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European Recommendations for VET Systems

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Contents

1. Introduction

TRUST is an Erasmus+ funded project that aimed to develop a new qualification, designed in line with the European Qualifications Framework (EQF) level 4 (corresponding to the INDEPENDENT proficiency level from the EWF Qualifications Framework[1]): the European Destructive Testing Technician (EDTT). This qualification was designed specifically to address Destructive Testing (DT) of welded joints and employs a modular approach. Furthermore, the EDTT Qualification incorporates a Recognition of Prior Learning (RPL) process and common European tools, , that foster mutual trust among VET systems, such as Learning Outcomes (LOs), EQF and European Credit System for VET (ECVET).

TRUST is set to enhance the integration of its training offer in European countries with lower engagement or access to it while increasing transparency of competences and qualifications for the Manufacturing sector. Therefore, it targets not only young trainees involved in Initial Vocational Education and Training (I-VET), but also professionals who already work in this area but are lacking a proper specialised training , thus allowing them the opportunity to upskill through Continuous VET (C-VET). Therefore, TRUST European Recommendations is targeted at policy makers, VET providers (dealing with both I-VET and C-VET), or other educational actors wishing to integrate the qualification of the EDTT into their national qualifications system. Thus, it aims to boost and support the implementation of the EDTT training course at European level in the European Vocational Education and Training (VET) Systems, in order to guarantee the use and transferability of the project's results.

In this sense, to ensure the national roll out of the EDTT Qualification and promote the formal recognition of this qualification within the VET National Systems in the partners countries, besides the translations into the partnership languages (Romanian, Polish, Portuguese and Italian) both of the training materials and the RPL process, TRUST project proposes a set of recommendations, encompassing the required alignment steps, tools and players involved.

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[1] Annex I

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2. European Destructive Testing Technician Qualification Overview

TRUST project implementation was based on the identified need, by the European Committee for Standardization (CEN), for specific requirements for personnel conducting DT including proper specialised training and testing. Therefore, the project addressed the development of a new professional profile – the European Destructive Testing Technician (EDTT) – its Curricula and Qualification. Through the EDTT Qualification, TRUST target groups (I-VET trainees, trainees with working experience and professionals working in the DT field who lack the required qualification or need to upskill through C-VET) will be given the opportunity to acquire the required skills and competences to work in the DT of welded joints on industrial laboratories and a proper recognition of their functions.

The EDTT qualification was created using a modular structure composed by Competence Units (CUs) structured learning outcomes to describe the expected knowledge and skills acquired by students/trainees after the successful completion of the training courses. Within the system, a single syllabus for each level is defined, supported by a harmonised system for assessment and quality assurance, resulting in the same qualification being awarded independently from the country. Also, the EDTT qualification has the purpose of being integrated in EWF Education, Training and Certification System. The design of this qualification provides a clear definition of the professional profile as well as access conditions (Table 1):

Table 1 EDTT Professional Profile and Access Conditions

PROFESSIONAL PROFILE	This professional is someone who is appropriately qualified in Mechanical Destructive Tests (MechDTs) of metals and welded joints including, tensile tests of metals and welded joints; bending tests of metals and welded joints; charpy impact strength tests of metals and welded joints; vickers hardness tests of metals and welded joints; fracture test of welded joints.
ACCESS CONDITIONS	**a)** have completed at least secondary technical education majoring in mechanics; **or** **b)** have completed secondary education other than mechanical education and a minimum of one year of practical training in mechanical tests confirmed by the head of the laboratory/testing department where a given applicant works; **or** **c)** any applicant that fulfils with the EWF National access conditions for the qualification level of EWS[2] complies with the access conditions; **and** **d)** be in possession of a certificate confirmed by a specialist physician stating that the applicant satisfies the requirements specified in 7.4 in EN ISO 9712 (latest version) in relation to: -near vision acuity: making it possible to read characters of at least no. 1 on the Jaeger scale or N 4.5 of the Times Roman scale or equivalent letters (1.6-mm in height) from a distance not shorter than 30 cm, using one or both eyes; and

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[2] European Welding Specialist

	-chromatic vision: making it possible to recognise colours and distinguish chromatic contrast or greyscale used in a given DT specified by the employer.

