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# 1 Introduction

This document describes how the ENTELIS+ consortium has developed a competence framework for those supporting the digital inclusion of persons with disabilities and older citizens. The existing Digital Competence Framework for Citizens (DigComp 2.1.) provides some guidance on developing digital competencies of individual learners at different levels. The main ATLEC project competence framework systematically describes the digital competencies of learners with disabilities. The competencies needed by those supporting persons with disabilities in accessing digital environments seem not to be sufficiently described in the literature. As the ENTELIS+ project is based on developing digital skills of persons with disabilities and those supporting them, and relevant training modules were developed, it seemed a necessary additional step to design a coherent competence framework for educators and trainers supporting learners with special needs.

The task was included as an additional task in the ENTELIS+ project, based on the need felt during the project implementation to describe better the competencies needed to deliver the training modules designed in the project and provide the ENTELIS network with additional tools of reference to inform further work. In addition, travel budgets were not fully used in the project due to the pandemic, which allowed the consortium to suggest an amended task list for the work programme and include the development of this competence framework.

The execution of the task has seen the review of eighteen existing competence frameworks. We aimed to build further on other communities' existing work and identify an appropriate format for the ENTELIS+ Trainers Competence Framework (further ETCF). For each existing competence framework, the levels of competence, the areas (domains) of competence and the types of competence have been assessed. The resulting analysis has led to identifying the most relevant competence frameworks for our goals and has determined the final format of the ETCF as described in this deliverable. The result has to be considered preliminary, as the time in the project was not sufficient to implement a validation activity with the partners. Nevertheless, it is expected that the ETCF can guide the training of professionals and volunteers supporting citizens with disabilities to develop digital competencies, independently whether these work in formal or non-formal education, including adult education.



## **1.1 Competence frameworks**

A competence framework is a structured overview of learning outcomes describing levels of competence and allowing the definition of progression in learning<sup>1</sup>.

Competence frameworks typically serve:

- to assess the training needs of professionals or others (volunteers, etc.) delivering work, taking into account already acquired competencies and the tasks and responsibilities related to the role the person fulfils or will fulfil;
- to assess or self-assess the completeness of one's preparation to perform certain tasks with the associated responsibility;
- to inform the development of learning programs, identifying goals and expected learning outcomes.

Competence frameworks typically distinguish between:

- levels of learning, defining the progression systematically in learning;
- areas of learning, identifying the areas where competence is required;
- types of competence, most of the time in Europe classified as knowledge, skills and attitudes.

In some frameworks, scenario's are added, or examples are provided to help the readers better understand the kind of roles, settings or situations where competencies are needed the developers had in mind.

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<sup>1</sup> Ref. ENTELIS, *Taxonomy and glossary*, 2021. [Entelis glossary of terms](#)



## 2 Mapping and gap analysis

The aim of defining the ETCF was double:

1. To highlight what competencies trainers delivering ENTELIS+ training modules are required to have (or need to develop) to fully exploit the training materials.
2. To fill a gap in the systematic description of competencies related to digital education for those working in formal and informal education supporting learners with disabilities developing digital skills.

It has to be noted that a significant number of the target audience members for whom this framework is relevant are employed outside formal education in services that support children, young adults, adults and older adults with disabilities in developing their full potential. This includes developing digital skills, so crucial for participation in the increasingly digitalised society.

### 2.1 Step 1: Collection of relevant existing competency framework

Led by AAATE, the task force for this task consisted of representatives of two universities (EUC and JKU), two service providers (AIAS Bologna and SJOG) and a Rehabilitation and VET provider from Portugal ([CRPG - Centro de Reabilitação Profissional de Gaia](#)) who voluntarily joined the task force following an open call for collaboration issued by AAATE<sup>2</sup>.

As a first step, the task force members were asked to identify relevant competence frameworks they were familiar with and considered potentially relevant for the task. There were no specific limitations in terms of professional roles, target groups, or areas of learning. A data collection tool was designed, and partners were asked to motivate their selection.

The following eighteen frameworks or relevant learning outcomes frameworks were considered, although not all in the same measure (*list not in order of relevance*):

1. Digi.Komp Austria
2. ECDL/ICDL European/International Computer Driving Licence
3. International Association of Accessibility Professionals
4. DigComp2.1.
5. ATACP Assistive Technology Applications Certificate Program
6. Assistive Technology Professional (ATP) Certification
7. Technological Pedagogical Content Knowledge (TPACK)

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<sup>2</sup>[Call for collaborative work - Competence framework](#)



8. SIDE Project framework
9. The Framework Catalogue of Digital Competencies
10. Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)
11. Digital Literacy for All Learners
12. Digital Literacy in the context of Special Education Needs and Disabilities (SEND) Microsoft,
13. ATLEC Competence framework for ICT-AT Trainers
14. ATLEC ICT-AT competence framework for learners with disabilities
15. DigCompEdu
16. INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies
17. ITU Academy - Digital Skills Assessment Guidebook
18. The University of Edinburgh Digital Skills Framework

The detailed list of existing competence frameworks used for the initial mapping exercise is available in Appendix I. However, it is important to keep in mind that the mapping exercise's aim was not to systematically search for all existing competence frameworks. Instead, to identify significant ones relevant to the digital skills development of persons with disabilities, which could guide us on the development of the ETCF.

## **2.2 Step 2: Assessment of structural elements**

The task force developed a template to assess and describe for the most relevant competence frameworks how they addressed the use of elements providing structure, such as:

- Level of competence (e.g. beginner, expert, etc. )
- Areas (domains) of competence (e.g. assessment of training needs, accessibility, assistive technology (AT), user strategies, different disabilities, etc.)
- Types of competence (e.g. knowledge, skills, attitudes)
- Areas of application (e.g. formal or non-formal education, including adult education and target group)

The resulting overview is included in Annex II.

### **2.2.1 Levels**

Most competence frameworks distinguish between levels with different terminology such as:



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- Base – Standard – Advanced
- Basic – Average – Advanced
- Foundation – Intermediate – Advanced
- Waystage – Average – Advanced

Competence frameworks inspired by the European Qualifications Framework (e.g. DigComp2.1.) tend to distinguish between 8 levels. Others acknowledge 3 or 4 levels. Finally, some are targeting a single, generic, level.

Progression is often based on Bloom's taxonomy.

Conclusion: There is no standard way to define levels in making a competence framework. Most of the time, the choice is made based on practical reasons or reasons of compatibility with other tools.

## **2.2.2 Areas (domains) of competencies**

The areas of competence identified are significantly different between the various frameworks examined and range from very technical digital competencies to more comprehensive personal outcomes such as leadership and self-confidence. The exact definition of the required competencies depends on the profile, role and responsibilities of the person involved.

Based on our analysis of the existing relevant competence frameworks, the following areas can be distinguished:

- Pedagogical competencies and training skills;
- Competencies related to disability and particular needs of learners with disabilities in specific settings;
- Technical skills, such as the mastering of hard and software in the domains of accessibility and assistive technology;
- Competencies related to application areas of digital skills, such as education, employment, communication, social participation.

Conclusion: The areas of competence needed for the development of ETCF should be an appropriate mix of the areas identified, given by the ENTELIS+ training materials, areas identified in the examined frameworks and considered relevant and the experience and expertise of the project partners involved.



### **2.2.3 Types of competencies**

The types of competencies in some frameworks refer to the classical distinction between Knowledge, Skills and Competencies, the latter category during the last decades very often redefined as “personal outcomes” or “attitudes”.

Others follow a classification closer to the areas of competence, but that take as a starting point the teaching process: Engagement, Resources, Teaching, Assessment, Empowering learners, Facilitation learners’ development (e.g. DigEduComp).

Those focusing specifically on digital skills might distinguish between Functional use, Creative use, Creative production, Participation, Development and Self Actualisation (e.g. The University of Edinburgh Digital Skills Framework).

Conclusion: Increasingly, competence frameworks move away from a traditional way of considering types of competencies, although some European standards distinguish between Knowledge, Skills and Competencies.

### **2.2.4 Specific vs general**

Some of the competence frameworks examined are designed for inclusive settings, others for more generic settings. Some frameworks refer to the competencies of trainers and teachers, others on the competencies of learners with or without disabilities.

Conclusion: There is no standard for the level of detail required to make a competence framework as long as it is functional to the needs of those that might use it.



### 3 Towards the ENTELIS+ Competency Framework

After examining the various existing competence frameworks, the task force has identified in the “DigCompEdu framework” and the “ATLEC competence framework for ICT-AT trainers” the frameworks that came closer to the project’s needs.

The DigCompEdu was chosen because its focus is specifically on the digital competencies that educators and teachers need to have (including knowledge about available digital technologies and how to make effective use of them) to support the development of their students’ digital skills.

The ATLEC framework was chosen because it specifically focuses on the competencies needed for a professional to support and train persons with disabilities to become effective AT users.

The task force took the following decisions:

-To refer to the DigEduComp framework areas for describing the pedagogical competencies, but to adapt them to the specific task of supporting learners with disabilities to develop digital skills.

This involved rephrasing them, as reported in the table below.

DigEduComp framework elements	ENTELIS+ framework elements	
<p><b>Educator’s pedagogic competencies.</b></p> <p>Together these areas explain educators’ digital pedagogic competence, i.e. the digital competencies educators need to foster efficient, inclusive and innovative teaching and learning strategies.</p>	<p><b>4. Assessment</b></p> <ul style="list-style-type: none"> <li>• Assessment strategies</li> <li>• Analysing evidence</li> <li>• Feedback and planning</li> </ul>	<p><b>Assessment of Needs and Barriers</b></p> <ul style="list-style-type: none"> <li>• Identify accessibility and AT use barriers</li> <li>• Identify opportunities for AT use and accessibility</li> </ul>
	<p><b>2. Resources</b></p> <ul style="list-style-type: none"> <li>• Selecting</li> <li>• Creating and modifying</li> <li>• Managing, protecting and sharing</li> </ul>	<p><b>Resource selection and use</b></p> <ul style="list-style-type: none"> <li>• Select</li> <li>• Create &amp; Modify</li> <li>• Share</li> </ul>
	<p><b>3. Teaching and learning</b></p> <ul style="list-style-type: none"> <li>• Teaching</li> <li>• Guidance</li> <li>• Collaborative learning</li> <li>• Self-regulated learning</li> </ul>	<p><b>Inclusive teaching and learning</b></p> <ul style="list-style-type: none"> <li>• Learning Design</li> <li>• Differentiation &amp; Flexibility</li> <li>• Participation</li> </ul>
	<p><b>5. Empowering learners</b></p> <ul style="list-style-type: none"> <li>• Accessibility and inclusion</li> <li>• Differentiation and personalization</li> <li>• Actively engaging learners</li> </ul>	<p><b>Creating inclusive environments</b></p> <ul style="list-style-type: none"> <li>• Co-design</li> <li>• Organisation and Management</li> <li>• Attitudes and Emotions</li> </ul>
<p><b>Learners’ competencies</b></p>	<p><b>6. Facilitating learners’ digital competence</b></p> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> </ul>	<p><b>Promoting learner’s digital competencies</b></p> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> <li>• Communication</li> </ul>

This area details the specific pedagogic competencies required to facilitate students' digital competence.	<ul style="list-style-type: none"><li>• Communication</li><li>• Content creation</li><li>• Safety (responsible use)</li><li>• Problem-solving</li></ul>	<ul style="list-style-type: none"><li>• Content creation</li><li>• Safety (responsible use)</li><li>• Problem-solving</li></ul>
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-To define three progression levels -Core, Intermediate and Advanced- to reflect the wide variety of roles and responsibilities involved in supporting learners with disabilities and where the core is considered fundamental for those in formalised roles supporting persons with disabilities.

