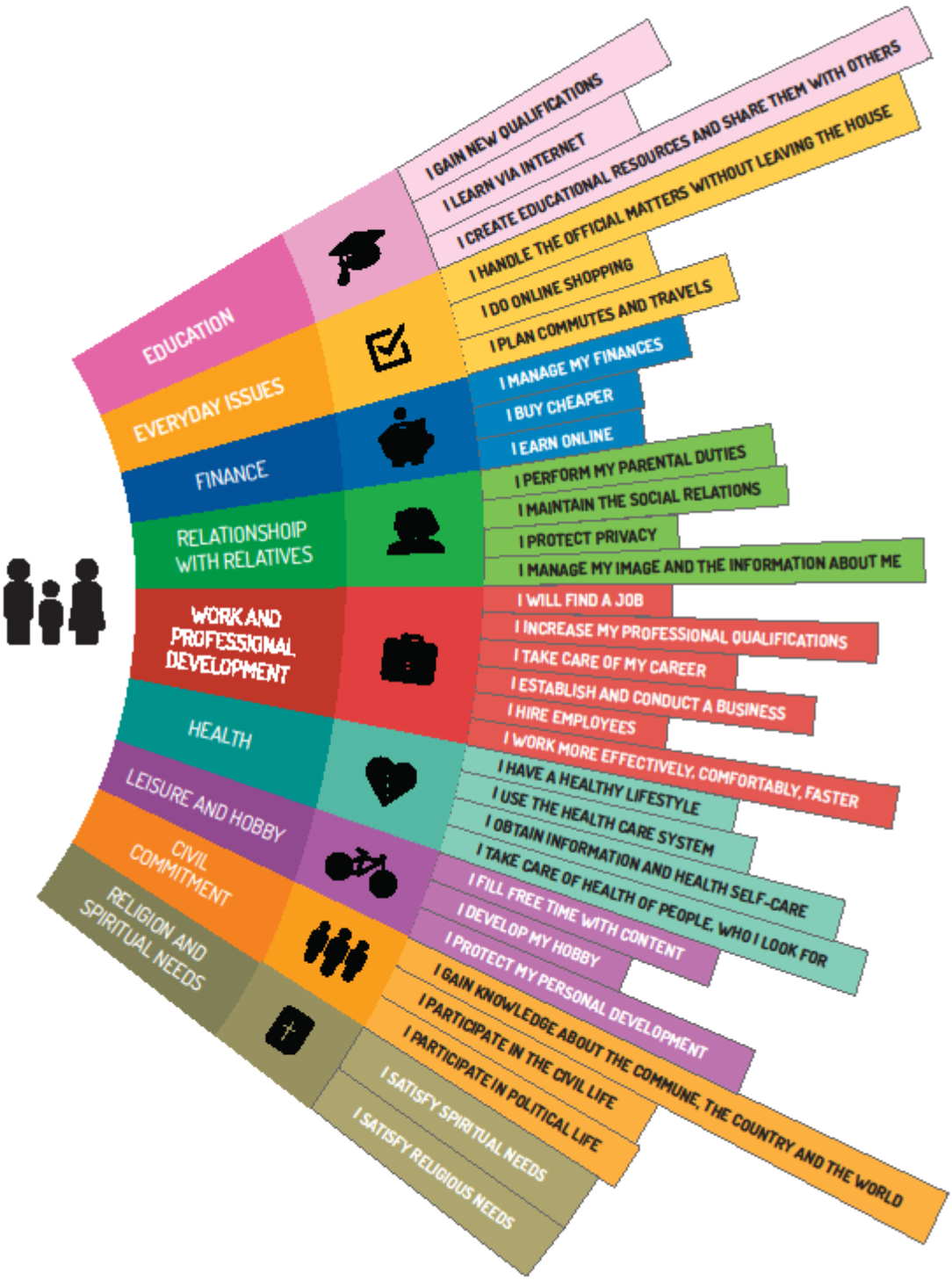
Source: Prepared by the author.

As a result we obtain a matrix, in which a specific competences are described in the scope of broader benefits that can be achieved. These in turn are superimposed on the key areas of life. For each competence, we also offer more detailed, practical description.

The catalogue may be the basis for the further steps necessary for standardization of the training process and increasing the digital competences. Firstly, it may be used for drawing up a public, non-public and commercial "services map ", related to the core competences and allowing to use those competences. Secondly, it may be the basis for establishing the tools of measurement of competences, for example the certificate of the possessed digital competences.

The catalogue can be developed through the connection with other catalogues and models of competences. In the previous part we have presented a model combining functional with IT and information competences. Another example can be the European e-Competences Framework (ECF). With its help the area of professional competences can be developed, necessary for employees of the information - communication technology sector and in more detail, for people using these technologies in professional work.

DIGITAL COMPETENCE FRAMEWORK



Graphic includes icons from The Noun Project:
„Check-Box", autor: Garrett Knoll „Bible", autor: Bruno Gatjens Gonzales, „Piggy-Bank", autor: PJ Souders,
„Suitcase", autor: Hakan Yalçin, „People", „Family", „Bicycle", „Cardiovascular", „Men" autor: Iconsmind,
„Education", autor: Gregor Cresnar –use under CC BY 3.0

FRAMEWORK CATALOGUE OF DIGITAL COMPETENCES:

Work and professional development

I will find a job

I increase my professional qualifications

I take care of my career

I establish and conduct a business

I hire employees

I work more effectively, comfortably, faster

Relationship with relatives

I perform my parental duties

I maintain the social relations

I protect privacy

I manage my image and the information about me

Education

I gain new qualifications

I learn via Internet

I create educational resources and share them with others

Leisure and hobby

I fill free time with content

I develop my hobby

I protect my personal development

Health

I have a healthy lifestyle

I use the health care system

I obtain information and health self-care

I take care of health of people, who I look for (children, elderly, sick with disabilities)

Finance

I manage my finances

I buy cheaper

I earn online

Religion and spiritual needs

I satisfy spiritual/religious needs

Everyday issues

I handle the official matters without leaving the house

I do online shopping

I plan commutes and travels

Civil commitment

I gain knowledge about the commune, the country and the world

I participate in the civil life

I participate in political life

6. The framework catalogue of digital competences

1. Work and professional development	
1.1 Benefit: I will find a job	
Functional competences	**The extended description of competences**
I can use the websites of employment agencies	I can browse and search for announcements, answer interesting job offers
I can place my job offer on a website of the employment agencies	I can enter the data about my professional experience, qualifications etc. to the websites of employment agencies (e.g. Pracuj.pl, gazetapraca.pl, work.pl, infopraca.pl, jobs.pl)
I can prepare (write and edit) my CV and covering letter on a computer	I can write and edit a text document in a text editor (e.g. Libre Office Writer, MS Word), taking care of its aesthetic value and clarity
I can send an job application via Internet	I can send an e-mail message with an attachment in the form of CV and/or motivation letter to the employer's designated address
I can make an appointment for a job interview via Internet only	I can exchange e-mail correspondence with a potential employer, using the " answer" option and/or "answer to all" option
1.2. Benefit: I increase my professional qualifications	
Functional competences	**The extended description of competences**

I can find information online about different forms of professional qualification improvement	I can find information on standards of professional qualifications (e.g. on the website of the Ministry of Labour and Social Policy) www.kwalifikacje.praca.gov.pl) and methods of their increasing /acquiring
I can use different forms of professional qualification improvement on the Internet	I can find and become familiar with the training materials available on the Internet, this way supporting my professional development (e-learning, e.g. PARP Academy www.akademiaparp.gov.pl)
I can find and participate in discussion groups concerning the increasing and/or gaining new professional qualifications	I can find a group discussion devoted to the issue interesting for me, join and actively participate in it (add statements, correspond with others, comment)
I can find on the Internet the information on sources of financing of different forms of professional qualification improvement	I can find the information on different ways of financing of various forms of professional qualification improvement, e.g. by Poviat Labour Office or an employer
I can use the social media in order to construct my professional profile and perform networking online	I can communicate for professional purposes with other users of websites and communities dedicated to the professional development (Goldenline, Linkedin, Facebook).
1.3. Benefit: I take care of my career	
Functional competences	**The extended description of competences**
I can find information on methods of financing of my professional activity	I can reach the institutions offering financial support (subsidies, grants, investment credits), obtain the necessary information and submit an application online
I can find, fill and send the appropriate forms/documents related to shaping my professional career in the workplace	I can find, fill and sent via electronic mail prints and forms concerning my work (forms of contracts, notifications etc.)

