Cooperation Framework of a Common Digital Transformation Training Arena

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Index

Introduction

The IO4 consists of **proper schemes and guidelines to guarantee a long lasting and formal mechanism among partners** to:

a) Guarantee *permanent update & maintenance of the visual tool*
b) Extend the *participation of training providers* in the field of industry digital transformation
c) Establish *cooperation mechanisms between mapped organizations* thus extending the training opportunities offered to end users.

The Methodology

The cooperation framework of a common digital transformation training arena is based on cooperation mechanisms, which have been built during the project among training organizations registered in the Atlas platform. The connection among training organizations can't be establish itself only by using the platform, in fact **all project partners have realized the importance of being promoters/brokers of potential cooperation mechanisms**.

Partners have agreed their mutual understanding on the "twinning principle", and starting from the different training resources mapped in the Atlas and specific training organization profiles, they have activated profitable exchanges aimed at:

1) Understanding the different training contexts, programs and ECVET systems
2) Negotiating how complementary training programs could be matched together to offer better and complete opportunities to European trainees
3) Sharing long term perspective of the Digital Industry training Atlas to the Erasmus Plus National Agencies of the involved partner countries.

The IO4 shows how it has been possible to connect training organizations, developing "twinning nodes", to enhance new synergic and transnational training programs in the field of industry digital transformation.

The IO4 consists of:

- A **Twinning guide**, illustrating how twinnings should be arranged to make the effective and to reach the planned goals (establish cooperation between 2 training organizations and achieve at least 5 cooperation mechanisms)
- A **Twinning Report** illustrating outcomes of the twinnings

- An **Operational Scheme** describing how connections among training facilities should work, based on the evidence of the negotiations activated during the twinnings
- A **Communication Manual** describing how end users of the visual should be informed about the synergies that can be activated between the several complementary training resources that have been mapped
- A **Brochure** describing the Training Atlas as well as the role of the nodes
- A **Plan** to connect the Atlas to the most relevant EU initiatives in the field of Digitizing Europe.

For each output there is a dedicated chapter below.

Chapter 1: The Twinning Guide

The Twinning guide illustrates how twinnings should be arranged to make them effective and to reach the planned goals (establish cooperation between 2 training organizations and achieve at least 5 cooperation mechanisms).

The Twinning Guide Methodology

To ensure the involvement of all Project Partners, a co-design joint workshop has been launched and coordinated by NSB: a *Miro dashboard* (Figure 1) has been set up and make accessible to all Partners, as a guideline to be used as concept for a group discussion: https://miro.com/app/board/o9J_lIGJZU0=/

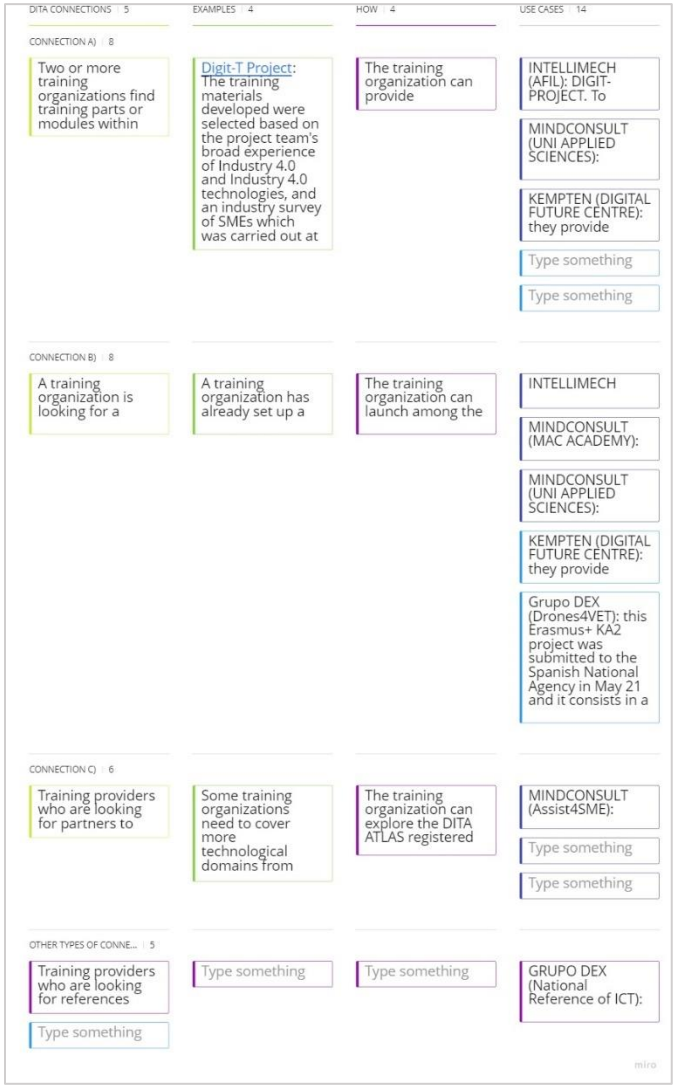


Figure 1 Twinning Guide Miro Dashboard

During the joint workshop session, all Project Partners have discussed, co-designed and decided how twinning should be arranged and which goals should be achieved. Moreover, they have identified possible organizations to involve in the twinnings and characteristics to consider in the establishment of the cooperation mechanisms.

The Twinning Guide Strategy

The twinning guide strategy defines which types of cooperation mechanisms can be established, considering types of connections, types of examples of cooperation mechanisms to follow, actions are required by TOs and possible first use cases.

Below the examples/guidelines agreed with all PPs to be followed:

a) **Two or more training organizations find training parts or modules within their training offer which are open (or easier) to be connected with other modules (provided by other training organizations), thus leading to a richer training scheme.**

Example: Digit-T Project: The training materials developed were selected based on the project team's broad experience of Industry 4.0 and Industry 4.0 technologies, and an industry survey of SMEs which was carried out at the start of the Digit-T project. The Digital Manufacturing Training System for SMEs (Digit-T) project was created to develop a coherent training programme for SMEs to aid them in accessing clear and useful information about Digital Manufacturing. Digit-T is a collaborative project led by the University of Nottingham (UK) in conjunction with STIIMA-CNR (Italy), EURECAT (Spain) and Associazione Fabbrica Inteligente Lombardia (AFIL, Italy).

How: The training organization, if interested in establishing a cooperation mechanism, can provide information about the “open” courses available in order to find possible matching among partners.

b) **A training organization is looking for a complementary module to improve its training offer. Thus, the need is very clear and expressed in a specific topic or technological domain.**

Example: a training organization has already set up a training course in a specific technological domain and would like to implement a specific part where there are some weaknesses.

How: The training organization can launch among the DITA ATLAS registered organizations an expression of interest to find the right match, expressing what it is looking for.

c) **Training providers who are looking for partners to offer complete supply for relevant skills for the Digital Industry.**

Example: some training organizations need to cover more technological domains from their current offer and would like to implement training programmes together with partners able to supply complementary skills for the Digital Industry also considering the potential of reaching new markets,

How: The training organization can explore the DITA ATLAS registered organizations and then send an expression of interest to find the right match, expressing what it is looking for

The Cooperation Mechanism Template

To facilitate the creation of cooperation mechanisms and to guide project partners in the development of twinnings, a template has been created and delivered. **The DITA Cooperation mechanism template is a sort of guideline to be followed by project partners in the establishment of match**, helping them to focus on the training organizations' profiles, training courses offered, type of twinning to be created, next steps to follow, including a possible timeline.

INVOLVED ORGANIZATIONS

ORGANIZATION 1	**ORGANIZATION 2**
Name:	Name:
Country:	Country:
Website:	Website:
Contact:	Contact:
Types of training (considering business perspective; technical perspective; complementary skills focus):	Types of training (considering business perspective; technical perspective; complementary skills focus):
Target groups (e.g. age, type of students, etc.):	Target:
DITA Technology Areas*:	DITA Technology Areas:

OBJECTIVE:

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	**EXPLANATION**

a) Two or more training organizations find training parts or modules within their training offer which are open (or easier) to be connected with other modules (provided by other training organizations), thus leading to a richer training scheme	
b) A training organization is looking for a complementary module to improve its training offer. Thus, the need is very clear and expressed in a specific topic or technological domain	
c) Training providers who are looking for partners to offer complete supply for relevant skills for the Digital Industry	
d) Training providers who are looking for other organizations to cooperate in European projects	
e) Other	

ACTIVITY PLAN:

ORGANIZATION 1	ORGANIZATION 2

TIMELINE

ACTIVITY 1			
3 months / deadline			

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

***Technology Areas**

☐ Sensors, actuators, MEMS, NEMS, RF ☐ Photonics, electronic and optical functional materials ☐ Screens and display technologies	☐ Cyber security (including biometrics) ☐ Advanced or High-performance computing

☐ Broadband and other communication networks (e.g. 5G) ☐ Cyber physical systems (e.g.: embedded systems) ☐ Robotics and autonomous systems ☐ IoT (e.g.: connected devices, sensors and actuators networks) ☐ Artificial intelligence and cognitive systems ☐ Location based technologies (e.g. GPS, GIS, in-house localization) ☐ Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)	☐ Data mining, big data, database management ☐ Augmented and virtual reality, visualization ☐ Simulation and modelling ☐ Gamification ☐ Software as a Serviced and service architectures ☐ Cloud Computing ☐ Additive Manufacturing (3D printing) ☐ Laser based manufacturing ☐ ICT management, logistics and business systems ☐ Internet services (e.g. web development, web production, design, networking and e-commerce) ☐ New Media technologies

Chapter 2: the Twinning Report

The Twinning Report is composed of 6 cooperation mechanisms, and they have been created following the twinning template explained in Chapter 1:

- DITA COOPERATION MECHANISM N. 1 (H-FARM - MAC ACADEMY)
- DITA COOPERATION MECHANISM N. 2 (Technologie Transfer Zentrum Kempten //TTZ Kempten – FH Kufstein)
- DITA COOPERATION MECHANISM N. 3 (CFEOC - Fachhochschule FH Kufstein Tirol)
- DITA COOPERATION MECHANISM N. 4 (CRN Leganés – FH Campus 02)
- DITA COOPERATION MECHANSIM N. 5 (CFTIC - CMQ Numérique)
- DITA COOPERATION MECHANISM N. 6 (Spaceway - APEU-FEUC)

DITA COOPERATION MECHANISM N.1

INVOLVED ORGANIZATIONS

ORGANIZATION 1	**ORGANIZATION 2**
Name: H-FARM EDUCATION	**Name:** MAC ACADEMY
Country: Italy	**Country:** Austria
Website: campus.h-farm.com/en/	**Website:** https://myacademy.world/
Contact: alice.dalpiaz@h-farm.com	**Contact:** andreas.otmischi@myacademy.world
Types of training (considering business perspective; technical perspective; complementary skills focus): Digital basic competences: manage, work, Ecommerce, digital marketing 1 MicroMaster in Digital Marketing (at the moment it is in Italian, but maybe it can be transformed in English) – 4 weekends (Friday, Saturday), one weekend a month Master in Ecommerce: how to manage the Ecommerce marketing, also for the offline part. In 2022 it will be offered in English. 10	**Types of training (considering business perspective; technical perspective; complementary skills focus):** NEEDS of employees from companies in Carinthia: ○ Digital basic competences ○ Language competences ○ Special technical competences in some specific topics They offer basic competences on that, so they are looking for a partner

modules – 6 months programme in the weekends (blended learning) 1 Master in Digital Transformation and Entrepreneurship (in Italian) SPARX: digital transformation courses for children	
Target groups: Students from all ages	**Target:** Young students and apprentices
DITA Technology Areas*: New Media Technologies	DITA Technology Areas: New Media Technologies

OBJECTIVE:

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT

TYPE	EXPLANATION
a) **Two or more training organizations find training parts or modules within their training offer which are open (or easier) to be connected with other modules (provided by other training organizations), thus leading to a richer training scheme**	
b) **A training organization is looking for a complementary module to improve its training offer. Thus, the need is very clear and expressed in a specific topic or technological domain**	• Think about special SPARX courses in English for people aged 13-14 (area/theme tbc) • Develop a SPARX course in Austria (i.e. 1 week in May or September) • Digital Saturdays or Weekends customized by target/theme *Short Term (by Summer 2022)*
c) **Training providers who are looking for partners to offer complete supply for relevant skills for the Digital Industry**	• Strategic vision to be shared among the two training organizations (exchange of good practices, etc.) • Create specific training offers for companies (develop some training

	they need > check companies' needs by MAC/MINDCONSULT) • Strategic development from the management (considering the different academies already developed by MAC in Carinthia, Tirol, Dresden). *Medium Term (18-24 months)*
d) Other	• Possible cooperation in EU projects (Interreg, Erasmus+, HEurope) *Long Term (>24 months)*

ACTIVITY PLAN:

ORGANIZATION 1	ORGANIZATION 2
Contact the SPARX team and connect with MAC in order to understand which courses can be implemented together.	Plan courses together for the short period: define the possible needs of students; promote the new courses to students; plan a possible course in Austria (considering the availability of teachers).
Share good practices	Share good practices
Offer new courses (also for international companies)	Check for specific companies' needs with Mindconsult and develop new courses, if possible, in cooperation with H-Farm
Think about new projects to develop together	Think about new projects to develop together

TIMELINE

ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
6-8 months	**18-24 months**	**>24 months**
• **SPARX Courses** • **Other courses for cooperation** • **Special workshop on April 9th in Roncade (TV, Italy)**	• Good practices shared, courses for companies, strategic vision • Cooperation with additional workshop modules • Workshops in Austria with the participation of H-FARM	EU projects activated

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

ORGANIZATION 1: there is the opportunity to change the Master in Omni eCommerce to English (probably in 2022).

***Technology Areas**

☐ Sensors, actuators, MEMS, NEMS, RF	☐ Cyber security (including biometrics)
☐ Photonics, electronic and optical functional materials	☐ Advanced or High-performance computing
☐ Screens and display technologies	☐ Data mining, big data, database management
☐ Broadband and other communication networks (e.g. 5G)	☐ Augmented and virtual reality, visualization
☐ Cyber physical systems (e.g.: embedded systems)	☐ Simulation and modelling
☐ Robotics and autonomous systems	☐ Gamification
☐ IoT (e.g.: connected devices, sensors and actuators networks)	☐ Software as a Serviced and service architectures
☐ Artificial intelligence and cognitive systems	☐ Cloud Computing
☐ Location based technologies (e.g. GPS, GIS, in-house localization)	☐ Additive Manufacturing (3D printing)
☐ Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)	☐ Laser based manufacturing
	☐ ICT management, logistics and business systems
	☐ Internet services (e.g. web development, web production, design, networking and e-commerce)
	☒ New Media technologies

DITA COOPERATION MECHANISM N. 2

INVOLVED ORGANIZATIONS

ORGANIZATION 1	ORGANIZATION 2
Name: Technologie Transfer Zentrum Kempten //TTZ Kempten	**Name:** FH Kufstein
Country: Germany	**Country:** Austria
Website: www.hs-kempten.de	**Website:** www.fh-kufstein.ac.at/
Contact: Charlotte Wallin	**Contact:** Dr. Mario Döller
Types of training (considering business perspective; technical perspective; complementary skills focus): Expert-presentations in the broad field of mobility (i.e. e-mobility, drones, autonomies driving, data acquisition, analyses, fleet optimization). The target groups receive a big amount of information as well as contact persons and different perspectives from Austria and Germany.	**Types of training (considering business perspective; technical perspective; complementary skills focus):** Expert-presentations in the broad field of mobility (i.e. e-mobility, drones, autonomies driving, data acquisition, analyses, fleet optimization). The target groups receive a big amount of information as well as contact persons and different perspectives from Austria and Germany.
Target: Mobility sector, SME, R&D, business support organizations, politics	**Target:** Mobility sector, business support, SME, R&D, politic
DITA Technology Areas*: Mobility, Industry 4.0	**DITA Technology Areas:** Mobility, Industry 4.0

OBJECTIVE:

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	EXPLANATION

Two or more training organizations find training parts or modules within their training offer which are open (or easier) to be connected with other modules (provided by other training organizations), thus leading to a richer training scheme	The TTZ Kempten presents and discuss their E-mobility and drone-knowledge in the DIH WEST trainings by the FH-Kufstein. The trainings have shown how many common topics the FH Kufstein and TTZ Kempten have. One of the results of the trainings is the R&D-project AI4GREEN which will be submitted in May 2022.
A training organization is looking for a complementary module to improve its training offer. Thus, the need is very clear and expressed in a specific topic or technological domain	
Training providers who are looking for partners to offer complete supply for relevant skills for the Digital Industry	
Training providers who are looking for other organizations to cooperate in European projects	
Other	

ACTIVITY PLAN:

ORGANIZATION 1	ORGANIZATION 2
13.12.2021, participation in DIH WEST	13.12.2021, DIH West (Digital Innovation
25.03.2022, DIH West	25.03.2022, DIH West
01.05.2022, AI4GREEN	01.05.2022, AI4GREEN

TIMELINE

ACTIVITY 1			
3 months / deadline	25.03.2022	DIH West	
	01.05.2022	**AI4GREEN, project**	

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

The common trainings and knowledge exchange due to the DITA-project has resulted in a new project application which will be submitted in Mai 2022. The project application AI4GREEN

includes topics as Industry 4.0, drones, AI, digitalization, green mobility and process optimization.