-To define proficiency statements for each level and for each area of competence to reflect the expected professional outcomes of those working at a given level.

-To use the term Domains rather than Areas in the final version of the ETCF.

To list for each level and domain competency descriptors, distinguishing between knowledge, skills, and attitudes. "Attitudes" was chosen because of its importance in working with people.

Based on the assessment of the frameworks, input received from ENTELIS+ project partners and the experience of the task force members representing different learning environments, a long list of competence descriptors was drafted by the team members and mapped into the framework, which is reproduced in Section 4.

The task force is aware that the resulting framework is to be considered a first draft that will need to be validated and further refined in follow up projects and practice and with the support of the community of practice. The ENTELIS network itself, particularly its founding members EASPD and AAATE, will guarantee that further efforts are undertaken to consolidate this initial effort.

The two immediate activities foreseen are:

-The implementation of the "Right to Connect" project (2022-2024) (GAP-101049125).

The framework's sharing with the DigComp Community of Practice<sup>3</sup> to gain qualified and expert feedback.

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<sup>3</sup> [DigComp Community of Practice \(DigComp CoP\)](#)



## 4 ENTELIS + Competence framework

### 4.1 Proficiency statements overview

Areas of competencies	Core level	Intermediate level	Advanced level
<b>Assessment of Needs and Barriers</b> <ul style="list-style-type: none"> <li>Identify accessibility and AT use barriers</li> <li>Identify opportunities for AT use and accessibility</li> </ul>	<p>I understand the importance of digital participation for all, and I am aware of the physical, digital, societal and other barriers to digital participation for persons with disabilities</p>	<p>I can identify accessibility challenges for barriers to access and accessibility for the use of technology by persons with disabilities, and I can identify possible solutions</p> <p>I can identify the current level of competencies of the learners in the use of assistive technology and accessibility adaptations they may need for the use of digital technologies.</p>	<p>I can perform a gap analysis of the learners' competencies for the use of assistive technology and implementation of accessibility for digital inclusion</p> <p>I can assess training options and recommend specific training plans for the use of assistive technology and implementation of accessibility for digital inclusion</p>
<b>Resource selection and use</b> <ul style="list-style-type: none"> <li>Select</li> <li>Create &amp; Modify</li> <li>Share</li> </ul>	<p>I am aware of common/mostly used assistive technology and accessibility resources</p>	<p>I can search and identify/select assistive technology and accessibility resources for the particular needs of individual learners.</p> <p>I can set up and configure common/mostly known assistive technology and accessibility resources</p>	<p>I can compare, evaluate and critically select assistive technology and accessibility resources by filtering according to various criteria to respond to variations of possible users' needs.</p> <p>I can implement assistive technology and accessibility resources with a broad range of users and contextualise, individualise and customise them for users. If necessary, I can make some alterations (modify) and new</p>



			developments (create) with existing resources.
<b>Inclusive teaching and learning</b> <ul style="list-style-type: none"> <li>• Learning Design</li> <li>• Differentiation &amp; Flexibility</li> <li>• Participation</li> </ul>	<p>I am aware of the basic principles of differentiation and universal design for learning with the use of technology</p>	<p>I integrate assistive technology and accessibility requirements in learning activities for different users' needs and disabilities.</p> <p>I put each learner's active use of assistive technology and implementation of accessibility adaptations at the centre of the instructional process to develop their digital competencies.</p>	<p>I design the whole learning process based on the principles and guidelines of universal design for learning with the integration of assistive technology and accessibility.</p> <p>I reflect and re-design learning for actively engaging learners in using their assistive technologies and accessibility requirements.</p>
<b>Creating inclusive environments</b> <ul style="list-style-type: none"> <li>• Co-design</li> <li>• Organisation and Management</li> <li>• Attitudes and Emotions</li> </ul>	<p>I am mindful of the social and emotional dynamics in a learning environment and their impact on learning.</p> <p>I use inclusive language and diverse examples across disabilities, cultures, gender.</p>	<p>I organise the learning environment (activities, resources, opportunities for participation, collaboration, etc.) to promote interaction and respect learners' individual needs and characteristics.</p>	<p>I design in collaboration with learners and other stakeholders (parents/carers/professionals) learning experiences for developing digital competencies with the use of personal assistive technologies and implementation of accessibility requirements</p>
<b>Promoting learner's digital competencies</b> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> <li>• Communication</li> <li>• Content creation</li> <li>• Safety (responsible use)</li> <li>• Problem-solving</li> </ul>	<p>I encourage learners to use assistive technologies and look for accessibility requirements when accessing information and communication in digital environments.</p> <p>I encourage learners to look for solutions for technical problems and</p>	<p>I teach learners how to use their assistive technology and make accessibility adaptations, including basic technical problems solutions.</p> <p>I implement learning activities in which learners use assistive technology and implement accessibility requirements accessing information and for</p>	<p>I enable learners to understand their needs for assistive technology and accessibility requirements and request relevant adaptations when selecting or creating content and resources using different media.</p> <p>I enable learners to understand risks and threats in digital environments (e.g. identity</p>

	safety issues in the use of technology	communication/interaction in well defined digital environments.	<p>theft, fraud, stalking, phishing) and appropriately react.</p> <p>I enable learners to participate actively and contribute positively to digital media and media discourse, using multimedia channels for communication and identifying discriminatory language, practices and policies in digital and media environments.</p>
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## 4.2 Core level

CORE LEVEL				
Domains	Proficiency statements	Knowledge	Skills	Attitudes
<p><b>Assessment of Needs and Barriers</b></p> <ul style="list-style-type: none"> <li>Identify accessibility and AT use barriers</li> <li>Identify opportunities for AT use and accessibility</li> </ul>	<p>I understand the importance of digital participation for all, and I am aware of the physical, digital, societal and other barriers to digital participation for persons with disabilities.</p>	<p>I know why it is important that people with disabilities develop digital skills for participation and inclusion.</p> <p>I recognise different barriers to digital inclusion.</p> <p>I am familiar with the most common digital accessibility challenges and the diverse groups who might need</p>	<p>I spot basic accessibility issues and support the search for solutions, including asking for expert advice.</p> <p>I support people with disabilities to use assistive technology to support and develop their independence.</p>	<p>I am convinced about the importance of digital accessibility as an enabler of the digital inclusion of people with disabilities.</p> <p>I am willing to raise awareness among the people I work with, supporting digital inclusion and encouraging them to self-advocate their rights while also ensuring that the</p>

		<p>support and training to access assistive technology.</p> <p>I have a working knowledge and comprehensive understanding of assistive solutions: hardware, software, and practices that allow persons with disabilities equal access to inclusive digital environments.</p> <p>I have some knowledge of accessibility legislation and other policy frameworks, including Human Rights and the United Nations Convention on the Rights of People with Disabilities and the articles that advocate for digital inclusion, accessibility and the use of assistive technology.</p> <p>I have some knowledge of the rehabilitation, educational and social services that people with disabilities typically refer to, especially those relevant for AT provision and digital skills development</p>		<p>organisation and I support them.</p>
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<p><b>Resource selection and use</b></p> <ul style="list-style-type: none"> <li>• Select</li> <li>• Create &amp; Modify</li> <li>• Share</li> </ul>	<p>I am aware of common/mostly used assistive technology and accessibility resources.</p>	<p>I am familiar with the most commonly used content creation software tools, digital platforms and media, and I know how to use them for effective communication.</p> <p>I am aware of the various assistive technologies available and software to identify digital accessible content.</p> <p>I know some effective best practices and current issues in the field of accessibility and user-centred approaches, including adaptations and modifications of products and environments that enable people to improve their digital activity and participation.</p>	<p>I critically evaluate the appropriateness of the teaching material I use regarding its accessibility.</p> <p>I create learning materials for learners with disabilities taking into account basic accessibility requirements.</p> <p>I create with some guidance learning materials to support learners with disabilities to build their capacity to use assistive technology.</p> <p>I interact with ICT-AT technicians and others for expert advice, personalised devices, and accessibility solutions.</p> <p>I select and create training materials that support others to understand digital accessibility challenges.</p>	<p>I am attentive to different needs in supporting learners with disabilities.</p> <p>I am willing to raise awareness among the learners I support about assistive technology and accessibility, understand their rights, and build their capacity to self-advocate.</p> <p>I will support digital inclusion by enabling assistive technology trials that the organisation and I support.</p> <p>I am willing to build the capacity of others to understand digital accessibility to support inclusion.</p>
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<p><b>Inclusive teaching and learning</b></p> <ul style="list-style-type: none"> <li>• Learning Design</li> <li>• Differentiation &amp; Flexibility</li> <li>• Participation</li> </ul>	<p>I am aware of the basic principles of differentiation and universal design for learning using technology.</p>	<p>I understand the basics of education and learning processes, and I am aware of the reasons for a learner-centred and flexible approach.</p> <p>I am aware of the importance of involving all learners in the learning process and valuing their contribution for all.</p>	<p>I adapt the training materials I use to the specific needs of each learner.</p>	<p>I am open to individual and flexible approaches to learning.</p>
<p><b>Creating inclusive environments</b></p> <ul style="list-style-type: none"> <li>• Co-design</li> <li>• Organisation and Management</li> <li>• Attitudes and Emotions</li> </ul>	<p>I am mindful of the social and emotional dynamics in a learning environment and their impact on learning.</p> <p>I use inclusive language and diverse examples across disabilities, cultures, gender.</p>	<p>I am aware of the importance of co-design in developing learning activities and interactive and collaborative approaches to teaching and learning.</p>	<p>I create inclusive learning environments with the involvement of the learners.</p> <p>I create learning materials that stimulate the learner's active participation in the learning process.</p>	<p>I demonstrate empathy, involvement and motivation in dealing with learners with disabilities.</p> <p>I seek to raise awareness among the people I support in digital accessibility and inclusion, encouraging them to use assistive technology to facilitate independence.</p>

