



SHOE 5.0

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Shoe 5.0 –

**WP5.1- Promotion the integration
of the Shoe 5.0 results into the
partner countries' VET systems -
guiding manual**

**Partnership for Footwear
Industry 5.0 Readiness**

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Document name	5.2 Promotion the integration of the Shoe 5.0 results into the partner countries' VET systems - guiding manual
Abstract	This document outlines the strategy, actions, and expected outcomes of Shoe 5.0 project Activity A5.2 which focuses on promoting the project as a best practice model for informal learning in the Vocational Education and Training (VET) system. The ultimate goal is to support its inclusion in National Catalogues for Qualification in at least two partner countries.
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Abbreviations and Acronyms	
EU	European Union
VET	Vocational Education and Training
IVET	Initial Vocational Education and Training
CVET	Continuing Vocational Education and Training
AR	Augmented Reality
I5.0	Industry 5.0
EQF	European Qualifications Framework
ECVET	European Credit System for Vocational Education and Training
EQAVET	European Quality Assurance in Vocational Education and Training
ESCO	European Skills, Competences, Qualifications and Occupations
NCQ / NQF	National Catalogue of Qualifications / National Qualifications Framework

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Introduction

The Shoe 5.0 project has developed innovative tools to support the footwear sector's transition towards the achievement of the industry 5.0 objectives, including a self-assessment scanning tool, Augmented Reality based training resources, and a multilingual e-course. To ensure lasting impact and systemic change within the footwear sector, it is essential that these results are recognized as best practices and integrated into the National Catalogues of Qualifications of the different countries of the consortium: Portugal, Spain, Italy, Romania, and Belgium and in other European countries (here represented by Belgium).

The project translates the objectives of "Industry 5.0" into practical job profiles, units, and learning experiences in five languages, lowering barriers for VET providers and companies to quickly update their training offer whether it is IVET and/or CVET.

By tying entry into National Qualification Catalogues to concrete outputs, SHOE 5.0 can lock in reforms (modules, units, or whole qualifications) that persist well after the project ends in October 2025.

This document outlines the actions, strategies, and expected outcomes of Activity A5.2 within the Shoe 5.0 project, which focuses on promoting the project as a best practice model for informal learning in the Vocational Education and Training (VET) ecosystem. Considering the long process of national administrations to accept new qualifications, the ultimate goal is to support its inclusion in at least two partner countries National Catalogues for Qualification as an example of integration and to prolong the effect to the other countries involved.

Specific objectives of the A5.2 are the following:

- To recognize Shoe 5.0 as a relevant and innovative VET platform.
- To demonstrate its value as a best practice example of informal learning.
- To promote its integration into National Qualification Catalogues, again at least 2 countries involved.
- To ensure project sustainability and encourage future transferability to other countries and sectors.
- To raise awareness of Industry 5.0 (i5.0) concepts within national VET strategies.

Partners are responsible for engaging with their country National Agencies to promote Shoe 5.0 expecting that it can be considered as a relevant VET platform to be used as best practice example of informal learning into their respective National Catalogues for Qualification.

This activity contributes to the project dissemination objective, since it will allow Shoe 5.0 to be used as a reference case of informal learning in the field of VET, becoming a reference case, raising awareness not only about Industry 5.0, but also for the capability to use different ways of learning validated at national level. This activity will help reach the objectives of the project since it will promote the project sustainability and potential to be transferred to other countries or business sectors.

The ultimate results correspond to the introduction of the Shoe 5.0 best practices into the National Catalogues for Qualification of at least 2 countries.

Centro Tecnológico do Calçado de Portugal (CTCP) is the leader of the activity and with the support from all the other project partners in each country, has worked to influence National Agencies to take Shoe 5.0 as an example of best practices in the VET system and promote it in the National Catalogues for Qualification.

It was then expected to engage with National Authorities from each country in the proposal (Portugal, Spain, Italy, Romania, and pan-Europea through the EU partner in Belgium).

Promoting the Shoe 5.0 platform as a best practice of informal learning and working towards its integration in National Catalogues is crucial for legitimacy, scalability, and sustainability of the project results. It ensures that the innovative tools (scanning tool, AR-based contents, e-course) do not remain “project-only,” but become part of national VET policy frameworks—a step that guarantees lasting impact on the footwear sector’s transition to Industry 5.0.

Best practice recognition as a strategy for sustainability

The promotion of the integration of the Shoe 5.0 results into the formal VET structures of the partner countries is inseparable from the promotion of the Shoe 5.0 results as a best practice of informal learning in VET systems. Shoe 5.0 generated tools and resources, such as the self-assessment scanning tool, the multilingual e-course, and AR-based learning modules, that are designed to respond flexibly to the needs of workers and companies in the footwear sector. These resources clearly embody the principles of informal learning: they are accessible, learner-centred, adaptable to workplace contexts, and oriented towards rapid upskilling and reskilling.

By promoting them as a best practice, the project demonstrates that informal learning can be innovative, effective, and aligned with the demands of Industry 5.0, while at the same time make visible its capacity to complement and strengthen the existing VET landscape.

However, informal learning alone is not sufficient to guarantee long-term impact. For the skills acquired through Shoe 5.0 to be fully recognized and valued, the results should be integrated into the partner countries' VET systems, specifically within their National Catalogues of Qualifications. This integration gives formal recognition to competences gained through informal learning, transforming flexible and modular training experiences into certified and transferable qualifications. It also institutionalizes the outputs of the project, embedding them into national frameworks and ensuring that training providers and VET centres can deliver them as part of accredited educational pathways. In this way, the promotion of Shoe 5.0 as a best practice in informal learning supports the case for its relevance and effectiveness, while the integration into national systems secures its sustainability and legitimacy.

The real strength of Shoe 5.0 lies in this dual dimension. Promoting the platform as an informal learning best practice raises awareness among companies, workers, students, and trainers and teachers, fostering bottom-up demand for flexible learning solutions. Promoting its integration into formal VET structures addresses the top-down dimension, ensuring that national authorities, ministries, and qualification agencies recognize and adopt the outputs within their official systems. Together, these strategies create a cycle in which informal learning is not seen as marginal or secondary but as a gateway to formal qualifications, offering learners both immediate skills for their jobs and long-term recognition within national and European frameworks.

This dual promotion consolidates Shoe 5.0 as both an innovative educational practice and a policy-relevant contribution to the modernization of VET systems across the partner countries and beyond.

Informal and non-formal learning

Informal and non-formal learning approaches are gaining increasing importance in the context of lifelong learning and upskilling initiatives, as they respond more effectively to the evolving needs of individuals and industries. Traditional VET systems, while essential, often struggle to

keep pace with the rapid transformations brought about by digitalisation, sustainability, and the human-centred focus of Industry 5.0. In this context, informal and non-formal learning provides flexible, accessible, and work-oriented opportunities for adults, SME workers, and other learners who cannot easily engage in long or rigid formal programmes. These approaches not only facilitate continuous skill development but also promote inclusivity by reaching groups that are frequently underserved by traditional education pathways.

The Shoe 5.0 project offers a concrete and innovative example of how such learning can be structured, assessed, and validated in practice. Through its self-assessment scanning tool, immersive AR contents, and multilingual e-course, Shoe 5.0 delivers training that is learner-centred, modular, and aligned with the real needs of the footwear industry. What distinguishes the project is its effort to ensure that these informal learning experiences are not isolated or peripheral but instead linked to formal recognition within national vocational training systems. By integrating its results into National Catalogues of Qualifications, Shoe 5.0 demonstrates that informal learning can achieve credibility comparable to traditional VET pathways.

This integration carries several important implications. First, it enhances the credibility of informal learning methods, showing that flexible approaches can meet quality standards and be officially recognised by education authorities. Second, it supports broader inclusion by validating alternative educational paths that are better suited to adults, SME workers, and those in need of rapid reskilling. Third, it highlights the relevance of Industry 5.0 within traditional training systems, ensuring that emerging competences related to digitalisation, sustainability, and human-centred innovation are incorporated into recognised qualifications. In this way, Shoe 5.0 acts not only as a training initiative for one sector but also as a model for how to modernise VET systems through the structured validation of informal and non-formal learning.

Link with EU Priorities on VET and Informal Learning

This direction is closely aligned with European policy priorities. The **Council Recommendation on VET (2020)** emphasises the need for flexible and modular pathways to respond to fast-changing labour markets, while the Council Recommendation on the Validation of Non-formal and Informal Learning (2012) calls on Member States to establish systems that make such learning visible and portable. Furthermore, the **European Skills Agenda (2020)** and the Pact for

Skills highlight the importance of large-scale upskilling and reskilling initiatives, particularly through approaches that are inclusive, industry-driven, and accessible to workers in SMEs. At the same time, the **Digital Education Action Plan** (2021–2027) encourages the integration of innovative tools such as AR contents and digital platforms into education and training, exactly as Shoe 5.0 has done.

By combining innovation in informal learning with formal recognition in national systems, Shoe 5.0 embodies the European vision of a more flexible, inclusive, and forward-looking VET system. It demonstrates that lifelong learning is not only about expanding opportunities but also about making sure those opportunities are valued, accredited, and connected to the broader qualification's framework of Europe.

Why Shoe 5.0 results should be integrated into VET systems?

The recognition of the Shoe 5.0 results as best practices for VET in Portugal, Spain, Italy, Romania, and other EU countries is essential to ensure the long-term relevance and impact of the project.

It is essential to ensure the sustainability, scalability, and relevance of the Shoe 5.0 results. This step will not only modernize footwear-related VET pathways but also establish Shoe 5.0 as a European reference model for the integration of informal learning into formal qualification systems.

National Catalogues of Qualifications in these countries serve as the backbone of formal VET provision, and by integrating Shoe 5.0's outputs, such as the learning modules, e-course, self-assessment scanning tool, and AR-based training contents, into these catalogues, the project secures official recognition of competences while aligning with European frameworks such as EQF, ECVET, and ESCO. This recognition transforms what could otherwise remain an optional or peripheral training offer into an accredited and legitimate pathway within national education systems, ensuring its uptake and use well beyond the scope of the pilot activities.

Equally important is the capacity of such recognition to scale the impact of the project. While Erasmus+ initiatives often generate innovative outputs, only their integration into existing curricula guarantees widespread adoption. By embedding Shoe 5.0's informal learning tools into

national frameworks, the project creates the conditions for thousands of learners across the partner countries to access, benefit from, and progress through these resources on a continuous basis. This transition from isolated project results to systemic change ensures that the investment in innovation directly contributes to the modernization of VET systems in the long term.

The recognition of Shoe 5.0's outputs also plays a crucial role in closing the innovation gap that many VET systems face, particularly in the footwear sector. Curricula often lag the realities of industry transformation, especially in areas such as digitalization, sustainability, and the integration of Industry 5.0 technologies. By embedding the project's flexible and modular training solutions, VET providers can keep pace with industry-driven needs, while workers gain opportunities to upskill and reskill through competence-based approaches that acknowledge informal and workplace learning. In this way, the project helps prevent the widening of skills mismatches that could otherwise weaken the competitiveness of the sector.

Finally, the recognition of Shoe 5.0 as a best practice strengthens the valorisation of informal learning within national VET systems. Informal and non-formal pathways, such as e-learning modules, AR-based contents, and workplace-based training, have often been undervalued compared to traditional classroom-based provision. Shoe 5.0 demonstrates that such learning can be structured, assessed, and accredited, providing accessible routes for adults and SME workers who may not engage easily with formal education. In doing so, the project not only responds to sectoral needs but also advances European policy priorities, such as the Council Recommendation on the Validation of Non-formal and Informal Learning and the broader Lifelong Learning Strategy.



Recognition & legitimacy

National Catalogues of Qualifications (Portugal, Spain, Italy, Romania, Belgium) act as the reference point for all formal VET provision. Without this, the training risks being seen as “optional” or parallel informal learning with less traction.

The National Catalogues of Qualifications constitute the official framework for all formal VET provision. Integrating Shoe 5.0 results into these catalogues guarantees the formal recognition of competences, ensures alignment with European frameworks such as EQF (European Qualifications Framework), ECVET (European Credit System for VET), and ESCO (European Skills Competences), and facilitates wider adoption beyond pilot activities. Without such recognition, the project’s outputs risk remaining parallel and optional forms of training with limited systemic traction.