***Technology Areas**

☐ Sensors, actuators, MEMS, NEMS, RF	☐ Cyber security (including biometrics)
☐ Photonics, electronic and optical functional materials	☐ Advanced or High-performance computing
☐ Screens and display technologies	☒ Data mining, big data, database management
☐ Broadband and other communication networks (e.g. 5G)	☐ Augmented and virtual reality, visualization
☐ Cyber physical systems (e.g.: embedded systems)	☒ Simulation and modelling
☐ Robotics and autonomous systems	☐ Gamification
☐ IoT (e.g.: connected devices, sensors and actuators networks)	☐ Software as a Serviced and service architectures
☒ Artificial intelligence and cognitive systems	☐ Cloud Computing
☒ Location based technologies (e.g. GPS, GIS, in-house localization)	☐ Additive Manufacturing (3D printing)
☐ Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)	☐ Laser based manufacturing
	☐ ICT management, logistics and business systems
	☐ Internet services (e.g. web development, web production, design, networking and e-commerce)
	☐ New Media technologies

DITA COOPERATION MECHANISM N. 3

INVOLVED ORGANIZATIONS

ORGANIZATION 1	ORGANIZATION 2
Name: CFEOC (Centro Formación en Edificación y Obra Civil)	**Name:** Fachhochschule FH Kufstein Tirol
Country: Spain	**Country**: Austria
Website: https://cftic.centrosdeformacion.empleo.madrid.org/	**Website:** https://www.fh-kufstein.ac.at/eng/
Contact: Elisabeth López (elisabeth.lopez@madrid.org)	**Contact:** Mario Döller (Mario.Doeller@fh-kufstein.ac.at)
Types of training (considering business perspective; technical perspective; complementary skills focus): Mainly VET courses, oriented to the workforce upskilling and re-skilling, as well as to the unemployed. The focus is clearly set in the construction and civil works sector	**Types of training (considering business perspective; technical perspective; complementary skills focus):** Tertiary level education, oriented to the technical and technological fields and in close link with the industry and the entrepreneurial environment of the region
Target: Unemployed, VET students, workforce	**Target:** University Students, VET students, workforce
DITA Technology Areas*: Location based technologies (e.g. GPS, GIS, in-house localization) Simulation and modelling	**DITA Technology Areas:** Location based technologies (e.g. GPS, GIS, in-house localization) Simulation and modelling

OBJECTIVE:

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	EXPLANATION
Other	The CFEOC (Training Centre in Edification and Civil Works) is a public VET provider dependent of the Region of Madrid (General Directorate for Employment and Education) labelled as a “National Reference Centre” by the Spanish Ministry of Employment. This means that the centre carries out experimental and innovative training courses, methodologies and practices that can be afterwards mainstreamed to the rest of the VET centres at National Level. As one of the most cross-cutting training entities in the field of new technologies applied to construction-related activities in Spain, the CFEOC

	also intends to set up cooperation mechanisms with other similar entities across Europe. However, until now they lacked the final push in order to properly set up a long-lasting collaboration, which has been facilitated by the DITA project. On its side, FH Kufstein (based in Kufstein, Tirol, Austria) is a public university of applied sciences with a marked research focus on digitalisation, as well as in innovative teaching methodologies. They have sound experience in the field of drones, since they have been working on a previous project that provided an architecture and real-time data pipeline. In 2020, the system has been awarded in Austria with the 3rd place in the FFG Galileo Masters competition. Specific research video for explanation: https://owncloud.fh-kufstein.ac.at/index.php/s/sSi3exBV7pqI3Ww Both organisations applied to the Erasmus+ Spanish National Agency for a KA2 project titled Drones4VET. The project duration is 34 months, starting in February 2022. The connection between the two entities and the idea of setting up an Erasmus+ project was facilitated by the DITA Atlas, since both entities were present on it at the time of the project preparation and, thanks to it, they could easily reach out to other training providers potentially interested in participating in the project. One of the DITA partners (Grupo DEX) supported the two organisations during the project preparation and even participates in the Drones4VET project, taking the lead in the first project result (transnational analysis on the possibilities potentially opened by drones in the construction sector). The goal of the project is to develop and test a state-of-the-art pilot course in the field of drones within construction-related activities through transnational cooperation (6 partners from 5 different EU-countries). The project addresses the challenge of updating the VET offer in relation to the use of drones in construction related activities. It envisages the development of a pilot training programme for the students of the organisations participating in the project that will be pilot implemented by the training organisations taking part: Munster Technological University (Ireland), Bildungszentren des Baugewerbes (Germany), CMQ Occitanie (France) and, of course, CFEOC (Spain) and FH Kufstein (Austria). Finally, special focus will be given to updating the competences of the staff involved in the training thanks to a set of guidelines for educators. More detailed information is accessible via de following link: https://edificayobracivil.centrosdeformacion.empleo.madrid.org/drones4vet Drones4VET kick-off meeting in Gijón (Spain) on the 28th of March 2022. The meeting was hosted by Grupo DEX (DITA project partner)

ACTIVITY PLAN:

ORGANIZATION 1	ORGANIZATION 2
Overall coordination of the project: management and communication	Contribution to effective and timely project management and dissemination
Contribution to the preparatory transnational analysis	Contribution to the preparatory transnational analysis
Development and piloting of the course	Development and piloting of the course
Development of a set of guidelines for educators	Development of a set of guidelines for educators

TIMELINE

Transnational analysis	**Up to M9**
Development and piloting of the course	Up to M30
Overall quality-assessment and guidelines for educators	Up to M34
Project management and communication	Up to M34

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

This mechanism seems to be promising because of the multiple benefits that the inclusion of drones in construction-related activities can bring. The partners will assess the main areas of development of these activities and work on a joint training programme tailored to the current and future needs of the sector.

***Technology Areas**

☐ **Sensors, actuators, MEMS, NEMS, RF**	☐ **Cyber security (including biometrics)**
☐ **Photonics, electronic and optical functional materials**	☐ **Advanced or High-performance computing**
☐ **Screens and display technologies**	☐ **Data mining, big data, database management**
☐ **Broadband and other communication networks (e.g. 5G)**	☐ **Augmented and virtual reality, visualization**
☐ **Cyber physical systems (e.g.: embedded systems)**	☒ **Simulation and modelling**
☐ **Robotics and autonomous systems**	☐ **Gamification**
☐ **IoT (e.g.: connected devices, sensors and actuators networks)**	☐ **Software as a Serviced and service architectures**
☐ **Artificial intelligence and cognitive systems**	☐ **Cloud Computing**
☒ **Location based technologies (e.g. GPS, GIS, in-house localization)**	☐ **Additive Manufacturing (3D printing)**
☐ **Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)**	☐ **Laser based manufacturing**
	☐ **ICT management, logistics and business systems**
	☐ **Internet services (e.g. web development, web production, design, networking and e-commerce)**
	☐ **New Media technologies**

DITA COOPERATION MECHANISM N. 4

INVOLVED ORGANIZATIONS

ORGANIZATION 1	ORGANIZATION 2
Name: CRN Leganés	**Name:** FH Campus 02
Country: Spain	**Country**: Austria
Website: https://elecyaeronautica.centrosdeformacion.empleo.madrid.org/	**Website:** https://www.campus02.at/
Contact: Esther Cristóbal (esther.cristobal@madrid.org)	**Contact:** Wilfried Wolf (wilfried.wolf@campus02.at)
Types of training (considering business perspective; technical perspective; complementary skills focus): Mainly VET courses, oriented to the workforce upskilling and re-skilling, as well as to the unemployed	**Types of training (considering business perspective; technical perspective; complementary skills focus):** Tertiary education offers in different fields, mainly in relation to technical activities and engineering.
Target groups: Unemployed, VET students	**Target:** University Students, business environment
DITA Technology Areas*: Sensors, actuators, MEMS, NEMS, RF Robotics and autonomous systems Cyber security (including biometrics)	**DITA Technology Areas:** Sensors, actuators, MEMS, NEMS, RF Robotics and autonomous systems Cyber security (including biometrics)

OBJECTIVE:

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	EXPLANATION
Training providers who are looking for other organizations to cooperate	The CRN Leganés is a public VET provider dependent of the Region of Madrid (General Directorate for Employment and Education) labelled as a “National Reference Centre” by the Spanish Ministry of Employment. This means that the centre carries out experimental and innovative training courses, methodologies and practices that can be afterwards mainstreamed to the rest of the VET centres at National Level. As one of the most cross-cutting training entities in the field of smart industry in Spain, the CRN Leganés also intends to set up cooperation

in European projects	mechanisms with other similar entities across Europe. However, until now they lacked the final push in order to properly set up a long-lasting collaboration, which has been facilitated by the DITA project. On its side, Campus 02 (based in Graz, Styria, Austria) is a public university of applied sciences funded in 1995 by the Styrian Chamber of Commerce. as Centre de Métiers et Qualifications by the French Government. CAMPUS 02 UAS offers technical-scientific and business degree programmes oriented towards the international challenges of a modern professional environment at an academic level. In particular, they have just set up a new 6-semester full-time bachelor's degree programme "Smart Automation", so they are deeply committed to industrial transition and industry 4.0 in more general terms. Both organisations applied to the Erasmus+ Spanish National Agency for a KA2 project titled RE-MAIN. The project duration is 34 months, starting in January 2022. The connection between the two entities and the idea of setting up an Erasmus+ project was facilitated by the DITA Atlas, since both entities were present on it at the time of the project preparation and, thanks to it, they could easily reach out to other training providers potentially interested in participating in the project. One of the DITA partners (Grupo DEX) supported the two organisations during the project preparation. The project addresses the challenge of remote maintenance of industry 4.0 installations and equipment. It envisages the development of a pilot training programme for the students of the organisations participating in the project. With the help of the technological partner, FESTO automation, partners will be able to test the programme with state-of-the-art machinery replicas. The objective is to adapt and update the training programmes offered by the organisation in relation to the new trends and needs of the industrial sector, as well as improve the trainers' competences in the field. More detailed information is accessible via de following link: https://elecyaeronautica.centrosdeformacion.empleo.madrid.org/proyecto-remain *RE-MAIN kick-off meeting in Leganés (Madrid) on the 6th of April 2022. Presentation by Wilfried Wolf from Campus 02.* *The meeting counted with the presence of Diego Díaz, from Grupo DEX (DITA project partner)*

ACTIVITY PLAN:

CRN Leganés	FH Campus 02
Supervision of the eBook	Overall coordination of an eBook on Remote Maintenance of Industry 4.0 equipment
Definition of the equipment requirements prior to the development of the training courses	Definition of the equipment requirements prior to the development of the training courses
Elaboration of the transnational training programme	Elaboration of the transnational training programme
Pilot implementation of the course at local level	Pilot implementation of the course at local level
Technical guidelines for educators: enabling replicability of the course	Conducting of an internal survey as source of primary information for the technical guidelines for educators.

TIMELINE

eBook development	**Up to M12**
Definition of the equipment requirements and training programme drafting	From M9 to M24
Technical guidelines for educators	From M11 to M34
Testing at local level with students and training actions thanks to the development of the training programme	From M19 to M26

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

The cooperation mechanism seems to be promising as it addresses a common challenge at EU level derived from the development of Industry 4.0 equipment. The inclusion of a technological partner such as FESTO automation will enable the participating organisations to obtain a state-of-the-art equipment that will be useful in the medium-term.

***Technology Areas**

☒ **Sensors, actuators, MEMS, NEMS, RF**	☒ **Cyber security (including biometrics)**
☐ **Photonics, electronic and optical functional materials**	☐ **Advanced or High-performance computing**
☐ **Screens and display technologies**	☐ **Data mining, big data, database management**
☐ **Broadband and other communication networks (e.g. 5G)**	☐ **Augmented and virtual reality, visualization**
☐ **Cyber physical systems (e.g.: embedded systems)**	☐ **Simulation and modelling**
☒ **Robotics and autonomous systems**	☐ **Gamification**
☐ **IoT (e.g.: connected devices, sensors and actuators networks)**	☐ **Software as a Serviced and service architectures**
☐ **Artificial intelligence and cognitive systems**	☐ **Cloud Computing**
☐ **Location based technologies (e.g. GPS, GIS, in-house localization)**	☐ **Additive Manufacturing (3D printing)**
☐ **Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)**	☐ **Laser based manufacturing**
	☐ **ICT management, logistics and business systems**
	☐ **Internet services (e.g. web development, web production, design, networking and e-commerce)**
	☐ **New Media technologies**

DITA COOPERATION MECHANISM N. 5

INVOLVED ORGANIZATIONS

ORGANIZATION 1	ORGANIZATION 2
Name: CFTIC	**Name:** CMQ Numérique
Country: Spain	**Country:** France
Website: https://cftic.centrosdeformacion.empleo.madrid.org/	**Website:** www.cmqnumerique.fr
Contact: Javier Rodríguez (javier.rodriguez.pascua@madrid.org)	**Contact:** Xavier Cheney contact@cmqnumerique.fr
Types of training (considering business perspective; technical perspective; complementary skills focus): Mainly VET courses, oriented to the workforce upskilling and re-skilling, as well as to the unemployed	**Types of training (considering business perspective; technical perspective; complementary skills focus):** VET courses offered in collaboration with the University of Grenoble and the business environment of the region
Target groups (e.g. age, type of students, etc.): Unemployed, VET students	**Target:** University Students, VET students, workforce
DITA Technology Areas*: Broadband and other communication networks (e.g. 5G) IoT (e.g.: connected devices, sensors and actuators networks Location based technologies (e.g. GPS, GIS, in-house localization)	**DITA Technology Areas:** Broadband and other communication networks (e.g. 5G) IoT (e.g.: connected devices, sensors and actuators networks Location based technologies (e.g. GPS, GIS, in-house localization)

OBJECTIVE

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	EXPLANATION

Training providers who are looking for other organizations to cooperate in European projects	The CFTIC is a public VET provider dependent of the Region of Madrid (General Directorate for Employment and Education) labelled as a "National Reference Centre" by the Spanish Ministry of Employment. This means that the centre carries out experimental and innovative training courses, methodologies and practices that can be afterwards mainstreamed to the rest of the VET centres at National Level. As one of the most cross-cutting training entities in the field of ICT in Spain, the CFTIC also fosters European Cooperation and participates in cooperation projects or schemes. On its side, the CMQ Numérique (based in Valence, Rhone-Alpes) is a public VET training provider recently labelled as Centre de Métiers et Qualifications by the French Government. This kind of centres bring together the academic and business environment in order to facilitate technology assimilation and improve the labour market access of their students. In their experience, digital pollution is a very relevant downside of digitalisation that should be considered and adequately dealt with. That is, every time we make use of an online service, such as videoconferences, cloud storage, web browsing, we unconsciously create a set of data that has to be processed by a data center consuming remarkable amounts of energy and with an important carbon footprint. Both organisations are participating in an Erasmus+ KA2 project titled GreenCo, funded by the Spanish National Agency. The project duration is 34 months, starting in February 2022. The idea of the project is to create a self-evaluation tool for students that enables them to make better choices in their daily life data consumption and, specifically for the ICT students, acquire the necessary skills and knowledge for designing efficient software and tools. In a later stage, a MOOC will be developed and tested at local level in order to integrate the best practices obtained in the students' mindsets and data consumption patterns. The connection between the two entities and the idea of setting up an Erasmus+ project on the field of digital pollution was facilitated by the DITA Atlas, since both entities were present on it at the time of the project preparation and, thanks to it, they could map which of the training providers could be interested in participating in the project. One of the DITA partners (Grupo DEX) supported the two entities during the project preparation. *Project kick-off meeting in Getafe (Madrid) (4th of April 2022).*

The meeting counted with the presence of Diego Díaz, from Grupo DEX (one of the DITA project partners)

ACTIVITY PLAN:

ORGANIZATION 1	ORGANIZATION 2
Overall coordination of an eBook on Digital Pollution for awareness-raising	Contribution to the eBook in the field of Energy consumption, giving their strong expertise on such topic thanks with the collaboration with the University of Grenoble.
Development of the Mock-up App for self-assessment	Validation of the Mock-Up APP -
Overall coordination of the definitive APP	Testing the features of the app

Pilot implementation at local level with students and training actions thanks to the development of a MOOC.	Pilot implementation at local level with students and training actions thanks to the development of a MOOC.