I can find, on the Internet, consultations with regard to the labour law	I can find the information in the field of labour related to the issue interesting for me, become familiar with and use them according to the needs
I can find a website /forum / discussion group concerning the issues I am interested in	I can find a discussion group devoted to the issue interesting for me, join and actively participate in it (add statements, correspond with others, comment)
I can initiate contact with people with similar tasks in the workplace	I can establish an online contact (e.g. on Internet forums) with people who can provide support
I can find support in the difficult matters related to professional life	I can find information on rights attributable to my in a difficult situation (e.g. Mobbing, difficulties in obtaining a deserved promotion, discrimination, inequalities etc.), I can contact people and/or institutions granting support
1.4. Benefit: I establish and conduct a business	
Functional competences	**The extended description of competences**
I can benefit from any sources of legal, financial, tax, insurance information etc. in order to update the knowledge and proceedings in accordance with the valid regulations with regard to setting up and conducting a company	I can find on the Internet a credible sources of legal information and public information, made available by competent institutions as well as use them (find the necessary content)
I can create and maintain a web page of a company, company's account in the social media and in websites /catalogues /contact data /trade databases, relevant for the area of my business	I can share information about my company in different network media, including defining the scope and the recipients of such information, taking care of security of a company and at the same time its promotion

Via Internet I can submit documents related to running a company	I know websites and procedures allowing submission of documents via Internet (e.g. Electronic Inbox of an office); I can check whether such service is safe
I can obtain an electronic signature and use it in professional work	I have (I know how to obtain) an electronic signature and I use it in situations, where it is possible
I can use the broker websites as a seller of products or services	I have an account on the websites of this type, (universal and/or specialized), I can share information about my company's products or services, communicate with buyers and carry out the transaction as a seller
1.5. Benefit: I hire employees	
Functional competences	**The extended description of competences**
I can use the websites of employment agencies as a potential employer	I can post announcements on job vacancies, monitor applications and contact candidates
I can fill and send via Internet the documents related to hiring employees	I can use documents electronic exchange channels related with the affairs of employees: find them, fill in and transfer to the relevant institutions (e.g. ZUS, NFZ, US)
I can conduct a job interview via Internet	I can make an appointment with candidates to a specific interview date, using the network tools; I can conduct a job interview with the use of the chosen web communicator
I can find and choose forms of professional training necessary for the employees (e-learning)	I can find an e-learning offer in the necessary extent, assess its quality and credibility and book the course for an employee

1.6. Benefit: I work more effectively, comfortably, faster	
Functional competences	**The extended description of competences**
I can use new technologies, including cloud solutions for the fulfilment of professional duties,	In professional work I can use e-mail, electronic documents creation and exchange services, payments and invoicing online, etc.
I can work in spread teams, executing professional responsibilities via Internet	I can use the tools ensuring online communication (e.g. Skype - conference connection) and joint work (e.g. Google documents, Etherpad), by adding my content with simultaneous respect of the intellectual contribution of others
I can work in culturally diverse teams with respect for the differences	I can, by using the tools supporting the remote work, adapt to the differences of the contribution of others resulting, e.g. from the time difference or cultural differences
I can perform my professional duties outside the workplace, if necessary	I can handle the official e-mail, receive or send documents electronically, by using a mobile device (Smartphone, tablet) or computer to log in to the relevant websites
2. Relationship with relatives	
2.1. Benefit: I perform my parental duties	
Functional competences	**The extended description of competences**
I can sign up a child to the selected educational institution in the successive education stages	I know where to seek a recruitment site, I can use it, I know the terms and procedures

I can use the information published on the websites of schools or kindergartens	I am familiar with and I use the website of an educational institution, I will find information there concerning the education of my child, functioning of kindergarten/school (calendars, teachers, announcements etc.)
I can use the electronic grade book as a parent	I have a parent account and I use it, I check the information published in the e-grade book and this way exchange messages with teachers
I can ensure the safety of the child on the Internet, respectively to his or her age and competences	I know which network resources my child uses, I monitor his or her activity on the Internet, I can use the parental control e.g. in the web browser, games console, I often accompany the child in its search, I am his or her "guide", I teach the safe behaviours in the Internet
If necessary, I can help the child in creating an accounts on the selected educational websites	I can guide the child through the procedure of registration on the educational website (e.g. in education publishing houses, for educational needs, doing homework), with due observance of safety measures on the Internet (controlling and/or teaching it observance of these principles)
If necessary, I can sign up a child to a relevant specialist: a doctor, psychologist, a school counsellor etc..	On the Internet I can find the information on available services and as necessary book the child a visit, including e.g. filling in the appropriate forms
I can find the child an additional classes and book them via Internet	I can find and assess the additional classes offer available on the own pages of institutions and companies conducting such activities or in thematic portals; I can compare these offers, make a choice and sign up the child for classes
I can help the child with spending free time and working on his or her hobbies via Internet	I can find and assess the quality of websites, applications, content and games addressed to children and teenagers and select them according to the interests of the child.
2.2. Benefit: I maintain the social relations	

Functional competences	**The extended description of competences**
I can keep and develop relationship with relatives (family, friends, acquaintances) via Internet	I can use different means of electronic communication (e.g. Facebook, Gadu-gadu, Skype, Messenger) with relatives as necessary,
I can use the tools enabling a conversation or other forms of online communication (e.g. Facebook, Gadu-gadu, Skype, Messenger) to develop and maintain relations with relatives	I can initiate voice calls, talk (with video or without it) and then end a conversation; I can use text communicators sending and receiving message in real time
I can use communication online tools (e.g. Facebook, Gadu-gadu, Skype, Messenger) to exchange current information	I can send short information, arrange meetings, provide information about the most important events
I can use the websites dedicated to getting to know people (e.g. edarling, Badoo)	I can create an account, add appropriate content and use it to establish new friendships, also those of private nature
I can communicate with a newly met person functionality using the websites (edarling.pl, sympatia.pl), protecting my own safety and privacy	I can receive and read the received messages and answer them as necessary, I can use the functions of the websites supporting communication ("accosting", sending smiles etc.)
2.3. Benefit: I protect privacy	
Functional competences	**The extended description of competences:**
I can ensure the safety of my activities on the Internet	I understand the role of software (antivirus, firewall) protecting the equipment against the most frequent hazards on the Internet and I can use it as necessary; I can recognize the hazards on the Internet (e.g. phishing, unprotected connections and tracking elements on websites)

	and I know how to avoid them
I can use privacy settings on social networking sites	I can configure privacy settings on social networking sites (e.g. Facebook, nk.pl, Goldenline, youtube, Google+) according to my needs
I can use private mode in web browsers as necessary	I can go to the private mode of web browser (e.g. Mozilla FireFox, Google Chrome, MS Internet Explorer, Opera), bearing in mind protection of my privacy when I have such a need
I can manage the history of the viewed pages in the web browser	I can use the history of the viewed pages in order to come back to the websites interesting for me or delete it when I have such a need; I can remove my data from the browser (history, passwords, "Cookies")
I can manage the content published by others on social networking sites	I can respond when the content published by others do not suit me or e.g. popularizes hate speech (using such options of the website as hiding posts, blocking other users) or when I want to always see them (to observe)
2.4. Benefit: I manage my image and the information about me	
Functional competences	**The extended description of competences**
I can shape my image on the Internet depending on the needs and the recipients	I can decide which content posted by me is/should be available for acquaintances and friends, and which for colleagues from work and superiors, first of all, bearing in mind the protection of my privacy

I can recognize hazards resulting from digital circulation of the content and respond to it	I can react on the Internet to an undesirable content and limit the risks associated with publishing the content which could violate the wellbeing of others
I can manage the content published by me on social networking sites	Using the website's capacities, I can specify who may see the content published by me (everyone, acquaintances, selected people)
3. Education	
3.1 Benefit: I gain new qualifications	
Functional competences	**The extended description of competences**
I can find information online about different forms of education, including higher education, courses, trainings (Internet and traditional)	I can find information on different forms and methods of their use on websites of institutions conducting them (e.g. on the website of the Jagiellonian University www.uj.edu.pl)
I can actively select the form of education with the use of digital technology to my liking	I can choose one of forms of education on the Internet, taking into account my own expectations, opportunities and preferences, e.g. e-learning, e-coaching, m-learning, blended-learning, online self-education etc..
I can increase my qualifications via Internet and obtain their confirmation	I can sign up to an Internet course or some other form of online improvement and obtain a certificate of compliance, e.g. certificate, badge, etc.
I can pass the examinations in the digital form	I can fill in the examination form, confirming the level of knowledge obtained during the Internet course or other forms of education, e.g. through filling in a multiple choice test

I can evaluate the effects of my learning on the Internet, monitor progress and recognize deficiencies	I can specify the effectiveness of the online learning, when assessing the flow and intensity of the teaching process, selection of tools and methods and the obtained knowledge and skills
3.2 Benefit: I learn via Internet	
Functional competences	**The extended description of competences**
I can use various learning forms, methods and the tools using the digital technologies	I can actively select the learning form, method or tool best corresponding to my needs, e.g. e-learning implemented by means of a project, webinar, etc. and use it
I can participate in the on-line teaching processes	I can actively take part in the selected forms of on-line education, e.g. participating in discussions during webinars or adding content to documents produced in the network environment
I can find other people learning similar things, take advantage of their experience and support them if necessary,	I can find and use forums, discussion groups or other tools, gathering people increasing their knowledge and skills on similar topics
I can support others in using digital forms of gaining knowledge	I can use their experience and support their activity, e.g. through referring them to relevant tutorials
3.3 Benefit: I create educational resources and share them with others	
Functional competences	**The extended description of competences**
I can create digital content important for my education, also using for this purpose the existing resources	I can create my own digital resources (e.g. texts, graphics, pictures, presentations, videos), also using for this purpose the already existing materials, created by other people and institutions