<p><b>Promoting learner's digital competencies</b></p> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> <li>• Communication</li> <li>• Content creation</li> <li>• Safety (responsible use)</li> <li>• Problem-solving</li> </ul>	<p>I encourage learners to use assistive technologies and look for accessibility requirements when accessing information and communication in digital environments.</p> <p>I encourage learners to look for solutions for technical problems and safety issues in the use of technology</p>	<p>I am aware of the importance of having good digital skills and their impact on success in education, employment and social networking.</p> <p>I am aware of having good digital skills in self-perception as a valued member of the digital society.</p> <p>I have good knowledge about the mechanisms involved in interpersonal and mass communication.</p> <p>I know the importance of using appropriate means and technologies, including assistive technologies, for content creation and effective communication.</p> <p>I know about the role of the information and media industry and the need to select and interpret information critically.</p> <p>I am aware of the challenges for learners with less experience to critically select and elaborate media content.</p> <p>I am aware of the importance of effective media use by persons with</p>	<p>I am able, with some guidance, to support the learners with disabilities to effectively use programmes for producing text documents, emails, text and voice messages, audiovisual productions.</p>	<p>I value co-creation, and I am willing to learn with my learners.</p>
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		<p>disabilities for their participation and self-advocacy.</p> <p>I am aware of safety risks related to internet use and social media in particular.</p> <p>I am aware of the challenges for persons with intellectual disabilities to participate effectively in social media.</p>		
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### 4.3 Intermediate level

INTERMEDIATE				
Domains	Proficiency statements	Knowledge	Skills	Attitudes
<b>Assessment of Needs and Barriers</b> <ul style="list-style-type: none"> <li>Identify accessibility and AT use barriers</li> <li>Identify opportunities for AT use and accessibility</li> </ul>	<p>I can identify accessibility challenges for barriers to access and accessibility for the use of technology by persons with disabilities, and I can identify possible solutions.</p> <p>I can identify the current level of competencies of the learners in the use of assistive technology and accessibility adaptations they may need for the use of digital technologies.</p>	<p>I have a broad theoretical and practical knowledge in the ICT, e-accessibility, and ICT-AT field</p> <p>I can describe barriers to digital inclusion</p> <p>I have a working foundation of knowledge and understanding of ICT-AT, including hardware, software, and practices that allow persons with disabilities equal access and create inclusive environments.</p> <p>I have a broad knowledge of the legislation and standards at both an EU and Local level.</p> <p>I know how to differentiate between the legislation to</p>	<p>I support learners with disabilities to identify personal goals in unlocking their potential in digital participation and learning pathways to reach those goals.</p> <p>I carry out training needs assessments addressing basic accessibility issues and support the application of an appropriate Assistive Technology Assessment model.</p> <p>I determine whether learners can effectively implement their assistive technology and accessibility requirements.</p>	<p>I am motivated to ensure the education and learning of people with disabilities.</p> <p>I am motivated to foster learners' active use of accessible digital technologies.</p> <p>I seek to work effectively with disabled people, families, and professionals.</p> <p>I recognise the importance of digital accessibility in addressing inclusion.</p> <p>I continuously seek to maintain and update my working knowledge of digital accessibility and emerging technology to enhance my skills.</p>

		support people with disabilities in different areas of their life.		I appreciate and respond to the training needs of others to understand digital accessibility.
<p><b>Resource selection and use</b></p> <ul style="list-style-type: none"> <li>• Select</li> <li>• Create &amp; Modify</li> <li>• Share</li> </ul>	<p>I can search and identify/select assistive technology and accessibility resources for the particular needs of individual learners.</p> <p>I can set up and configure common/mostly known assistive technology and accessibility resources</p>	<p>I know the requirements to ensure content will be produced to be accessible for all regardless of disabilities.</p> <p>I have good knowledge of the technologies available to engage with digital accessibility and build the capacity of the people I support to find the supports to match their needs.</p> <p>I know reliable sources of information about ICT-AT solutions at a local and national level.</p> <p>I am aware of funding mechanisms.</p>	<p>I select and integrate multidisciplinary knowledge elements from different sources and technical and non-technical resources to create personalised learning programmes.</p> <p>I anticipate accessibility issues in learning pathways and identify possible solutions.</p> <p>I effectively manage the set-up and implementation of AT and accessibility solutions for and during the learning process.</p> <p>I apply my breadth of knowledge of emerging technology trends to allow for forward-looking learning programmes.</p>	<p>I value and address the need for accessible documentation and websites and strive to ensure I follow the guidelines set out.</p> <p>I continue my competency development in digital accessibility to be familiar with new devices and software available to develop the digital skills of others.</p> <p>I continuously seek to maintain and update my working knowledge of emerging technology to enhance my skills.</p>

<p><b>Inclusive teaching and learning</b></p> <ul style="list-style-type: none"> <li>• Learning Design</li> <li>• Differentiation &amp; Flexibility</li> <li>• Participation</li> </ul>	<p>I integrate assistive technology and accessibility requirements in learning activities for different users' needs and disabilities.</p> <p>I put each learner's active use of assistive technology and implementation of accessibility adaptations at the centre of the instructional process to develop their digital competencies.</p>	<p>I know the various strategies and approaches to ensure teaching and learning will be accessible regardless of disabilities.</p> <p>I know the requirements, including universal learning design, to ensure content is produced that is accessible for all regardless of disabilities.</p> <p>I know various devices and software available to foster digital accessibility, and that can help me design learning programmes that allow the participation of all.</p>	<p>I develop personalised learning programmes that are responsive to the needs and context identified.</p> <p>I address fundamental accessibility issues by applying supportive accessibility amendments to ensure that all can access the information.</p> <p>I apply strategies for digital participation pertinent to specific groups of persons with disabilities</p> <p>I anticipate the integration of assistive technology in the learning process.</p>	<p>I demonstrate initiative in managing training processes to develop an awareness of the benefits of developing digital competencies.</p> <p>I always seek to plan activities to reflect the importance of accessibility in ensuring the digital inclusion of people with disabilities.</p> <p>I seek to work effectively independently, and as part of a multi-disciplinary team including disabled people, families, professionals.</p> <p>I plan activities to reflect the importance of accessibility in ensuring digital inclusion.</p> <p>I value working effectively with disabled people, families, and professionals to deliver inclusive approaches</p> <p>I am motivated and strive for autonomy in teaching with an understanding of education and learning processes of people with disabilities</p> <p>I seek to be flexible in responding to changing learner needs.</p>
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<p><b>Creating inclusive environments</b></p> <ul style="list-style-type: none"> <li>● Co-design</li> <li>● Organisation and Management</li> <li>● Attitudes and Emotions</li> </ul>	<p>I organise the learning environment (activities, resources, opportunities for participation, collaboration, etc.) to promote interaction and respect learners' individual needs and characteristics.</p>	<p>I know a range of strategies and approaches to ensure the learning process will be accessible for all regardless of disabilities, including universal design for learning and co-design approaches.</p>	<p>With the involvement of the learners, I create inclusive settings where all learners are considered and valued and can participate in the development and implementation of the learning process.</p> <p>I recognise and effectively address the environmental barriers that create exclusion in any educational setting.</p> <p>I address accessibility issues, communicate these clearly, and apply appropriate assistive technology assessment models when needed.</p>	<p>I strive to work effectively with disabled people, families, and professionals to produce shared approaches and strategies for inclusion and learning.</p> <p>I am motivated to ensure a positive learning climate.</p>

<p><b>Promoting learner’s digital competencies</b></p> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> <li>• Communication</li> <li>• Content creation</li> <li>• Safety (responsible use)</li> <li>• Problem-solving</li> </ul>	<p>I teach learners how to use their assistive technology and make accessibility adaptations, including basic technical problems solutions.</p> <p>I implement learning activities in which learners use assistive technology and implement accessibility requirements accessing information and for communication/interaction in well defined digital environments.</p>	<p>I continue my competency development in digital accessibility to be familiar with new devices and software available.</p> <p>I can describe the various devices and software available to engage with digital accessibility and build the capacity of the people I support to find the support to match their needs.</p> <p>I have a working foundation of knowledge and understanding of ICT-AT, including hardware, software, and practices that allow persons with disabilities equal access and create inclusive environments.</p> <p>I know the relationship between good digital skills and success in education, employment and social networking.</p> <p>I have excellent knowledge about the mechanisms involved in interpersonal and</p>	<p>I implement activities that foster all learners’ information and media literacy.</p> <p>I implement individualised learning programmes that are responsive to the needs and context identified, including privacy and security issues.</p> <p>I foster learners’ active use of accessible digital and assistive technologies recognising their need to understand privacy and security issues.</p> <p>I identify accessibility issues and support the application of safe and supportive accessibility amendments to ensure that all can access the information.</p> <p>I monitor and encourage the use of accessibility features in learners’ activities.</p>	<p>I plan activities to reflect the importance of accessibility in ensuring the digital inclusion of people with disabilities.</p> <p>I am motivated to ensure the principles and techniques of universal design support successful engagement with accessible technology</p> <p>I am confident to foster learners’ active use of accessible digital technologies.</p>
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		<p>mass communication and how these can facilitate or obstruct the inclusion of persons with disabilities.</p> <p>I know the importance of using appropriate means and technologies, including assistive technologies, for content creating, effective communication and self-advocacy of persons with disabilities.</p> <p>I know strategies that learners with less experience can use to critically select and elaborate media content.</p> <p>I am aware of safety risks related to internet use and social media in particular.</p> <p>I am aware of the challenges for persons with intellectual disabilities to participate effectively in social media.</p>		
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## 4.4 Advanced level

