Descriptions of the Competence Areas and Competences in the Digital Literacy Global Framework (DLGF)

Competence areas and Competences*	**Descriptions**
0. Hardware and software operations**	
0.1 Physical operations of digital technologies**	To identify and use the functions and features of the hardware tools and technologies
0.2 Identifying data, information and digital content to operate digital technologies**	To know and understand the data, information, and/or digital content that are needed to operate software tools and technologies
1. Information and data literacy	
1.1 Browsing, searching and filtering data, information and digital content	To articulate information needs, to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies.
1.2 Evaluating data, information and digital content	To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content.
1.3 Managing data, information and digital content	To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment.
2. Communication and collaboration	
2.1 Interacting through digital technologies	To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context.
2.2 Sharing through digital technologies	To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices.
2.3 Engaging in citizenship through digital technologies	To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies.
2.4 Collaborating through digital technologies	To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge.
2.5 Netiquette	To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.
2.6 Managing digital identity	To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.
3. Digital content creation	
3.1 Developing digital content	To create and edit digital content in different formats, to express oneself through digital means.

3.2 Integrating and re-elaborating digital content	To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.
3.3 Copyright and licences	To understand how copyright and licences apply to data, information and digital content.
3.4 Programming	To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.
4. Safety	
4.1 Protecting devices	To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy.
4.2 Protecting personal data and privacy	To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used.
4.3 Protecting health and well-being	To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion.
4.4 Protecting the environment	To be aware of the environmental impact of digital technologies and their use.
5. Problem solving	
5.1 Solving technical problems	To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems).
5.2 Identifying needs and technological responses	To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility).
5.3 Creatively using digital technologies	To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.
5.4 Identifying digital competence gaps	To understand where one’s own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.
5.5 Computational thinking**	To process a computable problem into sequential and logical steps as a solution for human and computer systems.
6. Career-related competences**	
6.1 Operating specialized digital technologies for a particular field**	To identify and use specialized digital tools and technologies for a particular field

6.2 Interpreting data, information and digital content for a particular field**	To understand, analyse and evaluate specialized data, information and digital content for a particular field within a digital environment

* In Competence areas and Competences column, text in bold indicates competence areas, and plain text indicates competences

N.B. The competence areas, competences and their definitions in this table are as defined in the DigComp 2.1 framework except for those indicated by **

Appendix xx **Glossary**

This glossary provides a generic and conceptual vocabulary for key concepts used in DLGF that are independent of technological evolution and appropriate. It presents up-to-date and endorsed definitions for the vocabulary.

Attitude
describes the disposition and mind-sets to act or react to ideas, persons or situations. (Source: European Commission, 2018)

Competence
a combination of knowledge, skills and attitudes. (Source: European Commission, 2018)

Computational thinking
The processing of a computable problem into sequential and logical steps as a solution for human and computer systems. The processing can include the mental tools of problem formulation, logic, data abstraction, solution automation and step ordering, and solution implementing and generalizing.
(Modified from sources: ISTE & CSTA, 2011; IEA, 2018)

Computer literacy
Refers to knowing and the ability to use the hardware and related software features of digital tools intelligibly and in a modest sense. Computer literacy underpins digital literacy and competences.
(Modified from sources: Tobin, 1983; Ala-Mutka, 2011)

Content in different formats
e.g. text document, graphics, images, video, music, multimedia, web-pages stored using a standard file format, 3-D printing. File formats can be either proprietary, free and/or open. See more at: https://en.wikipedia.org/wiki/File_format (Source: DigComp 2.0)

Data
a sequence of one or more symbols given meaning by specific act(s) of interpretation. Data can be analysed or used in an effort to gain knowledge or make decisions. Digital data is represented using the binary number system of ones (1) and zeros (0) as opposed to its analogue representation. Sources: https://en.wikipedia.org/wiki/Data_%28computing%29 http://www.thefreedictionary.com/data (Source: DigComp 2.0)

Digital communication
communication using digital technology. Various modes of communication exist, e.g. synchronous communication (real time communication, e.g. using skype or video chat or Bluetooth) and asynchronous ones (not concurrent communication, e.g. email, forum to send a message, sms) using for example, one to one, one to many, or many to many modes. (Source: DigComp 2.0)

