



# TRAINING METHODOLOGY AND STRUCTURE



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DigAge+

Digital upskilling of the existing ageing workforce  
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# TRAINING METHODOLOGY AND STRUCTURE

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WP3 / TRAINING PACKAGE



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## 1. INTRODUCTION

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In today's fast changing world, the digital transformation brought new challenges into the work environment. The pandemic in 2020 has also significantly changed the way we work and has now impacts on the employability and work-life-stress balance agenda. The group of workers particularly touched by this unexpected change are senior adults (aged 50+), a treasured source of talent for organizations and companies across the globe. During decades of their professional occupation, they groomed important professional experience, skills, and values (loyalty, reliability, commitment, high standards of relations and a strong work ethic) contributing to the success and development of their companies. Since COVID-19 has accelerated the digital shift, some aged workers with not sufficient digital skills experience longer working hours and negative effects on their health and well-being. Some of them not having access before to appropriate training opportunities to improve their digital capacity and understanding were left behind on the wrong side of the digital divide. Therefore, the pandemic-related and simultaneously ongoing global digital transition is for them a stressful change perceived often as a risk to their professional development and employability.

The DigAge+ project was created to respond to the needs of 50+ employees in terms of digital upskilling aligned with [European Digital Strategy](#) while prioritizing inclusive, interactive and innovative strategies for this target group and lifelong learning within various types of educational and vocational systems. Equipping 50+ workers with necessary **digital competences** (defined in the Digital Competence Framework for Citizens [DigComp](#)) is compulsory to secure their employability, professional performance, and further development. The project aims to give people opportunities to learn at any stage in life and targets both skilled professionals as well as less-experienced workers aged 50 and older, including those looking for a professional change and novel job opportunities.

This guide document was prepared in the context of the project DigAge+ and is titled "Training Methodology". The aim of this guide is to present the theoretical side of modern learning methods and a learning path that will be used in DigAge+ e-training to achieve and adapt learning material in a way that will be effective and suitable for as many learners as possible. Beside that a description of implementation of e-learning in connection to learning goals will be given with the presentation of a foundation part of the e-training with recognized learning modules and the structure of the modules and practitioner part with **the final scenario-based game** with which will the learners have the possibility to gain decision-making skills in the field of **digital** and assess the knowledge and competencies gained through the whole e-learning. In the end, the assessment path and chosen assessment tools will be described and presented. The DigAge+ training path will be fully accessible on-line (open access), which will further contribute to the acquisition of various digital skills, competences, knowledge and attitudes.

## 2. ELABORATION PROCESS

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The proposed training methodology was elaborated with the help of the WP1 - Professional profile where we recognized all competencies needed for 50+ workers which we have taken into account when writing the methodology and designing the training structure. The process of creating training content is also described.

Below is the elaboration process of the training methodology:

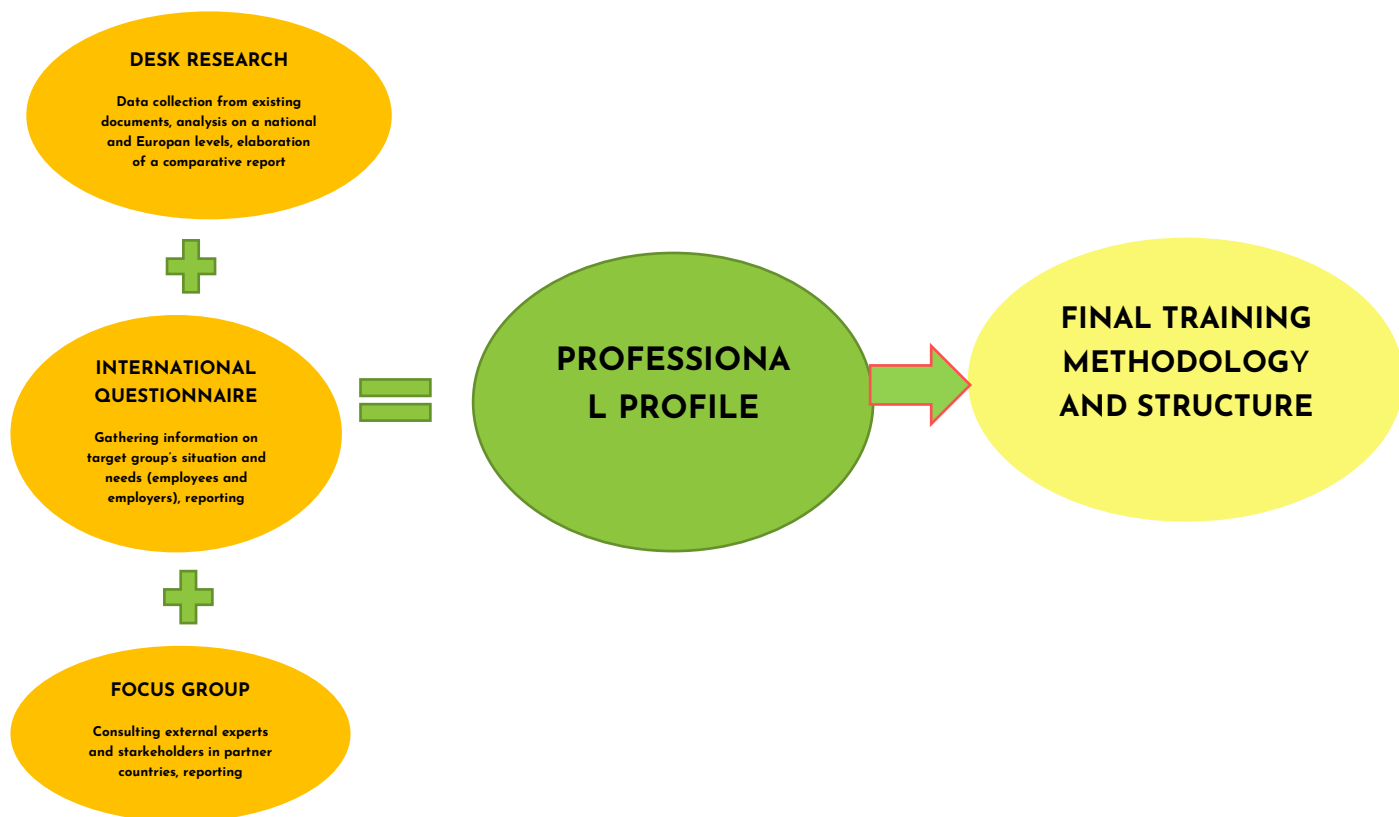


Figure 1: Elaboration process (Training Methodology and structure)

**1) Draft training methodology**

- First version of training methodology proposal was developed by IPRA/MEDEF



**2) Validation by project partners**

- All partners contributed to improving the training methodology with reviewing it and giving comments, suggestions and having discussions during monthly and TPM meetings
- The training methodology proposal was updated based on feedbacks received by project partners

### 3. SUMMARY OF RECOGNIZED COMPETENCIES

Based on the results of the desk research and both surveys of employees and employers, as well as consultations of identified competencies with focus groups participants, DigAge+ partners prepared an overview of competencies and areas where the largest gaps between existing and required competencies appear. In doing so, partners started from defining the needs for competencies that were identified by employees and by employers. Partners noticed that employees have a tendency to assess the high development of their competencies and the lesser need for the development of competencies in relation to changes in the labor market and the surrounding area in order to increase their employability.

The results showed us that the most relevant competencies for 50+ workers are the following (according to the Professional Profile report):

COMPETENCE AREA	COMPETENCE
<b>INFORMATION AND DATA LITERACY</b>	Ability to analyze, compare and critically evaluate sources and types of data, information and digital content.
<b>COMMUNICATION AND COLLABORATION</b>	Ability to communicate and collaborate using email and social networking sites (e.g., Facebook, LinkedIn).
	Ability to communicate and collaborate using a variety of digital technologies (e.g., MS Teams, Skype, Zoom, GoTo Meeting).
	Ability to share data, information and digital content with others using appropriate digital technologies (e.g., OneDrive, WeTransfer).
	Ability to adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environment.
<b>DIGITAL CONTENT CREATION</b>	Ability to create more complex digital content in various formats (e.g., infographics, more complex presentations, simulations, videos and other multimedia content).

	Ability to understand how copyright and licenses apply to data, digital information and content.
	To create and edit digital content in different formats, to express oneself through digital means.
<b>SECURITY AND OPERATIONS</b>	Understanding of risks and threats and knowledge of preventive security measures in the digital environment.
<b>PROBLEM SOLVING</b>	Ability to identify and solve technical problems in device management and / or in the use of digital environments.
	Ability to use digital tools to innovate processes, services and products.
	Identifying one's own digital skills gaps and finding opportunities for development and learning.
	Checking my messages before I send them (e.g. for mistakes) is standard practice for me

**Figure 2 Main digital competencies for 50+ workers**

Besides that, partners also identified the learning goals for all five competencies listed above. Those are the following:

**COMPETENCY 1: INFORMATION AND DATA LITERACY**

**The learner will:**

- 1.1. Be aware that online environments contain all types of information and content** including misinformation and disinformation, and even if a topic is widely reported it does not necessarily mean it is accurate.
- 1.2. Understand the difference between disinformation** (false information with the intent to deceive people) **and misinformation** (false information regardless of intent to deceive or mislead people).
- 1.3. Know the importance of identifying who is behind information found on the internet** (e.g. on social media) and verifying it by checking multiple sources, to help recognize and understand point of view or bias behind particular information and data sources
- 1.4. Be aware of potential information biases caused by various factors** (e.g. data, editorial choices, censorship, one's own personal limitations).