<b>ADVANCED LEVEL</b>				
<b>Domains</b>	<b>Proficiency statements</b>	<b>Knowledge</b>	<b>Skills</b>	<b>Attitudes</b>
<b>Assessment of Needs and Barriers</b> <ul style="list-style-type: none"> <li>Identify accessibility and AT use barriers</li> <li>Identify opportunities for AT use and accessibility</li> </ul>	<p>I can perform a gap analysis of the learners' competencies for the use of assistive technology and implementation of accessibility for digital inclusion</p> <p>I can assess training options and recommend specific training plans for the use of assistive technology and implementation of accessibility for digital inclusion</p>	<p>I know my responsibility to support the rights of people with disabilities in the area of digital inclusion</p> <p>I know issues in the e-accessibility and ICT-AT field</p> <p>I have in-depth knowledge of the relevant legislation and standards at both an EU and Local level.</p> <p>I know a broad range of personal assistive solutions in their context of use and their expected outcome.</p> <p>I identify accessibility standards relevant to digital content</p> <p>I know the requirements needed to create accessible resources</p>	<p>I can perform a context analysis before designing and implementing learning programmes.</p> <p>I identify both user and organisational needs.</p> <p>I identify the existing competencies of individual learners and compare them with the actual learning objectives of the training.</p> <p>I determine users/ learners particular difficulties in implementing their assistive technology and accessibility requirements in specific digital activities.</p> <p>I identify opportunities for digital empowerment.</p>	<p>I feel frustrated when realising accessibility barriers and inappropriate technology use for persons with disabilities.</p> <p>I am critical of digital barriers in digital applications, websites and services.</p> <p>I am accountable for identifying and supporting the accessibility needs of the people with disabilities and older persons I work with in digital inclusion and universal design.</p> <p>I am eager to listen to learners' expressions of difficulties and barriers concerning digital inclusion.</p> <p>I advocate within my organisation and sector to ensure appropriate</p>

		<p>to support diverse groups who access information through appropriate assistive technology</p> <p>I recognise the elements of an effective infrastructure to implement assistive and accessible technologies.</p> <p>I know the legislative instruments available for people with disabilities to enable their rights</p> <p>I have good knowledge of effective best practices and current issues in accessibility and user-centred approaches, including adaptations and modifications that enable people to improve their quality of life.</p> <p>I know the referral routes, including access to funding as required to address student needs.</p>	<p>I can make recommendations for accommodations and strategies based on integrating social and educational issues.</p> <p>I identify inaccessible content and suggest appropriate remediation strategies.</p> <p>I apply a systematic framework to match user needs to technology within the context.</p> <p>I identify facilitators during the training that respond to personal training needs.</p> <p>I can identify the appropriateness of the solutions suggested for the learner.</p> <p>I can transform emerging technologies into opportunities for learning.</p> <p>I facilitate the engagement of the various stakeholders, including public sector authorities, to support the appropriate accessible and assistive</p>	<p>infrastructure to facilitate successful assistive technology intervention.</p> <p>I advocate for continuous infrastructure improvement to support the implementation and provision of assistive and accessible technology and digital content.</p> <p>I feel accountable and responsible to support the rights of people with disabilities in digital inclusion.</p> <p>I am committed to creating inclusive opportunities using assistive technology and implementing accessibility.</p> <p>I have empathy, involvement and motivation in dealing with learners with disabilities.</p>
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			technology is available for people with disabilities.	
<p><b>Resource selection and use</b></p> <ul style="list-style-type: none"> <li>● Select</li> <li>● Create &amp; Modify</li> <li>● Share</li> </ul>	<p>I can compare, evaluate and critically select assistive technology and accessibility resources by filtering according to various criteria to respond to variations of possible users' needs.</p> <p>I can implement assistive technology and accessibility resources with a broad</p>	<p>I define the accessibility features within the authoring tools I use regularly.</p> <p>I know the AT market well and the main providers and manufacturers in my area and abroad.</p> <p>I know a very broad range of AT and accessibility resources available for various possible users' needs.</p>	<p>I create accessible learning materials to support people with disabilities to understand information.</p> <p>I can search and find information about ICT-AT solutions at the local, national and international levels.</p> <p>I recognise the limitations of assistive technologies in use and seek continuous improvement.</p>	<p>I am committed to selecting and developing the best assistive technology and accessibility solutions for my learners.</p> <p>I critically perceive suggestions for accessibility and assistive technology resources for my learners.</p> <p>I am trustworthy with resources and ideas for assistive technology and accessibility solutions</p>

	<p>range of users, contextualise, individualise and customise them. If necessary, I can make some alterations (modify) and new developments (create) with existing resources.</p>	<p>I define accessibility standards relevant to the selection of digital content.</p> <p>I am aware of the legislation, standards, and policies that support assistive technology.</p> <p>I am updated on new and upgraded AT and accessibility resources.</p> <p>I define the elements of an effective infrastructure to implement assistive and accessible technologies.</p>	<p>I master methods and tools in several areas of accessibility and assistive technologies.</p> <p>I can set criteria for comparing and evaluating existing assistive technology and accessibility resources for a particular use or need. In addition, I observe and identify barriers to digital inclusion.</p> <p>I can justify selecting particular AT and accessibility adaptations for particular settings/users/circumstances.</p> <p>I can make recommendations of existing/off the shelf AT and accessibility adaptations based on the integration of technical, social and educational issues.</p> <p>I can identify different uses/circumstances of application for the same assistive technology resource and accessibility adaptations.</p>	<p>shared by colleagues and other collaborators.</p> <p>I am respectful to copyright issues concerning assistive technology and accessibility software and applications I use with my learners.</p> <p>I seek to ensure that I support everyone to access information by creating accessible digital content and resources.</p> <p>I seek feedback on the accessibility of learning materials.</p> <p>I enjoy sharing resources and ideas with colleagues and collaborators.</p>
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			<p>I identify critical issues during the training related to personal training needs and the appropriateness of the solutions identified for the learner.</p> <p>I implement accessibility standards.</p> <p>I can contextualise the use of AT and accessibility to a particular setting/contexts perform a context analysis before implementing learning programmes.</p> <p>I use tools and techniques within authoring tools to ensure accessible learning materials.</p> <p>I customise a solution to ensure successful implementation.</p> <p>I troubleshoot and resolve major technical issues in setting up and operating assistive technology and accessibility resources.</p>	
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<p><b>Inclusive teaching and learning</b></p> <ul style="list-style-type: none"> <li>• Learning Design</li> <li>• Differentiation &amp; Flexibility</li> <li>• Participation</li> </ul>	<p>I design the whole learning process based on the principles and guidelines of universal design for learning with the integration of assistive technology and accessibility.</p> <p>I reflect and re-design learning for actively engaging learners in using their assistive technologies and accessibility requirements.</p>	<p>I am familiar with universally designed learning objectives for the development of digital learning competencies</p> <p>I know various frameworks and taxonomies of assistive technology and technology-enhanced learning</p>	<p>I can develop individualised training programmes that are responsive to the needs identified.</p> <p>I can critically evaluate the appropriateness of the teaching material I use.</p> <p>I implement all principles of universal design for learning in terms of engagement, representation, action, &amp; expression in all aspects of the learning process and design.</p> <p>I differentiate materials, learning objectives, teaching methodologies and assessment approaches with assistive technology and accessibility requirements for each learner.</p> <p>I easily adapt my approaches concerning learners' requirements and needs during the learning processes.</p> <p>I create opportunities for participation for each learner using individual assistive</p>	<p>I seek feedback on the accessibility of my teaching and learning approaches</p> <p>I value the impact of universal design to support successful engagement with accessible technology.</p> <p>I have an inclusive pedagogy mindset with designing and implementing learning for empowering the digital competencies of my learners</p> <p>I believe that learners' engagement and motivation are core to successful learning processes.</p> <p>I use inclusive and non-discriminatory language and discourse during the learning and instruction processes</p> <p>I feel confident in suggesting particular training paths for specific digital competence development</p>
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			<p>technology and activation of accessibility requirements.</p> <p>I differentiate assessment options/methods for various learners concerning digital competence development.</p>	
<p><b>Creating inclusive environments</b></p> <ul style="list-style-type: none"> <li>• Co-design</li> <li>• Organisation and Management</li> <li>• Attitudes and Emotions</li> </ul>	<p>I design in collaboration with learners and other stakeholders (parents/carers/professionals) learning experiences for developing digital competencies with the use of personal assistive technologies and implementation of accessibility requirements</p>	<p>I know the principles of co-design and learner-centred design with the involvement of learners with disabilities</p>	<p>I adapt learning programmes to the needs and wishes of learners with disabilities.</p> <p>I develop individualised training programmes that are responsive to the needs and context identified.</p> <p>I integrate the aims and objectives of the individualized programs in the whole group/class learning program for inclusive practices.</p> <p>I take the initiative to manage training processes to develop an awareness of the benefits of developing digital competencies.</p> <p>I communicate and involve learners, families and other stakeholders in all phases of the learning process.</p>	<p>I enjoy collaboration and co-teaching during the training programs for developing digital competencies</p> <p>I am committed to involving learners, families and other stakeholders in the process of learning design</p> <p>I am enthusiastic about positive learning outcomes, even when those are not relevant to measurable achievements</p> <p>I perceive learner participation in digital learning and social environments as the most important learning outcome</p> <p>I advocate the use of assistive technology and accessibility as a human right and the vehicle to equality in the digital era</p>