TIMELINE

eBook development	**Up to M6**
Development of the Mock-up App	Up to M12
Overall coordination of the definitive APP	Up to M24
Testing at local level with students and training actions thanks to the development of a MOOC.	Up to M34

ADDITIONAL NOTES (explain why the cooperation mechanism seems to be promising)

This mechanism seems to be promising because in parallel to the development of cloud computing and storage services, the energy efficiency of that kind of activities must be a factor that is carefully taken into account and addressed by the training organisations, that have to be sure that they provide tailored training to their students on how to reduce the data (and thus energy) consumption of their activity**.**

***Technology Areas**

☐ **Sensors, actuators, MEMS, NEMS, RF**	☐ **Cyber security (including biometrics)**
☐ **Photonics, electronic and optical functional materials**	☒ **Advanced or High-performance computing**
☐ **Screens and display technologies**	☒ **Data mining, big data, database management**
☒ **Broadband and other communication networks (e.g. 5G)**	☐ **Augmented and virtual reality, visualization**
☐ **Cyber physical systems (e.g.: embedded systems)**	☐ **Simulation and modelling**
☐ **Robotics and autonomous systems**	☐ **Gamification**
☒ **IoT (e.g.: connected devices, sensors and actuators networks)**	☒ **Software as a Serviced and service architectures**
☐ **Artificial intelligence and cognitive systems**	☒ **Cloud Computing**
☒ **Location based technologies (e.g. GPS, GIS, in-house localization)**	☐ **Additive Manufacturing (3D printing)**
☐ **Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)**	☐ **Laser based manufacturing**
	☒ **ICT management, logistics and business systems**
	☐ **Internet services (e.g. web development, web production, design, networking and e-commerce)**
	☐ **New Media technologies**

DITA COOPERATION MECHANISM N. 6

INVOLVED ORGANIZATIONS

ORGANIZATION 1	ORGANIZATION 2
Name: Spaceway	**Name:** APEU-FEUC
Country: Portugal	**Country:** Portugal
Website: https://wearespaceway.com	**Website:** https://apeu.fe.uc.pt/
Contact: Jorge Monteiro	**Contact:** Adriana Oliveira

SELECT THE TYPE OF COOPERATION YOU WOULD LIKE TO IMPLEMENT (more options are possible)

TYPE	EXPLANATION
Two or more training organizations find training parts or modules within their training offer which are open (or easier) to be connected with other modules (provided by other training organizations), thus leading to a richer training scheme	
A training organization is looking for a complementary module to improve its training offer. Thus, the need is very clear and expressed in a specific topic or technological domain	APEU-FEUC does deliver trainings related with innovation, which might bring value to trainings foreseen to be implemented by Spaceway
Training providers who are looking for partners to offer complete supply for relevant skills for the Digital Industry	
Other	

ACTIVITY PLAN TO DO

ORGANIZATION 1	ORGANIZATION 2
Spaceway can collaborate with APEU as a service provider in the area of training and consultancy, contributing on the program content development, identifying training needs and carrying out training and consultancy actions. TO DO's: - Training needs identification; - Content development;	In order to organize training actions that are increasingly closer to the needs of its customers, APEU privileges entities that promote the practical nature of the training it teaches. The collaboration with Spaceway is, therefore, an example of proximity between entities that intend to carry out training tailored to the needs identified by their customers.

- Training and consultancy development.	- Training needs identification + crosscheck with training needs identified previously by Spaceway; - Content development in partnership with Spaceway; - Training and consultancy dissemination.

TIMELINE

ACTIVITY 1			
3 months / deadline			
Training needs identification;	**6 months**	Training needs identification + crosscheck with training needs identified previously by Spaceway;	**6 months**
Content development;	**12 months**	Content development in partnership with Spaceway	**12 months**
Training and consultancy development	**16 months**	Training and consultancy dissemination.	**16 months**

***Technology Areas**

☐ **Sensors, actuators, MEMS, NEMS, RF**	☐ **Cyber security (including biometrics)**
☐ **Photonics, electronic and optical functional materials**	☐ **Advanced or High-performance computing**
☐ **Screens and display technologies**	**X Data mining, big data, database management**
☐ **Broadband and other communication networks (e.g. 5G)**	☐ **Augmented and virtual reality, visualization**
☐ **Cyber physical systems (e.g.: embedded systems)**	☐ **Simulation and modelling**
☐ **Robotics and autonomous systems**	☐ **Gamification**
X IoT (e.g.: connected devices, sensors and actuators networks)	☐ **Software as a Serviced and service architectures**
☐ **Artificial intelligence and cognitive systems**	☐ **Cloud Computing**
X Location based technologies (e.g. GPS, GIS, in-house localization)	☐ **Additive Manufacturing (3D printing)**
	☐ **Laser based manufacturing**
	☐ **ICT management, logistics and business systems**

☐ Interaction technologies (e.g.: human machine interaction, motion recognition and language technologies)	X Internet services (e.g. web development, web production, design, networking and e-commerce) ☐ New Media technologies

Chapter 3: the Operational Scheme

The Operational Scheme describes how connections among training facilities should work, based on the evidence of the negotiations activated during the twinnings. Considering that the cooperation mechanisms connections have been created thanks to the involvement of the Project Partners as brokers and promoters of the Atlas, a scheme has been defined with the specific steps to follow by each partner. The scheme is reported in Figure 2 below and **it has been included in the Communication Manual as a guide for the partners**.

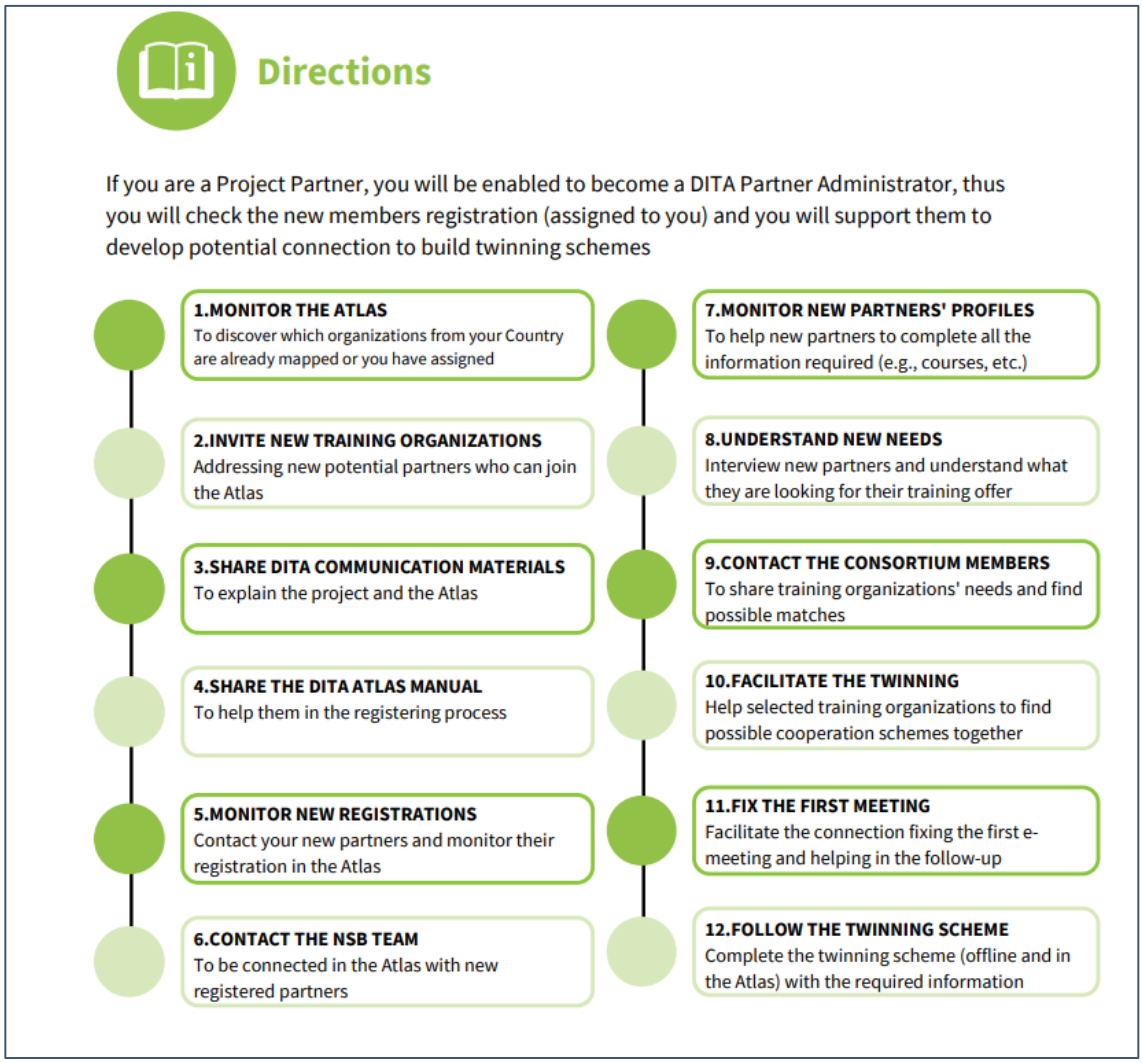


Figure 2 Operational Scheme for Project Partners

Thanks to these steps, **the Project Partners become facilitators of new twinnings** and can help the creation of potential matches. The most relevant aspects as facilitators are:

a) the capacity of **knowing the needs of Training Organizations and possible gaps** in their training offer;

b) the capacity of **understanding the mindset of a Training Organization** in order to connect it with the right partner;

c) being able to **match potential partners** and facilitate their meetings and matches;

d) helping Training Organizations in the **development of a plan** to be followed.

To optimize the potentiality of the Atlas two more operational schemes (guidelines) have been established for New Members of the Atlas (new Training Organizations who have joined the Atlas) and for already registered Training Organizations. The two schemes are respectively shown in Figure 3 (New TOs Members) and Figure 4 (already registered Members). Both are included in the Communication Manual (published on the website).

Figure 3 Operational Scheme for New TOs Members

Figure 4 Operational Scheme for TOs already registered

Chapter 4: the Communication Manual

The **Communication Manual** has been developed to **help Project Partners** and Training Organizations to **understand how they can benefit from the Atlas** and synergies that can be activated, offering specific guidelines (see Chapter 3) to support the twinning among Training Organizations. The Manual includes: the DITA slang, information about the network, target groups, guidelines for Project Partners, guidelines for new and old Atlas members, guidelines for the interviews to the National Agencies and NCP.

The Communication Manual (Figure 5) provides:

a) **guidelines to be followed by Project Partners** to increase the number of Training Organizations registered in the Atlas;

b) **guidelines to new and already registered Atlas members** to use the Atlas as a platform of connections to create new training opportunities in the digital transformation area;

c) **interviews schemes to be used by Project Partners to connect the Atlas** to the most relevant EU initiatives in the field of Digitizing Europe. Expected goals of communication and engagement.

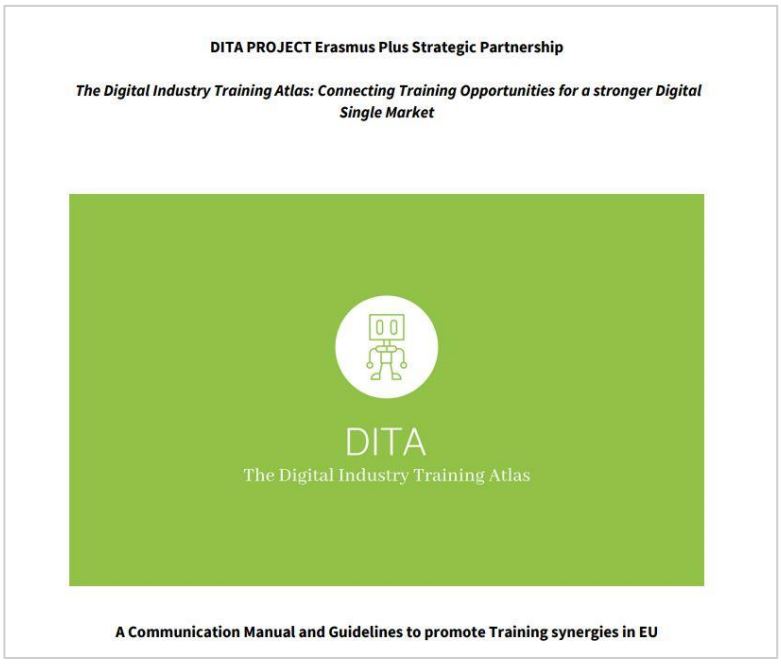


Figure 5 DITA Communication Manual

Chapter 5: the Training Atlas Brochure

The **Brochure of the Training Atlas** describes **how the platform works, why and how to establish the connections among TOs**, which is the added value of joining the Atlas. Below in Figure 6 a part of the Brochure explaining the Atlas for new training organizations and how the connections work.