**COMPETENCY 2: COMMUNICATION AND COLLABORATION**



**The learner will:**

- 2.1. Be aware that everything that one shares publicly online** (e.g. images, videos, sounds)
- 2.2. Know the role and responsibilities of the online facilitator to structure and guide a discussion group** (e.g. how to act as an intermediary when sharing information and digital content in digital environments).
- 2.3. Be aware of the advantages of using digital tools and technologies for remote collaborative processes** (e.g. reduced commuting time, join specialized skills together regardless of location).
- 2.4. Understand that in order to co-create digital content with other people, good social skills** (e.g. clear communication, ability to clarify misunderstandings) **are important** to compensate for the limitations of online communication.
- 2.5. Know and understands the digital terminology** (e.g. use of abbreviations, shorter paths to data, etc.)
- 2.6. Know how to communicate and collaborate using email and social networking sites** (e.g., Facebook, LinkedIn).
- 2.7. Be aware of the meaning of non-verbal messages** (e.g. smiley faces, emojis) used in digital environments (e.g. social media, instant messaging) and knowing that their use can culturally differ between countries and communities.
- 2.8. Be aware of the existence of some expected rules about one's behaviour when using digital technologies** (e.g. using audio headsets instead of loudspeakers when taking calls in public places or listening to music).
- 2.9. Understand that inappropriate behaviours in digital environments** (e.g. drunken, being overly intimate and other sexually explicit behaviour) **can damage social and personal aspects of lives over a long term.**
- 2.10. Be aware that adapting one's behaviour in digital environments depends on one's relationship with other participants** (e.g. friends, co-workers, managers) and the purpose in which the communication takes place (e.g. to instruct, inform, persuade, order, entertain, inquire, socialize).
- 2.11. Be aware of accessibility requirements when communicating in digital environments** so that communication is inclusive and accessible for all users (e.g. for people with disabilities, older people, those with low literacy, speakers of another language).

### COMPETENCY 3: DIGITAL CONTENT CREATION

**The learner will:**

**3.1. Know that digital content exists in a digital form** and that there are many different types of digital content (e.g. audio, image, text, video, applications) that are stored in various digital file formats.

**3.2. Know that AI systems can be used to automatically create digital content** (e.g. texts, news, essays, tweets, music, images) using existing digital content as its source. Such content may be difficult to distinguish from human creations.

**3.3. Be aware that “digital accessibility” means ensuring that everyone, including people with disabilities, can use and navigate the internet.** Digital accessibility includes accessible websites, digital files and documents, and other web-based applications (e.g. for online banking, accessing public services, and messaging and video-calling services).

**3.4. Be aware that virtual reality (VR) and augmented reality (AR) allow new ways to explore simulated environments and interactions within the digital and physical worlds.**

**3.5. Know that digital content, goods and services might be protected under intellectual property (IP) rights** (e.g. copyright, trademarks, designs, patents).

**3.6. Be aware that the creation of digital content** (e.g. pictures, texts, music) **when original is considered protected by copyright as soon as it exists** (automatic protection).

**3.7. Be aware of the legal limitations of using and sharing digital content** (e.g. music, movies, books) and the **possible consequences of illegal actions** (e.g. sharing copyrighted content with others can give rise to legal sanctions).

#### COMPETENCY 4: SECURITY AND OPERATIONS

**The learner will:**

**4.1. Know that using different strong passwords for different online services is a way to mitigate the negative effects of an account being compromised** (e.g. hacked).

**4.2. Know about measures to protect devices** (e.g. password, fingerprints, encryption) and prevent others (e.g. a thief, commercial organization, government agency) from having access to all data.

**4.3. Know about the importance of keeping the operating system and applications** (e.g. browser) **up-to-date**, in order to fix security vulnerabilities and protect against malicious software (i.e. malware).

**4.4. Know that a firewall blocks certain kinds of network traffic**, aiming to prevent different security risks (e.g. remote logins).

**4.5 Be aware of different types of risks in digital environments**, such as identity theft (e.g. someone committing fraud or other crimes using another person’s personal data), scams (e.g. financial scams where victims are tricked into sending money), malware attacks (e.g. ransomware).

**COMPETENCY 5: PROBLEM SOLVING**

**The learner will:**

**5.1. Know the main functions of the most common digital devices** (e.g. computer, tablet, smartphone).

**5.2. Know some reasons why a digital device may fail to connect online** (e.g. wrong Wi-fi password, airplane mode on). 219. Knows that computing power or storage capacity can be improved to overcome fast obsolescence of hardware (e.g. by contracting power or storage as a service).

**5.3. Be aware that the most frequent sources of problems in Internet of Thing (IoT) and mobile devices, and in their applications, are related to connectivity/network availability, battery/power, limited processing power.**

**5.4. Be aware that AI is a product of human intelligence and decision-making** (i.e. humans choose, clean and encode the data, they design the algorithms, train the models, and curate and apply human values to the outputs) and therefore does not exist independently of humans. (AI)

**5.5. Know that engaging in solving problems collaboratively, online or off-screen, means that one can take advantage of the variety of knowledge, perspectives and experiences from others which can lead to better outcomes.**

**5.6. Know that digital technologies and electronic devices can be used as a tool to support the innovation of new processes and products, in order to create social, cultural and/or economic value** (e.g. social innovation). Aware that what creates economic value might endanger or enhance social or cultural value.

**5.7. Know that applications of Internet of Things (IoT) technology have the potential to be used in many different sectors** (e.g. healthcare, agriculture, industry, automobiles, citizen science activities).

**5.8. Be aware that being digitally competent** entails the confident, critical and responsible use of digital technologies to achieve goals related to work, learning, leisure, inclusion and participation in society.

**5.9. Be aware that difficulties experienced while interacting with digital technologies** may be due to technical issues, lack of confidence, one's own competence gap or inadequate choice of digital tool to solve the problem in question.

**5.10. Be aware that digital tools can be used to help identify one's learning interests and setting personal goals in life** (e.g. learning pathways).

**5.11. Know that online learning can offer opportunities** (e.g. video-tutorials, online-seminars, blended-learning-courses, Massive Open Online Courses) to keep up-to-date

with developments in digital technologies and to develop new digital skills. Some online learning opportunities also accredit the learning outcomes (e.g. through micro-credentials, certifications).

**5.12. Be aware that AI is a constantly-evolving field**, whose development and impact is still very unclear. (AI)

## 4. TRAINING PROGRAMME PROPOSED FOR DIGAGE+

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The aim of the DigAge+ training programme is to give 50+ workers the possibility to gain and/or develop digital skills that will help them to secure their employability, professional performance, and further career development.

The training will be displayed on the virtual platform, so that participants can complete the entire training remotely which is more accessible to everyone and more flexible, as participants can complete the training whenever and wherever they want. This format also promotes the acquisition of digital skills but **must be adapted to the specificity of the target group, their limited digital literacy, and thus be very user friendly.**

### 4.1 ABOUT E-LEARNING

E-learning can be defined as the use of computer and internet technologies to deliver a broad array of solutions to enable learning and improve performance. E-learning is among the most important explosions propelled by the internet transformation. This allows users to fruitfully gather knowledge and education both by synchronous and asynchronous methodologies to effectively face the need to rapidly acquire up-to-date know-how within productive environments.

Adult learners share some characteristics that are different from those of full-time students, which influences the design of learning programmes. In particular:

- They need to know the benefits of learning (why they have to learn something);
- They like to learn experientially;
- They approach learning as problem-solving;
- They learn better where they can see the immediate value and application of content;
- They prefer to study at a time, place and pace convenient for them.

Developing e-learning is more expensive than preparing classroom materials and training the trainers, especially if multimedia or highly interactive methods are used. However, delivery costs for e-learning (including costs of web servers and technical support) are

considerably lower than those for classroom facilities, instructor time, participants' travel and job time lost to attend classroom sessions.

Moreover, e-learning reaches a wider target audience by engaging learners who have difficulty attending conventional classroom training because they are:

- geographically dispersed with limited time and/or resources to travel;
- busy with work or family commitments which do not allow them to attend courses on specific dates with a fixed schedule;
- located in conflict and post-conflict areas and restricted in their mobility because of security reasons;
- limited from participating in classroom sessions because of cultural or religious beliefs;
- facing difficulties with real-time communication or professional integration (e.g. foreign language learners, very shy learners or foreign learners integrating local labour market).

E-learning can offer effective instructional methods, such as practising with associated feedback, combining collaboration activities with self-paced study, personalising learning paths based on learners' needs and using simulation and games. Further, all learners receive the same quality of instruction because there is no dependence on a specific instructor.

A training program may aim at developing different types of skills:

1. **cognitive skills**, which can involve knowledge and comprehension (e.g. understanding scientific concepts), following instructions (procedural skills), as well as applying methods in new situations to solve problems (problem thinking or mental skills);
2. **interpersonal skills** (e.g. skills involved in active listening, presenting, communicating, etc.); as well as
3. **psychomotor skills**, involving the acquisition of physical perceptions and movements (e.g. practising sports or driving a car).

**DigAge+ e-training** will be developed to build **cognitive and interactive** skills; the cognitive domain is the most suitable for e-learning. Within the cognitive domain, thinking skills may require more interactive e-learning activities because those skills are learned better "by doing". Learning in the interpersonal domain can also be addressed in e-learning by using specific methods. For example, interactive role playing with appropriate feedback can be used to change attitudes and behaviours.

## 4.2 EFFECTIVENESS OF E-LEARNING

One of the most critical points in delivering effective online teaching is the promotion of high levels of participant engagement. This level of psychological investment in the learning experience is a significant component of any learning intervention and is directly tied to the basic tenets of adult learning (Knowles, 1984):

- Adult learners need a sense of involvement and ownership and so should be involved in planning and evaluating the learning experience. To achieve this principle, educators need to be willing to share the stage with learners and invest time and effort in learner involvement.
- Adults need to learn experientially and reflect on their mistakes. Providing practice opportunities allows learners to create connections between theory and its application. The self-reflection component can also be paired with feedback and guidance for deeper understanding. [Strategies for Effective Online Teaching and Learning: Practices and Techniques With a Proven Track of Success in Online Education.](#)
- Adult learners need to understand the relevance and application of the subject matter. This is one of the most difficult elements to achieve for foundational subject matter early in a degree program. Making the connections between real-world cases and performance context in a way that makes them relevant to learners is critical to enable valid discussions and foster interest.
- Adults prefer problem-centred learning rather than content-driven experiences. Traditionally, post-secondary education has been perceived as a content-based instructional activity where educators engage in long lectures and provide learners with significant reading lists. This practice is based on the assumption that the design of these content delivery strategies and tools allows for self-directed learning and continues to perpetuate the premise of the “empty vessel.” Research shows that problem-solving is a biologically primary skill and that learners are more interested in these experiences (Kirschner et al., 2018).

Since the target group for the DigAge+ e-training course includes just adults, it’s important to know and understand what their wishes are and what are the most appropriate training methods for them.