			<p>I can identify the roles of learners, team members, and other stakeholders to implement accessible learning processes successfully.</p> <p>I organize the implementation and use of assistive technology and accessibility adaptations in non-disruptive ways in the learning environment.</p> <p>I manage the set-up, maintenance, upgrades and safety of assistive technology and accessibility applications.</p> <p>I support others to engage and develop accessible and assistive technology. I partner with the communities of practices to ensure the sustainability of robust ecosystems to bridge the digital divide and support inclusion.</p> <p>I regularly review practice and accommodations provided to students.</p>	<p>I consider multi-disciplinarity and collaboration essential for the effective design and implementation of learning programs for developing digital competencies for persons with disabilities</p> <p>I seek ongoing professional development in the area of access and inclusion</p> <p>I am responsible for the design and implementation of inclusive digital competence training programs</p>
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<p><b>Promoting learner’s digital competencies</b></p> <ul style="list-style-type: none"> <li>• Information &amp; media literacy</li> <li>• Communication</li> <li>• Content creation</li> <li>• Safety (responsible use)</li> <li>• Problem-solving</li> </ul>	<p>I enable learners to understand their needs for assistive technology and accessibility requirements and request relevant adaptations when selecting or creating content and resources using different media.</p> <p>I enable learners to understand risks and threats in digital environments (e.g. identity theft, fraud, stalking, phishing) and appropriately react.</p> <p>I enable learners to participate actively and contribute positively to digital media and media discourse, using multimedia channels for communication and identifying discriminatory language, practices and policies in digital and media environments.</p>	<p>I can define the risks and threats in digital environments specific to persons with disabilities.</p> <p>I can define responses to the risks and threats in digital environments specific to persons with disabilities.</p> <p>I know how to use multimedia tools to promote the development of digital skills and effective self-advocacy.</p>	<p>I provide real-life opportunities for learners to practice and develop their digital competencies.</p> <p>I provide real-life opportunities for learners to critically evaluate accessibility and use their assistive technology in digital environments and interactions.</p> <p>I build netiquette in collaboration with the learners of my training program. In addition, I take measures for my learners’ responsible use of technology.</p> <p>I provide opportunities to learners to search, identify and evaluate assistive technology and accessibility resources for their own needs.</p> <p>I integrate digital content development and communication opportunities to facilitate learners responsible use of technology.</p> <p>I create opportunities for learners to identify and solve or seek help for technical issues concerning</p>	<p>I am conscious about the use of inclusive and non-discriminatory language in digital environments</p> <p>I am accountable for the provision of safe and ethical digital learning experiences for my learners</p>
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			<p>assistive technology and accessibility resources</p> <p>I develop learning activities that facilitate learners to manage accessibility risks and threats.</p> <p>I develop learning activities that facilitate learners to manage safety and ethical risks and threats.</p>	
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## ANNEX I – Overview of the competence frameworks examined

Name of the competency framework	Digi.Komp Austria
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Social media, Digital skills for learning, Digital skills for social inclusion, Teaching strategies, Use of specific hard- or software



Year of development	2019
Available language versions	German (GE)
Relevance for our goals	4
Why	Digi Komp, based on the European Cooperation, provides a competence framework for elementary (Digi.Komp4; 10years old), ground (Digi.Komp 8; 14 years old) and middle (digit.Komp.12; 18 years old) school students and also one for teachers (Digi.Komp. P). It is launched and strongly supported by the government and used for quality control and teacher education (Digi Check). More than 2000 schools are members already and use the framework (including educational material publishers!). We (JKU), in cooperation with the Austrian Computer Society, work on recommending and integrating issues related to AT, accessibility and inclusion. The topics are mentioned and part of the framework, but still, there is a need to improve. This is important: IT IS THE LANGUAGE AND CONTEXT IN USE, and this can be expected in several countries. As Digi.komp is based on Digi.comp, we hope activities in most EU countries.
Link (in case the framework is available online)	<a href="#">Digikomp</a>
Please leave your name (and affiliation) in case you want to be included in the list of collaborators.	

Name of the competency framework	ECDL/ICDL European/International Computer Driving Licence
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competence framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Mainstream education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Social media, Digital skills for learning, Digital skills for employment, Use of specific hard- or software
Year of development	Between 2000-2005
Available language versions	English (EN), German (GE), Italian (IT), Greek (GR), Spanish (SP), French (FR), Portuguese (PO), Dutch (DU), Other languages

Relevance for our goals	4
Why	ECDL/ICDL is one of the longest-lasting initiatives to promote digital skills. It is well recognised, supported and used by industry, administration and all kinds of educational fields. It is, first of all, a certification program, but this also provides a well reflected and elaborated competence description. On the other hand, it lacks aspects related to AT, accessibility, and digital inclusion.
Link (in case the framework is available online)	<a href="http://icdleurope">icdleurope</a>



Name of the competency framework	International Association of Accessibility Professionals
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Social media, Digital skills for learning, Digital skills for employment, Digital skills for social inclusion, Knowledge and understanding of special needs, Use of specific hard- or software, Assistive Technology Assessment skills, Accessibility Design, Implementation, Evaluation, Management skills
Year of development	Between 2011-2015
Available language versions	English (EN), German (GE)

Relevance for our goals	4
Why	The IAAP is exclusively focused on Accessibility, therefore on "the other side" of the spectrum where most competence frameworks focus on digital in general. IAAP is well established in the USA and, step by step, enters Europe. German, Swedish, and other translations exist and are promoted towards industry and our field. It provides good and relevant information on the definition of skills, knowledge and competencies for our framework.
Link (in case the framework is available online)	<a href="#">International Association of Accessibility Professionals</a>

Name of the competency framework	DigComp2.1
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes

Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Digital skills for learning, Digital skills for employment, Use of specific hard- or software
Year of development	2019
Available language versions	English (EN)
Relevance for our goals	5
Why	I see this as a core reference for our framework: This framework should include much more on accessibility, AT and inclusion. Our framework should reference and use this widely used and adopted structure/content. The close relation should help in communicating and disseminating. If in close connection, it is a win-win situation: We benefit from an accepted quasi-standard, they benefit from better respecting a social as well as a legal need
Link (in case the framework is available online)	<a href="#">DigComp2.1</a>

Name of the competency framework	ATACP Assistive Technology Applications Certificate Program
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	Digital competencies are never explicitly mentioned, but the framework is relevant (please explain below)

Relevance for the development of the ENTELIS+ competency framework	It is a certificate based on an AT competence framework. It is, of course, more a certificate than only a competence framework, but perhaps a good reference for AT aspects of our competence framework.
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Inclusive education, Adult education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	No
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Knowledge and understanding of special needs, Assistive Technology Assessment skills, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	Between 2000-2005
Available language versions	English (EN)
Relevance for our goals	2
Why	A pure AT driven perspective to the competence framework perhaps helping to come to comprehensive coverage of AT - Accessibility - digital systems and services
Link (in case the framework is available online)	<a href="#">ATACP Assistive Technology Applications Certificate Program</a>



Name of the competency framework	Assistive Technology Professional (ATP) Certification
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	Digital competencies are never explicitly mentioned, but the framework is relevant (please explain below)
Relevance for the development of the ENTELIS+ competency framework	AT focused certification and, therefore, competence framework to reach the expected knowledge, understanding and skills
Areas of education for which this framework is of interest?	Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Inclusive education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Assistive Technology, Knowledge and understanding of special needs, Understanding of training needs, Assistive Technology Assessment skills, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	Between 2000-2005



Available language versions	English (EN)
Relevance for our goals	2
Why	Reference to analyse AT related competencies needed for the framework for comprehensive coverage of AT - Accessibility - digital systems and services
Link (in case the framework is available online)	<a href="#">Assistive Technology Professional (ATP) Certification</a>



Name of the competency framework	Technological Pedagogical Content Knowledge (TPACK)
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	Digital competencies are transversally mentioned in different sections
Relevance for the development of the ENTELIS+ competency framework	Digital Competencies are mentioned, but the framework is not directly connected to learners with disabilities. However, there is literature that makes use of TPACK for teachers professional development and training for the use of technology with learners with disabilities (including digital literacy)
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Social media, Digital skills for learning, Teaching strategies
Year of development	Between 2011-2015
Available language versions	English (EN)



Relevance for our goals	3
Why	It is a valuable framework for developing teacher training frameworks and curricula. It is one of the most known and used frameworks in the field of education and professional development
Link (in case the framework is available online)	<a href="#">Technological Pedagogical Content Knowledge (TPACK)</a>



Name of the competency framework	SIDE Project framework
Whose competencies are described in the framework?	Specifically those of learners with disabilities
Relation to digital competencies?	Digital competencies are a section in the overall framework
Relevance for the development of the ENTELIS+ competency framework	Digital competencies are explicitly mentioned, but the framework is very short and specific to the project's aims and target group: Job search for employment empowerment of deaf young people. However, it may be useful for including deaf culture/issues specific in this proposed work
Areas of education for which this framework is of interest?	Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Social media, Digital skills for employment, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	2018
Available language versions	English (EN), German (GE), Italian (IT), Greek (GR)



Relevance for our goals	4
Why	Though not a complete framework but very specific to the purposes of the particular project, it may be useful for helping us, including deaf culture/issues specific.
Link (in case the framework is available online)	N/A

Name of the competency framework	The Framework Catalogue of Digital Competencies
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Digital skills for learning, Digital skills for employment, Digital skills for social inclusion, Competencies in assessing the learned, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	Between 2011-2015

Available language versions	English (EN)
Relevance for our goals	5
Why	The catalogue contains a wide range of competencies 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 competencies. Section 7.4. The specific nature of digital competencies of the users with disabilities specifically refers to persons with disabilities
Link (in case the framework is available online)	<a href="#">The Framework Catalogue of Digital Competences</a>



Name of the competency framework	Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Social media, Digital skills for learning, Digital skills for employment
Year of development	2019
Available language versions	English (EN)



Relevance for our goals	4
Why	The Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL) is an adaptation and expansion of both the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR) and the Digital Competence Framework for Citizens (DigComp 2.0). It describes what a successful digital literate European citizen must do and understand in a transnational digital environment. Multimodality is an important part of the framework.
Link (in case the framework is available online)	<a href="#">Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)</a>



Name of the competency framework	Digital Literacy for All Learners
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	Digital competencies are transversally mentioned in different sections
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.)
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	No
Please tick all areas of competence that are addressed in the framework	Digital skills for learning, Digital skills for social inclusion
Year of development	Between 2011-2015
Available language versions	English (EN)



Relevance for our goals	1
Why	This project is closely linked to society. Use a method for digital literacy education called demystifying technology: the technique is based on the Critical Interpretive Sociotechnical framework.
Link (in case the framework is available online)	<a href="#">Digital Literacy for All Learners</a>



Name of the competency framework	Digital Literacy in the context of Special Education Needs and Disabilities (SEND), Microsoft
Whose competencies are described in the framework?	Specifically those of learners with disabilities
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Inclusive education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Social media, Digital skills for social inclusion, knowledge and understanding of special needs, Understanding of training needs
Year of development	Between 2011-2015
Available language versions	English (EN)



Relevance for our goals	3
Why	It refers to the impact of technologies on the lives of people with special educational needs or people with disabilities. It explains the Performance scale: attainment targets for pupils with special educational needs.
Link (in case the framework is available online)	<a href="#">Digital Literacy in the context of Special Education Needs and Disabilities (SEND), Microsoft</a>