If Shoe 5.0’s learning modules and e-course are integrated there, they gain:

- Official recognition of competences
- Alignment with European tools (EQF, ECVET, ESCO)
- Wider uptake beyond the project’s pilots

Scaling impact

Shoe 5.0 is developing innovative informal learning tools (self-assessment scanning tool, AR training contents, multilingual e-course).

To move beyond project-level pilots, the integration into National Catalogues of Qualification allows these tools to be mainstreamed into existing curricula, reaching thousands of learners annually across the partner countries. This is how Erasmus+ projects create systemic change, not just isolated outputs.

Recognition enables the transition from project-level pilots to mainstream provision. Embedding Shoe 5.0 modules into existing curricula allows thousands of learners across partner countries to access these resources each year. This move ensures that Erasmus+ investments achieve systemic reform rather than isolated outcomes, securing the long-term sustainability of the project's innovations. This reflects the objectives of the EU Pact for Skills, which calls for large-scale partnerships to boost upskilling and reskilling and to embed innovation into national VET systems. In this way, Erasmus+ investments deliver systemic reform rather than isolated outcomes, securing the long-term sustainability of the project's innovations.

Closing the innovation gap

The footwear sector is undergoing profound changes linked to digitalization, sustainability, and Industry 5.0 skills. Current VET systems frequently lag behind these developments. By embedding Shoe 5.0 outputs, curricula remain industry-relevant, workers benefit from modular and competence-based training, and skills mismatches between education and labour market needs are reduced. This directly supports the European Skills Agenda (2020) and its ambition to close skills gaps by modernising VET and aligning it with green and digital transitions.

VET systems in footwear are often not able to address in time industry rapid changes (digitalization, sustainability, i5.0 skills). By embedding Shoe 5.0 outputs:

- VET curricula stay updated with industry-driven needs.
- Workers benefit from flexible, modular, competence-based training that acknowledges informal learning pathways.
- This helps prevent the skills mismatch (outdated curricula vs. emerging i5.0 jobs).

Valorisation of informal learning

Shoe 5.0 provides a concrete model for the structured validation of informal and non-formal learning. Through e-learning modules, AR content, and workplace-oriented pathways, the project demonstrates that flexible forms of learning can be accredited and aligned with formal systems. This approach responds to European policy priorities such as the Council Recommendation on the Validation of Non-formal and Informal Learning and contributes to the EU Lifelong Learning Strategy. Informal and non-formal learning (e-learning, AR contents, workplace training) are often undervalued in traditional VET systems. Promoting Shoe 5.0 as a best practice proves that informal learning:

- Can be structured, assessed, and accredited.
- Supports upskilling/reskilling of adults in SMEs, where formal VET access is harder.
- Fits EU priorities (Council Recommendation on Validation of Non-formal and Informal Learning, Lifelong Learning Strategy).

This approach responds to the Council Recommendation on the Validation of Non-formal and Informal Learning (2012), supports the Council Recommendation on VET (2020) promoting modular, flexible pathways, and contributes to the Digital Education Action Plan (2021–2027), which prioritises innovative learning through digital and immersive technologies.

Why Shoe 5.0 needs to take mainstream into consideration?

The integration of the Shoe 5.0 results into national vocational education and training systems is a fundamental condition for ensuring that the project achieves lasting impact beyond its lifetime. While innovative outputs such as the self-assessment scanning tool, the multilingual e-course, and AR -based training contents provide immediate value for learners and companies, their sustainability depends on formal recognition within the National Catalogues of Qualifications of the partner countries. Once included, these resources gain permanent visibility and legitimacy, guaranteeing that training centres, companies, and public authorities can continue to use them as accredited learning opportunities after the project ends. This institutionalisation also creates stronger alignment with national and European policies, making ministries of education and labour more likely to support, co-finance, and promote the training

when it is formally embedded within their systems. Furthermore, official inclusion opens doors to additional EU and national funding streams, particularly for the further expansion of AR training, micro-credentials, and blended pathways, ensuring that the innovations initiated by Shoe 5.0 can evolve and scale over time.

Integration is also key to achieving transferability and European relevance. Once Shoe 5.0's modules are recognised in at least two national catalogues, they can be mapped against the European Qualifications Framework, creating a clear pathway for their adoption in other countries. This step transforms the project from a sectoral pilot into a European reference model for the recognition of informal and non-formal learning within vocational education. Such recognition strengthens the dissemination potential of Shoe 5.0 at the EU level, positioning it as an example of how sector-specific training can be both innovative and formally embedded in qualification systems.

At the same time, the integration of Shoe 5.0 into VET systems directly responds to the specific needs of the footwear industry, which is dominated by small and medium-sized enterprises. SMEs rarely have the capacity to engage with long, formal courses; instead, they require short, flexible, and easily accessible training options that can be integrated into the realities of daily work. By validating Shoe 5.0's informal learning tools within national catalogues, workers can receive recognised credits for short training experiences, such as combining the scanning tool with an AR/VR module to form part of a qualification. This recognition not only motivates individual workers to engage with the training but also encourages SMEs to invest in upskilling and reskilling, knowing that the competences gained are formally valued.

In this way, integration serves multiple purposes: it guarantees sustainability, secures policy alignment and future funding opportunities, enables European transferability, and ensures that the project's outputs meet the concrete needs of industry. Without such integration, Shoe 5.0 risks remaining a temporary initiative, whereas with it, the project can become a lasting driver of innovation and modernisation within vocational education and training systems across Europe.

SHOE 5.0 Results for Integration

To understand, decide, and effectively draft a strategy for integrating Shoe 5.0 into the vocational education and training systems of the partner countries, it is essential to first know and fully explore the project's results. The tools and resources developed—such as the self-assessment scanning instrument, AR training contents, and the multilingual e-course—represent not only innovative examples of informal learning but also practical solutions to address the skills gaps created by Industry 5.0 in the footwear sector. Without a clear understanding of their structure, content, and potential applications, policymakers, training authorities, and sector stakeholders cannot make informed decisions about how best to embed them within National Catalogues of Qualifications or align them with existing curricula.

By analysing the results in detail, stakeholders can identify where they complement current training offers, how they respond to industry needs, and which mechanisms are required to validate and recognise competences acquired through them. This knowledge provides the foundation for drafting a coherent integration strategy that ensures Shoe 5.0 is not perceived as an isolated pilot but as a credible and scalable pathway for upskilling and reskilling. Only by knowing the full scope and value of the project's outputs can countries design effective policies and measures that institutionalise them, guaranteeing sustainability, wider adoption, and alignment with European priorities in VET and lifelong learning.

Overview of Project Results

Shoe 5.0 has created a comprehensive ecosystem of digital tools, innovative methodologies, and training resources that promote flexible, informal, and technology-enhanced learning pathways, designed to be recognised within national VET system. These results not only modernise footwear-related training but also provide a blueprint for how informal and non-formal learning can be formally recognised, scaled, and transferred across Europe's VET systems.

Self-Assessment Scanning Tool

A digital tool that allows workers and learners to evaluate their current competences against the emerging skills needs of the footwear sector (e.g., digital skills, sustainability practices, Industry 5.0 competences), that:

- Helps learners identify skill gaps.
- Supports personalised learning pathways.
- Can be used by companies to assess workforce training needs.

Pedagogical and Methodological Outputs

Learning Modules and Curricula, structured around competence-based approaches, with clear learning outcomes aligned to EQF levels and ESCO skills.

Guidelines for Trainers

Methodological resources to support VET educators in applying innovative teaching methods (e-learning, AR, blended learning).

Tools and frameworks to support the recognition of informal and non-formal learning outcomes within formal VET pathways.

Multilingual E-Course

A modular, accessible online course available in all partner languages, focuses on key Industry 5.0 areas such as digitalisation, sustainability, human-centred production, designed for SME workers, trainers, and VET providers, which includes interactive content, assessments, and learning resources.

AR-based contents

Immersive learning modules using augmented and virtual reality to simulate real work processes and assures an high engagement and motivation for learners.

Mapping of Results to Qualification Structure

The Shoe 5.0 project has generated a diverse set of innovative tools and resources that respond directly to the skill needs of the footwear sector in the context of Industry 5.0. To ensure that these results are not only innovative but also sustainable and transferable, it is crucial to map them against existing qualification structures. This process demonstrates how each output—ranging from self-assessment and digital learning modules to trainer guidelines and validation frameworks—can be positioned within national and European VET systems. By aligning them with established frameworks such as the European Qualifications Framework (EQF), ESCO, and National Catalogues of Qualifications (NCQs), the project highlights their relevance, formal recognition potential, and contribution to modular, competence-based pathways. The following mapping illustrates the role of each result within the qualification structure and its possible integration into formal VET systems.

1. Self-Assessment Scanning Tool

- **Qualification Structure Link:** Pre-learning stage / Diagnostic phase.
- **Function:** Identifies learners' competences and skill gaps in digitalisation, sustainability, and Industry 5.0 competences.
- **Integration Point:**
 - Can be used as an *entry requirement tool* for modular learning.
 - Supports validation of prior learning by mapping results against EQF descriptors and ESCO skills.
 - Provides personalised learning pathways within NCQs.

2. Pedagogical and Methodological Outputs (Learning Modules & Curricula)

- **Qualification Structure Link:** Core modular units of learning outcomes.
- **Function:** Competence-based curricula structured with clear alignment to EQF levels and ESCO occupational profiles.
- **Integration Point:**

- Basis for creating *units of learning outcomes* that can be directly embedded in NCQs.
- Supports modular qualifications and micro-credentials for partial recognition.
- Ensures alignment with *European tools* (EQF, ECVET, ESCO).

3. Guidelines for Trainers

- **Qualification Structure Link:** Trainer capacity-building / methodological framework.
- **Function:** Provides VET educators with innovative teaching methods (e-learning, AR, blended learning).
- **Integration Point:**
 - Forms part of *pedagogical standards* in NCQs for trainers delivering industry-based content.
 - Supports continuous professional development (CPD) pathways for VET trainers.
 - Aligns with EU's Digital Education Action Plan for upskilling educators.

4. Tools and Frameworks for Recognition of Informal and Non-Formal Learning

- **Qualification Structure Link:** Validation and assessment mechanisms.
- **Function:** Structures recognition of competences acquired outside formal education.
- **Integration Point:**
 - Enables inclusion of Shoe 5.0 modules within *validation of prior learning* procedures.
 - Supports awarding of credits for AR/VR-based learning, workplace training, and e-courses.
 - Contributes to EU priorities on validation of non-formal and informal learning (Council Recommendation, 2012).

5. Multilingual E-Course

- **Qualification Structure Link:** Digital training unit / online module.
- **Function:** Modular e-course covering Industry 5.0 areas (digitalisation, sustainability, human-centred production).
- **Integration Point:**
 - Directly usable as a *learning unit* in NCQs.
 - Supports *micro-credentials* and partial qualifications.
 - Provides assessment and certification opportunities linked to EQF levels.

6. AR-based Contents (Augmented Reality Training Modules)

- **Qualification Structure Link:** Practical and applied learning units.
- **Function:** Immersive simulations of real work processes with high engagement.
- **Integration Point:**
 - Recognised as part of *practical training* in NCQs.
 - Enhances demonstration of competences for validation of skills.
 - Supports modular training for SMEs and adult learners with limited access to formal workshops.

Target Stakeholders

Target Stakeholders of the SHOE5.0 project results in a perspective of integration in Education and training system are basically the following:

- National Agencies for VET and qualifications.
- Ministries of Education, Labour, and Innovation.
- Sectoral Qualification Framework bodies.
- Training providers and accreditation bodies.
- Policymakers in education and employment.

The successful integration of the Shoe 5.0 results into national VET systems depends on the active involvement of key stakeholders at multiple levels. National Agencies for VET and qualifications play a central role, as they are responsible for ensuring that new tools, learning modules, and recognition frameworks align with existing qualification structures and national standards. Their engagement is crucial for validating the project outputs and paving the way for their inclusion in National Catalogues of Qualifications. Ministries of Education, Labour, and Innovation also represent strategic partners, since their endorsement not only provides political legitimacy but also strengthens the possibility of securing co-financing and long-term support. By anchoring Shoe 5.0 within broader national strategies for skills development, these ministries can ensure that the project contributes to labour market competitiveness and lifelong learning priorities.