Digital content
any type of content that exists in the form of digital data that are encoded in a machine-

readable format, and can be created, viewed, distributed, modified and stored using computers and digital technologies, e.g. the internet. The content can be either free or pay content. Examples of digital content include: web pages and websites, social media, data and databases, digital audio, such as mp3s, and e-books, digital imagery, digital video, video games, computer programmes and software. (Source: DigComp 2.0)

Digital environment
a context, or a "place", that is enabled by technology and digital devices, often transmitted over the internet, or other digital means, e.g. mobile phone network. Records and evidence of an individual's interaction with a digital environment constitute their digital footprint. In DigComp, the term digital environment is used as a backdrop for digital actions without naming a specific technology or tool. (Source: DigComp 2.0)

Digital literacy
Digital literacy is the ability to define, access, manage, integrate, communicate, evaluate and create information safely and appropriately through digital technologies and networked devices for participation in economic and social life. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy, data literacy and media literacy.

Digital services (public or private)
services that can be delivered through digital communication, e.g. internet, mobile phone network that might include delivery of digital information (e.g. data, content) and/or transactional services. They can be either public or private, e.g. e-government, digital banking services, e-commerce, music services (e.g. Spotify), film/tv services (e.g. Netflix). (Source: DigComp 2.0)

Digital technology
any product that can be used to create, view, distribute, modify, store, retrieve, transmit and receive information electronically in a digital form. For example, personal computers and devices (e.g. a desktop, laptop, netbook, tablet computer, smart phones, PDA with mobile phone facilities, games consoles, media players, e-book readers), digital television, robots. Modified from source: http://www.tutor2u.net/business/ict/intro_what_is_ict.htm (Source: DigComp 2.0)

Digital tools
digital technologies (see: digital technology) used for a given purpose or for carrying out a particular function of information processing, communication, content creation, safety or problem solving. (Source: DigComp 2.0)

Knowledge
composed of the facts and figures, concepts, ideas and theories which are already established and support the understanding of a certain area or subject. (Source: European Commission, 2018)

Privacy policy
the term related to the protection of personal data, for example, how a service provider

collects, stores, protects, discloses, transfers and uses information (data) about its users, what data are collected, etc. (Source: DigComp 2.0)

Problem solving
"an individual's capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious. It includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen" (OECD, 2014). (Source: DigComp 2.0)

Well-being
the term is related to the WHO definition of good health as a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Social well-being refers to the sense of involvement with others and with the communities (e.g. access and use of social capital, social trust, social connectedness and social networks). (Source: DigComp 2.0)

Skills
refers to the ability and capacity to carry out processes and use the existing knowledge to achieve results. (Source: European Commission, 2018)

Social inclusion
the process of improving the terms for individuals and groups to take part in society (by the World Bank). Social inclusion aims to empower poor and marginalized people to take advantage of burgeoning global opportunities. It ensures that people have a voice in decisions which affect their lives and that they enjoy equal access to markets, services and political, social and physical spaces. (Source: DigComp 2.0)

Structured environment
where data resides in a fixed field within a record or file, e.g. relational databases and spreadsheets. (Source: DigComp 2.0)

Technological response/solution
refers to the attempt to use technology (and/or engineering) to solve a problem. (Source: DigComp 2.0)

References

Ala-Mutka, K. (2011). *Mapping Digital Competence: Towards a Conceptual Understanding*. Retrieved from Spain: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=4699

European Commission. (2018). *Proposal for a COUNCIL RECOMMENDATION on Key Competences for Lifelong Learning*. (COM(2018) 24 final, 2018/0008(NLE), {SWD(2018) 14 final}). Brussels Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018DC0024&rid=2

IEA. (2018). THE IEA'S INTERNATIONAL COMPUTER AND INFORMATION LITERACY STUDY (ICILS) 2018.

ISTE, & CSTA. (2011). Operational Definition of Computational Thinking for K-12 Education. In N. S. Foundation (Ed.).

Tobin, C. D. (1983). Developing Computer Literacy. *The Arithmetic Teacher, 30*(6), 22-23, 60.

Vuorikari, R., Punie, Y., Carretero, S., & Van den Brande, L. (2016). *DigComp 2.0: The Digital Competence Framework for Citizens Update Phase 1: The Conceptual Reference Model*. Retrieved from https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework