



# DIGI-Pain?

## Memorandum of Understanding



## Summary

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# Memorandum of Understanding

## Context and Objectives of the Memorandum of Understanding

### Description of project

Since the last decade, the sector has been facing challenges to cope with an uncertain future. These include the lack of young people entering the profession, the quality of education/training and the knowledge of market innovations on the part of entrepreneurs and training institutions. The pandemic situation highlighted the weakness of vocational education and training systems, in particular the lack of digital skills of educators. The DIGI-PAINT project aims to build a structured scheme aimed at educators in the painting sector, i.e. tutors in companies, to support them in the progressive and inevitable adaptation to digital. Being digitally ready for continuing education and entrepreneurship is of particular importance in the field of vocational education and training, ensuring the digital transition also for apprenticeships.

Firstly, it will be necessary to work on pedagogical methodology, i.e. how to master digital tools from a pedagogical perspective in order to build an adequate online training with motivational input. At the same time, it is necessary to create a database of resources with pictorial content aimed in particular at business tutors, in order to overcome the lack of face-to-face situations. Various interactive real-life situations/practical cases will be identified to support the work-based learning periods, in case this takes place virtually. As each teacher has his/her own methodology, sometimes lacking any kind of digital skills, the project aims to guide his/her digital professional development to use digital resources in an educational/training context. Digitisation is not a distribution of computers, but a need to create resources with adequate information on tools, techniques and ways of delivering virtual training. The idea behind the project is to concretely engage educators on the topic of digitisation to overcome its disruptive effects on the world of training and education in the field of painting/decoration.

The DIGI-PAINT project, therefore, stems from the need to create tailor-made digital solutions for educators in the painting and decorating sector, to provide them with the resources and tools they need to overcome current and future challenges. The digitisation of training is a priority in apprenticeship programmes when on-the-job learning is not directly possible. The sector of painters and decorators in the construction industry has shown in the last decade a strong need for skills and competences that need to be regularly updated. Unfortunately, the sector has been experiencing a lack of young people entering the profession and a lack of quality in education and training for many years.

The main needs that the project is trying to address can be summarised in three main aspects:

- Building capacity to implement online, blended and distance teaching and learning;
- Developing the digital pedagogical skills of educators, enabling them to provide high quality inclusive digital education;
- Creating high quality digital content, such as innovative online resources and tools.

Objectives: The DIGI-PAINT project will build a structured scheme aimed at educators in the painting sector to support them in adapting to digital. The partners will work on the pedagogical part and on how to master digital tools from a pedagogical perspective in order to build an appropriate online training with motivational input. DIGI-PAINT intends to concretely engage educators on the topic of digitisation to overcome its disruptive effects on the world of training and education in the painting and decorating sector.

The main objective of the project is the creation of tailor-made digital solutions for painting and decorating teachers to provide them with the resources and tools they need to overcome the current digital challenge. The digitisation of training is a priority, particularly in apprenticeship programmes when the work-based learning period cannot be conducted in face-to-face mode. Teachers, trainers and tutors will be the target group as key elements of the learning process. During the pandemic period, they were a target group with a strong need for digital adaptation. The difficulties were significant because they are a group with long experience in preservice courses and a lack of digital literacy. The focus is now on developing educators' capacity to implement online, blended and distance learning, developing their digital pedagogical skills and enabling them to deliver digital education using virtual content as resources and innovative online tools.

Aligned with the European Commission's priorities in the new Skills Agenda published in July 2020, the DIGI-PAINT project supports the objective of building resilience based on the lessons learnt from the COVID crisis. It is necessary to emphasise the strategic importance of equipping people with skills adapted to a new economic environment, deeply affected by the COVID-19 crisis. Digital technologies are transforming the world at an unprecedented speed. They change the way we communicate, live and work and are changing our society and the way we perceive it. Quality education plays a key role in empowering everyone to participate in the transformation to the digital age by providing people with the skills they need for today's and tomorrow's society.

DIGI-PAINT will be a unique opportunity for the painting/decorating sector "...to take a new approach to vocational education and training, making it more modern, attractive, flexible and suitable for the digital age and the green transition. Vocational education and training will be an essential tool to help young people and adults find jobs after the Coronavirus crisis' (VET Recommendation 2020: a future-proof approach).

DIGI-PAINT will empower educators in the painting/decoration sector to "adopt innovative methods, to be aware of the environmental and climate impact of digital technologies and services to make more sustainable choices, to collaborate and engage in peer learning and share their experiences". The project has the added value of building on the needs of the painting sector to improve the quality of training, developing digital methods and content, enhancing online resources and tools for the professional development of VET teachers, trainers and tutors.

The results of the DIGI-PAINT project will be added to the open InPaint platform to support VET institutions and the painting sector in several countries. This platform brings together all the previous results of the project and will be an open-access resource for painting educators, students and companies, contributing to innovation in vocational education and improving digital skills. A Hub will be created to promote peer-to-peer learning activities aimed at educators in the construction sector, extending the scope of the painting sector to other construction activities. Therefore, the DIGI-PAINT project will build a structured scheme aimed at educators in the painting sector to support them in adapting to digital. The partners will work on the pedagogical part and on how to master digital tools from a pedagogical perspective in order to build appropriate online training with motivational input.

DIGI-PAINT intends to concretely engage educators on the topic of digitalisation and its disruptive effects on the world of training and education in the field of painting and decorating.

The transnational partnership comprises 7 partners from 6 countries (LU, IE, BE, FR, IT, PT), each with specific responsibilities for digital and educational technology, pedagogical practices, in-depth experience in the painting and decorating sector (schools and companies) and networking. The expected results and direct impact of DIGI-PAINT will be the updating of educators in the painting sector with regard to digital skills; the updating of training in the sector; the increase of attractiveness for the younger generation; the expansion of the network of vocational training institutes in painting.

The transferability of DIGI-PAINT products will be ensured by each partner's country and by the networks of painting schools which have very close contacts with national associations. These organisations represent a potential sub-network of stakeholders and end-users who could be directly involved in the course of the project.

## Project Results

Apart from the closer cooperation between the partners, which is always an added value for a better knowledge of the sector's issues and training, the concrete results of the project activities are divided into 4 tasks as follows:

- PR1 - Pedagogical content for the educators training
- PR2 - Interactive real-life situations to work-based learning periods
- PR3 - Database of digital tools to support painting educators
- PR4 - Hub for Teachers, Trainers and Tutors

In addition, intangible results are also produced in the project such as:

- Promoting the continuous exchange of know-how and experience between project partners;
- Promoting cooperation between vocational training schools for painting students;
- Developing a sense of cooperation between vocational training providers in the painting and construction industry on how to adopt digital for painting topics;
- Increasing motivation among painting schools, teachers, trainers and tutors to the value of digitisation by ensuring a European dimension of learning;
- Bringing together the national UNIEP associations (the European sector association) and the networks of each partner.

### PR1 - Pedagogical content for the educators training

The objective of PR1 was to provide educators with the necessary pedagogical and technical knowledge and skills to plan, implement, evaluate and develop ICT-based courses and to structure a digital approach for educators through tutorials and booklets. This was achieved with the development of training booklets on pedagogical guidelines for instructors.

The documents produced outline the topics for instructors of online training courses; the content is therefore useful not only for paint instructors but also for any other trainer wishing to improve their skills related to the delivery of any online training course.

The topics of the pedagogical guidelines are closely related to each other and are as follows:

1. Instructional design;
2. Learner's motivation and interaction;
3. Learning resources;
4. Evaluation and feedback;
5. Online Trainer skills.

## PR2 - Interactive real-life situations to work-based learning periods

Within project result 2, software was developed that is accessible via desktop and/or laptop and will provide a real-life interactive learning situation in which the learner will be able to choose from a range of options to address a specific painting and decorating scenario. The resources created were based on a VR involving the EQF qualifications of Painter and Painter (EQF4).

In the task, practical cases and real-life virtual situations were identified taking into account the qualifications involved EQF framework level 4. The following 5 learning units were then created:

- Unit 1: Planning of work procedures and workplace set-up;
- Unit 2: Installation and Coating Techniques;
- Unit 3: Old Building Painting Techniques for Restoration;
- Unit 4: Paints, Coatings and Natural Wood Treatment Products - Use of Environmentally Friendly Products;
- Unit 5: Circular Economy.

A storyboard was written for each of these units.