At the same time, sectoral qualification framework bodies hold an important responsibility in ensuring that the project results reflect industry-specific needs. Their involvement guarantees that curricula and competence-based modules remain closely connected to evolving requirements in the footwear sector, particularly regarding digitalisation, sustainability, and human-centred production under Industry 5.0. Training providers and accreditation bodies represent another key group, as they are the ones who will apply the tools in practice, delivering learning experiences to SME workers and learners. Their feedback and pilot testing will be essential for demonstrating the usability, adaptability, and scalability of the outputs.

Finally, policymakers in education and employment must be engaged as advocates for systemic change. By understanding and supporting the potential of Shoe 5.0, they can push for its recognition not as a parallel initiative but as a mainstream example of innovative and validated informal learning in VET. Involving these stakeholders through dialogue, co-creation workshops, pilot evaluations, and dissemination events ensures not only ownership but also the credibility needed for lasting impact. Through their combined actions, the project results can move beyond the experimental stage and become an integral part of the formal qualification systems of the partner countries, aligned with European priorities for lifelong learning, digital transformation, and the Pact for Skills.

Strategy for engagement stakeholders – The Road Map

Each project partner is responsible for initiating contact and building dialogue with relevant national stakeholders. The strategy includes:

- Identification of responsible authorities in each country.
- Preparation of a policy brief and summary of project outcomes.
- Presentation of Shoe 5.0 as an innovative case aligned with national qualification frameworks.
- Organization of national-level workshops or meetings.
- Follow-up actions and lobbying for formal recognition.
- Strategy to Influence Policy and Decision-Makers

Roadmap for Integrating Shoe 5.0 Results into National VET Systems

The “Roadmap for Integrating Shoe 5.0 Results into National VET Systems” is a strategic guide designed to support vocational education and training (VET) institutions, policymakers, and stakeholders in effectively adopting the innovations and best practices emerging from the Shoe 5.0 project. A roadmap, in this context, functions as a structured framework that outlines the steps, priorities, and actions necessary to translate project results into tangible improvements within national VET systems. It serves as a forward-looking instrument that not only identifies objectives but also anticipates potential challenges, enabling stakeholders to plan and implement interventions in a coordinated and coherent manner.

The value of a roadmap lies in its ability to provide clarity and direction. By consolidating complex information and aligning it with strategic goals, it helps decision-makers visualize the pathway from initial project findings to full-scale integration within VET curricula, training programmes, and institutional policies. Moreover, a roadmap fosters collaboration among diverse actors, encourages the adoption of innovative practices, and enhances the overall efficiency and effectiveness of implementation processes. Beyond guiding immediate actions, it also supports continuous monitoring and adaptation, ensuring that the integration of Shoe 5.0 results remains relevant and responsive to evolving labour market demands and educational priorities. In essence, the roadmap acts as both a planning tool and a catalyst for systemic transformation, facilitating the transition from innovative concepts to sustainable improvements in vocational education and training across national contexts.

Step 1: Consolidate and Package the Results

- To finalise all project outputs (scanning tool, AR training contents, multilingual e-course, pedagogical guidelines for trainers/teachers and trainees/students)
- To translate and adapt them to national contexts to ensure accessibility and relevance.
- To prepare a “Results Dossier” for each country, including:
 - Description of the outputs.
 - Alignment with industry needs (digitalisation, sustainability, Industry 5.0 skills).
 - Correspondence with EQF, ESCO, and national competence frameworks.

Step 2: Conduct National Stakeholder Mapping

- To identify relevant authorities: Ministries of Education, Ministries of Labour, National Agencies for Qualifications, VET accreditation bodies.
- To map sectoral stakeholders: footwear federations, SME associations, chambers of commerce, regional VET providers.
- To establish a stakeholder advisory group in each country to build consensus and legitimacy.

Step 3: Present and Promote the Results

- Organise national dissemination events (policy roundtables, industry workshops, webinars) to showcase Shoe 5.0 results.
- Emphasise the dual benefit:
 - For industry: faster, flexible upskilling solutions for SMEs.
 - For education authorities: modernisation of VET systems through alignment with EU policies.
- Use case studies from pilot testing to demonstrate impact on learners and companies.

Step 4: Engage Policymakers and Agencies

- Deliver the “Results Dossier” and a Policy Brief to ministries and qualification agencies.
- Highlight alignment with EU priorities:

- European Skills Agenda (2020).
- Pact for Skills.
- Council Recommendation on VET (2020).
- Council Recommendation on Validation of Non-formal and Informal Learning (2012).
- Digital Education Action Plan (2021–2027).
- Stress that integration ensures sustainability, legitimacy, and transferability of Shoe 5.0 outputs.

Step 5: Pilot Recognition Pathways

- Work with national agencies to test possible forms of integration:
 - Inclusion as modular units within existing qualifications.
 - Recognition as micro-credentials.
 - Development of partial qualifications linked to NCQs.
 - Document processes in each country to support future replication across Europe.

Step 6: Negotiate Formal Integration

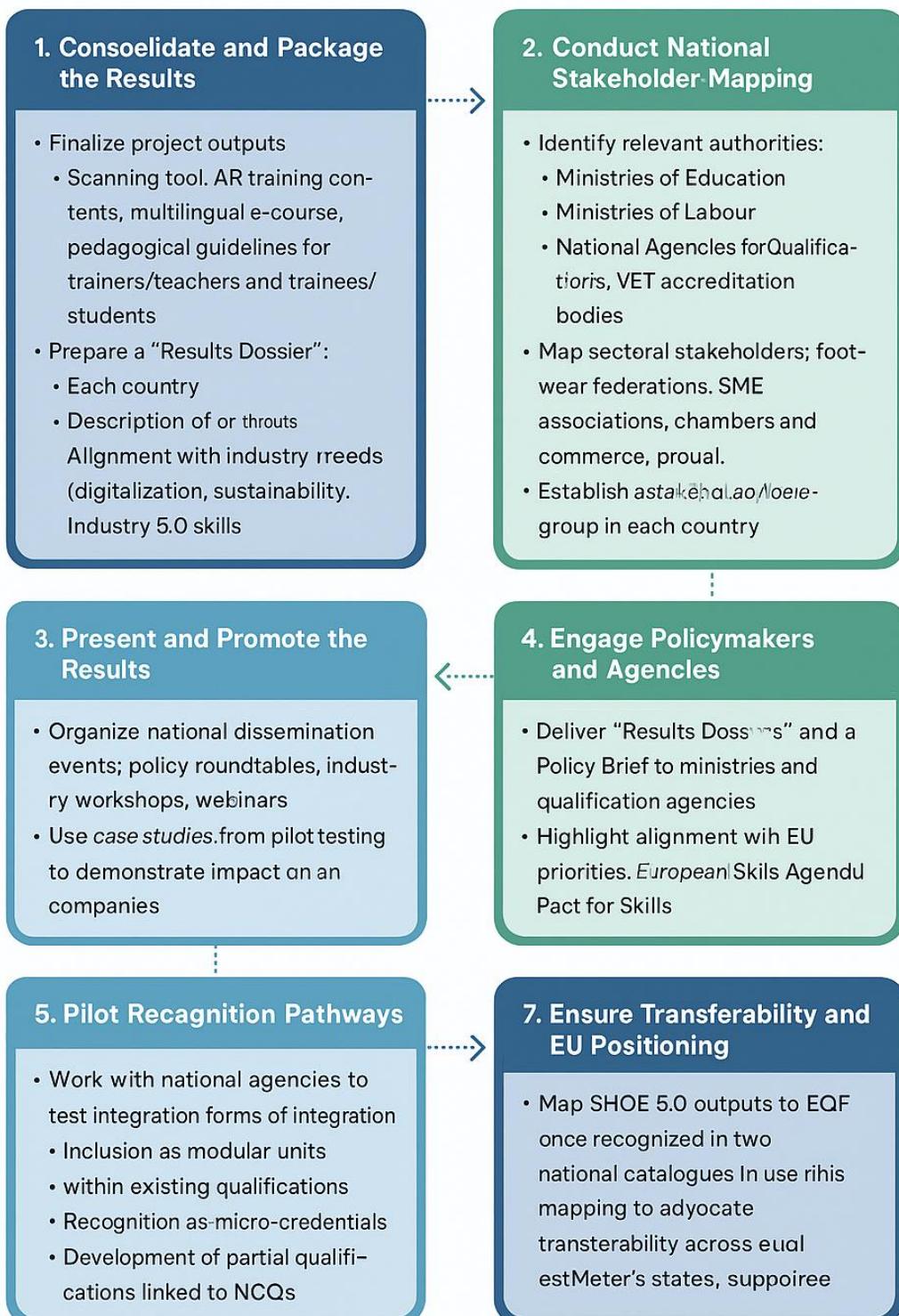
- Submit proposals for inclusion into National Catalogues of Qualifications (NCQs) or equivalent frameworks.
- Support ministries with technical documentation (learning outcomes, assessment methods, competence mapping).
- Explore co-financing mechanisms with national or EU funds to support the roll-out of Shoe 5.0 training.

Step 7: Ensure Transferability and EU Positioning

- Once recognised in two national catalogues, map Shoe 5.0 outputs directly to the EQF.
- Use this mapping to advocate for transferability across other EU member states.
- Position Shoe 5.0 as a European reference model for integrating informal learning into VET systems, supporting both policy advocacy and future funding opportunities.

This roadmap ensures that Shoe 5.0 results are not only piloted but also institutionalised, gaining recognition in partner countries' VET systems and establishing a blueprint for European-wide adoption.

SHOE 5.0 Integration Roadmap



Picture generated by AI

Country-specific approaches:

PORUGAL

National Education and Training Framework, Governance and Responsible Authorities

In 2007, the European Qualifications Framework (EQF) and the National Qualifications Framework (NQF) were established.

The National Qualifications Framework (NQF) is a single reference tool to classify all the qualifications produced in the national educational and training system.

The NQF adopts the qualification levels and respective descriptors of the European Qualifications Framework (EQF). So, these 2 instruments are totally harmonized.

The NQF comprises 8 Qualification Levels, each one defined by a set of indicators that specify the learning outcomes corresponding to the qualifications at that level in terms of Knowledge, Skills/Competences and Attitudes.

It starts in Pre-School Education, with an optional frequency cycle from 3 to 6 years of age. It continues with Basic Education, which comprises three sequential cycles:

- the 1st cycle of 4 years (expected age of attendance, from 6 to 10 years old);
- the 2nd 2-year cycle (expected age of attendance, from 10 to 12 years of age), corresponding to level 1;
- and a 3rd cycle with a duration of 3 years (expected age of attendance, from 12 to 15 years of age), corresponding to level 2.
- Secondary education follows, which corresponds to a cycle of three years, (expected age of attendance, from 15 to 18 years old), corresponding to level 3, and which includes the following types of courses:
 - Scientific-Humanistic Courses
 - Scientific-Technological
 - Specialized Art Courses
 - Economics

- Level 4 course is included in the VET offer of double certification – courses of 3 years of study that provides, besides a normal secondary education, a vocational education and prepare the youngsters to the labour market.
- Level 5 corresponds to post-secondary non-tertiary education (which is already included in the VET offer because this kind of course mixes Education and Vocational training
- Higher Education is structured according to Bologna principles and is aimed at students who have successfully completed Secondary Education or who have a legally equivalent qualification.
- Level 6 comprises Bachelor's (or equivalent) programmes, Level 7 Master's (or equivalent) programmes. Finally, level 8 comprises Doctoral (or equivalent) programmes.