## 4.3 CONTENT OF THE E-LEARNING

There are minimum standards that ensure that content of e-training is accessible and suitable for most learners, based on four main criteria:

- Content must be **perceivable**: text alternatives for non-text content, alternatives for time-based media, multiple formats for content presentation, and enhanced presentation for visual and auditory information.
- Content must be **operable**: keyboard-based operation, avoid time-restricted exploration of content, avoid design decisions that can cause physical effects (i.e., seizures), and enhanced navigation and self-location.
- Content must be **understandable**: ensure content can be read and understood, make web content appear and operate in predictable ways, and help users avoid and correct mistakes.
- Content must be **robust**: ensure compatibility with current and future assistive technologies and other user tools designed for content exploration.

#### 4.4 MICRO-LEARNING IN E-LEARNING

Micro-learning is when you take a topic and divide it into smaller learning bites. These learning bites contribute to a larger topic. Think of micro-learning as a way to handle shorter attention spans and prevent boredom while learning.

For example, instead of one long lesson covering five or six subtopics, micro-learning would break that into five or six lessons, each covering a different subtopic.

Given that definition, it should not be surprising that micro-learning can apply to traditional learning or e-learning. The key to micro-learning is the specificity and length of the learning. A very common example comes from e-learning courses that break lessons into five- or ten-minute segments.

Using micro-learning is especially popular for e-learning, as it makes it easier for learners. Learners can more easily fit shorter lessons into their schedules. More importantly, micro-learning lets them learn at their own pace.

By using microelements in your curriculum, learners are able to choose what is most relevant to their job and experience level - ultimately creating **a personalised experience**.

Here are some micro-learning content examples:

- Text (phrases, short paragraphs)
- Images (photos, illustrations)
- Videos (of the short variety)
- Audio (short snippets of speech or music)
- Tests and Quizzes
- Games (e.g. simple single-screen challenges)

There are three elements that define micro-learning:

- Micro-learning is targeted to a specific performance objective
- Micro-learning includes a focused learning activity
- Micro-learning is usually part of a larger strategy

With rare exceptions, these are three criteria we should use in the creation of training with a big impact.

While micro-learning is great for flexibility and agility, being able to create great, targeted content can take just as much or more development time than longer, but broader training.

As learners progress through the learning lifecycle - from readiness to discovery to reinforcement - micro-learning can play a helpful role in any or all of these stages. You can use an asset like a video or game to engage learners before the training even begins. Micro-learning can be helpful when you're explaining the purpose of training, motivating employees to get involved, providing helpful assets that will be useful in the larger curriculum, or all of the above.

Once learners have moved into the discovery phase, courses can help them focus on specific behaviours that need to change or information they need to know. Using these assets alone or with traditional training helps you impact and track change better. Finally, micro-learning is most commonly associated with reinforcement, and for a good reason. By increasing the frequency of short training reinforcements, your learners will retain information and good habits much longer.

#### **Pros of micro-learning:**

1. It's faster to deliver
2. It's more affordable
3. It's flexible
4. Learners find it more engaging
5. It boosts knowledge retention
6. It gives learners more freedom

#### **Cons of micro-learning:**

We can't simply call micro-learning better or worse than conventional e-learning. It all depends on the subject matter. But in general:

1. It's not ideal for complex concepts
2. It's not suited for in-depth training



To make **DigAge+ e-training** more interesting, flexible and engaging, the **MICRO-LEARNING PART** of the training will be added in a form of **short videos, photos, quizzes and final scenario-based game**.

## 4.5 E-LEARNING APPROACH

There are two general approaches to e-learning: self-paced and facilitated/instructor-led. Self-paced learners are alone and completely independent, while facilitated and instructor-led e-learning courses provide different levels of support from tutors and instructors and collaboration among learners. Often, e-learning courses combine both approaches, but for simplicity it is easy to consider the two separately.

For the **DigAge+ e-training** we plan to implement a **SELF-PACED E-LEARNING COURSE**, where participants can be more flexible.

Self-training is based on tools integrating the entire learning process, from initiation to assessment without resorting to face-to-face. It is necessarily desynchronized and the use of the tutor is limited since the tool should in principle guide the learner as well as possible.

Learners are offered e-learning courseware (also called Web-based training (WBT)), which can be complemented by supplemental resources and assessments. Courseware is usually housed on a Web server, and learners can access it from an online learning platform. Learners are free to learn at their own pace and to define personal learning paths based on their individual needs and interests. E-learning providers do not have to schedule, manage or track learners through a process. E-learning content is developed according to a set of learning objectives and is delivered using different media elements, such as text, graphics, audio and video. It must provide as much learning support as possible (through explanations, examples, interactivity, feedback, glossaries, etc.), in order to make learners self-sufficient. However, some kind of support, such as e-mail-based technical support or e-tutoring, is normally offered to learners. When self-paced e-learning is offered through an Internet connection, there is the potential to track learners' actions in a central database.

## 4.6 E-LEARNING COMPONENTS

E-learning approaches can combine different types of e-learning components, including:

- e-learning content;
- e-tutoring, e-coaching, e-mentoring;
- collaborative learning; and

- virtual classroom

**E-LEARNING CONTENT COMPONENT** will be used in the **DigAge+ e-training**, as it fits best to self-paced e-learning courses, and the most adapted to the limited digital literacy of the target group. Some examples of e-learning content component are:

-**Simple learning resources;**

-**Interactive e-lessons;**

-**Electronic simulations; and**

-**Job aids**

1. **Simple learning resources:** Simple learning resources are non-interactive resources such as documents, PowerPoint presentations, videos or audio files. These materials are non-interactive in the sense that learners can only read or watch content without performing any other action. These resources can be quickly developed and, when they match defined learning objectives and are designed in a structured way, they can be a valuable learning resource even though they don't provide any interactivity.
2. **Interactive e-lessons:** The most common approach for self-paced e-learning is web-based training consisting of a set of interactive e-lessons. An e-lesson is a linear sequence of screens which can include text, graphics, animations, audio, video and interactivity in the form of questions and feedback. E-lessons can also include recommended reading and links to online resources, as well as additional information on specific topics.
3. **Electronic simulations:** Simulations are highly interactive forms of e-learning. The term "simulation" basically means creating a learning environment that "simulates" the real world, allowing the learner to learn by doing. Simulations are a specific form of web-based training that immerse the learner in a real-world situation and respond in a dynamic way to his/her behaviour.
4. **Job aids:** Job aids provide just-in-time knowledge. They can take several forms and be delivered on different platforms (e.g. computer, printed document, mobile phone). They usually provide immediate answers to specific questions, thus helping users accomplish job tasks. Technical glossaries and checklists are a few examples of simple job aids, but sophisticated expert systems can also be developed to assist workers in complex decision-making.

## 4.7 SYNCHRONOUS AND ASYNCHRONOUS E-LEARNING

While synchronous events take place in real time and require communication between two people where both of them are present at a given time, asynchronous events are time-independent. A self-paced course is an example of asynchronous e-learning because online learning takes place at any time. Asynchronous online training means that you don't always need to be online at the same time as your instructor or other trainees.

Asynchronous e-learning offers flexibility to personalize learning to suit specific needs. Asynchronous learning offers a decisively effective learning experience that enables learners to benefit from the following:

- Never miss a class
- Learn at any pace
- Personalize and optimize the learning experience
- Revisit lessons as needed to improve comprehension and retention
- Take advantage of extra time to process, practice, and respond
- Adapt learning to self-accommodate for a disability

Since the **DigAge+ e-training** will be completely online, free to use and open, **ASYNCHRONOUS E-LEARNING** will suit best.

## 4.8 ONLINE E-TRAINING DELIVERY METHODS

**The methods used in the DigAge+ virtual platform:**

**Self-study** - in the form of a learning material structured by modules. Each of the recognized needed competencies for 50+ employees will be put in the form of a module.. The module will consist of different units, best practices, further investigation material and a quiz in the end. Self-study acts as an auditory or visual learning, since it includes reading or listening.

**Video/audio tape/graphics/pictures** - every module will include visual elements (videos, pictures) that will ease the participants' understanding about a specific topic and make it more interesting. A video/audio tape acts as a visual learning tool, since it includes learning through visualisation.

**WBT - Web-based training** - the whole training will be web-based and self-paced, because it presents a more accessible and flexible type of learning and will help gain additional digital skills.

**Simulation learning and Game-based learning** - after successfully completing the quizzes at the end of every module, the final game will be implemented on the platform in order to enrich the training. All the knowledge, skills and competencies needed will be gathered in this scenario-based game. Simulation learning and game-based learning act as a visual (because it includes visual elements - moving pictures, simulation, videos, etc.), auditory (if the game has any kind of sounds or for example includes a conversation) and kinaesthetic learning (even if the learner is not physically moving, the game includes a practical aspect,

virtual movements and simulation with 3D graphics). A gaming environment is an atmosphere filled with learning cues, for visual, auditory, and kinaesthetic learners.

## 4.9 CONCLUSION

Based on the literature review, we decided on the following learning methods to be used on the DigAge+ e-training platform:

- ✓ E-LEARNING WITH INCLUDED MICRO-LEARNING
- ✓ SELF-PACED E-LEARNING COURSE
- ✓ ASYNCHRONOUS E-LEARNING
- ✓ SELF-STUDY, VIDEO/AUDIO TAPE/GRAPHICS/PICTURES/, WBT, SIMULATION LEARNING, GAME-BASED LEARNING

## 5. DIGAGE+ VIRTUAL PLATFORM - FOUNDATION E-TRAINING COURSE

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The **Foundation** (fully ICT-based training course) part of the e-training course will confirm whether the learner knows and understands the proposed method well enough to be able to work effectively with it.

Depending on the learner's agenda, professional field, interests, competencies, the training path will be created in a way that each learner can choose his/her own path. That enables the individual setting and choice of learning rhythm, providing a user-friendly learning surface where individuals can adapt the training to their possibilities, habits and needs.

Written learning material will also be available in one **PDF document**, that users can download from the DigAge+ virtual platform in case they prefer reading all the learning material together or if they would like to print the entire material, as this way of learning is easier for some people.

The Foundation part of the training will consist of the learning material in a form of **modules created by all the partners**.

A training module is a component of an online course that focuses on a specific learning objective(s) and is designed to teach on a specific topic(s). Each module is like a chapter of

a book, leading to the next. When seen as a whole, training modules make up an entire layer of knowledge and tell a complete story.

Just as a complex course may consist of multiple modules, each module will include a number of learning units that are even smaller elements of educational content.