The qualification standard for the EDTT is comprised of two introductory CUs (one dedicated to DT and the other to Metallic Materials (optional)), followed by two specific CUs (one dedicated to Mechanical Tests and another to Measurement Uncertainty):

Table 2 EDTT Competence Units Overview

COMPETENCE UNITS	MINIMUM CONTACT HOURS*	EXPECTED WORKLOAD**
CU1: Introduction to Destructive Testing	3	6
CU2: Mechanical Tests (Tensile Tests, Bend Test, Charpy Impact Strength Test, Fracture test, Hardness Test)	24	48
CU3: Measurement uncertainty	7	14
CU4: Introduction to Metallic Materials (optional)	5	10
TOTAL WITH MANDATORY SUBJECTS	**34**	**68**
TOTAL WITH OPTIONAL SUBJECT	**39**	**78**

* Contact Hours are the minimum teaching hours for the Standard Routes. One contact hour shall contain at least 50 minutes of direct teaching time.

** Workload is calculated in hours, corresponds to an estimation of the time students typically need to complete all learning activities required to achieve the defined learning outcomes in formal learning environments plus the necessary time for individual study (outside classroom context).

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3. VET Systems: Overview in TRUST partners countries

The aim of this chapter is to give an overview of the different approaches to the Vocational, Education and Training Systems, in each partners country – Poland, Romania, Italy and Portugal – as well as the different realities in the structure of Educational and Qualification sector, as a result of reflections and mapping of official information in educational institutions.

3.1. Poland

The VET System in Poland is comprehensive, offering various vocational training options for students. It aims to provide both theoretical knowledge and practical skills, preparing learners for the workforce. Within its main features the following can be highlighted:

❧ Vocational Schools: Poland has vocational schools that provide specialized training in various trades and professions.

❧ Dual System: Similar to other European countries, Poland has been developing its dual education system, enabling students to combine classroom learning with practical experience in companies.

❧ National Qualifications Framework: The Polish VET system is aligned with the National Qualifications Framework, which ensures the recognition of vocational qualifications.

❧ Industry Collaboration: There is a focus on collaboration between VET institutions and industries to ensure that training programs meet the labour market demands.

3.2. Romania

The VET System in Romania focuses on equipping students with skills relevant to the labour market. It offers various vocational programs and apprenticeships. Some of its key features can be highlighted as follow:

❧ Vocational Education Programs: Romania offers vocational education programs at different levels, catering to various career interests and aspirations.

❧ Industry Partnerships: The VET system in Romania encourages partnerships between schools and businesses to ensure that training aligns with industry requirements.

❧ Vocational High Schools: Romania has vocational high schools that provide specialized training in various fields.

❧ Practical Training: Practical training and work placements are often integral components of vocational education programs in Romania.

3.3. Italy

The VET System in Italy is well-developed, known as the "Dual System." It offers a mix of theoretical education and on-the-job training, allowing students to gain practical experience. Among its main characteristics can be listed as follows:

❧ Dual System: As mentioned, the VET system in Italy follows a dual approach, combining both theoretical classroom instruction and practical training in companies or workshops. This enables students to develop hands-on skills and become work ready.

❧ VET Tracks: The Italian VET system offers different tracks based on students' educational paths and career aspirations. Some tracks lead to vocational qualifications that prepare students for specific occupations, while others provide a foundation for further academic studies.

❧ Work-Based Learning: Work-based learning plays a significant role in Italy's VET system. Students spend a portion of their time in a real work environment, which helps them gain exposure to the professional world and acquire practical skills relevant to their chosen career paths.

❧ Apprenticeships: Apprenticeships are a crucial part of VET in Italy. They allow students to receive training while working under the guidance of skilled professionals. Apprenticeships often lead to formal qualifications and can increase employability.

❧ Regional Variation: The VET system in Italy may have some regional variations in terms of curriculum and focus. Different regions may prioritize specific industries or sectors in their VET offerings to align with local economic needs.

❧ Recognition of Qualifications: Italy, like many other European countries, participates in the European Qualifications Framework (EQF), which ensures that VET qualifications are recognized across Europe and facilitates mobility and employability within the EU.

3.4. Portugal

The VET System in Portugal is known for its diversified and flexible approach. It provides opportunities for students to pursue vocational qualifications and acquire practical skills alongside general education. Some key aspects of this VET system involve:

❧ Dual Education: Portugal has a dual education system that combines classroom learning with practical training in companies or vocational training centers.

❧ National Qualifications System: The VET system in Portugal is organized into a National Qualifications System (NQS), which establishes a clear framework for the development, validation, and recognition of vocational qualifications.

❧ VET Pathways: The VET system offers multiple pathways for students, including professional courses, apprenticeships, and vocational courses in secondary education.

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❋ Sectoral Focus: VET programs in Portugal are often designed to align with the needs of various sectors of the economy, ensuring that students gain relevant skills for the job market.

4. Recommendations for the integration of the EDTT Qualification in VET Systems

DT plays a crucial role in ensuring the safety, reliability, and quality of various products and materials. It involves testing techniques that lead to the destruction of a test specimen, allowing for the assessment of its mechanical properties and performance. The demand for skilled professionals proficient in DT is increasing in diverse industries across Europe.

Therefore, by recognizing the importance of fostering a skilled workforce and promoting harmonization in VET across member states, the integration of the EDTT Qualification within VET Systems, specifically focused on the countries of the partnership (Portugal, Poland, Italy and Romania) aims to enhance industry-relevant skills, by equipping learners with comprehensive theoretical knowledge and practical skills in DT, tailored to meet the evolving needs of industries; ensure quality and safety standards, by fostering adherence to internationally recognized quality and safety standards in DT processes; improve employability of VET graduates by providing specialized qualifications in a niche area of expertise; and facilitate labour mobility, by enabling the mutual recognition of qualifications across member states, promoting cross-border labour mobility. In this sense, some recommendations to achieve these purposes are presented.

4.1. Encompassing Recommendation – Identification of transversal technological needs to achieve a European Qualification

The identification of transversal technological needs in industry and labour market is the answer to the challenge of keeping VET programmes and qualifications updated and avoiding deliver outdated skills and competences. The close link between players, meaning the strengthen of the collaboration between industry and training organizations, will allow a more comprehensive result, in terms of quality and applicability.

Therefore, TRUST project shows us how to conduct the process to have a qualification that is aligned with the industrial macro needs, in a harmonized way across European VET Systems. The first task is to consult and map out the needs in industry stakeholders, in different countries. This strategy will allow the identification of the specific common needs and provide consistent clues for the main subjects to include in the curriculum, in a harmonized way.

Implementing a modular based approach to the design of European qualification pathways also enables the possibility to simultaneously map specific local, regional and national needs that can

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be easily integrated as specific modules, allowing a much more individual approach, meaning that each local, regional or national needs are settled and included.

4.2.   #1 Recommendation – Sectorial Diagnosis Groups

The alignment of the European Destructive Testing Technician Qualification and Competence Units with EQF/NQF enables the integration of this qualification in each country framework. The competence units of this new qualification are structured in Learning Outcomes - on what a learner is expected to know, be able to do and understand – which provides us with a much more direct insight into national content priorities and intentions.

At the same time, one of the challenges for policy makers and stakeholders in VET segment is, on one hand, how to keep up the current speed of technological, economic and societal changes, and, on the other, how to identify future needs regarding skills developments. The development of sectorial groups made of policy makers, VET providers, experts, industry stakeholders, among others, allow the definition of a diagnosis, identifying the needs and the opportunities for all the players. These sectorial groups can be identified at a European level or at a national level. These groups provide inputs and validate the skills needed and technological trends in industry. By working in a collaborative way with education groups during the validation of industrial requirements will provide the updating and development of new qualifications in close connection to labour market and industry.