I can recognize the condition of copyright content, including different types of open licenses	I understand how the contents are licensed, what are open licenses and what leads to their application and what resources are available in the public domain
I can share educational resources and actively use open licenses for that purpose	I can share on the Internet the educational content generated by me, using for that purpose respective websites and open licenses
4. Working on interests /Leisure and hobby	
4.1. Benefit: I fill free time with content	
Functional competences	**The extended description of competences**
I can find information on the cultural and entertainment offer in my neighbourhood	I can check in the Internet the activity of facilities which suit my interests and use their offer: meetings, concerts, film shows etc.
I can find on the Internet video, film and music services, Internet radio and television and shops with audio books and eBooks	Depending on my interests I can find on the Internet services, where legally and free of charge (or after paying an appropriate fees) I will be able to have access to cultural content
I can find on the Internet the offer of culture institutions – libraries, museums, archives, etc.	Depending on my interests I can find on the Internet websites maintained by the local, regional or national cultural institutions. I can use catalogues and digital collections of libraries, museums and other culture institutions.
I can buy or reserve tickets for cultural events via Internet	I can find on the Internet services offering tickets to theatre, cinema, philharmonic hall, concert, cultural, sports event, etc. , as well as purchase them
I can find an online entertainment	I can find on the Internet online social games, register and choose a game appropriate for me

4.2. Benefit: I develop my hobby	
Functional competences	**The extended description of competences**
I can find the websites and services with information related to my interests	I can find the websites on the Internet consistent with my interests, e.g. concerning cooking, fishing; track the information appearing on these pages (by means of subscription notices in the social media or newsletters, RSS channels)
I can find and participate in communities of people sharing my interests	I can find websites on which I can initiate a relation with people sharing my interests, e.g. register and place entries on Internet forums
I can buy equipment, materials and aids online (e.g. books) necessary for development of my interests	I can purchase via Internet products that enable me to develop my interest: find appropriate store, finalize the transactions according to the principles of conducting safe transactions on the Internet; I know my rights associated with return of the products purchased via Internet
I can create the content concerning my interests and publish it on the Internet	I can create the place on the Internet where I publish the contents (e.g. Photographic documentation, tutorials, consultations) related to my interests: profiles, channels in the social media, websites or thematic blogs; I can correctly create such profile and I can publish on it the contents by accordingly setting the scope of their visibility on the Internet (public, visible for a given group of recipients)
4.3. Benefit: I protect my personal development	
Functional competences	**The extended description of competences**

I can run a profile /an event /a channel in the social media, concerning the issues interesting for me	I have an account on community portals, place content there, observe the websites interesting for me, comment statements of others concerning the issues interesting for me, moderate and reply to the comments of other users
I can track the issues interesting for me in the digital media	I have accounts on community portals, observe the websites interesting for me, comment statements made by others
I can acquire knowledge in the areas interesting for me	I can find services and websites concerning the issues interesting for me, have access to the information available there and use it in accordance with my needs
I can find sources of information about courses and classes in the areas interesting for me	I can found in the Internet the information about courses and classes concerning topics interesting for me; initiate contact with their organizers and sign up for them
I can use various educational materials available on-line	I can find in the Internet the educational materials concerning the issues interesting for me such as video materials, tutorials, presentations, lectures etc., and use them depending on my needs
5. Health	
5.1. Benefit: I have a healthy lifestyle	
Functional competences	**The extended description of competences**
I can compare the results of my research with "optimal" results for my health situation and age group	I can find the websites (e.g. Medonet.pl, poradnikzdrowie.pl) providing credible information on correct periodical check-ups results, I can find calendar of periodical check-ups appropriate for my health situation (e.g. pregnancy) and age group

I can find on the Internet the information on healthy lifestyle, including about healthy nutrition	I can find information regarding a healthy lifestyle, including the healthy nutrition, assess their usefulness in my health situation, choose the appropriate to use
I can use the mobile application recording my physical activity; I publish these data on my profile/blog	I know the mobile applications enabling recording the physical activity (e.g. Fit App, Runtastic Me), I use this kind of the selected tools, I publish any obtained results in the social media
In the Internet, I can find, choose, sign up for sport/physical classes suitable for my health condition and preferences	I can find the websites of companies/clubs conducting sports classes (e.g. sportowa.warszawa.pl, senior.fit.pl), I can choose the offer matching my needs, I can sign up myself on such classes online
I can exchange information on the healthy lifestyle	I publish statements on a healthy lifestyle in the various types of social media: I publish posts, reply to the comments, moderate discussion
I can maintain a blog in which I write only or also about a healthy lifestyle (possibly: website, service)	I have a blog/website concerning healthy lifestyle: place posts, moderate comments, organize, exchange messages with readers
5.2. Benefit: I use the health care system	
Functional competences	**The extended description of competences**
I can find a health care institution services which I can use free of charge/for a fee	I can find a public or privet health care institution corresponding to my health needs
I can use the e-services offered by a health care system	I can obtain the European Health Insurance Card; I can use the Integrated Patient Bulletin

I can find a doctor /specialist /a health care institution, in which the services financed by NFZ (National Health Fund) are available	I can find institution/a doctor, who have signed the contract with NFZ (National Health Fund), according to my health needs
I can find the information concerning availability of free tests and vaccinations indicated in my situation	I can find information regarding the tests and vaccinations recommended in my situation, I can find information about availability of free tests and vaccinations
I can book the doctor /tests (specialized) /rehabilitation treatments /sanatorium	I can find the information/website and book (fill in the form) the sought service (tests, rehabilitation, sanatorium)
I can publish posts or comments, I help others find a relevant doctor/institution/service/treatments/tests	I publish posts concerning availability of the medical care, I publish comments/reply to the comments of people looking for different forms of medical care
I can use selected forms and devices of e-care	I can find the information on services of telecare, I use telecare, e.g. Remote transfer of results of control of heart functions
5.3. Benefit: I obtain information and health self-care	
Functional competences	**the extended description of competences**
I can find the information on the symptoms observed in myself or in relatives and assess their credibility	I can name the observed symptoms, I can find credible information about them in the Internet
I can to find information concerning hazards resulting from unhealthy behaviours	I can name hazards resulting from unhealthy behaviours, I know the consequences of the unhealthy behaviours, I can find the information concerning hazards related to it in the Internet

I can find information necessary in the situation of threat to health or life	I can find information regarding first aid in various dangerous situations, I can assess their credibility
I can find the information on effects of medications which I am to take (therapy/treatments which I am to undergo)	I can find detailed information on medications/therapy which I am to take/undergo, I can assess their credibility
5.4. Benefit: I take care of health of people, who I look for (children, elderly, sick with disabilities)	
Functional competences	**The extended description of competences**
I can find service/doctor/institution/tests appropriate for the needs of a person who is under my care	I can find a public or privet health care institution corresponding to the needs of the health condition of people who are under my care
I can find the information concerning proper development or disturbing health symptoms in children	I can find the websites providing credible information on a given stage of child's development or the symptoms observed; I can assess the quality of the information presented there, compare it with other sources, taking into account their credibility
I can exchange information with people in a similar situation: parents, carers of elderly, sick, with disabilities	I can consult my knowledge with people in a similar situation - taking care of others - using various network sources and tools (social media, blogs, communicators etc.)
6. Finance	
6.1. Benefit: I manage my finances	
Functional competences	**The extended description of competences**

I can check the bank account online	Via the website, the mobile application or ATM I can check the funds which are deposited on my bank account
I can perform the domestic, foreign or current transfer online	Via the website or the mobile application I can transfer funds to a different domestic or foreign account and set a current transfer
I can set/cancel the payment order	In the case of fixed payment which amount can be changed I can arrange all formalities related to setting the payment order and activation/deactivation of it online on the website of the bank or in the mobile application
I can set up/terminate the e-deposit	Via the website or the mobile application I can set up/terminate the e-deposit
I can find information about favourable methods of monetary investment: funds, deposits, stock exchange rates	On the Internet websites I can find information on favourable methods of depositing money and use the assistance of the right people/institutions to assess credibility of the information included there and use the assistance of people/institutions
I can exchange the currency online	I can exchange the currency using Internet cantors - set up an account on a given website and order purchase of the currency observing the rules of safe financial operations on the Internet
I can make web payment by means of the online bank transfer, credit card or "digital wallets"	I can make payment online via the websites of own bank or the websites enabling the e-payments, such as Paypal, PayU, SkyCash.
6.2. Benefit: I buy cheaper	

Functional competences	The extended description of competences
I can find and compare prices of various products in the Internet, by using appropriate tools	I can use the websites comparing the prices of products in the Internet, find the most favourable price of the object interesting for me
6.3. Benefit: I earn online	
Functional competences	**The extended description of competences**
I can sell objects through websites or auction websites	I can use websites or auction websites to sell objects with due observance of safety measures of financial transactions on the Internet: I can create an account on the selected website, place an object, finalize the transaction
I can maintain an online store	I can place pictures and descriptions of objects which I want to sell via the website of the online store, I can maintain necessary e-mail correspondence with clients, I can finalize the transaction on the Internet with due observance of safety measures, I can formulate and comply with regulations of the online store (consistent with the binding law)
I can place announcements/advertising about my products, services, in the Internet	I can edit/order preparation of advertisement of my services/products and place it in the Internet, so that it would be viewed by the potential customers
7. Religion and spiritual needs	
7.1. Benefit: I satisfy spiritual/religious needs	
Functional competences	**The extended description of competences**