Fig. 1: Measurement and Calculation (3D)

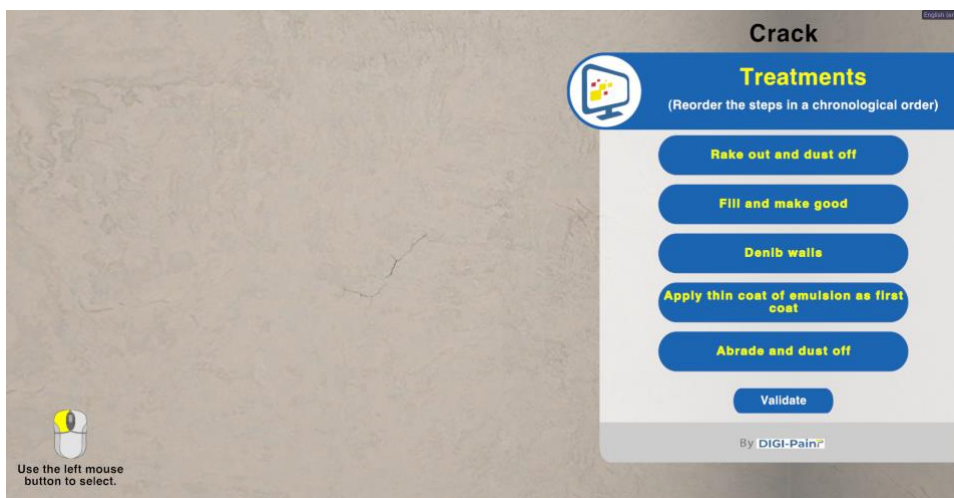


Fig. 2: Pathologies: identification and remedies (3D)



Fig. 3: Coating woodwork (3D)



Fig. 4: Spraying a raw plaster ceiling (VR)



Fig.5 Wallpapering



## PR3 - Database of digital tools to support painting educators

This Task focused on the development of a database of digital painting tools that educators can use to better support student learning. The objective was to encourage educators to document and develop their skills in the use of different digital tools. Therefore, a database of digital painting tools was created as a tool to be used to better support student learning. The target group of this task is mainly teachers, trainers and tutors.

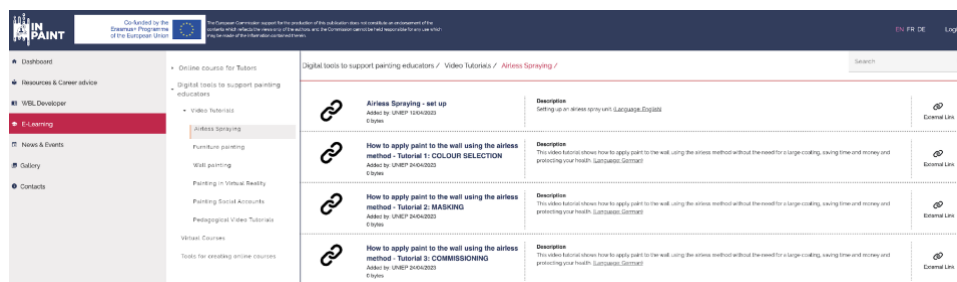


Fig. 6: Database of digital tools to support painting educators

## PR4 - Hub for Teachers, Trainers and Tutors

The DIGIPAIN project was designed to address current and future challenges in the field of art education by providing customised digital solutions to painting and decorating educators. The main objective of the project is to fill the strong need for skills in this area by offering resources and tools to educators to overcome current limitations, including the lack of face-to-face training due to the Covid-19 crisis.

One of the central aspects of the DIGIPAIN project was the implementation of a digital hub, an online environment that provides a meeting point for educators, students and professionals in the field, enabling them to access innovative teaching resources and tools. Thanks to the intervention of the Ambassadors, technical experts in the field selected in each partner country, the Hub can also be used by institutions in other countries that are not part of the project.

A key aspect of the hub is user-friendliness. Particular attention is paid to the user interface, trying to make the navigation experience familiar and intuitive for users. No special manuals or tutorials are required to use the hub, as an attempt has been made to adopt a user interface that is familiar and generally well known to users. In addition, the hub was developed in such a way as to be usable on mobile devices, such as smartphones and tablets, which are increasingly used as web browsing tools. This allows users to easily access the hub's resources and tools wherever they are.

In conclusion, the digital hub of the DIGIPAIN project is an important operational tool for painting and decorating educators. It provides them with a secure, intuitive and easily accessible environment for online teaching and learning. The hub aims to offer high quality teaching resources and innovative tools, enabling educators to develop digital pedagogical skills and offer high quality inclusive education. The material shared, is either material already used and selected by the partner institutions or specially designed. Guides, regulations and other useful materials will also be exchanged in order to be continuously updated on new painting techniques.