Summing:

Type of Qualification		Students age (indicative)	PT NQF level	EQF level
Basic Education	1st 4-years cycle	6 to 10 years old	1	1
	2 nd 2-year cycle	10-12 years old		
	3 rd 3-years cycle	12-15 years old	2	2
Secondary cycle		15-18 years old	3	3
VET double certification		15-18 years old	4	4
Post-secondary non-tertiary education		18-20 years old	5	5
Higher Education	Bachelor's / graduates	From 18 years old on	6	6
	Masters		7	7
	Doctorates		8	8

At the same time, in Portugal, the National Qualifications Agency (ANQ), currently named National Qualification and Professional Education Agency, (ANQEP, IP) was created, aiming at

coordinating the NQF, jointly with other competent bodies in the area of vocational education and training, in particular the Ministry of Education and Ministry of Labour and Solidarity. The NQF covers all programmes leading to obtain formal qualifications, regardless of being supervised either by the Ministry of Education or by the Ministry of Labour.

The National Qualifications' Catalogue (NQC) includes school-based VET programmes (although with a work-based learning component), which are dependent on the Ministry of Education, and work-based VET programmes which are financed by the IEFP – Employment and Vocational Training Institute, dependent on the Ministry of Labour.

The National Catalogue of Qualifications:

- is a dynamic instrument for the strategic management of non-higher national qualifications (from level 2 to 5)
- is managed by ANQEP
- is the regulation of the double certification training offer
- integrates qualification references for double certification training and for processes of recognition, validation, and certification of competences (RVCC)
- is the promotion of the effectiveness of public financing
- includes many qualifications for 39 education and training areas and presents the associated Professional Profile and Training References for each qualification. (310 qualifications: 110 Level 2 (operator); 156 Level 4 (Technician); 44 Level 5 (Specialized Technician), 22 adapted qualification (for people with special needs), 30 qualifications for TCLF, modularised qualifications.

The following programmes are included in VET.

- Vocational training of double certification (Education and Training Courses – CEF) for young people who have completed the 2nd cycle of basic education (5th and 6th grades) or who are attending the second (last) year of that cycle. These courses provide a level 2 qualification according to the NQF/EQF.
- Vocational training of double certification (Education and Training Courses – CEF) and Vocational Courses for young people (13-years-old young people) as part of the 3rd cycle of basic education: these courses have a modular structure and a duration of between one and two years. They provide level 2 qualification according to the NQF and give

access to general secondary education and to vocational programmes of secondary level.

- Vocational training of double certification (Education and Training Courses – CEF) and Vocational Courses for young people (from 15 years on) as part of higher secondary education: these courses are devoted to students who have completed the 3rd cycle of basic education. They are three years long and provide level 4 qualification according to the NQF and a diploma of secondary education.
- Professional Training Courses: these programmes are intended for students who have completed the 3rd cycle of basic education and did not concluded their secondary education. The maximum workload is 3,100 hours and the technical training workload is 1,600 hours. 420 hours out of those 1,600 hours should be at least devoted to work-based learning within an apprenticeship scheme. These courses last three years and provide level 4 qualification according to the NQF and a diploma of secondary education.
- There's also a post-secondary non-tertiary vocational education (Technological Specialization Courses) for young people from 18-19 years with 12 years of school completed, which can be considered a vocational education, in the frame of the National Catalogue of Certification providing a level 5 qualification, according to the NQF. These courses have a duration of one year and. The candidates to these courses are youngsters with diplomas of secondary education or equivalent, students with 10th and 11th grades and frequency of the 12th year, holders of level 3 qualifications and holders of technological specialization diplomas or degrees of higher education. Completion of Education and Training Courses, Vocational Courses and Professional Training Courses of secondary level give access to post-secondary non-tertiary vocational education (Technological Specialization Courses – CET) and to higher education, but in these cases, students should meet the conditions set out in the Access Regulation. Technological Specialization Courses are mainly provided by Polytechnic Institutions (higher education) and other certified institutions.
- In addition, the LS - learning system is a double certification work-based system, managed by Employment and Vocational Training Institute (a regulatory body under the umbrella of the Ministry of Labour), with a duration between 2 and 3 years, where there is a combination between theoretical and practical training components where the practical training is mainly in a company or in training centres and the "education" part

is provided in a school. In Portugal the main objective was to support the qualification and certification of young people who prematurely abandoned the education system, although they provide a vocational certification – a job recognition with value for the labour market.

The centres where these VET programmes can be taught are:

- Public secondary schools (Professional Training Courses).
- Private vocational schools with license of functioning (Professional Training Courses).
- Vocational Training Centres overseen by the IEFP (Learning System Courses).
- Companies with professional training centres, authorized by the IEFP and certified by ANQEP (Learning System Courses).

At the same time, in Portugal, the National Qualifications Agency (ANQ), currently named National Qualification and Professional Education Agency, (ANQEP, IP) was created, aiming at coordinating the NQF, jointly with other competent bodies in the area of vocational education and training, in particular the Ministry of Education and Ministry of Labour and Solidarity. The NQF covers all programmes leading to obtain formal qualifications, regardless of being supervised either by the Ministry of Education or by the Ministry of Labour.

The National Qualifications' Catalogue (NQC) includes school-based VET programmes (although with a work-based learning component), which are dependent on the Ministry of Education, and work-based VET programmes which are financed by the IEFP – Employment and Vocational Training Institute, dependent on the Ministry of Labour.

ANQEP IP coordinated the National Qualifications' Catalogue where all the qualifications are included, for all the sectors. ANQEP IP through the National Skills Councils (dedicated to each sector of economic activity – for instance National Skills Councils for TCLF) certifies the profile and curriculum and conduct it to an approved certified Qualification, included in the National Catalogue.

Regarding the offer within Professional Training Schemes, IEFP – Portuguese Employment and Professional Training Institute, a public agency connected to Ministry of Labour and Solidarity is the national authority responsible for the management.

Regarding the other kind of offer connected to school-based education, even including apprenticeship schemes, the responsible entity is the General Directorate of Education.

Relevant Shoe 5.0 Results for Integration and alignment with national education training systems in Portugal

The Portuguese National Education and Training System, structured around the NQF/EQF, the National Catalogue of Qualifications (CNQ) and ANQEP governance, offers a favourable framework for integrating the SHOE 5.0 results. Its strong emphasis on modularisation, double certification, validation of prior learning and lifelong learning allows SHOE 5.0 outputs to be embedded as complementary and updatable components within existing VET pathways, particularly at NQF levels 2 to 5.

By aligning SHOE 5.0 results with the NQF, CNQ, RVCC mechanisms and IEFP training frameworks, the project outputs can be formally recognised, scaled and sustained within the Portuguese education and training system. Rather than creating new qualifications, SHOE 5.0 strengthens existing pathways, contributing to the continuous updating of footwear-related qualifications in line with Industry 5.0, digitalisation and sustainability priorities.

1. Self-Assessment Scanning Tool

The SHOE 5.0 self-assessment tool can be integrated as a diagnostic and orientation instrument within Portuguese VET and adult learning pathways. It is particularly suitable for use at entry points to Professional Training Courses, Learning System programmes and IEFP-funded upskilling initiatives, as well as within RVCC processes. By mapping individual results to NQF descriptors and ESCO skills, the tool supports personalised learning pathways, identification of skill gaps in Industry 5.0 areas and partial recognition of prior learning, in line with ANQEP's lifelong guidance approach.

2. Pedagogical and Methodological Outputs (Learning Modules & Curricula)

The SHOE 5.0 learning modules can be directly aligned with the modular logic of the CNQ, functioning as units of learning outcomes embedded within existing qualifications in the

footwear sector. These modules are particularly relevant for Level 2 operator, Level 4 technician and Level 5 CET qualifications, supporting both initial VET and adult reskilling. Their competence-based design allows them to be recognised as UFCDs, micro-credentials or partial qualifications, reinforcing the adaptability and responsiveness of the CNQ to Industry 5.0 needs.

3. Guidelines for Trainers

The trainer guidelines can be integrated into the continuous professional development (CPD) of VET teachers and trainers delivering footwear-related programmes. Within the Portuguese system, they support quality assurance requirements for ANQEP-certified providers and IEFP training centres, particularly in relation to digital, blended and AR-enhanced methodologies. Their use strengthens pedagogical coherence and ensures that innovative SHOE 5.0 content is delivered effectively across formal and non-formal training contexts.

4. Tools for Recognition of Informal and Non-Formal Learning

The SHOE 5.0 validation tools align closely with the RVCC framework, enabling the recognition of competences acquired through workplace experience, e-learning and AR-based training. These tools can be used by RVCC centres to support partial or full certification linked to CNQ professional profiles, facilitating adult requalification and supporting workers in SMEs. This reinforces national and EU priorities on lifelong learning and skills validation.

5. Multilingual E-Course

The multilingual e-course can be integrated as a formal or non-formal training unit within Portuguese VET provision, particularly at NQF levels 2 to 5. It can function as a UFCD within CNQ qualifications, as a component of CET programmes, or as a short upskilling course financed by IEFP. Its modular and digital nature supports flexible learning, micro-credentials and nationwide access to Industry 5.0 competences in the footwear sector.

6. AR-Based Training Contents

The AR-based contents can be recognised as part of the practical and technical training components of Level 4 and Level 5 qualifications, as well as within the Learning System (LS). They provide an effective alternative or complement to physical workshops, particularly for SMEs and

adult learners, and can also serve as evidence of competence in RVCC processes. Their integration modernises work-based learning and strengthens the link between training provision and real production contexts.

Approaching strategy to National authority

In Portugal, those outcomes will be presented to the National Fashion Industry Committee, by ANQEP (National Agency for the Qualification and Professional Education), to be validated and to be included in the VET System, uploaded in the National Catalogue for Qualifications, managed by ANQEP. CTCP is part of the Committee.

Direct engagement with the Directorate-General for Education and Science Statistics (DGEEC) and the National Agency for Qualification and Vocational Education (ANQEP).

After the pilot implementation in Portugal, the Portuguese partners contacted the National Agency of Qualification and Vocational Education (Agência Nacional para a Qualificação e o Ensino Profissional, I.P. (ANQEP, I.P.)). This agency is a public institute integrated in the indirect administration of the State, with administrative, financial and pedagogical autonomy.

ANQEP I.P. is jointly supervised by the Ministries of Education and of Labour, Solidarity and Social Security, in coordination with the Ministry of Economy and Digital Transition.

The mission of this Agency is to contribute to the improvement of qualification levels of young people and adults in Portugal, promoting both a growing demand for school and vocational qualifications (dual certification), at non-higher education level, and a supply of initial and lifelong training that is widely attractive, of quality and relevant to the labour market.

Due to its nature and responsibility, CTCP presented, by email, the Shoe5.0 programme in order to alert to the emerging need to qualify the footwear industry in Industry 4.0, both in the point of view of hard and soft skills. This contact, as it is align with the awareness by ANQEP of the need to restructure the national catalogue of qualifications in various clusters, in particularly fashion cluster (given the changes instilled by technological innovations linked to Industry 4.0), resulted in a national public tender, namely Tender No. 5418/2021 of April 26 of 2021, with publication in the OJ No. 2021/S 080-206222.

SHOE 5.0 benefited from that special intervention.

The tender has a set of specifications that includes the diagnosis of a sectoral scope in order to identify the qualifications and professional skills needed for the sector of activity of Fashion, in the perspective of its currently and future development, the respective design of benchmarks of skills, training benchmarks and instruments for the Recognition, Validation and Certification of Professional Skills (RVCC Professional), in order to design and update the qualifications of the National Qualifications Catalogue.