I can find and obtain materials supporting a spiritual/religious development (e.g. texts, videos, and also information about meetings etc.)	I know the sites devoted to the spirituality and religious development, I can also find the information on activities of groups and communities to which I belong or I would like to belong
I can actively use forums and social networking websites related to the spiritual or religious development	I know forums and thematic groups as well as the standard valid in them, I can take part, provide answers, etc..
8. Everyday issues	
8.1. Benefit: I handle the official matters without leaving the house	
Functional competences	**The extended description of competences**
I fill in and submit a tax return (PIT)	I can fill and submit the tax declaration online using an appropriate software
I can check whether an interesting service is available the e-service and use it	I can find the electronic versions of services offered by public administration via network and use them
I can find, fill and send the appropriate forms, so as to handle the matter via the e-services;	After finding an appropriate e-service, I can complete the form and check the status of the matter online
On the Internet I can find the contact data and business hours of relevant institutions/office;	I can formulate an inquiry to a search engine or through a local side, e.g. of the commune, I can find a service of a needed office including the information about working hours
8.2. Benefit: I do online shopping	
Functional competences	**The extended description of competences**

I can use web stores	I can find on the Internet an online store, price compare engine or auction website with an offer interesting for me; I can find products interesting for me on these websites, I know which information I should pay attention to, to make purchases at reliable sellers
I can safely pay by card/by bank transfer on the Internet	I can make payment in the selected by web store or auction website
I can seek advice about/find reviews of products, I am interested in	I can find on the Internet the consumer opinions and reviews, including those made by other users; I can assess credibility of those reviews, I can ask a question about the product on the appropriate forum/website
8.3. Benefit: I plan commutes and travels	
Functional competences	**The extended description of competences**
Via a search engine or the geolocation websites on the Internet I can find address of the place which I want to go to; if it is available, I can also see the picture of the location	I can formulate a proper inquiry in a search engine, I also know the addresses of the geolocation websites and their functionalities;
I can select the route in public transport or other means of transport	I can find website of the carrier and information on it, and also I can use the independent from guides websites supporting the use of public transport and geolocation websites
I can check stops and timetable of a public transport	I can search for a website of the carrier, find timetable and the location of the stop on it;

I can check the price of tickets of a public transport and buy tickets via Internet	I can find appropriate or all-Polish service with information about tickets and if possible, purchase online (choose a ticket, settle the payment, save the electronic ticket);
I can use the GPS functions in Smartphone;	I can find an application with maps on the Google Play website or iStore, I can downloaded and install it; I can search for a needed location, select the route there and use a navigation during travel; I can use the websites facilitating avoiding traffic jams
I can use the tourist websites, applications	I can find a website or an application with a description of local attractions/restaurant and the principles of using them and access; I can use the Internet to check the opinions of other users about that place
I can use the websites, applications, allowing reservation of accommodation online	I can find a website or an application allowing reservations of accommodation in a given neighbourhood consistent with my preferences and financial capabilities; I can use the Internet to check the opinions of other users about that place
9. Civil commitment	
9.1. Benefit: I gain knowledge about the commune, the country and the world	
Functional competences	**The extended description of competences**
I can find and use the information websites, including the local websites	I can find and use the websites of the communal, municipal office, local cultural and social institutions (e.g. of schools, cultural centres and libraries) and the information websites where the information is published, including the topic of expenditures and public orders

I can find information about the current events interesting for me	I can find and use the information websites with information from the country and from the world of and with the local information websites
I can find TV and radio program	I can use the TV or radio programme, available on the website of the broadcaster or on the television websites, I can watch or listen to the selected programmes online, if they are available
9.2. Benefit: I participate in the civil life	
Functional competences	**The extended description of competences**
I can use the e-PUAP platform and the Regional platforms	I can register the e-PUAP service and use any services available on-line
I can find associations and foundations operating on in my area or in the subject area interesting to me	I can using the browsers formulate inquiry in such a way to find the websites or information about the organisations interesting for me
I can initiate a contact with associations and foundations (e.g. via e-mail or social networking site)	I can find contact information of the selected organizations or their accounts in social networking sites and with their help contact the organization
I can find information about current events and meetings in my neighbourhood	I can find information about current events, on websites (or on accounts on social networking sites) including communal or municipal office, local cultural and social institutions (e.g. of schools, cultural centres and libraries) and the information websites

I can use digital technologies in activities for the benefit of organizations of the 3rd Sector	I can use the digital technologies (social networking websites, announcements boards etc.) in promotion, management and conducting activities for a non-governmental organization /public benefit /social economy entities
I can organize and create a buzz about/promote social events organized by me	I can use the digital technologies (social networking websites, announcements boards etc.) for organization and promotion of various kinds of events, including the organized for the purposes of the local community
9.3. Benefit: I participate in political life	
Functional competences	**The extended description of competences**
I can find the websites of public institutions operating in my neighbourhood	I can find and use the websites of communal or municipal office, local cultural and social institutions (e.g. of schools, cultural centres and libraries) and the information websites
I can initiate an online contact with politicians (e.g. via e-mail or social networking site)	I can find websites or accounts in social networking sites of politicians interesting for me and initiate contact with them by email or social networking websites, where they are present
I can to find electoral information	I can find electoral information including on the website of the State Electoral Commission, on websites the local institutions and websites of political parties and other institutions

From a functional perspective the supplementation of the following catalogue of digital competences is the DIGCOMP model, containing the catalogue of base competences: IT and information .

DIGCOMP - The Digital Competence Framework

The analysis of past frameworks of digital competences, carried out under the EU DIGCOMP project, enabled to prepare the frameworks of the IT and information competences (*The Digital Competence Framework*) which, in our opinion, contains all areas of competences which guarantee an effective use of hardware and software in the scope of the information and communication technology. This model is based on a synthetic analysis of several previous models of digital competences[12]. The frameworks of the digital competences prepared as part of this project are divided into:

• five general areas: information, communication, creation of content, safety, problem solving (*dimension 1*),

• twenty one competences distinguished in these areas (*dimension 2*) which are subject to evaluation:

- on three levels: basic – average – advanced (*dimension 3*),

- including the examples (*dimension 4*)

- and taking account of applications to specific goals (*dimension 5*)[13].

1. Information

Browsing, searching and filtering of information

Identification, location, search, saving, organization of digital information – depending on importance and needs.

Basic level

I can search the information *online*, using search engines, I know that different search engines can generate different results.

Average level

I can browse for the information on the Internet and search for the information *online*, I can express my own information needs, I can select relevant information among the results.

[12] A. Ferrari, Digital competence in practice: An analysis of frameworks, „JRC Technical Reports", Joint Research Centre for the European Commission, Luxembourg 2012, s. 4.

[13] *Ibidem, s. 5–6.*

Advanced level

I can use a wide range of strategies when browsing and searching for information *online*, I can select and track the obtained information, I know whom to watch on the electronic platforms of information exchange (for example, on micro-blogs).

Examples – knowledge

- Knows different Internet search engines
- Knows which search engines (databases) are appropriate for the acquisition of specific information
- Knows how to search for information by means of various devices and media

Examples – skills

- Is able to use links and read in a non-linear way
- Is able to use filters and agents
- Is able to browse by means of words limiting the number of the obtained results

Examples – attitudes

- Presents an active attitude in respect of searching for information
- Is looking for information necessary for achieving different objectives in life
- Is interested in information systems and their operation

Application for specific goals

- Basic level – I can use a search engine to learn more about the selected type of thermal energy
- Average level – I can find many sources of information on the selected type of thermal energy by introducing the relevant keywords, I can use an advanced search to locate the most appropriate sources of information
- Advanced level – I can find many sources of information on the selected type of thermal energy by means of various browsers and the advanced search, I can use data bases online by related references

Assessment of information

Gathering, processing, understanding and critical assessment of information.

Basic level

I know that not all information in the Internet is reliable.

Average level

I can compare different sources of information.

Advanced level

I am critical in respect of information, I can check and assess its validity and credibility.

Examples – knowledge

- Knows how to assess an analyse the obtained information
- Knows how to assess the content of media messages
- Knows how to assess the validity of messages found online or in the media and how to interpret it

Examples – skills

- Is able to deal with abundance of information
- Estimates usefulness, relevance, accuracy and completeness of information
- Differentiates the information coming from reliable and unreliable sources

Examples – attitudes

- Is aware of the fact that not all the information can be found online
- Is critical in respect of information found online
- Is aware that in spite of globalization some countries are more represented on the Internet than others

Application for specific goals

- Basic level – I found the information on of the society in the 16th century, coming from various sources, but I am not sure how to assess their value
- Medium level – I found the information on the society in the 16th century, coming from various sources and I have checked their credibility in the original materials
- Advanced level – I found the information on the society of the 16th century, coming from various sources, I have checked the original source and rejected some of them because their academic origin is unclear, I have checked the details in various sources to ensure their credibility

Storage and searching for the information

Saving and storage of information in order to facilitate the search and organization of information and data.

Basic level

I know how to save files and contents (for example texts, pictures, music, video files and websites). I know how to return to the saved files and contents.

Average level

I know how to save, store and tag the files, contents and information, I have my own strategies of storage of files and contents. I know how to organize the saved files and contents and how to manage them.

Advanced level

I can use different methods and tools of organizing files, contents and information, I can use strategies of downloading contents which were saved by me or other people.