## 5.1. STRUCTURE OF THE MODULES

Every partner will develop one of 5 modules according to the agreement, their field of expertise and preferences.

The Foundation e-training will consist of **5 modules** with:

- Module title
- Learning goals
- Learning outcomes of the module (knowledge, skills, attitudes)
- Introduction (3-4 phases)
- Units' titles
- Unit core content
- 1-2 case study or best practice per unit
- Interactive tool(s) (at least 1 exercise, and 1-3 interactive tools: platform H5P; PPT with voice over; Videos)
- Additional learning/profession materials - recommendations (with links to external materials, evaluation tests, and training elaborated within other Erasmus+ projects; library of re-usable Open Educational Resources (OER), etc.)
- Self-assessment quiz
- Certificate

### MODULE STRUCTURE:

MODULE 1	
Module Title	
Learning Goals	
Learning Outcomes (knowledge, skills, attitudes)	
Module introduction (3-4 phases)	
Unit 1	
Unit title	
Core content (written text)	

Case study/best practice (1-2)	
Interactive tool(s)*	
<b>Unit 2</b>	
Unit title	
Core content	
Case study/best practice (1-2)	
Interactive tool(s)*	
<b>Unit 3</b>	
Unit title	
Core content	
Case study/best practice (1-2)	
Interactive tool(s)*	
<b>Additional learning/progression materials - recommendations**</b>	
ENG (5 exemples)	
FR (3-5 exemples)	
SL (3-5 exemples)	
PL (3-5 exemples)	
FI (3-5 exemples)	
NL (3-5 exemples)	
<b>Self-assessment test (up to 10 questions)</b>	
Question 1	Please, mark in red the correct answer
Question 2	Please, mark in red the correct answer
Question 3	Please, mark in red the correct answer
Question 4	Please, mark in red the correct answer
Question 5	Please, mark in red the correct answer
Question 6	Please, mark in red the correct answer
Question 7	Please, mark in red the correct answer
Question 8	Please, mark in red the correct answer
Question 9	Please, mark in red the correct answer
Question 10	Please, mark in red the correct answer
<b>Certificate (template to be developed by IPRA)</b>	
<b>Comments</b>	
Order: Core content - case study - interactive tools: elements' order can be reversed	
* Interactive tools. At least 1 exercise, and 1-3 interactive tools: platform H5P; PPT with voice over; Videos;	
** With links to external materials, evaluation tests, and training elaborated within other Erasmus+ projects; (library of re-usable) Open Educational Resources (OER)	

Please, provide elements allowing learner to understand better the DIGITAL WORKING ENVIRONMENT like: • Connectivity between applications and tools (formats, back-up, auto sync...), • Links between actions-skills-decisions and consequences (individual, collective and on a structural level) • Different options offered by a modern information system, benefits, link with his/her performance • Background on how the systems actually works (basic understanding of software)

Remember to provide experts' options and recommendations, employers and employees' feedback and testimonials, interviews, case studies, etc.

**Figure 4 The DigAge+ Module Structure**

**Content of each module shall be aligned with and provide links to:**

- Digital Competence Framework for Citizens ([DigComp](#))
- [European Digital Strategy](#)
- And other Erasmus+ projects, actions, existing learning resources and EU initiatives such as: the [Skills Agenda](#), the [Digital Education Action Plan](#), the [Digital decade and compass](#), and the [European Pillar of Social Rights](#) and its [action plan](#)

Training content will also address the professional inclusion, green and sustainability aspects of interacting with digital technologies; digital literacy and digital wellbeing at work (green and digital transition of companies).

Further detailed technical guidelines shall be provided by UCLL in collaboration with Digital creators: format, volume, tools, etc.

## 5.2 MODULE TITLES

The titles of the modules are based on the 5 main competencies that target groups will gain after they finish the DigAge+ e-training. Some modules represent one whole competency, some consist of learning goals for just a part of a competency or learning goals that include more than one competency.

**After an intense discussion partners decided that the module titles will be the following (please, see below). The bullet points present the learning goals of each module and they can be merged/reordered and their associated content length may vary :**

### Module 1: INFORMATION AND DATA LITERACY

- Develop ability to analyze, compare and critically evaluate sources and types of data, information and digital content
- Develop ability to know and use digital terminology
- Develop ability to organize, store, and retrieve data, information and content in digital environment
- Develop ability to search for and access data, information and digital content
- Attitude change

## Module 2: COMMUNICATION AND COLLABORATION

- Develop ability to share data, information and digital content with others using appropriate digital technologies (e.g. Google Drive, OneDrive, WeTransfer, Doodle)
- Develop ability to communicate and collaborate effectively using a variety of digital technologies (e.g. MS TEAMS, Skype, ZOOM, GoTo meeting, Outlook/email, social networking sites like Linked or professional Facebook profiles)
- Raise Office Clerks's performance and efficiency in communication and team collaboration (example via creation of accesible documents or using instant messaging for informal communication with colleagues; using the cloud computing tools and collaborating through them)
- Attitude change

## Module 3: CREATION OF DIGITAL CONTENT

- Develop ability to develop simpler digital content in various formats (e.g. documents in MS Word, spreadsheets and graphs in MS Excel, presentations in MS PowerPoint)
- Develop ability to create more complex digital content in various formats (e.g. infographics, more complex presentations, simulations, videos and other multimedia content)
- Develop ability to program and develop software
- Attitude change

## Module 4: DIGITAL/CYBER SECURITY AND DATA PROTECTION

- Develop ability to understand risks and threats, develop knowledge of preventive security measures in the digital environment
- Develop ability to protect personal data and protect privacy in the digital environment (cybersecurity and data protection)
- Develop ability to protect oneself and others from potential threats in the digital environment (e.g. online blackmail / harassment)
- Develop ability to work and operate high-tech devices
- Attitude change

## Module 5: PROBLEM SOLVING

- Develop ability to identify and solve technical problems in device management and / or in the use of digital environments
- Develop ability to use digital tools to innovate processes, services and products
- Develop ability of identifying one's own digital skills gaps and finding opportunities for development and learning (learning how to learn)
- Develop a positive and



open digital attitude (example: do not avoid tools that frustrate you, rather look for solutions and digital tools) • Raising curiosity of the learner so he/she will start following digital transition, new tools used at workplaces • Encouraging digital upskilling, and active participation in regular learning opportunities • Attitude change

**SCENARIO-BASED GAME**

- Testing acquired skills, competences, and knowledge
- Developing digital attitude of the learner

**Figure 5 DigAge+ Modules**

### 5.2.1 DISTRIBUTION OF THE MODULES

The modules were distributed to partners according to their professional field and their preferences. Each partner creates content for the module that they are in charge with. The final distribution is the following:

<b>MODULE</b>	<b>ORGANISATION IN CHARGE</b>
<b>INFORMATION AND DATA LITERACY</b>	DOBA
<b>COMMUNICATION AND COLLABORATION</b>	UCLL
<b>CREATION OF DIGITAL CONTENT</b>	DC
<b>DIGITAL/CYBER SECURITY AND DATA PROTECTION</b>	IPRA
<b>PROBLEM SOLVING</b>	EDUCRAFTOR
<b>SCENARIO-BASED GAME</b>	All partners

**Figure 6 Distribution of the modules to partners**

In addition to assigning modules to partners, partners decided to agree on a double verification of the module's content, so that each partner will be in charge of verifying the other partner's module. The verification of the modules is therefore as follows:

MODULE	ORGANISATION IN CHARGE
INFORMATION AND DATA LITERACY	DC
COMMUNICATION AND COLLABORATION	IPRA
CREATION OF DIGITAL CONTENT	EDUCRAFTOR
DIGITAL/CYBER SECURITY AND DATA PROTECTION	UCLL
PROBLEM SOLVING	DOBA
SCENARIO-BASED GAME	All partners

**Figure 7 Verification of the modules by partners**

The English proofreading of the whole training content will be secured by BUSINET.

One of the most crucial parts of developing an online course is creating its title. The course content isn't the first thing that an individual notices. The very first thing that grabs a person's attention is the title of the course. Creating an extraordinary first impression is essential, especially in the digital world.

**TIPS TO CREATE A CATCHING MODULE TITLE:**

- 1. Define target audience:** Start by describing the demographics of your target audience, like where they live, what they do, their age, the language they speak, their job, etc. Then go on to describe their interests, wants, etc. Be as detailed as you need to be. Doing this will give you a fair idea of your target audience and will better equip you to create a course title that is just perfect for them.

\*We already defined the target audience for the DigAge+ e-training - these are both the ageing workforce and their employers (and indirect target groups: employers, managers, other workers and staff members).

2. **Make an offer they just can't refuse:** When you know your target audience, you have an idea of their needs and wants. So use that knowledge when creating the titles of your online course, modules, and lessons. Create a catchy title that presents them with such an incredible opportunity that they simply cannot pass up. Design a title that tells what your e-training will offer them and how it will be beneficial for their career or job.
3. **Be as descriptive as possible, without sounding boring:** Your course title should be descriptive. This way, the trainees can get enough information about what they'll find in the course modules and lessons. You'll find one thing common in all the massively popular online courses - their titles are very concise, and yet they tell you precisely what the complete module offers. So to create a course title that sells, you need to compel your trainees to participate in the training, while telling them why they need to sign up for it.
4. **Be clear about the proficiency level of your course:** Remember to be clear about the difficulty level of your modules in the course title itself. Our point is that the trainees should be able to figure out the degree of expertise your online course would provide them. This is important so that there are no dissatisfactions or confusions after they've enrolled in the training.
5. **Don't try to be overly creative:** But sacrificing clarity just to sound too creative is not the right way to design your course title. Create a title that has the perfect balance of creativity, clarity and is informational as well. Create sample titles and ask your team members to guess what the course is all about. Study their responses and make the necessary changes.

### 5.3 LEARNING OUTCOMES OF THE MODULE

Content analysis is a prerequisite for developing specific learning objectives and the curriculum outline. Content identification and analysis can be done by applying the following methods:

- **Task analysis** identifies the job tasks that learners should learn or improve and the knowledge and skills that need to be developed or reinforced.
- **Topic analysis** is carried out to identify and classify the course content.

A learning objective is a statement describing a competency or performance capability to be acquired by the learner. Objectives should be specified for the course as well as for each single activity. By looking at the tasks and content elements identified in the task and topic analyses, it is possible to translate the overall course goal into more specific learning objectives.