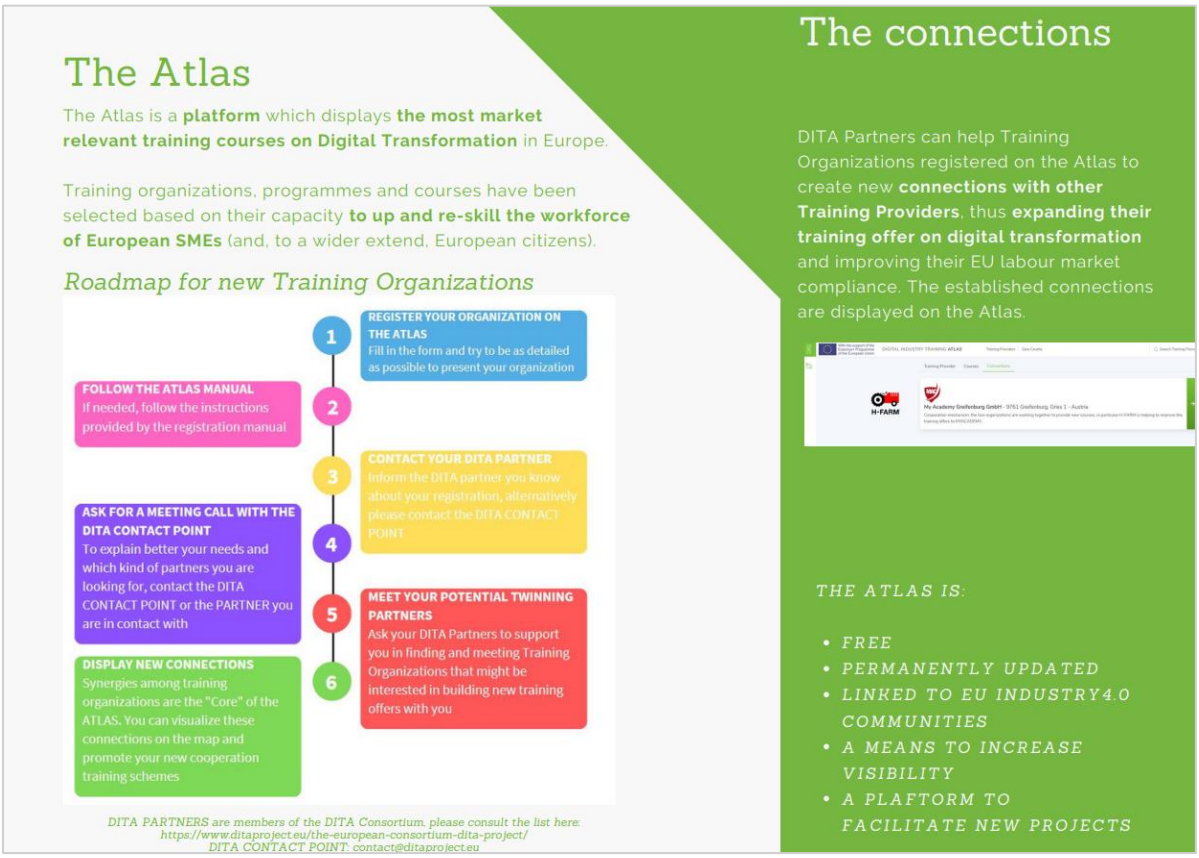


Figure 6 DITA Atlas Brochure

Chapter 6: the Sustainability Plan

This chapter describes the plan adopted to connect the Atlas to the most relevant EU initiatives in the field of Digitizing Europe, and it has been built following the inputs collected during the interviews with Project Partners, Training Organizations registered in the Atlas, Erasmus National Agencies and NCPs (see sections 6 and 7), relevant networks contacted to create synergies and to join events.

The initiatives which have been identified as the most promising ones to support the spread of the DITA ATLAS have been classified into:

- Associations and Networks
- Existing Catalogues
- Running Projects

Each initiative has been briefly described, together with the added value of a possible cooperation with DITA.

Subsequently, the roadmap leading to stronger connections and to an expansion of the DITA Catalogue is described. It is made up of 7 logical steps:

1. An update of the available training organizations and their programs (maintenance)
2. A marketing round with the regional initiatives on smart industry and digital skills (regions to be considered are those involved in the project and additional ones – if relevant)
3. A first contact round with all identified associations and networks to promote the catalogue and promote its role of “training hub”
4. Another round with existing catalogues to identify synergies
5. A last round with running projects to invite to join the catalogue
6. A marketing round to promote the twinning concept and the brokering system of DITA
7. An upgrade of the DITA catalogue under 4 perspectives:
    a. Strategic
    b. Marketing
    c. Content
    d. Technical

The roadmap is accompanied by a time-line, a preliminary budget and some KPIs to help the overall monitoring process.

Synergic initiatives

Associations and Networks

European Digital SME Alliance

DITA applied to become member of the "Working Group SKILLS" (https://www.digitalsme.eu/groups/working-group-skills/)

This group has been established with the core purpose of helping to close the digital skills gap in Europe. The working group covers a variety of topics related to skills development, re-skilling and easier outsourcing, among others. WG SKILLS' expertise includes digital skills, social dialogue, movement of workers, competence centres, work-life balance, and other areas.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☐
Synergies among existing catalogues	☐
Attract End Users	☐
Initiate new projects	☒
Other:	☐

All Digital

All Digital (previously known as Telecentre Europe), https://all-digital.org/, is a leading pan-European association based in Brussels, representing member organisations across Europe that work with 25,000 digital competence centres. The association supports Europeans that have an insufficient level of digital skills. That means that they're having less chances to find work, to use online services, to have a better quality of life, to be included in today's society.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☒
Synergies among existing catalogues	☐
Attract End Users	☒
Initiate new projects	☐
Other:	☐

DigitalEurope

This association strives for a Europe where digital technologies, innovation and artificial intelligence can provide Europe's citizens with competitive jobs, better health and better public services. This will be achieved by a strong, unfragmented digital Europe that takes leadership in creating digital inclusion, green growth, innovation, trust, and agile mission-based policymaking, driving prosperity and creating benefits for the European society, and leading globally in an open economy.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☐
Synergies among existing catalogues	☐
Attract End Users	☐
Initiate new projects	☐
Other:	☐

Big Data Value

The Big Data Value Association – BDVA, https://www.bdva.eu/, (from 2021, DAIRO - Data, AI and Robotics aisbl), is an industry-driven international not–for-profit organisation with more than 230 members all over Europe and a well-balanced composition of large, small, and medium-sized industries as well as research and user organizations. BDVA/DAIRO focuses on enabling the digital transformation of the economy

and society through Data and Artificial Intelligence by advancing in areas such as big data and AI technologies and services, data platforms and data spaces, Industrial AI, data-driven value creation, standardisation, and skills.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☒
Synergies among existing catalogues	☐
Attract End Users	☒
Initiate new projects	☒
Other:	☐

Additive Manufacturing Platform

The AM-platform (https://www.rm-platform.com/) is the largest and oldest community of stakeholders for all subject related to Additive Manufacturing (hereafter named AM) in Europe. Currently, more than 700 members from more than 25 countries are part of this network. The AM-platform is active since 2007 (formerly as the RM-platform).

The objective of the AM-platform is to contribute to a coherent strategy, understanding, development, dissemination and exploitation of AM. A point of networking, reference and coordination.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☐
Synergies among existing catalogues	☐
Attract End Users	☒
Initiate new projects	☒
Other:	☐

Made in Europe Partnership

Made in Europe is the manufacturing partnership with the European Commission under the Framework Programme 'Horizon Europe' (2021_2027). In May 2019, a Made in Europe Partnership draft proposal was tabled and is since then been discussed between the relevant bodies involved, namely the European Commission, Member States and EFFRA. To better define the possible scope and ambition of the Partnership, the Made in Europe guidance document and the Strategic Research and Innovation Agenda (SRIA) have been prepared by EFFRA in cooperation with the European Commission. The document reflects the need for and the ambition of this new manufacturing partnership.

The Made In Europe partnership will be the voice and driver for sustainable manufacturing in Europe based on joined expertise and resources. It will boost European manufacturing ecosystems towards global leadership in technology, towards circular industries and flexibility. The Partnership will contribute to a competitive, green, digital, resilient and human-centric manufacturing industry in Europe. It will be at the centre of a twin ecological and digital transition, being both a driver and subject to these changes.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☒
Synergies among existing catalogues	☐
Attract End Users	☒
Initiate new projects	☒
Other:	☐

Catalogues

I4MS

I4MS, ICT Innovation for Manufacturing SMEs, is a European initiative supporting manufacturing SMEs and mid-caps in the widespread use of information and communication technologies (ICT) in their business operations.

The DITA ATLAS is already among the supportive partners of the I4MS initiative and its training catalogue.

Connection Strategy

Promote ATLAS	☐
Increase TOs / courses	☐
Synergies among existing catalogues	☒
Attract End Users	☐
Initiate new projects	☒
Other:	☐

Digital Skill Up

Digital SkillUp has been created to help you keeping up with digital transformation and to guide you through the complexities of emerging technologies, making learning simple, accessible, and exciting. It is a EU-funded initiative with a goal to make basic knowledge of emerging technologies available and accessible to all European citizens and SMEs.

Digital SkillUp is a contribution to the Digital Skills and Jobs Platform and constitutes its learning pillar for emerging technologies. It provides easy-to-follow online courses in 10 European languages designed to help citizens, employees, job seekers and organisations find their way to upskill and reskill around emerging technologies and digital transformation.

The project has published the Digital Skill Up Catalogue - https://www.digitalskillup.eu/catalog/#search, which includes courses provided by external providers.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☐
Synergies among existing catalogues	☒
Attract End Users	☐
Initiate new projects	☐
Other:	☐

European Cluster Collaboration Platform

The cluster has a dedicated catalogue to find resources and skills for cluster managers and their teams.

Connection Strategy

Promote ATLAS	☒
Increase TOs / courses	☐
Synergies among existing catalogues	☒
Attract End Users	☒
Initiate new projects	☐
Other:	☐

Running Projects

149 running projects have been analyzed using the Erasmus Projects Results website. Out of them, **21** have been identified as potential synergic initiatives that can contribute to enrich the DITA catalogue with innovative training modules.

Project 1: Supporting the twin digital and green transition on the manufacturing and traditional industry sectors through innovative VET resources

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: https://twinrevolution.eu/
- Lead Partner: The Karlsruhe Institute of Technology
- End Date: 31/7/2024

The main objective of the TwinRevolution project is to develop an innovative and interactive tool & a training course that will up- and re-skill VET learners (from upper secondaryand current workers) providing them with the necessary digital and green skills and competences.

Relevance for DITA:

- interactive tool & e-training course for VET learners and providers to support and facilitate howto implement changes in manufacturing industries management system and processes towards greener and more digital organisations.
- pioneer training resources for VET providers to reskill the European workforce to prepare them as trueagents of change for a circular and smart industrial ecosystem.
- Joint Curriculum for VET for new trainings that meets and addresses the needs and priorities ofthe twin transition on SMEs of manufacturing sectors.
- Blueprint with a general overview about the twin transition on the manufacturing industry and VEToffer, and the necessary green and digital skills to be covered, increasing quality of VET system.

Project 2: Digital upskilling of the existing ageing workforce

- Key Action: Partnerships for cooperation and exchanges of practices

- Action Type: Cooperation partnerships in vocational education and training
- Website: https://digageplus.eu/
- Lead Partner: UC Limburg
- End Date: 31/3/2024

DigAge+

The project is aimed to give people opportunities to learn at any stage in life and targets both skilled professionals as well as less-experienced workers, including those looking for a professional change and novel job opportunities.

Relevance for DITA:

- flexible ICT-based learning environment and specific training on digital skills necessary to improve professional performance as dealt with by the EU DigComp Framework, such as communication and collaboration, safety and problem-solving skills;
- entrepreneurial skills, including creativity, critical thinking and problem solving, by taking advantage of the EU EntreComp Framework and providing specific training contents and resources;
- skills and competences needed to promote sustainable development and sustainable, inclusive and equal working approaches, so as to meet UN SDGS 4, 5 and 8 (Agenda 2030, 2015), and personal, social and learning to learn competence (EU Council, 2018).

Project 3: IT for interconnection of social, economic and environmental aspects in agribusiness

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in adult education
- Website: https://itfarm.pef.czu.cz/
- Lead Partner: Czech University of Life Sciences Prague
- End Date: 30/6/2024

ITFARM

ITFARM promotes the idea that the Fourth Industrial Revolution has the power to change things across a broad spectrum of the society and schools and other executives need to be ready

Relevance for DITA:

- study materials and provide courses, tailor-made for family farms owners, managers and employees, to involve the newest ICT technologies and the concepts into daily farm practices.
- a study portfolio that will consist of curriculum and pedagogical guide, syllabi, study modules developed in the form of study units, study supports and tool kits, cases, exercises, hand-outs.

Project 4: AGRISMART

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in adult education
- Website: https://erasmus-agrismart.com/
- Lead Partner: BigBoss Project
- End Date: 31/10/2023

The idea of this project is to develop digital skills and provide knowledge and awareness regarding precision technologies that can be used in the field of agriculture to make it more sustainable and of better quality

Relevance for DITA:

- Production of a Training Format addressed to adults' trainers/educators providing tools and methodologies to be used and reproduced at the local level in order to give new skills and knowledge to young adults that would be interested in agricultural entrepreneurship on how to start a business in agriculture. The Training Format will contain modules dealing with entrepreneurial skills applied to agriculture, including digital skills for young adults to be prepared for a new farming model (data analysis, Artificial Intelligence, social media communication, etc…).

Project 5: Hybrid Learning Lab for Industry 4.0 Mechatronics

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: https://ess.hr/hll/

- Lead Partner: Electromechanical school Varaždin
- End Date: 31/10/2023

HLL i4.0

The aim of the project is to adjust vocational education in the field of mechatronics with the labour market in the context of the growing Industry 4.0. Rapid technological and digital progress requires the acquisition of new skills and competencies to work in such an environment. The project seeks to develop key competencies needed for students active participation in the labour market after graduation

Relevance for DITA

- Development of the model "Hybrid Learning Lab for Industry 4.0 Mechatronics" – development of Curriculum Framework and Methodological Guidelines,
- Piloting of the model "Hybrid Learning Lab for Industry 4.0 Mechatronics"– face-to-face and on-line collaborative teaching and learning, combined with short-term physical mobilities/exchanges of the IVET students,

Project 6: Application of Advanced Manufacturing Techniques to VET: the case of Plastics sector

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: TBD
- Lead Partner: ARISTOTELIO PANEPISTIMIO THESSALONIKIS
- End Date: 27/7/2024

AMT2P ADVANCED MANUFACTURING TECHNIQUES TO VET: THE CASE OF PLASTICS SECTOR

AMT2P aims to offer a training methodology for workers in companies in the plastics sector based on the identified needs in order to adopt AMTs in the manufacturing process and to be used in a cost- and environment-effective way.

Relevance for DITA

- AMT2P will develop a training course and supporting digital tools that will increase the flexibility of opportunities in VET in advanced manufacturing and provide workers with access to customised skill training with adaptive learning path for the plastics sector

Project 7: Virtual Learning Environment in Smart Mini Factory

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: TBD
- Lead Partner: Ylä-Savo Municipal Federation of Education
- End Date: 31/10/2023

This project supports life-long continues learning and provides upskilling support. Teachers and student are supported to become Industry 4.0 leaders and knowledge creators. Workers have an opportunity to transform from single-task traditional careers (mechanical engineer) to multi-track careers (engineer, data analyst, network administrator)

Relevance for DITA

- Online course that will embrace the physical/digital duality and overlay a digital mindset on physical businesses. Workers will need specific technical digital skills contextualized and applied in physical environments. Companies will need to integrate physical and digital disciplines in the creation and scaling of newprocesses and products, and this project support cultural change at the executive level at companies of all sizes.
- the project helps small and medium enterprises change their cultures into learning organizations which æresilient to digital disruption

Project 8: Virtual Learning Environment in Smart Mini Factory

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: https://www.linkedin.com/showcase/digismarttech/
- Lead Partner: TTK University of Applied Sciences
- End Date: 01/02/2025

Digital and resource-efficient processes have large potential to boost the breakthrough of smart and functional printed textiles, as these products often necessitate high-cost materials and only require small batches. The

transformation of the industry toward digital technologies can tackle several challenges in the domain, boost innovation and strengthen European textile production in a high-tech domain.