## Learning Teaching Training Activities (LTTA) and HUB Ambassadors

At the end of the design and testing phase of the HUB, a training event was organised for future trainers. Participants were chosen by the partners from among their teachers, trainers, tutors, coaches, mentors and other staff with a view to their future involvement in the digitisation of teaching. The event was a time of intensive work and an opportunity to invite local experts, teachers, trainers and tutors and other staff to strengthen the sector network and offer comments and suggestions for the improvement of the HUB and other tools produced within the DigiPaint project. VET providers and local schools (Rome in presence and Piacenza remotely) highlighted the problems that arise during training especially when dealing with the digitisation of training.

The LTTA was also a good moment to identify potential Ambassadors for the Hub. Thanks to the Ambassadors, technicians from the sector selected in each partner country, the Hub can also be used by entities from other countries that are not part of the project. In fact, the HUB includes within it, in addition to the common section, 7 territorial groups of painters, teachers and experts from 7 European countries (Belgium, France, Ireland, Italy, Luxembourg and Portugal)

In addition, the ambassadors will have the task of stimulating the digitisation of training in the countries involved and the exchange of good practices.

The following Ambassadors were identified during the Learning Teaching Training Activities:

HUB Ambassadors		
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## Digitalisation of Pedagogical Guidelines for trainers

### Video 1 - Pedagogical guidelines for instructors

#### 1. Introduction

Trainers in painting and decorating who wish to start the process of digitising their courses and enable their learners to train online, must adapt their teaching practices to this training method. To do this, they will have to acquire new skills and integrate concepts which they are not necessarily used to deal with in the design of their 'traditional' courses.

To help trainers in the digitisation process, Digi-Paint proposes a set of 5 explanatory videos that will deal with:

- Instructional design
- Learner's motivation and interaction
- Learning resources
- Evaluation and feedback
- Online trainer skills

#### 2. Instructional design

Digitising training does not fundamentally change the instructional design trainers put in place for face-to-face courses. However, they need to consider important aspects in the process. Indeed, the fact that the pedagogical scenario, as well as the potential hazards arising in the pedagogical relationship with participants, must be anticipated as much as possible from the start of course design onwards, as they will not be able to regulate these aspects as in a classroom setting. Similarly, as far as evaluation is concerned, trainers should pay particular attention to this, as they will only be able to rely solely on the digital tool to know whether their learners have really learned the concepts they wanted to transfer.

##### Methodology of instructional design

The first step in instructional design is to define a methodology. To help with this, trainers can use instructional design models to create learning experiences which help facilitate learning. For example, the ADDIE (Analyse, Design, Develop, Implement, and Evaluate) Instructional Design method is the most commonly used because it does not impose a linear progression on the learner.

The trainers can then adapt or modify this method according to their own pedagogical practices once they are comfortable with it.

#### 2.2. Setting clear learning objectives

In the second phase of instructional design trainers should set learning objectives using short sentences. These should be expressed in a clear, tangible, observable and measurable way in simple, everyday language.

In order to better control their usefulness, trainers can define the learning objectives in two categories:

- Training objectives
- Pedagogical objectives

The training objectives include the pedagogical objectives and are more general. They define, with the help of an action verb, the associated means, the operating conditions and the different activities of the training fields that make up a training programme. At this level the results of an evaluation are defined according to the criteria and indicators related to it (summative evaluation). This type of evaluation defines the level of achievement of the learning outcomes.

Pedagogical objectives describe each action of the learning objective with a 'process' verb. At this level the evaluation criteria and indicators are defined (formative evaluation). This type of assessment defines the learner's progress in the training course.

Further, it is suggested to avoid common or familiar words as much as possible, and avoid academic words whose meaning has not been explained before.

The learning objectives can be classified into 3 categories which can be combined, particularly in the drafting of pedagogical objectives:

- Cognitive (knowledge)
- Psychomotor (skills)
- Socio-affective (attitudes)

Cognitive (knowledge): This category of learning objectives relates to the knowledge improvement of safety rules, standards, professional calculations, etc.

Psychomotor (skills): This category of learning objectives relates to the improvement of know-how, methodologies.

Socio-affective (attitudes): This category of learning objectives is difficult to define because it involves defining attitudes or behaviours related to aspects of feelings and emotions.

The chosen action verbs or procedures in the drafting of learning objectives will enable trainers to define their category and whether their students have the necessary prerequisites to achieve them. To do this, trainers can set up a diagnostic type of assessment at the beginning of the course to be able to check them.

Ensuring that learners have mastered the prerequisites of the knowledge they need to learn is very important in the process of digitising training.