The future action in this recommendation is based on the promotion of initiatives on local, regional and national level, that feed and map out the most important needs from industry and that keep involved the most relevant stakeholders, allowing a curriculum as much close to the reality as possible, and on time.

4.3.   #2 Recommendation – Inclusion of Technical International Qualification/Modules as part of VET Systems

International Qualifications are recognised by the industry as an added value for their employees, either during recruitment stages or as part of professional development and career management policies. Nevertheless, the principle of "think globally, act locally" is being more and more implemented worldwide, therefore, it´s important that national qualifications consider not only national needs, but also provide the development of skills to work in a global environment. Considering each of the national specificities, we can find different status for the implementation of new qualifications in the national frameworks: Emerging qualifications that may give rise to a new area/qualification; Existing qualifications that can be valued with the EDTT qualification.

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Using the example of the Portuguese case, its system has competence units, in the technological training component, that are foreseen as mandatory and others that are optional. By integrating EDTT qualification in the NQS catalogue, VET providers can select from the group of available optional competence units related with its specific national Qualifications, the inclusion of the EDTT competences units enabling the integration of a European qualification as an added value to the National qualification.

Education and Qualification development and implementation is a challenge for each country members of European Union, when the aim is to harmonize qualifications and enable workers to see their skills and knowledge recognised regardless of the region, or to give confidence to industry when hiring. The alignment between National Qualifications Framework (NQF) and the European Qualifications Framework (EQF) is the trigger point, as it provides harmonization, transparency and comparability of qualifications add quality and reliability, in national and international context.

4.4. #3 Recommendation – National Hands-on Seminars as an accelerator for the integration of new Qualifications in VET Systems

National Hands-on Seminars aim to promote key stakeholders' engagement, including representatives from industry, education providers, employers, trade unions, and relevant government agencies. Consequently, collaborative engagement ensures that qualifications aiming to being integrated into national VET systems meet the needs of the labour market and align with industry demands. Also, these seminars focus on practical skills and real-world applications, preparing learners for the demands of the job market by prioritizing the development of practical and industry-relevant curricula.

TRUST partnership gathered information during the National Hands-on Seminars, in Poland, Italy, Portugal and Romania, which enabled to engage the National key stakeholders and collect fruitful feedback regarding the integration of European qualifications in these countries.

Another aspect to consider, based on TRUST project lessons learned, is to pilot the new qualifications and hands-on seminars in selected VET institutions prior to its full implementation, is. Collect feedback from students, trainers, and employers to identify any necessary adjustments or improvements. Also, by providing training for VET teachers and trainers to ensure they have the expertise and knowledge to deliver the qualifications effectively. Therefore, professional development programs should include updates on industry trends and practices.

Additionally, establishing a mechanism for recognizing prior learning and experience (RPL), enabling individuals with relevant skills and knowledge to receive credit for their existing competencies should be considered. RPL can encourage more people to participate in VET and

improve the efficiency of the qualification integration process. As well as allowing for flexible learning pathways to accommodate diverse learners' needs, like part-time or online options to enable individuals to upskill or reskill while working.

Furthermore, raise awareness about the new qualifications and hands-on seminars among students, parents, employers, and the wider community to provide visibility to the EDTT qualification. Effective communication can enhance the acceptance and uptake of the integrated qualifications. Also, by conducting research and evaluation to measure the impact of the hands-on seminars and the integration of new qualifications. Evidence-based data can guide future decisions and improvements. Hence, emphasising cooperation in exchanging best practices and experiences with other countries or international organizations in VET. Learning from successful experiences in other regions can enhance the effectiveness of the approach.