Name of the competency framework	ATLEC Competence framework for ICT-AT Trainers
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Special needs education, Inclusive education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Knowledge and understanding of special needs, Understanding of training needs, Use of specific hard- or software, Assistive Technology Assessment skills
Year of development	Between 2011-2015
Available language versions	English (EN), Italian (IT), Greek (GR), Dutch (DU)



Relevance for our goals	5
Why	The framework is relevant as it specifically aims to describe the competences needed by those supporting learners with disabilities in developing ICT-AT skills.
Link (in case the framework is available online)	<a href="#">ATLEC Competence framework for ICT-AT Trainers</a>



Name of the competency framework	ATLEC ICT-AT competence framework for learners with disabilities
Whose competencies are described in the framework?	Specifically those of learners with disabilities
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Inclusive education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Social media, Digital skills for learning, Digital skills for employment, Digital skills for social inclusion, Use of specific hard- or software, Assistive Technology Assessment skills, Competencies in the assessment of the learned, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	Between 2011-2015
Available language versions	English (EN), Italian (IT), Greek (GR), Dutch (DU)

Relevance for our goals	5
Why	It is relevant as it systematically describes ICT-AT skills for learners with disabilities highlighting the applicability and opportunities of having the skills.
Link (in case the framework is available online)	<a href="#">ATLEC ICT-AT competence framework for learners with disabilities</a> (Del 3.1. Handbook)



Name of the competency framework	DigCompEdu
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	No
Please tick all areas of competence that are addressed in the framework	Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Digital skills for learning, Digital skills for employment, Teaching strategies, Understanding of training needs, Use of specific hard- or software, Digital skills for teaching
Year of development	2017
Available language versions	English (EN)
Relevance for our goals	4

Why	It is a digital competence framework specifically for teachers, and it describes their needed competencies to effectively integrate digital technologies in their teaching practice for the benefit of their students. Six areas are identified, including "facilitating learners digital competencies" and "teaching and learning". The levels are further described as ranging from curious newcomer to expert pioneer. We can pick some good ideas out of this, especially the structure.
Link (in case the framework is available online)	<a href="#">DigCompEdu</a>



Name of the competency framework	INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Accessibility, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Digital skills for learning, Digital skills for employment, Digital skills for social inclusion, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)
Year of development	2019
Available language versions	Portuguese (PO)



Relevance for our goals	4
Why	Although it is a frame of reference based on DigComp, it is described in a very specific way, easy for everyone to understand, making the process of implementation a little easier. In Portugal, it is the first frame of reference to emerge to be innovative due to its lack of existence and usefulness.
Link (in case the framework is available online)	<a href="#">INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies</a>



Name of the competency framework	ITU Academy - Digital Skills Assessment Guidebook
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Mainstream education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	Yes
Please tick all areas of competence that are addressed in the framework	Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Digital skills for learning, Digital skills for employment
Year of development	2020
Available language versions	English (EN), Spanish (SP), French (FR), Chinese (CH), Other languages, Russian, Arabic



Relevance for our goals	4
Why	This toolkit provides practical information, examples, and step-by-step guidance useful to this project.
Link (in case the framework is available online)	<a href="#">ITU Academy - Digital Skills Assessment Guidebook</a>



Name of the competency framework	The University of Edinburgh Digital Skills Framework
Whose competencies are described in the framework?	No specific target group
Relation to digital competencies?	It is specifically focused on digital competencies
Relevance for the development of the ENTELIS+ competency framework	
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Mainstream education
Does the framework distinguish between levels?	No
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	No
Please tick all areas of competence that are addressed in the framework	Digital skills for learning, Competencies in the assessment of the learned
Year of development	2019
Available language versions	English (EN)
Relevance for our goals	4

Why	They define two roles: Teacher and Learner / Student, and then they describe the digital skills that are important to be present within the competence framework in progress here in Entelis+.
Link (in case the framework is available online)	<a href="#">The University of Edinburgh Digital Skills Framework</a>



Name of the competency framework	Framework to be developed. In CRPG, we haven't implemented a framework, but we hope to do so.
Whose competencies are described in the framework?	Specifically those of teachers (inc. special needs teachers, educators) of learners with disabilities
Relation to digital competencies?	Digital competencies are never explicitly mentioned, but the framework is relevant (please explain below)
Relevance for the development of the ENTELIS+ competency framework	Digitization has already arrived in restaurants, takeaways, virtual clothing stores, and bookstores. In several places, we have contact daily and do our best to make customer service faster and more satisfying. However, how are schools in this context? Students are digital natives and have been in contact with mobile phones and computers since they were small. Therefore, they need good guidelines on how to handle and manage. Despite the information and possibilities that the internet brings, they need to learn to stay focused. The professionals involved in education/training have already been warned about the importance of developing digital skills for teachers in various areas and students.
Areas of education for which this framework is of interest?	Formal education (e.g. schools, vocational training centres, universities, etc.), Non-formal education (e.g. structured courses organised by entities such as companies, associations, NGO's, adult learning in community centres, etc.), Informal education (e.g. totally self-directed learning, learning by doing, learning from peers, etc.), Special needs education, Mainstream education, Inclusive education, Adult education
Does the framework distinguish between levels?	Yes
Does the framework distinguish between areas of learning (e.g. knowledge, skills, attitudes, etc.)	No
Please tick all areas of competence that are addressed in the framework	Accessibility, Assistive Technology, Mainstream devices and platforms (e.g. PC's tablets, smartphones, etc.), Knowledge and understanding of special needs, Teaching strategies, Assistive Technology Assessment skills, Competencies in the assessment of the learned, Personal outcomes beyond performance in digital environments (e.g. self-confidence, communication skills, ability to make choices, wider empowerment, etc.)

Year of development	2021
Available language versions	English (EN)
Relevance for our goals	5
Why	It's our main goal.
Link (in case the framework is available online)	



## ANNEX II – Levels, Areas and Types of competencies in frameworks examined

### Levels

Competence framework	Levels included
Digi.Komp Austria	Four levels of age groups: DigComp 4 (first four years primary), DigComp 8 (till 8th year), DigComp 12 (end of high school) and DigComp P (for teachers); there are no further levels described as all students have to reach the competencies for successful completion; DigComp 12 defines a general informatics level and an advanced elective level; for each level there is a "Digi check" for self-evaluation.
ECDL/ICDL European/International Computer Driving Licence	Modules are defined but no levels in modules: base - standard - advanced; extra competencies: image editing, web editing, CAD, Computing.
International Association of Accessibility Professionals	CPACC (Certified Professional in Accessibility Core Competencies); WAS (Web Accessibility Specialist); CPWA (Certified Professional in Web Accessibility); ADS (Accessible Document Specialist); CPABE (Certified Professional in Accessible Built Environments).  Three levels: associate, advanced, expert.
DigComp2.1	Levels 1 & 2 (Foundation), Levels 3 & 4 (Intermediate), Levels 5 & 6 (Advanced), Levels 7 & 8 (Highly Specialised). The variation between the proficiency within the same stage (e.g. Level 1 - Level 2 in the foundation, etc.) is based on autonomy. Thus, 1=with guidance, 2=autonomy and with guidance where needed, 3=on my own, 4= Independent and according to my needs, 5=guiding others, 6=Able to adapt to others in a complex context, 7=Integrate to contribute to the professional practice

	and to guide others, 8=Propose new ideas and processes to the field. The stages align with Bloom’s taxonomy (remembering, understanding, applying, evaluating, creating).
ATACP Assistive Technology Applications Certificate Program	Levels are not identified. It is a 100-hour requirement of a certificate in AT applications providing 10 Certificates and Continuing education Units.
Assistive Technology Professional (ATP) Certification	No level defined
Technological Pedagogical Content Knowledge (TPACK)	
SIDE Project framework	Levels are identified in terms of Parts: Part 1 includes behavioural competencies, interpersonal skills, proficiencies such as communication skills, conflict resolution and negotiation, personal effectiveness, creative Problem-solving, strategic thinking, team building, team working, influencing skills and leadership skills, language skills; Part 2 includes specific professional competencies related to visual languages and arts.
The Framework Catalogue of Digital Competencies	The catalogue borrows features from other frameworks. In terms of levels, it is based on the DigComp levels identifying: Basic level, Average level and Advanced level. Advanced level is also defined in knowledge, skills, attitudes, and application. For each area, examples are also provided.
Common Framework of Reference for Intercultural Digital Literacies (CFRIDIL)	Three levels. The way stage level signifies a level of awareness for different choices in terms of design, production, interpretation and evaluation in digital contexts. The intermediate level is a halfway level at which one can adequately design, produce, interpret and evaluate digital texts and online communication. Finally, at the proficiency level, one’s design, production, interpretation and evaluation are expected to be more advanced.

Digital Literacy for All Learners	no levels
Digital Literacy in the context of Special Education Needs and Disabilities (SEND)	Based on the performance attainment targets (P scales) and performance descriptors for pupils aged 5 to 16 with special educational needs (SEN). The scale goes from P1 to P8. For example, the performance descriptors for P1-P3 are the same across English, mathematics and science. The descriptions show the range of overall performance that pupils might demonstrate. P scale descriptors P4 to P8 describe pupils' performance in a way that indicates the emergence of skills, knowledge and understanding in each subject.
ATLEC Competence framework for ICT-AT Trainers	<p>General: Broad theoretical and practical knowledge in the ICT and ICT-AT field and demonstrate critical awareness of knowledge issues in the ICT-AT field and at the interface between different disciplines; Technical: Working knowledge and comprehensive understanding of ICT-AT including hardware, software, and practices which allow persons with disabilities equal access and creates the most inclusive environment.</p> <p>Specific: Demonstrable knowledge of the application of ICT-AT strategies pertinent to specific groups of persons with disabilities, of assistive devices, and describe the unique assistive solutions in their context of use and their expected outcome and the AT market.</p>
ATLEC ICT-AT competence framework for learners with disabilities	<p>Access level: for persons with disabilities (and their immediate support network: formal and informal carers, educators) who aim towards having an awareness of the use of personal ICT-AT solutions and very basic skills in using them, where necessary with high levels of support. Foundation level: for persons with disabilities who aim towards having basic knowledge of personal ICT-AT. Intermediate level: for persons with disabilities who aim towards having in-depth knowledge and critical awareness of individual ICT-AT solutions and proficient skills in using these independently to increase their level of activity and participation. Advanced level: for persons with disabilities who aim towards having a wider knowledge of ICT-AT solutions for a wide range of other users to support them appropriately.</p>
DigCompEdu	A1: awareness, A2: exploration, B1: integration, B2: expertise, C1: leadership, C2: innovation. Bloom's revised taxonomy inspired these stages and the logic of their progression. It is widely accepted that this taxonomy explains the subsequent cognitive steps of any learning progress well, from "Remembering" and "Understanding", to "Applying" and "Analysing", and