CTCP contacted the following entities to propose a collaboration to apply to the tender call (it should be noted that, although these entities weren't contacted with the main purpose of presenting the SHOE5.0 project, its advantages and educational material were explained as to support the relevance of the tender call; consequently, these entities are considered as secondary contacts and stakeholders):

- Centro Tecnológico das Indústrias Têxtil e do Vestuário de Portugal (CITEVE) – CITEVE is a Technological Institute which provides technological support and services to companies acting in the textile & clothing business. As a private non-profit organization, the Centre ensures an effective link to the public sector, both at national and European level, namely with an important contribution in the definition and implementation of public policies, relevant for the textile & clothing industry.
- Centro de Formação Profissional da Indústria do Calçado (CFPIC) - CFPIC provides technical training, necessary for the economic development of the country. Its main goal is to provide quick solutions to the footwear industry's needs in terms of professional training and is based on the contribution to the progress of the Portuguese business system, by developing the skills and knowledge of its Human Resources, using for that purpose training means and state-of-the-art equipment in its training areas.
- Centro de Formação Profissional da Indústria Têxtil, Vestuário, Confecção e Lanifícios (MODATEX) – MODATEX aims to contribute to better strategic and operational coordination of training in the sector, to respond more effectively to the needs for qualification, improvement and retraining of people and organizations, as well as to provide close technical support to all players in the Textile and Clothing Industry. Its activity covers: professional training; Services to companies in the sector: tailor-made training; technical interventions; processes of recognition,

validation and certification of competences; and participation in national and international projects. The Centre develops training in the areas of fashion design, textile design, IT applied to design, fashion management and marketing, fashion merchandising, textile arts, industrial modelling and confection, modelling and confection for atelier, tailoring, knitting, weaving, spinning, textile ennoblement, quality in the textile and clothing industry, production planning and management, maintenance, hygiene and safety at work, management and trade, communication and organizational behaviour, working methods and time, international trade in textiles and clothing and pedagogical training for trainers.

- Centro Tecnológico das Indústrias do Couro (CTIC) - CTIC is a technological infrastructure, promoter and catalyst of valorisation and technological innovation of the national tanning industry, aiming at the competitiveness of the sector, through: technical and technological support to companies in the sector or of related or complementary sectors; conducting and promoting applied research and experimental development that can contribute to the solution of the sector's problems and promote its transfer to the industrial companies directly or indirectly associated; promoting quality improvement, acting on the factors that condition it, such as companies' quality management systems, standardization, metrology and certification; support and promotion of specialized technical and technological training of the companies' staff; collection, processing and dissemination of technical and technological information; development work that leads to the reduction of pollution through preventive measures and/or the optimization of effluent treatment processes; contribution to the strengthening of the links between the University, research bodies and the Industry.
- Escola das Virtudes – Cooperativa de Ensino Polivalente e Artístico, C.R.L. – professional school dedicated to an education focused on active citizenship and to the development of training in areas that require artistic skills, particularly in the field of plastic expressions, with new technologies as a complementary tool. Its educational project aims at an education oriented to the development of creativity and to the active participation in the defense of the fundamental values of freedom, peace and tolerance, as well as of the cultural and environmental heritage assets, in line with UNESCO's aims, of which it is the first associated school. Its pedagogy favors the practical dimension and is oriented towards project work, based on the development of cooperative partnerships with local institutions and on a close teacher/student relationship.

Attested the relevance of the subject as well as the alignment of the institutions' strategic objectives, this partnership answered the tender call, having won the tender.

Opportunities and Barriers for Integration of the Shoe 5.0 results in Portugal

Opportunities for Integration in Portugal

The Portuguese education and training system offers a highly favourable structural environment for the integration of SHOE 5.0 results. The existence of a fully EQF-aligned National Qualifications Framework (NQF) and a modular National Catalogue of Qualifications (CNQ) allows innovative learning outcomes to be embedded without the need to create new qualifications. SHOE 5.0 modules can be incorporated as UFCDs, micro-credentials or partial units within existing footwear-related qualifications at levels 2, 4 and 5.

Portugal's strong emphasis on double certification VET pathways and lifelong learning further supports the uptake of SHOE 5.0 outputs. The system already combines school-based education, vocational training and work-based learning, which aligns well with the project's mix of e-learning, AR-based content and workplace-oriented competences. This makes the results particularly relevant for Professional Training Courses, Learning System programmes and CET courses.

Another significant opportunity lies in the Recognition, Validation and Certification of Competences (RVCC) framework. SHOE 5.0 tools for self-assessment and validation respond directly to national priorities for recognising informal and non-formal learning, especially for adult learners and workers in SMEs. This increases the likelihood of the project's results being used beyond initial VET, supporting reskilling and upskilling strategies coordinated by ANQEP and IEFP.

Finally, national and European policy priorities—such as digital transition, sustainability, Industry 5.0 and human-centred production—create a strong policy pull for SHOE 5.0. The footwear sector, which is strategically relevant in Portugal, benefits from targeted innovation in skills development, making the project's results both timely and sector aligned.

Barriers and Challenges to Integration

Despite these favourable conditions, several barriers may limit full integration. One key challenge is the formal incorporation process into the CNQ, which can be time-consuming and dependent on sectoral consensus, labour market evidence and periodic updates managed by ANQEP. While SHOE 5.0 modules can be used informally or as complementary training, full formal recognition may require additional validation and administrative steps.

Another barrier relates to institutional capacity and readiness, particularly among smaller VET providers and SMEs. The effective use of AR-based training and advanced digital content depends on access to technology, trainer digital competences and organisational openness to innovation. Without targeted capacity-building, adoption may remain uneven across regions and providers.

There is also a potential cultural and pedagogical barrier. Although modular and competence-based approaches are embedded in policy, traditional teaching practices still dominate in some parts of the system. This may slow the uptake of learner-centred, immersive and flexible methodologies promoted by SHOE 5.0, especially in more formal school-based contexts.

Finally, sustainability and funding continuity may pose challenges. While initial implementation can be supported through project-based or IEFP funding, long-term integration requires stable financial and institutional commitment. Without clear incentives or policy prioritisation, innovative tools risk remaining peripheral rather than becoming mainstream components of VET provision.

SPAIN

National Education and Training Framework, Governance and Responsible Authorities

In Spain, the National System of Qualifications and Vocational Training (SNCFP) articulate the relationship between the education system and the labour market. It is structured around the National Catalogues of Professional Qualifications and Vocational Training, along with instruments for the assessment and accreditation of competences.

Legal Framework and Coordination

Vocational Education and Training (VET) is regulated by Organic Law 3/2022, of 31 March, on the Organisation and Integration of Vocational Training, and other implementing regulations.

Educational competences are devolved to the Autonomous Communities, which manage schools, programmes, and curricular adaptations, while the Ministry of Education and Vocational Training sets the general guidelines and coordinates the system.

National bodies coordinating the SNCFP include:

- **INCUAL (National Institute of Qualifications):** develops the National Catalogue of Professional Competence Standards (CNECP) and defines training profiles and modules.
- **SEPE (State Public Employment Service):** develops professional certificates.
- **SEPIE (Spanish Service for the Internationalisation of Education):** manages Erasmus+ and promotes European best practices.
- **Autonomous Communities:** manage the implementation of VET and its adaptation to the local economic and social context.

Structure of the Spanish Education System

The Spanish education system is organised in levels equivalent to the **European Qualifications Framework (EQF)**:

Type of Qualification	Type of Qualification	Type of Qualification	Type of Qualification
Basic Education / Primary	6–12 years	1–2	Years 1–6 of primary education
Compulsory Secondary Education (ESO)	12–16 years	2	Compulsory cycle until age 16
Higher secondary-education (Bachillerato)	16–18 years	4	Post-compulsory secondary education granting access to VET or higher education
VET Level A (Micro-credentials)	From 16 years	1–2	Partial accreditation of professional competences

VET Level B (Certificate of Competence)	From 16 years	2–3	Certifies full competences in a professional module
VET Level C (Professional Certificate)	From 16 years	3	Certifies full competences in a professional qualification
VET Level D (Training Cycle)	16–18 years	4–5	Leads to a VET qualification including theoretical and practical training
VET Level E (Specialisation Course)	From 18 years	5–6	Advanced training in professional specialisations
Higher Education	18+ years	6–8	Degrees (6), Master's (7), Doctorate (8), according to Bologna principles

Levels of the Vocational Training System

Organic Law 3/2022, of 31 March, establishes a five-level VET structure (A–E) that allows individuals to design their own training pathway—from micro-credentials to full qualifications and specialisation courses.



- **Level A: Partial Competence Accreditation**
 - **Objective:** To obtain partial accreditation of professional competences.

- **Features:** Modular training to acquire specific skills without completing a full cycle.
- **Access:** No prior academic requirements. Designed for individuals seeking specific skills.
- **Level B: Certificate of Competence**
- **Objective:** To obtain a certificate accrediting full competences in a specific module.
- **Features:** More extensive training than Level A, allowing greater specialisation.
- **Access:** May require completion of Level A accreditations or related work experience.
- **Level C: Professional Certificate**
- **Objective:** To obtain a certificate accrediting full competences in a professional qualification.
- **Features:** Combines theory and practice, including internships in companies.
- **Access:** Requires completion of corresponding modules or accumulation of Level B certificates.
- **Level D: Training Cycle**
- **Objective:** To obtain a VET diploma certifying full professional competence within a professional field.
- **Features:** Modular training including dual practical experience in companies.
- **Access:** Requires completion of corresponding modules or accumulation of Level C certificates.
- **Level E: Specialisation Course**
- **Objective:** To deepen knowledge in a specific professional area.
- **Features:** Advanced training which may include company placements.
- **Access:** Requires a Higher VET diploma or equivalent qualification.

Key Features of the New VET System

- **Modularity:** Each level consists of independent professional modules, enabling personalised learning paths.

- **Accumulation:** Accreditations and certificates obtained at each level can be accumulated for progression.
- **Flexibility:** Combines face-to-face, distance, and dual training, adapting to students' personal and work circumstances.
- **Official Recognition:** All accreditations and certificates are official and valid nationwide.

National Catalogue of Professional Competence Standards (CNECP)

The CNECP is the official reference framework that organises, defines, and updates the professional competences recognised in the Spanish VET system.

Created and regulated by Organic Law 3/2022, it constitutes the common foundation upon which all VET training and certification offers are built, both in the educational and labour spheres.

- **Main Objective**

The CNECP aims to:

- Identify, describe, and classify professional competences required for qualified performance across production sectors.
- Ensure coherence between training, accreditation, and labour market needs.
- Facilitate recognition and mobility of qualifications within Spain and Europe, as it aligns with both the EQF and the Spanish Qualifications Framework for Lifelong Learning (MECU).

- **Structure**

Each professional competence standard defines:

- The professional task or competence to be performed.
- Performance and assessment criteria.
- The level of autonomy and responsibility.
- Professional contexts of application.

Standards are grouped by professional families (e.g., Textiles, Leather, Mechanical Manufacturing, Electricity and Electronics) and by qualification levels corresponding to MECU and EQF levels.

- **Function within the VET System**

The CNECP serves as a common reference for:

- Designing VET diplomas and professional certificates.
- Defining micro-credentials and levels A–E in the new structure.
- Processes for evaluation, recognition, and accreditation of competences acquired through work experience or non-formal learning.

In essence, the CNECP defines what a professional must know and be able to do, forming the foundation for training and certification across the system.

- **European Alignment**

The CNECP is aligned with the European Qualifications Framework (EQF), enabling comparison and mutual recognition of Spanish qualifications across Europe and promoting mobility and transparency in education and employment.

Relevant Shoe 5.0 Results for Integration and alignment with national education training systems in Spain

The Shoe 5.0 Project provides outcomes that can modernise and complement Spain's VET system in the footwear sector. The most relevant include:

1. Training Materials and Pedagogical Resources

The manuals, modules, and Units of Learning Outcomes (ULOs) developed under Shoe 5.0 can be directly integrated into VET programmes in footwear, leather goods, and related industries because:

- They are structured according to the CNECP.
- They are designed based on learning outcomes and observable competences, fully compatible with the MECU and EQF.

Thus, these materials could be incorporated as modules or micro-credentials in the new VET Levels A–C established by Organic Law 3/2022, contributing to a more flexible, sector-oriented training offer.

The Shoe 5.0 Scanning Tool could also be integrated as a competence evaluation and diagnostic instrument within the national VET system. It identifies qualification gaps among students or workers and proposes personalised learning paths consistent with lifelong learning principles.

Given its structure based on learning outcomes and alignment with the CNECP and Organic Law 3/2022, it can support competence validation, design of micro-credentials (Levels A–C), and the modernisation of training programmes in the footwear sector—strengthening the link between education, business, and the labour market.

2. Innovative Teaching Methodologies for VET

The project promotes active and innovative methodologies fully aligned with Spain's VET modernisation strategy:

- **Project-Based Learning (PBL):** particularly applicable to design, innovation, and sustainability modules.
- **Work-based learning and dual training,** consistent with the practical orientation of Spanish VET.
- **Microlearning, gamification, and peer learning,** adaptable for classroom use to foster digitalisation and teacher motivation.