4.4.1. Benefit of having the European Destructive Testing Technician training course in VET systems

BENEFITS OF IMPLEMENTING THE EDTT TRAINING COURSE IN VET SYSTEMS	
The main benefit is that we had the training in this field of destructive testing. This training that was before never available in such a compressed and clear format. The main benefit refers to the possibility of having a theoretical followed by a practical training.	*Overall, integrating the European Destructive Testing Technician training course into VET systems ensures standardized, high-quality training for technicians, facilitates European recognition, improves industry practices, and enhances career prospects in the field.*
Increasing the level of contractor confidence in training bodies.	*Acknowledgment of competence in other EU countries.*
Increased theoretical and practical training regarding topics that we regarded as secondary (uncertainty measurement).	*Increased knowledge and the practical training that helped in correcting small mistakes.*
Broader and harmonised recognition of the qualification.	*Unification of certification of destructive testing personnel in Europe.*
Updating of knowledge.	*Strengthening the role of Europe in the field of testing and new technologies.*
Availability of the training in this field of destructive testing. The practical training received was essential.	*Greater knowledge of the correctness of execution and presentation of the results of destructive testing.*
To have European qualifications for technical personnel.	*Qualification of the DT technicians – Recognition of the certification at the European level – Continuous professional development.*
Have a standardization at the European level; Since the EDTT course has quality assurance mechanisms, it allows standards to be in place to implement good practice in the area of destructive testing; facilitate professional mobility across European countries.	*It fills an existing GAP in the training offer for the qualification of laboratory technicians starting a career (initial training); - it is a European Qualification, which facilitates the mobility of workers across Europe; -the EDTT qualification includes a methodology for Recognition of Prior Learning (RPL), allowing existing technicians with years of practical experience in the job, to achieve the recognition of their existing knowledge and skills, facilitating the achievement of a European Qualification.*
Acquisition of unified knowledge and increase of competence of technical personnel in EU countries.	*Training new professionals. Have more qualified personnel in the market. Quality training available.*
Standardized Skills by ensuring that technicians possess a consistent set of skills and knowledge, enhancing quality and reliability in the field, European Recognition since facilitates mobility and employability across member states, as employers can trust the competency and expertise of technicians who have completed the course. Quality Assurance since ensures that technicians are trained to perform testing procedures accurately, reliably, and safely. Industry relevance, since equips technicians with up to-date skills and knowledge, enabling them to contribute effectively to their respective industries and meet industry demands. Career Advancement since it can open a wide range of opportunities in industries that rely on destructive testing, including research and development, quality assurance, and non-destructive testing (NDT) fields. Last but not least, the course can act as a steppingstone for continuous improvement and career growth.	

4.4.2. Conditions (internal and/or external factors) for the successful implementation of the EDTT profile and training course

INTERNAL FACTORS	EXTERNAL FACTORS
Existence of a good team of teachers and trainers followed by a good destructive testing training in the laboratory that is, allowing an on-site training by allowing the participants to actively participate to the training but also to witness the necessary steps when receiving an external order for DT.	*It is of utmost importance that EWF's working group that has recently been nominated during the General Assembly in May 2023 to work on the finalization of this EDTT Qualification, approves it, including it in the extensive list of qualifications managed under EWF's system.*
Requirement form relevant National Authorities	*Development of program guidelines and recommendations for all EU countries.*
Proper and timely info regarding such courses. Availability of personnel (depends on number of activities and deadline).	*Willingness of manufacturers to increase the competence of their staff and create good practices in destructive testing.*
Attentiveness of the participants and actively participating to the training.	*Transfer of acquired technician qualifications to a higher quality level of Testing.*
Properly prepared materials and lecturing personnel.	*Implementation of the TRUST project results by all EU member states.*
Promotion of this course among large employers and technical societies.	*Professionally equipped laboratory for DT testing.*
Dissemination of information to companies.	*Access to appropriate testing equipment.*
Conducting an information campaign about the relevant course.	*Promotion in external organizations of this course.*
ISQ's is an ATB in Portugal and must first apply to have accreditation to implement this qualification; Besides this, there is an internal interest in implementing it not only to train new as well as existing laboratory technicians in the Portuguese market.	*Collaboration with industry stakeholders for input and recognition, a favorable labour market demand for skilled technicians, and adequate funding and support play vital roles in ensuring the program's success.*
it is crucial to develop a comprehensive and well-structured curriculum that covers both theoretical knowledge and practical skills. This curriculum should align with industry standards, incorporate emerging technologies and techniques, and remain adaptable to future developments.	*Collaboration with industry stakeholders is vital. Employers, professional associations, and industry experts should be involved in the curriculum development process, training delivery, and assessment processes. Their input and involvement ensure that the course aligns with industry needs and standards.*
EWF support. Good trainers. Trainees with a professional background.	*Compliance with applicable industry regulations or legal requirements.*
Track performance improvements.	*Sufficient budget.*
Support and commitment from top-level management.	*Collaboration with training providers.*
Well-structured training modules.	*Industry Collaboration, Recognition and Accreditation, Labor Market Demand, Funding and Support, Continuous Improvement.*
Curriculum Development, Qualified Instructors, Training Facilities, Assessment and Certification.	
Developing a comprehensive curriculum aligned with industry standards, qualified instructors with expertise in destructive testing, and well-equipped training facilities are essential.	