Examples – knowledge

- Knows how to store the information on various devices
- Knows the different media used for storage of information
- Knows that there are different methods of storage of information and is able to choose proper one

Examples – skills

- Arranges and categorises the information depending on the adopted methods
- Uses various methods of categorization of the stored information
- Is able to tag the information

Examples – attitudes

- Knows the importance of creation of backup copies of data
- Understands the meaning of the development of understandable and pragmatic method of data storage
- Is aware of consequences of storage of information in the public and the private format

Application for specific goals

- Basic level – I created notes about solids and saved the text and illustrations on the desktop
- Average level – I created notes about solids and saved them in different formats, in accordingly named folders
- Advanced level – I created notes about solids and saved it in accordingly named folders on the disk and in the Internet (on the network disk), so that the other users had easy access to them and so that I could use these materials as easily

2. Communication

Communication in the network environment, sharing resources with the use of network tools, contact and cooperation with other people via digital media, interaction and participation in communities and networks, intercultural awareness.

Communication with the use of digital tools and applications

Interaction through various digital devices and applications, understanding how the communication in the digital environment proceeds, ability to select the relevant tools of electronic communication, moving between different formats of electronic communication, adaptation of the communication strategy to the needs of the recipients.

Basic level

I can contact other people via the tools of electronic communication (mobile phones, VoIP, chat, e-mail)

Average level

I can use several tools of electronic communication to contact other people, using more advanced functions of these tools.

Advanced level

I am involved in using a wide range of tools of electronic communication (e-mail, chat, blogs, micro blogs, communicators), I can use means of electronic communication, adapting them to the purpose of activities, I can adjust the communication tools to the needs of the recipients, I can receive various kinds of messages.

Examples – knowledge

- Knows how messages and e-mails are stored and displayed
- Knows the functions of several packages of the electronic communication
- Knows the advantages and disadvantages of different communication channels and selects proper ones in a particular communication situation

Examples – skills

- Is able to send an e-mail, SMS, write a blog
- Is able to find and contact other users of the program
- Is able to filter the obtained messages

Examples – attitudes

- Feels confident and comfortable in communication online
- Seems aware of hazards associated with the online communication with strangers
- Is engaged in communication online

Application for specific goals

- Basic – I use the e-mail and mobile phone to contact other people and to determine details of a business trip
- Average – when determining details of a business trip I use mainly the mobile phone, but also the e-mail and VoIP calls, I can initiate the conference call (with a number of people), using VoIP calls
- Advanced – during the travel I use many communication tools (mobile phone, VoIP, chat, e-mail), I can initiate the conference call (with a number of people), using VoIP calls and using various functions (recording of conversation, sharing files and screens), I can maintain conference and moderate its course

Sharing information and resources

Sharing information and resources with others, active attitude towards sharing knowledge, materials, resources and undertaking the role of an intermediary, ability to quote and include new information to the possessed knowledge resource.

Basic level

I can share files and content with others via simple tools (e-mail, sending appendices).

Average level

I can participate in *networking* and network communication, transferring knowledge, contents and information.

Advanced level

I can actively share information, content and resources with others in network communication, work remotely and on platforms dedicated to the online cooperation.

Examples – knowledge

- Knows which content (resources, information) may be made available to the public
- Knows when the source of the given information must be specified
- Knows how to assess the value of sources and information

Examples – skills

- Is able to check the regulations with regard to copyright of the content
- Is able to share network contents (for example by sharing them on social networking sites)
- Is able to make use of the potential of the social media to popularise the results their work

Examples – attitudes

- Assumes active attitude in respect of sharing resources, content and knowledge
- Is aware of regulation with regard to copyright
- Possesses a well-established knowledge and opinion on practices of sharing resources, advantages, disadvantages and limitations of this process

Application for specific goals

- Basic – I share my documents with others in the company, by sending them as appendices to e-mails
- Average – I share my documents with others in the company, by sending them as appendices to e-mails or I share them on platforms of cooperation
- Advanced – I share my documents with others in the company and its environment, adapting strategies of sharing to the circumstances

Civil activity *online*

Participation in the civil life by *online* commitment, seeking circumstances conducive to the development and strengthening of digital competences, awareness of the possibility to use technology for public activity.

Basic level

I know that ICT can be used in access to public services and I use some passively.

Average level

I actively use the basic functionality of the online services (office, hospital, banking, *the e-governance* services).

Advanced level

I participate actively in the online spaces, I know how to engage into civil activities online, I can use many various websites.

Examples – knowledge

- Knows how ICT may be used in commitment in the democratic society (lobbying, petitions, Parliament)
- Knows how ICT and media can support different forms of civic commitment

Examples – skills

- Is able to join important network services depending on the needs and goals
- Is able to find proper associations, networks and social networking websites, corresponding to their own needs and interests
- Is able to use various functionalities of the ICT, media and e-services

Examples – attitudes

- Is aware of the ICT and media potential for the civic commitment
- Critically approaches social media, networking and the online community
- Gets involved in participatory media

Application for specific goals

- Basic level – I sometimes view the websites of trade unions representing my employee interests and read messages included there,
- Average level – I have submitted an *online* application to a trade union, I use e-services, for example *news feed*, I read messages available this way regularly
- Advanced level – I participate actively in creation of resources of the trade union website, I am involved in civil activities (for example I am sending petitions) and I use *online* services

Cooperation with the use of tools

The use of ICT and the mass media in team work, joint creation of knowledge, contents and resources.

Basic level

I can cooperate with others, using limited capabilities of the ICT (for example e-mail).

Average level

I can create and change results of teamwork, using simple *online* work tools.

Advanced level

Often I use tools of digital cooperation, I feel confident in this area, supporting in this way a joint process of creation of resources, contents and the knowledge.

Examples – knowledge

- Knows that the process of cooperation positively affects creation of content

- Knows when cooperation may positively or negatively affect the creation of content
- Knows what the online cooperation dynamics is and what importance is attributed to opinions about its results

Example – skills

- Is able to share (provide and accept) opinions about online work performance
- Is able to work remotely
- Is able to use social media for the purposes related to work

Examples – attitudes

- Gladly shares and cooperates with others
- Is ready be part of a team
- Is looking for new forms of cooperation which not necessarily are based on a face to face work model

Application for specific goals

- Basic level – I know that I can use ICT while working on the financial documents with others in my company
- Average level – I had created a project of a financial document and shared it with other people so that they could add contents and comments
- Advanced level – I had created a project of a financial document and shared it with other people on cloud, so that we could work on it together, I will receive notifications about the changes being made to work simultaneously

Netiquette

The awareness and knowledge of standards binding in the online interactions, the awareness of cultural differences, ability to protect oneself and other people against hazards which may result from communication in the network, ability to develop a strategy of dealing with improper behaviours in the online communication.

Basic level

I know basic standards valid in contacts with others online.

Average level

I know the principles of netiquette and I can use them in my own behaviours.

Advanced level

I can use various aspects of netiquette on various online communication spaces, I have developed strategies of dealing with improper behaviours in the online communication.

Examples – knowledge

- Knows the consequences of own behaviour
- Knows the ethical issues related to the use of digital environment, for example cyber-bullying, exposure to hazardous contents
- Knows that in various cultures are applicable different communication practices

Examples – skills

- Is able to protect oneself and others against hazards resulting from the *online* communication
- Is able to report abuse and hazard
- Knows how to use strategies of dealing with cyber-bullying and improper behaviour *online*

Examples – attitudes

- Abides by the ethical principles related to the use and publishing of information
- Adapts to changing conditions of electronic communication
- Approves and appreciates diversity

Application for specific goals

- Basic level – I know that comments published on the company website should not be offensive
- Average level – I always several times read messages on the company website to be sure that there are no abusive or unethical comments, I can block the capability of adding an abusive or unethical comments to those who publish them
- Advanced level – I know an official material about the ethical practices, I participate in *online* sessions to be kept up-to-date with all new issues which appear, in particular with regard to business and trade

Digital identity management

Creation and shaping the digital identity (one or more) and its management, ability to protect own reputation, ability of data management available through various accounts and applications.

Basic level

I know the advantages and hazards associated with digital identity.

Average level

I can shape my own virtual identity and track my traces on the Internet.

Advanced level

I can manage several virtual identities depending on circumstances and purpose, I can track the information online originating from various websites, developed during the interactions with others, I know how to care about my image online.

Examples – knowledge

- Knows what are benefits of having more than one digital identity
- Understands connection between online and offline world

Examples – skills

- Is able to protect oneself and others against hazards for the image *online*
- Is able to maintain profile corresponding to their own needs
- Is able to track the information left by themselves online

Examples – attitudes

- Is aware of advantages and hazards associated with maintenance of the digital identity
- Is not afraid to share some information about himself/herself online
- Considers various possibilities of presenting his/her image online

Application for specific goals

- Basic level – I know that I can have public profile available on social networking sites devoted to the professional development
- Average level – I have profile in a social networking site which I use for the professional purposes and I include only professional information
- Advanced level – I manage my professional profile and I use network services to monitor progress in the projects that I am involved in

3. Creation of content

Creation of content

Creation of content in different formats, including multimedia, editing and improvement of the content developed independently or by others, creative self-expression through the mass media and the digital technologies.