Finally, trainers will need to define the resources available to the learners and the conditions under which these different learning objectives should be achieved.

This will allow them to define the level of complexity of the learning objectives that the learners will have to achieve.

### 2.3 Designing the learning architecture / Identifying key questions

The third step is to keep the learner's attention. To do this, it is suggested to structure the training in a pathway, subdividing the main course into sequential modules: the learning modules. These should then be structured and organised to fit the time frame, the requirements of the expected results and the planning of the e-learning content while avoiding information overload. This modular learning pathway must be able to meet the requirements of a certification scheme while allowing learners to know which training module they should take first.

## 2.4. Developing learning materials

The final point to consider is that e-learning requires a set of appropriate resources and equipment. The current market supply of such resources and equipment is sufficiently rich to enable trainers to offer their learners attractive and motivating virtual learning. These aspects will be discussed in more detail in a future video.

### Video 2 - Educational content

Educational content is the keystone of a digital training course because it contains the knowledge to be acquired. There are different types of content the trainers must master because each of them has different characteristics that can be more or less conducive to learning.

There are three types of educational content:

- Passive content
- Dynamic content
- Interactive content

Pictures, graphics and texts are passive content because the learner can only consult them. This content can also be considered directive because it is scripted from the trainer's point of view, which does not always correspond to the way in which some learners may apprehend the information.

Podcasts, sound recordings and videos (filmed or in motion design) are considered dynamic audio-visual resources. This content is also considered directive and linear because it is scripted from the trainer's point of view.

Interactive content is the most engaging and motivating because it allows learners to manipulate it freely in order to build their knowledge without linearity. The trainers' directivity is almost non-existent, except that they must think carefully about how to script all possible interactions.

There are several types of interactive contents:

- The single point resource can be manipulated in rotation, scale or trigger animations.
- The simulator principle allows the learners, through successive interactions, to put their knowledge/skills into practice in a socio-professional context. Random events can also be programmed to allow learners to reflect on the procedures they perform. Trainers also have the possibility of evaluating the actions carried out by the learners.
- The serious game, which often is a succession of simulations or interactive situations thanks to the concept of gamification. The serious game also integrates the evaluation system.

Generally having a virtual classroom with all the necessary didactic equipment in which they can be with all the learners to give a course.

The immersive technologies add significant value to the training experience because the learners are no longer in front of a screen, but are immersed in the virtual training environment through a headset; this captures their attention because the environment is no longer an obstacle to their training. The use of this type of technology also requires the trainer to think of new forms of evaluation.

Once the educational content has been developed, trainers can distribute it via a training platform or LMS (Learning Management System), which will enable them to manage the administration of the training. They will be able to link content to the previously identified educational objectives and allocate the training to

the learners of their choice. They can set up the evaluation and monitor the progress of learners in the various training contents. They can set up the type of training they wish to provide (synchronous or asynchronous) as well as the methods of communication with their learners. There are a large number of LMSs, both free and paid, available on the market. Before choosing an LMS, trainers need to define the features they need in order to have a tool that is optimised for their teaching practices. However, setting up a platform requires technical skills or the help of an educational engineer who will programme the platform according to the parameters indicated by the trainers.

Finally, social networks are also interesting tools to use in the context of digital training. They can be used to advertise the training or to share feedback or evaluation results with a community. It is also a way for learners and trainers to communicate in a context outside the training framework.

speaking, the educational content is created with dedicated software, either free or paid. Depending on the level of mastery of this software, trainers may need to rely on experts to help them in the production of this content. However, depending on the tools used to design this type of content, it is possible, thanks to digital images (2D and 3D), to illustrate information or concepts that are difficult to observe with the eye using a camera.

As technology evolves rapidly, realistic 3D simulations and immersive technologies such as virtual or augmented reality are gradually becoming more widely available. These technologies allow the creation of 'pseudo-real' learning environments, allowing learners to train as if they were in a professional situation. They encourage experimentation without security risks and without economic consequences because the learning resources are unlimited.

### Video 3 - Learner's motivation and interaction

For an e-learning course to be effective, it must, among other things, meet the expectations of the learners. By allowing them to interact with the learning content, learners are more enthusiastic and motivated to acquire new skills and knowledge.

Trainers must therefore have some control over the design of the learning content or work with an instructional designer to create appropriate features. Trainers need to extract the knowledge or concept they want to address and think about how their learners will interact with the content to acquire the knowledge.