4.4.3. Activities required to boost the transferability of project results in other EU countries

ACTIVITIES TO BOOST TRUST RESULTS IN OTHER EU COUNTRIES	
the DT laboratories in the other EU countries need to have more info related to the project curricula and outcomes in the project partner countries.	*More detailed requirements regarding the criteria to be fulfilled by DT personnel.*
Promotion through professional and certification bodies.	*Inclusion of this course in the National curricula.*
Increase of visibility trough marketing on social media webpages.	*Proper and in time info regarding the project course, with an appropriate level of detailing.*
Maintaining contacts between EU countries.	*Facilitating information exchange between training centers.*
International training.	*Cooperation with international research institutions.*
Publicity at international conferences and seminars.	*Standardization of requirements for destructive testing personnel.*
Translation of training materials.	*Access to the results of the project in any language of EU member states.*
Involvement of responsible institutions.	*Adequate infrastructure.*
In my view the most effective way of transferability across Europe is the dissemination network of EWF.	*Engage with policymakers and relevant authorities at both national and EU levels, encourage the exchange of knowledge, experience and expertise and transparency of project reports.*
Events, new projects, dissemination.	*Good project results; provide training to stakeholders in other EU countries; adapt the course to the specific needs of each EU country.*
Documentation and communication of project results through comprehensive reports, guidelines, case studies, and engaging communication materials. Dissemination and promotion efforts should target relevant stakeholders across different EU countries through conferences, workshops, online platforms, and collaborations with local partners.	

4.4.4. Main actors/relevant stakeholders, involved in the successful implement EDTT training course

MAIN ACTORS & RELEVANT STAKEHOLDERS TO SUCCEFULLY IMPLEMENT THE EDTT TRAINING COURSE	
The main actors in implementing such courses need to be actors who have, for such EDTT training courses, an DT accredited laboratory. Only under such circumstances we can create the favourable conditions for a proper EDTT training course.	*Education and Training Institutions, Industry Associations and Employers: Industry associations, professional bodies, and employers, Curriculum Developers and Subject Matter Experts, Trainers and Instructors, Certification and Accreditation Bodies, Learners and Trainees, Government Agencies and Policymakers.*
DT laboratories that have the personnel that can give the practical training.	*Supervisory societies, e.g., TUV, UDT, etc.*
DT accredited laboratories. That can facilitate a proper EDTT training course.	*National welding and/or destructive testing units, and destructive testing training organizations, e.g., TUV or UDT.*

Accredited laboratories that can request an update of ISO 17025 so as to include many of the requirements that this course has implemented.	*EWF itself, since the designated working group must carry out the revision work to approve it and include it in the list of EWF's qualifications. The National Bodies (ANB's of EWF in different countries), and ATB's (training centers).*
Accredited DT laboratories, under the ISIM or TU umbrella.	*Standardization centers in the subject of standardization of testing processes.*
The educational bodies.	*Management and leadership, DT technicians and training team.*
Material producers.	*Sectorial VET providers, DT laboratories, EWF.*
Units conducting destructive testing.	*Industry in general.*
HR department; employees; training facilitators.	*Verification of competence in the field of research performed development of transparent and understandable teaching materials.*
The main actors and stakeholders involved in the successful implementation of the EDTT training course include vocational education and training institutions, industry associations, employers, curriculum developers, subject matter experts, trainers and instructors, certification and accreditation bodies, learners and trainees, as well-as government agencies and policymakers. These stakeholders collaborate to design and deliver a comprehensive curriculum, provide industry expertise, ensure quality training, validate certifications, and create an enabling environment for the course. Their collective efforts contribute to the success of the training program and the development of competent Destructive Testing Technicians.	