Considering the needs of the industry the partners target to provide a strong and modern educational base for emerging demands of today's textile production and to reach the level of sustainability required by the EU's environmental agreements

Relevance for DITA

- The project focuses on developing educational concept modules on three different levels – Bachelor, Master and applied research level to attract both textile engineering daily learners as well distance education and adult training.
- The idea of the concept is to provide knowledge without completing a full higher education programme and upskill or reskill to meet labour market needs or to develop professionally after starting work

Project 9: Digital Transformation, Industry 4.0 and Human Resources Management: Innovative skills to enhance HE students employability, flexibility and transversal capabilities

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in higher education
- Website: TBD
- Lead Partner: V-Systems sp. z o.o.
- End Date: 31/12/2024

The project focuses on the new digital working approaches that will be needed in Europe and that imply a digital revolution in processes management and competences. Digitalization and Industry 4.0 imply also new working concepts based on the adoption of innovative digital ecosystems which will involve all the most recent digital factors and expertise.

Relevance for DITA

- innovative training modules: disruptive technologies enabling digitization; managing digitalization; digital integration with physical production assets; rethinking the design of classical working-systems; analyze data; business data evaluation and big data management; e-procurement; e-health; Internet of things; document management

systems and digitization of work-flows; human machine interaction; touch interfaces and accessible GUIs; advanced robotics and human-robot collaboration; virtual and augmented reality; blockchain; additive manufacturing; green production systems; smart factories, etc

Project 10: Blockchain for the Environment: Open Interdisciplinary Education on Generating Disruptive Change through Impactful DLT Applications

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in higher education
- Website: TBD
- Lead Partner: Aalborg University
- End Date: 31/1/2025

The challenge is to bridge the gap between, on the one hand, narrow specialised IT professionals who understand how Blockchain technology works but lack knowledge from the real-world domains where the technology could actually produce positive impact, and, on the other hand, the professionals from such domains as environmental protection, medicine, agriculture etc. - who have expertise in their own domains, but no knowledge of Blockchain.

Relevance for DITA

- A course to equip Computer Science students and professionals with a methodology enabling them to leverage Blockchain's potential, and with specialised knowledge from the field of Environmental Studies, where innovative Blockchain-based solutions could produce significant positive impact.
- The course will also teach Computer Science students Design Thinking methodologies to help them come up with ideas of Blockchain applications to produce social and environmental impact. A human-centred approach to education and research in this field, including ethical aspects, will help computer science students broaden their perspectives and create new knowledge. The second part of the course will be aimed at students in environmental sciences, teaching them the basics of blockchain, in order to help facilitate the interdisciplinary dialogue.

Project 11: Surveying & MARiTime internet of thingS EducAtion

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Knowledge Alliances for Higher Education
- Website: https://www.smart-sea.eu/
- Lead Partner: University of Salamanca
- End Date: 31/10/2022

The project aims at developing an advanced interactive certified MSc course related to Maritime & Surveyor IoT applications that will train individuals with the necessary skills & knowledge to work in the rising "Smart Maritime & Surveying" industry

Relevance for DITA

- An innovative curriculum comprised by interactive teaching methods & partnerships with expert academic & maritime organisations to give to the students a solid background for starting a fruitful career in the industry. The course duration is 8 months, plus a 1-month maritime (on the job) experience. In addition, in 2 mobility periods, the students & educators from one university will travel to the other and vice-versa, to participate in the large-scale laboratories, whereas a 3rd period is reserved for the maritime on-the-job training.

Project 12: Surveying & MARiTime internet of thingS EducAtion

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Erasmus Mundus Joint Master Degrees
- Website: https://ssi-master.eu/
- Lead Partner: University of Sorost
- End Date: 31/8/2026

A new Joint International Master's degree programme in Smart Systems Integrated Solutions (SSIs EMJMD) is proposed to meet the pressing industrial needs for qualified graduates. This programme is offered by a Consortium of three reputable institutions, namely the University of South-Eastern Norway (USN, Norway), Aalto University (Aalto, Finland) and Budapest University of Technology and Economics (BME, Hungary).

Relevance for DITA

- SSIs is a two-year (120 ECTS) Joint Master Programme, with full student mobility between the three partner institutions with leading expertise in the academic fields of Smart Systems and Microsystems Technology.
- The 1st semester at Aalto covers all the fundamental aspects of design, manufacturing, packaging and applications of smart systems. The 2nd semester at USN permits the students to specialize into either Smart Biomedical Systems or Cyberphysical Systems, with BME teaching design for system integration in the 3rd semester. The 4th semester is devoted to an independent research project that culminates in a master thesis.

Project 13: Developing Curricula for Artificial Intelligence and Robotics

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Capacity Building in Higher Education
- Website: http://decair.ju.edu.jo/Home.aspx
- Lead Partner: University of Jordan
- End Date: 14/1/2024

The project intends to develop curricula in the areas of AIR through new master's and bachelor programs. These programs will give students opportunities to specialize in AI technologies, Robotics technologies, or using AI solutions to develop smart and autonomous robots that can solve unconventional problems. Additionally, DeCAIR will improve the curricula of existing masters and bachelor programs in the areas of AIR, establish relevant modern laboratories, and implement modern teaching methods such as flipped learning and project-based learning. All this will improve the graduates' practical skills and enable them to exploit these revolutionary technologies to solve local and regional problems, create new jobs, and to start new ventures.

Relevance for DITA

- Curricula in the areas of AIR through new master's and bachelor program

Project 14: Digital Transformation in Advanced Manufacturing

- Key Action: Partnerships for cooperation and exchanges of practices

- Action Type: Sector Skills Alliances in vocational education and training
- Website: https://dtamproject.eu/
- Lead Partner: POLITEKNIKA IKASTEGIA TXORIERRI
- End Date: 31/10/2023

Five European Regional Skills ecosystems comprising H/VET, HE centers and educational policymakers, digital transformation experts and sectoral representatives from Spain, the Netherlands, Italy, Greece and Bulgaria, will collaboratively design, test, refine and exploit an integral curriculum in digital transformation competence for mid to high level EU technicians, available in English and all 5 partner languages by 202

Relevance for DITA

- DTAM will deliver a new curriculum in digital transformation dedicated to the quality training of mid-high-level technicians in key enabling technologies for Advanced Manufacturing: Machine Learning, Cyber Security, Automation, Advanced Sensoric, Big Data, IoT

Project 15: Digital Education on the Farm to Fork strategy

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in vocational education and training
- Website: https://dgfarmer.projectlibrary.eu/
- Lead Partner: University of Zagreb
- End Date: 31/10/2023

The proposed project promotes the incorporation of digital education in the agri-food sector as well as the adaption of the Farm to fork policy by the professionals working in the field in order to increase the necessary skills and expertise to address the modern challenges

Relevance for DITA

- Teach and upskill VET professionals and educators to use innovative digital tools in the agri-food sector;
- Promote digital education as a response to the Covid-19 pandemic;

- Equip the target groups with innovative working tools.

Project 16: HACKTEX - Innovative smart textiles & entrepreneurship

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Cooperation partnerships in Higher Education
- Website: https://hacktex.eu/
- Lead Partner: Universitatea Tehnică “Gheorghe Asachi”
- End Date: 30/04/2024

The textile sector in Europe is surrounded by newly and determinant changes and challenges. Nowadays, the digitalisation and the intelligence endowment of the industrial processes are essential for the development of the industry and for the greening process that all sectors transversally shall implement to advance to the climate neutrality. HACKTEX aims at developing innovative pedagogical tools to improve the skills of engineering students on higher education in relation to innovation and, particularly, in the field of smart textiles.

Relevance for DITA

- A Massive Online Open Course is going to be developed by the consortium. This platform will follow a virtual training program, focused on functional and wearable smart textiles. It will be open to organizations, institutions and all those students, managers and professionals potentially interested in the topic and willing to execute the course.

Project 17: Developing interdisciplinary competencies for Smart Logistics

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Strategic Partnerships for higher education
- Website: https://www.ap.be/en/research/inco-smrt-developing-interdisciplinary-competencies-smart-logistics
- Lead Partner: UCL University College
- End Date: 30/12/2023

The manufacturing industry is transforming thanks to the industrial IoT and what research refers to as “Industry 4.0”. This transformation needs qualified staff provided not only with technological abilities but with a suitable level of creativity in planning and applying solutions that facilitate the strategic evolution and growth of industry and services for citizens. Unfortunately the academic curricula have not been updated as quickly as the technology has evolved. The project will provide ICT and Business students with knowledge, competencies and skills enabling them to become the graduates the job market will more and more require. The project will focus on Transportation and Logistics (T&L) that, like most other industries, is currently confronted by an immense change. Due to its multifaceted characteristics and problems, the solutions proposed will provide a useful toolkit for many other sectors

Relevance for DITA

- new logistic skills;
- develop and implement, together with companies, curricula that bridges both ICT and logistics skills;
- develop and implement new models (toolbox) to assess transversal skills;
- implement teacher training activities to enable them to adopt innovative teaching methods and design multidisciplinary;
- curricula providing transversal skills;

Project 18: Building up Digital Skills Alliance for the Enhancing of Programming Competencies

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Sector Skills Alliances in vocational education and training
- Website: http://erasmusplus-digis.com/
- Lead Partner: Czech Chamber of Commerce
- End Date: 31/12/2023

DiGiS

The project will build the capacity of CVET providers to better adapt to digital transformation, The overall objective is to harmonize education in ICT with labour market needs

Relevance for DITA

- a new European vocational qualification standard for these occupations:
  - Drone programmer & operator.
  - Virtual reality applications programmer & developer
- develop/improve curricula for the new qualifications and prepare grounds for the delivery by VET providers.
- 2 yearlong VET programs. An open online course platform will be developed for their delivery and guidelines and methodologies drafted for implementation in graduate and post graduate schools.

Project 19: Sector Skills Strategy in Additive Manufacturing

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Sector Skills Alliances in vocational education and training
- Website: https://www.skills4am.eu/
- Lead Partner: EUROPEAN FEDERATION FOR WELDING JOINING AND CUTTING
- End Date: 31/12/2022

Advanced Manufacturing is one of the key enabling industries for sustainable economic growth, being Additive Manufacturing (AM), more commonly known as 3D printing, widely used in a wide range of industrial applications (new products and services). Europe seeks to retain its leading position in industrial competitiveness, there is an urgent need to establish a platform for AM skills at European, National and Regional levels. To meet this challenge the project Sector Skills Strategy in Additive Manufacturing (SAM) started in January 2019 and will run for the next 48 months years.

Relevance for DITA

- Design, review and deployment of relevant qualifications in the AM sector, built with a learning outcomes approach and linked with EU Frameworks and Tools such as the EQF, e-CF, EntreComp, ECVocational Education and Training (VET) and ECTS;

Project 20: Fit for 4.0: training trainers and teachers for the 4.0 paradigm

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Sector Skills Alliances in vocational education and training
- Website: http://www.fitfor4-0.eu
- Lead Partner: IFOA
- End Date: 31/12/2022

The train-the-trainer programme aims mostly at improving skills for teaching, using innovative methods and tools, embedding the 4.0 paradigm in day-by-day work. It is practical and at the same time "intrinsically digital", built up with the same instruments it offers, that is, by transnational teams composed by trainers and company experts, making use of on-line cooperative platforms. Teachers and trainers will learn by visiting companies, by discussing with peers (even at distance), by exploiting Design Thinking and Instructional Design techniques, by exchanging views with experts and professionals, and by "seriously" playing.

Relevance for DITA

- Massive On-line Open Course (MOOC) delivering the training units for the train-the-trainers programme. It includes exercises, in-depth information, links to open educational resources (OER). All material (video clips, text, drills, quizzes, infographics, examples, web links, etc.) is meant to also provide a base for building further learning activities either face-to-face or for distance learning.

Project 21: Joint Cyber Workforce Development Initiative to Enable The European Industry to Overcome the Shortage of Cybersecurity Professionals

- Key Action: Partnerships for cooperation and exchanges of practices
- Action Type: Strategic Partnerships for vocational education and training
- Website: http://www.encrypt40.eu
- Lead Partner: UMFST University
- End Date: 31/10/2022

The Encrypt 4.0 project's main aim is to strengthen the capacity of manufacturing SMEs to ensure security of their data in Industry 4.0 context and to contribute to tackling the cyber security workforce shortage via creating a comprehensive training package.

Relevance for DITA

- Project-based learning to boosting cyber-security skills and competences of SMEs' employees and cybersecurity professionals
- 3 Training Labs: Network Defense, Cyber threats & vulnerabilities, Ethical Hacking

The roadmap

The roadmap consists of 7 pillars:

1. An update of the available training organizations and their programs (maintenance)
2. A marketing round with the regional initiatives on smart industry and digital skills (regions to be considered are those involved in the project and additional ones – if relevant)
3. A first contact round with all identified associations and networks to promote the catalogue and promote its role of "training hub"
4. Another round with existing catalogues to identify synergies
5. A last round with running projects to invite to join the catalogue
6. A marketing round to promote the twinning concept and the brokering system of DITA
7. An upgrade of the DITA ATLAS under 4 perspectives:
    a. Strategic
    b. Marketing
    c. Content
    d. Technical

1. Updating training organizations and their programs

The ATLAS has 111 training providers and 270 courses. These inputs will be updated and – at the same time – a brief "need" analysis from training providers will be performed. The need analysis will focus on

a) the relevance of a "brokering system" offered by DITA
b) how the catalogue can provide an added value to training organizations & their target market

- Start Date of this activity: November 2022
- End Date of this activity: January 2023

2. Marketing round with regional stakeholders

This activity will involve project partners and aims at identifying and connecting regional players (thematic platforms, Digital Innovation Hubs, clusters). The foreseen connections should lead to

a) widen the visibility of the catalogue
b) attract new regional training providers and programs

3-4-5. Marketing round with identified entities

DITA has identified a set of 30 potentially synergic entities that can be transformed into partners. Each of them needs to be contacted to

a) Present DITA
b) Discuss about synergies
c) Identify how the catalogue can support their activities

- Start Date of this activity: January 2023
- End Date of this activity: March 2023

6. Marketing Round to promote the brokering service

DITA partners have identified the brokering service as an added value offer (the survey will confirm it / or not) for training organizations. The concept behind this service is to offer the possibility of searching and filtering possible training partners to

a) Activate student / trainers mobilities
b) Organize knowledge exchange among organizations
c) Prepare projects
d) Connect training programs
e) Design joint curricula

- Start Date of this activity: January 2023
- End Date of this activity: June 2023

7. Upgrades

Partners have also identified 4 areas which will require an additional effort after the end of the project. Some of these areas are already covered by the above listed action items while others (blue) need to be addressed separately.

- Start Date of this activity: December 2023

- End Date of this activity: March 2023

The Table 1 below summarizes the areas and provides a short description of the objectives.