Learning objectives combine two main elements:

- the expected level of performance (through an action verb, such as "describe", "explain", "be able to", etc.); and

- the learning content (i.e. the type of knowledge or skills that must be learned, such as “the main objectives of a digital security information system”)

According to the revised **Bloom’s taxonomy of the cognitive domain**, learning objectives can imply six different types of cognitive performance, ranging from the lowest performance level (remember) to the highest (create).

PERFORMANCE LEVELS FOR THE COGNITIVE DOMAIN	
<b>REMEMBER</b>	The learner is able to recognize or memorize information.
<b>UNDERSTAND</b>	The learner is able to reformulate a concept.
<b>APPLY</b>	The learner is able to use the information in a new way
<b>ANALYSE</b>	The learner is able to decompose and define relationships among components.
<b>EVALUATE</b>	The learner is able to justify a decision according to a criterion or standard.
<b>CREATE</b>	The learner is able to realize a new product or approach.

**Figure 8 Performance levels for the cognitive domain**

Since learning goals were already identified in the Professional Profile, partners can help themselves with it to write out what learner will know or be able to do after finishing a specific module.

## 5.4 STRUCTURE OF THE UNITS, TOPICS AND ITS CONTENT

### 5.4.1 PREREQUISITE METHOD

One of the methods used to define the course sequence is the **PREREQUISITE METHOD**. That method uses a learning objectives hierarchy, teaching first those skills that seem to be prerequisites for all other skills. It is possible to create a hierarchy among learning objectives by using the results of the task and topic analyses. The outcome of sequencing is a course

structure where each element corresponds to a specific learning objective and contributes to the achievement of the overall course goal.

A course can include several units which include a number of sessions. Developing the course using a modular approach allows the definition of a number of personal learning paths that respond to different individual interests and learning needs. The task analysis helps to establish a connection between learners' needs and specific course elements. This enables learners to select a subset of sessions under the main course.

### 5.4.2 4MAT SYSTEM

Choose a structure that enables as many trainees as possible to meet the training goals. One way is to adopt the **4MAT SYSTEM**. The 4MAT system addresses the needs of all types of learners, and does so in the most effective order. All it requires is that you combine your training topics into logical chunks or topics, and that for each one of those topics you order your training as follows:

- 1. WHY.** Make the trainees curious "why" they should want to pay attention to this part of the training. Ask questions like "who wants to learn ..." in such a way that they want to reply "yes, I do!" The WHY takes 5-10% of your topic's time.
- 2. WHAT.** This is the content, the theory, the body of learning for this topic. Old style school and university lectures did almost only the WHAT. Fills 20-70% of your time: some topics need more WHAT and less HOW, with others it is the other way around.
- 3. HOW.** This explains how you actually apply the theory. If there is a process with steps, it's in the HOW. A demo and exercise are also in the HOW. Again, this fills 20-70% of your topic's time.
- 4. WHAT IF.** Variations on the theme. Time for questions. The WHAT IF people learn by wondering how to apply the learnings in different ways, under various circumstances. Plan for 5-10% of available time.

### 5.4.3 TYPES OF LEARNING CONTENT

The following example identifies six main types of content: **facts, procedures, concepts, principles, interpersonal skills and attitudes**, which can be used for development of the module content.

TYPES OF LEARNING CONTENT	
<b>FACTS</b>	Unique, specific information that answers the questions: who, where, when? Facts are shown, exhibited or indicated. Examples: data, lists, historical events
<b>PROCEDURES</b>	A procedure is a series of clearly defined steps, aiming to perform a task. Procedures answer the question: "How to ...?" Example: "instructions for effective understanding of a software for ageing workers"
<b>CONCEPTS</b>	A concept is a group of objects, entities or ideas that: are defined by a single word or term; share common characteristics; differ in unimportant characteristics; require a definition; and answer the question: "What is ...?" Example: the concept of "problem solving"
<b>PRINCIPLES</b>	A principle (or rule) describes a relationship between two concepts. For example: "As price increases, the supply increases". Some principles can be translated into strategic guidelines which can guide decisions and complex tasks. Example: "guidelines for digital collaboration"
<b>INTERPERSONAL SKILLS</b>	Verbal and nonverbal skills for interacting with other people. For example, content related to "communication" or "problem solving"
<b>ATTITUDES</b>	Predispositions to behaviour. Example: content related to appreciate the "importance and urgency of upskilling ageing employees with digital competences"

Figure 9 Types of learning content

#### TIPS FOR CONTENT DEVELOPMENT

1. Before developing the content for the assigned lessons, **review the proposed learning objectives.**
2. Make sure that **the content and knowledge assessment tests and exercises 'match' the lesson objectives** at every step in the workflow process.
3. **Provide all the knowledge needed** to meet the learning objectives, including information that may seem obvious to you, but may be new to learners.

4. **Use examples** that are likely to be familiar to most, if not all, learners. People taking the course may have different backgrounds, so use a variety of examples. This will help learners to understand and remember concepts.
5. **Classify topics** for each lesson as follows:
  - **Must know:** a core part of the content; the learner needs to understand these concepts.
  - **Nice to know:** the learner could get by without this information, but it could help to develop a better understanding of the subject or add interest for the learner.

## 5.4.4 USE OF INTERACTIVE TOOLS

Examples of platforms that can be used for creation of interactive tools:

- **H5P** (<https://h5p.org/>)

*Through H5P.com, H5P content may be embedded into the Moodle platform. H5P makes it easy to create, share and reuse HTML5 content and applications and makes it possible to create and edit interactive videos, presentations, games, advertisements and more. All you need is a web browser and a web site with an H5P plugin. H5P is a completely free and open technology, licensed with the MIT license.*

- **LUMI** (<https://app.lumi.education/>)

*Lumi is a tool that allows both to make contents available in a format readable by the Moodle platform (.H5P file, transformable into .SCORM format) and to create files with attractive and engaging content. Any kind of format made available by Lumi can be used to produce the interactive tool (i.e. slideshows, interactive presentations, multiple-choice questions, etc.) with the only constraint to extract and download the related .SCORM package with the maximum size of 80Mb.*

- **CANVA** (<https://www.canva.com/>)

*Canva is an online design tool that offers the opportunity to create professional-looking posters, slideshows, images, flyers, cards, infographics, and other media. The tool allows users to design visuals to showcase the content in unique ways. With its easy-to-use tools, simple drag-and-drop interface and wide range of templates, you can create professional designs.*

## WHY SHOULD WE USE INTERACTIVE TOOLS?

- The use of interactive tools is important if we want to increase or maintain interest of the trainee in the online training and to make it more fun and visually appealing!

- When using interactive tools there's a bigger possibility that the trainee will more easily remember what he/she has learned!
- Since our target groups are employees and they don't have much free time to read large amounts of written material, it is important to keep them interested in the training and to make it as entertaining as possible!

#### For DigAge+ e-training:

- Every module will include **at least one** interactive tool
- The interactive tool can be created **for whatever part of the module is most appropriate or suitable**
- **Every** partner will be in charge to create at least one interactive tool for the module they are in charge with

The tools can be created for:

- ✓ the introduction part,
- ✓ the summary,
- ✓ the middle to present one part of the unit,
- ✓ the case study,
- ✓ interim evaluation, etc.

**PLEASE NOTE:** We must be aware of the copyrights when using pictures in interactive tools! Some website that offer copyright free images are:

- UNSPLASH (<https://unsplash.com/>);
- BURST (<https://burst.shopify.com/>);
- PEXELS (<https://www.pexels.com/>);
- PIXABAY (<https://pixabay.com/>);
- STOCK SNAP (<https://stocksnap.io/>)

## 5.5 CASE STUDY

Case study ensures that learners can make sense of the illustrated concepts. Examples can be used in deductive and inductive ways:



- to illustrate a concept or show the steps of a procedure which has been previously introduced (deductive); or
- to stimulate thinking and reflection before providing definitions and principles (inductive).

Examples can help bridge the gap between theory and practice. You can give learners an example of how to accomplish a task together with an explanation of the underlying procedure or principle; afterwards, you can ask them to answer questions about the examples to stimulate their reflection and prepare them for actual performance.

#### TIPS FOR CHOOSING AND WRITING CASE STUDIES:

- Integrate different media to present the example (e.g. a picture and text or audio narration).
- If the example is long or complex, break it up into smaller components.
- Try to also use non-examples, e.g. examples of incorrect application of principles.
- Use a realistic job context for your example; this will support transfer of the knowledge to the job.
- For strategic skills, use at least two examples which illustrate the same underlying principle in different contexts. Then, ask learners to compare them and identify the common principles

#### For DigAge+ e-training:

- every partner will provide at least **1-2 case studies** per unit of the module they are in charge with

## 5.6 FURTHER INVESTIGATION MATERIAL

Further investigation material refers to any non-required instructional materials included in an online course. Simply put, they're materials students can engage in, not materials they have to engage in. Although adding supplemental resources can create a gray area when it comes to your course's design and context, when used appropriately, these types of resources can encourage learning, enhance student motivation, and even provide support for students who need it.

#### TIPS FOR SELECTING FURTHER INVESTIGATION MATERIAL

Consider your course context—target group, type of training, learning methods and any other unique identifying factors for your course. With this in mind, consider some of the following questions when selecting supplemental resources.

1. What is my target group interested in?
2. How will the target group learn best?
3. What are the target group's learning preferences?
4. What content covered in other courses in my program can I review?
5. What future content can I preview?

In addition to course context, learning objectives, assessments, and instructional materials all play a critical role in the selection of further investigation material. They can enhance these elements of your course, and can also add to the structure you've put in place for the target group. For example, if you know about your target group's personal interests, you can include supplemental materials tailored to those interests. Or you can provide real-world examples and materials, which encourages learning and practical application.

Additional instructional support can be designed as part of the lesson or the course. These resources may include, for example:

- printable versions of the lesson content;
- "getting started" tutorials, providing an overview of navigation features for new learners;
- downloadable job aids (e.g. checklists, if/then tables);
- glossary providing key terms and related explanations;
- bibliography and/or links to Web resources, for learners to find out more about the topic; and
- educational videos (e.g. Youtube)

**For DigAge+ e-training:**

- All further investigation materials provided will be in **English (at least 5 examples) and national languages: FR, SL, PL, FI and NL (at least 3-5 examples in each language)**
- All further investigation material must have a **free access**
- Further investigation material will **not** be translated by partners
- Besides providing the link with the further investigation material (articles, research, databases, videos), every partner will write a **short description** in one or two sentences presenting what the linked material is about

**PLEASE NOTE:** We must be aware of the copyrights when using web resources. When using research, articles or databases **always cite the source (see section 5.8 References)!**

Using Youtube videos is allowed as long as a **link is attached** that redirects the person to the YouTube channel (but partners are not allowed to download the videos)!