	<p>finally to “Evaluating” and “Creating”. Levels are linked to the six proficiency levels used by the Common European Framework of Reference for Languages (CEFR).</p>
<p>INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies</p>	<p>Based on DigComp2.1: Levels 1 &amp; 2 (Foundation), Levels 3 &amp; 4 (Intermediate), Levels 5 &amp; 6 (Advanced), Levels 7 &amp; 8 (Highly Specialised). The variation between the proficiency within the same stage (e.g. Level 1 - Level 2 in the foundation, etc.) is based on autonomy. Thus, 1=with guidance, 2=autonomy and with guidance where needed, 3=on my own, 4= Independent and according to my needs, 5=guiding others, 6=Able to adapt to others in a complex context, 7=Integrate to contribute to the professional practice and to guide others, 8=Propose new ideas and processes to the field. The stages align with Bloom taxonomy (remembering, understanding, applying, evaluating, creating).</p>
<p>ITU Academy - Digital Skills Assessment Guidebook</p>	<p>Digital skills might be better understood by classifying them into proficiency levels. ITU’s Digital Skills Toolkit divides skills levels into three categories: basic, intermediate and advanced.</p> <p>Basic digital skills provide the foundation for using ICTs. In some communities, these skills are applied entirely on mobile devices. Elsewhere, mastering basic skills entails interacting with several types of devices. Basic skills include: • Using a keyboard or touchscreen to operate a device • Using software to download apps and create documents • Completing basic online transactions such as making Internet searches, sending and receiving e-mails, filling out a form. These skills may be acquired through formal training, self-teaching, or a peer. Basic skills make it easier for people to communicate with others and access and use public and private services.</p> <p>Intermediate skills enable people to use digital technology in “meaningful and beneficial ways”. A person will need different sets of intermediate skills depending on their goals, needs, and vocation. In addition, as technology changes and grows, the number of skills that fall under “intermediate” continues to evolve and expand. For example, in the recent past, colleagues could only collaborate virtually by passing text back and forth via e-mail; now, work teams can collaborate using video, text and voice on a wide variety of platforms. People generally learn intermediate skills through formal education, peers, or self-study (e.g. online tutorials).</p> <p>Advanced ICT specialists use highly specialized, advanced skills in computer programming, software development, data science and network management. Like intermediate skills, advanced skills and jobs that require them to continue to grow in number and scope. Some of the newer skillsets include • Artificial Intelligence (AI) • Big data • Cybersecurity • Digital</p>

	entrepreneurship • Internet of Things (IoT) • Virtual Reality (VR). People acquire advanced skills most commonly through advanced formal education, but other pathways exist, such as coding boot camps or online training
The University of Edinburgh Digital Skills Framework	Individual Organizational



## Areas

Competence framework	Areas of competency
Digi.Komp Austria	Many but not AT/Accessibility related; small modules on accessibility and AT: <a href="#">Kein Kind ohne digitale Kompetenzen!</a> , <a href="#">digi.kompP - Das Kompetenzmodell</a>
ECDL/ICDL European/International Computer Driving Licence	<p>Workforce: essentials (application, computer and online), office (document, spreadsheet, presentation), good practice (security, collaboration, data protection).</p> <p>Professional: Creative (presentation advanced, document advanced, web editing, web sites, 2D design, 3D design, image edition, multimedia),</p> <p>Entrepreneurial (digital marketing, project planning, eCommerce, CRM systems),</p> <p>Computational (management spreadsheet, financial spreadsheet, data analytics, coding principles, databases),</p> <p>ICT for teachers</p> <p>Insight: Cloud Computing, Internet of Things, Artificial Intelligence, Big Data, Blockchain, Industry 4.0</p> <p>Digital Student: Create (document, presentation, multimedia, collaboration), Compute/Code (spreadsheet, database, computing, robotics), Essentials (computer and online, application, information literacy), smart digital</p> <p>Digital Citizen: remove fears for newcomers (older)</p>

<p>International Association of Accessibility Professionals</p>	<p>CPACC (1) disabilities, 2) accessibility and universal design, and 3) accessibility-related standards, laws, and management strategies),</p> <p>WAS  HTML code. This does not mean writing HTML code.  JavaScript. This does not mean writing JavaScript code.  Usability testing in iOS environments.  Usability testing in Android environments  Usability testing in Windows environments.  Usability testing with multiple forms of assistive technology.  Browser specific assistive technologies.  ARIA.  ATAG.  Understanding of WCAG 2.1 Standards.  Understanding of accessibility best practices.  Web accessibility auditing and remediation.  Understanding the end-user impacts of web accessibility.</p> <p>CPWA based on the above with in-depth technical know-ho</p> <p>ADS (word processing, spreadsheets, presentations, desktop publishing)</p> <p>CPABE  Level 1 - Associate Accessibility Professional  The candidates for Level 1 CPABE may be new to the profession (3-5 years) or have a new focus on accessibility as a design/building professional. While Universal Design is the preferred methodology to ensuring accessible spaces for all, this certification candidate may still be building their universal design knowledge and experience while currently removing barriers to accessibility.  Level 2 - Advanced Accessibility Professional  The candidates for Level 2 CPABE are expected to be established practitioners (5 – 10 years) as accessibility professionals or professionals focusing on Universal Design in their chosen field (architect, engineers, urban planner, etc).</p>
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	<p>Level 3 - Expert Accessibility Professional</p> <p>The candidates for Level 3 CPABE must have completed the CPABE Level II Exam. In addition, they are expected to have a well-established practice of 10+ years as an accessibility professional or professional focusing on Universal Design in their chosen field (architect, engineers, urban planner, etc). In addition, the candidate should demonstrate leadership in accessibility either through the development of policy and standards or through sharing their knowledge and supporting the professional development of other accessibility professionals.</p>
<p>DigComp2.1</p>	<p>The DigComp2.1 distinguishes five different areas (1. Information and data literacy, 2. Communication and collaboration, 3. Digital Content creation, 4. Safety, 5. Problem-solving), which altogether include 21 competencies. Competencies are described per area across the eight different proficiency levels, accompanied with examples of use as scenarios of implementation. Examples provide an idea on the way development of the competencies will support users in employment and learning).</p> <p>Details:</p> <p>21 types of competencies refer to the 5 areas: Competence area 1: Information and data literacy (1.1 Browsing, searching, filtering data, information and digital content, 1.2 Evaluating data, information and digital content, 1.3 Managing data, information and digital content), Competence area 2: Communication and collaboration (2.1 Interacting through digital technologies, 2.2 Sharing through digital technologies, 2.3 Engaging in citizenship through digital technologies, 2.4 Collaborating through digital technologies, 2.5 Netiquette, 2.6 Managing digital identity), Competence area 3: Digital content creation (3.1 Developing digital content, 3.2 Integrating and re-elaborating digital content, 3.3 Copyright and licences, 3.4 Programming), Competence area 4: Safety (4.1 Protecting devices, 4.2 Protecting personal data and privacy, 4.3 Protecting health and well-being, 4.4 Protecting the environment), Competence area 5: Problem-solving (5.1 Solving technical problems, 5.2 Identifying needs and technological responses, 5.3 Creatively using digital technologies, 5.4 Identifying digital competence gaps)</p>
<p>ATACP Assistive Technology Applications Certificate Program</p>	<p>Areas of competence are not specifically identified (at least not available online). The curriculum seems to include areas of competence development for professionals as follows: AT Assessment, AT application in different disability/group categories (Aging, chronic illness, VI and HI, ASD and ID), AAC application, AT implementation in Education, AT</p>

	<p>implementation in Employment, AT Administration). However, the areas are too broad, and the depth of competence development (no levels) required cannot be identified.</p>
<p>Assistive Technology Professional (ATP) Certification</p>	<p>Assessment of Needs, Develop Intervention Strategies, Implement Intervention, Evaluation, Professional Conduct; AT may include:</p> <ul style="list-style-type: none"> <li>• AAC (Augmentative and alternative communication)</li> <li>• Accessible transportation (public and private)</li> <li>• ADL (aids to daily living/activities of daily living)</li> <li>• Cognitive aids</li> <li>• Computer access</li> <li>• EADL (electronic aids to daily living)</li> <li>• Environmental aids</li> <li>• Learning and study aids</li> <li>• Recreation and leisure</li> <li>• Seating, positioning and mobility</li> <li>• Sensory (e.g. hearing, vision, physical) aids and accommodations</li> <li>• Vocational aids and accommodations</li> </ul> <p>Service definition:</p> <p>Evaluations, assessments, and other direct-to-consumer/student services (needs assessment, physical/functional/sensory assessments, educational assessments, site assessments, simulations and product trials)</p> <p>Fitting, adjustment and readjustment services (fine-tuning of equipment to meet the consumer/student's needs and reflect changes in the consumer/student's status)</p> <p>Implementation and training for consumers/caregivers or students/support personnel (training in the use of AT or strategies to maximize function and interface with the environment(s) of use, instruction in use and maintenance)</p> <p>Product development that involves direct consumer participation</p>