Basic level

I can create simple digital content (for example text, table, images, audio recordings).

Average level

I can create digital content in different formats, including multimedia (for example text, table, images, audio recordings).

Advanced level

I can create digital content in different formats, on various platforms and in different environments, I can use various digital tools to create the original digital content.

Examples – knowledge

1) Knows that digital content may be created in different formats
2) Knows which programs and applications are used for processing of different types of messages
3) Knows how meaning is assigned by multimedia

Examples – skills

- Is able to use basic packages of software for creating contents in different formats (text, pictures, audio, video)
- Is able to present knowledge, for example in the form of knowledge maps or diagrams, using the new media
- Is able to use various media to creatively express oneself

Examples – attitudes

- Learns new ways of recording of the digital contents
- Appreciates the importance of ICT for the process of learning and creation
- Critically approaches the process of production and consumption of the knowledge via information - communication technology sector

Application for specific goals

- Basic level – I must present my ideas in school and I can, for that purpose, use the new technologies
- Average level – I must present my ideas in school and I can, for that purpose, use appropriate programs, illustrations, video and music, to creatively perform this task
- Advanced level – I must present my ideas in school and I know how to create film, by using text, audio, illustrations and music,

Integration and processing of content

Changing, processing and combining the existing contents in order to create new, original and relevant message.

Basic level

I can introduce the basic changes to the content developed by others.

Average level

I can edit, process and modify contents created by me or by others.

Advanced level

I can connect existing contents to create new messages.

Examples – knowledge

- Knows that resources can be created from diverse and scattered information
- Knows that different databases and resources can be combined and used
- Knows that the reference should be made to the used sources of information

Examples – skills

- Is able to use basic functions used for modifying the contents
- Is able to create presentations of knowledge, for example knowledge map or diagrams, using digital media
- Is able to use proper licenses for disseminating cultural contents

Examples – attitudes

- Critically selects information and resources for further use
- Estimates and values the work of others
- Is aware of existence of digital repositories

Application for specific goals

- Basic level – I can edit my work, introducing a teacher corrections placed in the "track changes" mode
- Average level – during preparation of work I often use materials (illustrations, tables) created by other people, supporting my arguments
- Advanced level – during preparation of work I use software that enables me to post data from existing sources without saving, copying and pasting them

Compliance with copyright and licenses

Understanding the application of copyright and licenses for information and contents.

Basic level

I know that some part of content which I use may be covered by copyright.

Average level

I have basic knowledge about the copyright and intellectual property, I can use selected licenses for contents created by me.

Advanced level

I know how various kinds of licenses affect the information and resources, which I use and which I create.

Examples – knowledge

- Knows the provisions of copyright and law concerning licenses
- Knows that there are different methods of licensing contents created
- Knows what are the differences between the copyright, permitted for use, open licenses and "*copyleft*"

Examples – skills

- Knows how to license results of his/her own work in the digital environment
- Knows, where to find the information of the copyright and licenses

Examples – attitudes

- Assumes the critical attitude towards the legal regulations in the scope of intellectual property
- Is independent and takes responsibility for his/her own choices and behaviour

Application for specific goals

- Basic – I know that some behaviours (for example downloading contents protected by copyright without permission) are illegal
- Average – I realize which the sources used by me are covered by copyright and know how to refer to them
- Advanced – I can use different licenses for materials which I create, I have thoroughly analysed the information available online on the illegal educational practices

Programming

Introduction of settings, programming changes, programming applications, creation of software, programming devices, understanding the programming principles, understanding, what hides under the notion of programming.

Basic level

I can change simple functions of software and applications (basic settings).

Average level

I can introduce some changes for software and applications (advanced settings, basic changes in programmes).

Advanced level

I can introduce changes in (open) software, to change, modify, write the source code, I can code and program in several languages, I know and I understand the functions in programmes.

Examples – knowledge

- Knows how the digital system works
- Knows how the software works
- Knows how the technological ecosystem works

Examples – skills

- Is able to create complex models, simulations and visualizations of reality, using the digital information
- Is able to program and code digital devices
- Is able to change basic settings

Examples – attitudes

- Is aware that he/she may introduce changes to most of the existing software
- Is interested in the potential of ICT for programming and creation

Application for specific goals

- Basic – I can change styles of formatting in the my text editor
- Average – I can use open software to create my own library of references
- Advanced – I can create new, software and adjust it to my needs

4. Safety

Own safety, protection of data, protection of the network image, safety settings, safe and balanced use of the information - communication technology sector.

Tools used for protection

Protection of own devices, awareness of online hazards and dangers, knowledge of safety settings.

Basic level

I can implement the basic activities to protect my device (for example use anti-virus software, passwords).

Average level

I know how to protect my digital devices, I develop the ways of taking care of safety known to me.

Advanced level

Frequently, I develop the ways of taking care of safety known to me, I can behave when the device is somehow endangered.

Examples – knowledge

- Knows that there is many risks associated with using information - communication technologies
- Knows what are the valid ways of avoiding risks associated with using information - communication technologies
- Understands the risks related to use of the Internet

Examples – skills

- Is able to install an antivirus program
- Is able to protect various devices against hazards

Examples – attitudes

- Has positive, but at the same time, realistic attitude to benefits and hazards associated with the new technologies

Examples of specific applications,

- Basic – I have strong password on a computer at work, therefore only I use it
- Average – installing software downloaded from the network, I use the websites where I can scan the file online
- Advanced – using services in cloud, I encrypt files containing the most confidential work results

Personal data protection

Understanding of the service providing conditions, active personal data protection, respect of personal data of others, protection against frauds, hazards and violence online.

Basic level

I know that I can share only certain personal information (my or other people) in the network environment.

Average level

I can ensure my and other people safety, I understand general principles of personal data protection and I have the basic knowledge how my data are collected and used.

Advanced level

Frequently, I change the online default privacy settings to increase the level of protection, I have a broad knowledge and appropriate understanding of matters related to the privacy on the Internet, I know how my data are collected and used.

Examples – knowledge

- Knows that many websites use the information about them in advertising communication or less visible channels
- Understands hazards associated with the online identity theft
- Knows how to protect personal data of other people from their surroundings (as an employee, a parent, teacher)

Examples – skills

- Is able to act mindfully in cases related with protection the personal data
- Is able to track information about themselves
- Is able to remove or modify the information about themselves is responsible for

Examples – attitudes

- Is aware of the principles of *online* privacy – own and other people
- Is aware of durability and impact of information posted about themselves *online*
- Critically approaches sharing of information about himself/herself *online*

Application for specific goals

- Basic – I know which information about myself I should not share

- Average– I have an intuitive knowledge on how the information will be stored by the company, therefore I choose an appropriate privacy settings during communication conducted outside
- Advanced – I know how the data are processed in my company and what are the principles concerning privacy, I often check and change my privacy settings, software used for protection of data is updated automatically, in the event of hazard I know whom to contact

Protection of physical and mental health against hazards resulting from the use of information - communication technologies

Avoiding health hazards resulting from using the ICT – for both manual and mental health.

Basic level

I know how to avoid cyber-bullying, I know that new technologies can affect my health negatively, if used improperly.

Average level

I know how to protect myself and others against cyber-bullying, I understand the health risks resulting from using the ICT (from ergonomics to dependence on technology).

Advanced level

I know how to properly use the ICT to avoid hazard to health, I know how to maintain balance between online and offline world.

Examples – knowledge

- Knows, what are the consequences of excessive use of information - communication technologies
- Knows about the addicting aspects of use of information - communication technologies

Examples – skills

- Is able to deal with distraction while working online
- Is able to take actions for own and other people health protection which he/she is responsible for

Examples – attitudes

- Maintains a balanced approach for using information - communication technologies

Application for specific goals

- Basic – I am aware that using ICT may be addictive
- Average – I understand the positive and negative aspects of use of information - communication technology sector

- Advanced – I have read about positive and negative aspects of using ICT and I talked on this topic with others

Environmental Protection

The awareness of the impact of the ICT on the natural environment.

Basic level

I try to save energy.

Average level

I understand positive and negative effects of using the ICT for the natural environment.

Advanced level

I am informed on the impact of the ICT on everyday life, consumption and the natural environment.

Examples – knowledge

- Understands how digital environment works
- Knows the impact of computers and other devices on environment natural

Examples – skills

- Is able to use the ICT, and at the same time not being completely dependent on them
- Knows, how to use the ICT effectively in terms of time, and costs

Examples – attitudes

- Has positive, but realistic attitude to benefits and hazards associated with using information - communication technologies
- Is aware that utilized technological environment may positively or adversely affect various matters, while the result depends on how the ICT is used
- Is aware of the relationship between the ICT and natural environment

Application for specific goals

- Basic – I switch off the computer when leave the office
- Average – I understand that my need to have new devices for work may have effect on the environment
- Advanced – I am looking for the best available devices and the best available software, before I ask for a new the computer to work

5. Problem solving

Determination of the needs and digital resources necessary for undertaking conscious decisions of selecting the most appropriate digital tools depending on the objectives and demand, conceptual problem solving by means of digital resources, creative use of technologies, solving technical problems, increasing own competences and competences of other people.

Technical problems solving

Identification of technical problems and solving them (from minor problems to complex difficulties).

Basic level

Is able to ask for technical support when the ICT does not operate according to the expectations or when uses new programs, devices or applications.