## 5.7 SELF-ASSESSMENT QUIZ

Practice and assessment questions should be designed to reinforce the achievement of learning objectives. Questions play an important role in involving learners and keeping their attention, so you should try to use them as much as you can in your storyboard. In a job-oriented course, the questions should be placed in a job-realistic context to build knowledge and skills that can be transferred to the job. Different types of practice and tests are required for different types of content.

Some e-learning courses include a final assessment of learners, while others intersperse assessments throughout the course. Assessments do not just measure learners' achievements; they can also provide learners with feedback and suggestions on how to improve learning during the course. In addition, they can be used by the trainer to revise future activities and adjust content and methods, based on the assessment results (Stein and Graham, 2014). In a facilitated course, assessments can vary - they may consist of a set of questions (online quizzes) and/or be an evaluation of learners' assignments made by the trainer. In the DigAge+ e-training we will use the single-choice or multiple-choice quiz to assess knowledge of the learners. Practical assignments won't be included, as the training will be delivered online and every learner will have the option to choose their own learning path/module. **Online quizzes are sets of questions (such as single or multiple choice, multiple response, matching, ordering, fill-in-the-blank, etc.), which provide automated feedback to learners' responses.** Most learning management systems offer the option to set up online quizzes, select different question types, add feedback, define time limits and number of attempts, set passing grades and other quiz parameters.

### Questions formats

In self-paced e-learning, practice and tests mainly consist of questions associated with response options and feedback. They generally have the following structure:

- a question or statement;
- an operational message that indicates to the learner how to perform the required operations (e.g. click, drag, press a key);
- a series of options;
- the correct answer; and
- feedback for the correct and incorrect answers.

<b>TIPS FOR DEVELOPING QUESTIONS FOR THE QUIZ</b>
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- The text of the question must be as clear and unambiguous as possible.
- Incorrect options should be plausible. An obviously wrong option does not play any useful role and decreases the learner's interest.
- Incorrect options should aim not to distract learners, but to anticipate common errors so that useful information can be provided in the feedback.
- Provide textual responses for each option of about the same length. If one of the responses is much longer than the others, the learner will think that is the correct one.
- Provide explanatory feedback: after the learner responds to a question, provide feedback saying whether the answer is correct or incorrect with a succinct explanation.

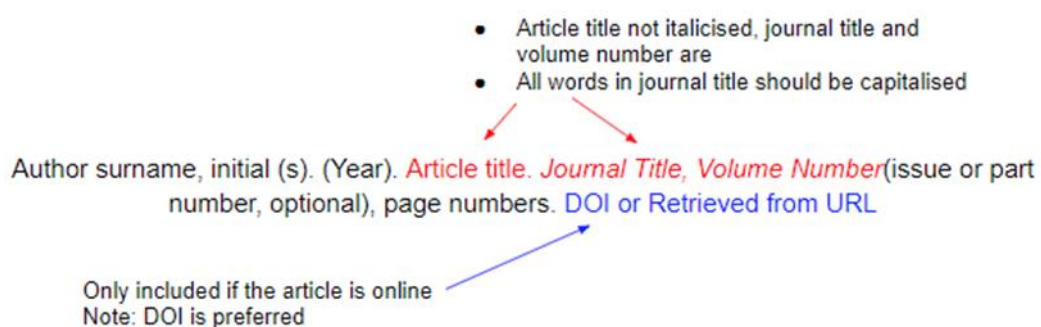
Question format that will be used in the DigAge+ Foundation part of the training will be a **self-assessment quiz with single or multiple choice answers**. The self-assessment quizzes will assess the understanding of the lesson's concepts and will work as an ongoing knowledge testing.

A multiple-choice quiz provides different options where only one is correct. This type of interaction allows for providing different feedback for each selected option.

**In order to successfully complete the module, the participant must reach a minimum of 70% of correct answers in the self-assessment quiz!**

## 5.8 REFERENCES

All the references that are used for the learning material should be listed at the end of the e-training, as follows:



Examples:

- Mitchell, J.A. & Coyne, R.P. (2017). Citation: Why is it so important. *Mendeley Journal*, 67(2), 81-95
- Mitchell, J.A. & Coyne, R.P. (2017). Citation: Why is it so important. *Mendeley Journal*, 67(2), 81-95. <https://www.mendeley.com/reference-management/reference-manager>

Newspaper and magazine articles in print or online:

- Mitchell, J.A. (2017). How citation changed the research world. *The Mendeley*, 26-28
- Mitchell, J.A. (2017). Changes to citation formats shake the research world. *The Mendeley Telegraph, Research News*. <https://www.mendeley.com/reference-management/reference-manager>

Website example:

- Mitchell, J.A. (2017, May 21). *How and when to reference*. SiteName. <https://www.howandwhentoreference.com>

Book referencing examples:

- Mitchell, J.A., Thomson, M., & Coyne, R.P. (2017). *A guide to citation*. Publisher
- Jones, A.F & Wang, L. (2011). *Spectacular creatures: The Amazon rainforest* (2nd ed.). Publisher

## 5.9 CONTACT

In case of questions, doubts or problems related to the training or the use of the platform, we must ensure that the participants can get in touch with the project consortium.

For this purpose, we will solve the potential problems of the participants in the following two ways:

- Adding a **project e-mail contact** on a visible place on the platform where participants can contact us (info@digageplus.eu);
- creating a **FAQ** (Frequently Asked Questions) with answers that we will integrate into the platform immediately after piloting - when we will get feedback about which problems were the most common and where participants have the most questions or doubts.

Frequently asked questions, or FAQs as they are known, are a great way to improve your trainees' experience on the learning platform. They allow to answer the questions that are most commonly asked surrounding the use of the platform, regarding possible complications, additional questions that may arise for the participants during the training, and so on.

## 6. DIGAGE+ VIRTUAL PLATFORM - PRACTITIONER (GAME-BASED LEARNING) E-TRAINING

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**Practitioner** (game-based learning within digitized working life scenarios) part of the DigAge+ e-training (with included certificate) will confirm whether the learner has sufficient understanding of how to apply and tailor the method in a complex working environment/scenario.

Game-based learning is combined with educational and information technology. From the e-learning carried on, game-based learning is getting more attention. In game-based learning, the course content is mapped into the game to provide a scenario environment of learning. Repeated self-learning and the ongoing interaction and feedback can increase learning interest and motivation.

Game-based learning has abundant characteristics, such as Representation, Fun, Play, Goals, Outcomes and Feedback, Win states, Competition/Challenge, Problem solving, Task, Story and so on (Felix & Johnson, 1993; Prensky, 2001), to increase the learning motivation of the trainee. Games are used to improve the dull and hard course, where course content corresponds to game levels, making the knowledge and skill of the course teaching available through game-based learning. People usually like game-based learning more than traditional learning, because it lets trainees through "Learning by Doing" achieve personalized learning. It brings the entertainment of game, fun, and interaction into education and achieves the purpose of edutainment (educational entertainment).

The following table presents the main differences between traditional and game-based learning:

TRADITIONAL LEARNING	GAME-BASED LEARNING
Passive	Active
Focuses on listening and reading	Focused on performance
Teacher oriented	Learner oriented
Validated style	Lower validity
Out of date	Up to date
Slow and strict	Fast and flexible
Skill development- listening, reading, group work, communication...	Skill development- social and communication skills, problem solving, strategic thinking, planning, analytic

	discussion...
Face to face	Attractive

**Figure 10 Comparison of the traditional learning and game-based learning**

Game-based learning will be included in the **last part of the DigAge+ e-training (after all the modules are successfully completed)** and will cover the content of all the modules provided in the platform.

The aim of the game-based learning is to test the transfer of acquired theoretical knowledge into digitized working life scenarios (created virtually), proving whether the learner has sufficient understanding of how to apply and tailor the knowledge gained in a working environment.

The game-based learning will be in the form of a **SCENARIO-BASED GAME.**

Development of the scenario and integration of the game into the platform:

- **All project partners** will be in charge of writing their suggestions for the scenario based game (suggestions must relate to the content of the module for which the partner is responsible for)
- **IPRA** will develop the final scenario for the game upon the suggestions for each module given by partners
- **UCLL** will be responsible for all the technical requirements for the development of the game on the platform

## 6.1 SCENARIO-BASED GAME

According to different systematic literature reviews (Bozkurt and Durak, 2018; Dimitriadou et al., 2021; Hassan, Pinkwart, and Shafi, 2021; Krath et al., 2021; Min et al., 2021), it is evident that the use and integration of serious games in training processes present the following benefits: they allow changes in attitude, behaviour, emotion recognition and production, as well as enhancing thinking, reasoning, motivation, communication and the promotion of digital competencies among trainees. A serious game is therefore defined as one characterized by having an approach that goes beyond entertainment or fun, that is, it can be used to enhance different areas of knowledge, to promote attitude or behaviour changes, to generate emotions, to address the acquisition of skills and competencies, collaboration and interactivity, among others. It works great when utilised to learn and practice decision-

sensitive situations. Learners can experiment and fail safely, gain more significant insights into the impact of their choices and decisions. This form of gamification is compelling, and the returns have proven to be tremendous.

Serious games offer a solution for enabling professional learning at a distance, when the acquisition in actual practice would be impossible or rather hard to realize. Professional education requires students to practice complex cognitive skills in authentic professional settings. These skills involve cognitive processes, e.g. problem solving, reasoning, taking decisions or reflecting in context.

There are a number of factors in serious games that make them an attractive choice as an e-learning method to transfer knowledge or change behaviour. Namely:

- **High engagement:** serious games make use of game mechanisms for a high entertainment value. The fun factor of games ensures high involvement: players are motivated to continue to unlock new rewards and find out how the story ends.
- **A safe place to experiment:** making mistakes is not a problem in serious games. In fact: a level can be replayed 100 times. In addition, actions in the real world sometimes have consequences such as damaged material or hurt feelings. In the safe virtual space of games, this is not the case.
- **Positive emotions improve learning:** It is fun! Studies have shown that students who learn using games experience more positive emotions. This leads to a better learning experience compared to traditional and video learning methods.