These approaches can be integrated into both initial and continuing teacher training, as well as methodological innovation plans in VET centres.

3. Transversal and Digital Competences Aligned with VET 5.0

The project outcomes foster transversal and digital competences recognised in the Spanish education system—such as critical thinking, creativity, problem-solving, and digital literacy. They align with transversal learning outcomes in VET qualifications and the European Digital Competence Framework for Educators (DigCompEdu).

Their incorporation supports the inclusion of these skills in transversal training modules and teacher upskilling programmes.

4. Training and Support for Trainers

The Shoe 5.0 Trainers' Manual serves as a professional development resource for:

- VET trainers in industrial and technological fields.
- Innovation and Teacher Training Centres.

It can be used in continuing teacher training, particularly in Industry 5.0, sustainability, digitalisation, and pedagogical innovation, strengthening teachers' emerging competences.

Approaching strategy to National authority

The strategy to approach the Spanish national authority within the Shoe 5.0 project has been designed considering Spain's highly decentralised political and administrative structure.

Under the 1978 Spanish Constitution, Spain is composed of 17 Autonomous Communities, each with legislative and executive powers in education and vocational training. While the Ministry of Education and Vocational Training defines general guidelines, implementation and curricular development are managed regionally.

Given this context, a direct top-down approach at the national level could be slow, bureaucratic, and less impactful. Therefore, the La Rioja Footwear Technology Centre (CTCR)—Shoe 5.0's Spanish partner—has adopted a progressive, bottom-up, regionally scaled strategy, prioritising collaboration with key regional stakeholders in the footwear education and production ecosystem before formally engaging national authorities.

• **Regional Phase: Building a Solid Base for Validation and Cooperation**

In this first phase, CTCR has leveraged its partnerships with key institutions in **La Rioja**, such as:

- **IES Virgen de Vico**, national reference centre in footwear design and production
- **La Rioja School of Design (ESDIR)**, offering the Master's in Footwear Design and Innovation
- **AICCOR**, the Association of Footwear and Allied Industries of La Rioja
- **FICE**, the Spanish Footwear Industry Federation, with national and European influence

- **Sector trade unions**
- **Other regional VET and continuous training centres**

These collaborations enable validation of the project's training materials and tools (including the Scanning Tool) and ensure alignment with sectoral and VET needs. They also strengthen dialogue between education, business, and regional administration—an essential step before formal national integration.

- **National Phase: Institutional Engagement with SEPIE and Competent Authorities**

Simultaneously, CTCR has initiated contact with SEPIE, the Spanish Erasmus+ National Agency, through a formal communication presenting the Shoe 5.0 – Partnership for Footwear Industry 5.0 Readiness project, its objectives, and expected outcomes. The aim is to promote the project as an Erasmus+ good practice and establish institutional collaboration channels with the national authority.

This bottom-up strategy, moving from local to national levels, reflects Spain's territorial and administrative structure, where regional governments play a decisive role in VET implementation.

Starting with regional collaboration helps overcome bureaucratic barriers, generate tangible success evidence, and strengthen project impact across the educational and industrial ecosystem.

Thus, Shoe 5.0 lays the groundwork for a sustainable and officially recognised integration of its outcomes into the Spanish VET system, fully aligned with Organic Law 3/2022 and the principles of Industry 5.0.

Opportunities and Barriers for Integration of the Shoe 5.0 results in Spain

Opportunities:

1. Alignment with the New Spanish VET Framework (Organic Law 3/2022)

Shoe 5.0's modular and competence-based structure fits perfectly within the reformed VET system (Levels A–E) built on the CNECP.

This facilitates integration of the project's LOUs, modules, and micro-credentials into official VET programmes.

2. Support for Digital and Green Transitions

Shoe 5.0 promotes competences in digitalisation, sustainability, innovation, and soft skills—key priorities of Spain's VET Modernisation Plan and Industry 5.0 policies. It directly contributes to national goals on green and digital skills development.

3. Compatibility with European Qualification Frameworks

The learning outcomes align with both EQF and MECU, ensuring transferability and recognition across Spanish and European qualification systems.

4. Relevance for Teachers and Trainers

The Trainers' Manual and Scanning Tool provide practical resources for teacher training and innovation, easily integrated into Teacher Training Centres and institutional innovation plans.

5. Collaboration Between Education and Industry

CTCR's participation strengthens links between VET centres and the business sector, facilitating the transfer and integration of project outcomes into regional training offers.

Barriers

1. Administrative and Regulatory Validation

Integration of Shoe 5.0 results as official modules or micro-credentials requires approval from national or regional education authorities—a potentially slow and complex process.

2. Decentralisation of the VET System

As VET is regionally managed, integration will depend on regional priorities, which may vary among Autonomous Communities.

3. Limited Awareness and Adoption Capacity

Some institutions and teachers may not yet be familiar with Industry 5.0 approaches or digital tools like the Scanning Tool, requiring additional awareness and training actions.

4. Sectoral Curriculum Updates

Many footwear and leather VET programmes still rely on traditional methodologies and integrating Shoe 5.0 innovations will require curricular revision and teacher upskilling.

ITALY

National Education and Training Framework, Governance and Responsible Authorities

Italy has established its **National Qualifications Framework (NQF)** - the *Quadro Nazionale delle Qualificazioni (QNQ)* - which is fully aligned with the European Qualifications Framework (EQF) and serves as a unified reference tool for classifying all qualifications issued within the national education and training system.

A central component of this system is the Atlas of Labour and Qualifications, which contains the National Repertoire of Education and Training Qualifications and Professional Qualifications. This Repertoire represents the official Italian reference framework for the certification of competences and includes all qualifications issued by authorised national bodies or obtained through apprenticeship contracts.

The National Repertoire functions as a structured tool for the description, classification and transparency of qualifications within the Italian certification system.

It is also the national mechanism for referencing qualifications to the EQF, enabling the connection between the Italian qualifications system and those of other European countries.

In practice, the implementation of qualification frameworks and competence certification is deeply linked to Italy's regional governance model. Based on common national operational references, each Italian Region and Autonomous Province independently organises the services for the identification, validation and certification (IVC) of competences acquired in formal, non-formal and informal contexts.

Through a harmonised operational framework and quality assurance principles, regional qualifications and their associated competence standards are progressively recognised at national level and incorporated into the Atlas, ensuring coherence and comparability across the country.

Politecnico Calzaturiero is a member of the national working group that worked and is continuously working to standardize and redefine the Atlas for the profiles and skills of the Footwear sector, therefore it will take care of presenting the new profiles and results from this project during the national activities of the working group.

The Italian NQF is articulated into **8 qualification levels**, each defined through learning outcomes in terms of Knowledge, Skills, Autonomy and Responsibility, and it encompasses qualifications from general education, VET pathways, higher VET, apprenticeships, and higher education.

The Italian education system is organized into a structured and sequential pathway that accompanies learners from early childhood to higher education and advanced vocational specialisation. Each level is designed to progressively develop knowledge, skills, and competences, and - although not always formally referenced - can be aligned with the European Qualifications Framework (EQF) in terms of learning outcomes and complexity.

The Italian education system is structured as follows:

- **Early Childhood Education (3-6 years):**

Early childhood education is non-compulsory but represents the first step within the national education system. It aims at supporting cognitive, relational and emotional development, although it is not assigned an EQF level due to its preparatory nature.

- **Primary Education - *Scuola Primaria* (5 years):**

Primary education is compulsory and typically attended by children aged 6 to 11. It introduces foundational literacy, numeracy, scientific exploration and social competences. Although Italy does not formally map this level to EQF, the progression of learning outcomes generally corresponds to the lower EQF spectrum (Level 1).

- **Lower Secondary Education - *Scuola Secondaria di Primo Grado* (3 years):**

Lower secondary education, attended by students aged 11 to 14, builds upon basic competences and introduces more structured disciplinary learning. Students develop broader scientific, linguistic, mathematical and technical abilities, progressing toward a level comparable to EQF Levels 1–2. Completion of this stage grants access to upper secondary pathways.

- **Upper Secondary Education - *Scuola Secondaria di Secondo Grado* (5 years):**

Upper secondary education is diversified into distinct pathways designed to address different learner profiles and labour-market needs. It generally last five years and, depending on the programme, culminates in qualifications broadly comparable to EQF Levels 3–4.

The three main pathways are:

- Lyceums - *Licei* (General education): These programmes provide a strong academic foundation, focusing on humanities, sciences, arts or languages. They prepare students mainly for higher education, emphasising theoretical knowledge and transversal competences.
- Technical Institutes - *Istituti Tecnici* (Technical education): Technical institutes offer a mix of theoretical knowledge and applied technical-scientific competences in areas such as

economics, technology, mechanics, ICT and tourism. Qualifications are practice-oriented yet academically robust, enabling access to both the labour market and higher education.

- Professional institutes - *Istituti Professionali* (Vocational education): These schools are strongly connected to specific trades and productive sectors (e.g., fashion, mechanics, agriculture, hospitality). They combine classroom learning with practical laboratory activities and work-based learning experiences. Their qualifications are closely aligned with skills required by industry and may correspond to EQF Level 3 or Level 4 depending on the curriculum.

Upon completion of upper secondary education, learners receive a nationally recognized qualification (*Diploma di Maturità*), which grants access to higher education, post-secondary vocational programmes, or immediate labour-market entry.

Beyond the formal school system, Italy has developed a **broad and highly articulated Vocational Education and Training (VET) ecosystem**, which plays a central role in providing labour-market-oriented skills and supporting continuous innovation within key industrial sectors. This system is characterised by a shared governance structure: the national level defines the strategic framework and quality standards, while the regions are responsible for the design, implementation and certification of many VET pathways.

As a result, Italy offers a wide range of flexible learning opportunities that respond to local economic priorities and sector-specific needs.

Regional VET System - IeFP (Istruzione e Formazione Professionale):

The *IeFP* system constitutes the backbone of regional vocational education. It provides three-year and four-year programmes targeted primarily at young learners who prefer a more practical, employment-oriented pathway.

- The *three-year programmes* lead to the qualification of *Operator* (EQF Level 3), focusing on foundational operational skills within sectors such as fashion, mechanics, food production, and services.
- The *four-year programmes* award the qualification of *Technician* (EQF Level 4), preparing learners for more autonomous roles and broader technical responsibilities.

IeFP programmes are characterised by a strong integration of school-based learning and work-based learning (WBL). Practical laboratory activities, internships, and apprenticeships form an

essential component of the curricula, ensuring close alignment with the productive fabric of each region. Many students completing IeFP pathways either enter the labour market or continue their studies in higher-level VET programmes.

Post-Secondary Non-Tertiary VET – IFTS (Istruzione e Formazione Tecnica Superiore)

IFTS programmes represent an intermediate step between upper secondary education and higher vocational pathways.

These one-year, post-secondary courses combine advanced technical learning with project-based activities and are developed through local partnerships involving training centres, schools, universities, and enterprises. They lead to qualifications aligned at EQF Level 4-5 and focus on areas with strong regional industrial relevance - such as mechatronics, ICT, logistics, fashion technologies, and design. IFTS pathways are designed to provide both upskilling opportunities for young graduates and re-skilling opportunities for adults already in the workforce.

Higher VET – ITS Academy (Istituti Tecnologici Superiori)

At the top of the Italian VET system stands the ITS Academy, considered the country's higher vocational education tier. ITS programmes are:

- Two years in duration
- Highly industry-driven
- Delivered by foundations made up of companies, training providers, universities, research centres, and local authorities.

ITS qualifications are aligned with EQF Level 5 and, increasingly, Level 6, reflecting the advanced technological and managerial competences they provide. These programmes are strongly connected to strategic industrial sectors - such as manufacturing, digital transformation, sustainable mobility, and the fashion and footwear industries. They are widely recognised for their very high graduate employment rates, often exceeding 80-90% within one year of completion.

Higher Education System

In parallel with the VET structure, Italy's higher education system is fully aligned with the Bologna Process and structured into three cycles:

- Bachelor's degree (*Laurea*) – EQF Level 6: A three-year programme providing fundamental disciplinary knowledge and introductory professional competences.
- Master's degree (*Laurea Magistrale*) – EQF Level 7: A two-year advanced cycle focusing on specialized academic and professional skills.