Technological Pedagogical Content Knowledge (TPACK)	
SIDE Project framework	Objectives in the three groups (see Types spreadsheet) are described in the following areas of Competencies: Areas of Group 1: (a) behavioural competencies, (b) interpersonal skills, communication skills & language skills, (c) conflict resolution and negotiation, (d) personal effectiveness, creative Problem-solving, strategic thinking, (e) team building, team working, (f) influencing skills and leadership skills; Area in Group 2: communication and (self)management through visual language and arts; Areas in Group 3: (a) Problem-solving, (b) communications skills (for HI), (c) project management (e.g., time management, evaluate training opportunities, organisation of assigned work)
The Framework Catalogue of Digital Competencies	Three areas of competencies are identified: 1. IT competencies, which include the skills of using a computer and other electronic devices, handling the Internet and using various types of applications and software, creating digital content," and skills related to the correct use of hardware, software and the Internet, information and functionality. 2. Information competencies, including a set of practical skills enabling: to specify the type and scope of the information need, to ensure adequate 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, 3. Functional competencies, which are aligned to the following eight key areas of life: 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. Functional Competencies are linked to benefits in the various areas (e.g. in Work and professional development; six benefits are identified: 1.1. I will find a job, 1.2. I increase my professional qualifications, 1.3. I take care of my career, 1.4. I establish and conduct a business, 1.5 I hire employees, 1.6. I work more effectively, comfortably, faster
Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)	CFRIDiL is structured along three integrated dimensions, i.e., "Multimodal Orchestration" (i.e., meaning-making through all audio-visual resources), "Digital technologies" (i.e., use of digital tools), and "Intercultural Communication" (i.e., meaning-making of and with others). As a further addition, considering that the mastery of all these dimensions needs the activation of personal and relational skills that go beyond the objectives of current educational curricula. Therefore, CFRIDiL incorporates a further dimension, "Transversal skills", needed in one's everyday and professional life, such as

	managing one's and others' emotions, coping with unexpected changes or uncertain situations or taking decisions in tune with the context.
Digital Literacy for All Learners	Digital Literacy
Digital Literacy in the context of Special Education Needs and Disabilities (SEND)	Digital Literacy
ATLEC Competence framework for ICT-AT Trainers	It is based on ATLEC ICT-AT Competence Framework.
ATLEC ICT-AT competence framework for learners with disabilities	Competencies are based on skills needed to participate in the information society: global knowledge and economy talents, occupational skills related to specific needs from the job market (technical, product, customer, function) and literacy and basic skills required for social integration.
DigCompEdu	The DigCompEdu framework distinguishes six areas (1. Professional Engagement, 2. Digital Resources, 3. Teaching and Learning, 4. Assessment, 5. Empowering Learners, 6. Facilitating Learners' Digital Competence). Together these areas explain educators' digital pedagogic competence, i.e. the digital competencies educators need to foster efficient, inclusive and innovative teaching and learning strategies. Areas 1, 2 and 3 are anchored in the stages characteristic of any teaching process, whether supported by technologies or not. The competencies listed in these areas detail how to make efficient and innovative use of digital technologies when planning (Area 2), implementing (Area 3) and assessing (Area 4) teaching and learning. Area 5 acknowledges the potential of digital technologies for learner-centred teaching and learning strategies. This area is transversal to Areas 2, 3 and 4 because it contains a set of guiding principles relevant for and complementary to the competencies specified in these areas.

<p>INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies</p>	<p>Based on DigComp2.1</p>
<p>ITU Academy - Digital Skills Assessment Guidebook</p>	<p>Digital Competence Framework for Citizens (DigComp) - five competence areas: (1) information and data literacy; (2) communication and collaboration; (3) digital content creation; (4) safety; and (5) Problem-solving;          Digital Literacy Global Framework (DLGF) - DLGF supplemented the existing DigComp framework with two additional competence areas, namely “devices and software operations” and “career-related competencies”, and one other competence under the “Problem-solving” competence area, namely “computational thinking.”          Digital Skills to Tangible Outcomes (DiSTO) - The framework organizes skills into four domains: • Operational skills - the skills to operate digital media • Formal skills - the skills to handle the special structure of digital media such as menus and hyperlinks • Information skills - the skills to search, select and evaluate information in digital media • Strategic skills - the skills to employ the information contained in digital media to reach personal or professional goals.          New Essential Digital Skills Framework - is designed to support adults in enhancing their digital skills. The framework is focused on “the skills needed to safely benefit from, participate in and contribute to the digital world of today and the future”. It encompasses five categories of skills: communicating, handling information and content, transacting, Problem-solving, and being safe and legal online.</p>
<p>The University of Edinburgh Digital Skills Framework</p>	<p>The framework focuses on the digital capabilities relevant to teaching professionals working in higher education but may be adaptable.</p>

## Types

Competence framework	Types of competencies
Digi.Komp Austria	skills, knowledge, competencies; for each domain, it defines " I know, I can, I do."
ECDL/ICDL European/International Computer Driving Licence	skills, knowledge, competencies
International Association of Accessibility Professionals	skills, knowledge, competencies
DigComp2.1	<p>The DigComp Framework has 5 dimensions:</p> <p>Dimension 1: Competence areas identified to be part of digital competence</p> <p>Dimension 2: Competence descriptors and titles that are pertinent to each area</p> <p>Dimension 3: Proficiency levels for each competence</p> <p>Dimension 4: Knowledge, skills and attitudes applicable to each competence</p> <p>Dimension 5: Examples of use, on the applicability of the competence to different purposes</p>
ATACP Assistive Technology Applications Certificate Program	<p>Types of competencies are not particularly identified. However, description of course/curricula seems to indicate the following types of competencies: understanding of new trends/areas in the AT field, identifying AT assessment processes, knowing main AT applications for various disability categories (Aging, chronic illness, VI and HI, ASD, ID, AAC), understand individual features of technology for digital access, familiarize with AT solutions for transition for education to employment, understand AT leadership trends for service delivery, production and universal design, understand issues of AT funding and policymaking.</p>



Assistive Technology Professional (ATP) Certification	
Technological Pedagogical Content Knowledge (TPACK)	
SIDE Project framework	<p>Three Groups of transversal Objectives are identified as different types of competencies: Group 1: competencies and knowledge mostly enhanced by ICT for accessing the labour market, [Area 1: behavioural competencies (self-awareness and goal setting, self-confidence), Area 2: communication, language skills &amp; interpersonal relationships (response to labour market requirements using ICT, identify and use visual information on necessary information, use context appropriate method of communication), Area 3: conflict resolution and negotiation (disagreement resolution, consensus and solutions), Area 4: personal effectiveness (self-evaluation of strengths and weaknesses, identify opportunities, recognize priorities in tasks and responsibilities), Area 5: creative Problem-solving and strategic thinking (causes and factors analysis, solutions evaluation, plan development), Area 6: team building and team working (identify opportunities for networking, collaboration and sharing, working together), Area 7: influencing skills and leadership skills (critical assessment, exploration and analysis of actions); Group 2: competencies achieved through visual languages and arts (creating visual presentations, develop (self) management skills through visual language and arts) and Group 3: competencies relevant to Problem-solving, communication skills and project management specific to HI [Area 8: Problem-solving, Area 9: Communication skills (communicate in work, work in teams, manage conflicts, direct and indirect communication), Area 10: project management (time management, work completion, work organisation)]</p>
The Framework Catalogue of Digital Competencies	<p>In addition to existing frameworks, the catalogue introduces benefits in functional competencies under which very specific competencies are described. Benefits are identified as follows: 1. Work and professional development (I will find a job, increase my professional qualifications, take care of my career, establish and conduct a business, hire employees, work more effectively, comfortably, and faster), 2. Relationship with relatives (I perform my parental duties, maintain social relations, protect privacy, manage my image and the information about me), 3. Education (I gain new qualifications, learn via the Internet, create educational resources and share them with others, Leisure and hobby, fill free time with content, develop my hobby, protect my personal development), 4. Health (I have a healthy lifestyle, use the health care system, obtain information and health self-care, take care of the health of people, and look for (children,</p>

	elderly, sick with disabilities), 5. Finance (I manage my finances, buy cheaper, earn online, have religious and spiritual needs and satisfy spiritual/religious requirements), 6. Everyday issues (I handle the official matters without leaving the house, do online shopping, plan commutes and travels), 7. Civil commitment (I gain knowledge about the commune, the country and the world, I participate in the civil life, I participate in political life)
Common Framework of Reference for Intercultural Digital Literacies (CFRIDiL)	Each dimension is organised in macro-categories, which account for production abilities and interpretation. Each macro-category contains a list of general descriptors (that can be applied to several contexts, media and textualities), with specific examples for each descriptor, illustrative guidance and application.
Digital Literacy for All Learners	Technical skills – the ability to appropriately select and effectively use a range of technologies; Information skills – the ability to seek, evaluate, interpret and apply relevant and trustworthy information across multiple media; Cognitive skills – the ability to logically analyze and organize problems in ways that allow the use of digital and other tools to help solve them and to generalize new processes to other problems; Socio-emotional skills – the ability to communicate and collaborate with others, along with the personal confidence, persistence, and tolerance, to tackle complex, ambiguous, open-ended problems; and Application skills – the ability to integrate the above skills into our everyday experiences to advance our professional, personal, and civic interests and responsibilities
Digital Literacy in the context of Special Education Needs and Disabilities (SEND)	Skills, Knowledge and Understanding
ATLEC Competence framework for ICT-AT Trainers	Knowledge (The outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories, and practices related to a field of work or study. Theoretical and factual.), Skills (the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and

	instruments) and competencies (the proven ability to use knowledge, skills and personal, social and methodological abilities, in work or study situations and professional and personal development).
ATLEC ICT-AT competence framework for learners with disabilities	The learning outcomes of ICT-AT training can be described as facts and principles (knowledge and awareness) related to ICT-AT, practical ability (skills) to use assistive technologies effectively and meaningfully in personal and professional life and personal outcomes (competencies) related to independence and participation in the knowledge and information/communication society.
DigCompEdu	Twenty-two types of competencies refer to the six areas: 1. Professional Engagement (1.1 Organisational communication, 1.2 Professional collaboration, 1.3 Reflective practice, 1.4 Digital Continuous Professional Development (CPD)); 2 Digital Resources (2.1 Selecting digital resources, 2.2 Creating and modifying digital resources, 2.3 Managing, protecting and sharing digital resources); 3 Teaching and Learning (3.1 Teaching, 3.2 Guidance, 3.3 Collaborative learning, 3.4 Self-regulated learning); 4. Assessment (4.1 Assessment strategies, 4.2 Analysing evidence, 4.3 Feedback and planning), 5. Empowering Learners (5.1 Accessibility and inclusion, 5.2 Differentiation and personalisation, 5.3 Actively engaging learners), 6 Facilitating Learners' Digital Competence (6.1 Information and media literacy, 6.2 Digital communication & collaboration, 6.3 Digital content creation, 6.4. Responsible use, 6.5 Digital Problem-solving)
INCoDe.2030 An integrated public policy initiative aimed at enhancing digital competencies	Based on DigComp2.1
ITU Academy - Digital Skills Assessment Guidebook	
The University of Edinburgh Digital Skills Framework	ICT Proficiency (functional skills) Information, data and media literacies (critical use) Digital creation, Problem-solving and innovation (creative production)

	<p>Digital communication, collaboration and partnership (participation) Digital learning and development (development) Digital identity and wellbeing (self-actualising) <a href="#">What is digital capability</a></p>
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