## 6.2 DEVELOPMENT OF A SCENARIO-BASED GAME

The game development process consists of **three phases**:

1. **The pre-production phase**, during which brainstorming among team members takes place, leading to the design of a paper prototype of the game;
2. **The production phase**, when the game is developed; and
3. **The post-production phase**, during which the game is tested and refined before being offered to learners.

The methodology behind The Art of Serious Game Design is an adaptation of the Design, Play, and Experience (DPE) Framework, developed by Brian Winn (2009). The DPE framework was designed to provide a formal process to guide game design, a structure to analyse serious games, and a uniform language for teams to discuss game design (ibid., p. 1020).

The Art of Serious Game Design conceptual framework, anchored in the Design, Play, and Experience Framework, is depicted as a circle and divided into four equal quadrants, each representing a different but equally important game element: **LEARNING, STORYTELLING, GAMEPLAY AND USER EXPERIENCE**. The components within each of



these game elements are connected with double-ended arrows, representing iteration and the interconnectedness between the framework's layers.

**Below is a description of each of the four game elements:**

1. **Learning** refers to the content to be learned by players through the game with specific and measurable learning outcomes.
2. **Storytelling** refers to the background story of the game and includes a description of the character(s), the setting, and the ultimate goal of the game.
3. **Gameplay** refers to the way in which the player interacts with the game, or with other players (if a multiplayer game). It encapsulates the type of activity (e.g., puzzle, trivia, etc.) found in the game.
4. **User Experience** refers to the player's emotions and attitudes while playing the game, as well as how the player interacts with the game.



Figure 11 The Art of Serious Game Design methodology circle

**Elements included in the process of the creation of the scenario:**

1. Definition and description of the **CHARACTERS**
2. Definition of a **SETTING/LOCATION**
3. Definition of core elements of the story: **CHANGE/CONFLICT**
4. Description of the **SCENE**
5. Written **DIALOGUE between the characters**

#### Additional tips when creating a scenario:

- Create a **realistic and credible context**. Learners need to feel that the story is similar to their own experience, and that the challenges faced by the characters could also happen in real life.
- Be **careful about gender and cultural issues** when developing your characters. Know your target audience to better define the story characters' geographical provenience, names and style of dress. Dialogue among characters should be gender and culture-sensitive.
- Try to make dialogue realistic by keeping **sentences short and using informal language**. Complex explanations should be provided in theory screens, rather than included in a dialogue.

#### Possible steps of the SCENARIO-BASED GAME:

1. At the beginning, the **case is presented** to the learner.
2. The learner is asked to **choose his/her avatar** before starting the scenario
3. Based on the information collected and on the principles learned in the previous course units, the learner can **make his/her decision and proceed** with the scenario
4. A score and succinct **feedback** is provided for each choice
5. The **final score** will determine whether or not the learner has passed the test

#### The creation process of the DigAge+ scenario-based game:

**1<sup>st</sup> STEP:** Partners will work together to design basic information about the scenario-based game, such as the **description of the characters and setting/location**.

**2<sup>nd</sup> STEP:** Each partner will provide IPRA MEDEF with one scenario related to the content of the module they are in charge with, such as the **draft dialogues and core elements of the story (change/conflict)**.

**3<sup>rd</sup> STEP:** The final scenario-based game will be created by **IPRA MEDEF in cooperation with UCLL**. IPRA MEDEF will write the storyboard of the game, where all the ideas/scenarios from the partners will be included and connected between each other. The scenario-based game will include the knowledge, skills and competencies gained from all the modules, and will thus take care of the final evaluation of the entire knowledge, skills, and competencies that the users acquired through the DigAge+ e-training.

**UCLL** will take care of the technical implementation and integration of the scenario-based game into the platform.

The successful completion of the final serious game will be based on the **decision-making questions that the trainee will have to answer during the whole game. The trainee will successfully finish the game if ALL the decisions made were correct!**

#### Characteristics of the DigAge+ SCENARIO-BASED GAME:

- 6 different scenarios will be created, where in each one of them the trainee will have to take the right decision (based on 5 modules and 1 combining all modules)
- The trainee will have the option to choose from **3 different options** when taking a decision, one of them will be **right**, one **neutral** and one will be **a wrong one**. Relevant comments explaining the correct, wrong or not the best decision will be provided to illustrate positive and negative consequences of each choice.
- The trainees will be put in different situations that relate to **the efficient use of digital tools** within the organisation.
- He/she will need to take the right decision that will influence his/her successful **digital performance** in the organization during the game.
- They will learn how to implement **digital knowledge, skills and attitude developed** and to **deal with uncertainty** during decision making.
- Trainees will be encouraged to **combine knowledge from different areas to choose a solution or to make a decision** at a certain point and will test how the outcome of the game changes based on their decisions and actions.
- They will **have control over a character** within a game that has to **solve different tasks** and is **confronted with problems** and will have to be the ones making decisions and choices.

## 7. ASSESSMENT PATH AND CERTIFICATION

#### Assessment path in DigAge+ e-training:

- Participants must achieve **a minimum of 70% of correct answers** in the multiples choices quizzes at the end of the modules in order to successfully complete the foundation part of e-training
- When they achieve more than 70% in all the modules they can go and play the scenario-based game in the end
- **The whole e-training is successfully completed after participants achieve a minimum of 70% in all the modules and successfully finish the scenario-based game!**

*\*For those participants that are interested in completing just specific module(s), they still get a certificate when they successfully answer to a module related quiz (a minimum of 70%*

correct answers). That will enable the training to be as flexible as it can be and adaptable to everyone's needs.

**Types of assessments included in the DigAge+ Virtual Platform:**

- **Self-assessment quizzes** at the end of every module  
10 questions per module with 3 answer options
- **Game-based assessment** through a scenario-based game at the end of the e-training (one complex scenario with at least 10 decisions to be taken by the learner, each decision/question will suggest 3 different options to choose: 1 correct, 1 neutral, 1 wrong)

In determining the acquired knowledge, competencies and skills gained through the DigAge+ training on the platform we should focus on **EQF level 6** that is often considered as opened to qualifications acquired outside the higher education context.

EQF level	Knowledge	Skills	Competence
<b>Level 6</b>	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups

Figure 12 EQF Level 6

Source: <https://europa.eu/europass/en/description-eight-eqf-levels>

**Types of certificates for the successful completion of DIG AGE+ online training program :**

- **1 certificate per module** (on the certificate will be written learning outcomes of the module). For the ones that want to complete only certain modules, without finishing the whole e-training;
- **1 main certificate at the end of the e-training** (when all the modules and the scenario-based game are successfully completed) that will cover all the knowledge, skills and competencies gained through the whole e-training

*\*The certificates that participants will be able to obtain during the e-training course will help them to get a formal validation from their National Agency, as it will work as a proof/confirmation that they have certain digital knowledge, skills and competences.*

In order to give the possibility to gain a formal validation or certification of gained knowledge, skills and competencies the certificate must contain the following information:

1. the organisation or the institution/consortium issuing it
2. place and date (education, training)
3. to whom it is issued (name and surname)
4. title of the training program and number of hours of the program as a whole
5. (verification) of competence (assessment of training - successful, other ...)
6. indication of acquired knowledge and skills (learning outcomes)
7. signature of a representative or responsible person of the organisation/institution/consortium

## 8. DEFINITION OF THE TRAINING TIMEFRAME

In the table below is the tentative time definition of DigAge+ e-training. The whole training will be **20 hours long**. Out of this, learners will spend **20 hours to complete all 5 modules** (4 hours per module) including **up to 1 one hour for completing the final scenario-based game**. We converted the learning hours into written content, where the result was that around **60 slides of module content in PPT/module (estimation)** template should be created. If partners are more interested in creating more interactive tools to present the module instead of creating written content, they can do this, but they need to be careful that the total content of a particular module will always be **between 3-5 hours**, regardless of whether they use a more traditional version of writing modules or create more interactive tools instead of writing. The 20 hours of training per module will consist of: learning outcomes, introduction, units with presented topics, case studies, summary, references and further investigation material. In further investigation material we will include various secondary

sources of already completed research, articles, videos and the like that trainees will be able to read or listen to.

MODULES	Hours	N. of PPT slides or Word pages (estimation)
INFORMATION AND DATA LITERACY	4	60
COMMUNICATION AND COLLABORATION	5	75
DIGITAL CONTENT CREATION	3	45
SECURITY AND OPERATIONS	4	60
PROBLEM SOLVING	3	45
FINAL SCENARIO-BASED GAME	1	15
<b>TOTAL</b>	<b>20</b>	<b>300</b>

Figure 13 Training Timeframe

**PLEASE NOTE:** Each learning module should be translated in each partner language. The further investigation material will not be translated, because partners will use the original available materials in different EU languages.

**PLEASE NOTE:** Each learning module should last between **3-5 learning hours**. This time consist of:

- Learning through written content - **Partners can also combine written content with interactive tools - in this case they will have less written content or can completely replace the written content in Word with the use of interactive tools, if they think that this way is more appropriate for the content of the module and its visual attractiveness!**

- Learning through one mandatory interactive tool;
- Learning through further investigation material;
- Self-assessment through multiple choices quiz

**PLEASE NOTE:** For each learning module there is an indication of the institution responsible for developing its contents.

## 9. SUMMARY

In the framework of this project we will prepare a learning and training path where employers, managers, other workers and staff members will have the possibility to gain digital knowledge, skills and competencies through an innovative and user-friendly virtual platform. The training materials will be prepared for the online training platform within the horizontal methodological approach of the above pedagogical approaches.

The learning methods that will be used in the **DigAge+ e-training** are:

- **E-learning** with included **micro-learning**
- **Self-paced** e-learning course
- **Asynchronous** e-learning
- **Self-study, video/audio tape/graphics/pictures/, WBT, simulation, learning/ game-based learning**

The learning material will be available in the form of **MODULES** that trainees will have access to on the DigAge+ e-training platform.

**The e-training offer will allow learners to achieve a two-fold qualification:**

- Foundation** (fully ICT-based training course), confirming that the learner knows and understands the proposed method well enough to be able to work effectively with it;
- Practitioner** (game-based learning within digitized working life scenarios), proving whether the learner has sufficient understanding of how to apply and tailor the method in a complex working environment.