- Doctoral programmes – EQF Level 8: The highest qualification cycle, centred on research, innovation, and the development of new scientific knowledge.

Together, the VET system and the higher education system create a comprehensive and diversified learning ecosystem, capable of supporting lifelong learning, facilitating entry into the labour market, and addressing emerging skill needs across traditional and innovative sectors.

Regarding VET

VET in Italy can be delivered through a variety of accredited institutions and providers, ensuring both flexibility and strong links with the labour market.

These include Regional VET Centres (CFP/CFL), which offer structured vocational pathways; Technical and Vocational Schools (Istituti Tecnici e Professionali), providing integrated general and vocational education; and ITS Academy Foundations, which deliver higher-level vocational programmes closely aligned with industry needs. In addition, companies authorised to host apprenticeships contribute to practical, work-based learning, while other regional-accredited training providers complement the offer with specialised courses and continuing training opportunities. This diversified system enables learners to access a wide range of formal and work-based learning experiences throughout their education and career.

About governance and Responsible Authorities...

The Italian governance system for education and training is **dual and highly decentralised**, with a clear division of responsibilities between the State and the Regions, particularly in relation to the Vocational Education and Training (VET) system.

This structure reflects the constitutional principle whereby education is a shared competence, while vocational training is primarily a regional responsibility.

At the national level, the **Ministry of Education and Merit (MIM)** defines the general framework for the school system. It oversees national curricula, the structure of pathways, and the regulation of upper secondary education, including general, technical, and vocational schools. MIM ensures the coherence and quality of the national education system and sets the standards that guide teaching and learning nationwide.

The **Ministry of University and Research (MUR)** is responsible for the governance of higher education institutions, universities, and research centres. It regulates degree structures in line with the Bologna Process, manages national research programmes, and supervises the development of advanced training and scientific innovation.

Under the Italian Constitution, **Regions and Autonomous Provinces** hold exclusive competence over vocational training. They design and implement the *IeFP* system, define regional qualifications, and accredit training centres. They also organise services for the identification, validation and certification of competences (IVC), ensuring that regional qualifications can be referenced within the National Qualifications Framework (QNQ) and aligned with the EQF through common national standards.

Several national technical bodies support this system. The **National Institute for Public Policy Analysis (INAPP)** plays a key role in researching labour market trends, analysing skill needs, and supporting the development, updating, and mapping of qualifications. INAPP ensures the coherence between regional repertoires and the National Qualifications Framework, facilitating interoperability and recognition.

Complementing this architecture, the **National Agency for Active Labour Policies (ANPAL)** coordinates employment services across the country and contributes to the governance of apprenticeships and continuing training. ANPAL collaborates closely with Regions, social partners, and training providers to align VET pathways with labour market needs and to promote active labour market policies, including re-skilling and upskilling interventions.

Overall, this governance structure ensures a multi-level, collaborative system in which national frameworks provide cohesion, while regional authorities adapt education and training to the specific characteristics of local economies and industrial districts.

Relevant Shoe 5.0 Results for Integration and alignment with national education training systems in Italy

Shoe 5.0 project delivers results that can enhance and update Italy's Vocational Education and Training (VET) system, particularly within the footwear and leather goods industries, main target of the project. The key outcomes of the project include:

Training Materials and Resources

The manuals, training modules, and Units of Learning Outcomes (ULOs) developed within Shoe 5.0 offer valuable resources for direct integration into Italian VET programmes in the footwear, leather goods, and related sectors. Their relevance stems from the following features:

- Their modular and adaptable format allows them to be incorporated as micro-credentials or specialised units within various VET pathways, including IeFP programmes, ITS Academy courses, and vocational tracks offered by Professional Institutes.

- They are designed around clearly defined learning outcomes and measurable competences, ensuring full alignment with the Italian National Repertoire of Education and Training Qualifications and professional qualifications, as well as referencing the European Qualifications Framework (EQF).

In addition, the Shoe 5.0 Scanning Tool serves as a practical instrument for evaluating competences and diagnosing skills gaps among students and workers. It can generate tailored learning pathways in line with lifelong learning principles and support the recognition, validation, and certification of competences within both regional and national frameworks.

Innovative teaching approaches and methodologies for VET

Shoe 5.0 introduces active and forward-looking pedagogical methods that align with Italy's ongoing VET modernisation efforts:

- Project-Based Learning (PBL): particularly relevant for modules on design, technological innovation, sustainability, and process improvement.
- Work-based and dual training: compatible with the practical, apprenticeship-oriented structure of IeFP and ITS programmes, fostering direct application of skills in real work environments.
- Microlearning, gamification, and collaborative learning: versatile approaches that can be applied in both classroom and digital settings to increase learner engagement, facilitate digital competence, and enhance teacher motivation.

These innovative methodologies can be incorporated into both initial and continuing professional development for VET trainers, supporting methodological updates and innovation plans within vocational centres, ITS Academies, and technical schools.

Transversal and digital competences in line with VET Improvement

The project outcomes foster transversal and digital competences recognised in the Italian system, such as critical thinking, creativity, problem-solving, and digital literacy.

They are aligned with transversal learning outcomes in national VET qualifications and the European Digital Competence Framework for Educators (DigCompEdu). Incorporating these competences supports the development of transversal training modules and teacher upskilling initiatives.

Training and Support for Trainers

The Shoe 5.0 Trainers' Manual serves as a key tool for the professional growth of:

- VET trainers working in industrial, technological, and design-focused sectors.
- Centres dedicated to teacher training and educational innovation.

The manual can be integrated into continuing professional development programmes, with a particular emphasis on Industry 5.0 principles, sustainability, digital skills, and innovative teaching methods. It aims to enhance the competences of Italian VET trainers and contribute to the development of a highly skilled workforce in the footwear and leather goods sectors.

Approaching strategy to National authority

The approach to Italian national and regional authorities within the Shoe 5.0 project has been designed considering Italy's dual governance structure, where education and training responsibilities are shared between the State and the Regions. VET particularly falls largely under the competence of the Regions, while the Ministry of Education and Merit (MIM) and the Ministry of University and Research (MUR) oversee national curricula, qualifications, and higher education.

Given this context, a top-down approach at the national level could risk slow decision-making due to bureaucratic procedures. Therefore, the project adopted a progressive, bottom-up strategy, starting with the regional level in Veneto to build solid local partnerships and validate the project's outcomes before engaging national authorities.

Regional phase: building local validation and cooperation

In Veneto region, Politecnico Calzaturiero has engaged key institutions and stakeholders in the footwear and leather goods ecosystem, including:

- Regional VET Centres (CFP/CFL) and technical schools (Technical and Professional Institutes) delivering leFP programmes;
- ITS Academy foundations offering pathways in design, innovation, and industrial technologies;
- Regional associations of footwear and leather goods companies supporting sectoral alignment and work-based learning strategies;
- Trade unions and social partners involved in workforce development.

These players have been sensitised and informed about the project's goals, available training materials, methodological approach, and expected outputs. This dissemination phase has

strengthened awareness and built a supportive environment for future integration of Shoe 5.0 outcomes into the regional training offer.

At the operational level, the formal procedure to update and modernise existing professional profiles has been initiated, leveraging the fact that Politecnico Calzaturiero is officially accredited by the Veneto Region for higher and continuing training.

Thanks to this accreditation, the training centre has been able to submit the required documentation to the regional authorities to propose the inclusion of Industry 5.0 competences, digitalisation skills, and innovative pedagogical elements derived from the Shoe 5.0 project.

The proposal is currently under consideration by the Regional Directorate for Vocational Training and Education, which is responsible for validating and approving updates to regional professional profiles.

National phase: engagement with central authorities

Following the regional validation process in Veneto, the Italian project partner has also activated contacts at the national level.

Recently, Politecnico Calzaturiero has been approached by a national expert appointed by the Ministry of Education and Merit (MIM) to coordinate a working group responsible for revising the learning outcomes and competence profiles of students enrolled in the *Fashion System* upper secondary vocational pathway.

Within this national reform process, Politecnico Calzaturiero will contribute specifically to the Footwear specialisation, providing sectoral expertise and supporting the definition of updated professional and competence profiles. This involvement ensures that the ongoing revision incorporates the most relevant skills emerging from industrial transformation.

Given this formal engagement, the competences, Units of Learning Outcomes, and methodological inputs developed in Shoe 5.0 will directly inform the update of the national footwear-related VET profile.

The project's emphasis on Industry 5.0, sustainability, digitalisation, and innovative pedagogies is therefore expected to play a concrete role in shaping the renewed national framework.

This coordinated progression - from regional alignment to national involvement - creates favourable conditions for embedding Shoe 5.0 results into Italy's VET and secondary education system in a structured, sustainable, and policy-consistent manner.

Opportunities and Barriers for Integration of the Shoe 5.0 results in Italy

The integration of Shoe 5.0 outcomes into the Italian Vocational Education and Training (VET) and Footwear education system presents a combination of favourable conditions and structural challenges. Italy's VET ecosystem - characterised by a multi-level governance (national, regional, local), a strong industrial tradition, and a growing emphasis on technological and ecological transition - offers concrete entry points for innovation. At the same time, the decentralised nature of training governance, the persistence of traditional teaching models, and the slow pace of formal qualification updates represent barriers that must be carefully addressed.

The following sections outline the main opportunities and challenges affecting the adoption and institutionalisation of Shoe 0 results within the Italian system.

Opportunities

1. Strong alignment with Italy's competence-based Qualification Frameworks

The Shoe 5.0 modules, Units of Learning Outcomes, and pedagogical resources are built on learning-outcome-based logic, directly compatible with the National Repertoire of Education and Training Qualifications, the National Repertoire of Regional Professional Qualifications, and the European Qualifications Framework (EQF).

This structural compatibility significantly facilitates their integration into:

- regional IeFP pathways,
- curricular updates of Professional Institutes,
- ITS Academy programmes,
- and lifelong learning offers.

The architecture of Shoe 5.0 ULOs provides a ready-to-use resource for Italy's ongoing competence-based reform processes.

2. Contribution to digital and green transition policies

Italy's National Recovery and Resilience Plan (PNRR), the national digital strategy, and regional Industry 4.0/5.0 agendas all prioritise: digital competences, sustainable production, circular economy approaches, and new professional profiles for manufacturing sectors.

Shoe 5.0 directly supports these priorities by:

- introducing competencies related to digital modelling, automation, data-driven processes, and materials innovation;

- strengthening transversal skills like problem-solving, teamwork, and creativity;
- integrating sustainability concepts as core training components.

This alignment increases the likelihood of adoption, particularly in regions - such as Veneto - with strong Fashion and Footwear districts.

3. High relevance for teacher upskilling and methodological innovation

The Italian VET system is currently investing in teacher training, particularly through regional pedagogical centres, ITS Academy Foundation, and training plans linked to digitalisation.

Shoe 5.0 offers a Trainers' Manual designed for methodological innovation, modern active-learning approaches, and tools to evaluate competences, such as the Scanning Tool.

These resources are appealing because they can be integrated without regulatory changes and respond to a concrete need: updating didactic practices in technical and vocational fields.

4. Reinforcement of industry-education collaboration

The footwear sector in Italy - especially in Veneto, Tuscany, Marche, and Campania - relies heavily on highly specialised SMEs and craft-based value chains.

Shoe 5.0 strengthens cooperation between training providers, companies, innovation centres, and sector associations.

This is particularly relevant for work-based learning pathways (apprenticeships), dual training pilots, and the evolution of curricula connected to industrial needs.

The project's materials can help bridge the long-standing gap between traditional craftsmanship and emerging digital/green skill requirements.

5. Ongoing national and regional qualification updates create a window of opportunity

In Veneto, a formal request to update footwear-related regional profiles is already under evaluation. Nationally, the Ministry of Education and Merit has initiated a revision of the Fashion System vocational profiles, and Politecnico Calzaturiero has been involved for the "Footwear" specialisation. These reforms create a strategic opening where Shoe 5.0 competences and materials can be embedded into new official frameworks.