Average level

Is able to solve simple problems when the ICT does not operate according to the expectations.

Advanced level

Is able to solve complex problems resulting from the use information - communication technologies.

Examples – knowledge

- Knows how the computer or other device is built
- Knows where to seek solutions to problems
- Knows what are the sources of information and where to find assistance in solving simple problems with the information and communication technologies

Examples – skills

- Is able to use a balanced set of digital and analogue technologies in different situations and is able to change it dynamically over time
- Is able to solve the technical problem or make a decision, what to do when the ICT does not operate according to the expectations

Examples – attitudes

- Assumes active attitude in respect of problem solving
- Gladly uses advices in the course of problem solving
- Reaches for an alternative solutions in the event when something must be done and the problem with the ICT cannot be solved

Application for specific goals

- Basic – I can explain the problem to the person working in the technical assistance when something does not work
- Average – I can solved about a half of any emerging problems with the ICT, relying on my own experience or using the technical assistance
- Advanced – there are few many problems which I cannot solve by myself, but when such appear, I contact technical assistance

Recognition of the needs and tools necessary for problem solving

Assessment of own needs with regard to the resources, tools and competences development, ability to adjust the needs and possible solutions, adjustment of tools to individual needs, critical assessment of possible solutions and digital tools.

Basic level

Is able to use the ICT in solving problems to a limited extent, is able to select digital tools to perform routine tasks.

Average level

Understands restrictions of the ICT, is able to solve non-standard problems, using the capabilities of the ICT, is able to choose an appropriate tool depending on the purpose and assess the effects of its use.

Advanced level

Is able to take conscious decisions on selecting tools, devices, applications, software when executing new tasks, is aware of the development of the ICT, understands how the ICT operate, critically assesses the application of different tools for achieving various objectives and implementation of various tasks.

Examples – knowledge

- Knows that the devices and digital resources have both potential and restrictions
- Knows what tasks can be performed with the use of the information - communication technologies
- Knows the most appropriate and the most popular programs and devices used by others

Examples – skills

- Is able to make conscious decisions on whether and how to use the ICT in performing specific tasks
- Is able to select the best technological solution for a given problem

Examples – attitudes

- Is interested in the new technologies
- Critically assesses the possible solutions using information and communication technologies

Application for specific goals

- Basic – I use network resources to perform some (routine) tasks
- Average – when starting to implement a new or an unfinished defined task, I can choose the best solution among several possibilities with regard to tools or technology
- Advanced – working, I choose and order technologies or tools most appropriate for satisfying my professional needs, among several products I can choose such, which will be the best for my needs, I plan and monitor the undertaken actions

Innovation and creative use of technology

Innovative approach to the ICT, active participation in a joint creation of new technologies and multimedia, self-expression with the use of digital media, creation of knowledge and problem solving with the support of the information - communication technologies.

Basic level

I know that ICT may be used creatively and, to some extent, I can use them this way.

Average level

I can creatively use the ICT in solving problems, I am involved when developing innovative and creative solutions, but I am not a leader.

Advanced level

I can solve conceptual problems, using technologies and the digital tools, I participate in creating of knowledge via ICT, I can take part in innovative activities and actively co-operate with others when developing innovative and creative solutions.

Examples – knowledge

- Uses sustainable set of digital and analogue solutions, reaching for various possibilities of solutions to a problem
- Knows how to solve the problem, using the digital tools
- Knows how to find a relevant information useful for solving a given problem

Examples – skills

- Is able to use the potential of the ICT in the process of presenting and problem solving
- Is able to find a proper solution of a problem, using the potential of the information - communication technologies

Examples – attitudes

- Gladly becomes familiar with possibilities offered by information - communication technologies

- Assumes active attitude when searching for solutions to problems
- Assumes active attitude during the joint problem solving

Application for specific goals

- Basic – I can use simple software in my company in a manner going beyond the basic application
- Average – I can use the software supporting management projects (to plan and to organize resources and to manage them), I can use software and the applications supporting visualization and organization of complex tasks
- Advanced – I know that ICT can help me to better understand how to manage resources (human, financial, time) and I use specialized software to plan the future of my team and the project

Recognition of shortages with regard to competences

Understanding which areas of their own competences require development, supporting other people in development of their competences, being up to date with the development of the information - communication technologies.

Basic level

I have the basic knowledge, but I am aware of my limitations in the use of the information-communication technologies.

Average level

I know how to learn new applications of the information-communication technologies.

Advanced level

Frequently, I increase my digital competences.

Examples – knowledge

- Knows how to increase the scope of the ICT, expressed as the aspect of globalization and networking
- Knows how the ICT are developed for what purposes and who is working on their development
- Has an expert knowledge about the key technological solutions used in the field of their interests

Examples – skills

- Is able to raise his/her digital competences
- Is able to effectively manage the process of gaining competences by themselves in the use of the information - communication technologies
- Is able to acquire new knowledge about ICT and integrate it with possessed competences

Examples – attitudes

- Is positively disposed to learning about increasing possibilities of the information-communication technologies
- Develops digital competences, according to their own needs
- Has knowledge about the most important tendencies regarding the ICT, even if they do not use them

Application for specific goals

- Basic – I know that in my company the employees support their work by the ICT in a manner which I do not use
- Average – I know that there are online courses, during which I will know how to support my work with information and communication technologies
- Advanced – it is expected that at least once a year I will participate in a good course, during which I'll learn how to better use the ICT in my work

7. Detailed issues

As a supplement of the model and the framework catalogue of digital competences, we present three detailed issues, deserving special attention in the process of development of digital competences. These issues are as follows: safety in using digital technologies, competences focused on the use of e-services and the special character of use by people with various kinds of limitations and disabilities.

In each of the three cases the critical importance is attributed to the connection of competence development with other aspects of building of information society. Overcoming the challenges in these three areas, requires for example simultaneous supply of relevant solutions and services, creation of the legal regulations or even providing the relevant equipment.

7.1. Digital competences and the broadband Internet infrastructure

As it has already been noted, one of the key elements of the framework catalogue of digital competences are the basic hardware competences, namely the IT competences. They are connected not only with the use of equipment and software but also the Internet itself, together with the basic network tools (such as browser, search engine, communicators or postal programs).

Since having access to the Internet is a necessary condition for the use of digital technologies, competences related to having a relevant access to the network have significant meaning. In the case of people not having a permanent access to the Internet e.g. at home or at work, the basic competence is the ability to obtain access. The point is, e.g. being aware that public institutions (libraries, commune offices, etc.) provide the access to the Internet.

Another competence is the ability to obtain access, with parameters relevant to own needs, for own household, organization or company. Competences include understanding of parameters of access to the Internet (in particular the connection capacity) and the benefits related to the Internet. Subsequently, it is the ability to select appropriate capacity of the connection; the ability to select different forms of access (e.g. access from the cable operator, mobile operator, etc.) Further necessary competences are of consumer character and include the ability to evaluate which offer is the most beneficial. Significant skills also include the ability to test the flow capacity and to solve the basic problems with the Internet connection.

These competences are particularly important for public institutions, both in practical aspect - handling of technology - and in strategic one - providing the institutions relevant broadband access. Nowadays, many institutions, such as schools, libraries, cultural centres, do not have an appropriate quality of the connection corresponding to their needs. It's a matter of both the suitable availability offer, costs and awareness of the decision-makers.

Bearing in mind the growth in the use of the broadband Internet as well as the increase in demand for such services not only the digital competences should be taken care of, but also the supply side. The broadband service providers should provide the clear information on available broadband links, help customers to make a conscious choice of the service and to support the actions aimed at popularization of use of the Internet (including the broadband technology).

7.2.Safety in using digital technologies

Safety of each person using the Internet depends not only on the person's knowledge, competences and watchfulness, but also on the general safety level of services used by and the attention paid to the safety of other users of the Internet.

The gradual replacement of traditional services by the digital ones is particularly noticeable in each age group. For people who have not had any contact with the new technologies, it happens to be a particularly difficult change requiring not only obtaining of new skills and knowledge, but also understanding, often completely different methods of functioning of these technologies.

The popularization of use of new digital technologies for such activities as the use of the services of public administration bodies and commercial services means more information about us being available online, often the personal data and even sensitive data (e.g. information about health). The popularity of commercial services (e.g. purchases on the Internet, online banking) and the websites offering personal development opportunities and social communication (social networking, dating websites) makes it impossible to simply limit the catalogue of digital competences to skills in operation of the most popular services and tools that change continuously.

Moving the management of such key areas as finance, information on health or personal relationships to the web, we need to remember that the consequences of loss of control over them are limitless on the Internet (in practice, it is impossible to remove once made available or stolen data), and the advanced protection measures requires more frequent changes than those we are used to in the analogue versions of banking or trade. Such issues as the creation of strong passwords and their management, ability to differentiate between safe and encrypted connections (e.g. of safe SSL connections during transmission of such data as passwords), limited trust in respect of services and messages on the Internet (which may be e.g. phishing attack), the awareness of supervision of the majority of communication channels by the services suppliers (the commonness profiling advertisements and content and tracking activities on the Internet) relate to not one, but all areas of the use of Internet. Combining data in the network is extremely easy therefore protecting the safety of our data and their active management (also at the level of protection of own privacy) is a cross-sectional problem.