Upgrade of the DITA ATLAS

Table 1 Upgrade of the DITA Atlas

Strategic	Marketing	Content	Technical
We need to identify the Unique Selling Point of the ATLAS and the ATLAS-TOs' win-win proposition	Connect to synergic platforms, initiatives, projects	Add "skills" relevant content to the ATLAS: links to other tools, platforms, projects, etc.	Improve layout and design (more attractive)
Evaluate a cross-sectorial strategy	Connect to EDIHs and DIHs to create synergies and – in case – attract financial resources to expand the ATLAS	Embed news from Training Organizations and display them on the ATLAS website	Introduce simpler (or more interactive/dynamic) search methods (like chatbots, etc.)
Evaluate how to transform the twinning method into a permanent brokerage system for training organizations	Connect to running projects that may need a training catalogue	Give visibility to Training organizations (testimonials, individual presentations "organization of the week", etc.)	Merge DITA website with ATLAS
Can the ATLAS be one of the answers to the "train the trainer" issue?	Make the ATLAS visible from TOs' websites	The content (including published programs) needs to be updated: a maintenance plan is needed	Increase visibility on Google
	We need to understand our TOs better to finalized how we can be an added value service provider for them	The quality has to be guaranteed	

Chapter 7: Interviews with Erasmus National Agencies and NCPs

Each partner has arranged a dedicated meeting with their Erasmus Plus National Agency and additionally with their NCP for Digital Europe, to share the outcomes of the twinnings and share the map as an open tool to be anchored to future ErasmusPlus initiatives focused on digital industry. Each Partner has followed the following “Questions for National Agencies/NCPs” template to collect information, after presenting the Atlas and sharing the material available (DITA brochure and presentation, the Communication Manual, the Atlas brochure, the link to the Atlas).

QUESTIONS FOR NATIONAL AGENCIES/NCPs

Objective

- General: collect suggestions on how to exploit the ATLAS (please note that it will be important to provide all interviewees with a short summary of what the DITA project and the ATLAS are)
- Specific: identify possible synergies and connections for the future

Recommendation to all interviewers

Please do not limit yourself (and the interview) to a pure yes or no exercise. The answers are essential to help us to identify future plans and a roadmap for the ATLAS, therefore the more inputs you will collect, the better will be the quality of our Intellectual Output 4. So, storytelling, names, clear references are important to us.

Ideally, each question should have a min. length of 1.500 characters.

Questions

NAME OF AGENCY:

NAME OF INTERVIEWEE:

1) Which are the training needs that need to be urgently addressed to support the digital transformation processes of European SMEs?
    a. Why are we asking: understand if the technology areas we have identified are still valid and if we have to consider adding other categories in the future (remembering that we have not put soft/horizontal skills in the catalogue)

2) Would you recommend any Erasmus projects (KA1 or KA2) with which connections should be established?
    a. Why are we asking: enrich the catalogue with new courses/training providers.

3) Are there any training providers that you would suggest including in our catalogue?
    a. Why are we asking: same as above

4) Are there any DIHs in your country that already play an important role in responding to training needs related to digital transformation?
    a. Why are we asking: DIHs usually deliver training (so they can be part of the catalogue) and to create future synergies

5) Are there any initiatives or networks you would suggest involving in a possible follow up of DITA?
    a. Why are we asking: identify any other potentially relevant player to continue the management of ATLAS / Twinning

6) Are you aware of other online training "catalogues" in line with DITA's domains we should be aware of?
    a. Why are we asking: identify other catalogues with a future merging potential

7) Considering that the project helped us to create the ATLAS and establish a first set of connections among training providers, which further steps would you recommend being taken in the next 12-18 months?
    a. Why are we asking: collect other perspectives for the long term sustainability plan

Each Partner has interviewed one representative from the Erasmus National Agency and one representative from the NCP of Digital Europe, if available. Alternatively, if the mentioned representatives were not available, they have looked for other organizations. The list of interviewed people and organizations is detailed in the Table 2. Nerosubianco has also carried out an additional interview with the DG Connect. In the following Charters there are reported the most relevant inputs collected from the interviews.

Section 1: Interviewed Organizations

The following Table 2 shows **the Organizations that have been interviewed by project partners**, who have contacted first the respective Erasmus National Agencies and National Contact Points of their Countries. On some occasions the identification of a person suitable for the interview has been difficult or it was not possible to collect a clear statement from the belonging organization. For these reasons the search for organizations was extended, including for example not only NCP of Digital Europe, but also NCP of Horizon Europe, or public organizations operating in the labour sector, entrepreneurship, innovation, research etc.

Table 2 Interviewed Organizations (Erasmus National Agencies, NCPs)

PROJECT PARTNERS	COUNTRY	ORGANIZATION NAME
NSB	Italy	DG CONNECT
NSB	Italy	APRE (Horizon Europe NCP Coordinator) MUR (Horizon Europe NCP Coordinator)
NSB	Italy	INAPP, National Institute for the public policies analysis
MCR	Austria	BMAW, Federal Ministry Republic of Austria, Labour and Economy
MCR	Austria	(SAT) Initiative digital.tirol
FLANDERSMAKE	Belgium	EPOS Flanders, NCP Erasmus+
FLANDERSMAKE	Belgium	Digital Europe NCP Flanders /FWO
GRUPO DEX	Spain	General Directorate for Education and Training of the Region of Madrid
GRUPO DEX	Spain	Centre for the Development of Industrial Technology, Public Entrepreneurial Entity
IPN	Portugal	Agência Nacional da Inovação
IPN	Portugal	Portugal Digital
HKE	Germany	National Agency Education for Europe at the Federal Institute for Vocational Education and Training
HKE	Germany	Kempten University of Applied Sciences*

		* *When researching for an interview partner of the NCP, there was no specific contact person who could answer the questions. It seemed that the division of tasks between the different institutions did not allow for a coherent picture of the educational landscape.* *At the same time, the changed framework conditions due to the Corona pandemic made the research more difficult due to unavailability, home office, shifts in staffing, etc. The focus was therefore on answering the questions considering the educational aspects, which motivates the selection of this organization/department for the interview.*

In the following Sections there are reported summaries of the most relevant inputs received during the interviews.

Section 2: Training needs related to the Digital Transformation

Industry 4.0 has a challenging vision for the future. By exploiting the full potential, all categories defined in DITA must be advanced. The goal of the digital transformation is greater flexibility, higher efficiency, lower costs, and lower resource consumption. The digital transformation influences the work of producing and manufacturing companies, equipment and service providers, software and hardware suppliers, system and network specialists and infrastructure providers. This is where the potentials of in-company qualification are to be sought.

To meet the demand for knowledge and skills via training courses (categories of the DITA ATLAS), **more and more diverse further training opportunities are needed** for employees at all qualification levels, such as on-the-job learning. Digital transformation has a profound **impact on work processes and work design**, which entails a reorganisation of work and changes in tasks, activities, responsibilities, qualifications, and competences.

What is needed is a corporate, management and work culture that is conducive to learning. If Industry 4.0 is to be successfully implemented, then the current design topics of education must be closely linked with those of technology, organisational and human resources development. **It is the task of politics to set a suitable framework for work design that promotes learning.** This framework is more stable the more it is designed in an appreciative manner and in a spirit of social partnership. The changes brought about by Industry 4.0 and digitalisation are taking place at different speeds and intensities in different companies. That is why it is necessary to develop customised solutions from and for company practice.

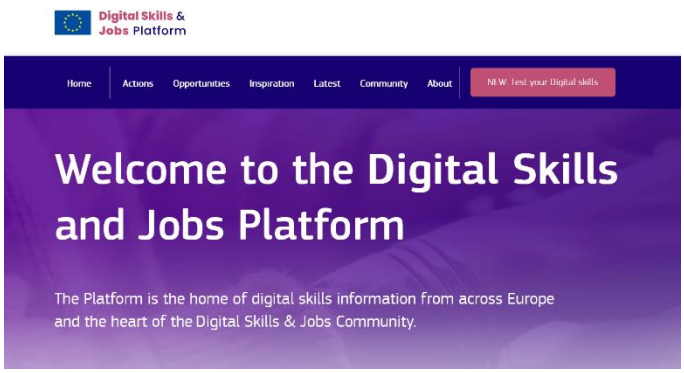
Companies should:

- Analyse changes: it is often unclear where exactly the new requirements for qualifications lie and how they are to be linked to personnel, qualification and organisational development.
- Design training on a company basis to ensure the competences, professionalism, and experience of skilled workers in the future as a basis for their successful professional development and to secure the competitiveness and innovative capacity of companies. The optimal dovetailing of practice and theory is found in dual training programmes and should be offered more.
- Enable flexible and continuous training. The links between working and learning need new models of education and training, for example, mixed-age teams to pass on experience in addition to theoretical training.

- To cope with continuous change, qualification, training, and further education as well as competence development, there is the need for a business process-oriented and more flexible design.
- A framework for more learning at the workplace needs to be designed in a way that is age-appropriate and conducive to learning, and more use needs to be made of workplace-integrated, flexible forms of learning.
- Through the use of digital media, e.g., learning games, simulations, assistance systems or instructional films, teaching and learning processes can be redesigned to bring CET closer to reality and integrate it into work processes.

The task of politics could be:

- Ensure the framework for constructive cooperation between all stakeholders
- Promote media competence in schools
- Make vocational training more attractive
- Promote cooperation between universities and companies to meet the demand for highly qualified skilled workers, e.g. through dual courses of study
- Provide continuing education counselling for companies (especially SMEs) and employees
- Research projects as well as further education funding for further education and media didactics of learning at the workplace
- Dovetail educational sectors with training, e.g., continuing education and universities
- Make educational areas more interdisciplinary and oriented towards actual work processes
- Integrate more education and training in the I4.0 competence centres



At European level, training needs related to the Digital Transformation are mapped in the "Digital Skills and Jobs Platform", providing specific materials and the latest information (i.e., skills intelligence, look at key initiatives, joint investments, microelectronics, cybersecurity, in cloud, quantum, etc.).

There are several key technologies targeted by investors and the demand will increase, included the need of integrated advanced knowledge of digital technology in different sectors. With the Platform, **it is possible to have access the relevant information, also sharing**

opinion posts which describe situation in SMEs. From the posts' discussion, it seems that there is a general need of ICT experts (i.e., data analysis in SMEs is more and more important). A big issue for SMEs is that they don't have the knowledge of what digital transformation can offer to them (it would be useful to have digital assessment to help them identify the digital skills required and involve DIHs/Industry Associations to understand better their needs). Furthermore, it is important to connect the Industry Sectors to inform them about training opportunities and available tools.

Inside European training, there is a EPALE : **The European Platform for Learning and Education, which is direct to adult learning, group training including SMEs**. It would be useful to connect with Epale and show the DITA Atlas. The target of digital training programmes are a) SME's specialists digitalization innovators (AI, digital twin, AR/VR, blockchain, cybersecurity,); b) SMEs which 'use' technology' to make their digital transformation; c) employees who need digital basic knowledge; d) employees who need digital sector specific application knowledge.

To what concerns the situation in Italy, regarding the relationship between digital transformation and SMEs**, there is a need of a general awareness that should be improved**. Digitisation speeds up the sharing of data and results, which also leads to higher quality data output and improved production processes, as well as a proper management of employees (digitisation is not a form of control of the employee, but a facilitation for the employee in performing his or her tasks). **It is important to understand in which context it is relevant to invest in training needs, considering the different skills required** (e.g., for robotics, big data analytics which require a type of need and related interactions, technologies such as cybersecurity, which are those technologies that are implemented first in SMEs). The training needs should start with new technologies used in processes already in place in SMEs (e.g., new technologies to be applied in the traditional supply chains). To achieve this transition**, it is necessary to activate the connections between human capital and the new technological level**, with the delivery of proper training (which should involve the whole enterprise and related

departments, not only single workers). Training needs also concern entrepreneurs, competence centres and technology/new supply chain hubs for entrepreneurs (e.g., how and what to invest, human resources management) to maximise the value of production (and not labour costs) as much as possible.

Generally, most of Austrian SMEs still have a lot of catching up to do to meet the challenges of the digital transformation in the economy. This is also one of the main reasons why the responsible ministries in Austria are pushing their own funding programmes for digitisation through their funding agencies and the national chamber of commerce (e.g. SME Digital). **The needs of SMEs start with basic skills and a fundamental understanding of how to strengthen themselves digitally** both within and outside the company and end in specialised areas such as artificial intelligence, cyber security, smart data governance, etc. This broad range of demand from SMEs has also been reflected in the implementation of specific funding programmes in recent years (e.g. FFG: Qualification Offensive, Innovation Camps, Digital Boot Camps). To use the (already) available digital skills from Industry for cross-sectoral learning (Digital Healthcare, Smart Farming), further requirements also need to be considered to meet the target groups and users in practice. Based on the last three years of intensive work with the DIHs in Tyrol and Austria, the knowledge and handling of changes in one's own organisation must be promoted, as **the digital change also has a considerable influence on the overall corporate and inter-company as well as on the supply and value-added chain working environment.**

The business community in Spain is marked by a very high participation of SMEs. They represent 99,8% of the active companies, adding up for more than 62% of the global added value and 66% of the employment. Although their size can be considered as an advantage because it allows for more flexible approaches, it is also a clear drawback when it comes to having the capacity to undertake productive investments or introducing transformations such as the digitalization process. This is at the very bottom of the overall lack of assimilation of digital technologies by Spanish SMEs, which is comparatively reduced in comparison with other assimilable European countries. For addressing this issue, and thanks to the support of the Recovery and Resilience Facility, the

Spanish Ministry for Economic Affairs and Digital Transformation has issued **an ambitious digitalisation campaign named "Kit Digital".** This programme aims to subsidise the adoption of commercially available digitisation solutions, provided by Digital Agents, **for small and micro enterprises and self-employed individuals**. This will facilitate significant progress in their digital maturity levels and allow them to advance in **the digitisation of key areas** such as internet presence, electronic sales, customer and supplier management, digital office, process management and automation and cybersecurity, through the subsidisation of digitisation solutions offered by the digitisation agents participating in the programme. The digitalisation of Spanish SMEs is particularly urgent in view of the circumstances arising from the Covid-19 pandemic. This digital transformation of the business industry must be accompanied by a transformation in the people who make it up. **Not only should the digitisation of the company be a priority, but also a change of mentality in the way teams work and relate to each other**. In this sense, the main problem faced by many SMEs is the lack of training to tackle this transformation and, also, a lack of funding to undertake the process. SMEs must address a digitization strategy in one or more levels of transformation depending on the objectives, priorities, and diagnosis of their current situation. Of course, staff, entrepreneur and management training are one of them. The need to develop digital skills and attract talent is therefore fundamental. Thus, promoting the training of managers in the digital management of the company (e-commerce, Enterprise Resource Planning (ERP) customer relationship management solutions (CRM), process automation, marketing, digital positioning, etc.) is essential to improve the productivity of SMEs and their possibilities for growth and internationalization. In addition, it is necessary to promote training in and for the job itself: through reskilling and upskilling processes and the attraction of ICT specialists, specific digital skills (web design, artificial intelligence, cybersecurity, data analysis, user experience design, blockchain, process management) must be incorporated into the day-to-day work of the company, in addition to enhancing the soft skills of workers (creativity, active learning, leadership, innovative thinking, ability to solve complex problems).