*\*Depending on the learner's time, professional field, interests, competencies, the training path will be created in a way that each learner can choose his/her own path. That enables the individual setting and choice of learning rhythm, providing a user-friendly learning surface where individuals can adapt the training to their possibilities, habits and needs.*

## FOUNDATION PART OF THE E-TRAINING

- Every partner will write and verify the module/s that is distributed to them by the consortium (distribution will be in accordance to the professional field of partner organization)
- The training box will consist of the title of the Module and Learning outcomes of the Module, followed by Units with the specific topics. After the presentation and description of all the topics, a best practice related to the module and further investigation material (readings, videos etc.) will follow.
- Each module will be evaluated by **SELF-ASSESSMENT QUIZ** in the end.

## STRUCTURE OF THE MODULES:

- Module title
- Learning goals
- Learning outcomes of the module (knowledge, skills, attitudes)
- Introduction (3-4 phases)
- Units' titles
- Unit core content
- 1-2 case study or best practice per unit
- Interactive tool(s) (at least 1 exercise, and 1-3 interactive tools: platform H5P; PPT with voice over; Videos)
- Additional learning/profession materials - recommendations (with links to external materials, evaluation tests, and training elaborated within other Erasmus+ projects; library of re-usable Open Educational Resources (OER), etc.)
- Self-assessment quiz
- Certificate

## (WORKING) MODULE TITLES:

MODULE 1: *INFORMATION AND DATA LITERACY*

MODULE 2: *COMMUNICATION AND COLLABORATION*

MODULE 3: *CREATION OF DIGITAL CONTENT*

MODULE 4: *DIGITAL/CYBER SECURITY AND DATA PROTECTION*

MODULE 5: *PROBLEM SOLVING*

MODULE 6: *SCENARIO-BASED GAME*

## PRACTITIONER PART OF THE E-TRAINING



#### The creation process of the DigAge+ scenario-based game:

**1<sup>st</sup> STEP:** All project partners will provide ideas and suggestions serving the development of a scenario-based game, like **description of the characters, working situation & context, setting/location.**

**2<sup>nd</sup> STEP:** All partners will provide **IPRA MEDEF** with ideas of scenario based on real life situation(s) related to the content of the module they are in charge with, like **drafted dialogues and core elements of the story (change/conflict).**

**3<sup>rd</sup> STEP:** The final scenario-based game will be created by **IPRA MEDEF in collaboration with UCLL.** **IPRA MEDEF** will write the storyboard of the game, where the best ideas/scenario from partners will be included and connected between each other. The scenario-based game will include the knowledge, skills, competencies and attitude gained/developed thanks to the DIGAGE+ online training, and will thus take care of the final evaluation of the entire knowledge, attitude, skills and competencies that the users acquired through the DigAge+ e-training.

**4<sup>th</sup> STEP:** **UCLL** will take care of the technical implementation and integration of the scenario-based game into the training platform, using digital tools previously validated by all partners.

The successful completion of the final scenario-based game will be based on the **decision-making questions that the trainee will have to answer during the whole game. The trainee will successfully finish the game if ALL the decisions made were correct!**

#### GAME-BASED LEARNING

- Game-based learning will be included in the last part of the e-training (after all the modules are successfully completed) and will cover the content of all the modules provided in the platform.
- The aim of the game-based learning is to test the transfer of acquired theoretical knowledge into digitized working life scenarios (created virtually), proving whether the learner has sufficient understanding of how to apply and tailor the knowledge gained in a working environment.
- Game-based learning will be in a form of a **SCENARIO-BASED GAME.**

#### ASSESSMENT PATH AND CERTIFICATION

Two assessment tools will be used in a DigAge+ training:

1. The question format that will be used in the DigAge+ FOUNDATION part of the training is a **self-assessment quiz with multiple choice answers**. In order to successfully complete the module, the participant must reach a minimum 70% of correct answers in the self-assessment quiz!
  - **Each quiz will contain 10 questions, where each one will have 3 different answer options**
3. The successful completion of the final serious game for the PRACTITIONER part of the training will be based on the **decision-making questions that the trainee will have to answer during the whole game**. The trainee will successfully finish the game if **all** the decisions made were correct!
  - **Scenario-based game will include one complex scenario based on the content of five learning modules (each decision that will be made by platform user will propose 3 different options to choose (1 correct, 1 neutral, 1 wrong))**

#### ASSESSMENT PATH:

1. Participants must achieve a minimum 70% of correct answers in every module in order to successfully complete the foundation part of e-training
2. When they achieve a minimum 70% in all the modules they can go and play the scenario-based game in the end
3. The whole e-training is successfully completed after participants achieve a minimum 70% in all the modules and successfully finish the scenario-based game!

*\*For those participants that are interested in completing just specific module/s, they still get a certificate when they successfully answer to a module related quiz. That will enable the training to be as flexible as it can be and to be adaptable to everyone's needs.*

#### CERTIFICATES INCLUDED THE DIGAGE+ E-TRAINING:

- **1 certificate per module** (on the certificate will be written learning outcomes of the module). For the ones that want to complete only certain modules, without finishing the whole e-training
- **1 main certificate at the end of the e-training course** (when all the modules and the scenario-based game are successfully completed) that will cover all the knowledge, skills and competences gained through the whole e-training

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## ANNEX 1: Glossary

TERM	DEFINITION
Digital transformation	Digital transformation is the incorporation of computer-based technologies into an organization's products, processes and strategies.
Social computing	Social computing is an area of computer science that is concerned with the intersection of social behavior and computational systems. It is based on creating or recreating social conventions and social contexts through the use of software and technology.
Telework	The practice of working from home, making use of the internet, email, and the telephone.
Virtual environment	Networked application that allows a user to interact with both the computing environment and the work of other users.
Virtual teams	A group of people who interact through electronic communications.
Smart working	A model of work that uses new technologies and the development of existing digital technologies to improve both the performance and the satisfaction that is obtained from the job.
Pandemic fatigue	The state of being worn out by recommended precautions and restrictions relating to a pandemic.
JDR model	The job demands-resources model (JDR model) is an occupational stress model that suggests strain is a response to imbalance between demands on the individual and the resources he or she has to deal with those demands.

Internet-based computer technologies	Devices, software, hardware and transmission protocols used to connect computers together in order to receive or send data from one computer to another within a small network or as part of a small network within a larger network, such as the Internet.
Digital infrastructure	Digital technologies that provide the foundation for an organization's information technology and operations.
Cost-benefit analysis	A systematic approach to estimate the strengths and weaknesses of alternatives.
Microlearning	Microlearning is a holistic approach for skill based learning and education which deals with relatively small learning units.
Personalised learning	Personalized learning is an educational approach that aims to customize learning for each student's strengths, needs, skills, and interests.
Interactive courseware	A training program controlled by a computer that relies on trainee input to determine the order and pace of instruction delivery. The trainee advances through the sequence of instructional events by making decisions and selections. The instruction branches according to the trainee's responses.
Learning path	A chosen route taken by a learner through a range of (commonly) e-learning activities, which allows them to build knowledge progressively.
Digital skills	Knowledge and skills required by individuals for the optimal use of information and communication technologies.
E-learning	The use of computer and internet technologies to deliver a broad array of solutions to enable learning and improve performance.

Self-paced learning	Specific learning method in which the learner is able to control the amount of material they consume as well as the duration of time they need to learn the new information properly.
Cognitive domain	The development of our mental skills and the acquisition of knowledge.
Problem-centred learning	A student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
Simple learning resource	Non-interactive resources such as documents, PowerPoint presentations, videos or audio files.
Interactive e-lesson	Responsive content that fosters active e-learning.
Electronic simulation	Specific form of Web-based training that immerse the learner in a real world situation and respond in a dynamic way to his/her behaviour.
Job aid	Simple, clear instructions on how to do something at work.
Synchronous learning	A general term used to describe forms of education, instruction, and learning that do occur in the same place or at the same time.
Asynchronous learning	A general term used to describe forms of education, instruction, and learning that do not occur in the same place or at the same time.
Learning modality	The method of communication by which training content is conveyed to the learners.
Visual learning	Teaching and learning style in which ideas, concepts, data and other information are associated with images and techniques.
Auditory learning	Learning style in which a person learns through listening.

Kinaesthetic learning	Learning style in which learning done by students is actually done by physical activities, rather than listening to lectures or just watching a demonstration.
Passive learning	A method of learning or instruction where students receive information from the instructor and internalize it.
Active learning	A method of learning in which students are actively or experientially involved in the learning process and where there are different levels of active learning, depending on student involvement.
Learning management system	A software application for the administration, documentation, tracking, reporting, automation, and delivery of educational courses, training programs, materials or learning and development programs.
Social learning	Learning based on a theory developed by psychologist Albert Bandura that proposes that learning is a cognitive process that takes place in a social context and occurs purely through observation or direct instruction, even in the absence of motor reproduction or direct reinforcement.
Game-based learning	Application of games to learning using tailor-made content or third-party content, all within a gaming environment.
Blended e-learning	Blended learning is the combination of traditional, face-to-face learning methods with technology-based, e-learning methods.
Task analysis	Analysis that identifies the job tasks that learners should learn or improve and the knowledge and skills that need to be developed or reinforced.
Topic analysis	Analysis that is carried out to identify and classify the course content.

Learning objective/outcome	A statement describing a competency or performance capability to be acquired by the learner.
Bloom's taxonomy	A set of three hierarchical models used for classification of educational learning objectives into levels of complexity and specificity.
Prerequisite method	Method that uses a learning objectives hierarchy, teaching first those skills that seem to be prerequisites for all other skills.
4MAT system	A framework for understanding the way organizations learn, grow and evolve.
Best practice	Commercial or professional procedures that are accepted or prescribed as being correct or most effective.
Scenario-based game	Games where learners are placed in complex problem spaces, which mimic real world situations.
DPE Framework	Framework that provides a formal process to guide game design, a structure to analyse serious games, and a uniform language for teams to discuss game design.
European Qualifications Framework	An 8-level, learning outcomes-based framework for all types of qualifications that serves as a translation tool between different national qualifications frameworks.

## ANNEX 2: Acronyms

ACRONYM	MEANING



JDR	Job demands-resources
ICT	Information and communications technology
WBT	Web-based training
CBT	Computer-based training
ILT	Instructor-led training
DPE	Design, Play and Experience
EQF	European Qualifications Framework
LMS	Learning Management System



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