When promoting the Internet among the digitally excluded people and supporting them in the use of modern e-services, we need to ensure not only the high level of safety of these services, but what is most important, the skills of the critical evaluation of the Internet situations by those people. Without the awareness of hazards, evaluation of the risks and knowledge about the basic safety principles and the way for them to develop on their own, the people beginning to use the Internet significantly easier than other groups can become the victims of hazards, rather than beneficiaries of the related benefits. These comments also apply to many people already using the Internet who nevertheless do not possess an appropriate knowledge and skills concerning the safe use.

Safe use of this increasing offer requires the acquisition of similar skills and intuitions as principles of a personal hygiene or the limited trust in the road traffic. Unfortunately, the Internet hazards are usually invisible, their consequences postponed over time and possible criminals or causes of problems very often located outside the borders of Poland, and hence beyond its jurisdiction.

For this reason, the digital competences, in particular in the scope of the safe, conscious and critical use of information - communication technologies, also require the legal support including

strengthening of protection of the citizens against the abuse of their data by commercial entities and by the state support of the high standards of data protection by public and private entities.

The digital competences with regard to the safe use of digital technologies can be translated into four major areas which are presented below.

Protection of privacy and image

Depending on the situation and the needs, users should be aware of the differences between private and public communication. This means the ability to assess the situation and the tools used in a given moment and further, making the relevant decision on their use or change of settings (e.g. privacy settings in community portals, using alternative software, blocking of tracking through cookies, resignation from the service whose terms and regulations are unfavourable etc.).

The anonymity and supervision on the Internet

Against all appearances, using the Internet we are less anonymous than on a street. The users should be aware that surveillance of their activity in the network is very simple and quite common. Using the Internet, they should both be able to increase their anonymity depending on the needs as well as to understand its restrictions (e.g. possibility to identify the author through many factors such as places, devices and links used by him). In spite of the frequent perception of virtual life as something separate from activities outside the network, it is a part of our real life and is subject to the same laws, therefore on the Internet the forms of supervision also operate, justified by e.g. combating cybercrime.

Safety of communication, work and transactions

The growing popularity of the digital communication and financial services generates new types of hazards, and thus there are new principles for occupational health and safety on the Internet. The skills of recognition of digital frauds and hazards such as phishing, spam, click-baits are the basis for the everyday contact with the digital information. Apart from them, also we need to take care of appropriate protection of our data (including by means of management and strong passwords), communication (selection of safe communication tools depending on situations) and links (e.g. recognition of safe HTTPS connections for transmission of important data). The Net hazards sometimes have also more individual dimension (e.g. stalking), and dealing with them requires not only technical skills, but also understanding how to respond to such actions.

Addictions and hygiene of using the media

Using the Internet requires not only the acquisition of skills and habits which will increase our safety, but also such which will protect us from the negative psychological consequences, which is accompanied by excessive or irrational use of any technology or forms of spending free time. It is necessary to skilfully evaluate both own practices and to be the support for other people, helping them to watch the signs of possible addiction and to obtain help of a specialist. Negative effects stem from not only the addiction to the network, but also the use of it without the ethical evaluation of our own behaviour as well as that observed in others (e.g. publication of content which may harm someone's image, harassment on the Internet).

7.3. Using e-services

In the detailed objective 5, the Operational Programme Digital Poland includes using the e-services as the key aspect of use of the Internet. Such an approach complies with the assumptions adopted in

the National Development Strategy 2020. According to them, the digital competences and skills for use (demand side) and the services and products online (supply side) should be simultaneously developed. The simultaneous development of supply and demand for the content and network services may potentially create a spiral of positive impacts: the growing number of attractive services encourages citizens to use the Internet, and the growing number of digitally competent citizens is the justification for the development of electronic administration. Assumption of the Strategy can be completed with a simultaneous implementation of activities from the priority axis II: E-administration and open government and the axis of priority III: Digital competences of the society.

Focus on the development of e-competences for using e-services complies with the relational approach. It is assumed that the purpose of the educational process is the transfer of practical skills of application of specific useful public services. This relation is also favourable from the perspective of the development of the e-services, since it persuades the public administration to create solutions in the spirit of the user oriented designing (user-cantered design). Evidence of accepting such an approach can already be seen, as part of works on the guidelines for contests under OPDP carried out by the Monitoring Committee of the program. However, we would like to indicate challenges resulting from solving the issue of development of digital competence and the development of e-administration.

The main challenge is the availability of the relevant e-services, conditioning the possibility of effective implementation of the assumptions of the detailed objective 5. Poland looks relatively well in the EU statistics concerning the development of e-administration. The data from the "9th Benchmark Measurement" from 2010, quoted in the report "Information society in figures 2013", show that 80% of the 20 basic services for public administration is already available online. Poland approaches the EU average in the 4 categories distinguished in the "11th Benchmark Measurement" from 2014. However, more detailed analysis shows that only every third office provides the electronic services and enables to manage at least some of the matters fully electronically. This indicator is particularly low among local administration and communal offices hence at the level on which the citizens most often handle and need contact with the office. The significant symptoms of problems with digitalization of offices are the data concerning possession of plans, programs or strategic documents (90% of offices does not have them) and beliefs that the e-administration improves and accelerates the work of offices (according to 5% of officials). Partial indicator of providing and developing of services of e-administration amounted to 34% (in 2012).

A challenge is also the quality of e-administration services. The proof of problems may be, for instance, the lower index of having the useful website, which amounted to 12% (in 2012). Considering the low level of supply and quality of services, the equally low level of demand is not surprising. In 2014, 27% of Poles declared an online interaction with the public administration and 15% of citizens filled an online form. As we can read in the report "Information society in figures 2013", "The main reason for not using the e-administration is a low level of advancement of electronic services and a modest offer of services".

A practical challenge for programmes of development of e-competences, focused on the use of the e-services, may thus be the availability of relevant services. At this point, the development of competences on the basis of the test services or simulation of the actual services created in the situation of their absence should be avoided. The necessary step is therefore mapping the relevant, existing e-services, corresponding to particular competences from the catalogue. These can be the

services at the national, regional or local level, the latter are particularly desirable. The local e-service should also be mapped throughout the area of the communes subject to projects from measure 3.1 during the phase of preparatory for implementation of trainings (for example during preparing the local strategic papers).

We should also remember that the use of e-services is not a goal in itself, and thus people should not be trained in using the services which are useless for them (e.g. pensioners do not necessarily need the ability to submit a PIT declaration online, even if it is publicly available). Thus, a set of e-services may be also indicated, which may be useful, attractive and at the same time available. It surely includes websites and services offered online by public cultural institutions. Particularly significant is also the mapping of public e-services of large importance in everyday life - related to health, education and so on. Less significant from the point of view of teaching e-competences in the relational model are the e-services allowing the implementation of bureaucratic obligations by citizens.

Lastly, we would like to pay attention to four detailed issues:

- Firstly, the use of e-services is often a relatively advanced competence, especially taking into account the quality of these services (often hindering their understanding and use). Therefore, the program should be built accordingly, which relates to the activities which concern the excluded people and people with minimum previous skills.
- Secondly, a key factor from the point of view of the use of e-services is their availability (accessibility) is the necessary condition for a possibility to use services by many users, regardless of their competences.
- Thirdly from the point of view of the need to conduct this kind of the e-integration aimed at the use of e-services, it is important to create convenient and available in an open manner educational and training materials. It should be an obligatory element of each project creating services of e-administration.
- Fourthly, if possible, the officials and public administration employees should not be the only ones involved in training concerning the e-services. An example may be the inclusion of the librarians in the teaching the use of the online offer of culture institutions.

7.4.The specific character of digital competences of the users with disabilities

Three elements comprise the full participation of people with disabilities in the network society:

1. **specialized equipment and software (assistive technologies),**
2. **competences in using the technology,**
3. **available interfaces and content on the Internet.**

Using the websites requires from some people with disabilities the use of assistive technology. Assistive technologies are solutions compensating the limitations resulting from the disability, for example the screen readers for the blind, magnifying programs for the visually impaired people, special keyboard and mouse for people of motor disability etc. Not all people with disabilities must use the assistive technology, but for a large group they are necessary. Furthermore, their use also forces a certain special character of the method of work, for example using the screen reader forces the work with the use of keyboard.

Digital competences of people with disabilities include apart from standard included in the catalogue also the specific competences. They apply to the use of the assistive technology and selection of the

applications meeting the availability requirements. For this reason, the structure of used software is slightly different than for the general public. Sometimes teaching a specific technical solution to a person with disability will be ineffective or inefficient. The person training such a user should know the assistive technologies and how to work with them, as well as know the methods of communication with people with disability. This applies in particular to deaf people and people with intellectual disability.

The availability of interfaces and contents for the disabled means fulfilling the requirements contained in the specification WCAG 2.0. Without such compliance, the website may be difficult or impossible to be handled by a person with disabilities. Also, the user does not have any impact on the availability of the website, therefore may be excluded from its using despite fulfilment of other conditions, which means having relevant technologies and competences. Exclusion may be total or partial, for example including part of the functions offered by a service. Sometimes it is possible to find a functional replacement for a service, for example the use a mobile version of the same website or finding another website with a similar functionality. However, evaluation of the availability is not a trivial thing and can be done only by a person having the relevant knowledge.