Even though Portugal is not far from the European median in terms of digital skills, it needs to reinforce them, especially in terms of qualification to encourage Internet usage. To this end, **it is needed both to qualify the young population and requalify our human resources**. In 2017 the Portuguese government established the "National Digital Competences Initiative e.2030, Portugal INCoDe.2030", an integrated public policy to enhance and foster digital competences. The

Portugal INCoDe.2030 initiative addresses the concept of digital competences in a broad manner. It includes the notion of digital literacy (i.e., the ability to access digital media and ICT, to understand and critically assess contents, and to communicate effectively), as well as the production of new knowledge through research. The concept of digital competences is also linked to the use of digital technologies to design new solutions for different types of problems, the integration of interdisciplinary knowledge and data analysis, the intensive use of artificial intelligence, as well as of advanced instrumentation and communication networks and mobile systems, and the development and programming of cyber-physical systems. This involves hardware and software and extends the concept of ICT to electronics, automation, and robotics. Competences can be developed to different levels of depth and proficiency in each of these areas, depending on the level of qualification and goals set. These different levels are reflected in the type of measures that will be promoted in an inclusive and comprehensive way for the whole of society. Parallel to this approach **the Portuguese government established in 2020 "O Plano de Ação para a Transição Digital** (Action Plan for Digital Transition)", approved by RCM n.º 30/2020 of 21 of april, aiming to provide a national institutional environment in what refers to Digital Transition, encompassing private sector, public sector and citizens. Such document presents strategy set for digital transition, detailing government vision in this topic. **This strategy is based in 3 main pillars, namely: Pillar I – Provide citizens with digital skills and therefore foster digital inclusion; Pillar II – Digital transition of enterprises; Pillar III – Digitalization of public sector, leveraging digitalization of private sector consequently**. Such plan will be implemented by "Estrutura de Missão Portugal Digital" set in RCM n.º 31/2020 of 21 of April, ensuring the overall coordination, Reporting and dissemination either in Portugal and abroad. Focusing Pilar II, and directly related with training needs, a measure is highlighted, namely: Measure n.º 7: Program for digital capacitation of SME +CO3SO Digital Reskilling and moving of work force from the coastal area, namely in what refers TICE, in two stages: a first stage of intensive training (up to 6 months), followed by a second stage of integration in a SME. It is paramount to provide today's students with ICT (Information and Communications technology) skills, improving digital awareness of students, so they can better profit on the existing digital tools in their everyday working life. Such approach is also applicable in what regards SMEs workforce, in their continuous training paths. For this purpose, **it is needed to improve Education and training systems encompassing most of ICT tools**, enabling skills needs anticipation, to potentiate available choices in the professional paths. Examples are: Basic operation of ICT hardware; Safe internet usage; Remote work environments; Teamwork; Tasks management and planning; Email management and setup; Social selling; Documentation management; Software development; Working knowledge of the languages

used in coding and programming, such as HTML, CSS, and JavaScript; Artificial Intelligence; Internet of Things; Robotics; Augmented Reality; Big data.

Section 3: New possible connections with Erasmus+ projects

The KA1 measures include mobility projects for cross-border learning experiences in one of the Erasmus+ programme countries. International work experience is now often part of the requirement profile of many professions - including teaching.

Activities supported in this Key Action offer excellent opportunities to acquire these qualifications during vocational education and training. The core of mobility projects are organised learning stays in other European countries in the form of vocational traineeships, apprenticeships, and further education measures. They are aimed at a young target group of learners as well as educational staff.

They are rather to be seen as an individual measure than as an opportunity to link up with the DITA project. **It is important for DITA partners to know that this funding opportunity exists**. A notice on the platform is helpful.

https://www.erasmusplus.bayern.de/erasmus-berufsbildung/leitaktion-1-lernmobilitaet-von-bildungspersonal-ka-1/

The KA 2: Strategic partnerships basically promote **cooperation between organisations from the programme countries.** These transnational partnerships consist of at least three organisations from different programme countries and have a duration of 12 to 36 months.

Here, within the framework of cooperation, activities for the development, transfer and/or implementation of innovations and joint initiatives for the promotion of cooperation are supported. The objectives may include the development of entrepreneurship, the improvement of digital literacy, but also the mapping of VET practices (Vocational Education and Training), policies and systems in other countries, as well as a better understanding and increased recognition of competences and qualifications in Europe and beyond. Depending on the objectives and the composition, a distinction is made between two types of projects in vocational education and training.

A) **Strategic partnerships for the exchange of good practice**: The aim of this type of project is to support organisations build and strengthen networks, increase their capacity to work transnationally and promote the exchange of ideas, methods,

and practices. Projects may also develop tangible results and are encouraged to disseminate the results of their activities to an extent appropriate to the objective and size of the project.

B) **Strategic partnerships to support innovation**: Projects should develop innovative results and/or promote the intensive dissemination and exploitation of existing and newly created products or innovative ideas. To develop innovation, applicants may apply for specific funding for the development of intellectual outputs and multiplier events.

Depending on the project objectives, **the organisations involved or the intended impact, these projects can be of different size and scope and adapt their activities accordingly.**

Overviews of projects approved in 2021 with which networking may be appropriate.

- https://www.na-bibb.de/fileadmin/user_upload/na-bibb.de/Dokumente/02_Berufsbildung_2021-2027/02_Kooperationen/04_Bewilligte_Projekte/F%C3%B6rderliste_2021_2_KA2_VET.pdf
- https://www.na-bibb.de/fileadmin/user_upload/na-bibb.de/Dokumente/02_Berufsbildung_2021-2027/02_Kooperationen/04_Bewilligte_Projekte/F%C3%B6rderliste_2021_1_KA2_VET.pdf

In the **Digital Skills and Jobs Platform** there are several good practices and projects awarded (i.e., I4MS catalogue of good practices), with also various projects mapping training offers with different perspectives and focuses. Specifically, **70 good practices have been selected, considering what works well and is successful.**

Some recommended examples for Digital Industry and for cross-sectoral learning from the FFG Qualification Offensive are as follows:

- **eNDUSTRIE 4.0** (competence deepening for companies in the subject area of Industrie4.0)
- **Q-West** (Work Enabling Systems & Technologies)
- **V-Net** (IT enabled Eco Systems: qualification of the Value Network South in the high-tech areas of electronics, IT & system solutions)
- **Poly-GENFEROS 4.0** (Polymer GENerative Manufacturing in Operational SupplyChains 4.0)

- **InKuBa** (Latest developments/methods for the design of intelligent plastic and hybrid components)
- **Hydrovation** (Comprehensive qualification programme on hydrogen technologies)
- **QSemDSM** "Digital Stress Management
- **THEBAVOL** Applications and Limits of THErmic BUILDing Component Activation in Large-Volume Storey Construction
- **TRUC** (Trusted Code)
- **Building Softskills** (Human Sciences and Building Technology)
- **HdZ2Market** (competence deepening for companies for the development and implementation of innovative, sustainable building concepts)
- **COMSYSBAU** (Computer-aided planning and production with systematised construction methods made of wood)
- **Data Management EBIW** Data Management in the Energy, Construction and Real Estate Industries
- **Light-Energy -** Efficient Use of Light and Digital Progress in New Construction and Refurbishment
- **QnHT3.0** (Human Technology 3.0 - Medical Product Development Cycle and Value Chain)
- **DigiHealth** Qualification for Digitalised Health Technologies

Some recommended examples for Digital Industry and for cross-sectoral learning from the Tyrol and its specific cross-border setting (cooperation with Italy and Bavaria) are as follows:

- **DiBi** (managed by SAT): Digital education platform for job-oriented continuing education on the topic of digitalisation, ranges from digital competence check to data science and coding and covers all thematic applications from AI to maintenance, digital business models, cyber-security, human-centred robots, digital tools and hard-/software solutions;
- **Centre for Rapid Innovation** - FabLab of Werkstätte (Workplace) Wattens: an international business and creative centre for founders, start-ups, movers & shakers and service providers at various stages of development, focused on technology, innovation, and the creation of regional value and sustainable growth; runs a network of different experts from research to investors;
- **DataKMU** (DataSME, Interreg BAY-AT/Bavaria-Austria): established a comprehensive research, training and business support network in Tyrol, Vorarlberg, Salzburg, Bavaria to assure a continuous knowledge transfer for data science development and applications; 16 good practices / lessons learnt with high impact;

- **AI4GREEN** (Interreg Bavaria-Austria, in process): follow-up of DataKMU in cooperation with KI-Net (another BAY-AT project); upgrade of Industry 4.0 solutions towards Industry 5.0; covering all target groups involved – strong triple/quadruple-helix approach.

Section 4: New complementary training organizations for the Atlas

In future: **Digital Europe has two calls, in both calls there were training courses and master classes, with relevant training organizations to involve**. Training providers are also registered in the Digital Skills and Jobs Platform, which have been checked and contents are moderated by the European Commission (there are several hubs, excellence centres, etc.).

For those already working on medium or high technology intensive industries willing to improve or adapt their competences, technology centres and/or DIH can be the best match. However, for an entry profile, VET centres with specialization in the targeted technology areas can be more suitable. Lastly, local and regional development agencies should be considered, because usually a training and business environment is built around them and they can be a good primary contact from which engage businesses and training providers. **DIHs can be the good match and some universities, which are setting-up specialization programmes where the transnational element is very valued**. These universities could be highly interested in setting up joint programmes, although this can take some time and efforts since inter-university relations tend to be a little bit tricky.

Particularly in the Region of Madrid, there are 5 different VET centres labelled as National Reference Centres, which means that they carry out experimental trainings that are subsequently mainstreamed into the general curricula at national level. This kind of entities are very interesting, as they are the real pioneers in the delivery of state-of-the-art courses and, at least in Spain, they are one step ahead of the rest of the entities.

Further training providers are recommended as follows:

- University Passau, Bavaria
- University Regensburg, Bavaria
- University of Applied Sciences Landshut, Bavaria
- University of Applied Sciences Rosenheim, Bavaria
- University of Applied Sciences Amberg, Bavaria
- University of Applied Sciences Landshut, Bavaria
- University of Applied Sciences Deggendorf, Bavaria
- University of Applied Sciences Krems, Lower Austria (e.g. Project DCN Digital Champion Network)
- University of Applied Sciences Technikum Vienna
- University of Applied Sciences Joanneum, Graz, Styria
- University of Technology for Digitisation & Digital Transformation, Linz, Upper Austria
- Standortagentur Tirol in cooperation with digital.tirol and DiBi

- University Innsbruck
- MCI Management Center Innsbruck
- Werkstätte Wattens
- Digital Data Space Lienz, East-Tyrol
- Data Hub Tyrol, in cooperation with South-Tyrol and Trentino

- INOVA-RIA, www.inova-ria.pt
- ATEC, https://tecnico.ulisboa.pt/en
- Robowork, www.robowork.pt
- Primavera Academy, https://pt.primaverabss.com/pt/formacao-2/primavera-academy/
- Citeforma, https://www.citeforma.pt/
- CEGOC, www.cegoc.pt
- INESC TECH, https://www.inesctec.pt/en
- COTEC, www.cotecportugal.pt
- Rumos, https://www.rumos.pt/
- IAPMEI https://www.iapmei.pt/
- Fraunhofer Portugal AICOS, www.fraunhofer.pt
- CECOA, https://cecoa.pt/
- People Value, https://peoplevalue.pt/homepage/
- Accenture, https://www.accenture.com/pt-pt
- IPL, https://www.ipleiria.pt/estg/estudantes/formacao-continua/
- HLTSYS – HealthySystems, http://hltsys.pt/pt/home-pt-2/
- Zenithwings, https://www.zenithwings.com/
- Agilus, http://agilus.pt/servicos/consultoria-especializada-2/
- Marketing Invest, https://marketinginvest.pt/
- TICE, www.tice.pt INCODE,
- https://www.incode2030.gov.pt/
- PWC academy, https://www.pwc.pt/pt/formacao.html
- Universidade Lusófona, www.ulusofona.pt
- TEC Minho, https://www.tecminho.uminho.pt/

- UNIKO: National University Federation
- FHK: Austrian Association of Universities of Applied Sciences

Section 5: the role of DIH in the training delivery related to digital transformation

DIHs are important actors, but most of them only offer on-demand courses, which makes very difficult for individuals to access their offer. It is easier for those already working in a business with the capacity of asking for a tailored course to the DIH, though. **DIHs help companies in the region to become more competitive by improving their business / production processes and products (and services) through digital technology.** They achieve this by offering services to businesses that would not otherwise be readily available. In the hub, market leaders, SMEs and start-ups as well as science, research and further education are networked. (e.g. robotics, photonics, high-performance computing, data analysis, simulation, Internet of Things, cyber physical systems, cybersecurity) and offer companies opportunities to test and experiment with these technologies. **These services are relevant for companies that currently have a relatively low level of digitalisation and do not have the resources or staff to tackle the challenge of digitalisation, for example SMEs and mid-sized companies.**

In Germany, there is 1 Digital Innovation Hub for each different topic:

https://www.digitalhublogistics.hamburg/

The Logistics Hub Hamburg is one of the most important hubs for digital process, product, and business model innovations for the logistics industry in Germany and Europe. With event formats such as Innovation Dock Day, Fast Mover, Match Machine, Corners, MeetHubs or Logistik trifft, innovations are accelerated, solutions to problems are developed, companies and start-ups are networked within the industry and exciting ideas are promoted.

https://dehub.berlin/

With around 4,500 start-ups, Berlin is one of the most important innovation ecosystems in Europe and the world. A strong start-up culture, tech conferences, start-up competitions, incubators and investors attract talented entrepreneurs from all over the world every year. During this spirit of optimism, the sponsors of the Digital Hub Berlin offer an established network. The IoT+ Network connects players and opens up new business models in the field of the Internet of Things.

https://www.mth-potsdam.de/

In the Digital Hub Potsdam, visionaries are working on innovative solutions in the field of media technology. Application areas such as big data and artificial intelligence are combined with voice and image recognition technologies. The annual MTH Conference, Germany's leading B2B event in the field of media tech, brings together players and know-how from all sectors.

https://digitalhublogistics.com/

The Digital Hub Logistics in Dortmund drives digitalisation within the logistics industry and beyond. In doing so, it increasingly promotes medium-sized companies that stand out for their innovative spirit and open new business models with promising digital products. To this end, the hub runs programmes such as Start-in Factory. In this programme, coaches work together with companies and innovation teams on the next steps on the path to digital transformation.

https://www.spinlab.co/

As the hub's sponsor, SpinLab promotes start-ups in the fields of e-health, smart city, and energy. The focus is on coaching and mentoring, as well as on supporting teams during the start-up and various growth phases.

https://smart-systems-hub.de/

In the Smart Systems Hub Dresden, work is being done on the vision of a fully networked world. To make this a reality, the hub provides access to forward-looking technologies, networks relevant partners and develops applicable solutions and business models in the field of IoT. In addition, co-innovation formats for IoT solutions are offered with Thin[gk]light and the Thin[gk]athon. In addition, the hub provides access to reference solutions and concrete IoT applications in order to provide orientation in the field of smart systems.

https://insurlab-germany.com/de/insurlab-germany/

The InsurTech Hub Cologne is actively dedicated to the digitalisation of the insurance industry. InsurLab Germany e. V. offers co-working spaces and thus also creates spatial exchange between start-ups, scale-ups and traditional insurance companies, investors and other network partners. In addition, the hub organises insureNXT together with Koelnmesse, an international congress fair where the latest InsurTech trends are presented every year.

https://techquartier.com/

The Digital Hub Frankfurt connects players from the financial sector with the start-up scene. As a cross-sector innovation platform, the TechQuartier brings together start-ups, scale-ups,

investors, companies and young talents to advance new technologies and digital solutions. The hub's programmes include mentoring and educational components, pitch events or even workshops. The latter aim to overcome ingrained thought patterns and develop a new digital understanding, for example for technology trends such as artificial intelligence, blockchain or sustainable finance.

https://www.digitalhub-cybersecurity.com/ueber-uns/

The Digital Hub Darmstadt is a project of the National Research Centre for Applied Cyber Security ATHENE. In particular, the Hub supports the transfer from research through various spin-off formats. In addition to targeted programmes, the focus is on networking between companies, research, investors, founders and other stakeholders, as well as the visibility of the national cybersecurity ecosystem.

https://www.5-ht.com/

Located in the Mannheim/Ludwigshafen ecosystem, the hub supports companies from the chemical and healthcare industries in realising innovations and digital transformation. The programmes of the 5-HT Digital Hub Chemistry & Health range from workshops to targeted matchmaking, such as in the 5-HT X-linker programme, to coaching sessions. The hub also focuses on the aspects of sustainability and green energy within the development of both sectors and creates a central platform for cooperation and co-development of concrete solutions.