4.4.5. Main actors/relevant stakeholders' role

MAIN ACTORS & RELEVANT STAKEHOLDERS ROLE	
The role of accredited DT laboratories is essential in the possibility of offering a proper training, that can cover all aspects related to DT, including the uncertainty measurement calculation and later reporting.	*EWF approval of the final version of the EDTT qualification and dissemination across all the members; ANB's by dissemination at a national level to generate the interest of ATBs to implement this qualification.*
Proper teaching the next generation.	*Theoretical and practical training.*
Realization of minimum the practical part of this course. Sharing experience.	*Uplifting quality requirements.*
Increasing the quality of the performed activities in the field of DT.	*Getting employees interested in training topics.*
Assist employees in performing destructive testing.	*Getting trainees interested in the topics and curriculum.*
Making comments and changes to the training program based on their knowledge and practical experience.	*Taking an active role in developing, implementing, promoting and organizing trust training.*
Imparting solid knowledge in the field of dt research.	*Providing materials and facilities. Providing experts and trainers for tutoring, training and the RPL process.*
Collaboration and cooperation among these stakeholders are vital to the successful implementation of the EDTT training course. Their collective efforts ensure that the course meets industry needs, produces competent technicians, and contributes to the overall development of the sector.	*The management and leadership provide support; DT technicians with active engagement and commitment; training team to give specialized knowledge aligned with the organizations' objectives.*

| VET Institutions: They design, develop, and deliver the training course, providing the necessary infrastructure, facilities, and qualified instructors for effective training delivery. Industry Associations and Employers: They offer industry expertise, guidance, and input to align the course with industry standards, contribute to curriculum development, and provide opportunities for practical training. | HR department usually is responsible for overseeing employee development and training programs; the employees must be motivated for the course; the training facilitators are responsible for delivering the training sessions and motivating the trainees. |

4.4.6. Further topics and/or suggestions to be included in the recommendation

ADDITIONAL RECOMMENDATIONS FOR THE IMPLEMENTATION OF THE EDTT TRAINING COURSE	
This course should be developed also for other DT methods (creep tests, fracture analysis etc. That are not covered yet by this course), that exist on the market and, while seaming less important, are essential in the process of lifetime analysis and the risk management in the case of essential equipment.	The pilot courses implemented revealed differences between countries in terms of applicability or relevance of certain type of equipment/technology as well as the level of knowledge to be considered adjusted to the level of a Technician versus Engineer (namely in CU3 "measurement of uncertainty".
More info regarding updated DT norms.	Training for all special bonding processes, e.g., bonding soldering.
That the courses take into account the recollection of theoretical knowledge and the transfer of practical knowledge, and ensure the acquisition of new knowledge, etc.	Training requirement fixed in standards, the definition of minimum requirement of knowledge of testing personnel, accreditation of training centers.
Adapt the course to the needs and current reality of national companies.	Industry-Driven Research and Innovation: Encourage industry collaboration with educational institutions and research organizations to foster research and innovation in the field of destructive testing. Encourage partnerships that focus on developing new testing methods, exploring emerging technologies, and addressing industry challenges.
Foster stakeholder collaboration among VET institutions, industry associations, employers, certification bodies, and government agencies to ensure the EDTT training course 9 meets the needs of all parties involved. Emphasize practical training opportunities, collaboration with industry partners, and integration of non-destructive testing to enhance the course's applicability and prepare technicians for real-world scenarios. Implement quality assurance mechanisms, leverage digital learning tools, and promote international collaboration to ensure the course's effectiveness, accessibility, and alignment with industry standards.	