The challenge for trainers is above all to avoid the linearity of the educational content, which can put the learner in a passive situation in front of the screen. By allowing them to interact with the educational content by taking quizzes or in the form of work-related situations throughout the course, they will feel fully involved in their training.

Trainers also need to integrate into the digitalisation of their training the fact that learners must be allowed to go through the training independently, without necessarily indicating the stages they must go through. Trainers therefore must position themselves as an accessible resource that keeps the social link alive and maintains the learners' motivation by intervening with each of them in an individualised manner. It is also a way for learners to share their difficulties, or on the contrary, positive feedback on their training through comments or during video sessions.

Finally, trainers must consider the variety of learning methods that digital technology allows. To do this, they must choose the method that they feel is most suitable for the deployment of the developed training, while considering the level of equipment available to their learners.

## Video 4 - Evaluation and feedback

In the context of digital e-learning, it is important for trainers to maintain a social link with the learners. By giving feedback or engaging in discussions as regularly as possible, they can ensure that the learners are in the right mindset during their training. Verbal communication is still more effective than written communication because it limits problems of understanding.

Initiating e-learning with a group session during which learners can express their expectations and concerns is appropriate to create a group spirit and allow trainers to identify learners who will need particular attention. The positioning phase (or diagnostic assessment) is an important stage of e-learning because it allows trainers to identify the learners' pre-requisites. Through this dual approach, trainers are able to carry out their role at a distance and to intervene individually with each of their learners.

Throughout the course, trainers must set up a formative evaluation process, sanctioned by a summative evaluation, to identify whether the learners are succeeding or falling behind. Depending on the results of each learner, trainers can either intervene individually to help learners in difficulty, or adapt their teaching objectives if they notice that the class as a whole is in difficulty. To do this, they can, for example, carry out a survey to identify the elements that have caused them difficulty.

Whatever the type of assessment and the result obtained by the learners, trainers must take the time to explain the assessment criteria that they have put in place to assess them. During these exchange periods, learners can consolidate or complete their learning by sharing their feedback on the course.

## Video 5 - Online trainer skills

To sum up, the task of trainers who wish to digitise their training to deliver it online is not much different from their usual task in classroom training. The use of digital tools enables them to be more efficient in the act of training and to assess whether the pedagogical design has been well thought out beforehand. To do this, trainers must master the digital technologies, software solutions as well as didactic equipment. Trainers must also pay attention to the different profiles of the learners in their class and assess their level of digital literacy to ensure that they do not have technical or ergonomic problems during their training.

The physical distance with the learners must be compensated for by active and regular communication in order to maintain the social link. This can be done by choosing the right communication tools. They must ensure the instructions are understood and make themselves available to answer learners' questions.

In the context of e-learning, trainers cannot regulate the learners' learning activity in real time. As a result, they have to estimate the length of the modules as well as the time allocated to individual or group communication before the training course.

## Organisations signing the Memorandum of Understanding

Organisation 1 - Lead of the partnership	
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## Assessment, documentation, validation and recognition

By signing this Memorandum of Understanding we confirm that we have discussed the procedures for assessment, documentation, validation and recognition and agree on how it is done.

## Validity of this Memorandum of Understanding

This Memorandum of Understanding is valid from the end of the project until five years later. After this period, partnerships will analyse the continuation of it.

The Memorandum of Understanding may be renewed in subsequent updates of the project or in a new one.

## Signatures

Organisation / Country	Organisation / Country	Organisation / Country	Organisation / Country	Organisation / Country	Organisation / Country	Organisation / Country
UNIEP/Luxembourg	TechnologicalUniv ersityDublin/ Ireland	Formedil/Italy	EuropeanPainting Partners/Belgium	IMANOVATION/ Portugal	Centre de C. Parachèvement/ Luxembourg	Epistèmes/France
Name/Role	Name/Role	Name/Role	Name/Role	Name/Role	Name/Role	Name/Role
HelmutSchulz President	Dr Eric Bates, Lecturer	ElenaLovera President	NeilOgilvie EPP member	Alexandra Costa Artur Partner	MarcAnt Director	DOMINGUEZ Jacques President
Place/Date	Place/Date	Place/Date	Place/Date	Place/Date	Place/Date	Place/Date
Luxembourg,29/09/23	Dublin, 16/10/2023	Rome, 9/09/23	UK, 30/09/23	Portugal, 30/09/23	Luxembourg, 10/10/23	France, 16/10/23
Signature	Signature	Signature	Signature	Signature	Signature	Signature