https://www.zollhof.de/

The Digital Hub Nuremberg provides impetus in various technological areas. The focus is on business models in the areas of digital health, the Internet of Things (IoT) and artificial intelligence. Through these diverse specialisations, the ZOLLHOF supports both start-ups and established companies in bringing new digital business models to the market.

https://www.medical-valley-emn.de/

In Erlangen, the internationally recognised innovation cluster Medical Valley is setting new standards for the field of digital health. In combination with the international market and competitive position of individual players, this offers optimal conditions for the rapid development of products, processes and services.

https://digitalhub-ai.de/de/

The Digital Hub Karlsruhe promotes research, application and start-ups in the field of artificial intelligence (AI). With a focus on the areas of energy, mobility and production, the hub sets cross-industry standards for sustainable problem solutions. In addition to the FZI Research Centre for Information Technology and the DIZ | Digital Innovation Centre, the CyberForum

is the sponsor of the Digital Hub Karlsruhe. Start-ups from the field of AI are supported with mentoring, coaching and the provision of workspaces. In addition, the Hub's AI Radar provides an overview of the latest trends and application fields in AI.

https://www.code-n.org/future-industries-hub-stuttgart/

The Hub focuses primarily on promoting projects in the areas of smart products, mobility, AI and Industry 4.0. The Hub is supported by CODE_n. The cross-sector platform and hub for digital pioneers scrutinises the conditions for creativity and innovation, promotes forward-looking ideas and gives trends and new business models from a wide range of sectors a stage.

https://mobility.unternehmertum.de/

The Digital Hub Mobility Munich is all about the future of mobility. By networking important players, digital products can be created and new mobility concepts tested. The Digital Hub Mobility is located at UnternehmerTUM, Europe's largest centre for start-ups and innovation, and uses this ecosystem to drive innovations for future-oriented mobility. In addition, the Hub offers the Digital Product School, a programme in which international and interdisciplinary teams work on the challenges of a rapidly changing mobility sector.

https://www.insurtech-munich.com/

The InsurTech Hub Munich works on the future viability of the insurance industry. The Hub can boast a broad network of renowned partners from the world of insurance and promotes strong cooperation in the innovation of disruptive solutions for the industry. In addition, the Insurtech Collab Initiative brings together established partners of the Hub with tech scale-ups that excel in forward-looking ideas. In this way, added value and synergy effects can be generated and used for both sides.

Austria has funded two waves of national DIHs (3 + 3). The first hubs are already in the final phase. A three-year extension is possible. The four Austrian EDIHs are also in the starting phase. They are funded for 3+4 years. The region of Tyrol is engaged in 2 Hubs: DIH-WEST and the approved EDIH Crowd in Motion. The main member of these hubs like e.g. University Innsbruck (coordinator of DIH-WEST) and Werkstätte Wattens (member of EDIH) are already mentioned above (see 2.). For sure some more training partners could be addressed during the ongoing implementation of both hubs to use the DITA platform ongoingly and to enrich it.

National Digital Innovation Hubs

DIH-OST

- Topics: 3D-Printing, Blockchain, IT Security, Internet of Things, Sensorics & Connectivity

- Involved Organisations: ecoplus. Lower Austria Business Agency, FH St. Pölten, Research Burgenland, FOTEC Research & Technology Transfer, IMC FH Krems, Austrian Blockchain Center
- https://dih-ost.at/

DIH-WEST

- Topics: Digitale Transformation und Innovation, Industrie 4.0, eServices, Artifical Intelligence, Security
- Involved Organisations: University Innsbruck Fachhochschule Salzburg, FH Kufstein, Tyrol, Business Agency Vorarlberg, FH Vorarlberg, Innovation Salzburg, MCI Management Center Innsbruck, Business Agency Tyrol, UMIT – Private University for Health, Fraunhofer Austria Research, Paris Lodron University Salzburg, Chamber of Commerce and Federation of Industry Tyrol
- https://dih-west.at/

Digital Makers Hub

- Topics: Digital Culture, Co-Ideation and Co-Creation
- Involved Organisations: FH (University of Applied Sciences) St. Pölten, Tabakfabrik Linz, In2Make Industry meets Makers, Zukunftsakademie Mostviertel
- https://www.digitalmakershub.at/

innov:ATE

- Topics: Robotics, Automation, AI, Smart Industry & Infrastructure (Cyber Security, Blockchain), Big Data, Forecasts & Simulation with special focus on agriculture, forestry and wood manufacturing, energy
- Involved Organisations: Wood K Plus, FH Salzburg, Wood & Furniture Cluster Cluster, University of Life Sciences & Agriculture (BOKU), Josephinum Research, Montan University Leoben, Alpen-Adria-University Klagenfurt, Institute for Advanced Studies (IHS), Know-Center, THI TECHHOUSE, Blue Minds Solution
- https://www.dih-innovate.at/

DIH SÜD

- Topics: Production & manufacturing technologies, security, data science knowledge from data, digital business models & processes, logistics as well as the cross-cutting topic of human resources & young talent
- Involved Organisations: JOANNEUM RESEARCH, TU Graz, FH JOANNEUM, FH Carinthia, Alpen-Adria University Klagenfurt
- https://www.dih-sued.at/

DIH Arbeitswelt KMU

- Topics: Digitale Transformation & Innovation, Industrie 4.0, eServices, Artifical Intelligence, Security
- Involved Organisations: Johannes- Kepler-University Linz, FH Upper Austria - Campus Hagenberg, University of Arts (Linz Creative Robotics), FH St. Pölten
- https://dih.work/

EDIHs in Austria

EDIH InnovATE

- The national DIH got extended to the EDIH needs (see above).
- Technology Focus: Robotics, Automation & AI, Smart Industry & Infrastructure, Big Data, Forecasts & Simulation
- Sectoral Focus: agriculture, forestry and wood manufacturing, energy
- Services: High-Tech Focus, programmes along the whole innovation added value chain
- Regional Focus: South and East Austria

AI5production

- The EDIH, coordinated by the Pilot Factory of TU Vienna, consists of 16 partner institutions located in Vienna and Upper Austria and covers a broad range of topics. In addition to the major universities TU Wien, Universität Wien and JKU, the AIT, Profactor as well as several competence centres and industry partners are also involved in the Hub. This EDIH offers free access to research infrastructure and know-how to drive the digital transformation of companies. In addition, support is also offered in the search for financing for investments in the field of digitalisation.

EDIH Applied-CPS

- It offers more than 230 tailor-made services for access to cyber-physical systems (CPS) for companies under the management of VIRTUAL VEHICLE Centre.

EDIH Crowd in Motion

- This hub aims at the digital transformation of the tourism, sports and leisure industry as well as the public sector. The services are aimed at SMEs and public organisations in the Austrian Alpine regions of Carinthia, Salzburg, Tyrol and Vorarlberg and the neighbouring countries.

The Region of Madrid has been very recently selected by the European Commission to become one of the so-called European Digital Innovation Hub, which has the objective of going a step further in the digital transformation policies for businesses and public administrations to boost their competitiveness and their ability to create high-quality employment.

In the Italian MISE preparatory call, 29 DIHs have been identified, the European ones are being finalised. They collaborate with almost all Italian DIHs, so they will start an activity in the starting phase. The Italian MUR is creating Open Science and the EU has invested in various platforms on innovation.

Section 6: Initiatives and Network for the DITA follow-up

The **KDT - Key Digital Technology partnership** at European level is a relevant initiative, which puts together various partnerships including robotics, with fair representation of the business world.

Another suggestion is to explore a government launched approach, Portugal Digital Academy, which can be better explored on the website: https://portugaldigital.gov.pt/en/training-people-for-digital/, which come into force by 31 March 2022. The Portugal Digital Academy aims at providing all citizens with means and information for them to improve their digital skills regardless of age. **The main objective is to empower the Portuguese people towards a more digital nation.**

The initiative BIRD - Cross-divisional educational offers for Industry 4.0 on the platform of the DQR, is very interesting for the suggested training approach. **A modular training offer qualifies trainees, students, drop-outs, and those interested in further training at the further training level "occupational specialist" (DQR-5) on the topic of "Industry 4.0".** The training programme makes it possible to flexibly qualify commercial and industrial-technical employees: In a hybrid profile, which is attended jointly by the commercial and the industrial-technical participants, specialised in-depth courses on the design of operational competence development or on agile project management are planned. In the specialised technical profile, for example, a learning outcomes unit "Business Administration/SAP for Technicians" would be possible, but also specialised in-depth courses, especially on the "Internet of Things" (IoT) or robotics. In the specialising commercial profile, learning outcomes units on "Mechatronics for commercial staff" and subject-specific learning outcomes units on the use of "Enterprise Resource Planning" (ERP) are conceivable. For the concrete content design, the project is conducting a comprehensive needs survey among companies, especially SMEs. The training courses are to comprise 200 hours of classroom time and 200 hours of self-learning. The qualification will be conceived in a blended learning design; classroom events and digitally supported self-learning phases will alternate in a suitable scenario. Educational institutions and participants can use and share teaching and learning materials via a content management system. Diverse media as learning tools take different learning types into account. Learners benefit from spatial and temporal flexibility and

can structure the learning process. The competences of the educational staff are to be expanded through training: https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/bexelektro.html

In addition to the national hubs and EDIHs and their comprehensive partnerships, the following organisations, networks, and initiatives should be addressed:

- **The Milan Polytechnic**
- **FFG, COMET Centers** (8-years funded): e.g. Artificial Intelligence, Data Science, Digital Circular Economy, Renewable Materials
- **AWS,** Funding Programmes: Trustworthy Artificial Intelligence, Industry 4.0
- **9 Regional Business Agencies in Austria**[1] (already partly involved in the DIHs)
- **SAT and its network** of business support organisations in neighbouring regions and countries as e.g. Bayern Innovativ (Center Digitization Bavaria, Cluster & Networks: Automotive, Mobility, Smart Agriculture, Digital Production/Engineering, Future of Labour, Cyber-Security a.o.), Fraunhofer (Austria, Italy and Germany), DLR German Aerospace Centre, FBK Foundation Bruno Kessler (member of EIT DIGITAL), Trentino;
- **SAT and its international relationships** via projects as e.g., Interreg Netherlands-Germany: different regional/national DIHs (e.g., Digital Logistics Dortmund), EDIHs, universities (e.g Maastricht) and VETs; e.g. Interreg Alpine Space: ETH Zürich, AI Hub Karlsruhe;
- **Lebensraum Tirol** and its internal thematic network partners in Tyrol;
- **SAT and selected partners** from the network inside the macro-regional strategy EUSALP.

[1] Therefore, the second interview is dedicated to a regional Business Agency.

Chapter 7: Other online training catalogues in line with DITA

Other online training catalogues are:

- **The ones related with projects and registered in the Digital Skills and Jobs Platform** (i.e., I4MS online catalogue). The focus of these catalogues is often different; thus it is important to create synergies.
- **The training offers linked to ANITEC** (part of Confidustria): https://www.anitec-assinform.it/
- **The Skills Atlas site maintained by INAPP and ANPAL services**, which constantly updates the skills profiles required by companies. More complex, complete, and credible system fed by the Ministry of Labour and the Regions.
- **EIT DIGITAL**: The community of EIT Digital partners entails more than 300 top European corporations, SMEs, start-ups, universities and research institutes from all over Europe.
- **The DiBi Platform and the Data Hub with South-Tyrol/Trentino** managed by SAT, who is interested to contribute to as well as to exploit and capitalise the DITA Training Atlas.
- **RI Train** – mainly for researchers, http://ritrain.eu/
- **AI4EU**, referring to AI, https://www.ai4europe.eu/
- **Responsible Research and Innovation**, https://rri-tools.eu/how-to-stk-ec-integrate-rri-in-secondary-education
- **The continuing education platform Euducatico**: a free, independent search portal for online courses, with video courses from 22 subject areas. The platform focuses on online courses with learning videos, e.g. MOOCs, video-based continuing education courses or lecture recordings from universities, which are offered either in German or in English. The topics on digitalisation are broader at Edukatico than in the DITA atlas, so the following learning fields are offered:
  - *Digital transformation in the corporate environment: Business models, processes and the world of work are examined by various digitalisation experts in this German-language course (more)*
  - *Megatrends of digitalisation*
  - *Disruption and transformation of companies*
  - *Digitalisation strategies for medium-sized companies:*
  - *Industry 4.0:*
  - *Digital Business Models*
  - *Changing Business Models*

- *Digital Leadership:*
- *Corporate IT in Transition*
- *Marketing in the digital environment*
- *Digital Tools in Marketing*
- *Digitalisation of production processes:*
- *Digital Supply Chain Management:*
- *Digitalisation in trade*
- *FinTech*
- *Digitisation in Human Resources*
- *IT and the world of work*
- *Electronic stock exchange trading*
- *Data Governance*

Section 8: Advice for further next steps with the DITA project

The world of work is changing faster and faster, and considering technological progress, a new generation of learners must be adapted to new conditions. New knowledge strengthens the competitiveness of companies, and at the same time employees must constantly update their professional qualifications. Adapting to changing market conditions means learning constantly and quickly. For some professions, new competences are needed within 5 years; constant reskilling and upskilling is necessary. **Continuous learning becomes a prerequisite** for one's own ability to innovate. **The challenges range from recruitment and induction to the further development of employee**s. Diversity is desirable in many respects, but then common foundations must be worked out for the different prerequisites of the professionals. **The number of specialisations is growing and often the learner is challenged to select relevant content**. Many employees are using tutorials, but a prerequisite for their use is the ability to learn independently. **Therefore, a learning culture should be developed in the company,** for that reason a company-internal learning processes is a contribution to value creation and to a higher agility of the company. Learning and training are thus a lifelong task - both for the employees and for the organisations in which they work.

The overall objective of the DITA Atlas is ***to support, through lifelong learning, the educational, professional, and personal development of workers***, contributing to sustainable growth, quality jobs and social cohesion, fostering innovation.

The most interesting part of the DITA project is **the capacity of connection**, understanding which kind of cooperation mechanisms have been created thank to DITA, to replicate the model and **to create a community.**

The are maybe the following possible paths to follow: a) becoming a legal entity to offer a service to SMEs; b) making agreements with ANITEC or similar organisations, which could lead to keeping the project going; c) addressing further Erasmus calls by selecting some of the entities present in DITA and encouraging them to work for a future Erasmus+ project; d) deepening on the twinning schemes identified within the project.

Moreover, **it is important to cultivate the link with relevant stakeholders, emphasising the needs of integrated training hubs by entrepreneurs and workers**. Given the required technological change, it is important that the two sides of the market (entrepreneurs and workers) talk to each other. Furthermore, it is necessary to establish the connection with the regional, national, and upcoming European Digital Innovation Hubs and their comprehensive innovation eco systems, demonstrating the practical use before scaling up.

Suggestions of further steps might be, e.g.:

• *To include a tab with links to funding websites*, and funding calls disclosure (e.g. EU Learning, https://eu-learning.net/)

• *To include a tab for careers;*

• *Subcategory of entities* which can provide training needs assessment;

• *Forms to be filled in by all SME enabling search of training providers* which can fulfil their needs

In this regard, relevant inputs collected are:

• To set in the platform a way of *providing definitions about what are digital skills*, and examples;

• To enable *gathering feedback from stakeholders in what regards identification of training needs;*

• To take some effort on *marketing and dissemination of the tool* amongst all potential beneficiaries, by means of online events, social media, recurring newsletters, others;

• To enable *ranking of open calls for funding related with Digital Transition*, and perhaps include links to related websites.