5. Final Remarks

The Integration of European Qualifications in VET Systems is one of the challenges but also, an opportunity in TRUST project.

A harmonised system of recognition of qualifications all over European countries can benefit all the players: industry, policy makers in education, VET providers or trainees, and its benefits are linked to one the fundamental principles in European Union: the mobility of people.

By sharing TRUST partnership experiences during the National Hands-on Seminars, future steps towards the integration of European/international qualifications can be furtherly explored by VET providers and Local/national authorities in the field of VET .

In conclusion, this document achieved its purpose: to be a starting point and to provide guidance in the reflection process for the integration of European Qualifications, transversal and linked to the labour market, in VET systems, regardless its country or context.

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Annex

EWF Qualifications Framework

FIELD OF ACTIVITIY		EWF LEVEL	KNOWLEDGE	SKILLS	AUTONOMY AND RESPONSIBILITY	EQF LEVEL
Supervisors, Coordinators, Designers, Engineers, Operators	Designers, Engineers, Coordinators	N.A.	Knowledge at the most advanced frontier in the field of additive manufacturing and at the interface between other manufacturing fields.	Highly advanced and specialised skills and techniques, including synthesis and evaluation required to solve critical problems in research and/or innovation applied in additive manufacturing technology. Extend and redefine existing knowledge or professional practice when applying additive manufacturing processes.	Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes including research at the forefront of additive manufacturing.	8
		EXPERT	Highly specialised and forefront knowledge including original thinking, research and critical assessment of theory, principles and applicability of additive manufacturing processes.	Highly specialised problem- solving skills including critical and original evaluation, allowing to define or develop the best technical and economical solutions, when applying additive manufacturing processes, in complex and unpredictable conditions.	Manage and transform additive manufacturing processes in a highly complex context. Fully responsible for the definition and revision of additive manufacturing personnel's tasks.	7
		ADVANCED	Advanced knowledge and critical understanding of the theory, principles and applicability of additive manufacturing processes.	Advanced problem-solving skills including critical evaluation, allowing to choose the proper technical and economical solutions, when applying additive manufacturing processes, in complex and unpredictable conditions.	Manage the applications of additive manufacturing processes in a highly complex context. Act autonomously in decision making and definition in the definition of the additive manufacturing personnel's tasks.	6
		SPECIALIZED	Specialised, factual and theoretical of theory, principles and applicability of additive manufacturing processes.	Specialised range of cognitive and practical skills, allowing to develop solutions or choose the appropriate methods, when applying additive manufacturing processes in common/regular problems.	Manage and supervise common or standard additive manufacturing processes, in an unpredictable context. Take responsibility in standard work and supervise additive manufacturing personnel's tasks.	5
	Operators, Supervisors	INDEPENDENT	Factual and broad concepts in the field of additive manufacturing processes.	Fundamental cognitive and practical skills required to develop proper solutions and application of procedures and tools on simple and specific additive manufacturing problems.	Self-manage of professional activities and simple standard applications of additive manufacturing processes in predictable contexts but subject to change. Supervise routine tasks and similar function workers, as well as take responsibility for decision making in basic work.	4
		BASIC	Knowledge of facts, principles, processes and general concepts in the field of additive manufacturing.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools in additive manufacturing applications.	Take responsibility for completion of tasks in additive manufacturing applications. Adapt own behaviour to circumstances in solving problems.	3
		ELEMENTARY	Basic factual knowledge in the field of additive manufacturing.	Basic range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying methods, tools, materials and information in the field of additive manufacturing.	Carry out, under supervision, professional activities in additive manufacturing applications with some autonomy.	2
		N.A.	Basic general knowledge in the field of additive manufacturing technology.	Basic skills required to carry out simple tasks related with additive manufacturing.	Perform basic tasks related with additive manufacturing technology under direct supervision in a structured context.	1

General reference descriptors transversal to all qualifications. Each Qualification has its own specific descriptors in terms of Knowledge, Skills, Autonomy and Responsibility.