Barriers

1. Complex and lengthy validation processes

The integration of Shoe 5.0 outcomes into official Italian qualifications requires approval from regional administrations (for IeFP and regional profiles), the Ministry of Education (for Professional Institutes), the Ministry of University and Research (for ITS Academies). These procedures can be slow and require multi-stakeholder consensus, potentially delaying formal adoption.

2. Fragmentation due to regional autonomy

Though aligned with national guidelines, VET in Italy is strongly regionalised. This means that some regions may integrate Shoe 5.0 quickly, others may prioritise different sectors or lack capacity to revise their qualifications.

This structural variability may lead to uneven adoption across the country.

3. Limited Awareness and Digital Readiness in Some Training Centres

Many VET institutions—especially smaller regional centres—still rely on traditional methodologies and may have:

- limited familiarity with Industry 5.0 concepts,
- insufficient technological infrastructure,
- low awareness of the Scanning Tool or digital training resources,
- teachers who require upskilling before effectively adopting new methodologies.

Additional dissemination, training, and support actions will therefore be essential.

4. Rigid curricula in Upper Secondary schools

Professional Institutes often have highly structured national curricula. Introducing new modules based on Shoe 5.0 may require curricular revision by national authorities, additional teacher training, and adaptation of existing school equipment.

This rigidity could slow the integration of innovative industry-driven content.

ROMANIA

National Education and Training Framework, Governance and Responsible Authorities

The Romanian education and training system is structured around the following complementary pillars: pre-university and vocational education and training, higher education, and lifelong learning. These areas operate within a unified legal framework, established by the National Education Law no. 1/2011 and subsequent regulations, which define both quality assurance mechanisms and the procedures for recognising learning outcomes acquired in formal, non-formal, and informal contexts.

A central element of this system is the National Qualifications Framework (NQF, in RO: Cadrul Național al Calificărilor - CNC), which defines qualification levels and ensures their compatibility with the European Qualifications Framework (EQF). Additionally, the national registers — the National Register of Qualifications (in RO: Registrul Național al Calificărilor - RNC), the National Register of Higher Education Qualifications (in RO: Registrul Național al Calificărilor din Învățământul Superior - RNCIS), and the National Register of Professional Qualifications (in RO: Registrul Național al Calificărilor Profesionale - RNCP) — provide the official basis for including and updating educational programmes and occupational standards.

Governance of the system is divided among several key institutions. The Ministry of Education is responsible for setting educational policies and approving the integration of new programmes or modules into both higher education and vocational curricula. The Ministry of Labour and Social Solidarity contributes through the regulation of apprenticeships, internships, and labour market integration measures. A pivotal role is played by the National Authority for Qualifications (in Ro: Autoritatea Națională pentru Calificări - ANC), which coordinates occupational standards and training programmes, manages the qualification registers, and ensures their alignment with EQF. The National Authority for Qualifications is a public institution with legal personality under the coordination of the Ministry of Education and Research, with attributions in terms of qualifications, according to Art. 194 paragraph (1) of the Higher Education Law no. 199/2023. The National Authority for Qualifications (ANC) also oversees the recognition and validation of learning outcomes acquired in non-formal and informal contexts, which creates significant opportunities for integrating micro-credentials. Specialised agencies manage quality assurance: Agency for Quality Assurance in Higher Education (in RO: Agenția Română de Asigurare a Calității în Învățământul Superior - ARACIS) for higher education and Romanian Agency for Quality Assurance in Pre-University Education (in RO: Agenția Română de Asigurare a Calității în Învățământul Preuniversitar – ARACIP) for pre-university education. The National Centre for the

Development of Technical and Vocational Education and Training (in RO: Centrul Național de Dezvoltare a Învățământului Profesional și Tehnic - CNDIPT) operates under the coordination of the Ministry of Education and plays a key role in designing, implementing, and monitoring policies in the field of vocational and technical education. The National Centre for the Development of Technical and Vocational Education and Training (CNDIPT) develops curricula for VET schools, updates occupational standards in collaboration with the National Authority for Qualifications (ANC), and ensures alignment between education provision and labour-market needs.

Alongside public authorities, sectoral committees, employer associations, and chambers of commerce contribute to validating occupational standards and adapting training provision to labour market needs. Universities, vocational schools, and accredited training providers complement this governance architecture, being directly responsible for the implementation of programmes and the certification of learning outcomes.

This institutional structure provides a favourable environment for the integration of the Shoe 5.0 training results. The modular design of the training kit and its focus on micro-credentials align well with national policies on digitalisation, internationalisation, and lifelong learning.

Relevant Shoe 5.0 Results for Integration and alignment with national education training systems in Romania

The Shoe 5.0 structure includes 15 ULOs, each corresponding to approximately 25 learning hours, which can be combined into 100-hour learning modules and, ultimately, into a comprehensive 1,500-hour training programme corresponding to EQF levels 5–6. This modular architecture offers a high degree of flexibility and allows for multiple integration routes within the Romanian system:

- In Higher Education (HE), the units can be mapped to existing disciplines or introduced as elective modules within Bachelor or Master programmes related to industrial engineering, footwear design and technology. Their explicit learning outcomes and clear assessment criteria enable their conversion into ECTS credits, thus ensuring formal academic recognition.
- In Vocational Education and Training (VET), the same units can be aligned with existing occupational standards from the Romanian Classification of Occupations (in RO:

Clasificarea ocupatiilor din Romania - COR) or used as the basis for developing new qualifications to be included in the National Register of Professional Qualifications (RNCP).

A key strength of the Shoe 5.0 training model lies in its innovative assessment approach, which combines theoretical and practical evaluation methods, including Augmented Reality (AR) tools that simulate real production and design environments. This tool directly supports Romania's strategic objectives for digitalising education and developing advanced manufacturing skills. Moreover, the inclusion of project-based assignments and work-based learning elements supports the integration of the Shoe 5.0 kit into apprenticeship and lifelong learning programmes coordinated by the Ministry of Labour and Social Solidarity.

Another aspect that facilitates alignment with the Romanian framework is the validation process of learning outcomes, which has been carried out in collaboration with industry stakeholders and educational institutions across Europe. This ensures that the content of Shoe 5.0 is directly relevant to the needs of employers and that it supports the upskilling and reskilling of the workforce in the footwear sector. The outcome-oriented structure and transparent assessment methods also make the programme compatible with non-formal learning recognition procedures managed by the National Authority for Qualifications (ANC).

In summary, the Shoe 5.0 results are highly adaptable to Romania's education and training ecosystem. Their modularity, clear EQF alignment, and focus on digital and sustainable innovation create a strong foundation for integration both in formal education pathways — such as higher education and VET — and in non-formal or lifelong learning contexts. This flexibility ensures that Shoe 5.0 can effectively contribute to modernising the national qualification system, fostering industry-relevant skills, and strengthening the competitiveness of Romania's footwear and leather sector in the context of Industry 5.0.

Engagement with the National authority

In Romania, two main pathways are envisaged for the integration and institutional recognition of the Shoe 5.0 training toolkit within the national education and qualifications system:

- Integration at the **Higher Education level**, through the curricula of the *Gheorghe Asachi Technical University of Iași, Faculty of Industrial Design and Business Management*;

- Proposal for the registration of the Shoe 5.0 training toolkit in the **National Catalogue of Qualifications (RNC)** at EQF level 5.

Both approaches are complementary — the first ensures academic validation within formal higher education structures, while the second allows broader national and professional recognition through the vocational and lifelong learning system coordinated by the National Authority for Qualifications (ANC).

Integration at the Higher Education Level

At the Higher Education level, Shoe 5.0 modules are being integrated into existing courses at the Gheorghe Asachi Technical University of Iasi, Faculty of Industrial Design and Business Management, within programmes that correspond to EQF levels 6 and 7. The integration follows the university's internal regulation PO.DID.04, which defines the methodology, responsibilities, and quality assurance steps for developing, endorsing, approving, and continuously improving the curricula of undergraduate and master's degree programmes.

The process is governed by a solid legal and institutional framework, including the National Education Law no. 1/2011, Law no. 288/2004 on the organisation of university studies, Law no. 87/2006 on quality assurance, and several Government Decisions (GD 404/2006, GD 915/2017) and ministerial orders that regulate the registration of higher education qualifications in the National Register of Higher Education Qualifications (RNCIS).

The National Register of Higher Education Qualifications (RNCIS), as a component of the National Register of Qualifications (RNC), ensures the recognition, comparability, and transparency of qualifications at the national and European levels. For any new qualification to be introduced, a clear link must exist between the competences acquired and an occupation listed in the Romanian Classification of Occupations (COR). Consequently, each qualification registered in RNCIS is expressed through learning outcomes and competences corresponding to EQF/NQF levels 5–8 and must demonstrate alignment with labour market needs.

Within this framework, the integration of Shoe 5.0 modules follows a multi-stage procedure consistent with TUIASI's internal and national requirements:

Stage I – Curriculum development

Each academic year, the Faculty Council analyses the opportunity to revise curricula

and establishes dedicated committees composed of academic staff, specialists from related departments, and representatives of the business environment. These committees design or revise curricula based on competences defined by the relevant qualifications.

Stage II – Course syllabus design

Course holders draft detailed syllabi that include objectives, thematic content, workload, assessment methods, bibliography, and competences achieved. The syllabi are approved by the Faculty Council and archived at the Faculty Secretariat.

Stage III – External consultation

The Faculty maintains active collaboration with employers and professional associations to ensure that curricula and competencies remain relevant to industry expectations.

Stage IV – Registration in RNCIS

The Vice-Rectorate for Education and Quality Assurance coordinates communication with the National Authority for Qualifications (ANC) to include new or revised qualifications in the National Register of Higher Education Qualifications (RNCIS) database. Study programme coordinators upload all relevant data in line with ANC methodology and report any updates.

Considering the results of the piloting stage developed within the Shoe 5.0 project, through this established process, selected Shoe 5.0 learning modules have been integrated into official course syllabi within the Industrial Design and Business Management Faculty programmes at EQF levels 6 and 7 for the academic year 2025-2026. This ensures their formal academic recognition, compatibility with Agency for Quality Assurance in Higher Education (ARACIS) quality standards, and alignment with both the National Qualifications Framework (NQF) and the European Qualifications Framework (EQF). The table below presents the six *Shoe 5.0* modules and the eight courses in which they are integrated, along with basic information such as the course code, type (according to the curriculum), qualification level, and study program.

Shoe 5.0 module	Course title	Code	Type	Level of qualifications	Name of qualification and study program

ULO 6 AI in Footwear Industry 5.0	Product Innovation in the Footwear Industry/ Inovare de produs în industria de încăltămintă	DPPIM.IA.201	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program, Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie
ULO 6 AI in Footwear Industry 5.0	Industrial Technologies – Footwear and Leather Goods/ Tehnologii industriale – încăltămintă și marochinărie	313.DS.DI	DOB – compulsory subject	Level 6 NQF and Level 6 EQF	Bachelor program, Engineer, Industrial Design/ Design industrial
ULO 7 Manufacturing i5.0	Special Footwear Design and Technology/ Proiectarea și tehnologia încăltămintei speciale /	DPPIM.IA.106	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program- Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie
ULO 7 Manufacturing i5.0	Industrial Technologies – Footwear and Leather Goods/ Tehnologii industriale – încăltămintă și marochinărie	313.DS.DI	DOB – compulsory subject	Level 6 NQF and Level 6 EQF	Bachelor program, Engineer, Industrial Design/ Design industrial

ULO 8 Co-innovation 5.0	Product Innovation in the Footwear Industry/ Inovare de produs în industria de încăltămintă	DPPIM.IA.201	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program- Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie
ULO 11 Bio-Inspired Materials and Technologies	Footwear Product Design and Development/ Designul și dezvoltarea produsului de încăltămintă	DPPIM.IA.107	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program- Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie
ULO 13 Circular Design, Smart Materials and Innovative Processes in Footwear Industry 5.0	Footwear Product Design and Development/ Designul și dezvoltarea produsului de încăltămintă	DPPIM.IA.107	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program- Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie
ULO 15 Ultra and Mass Customisation	Special Footwear Design and Technology/ Proiectarea și tehnologia încăltămintei speciale /	DPPIM.IA.106	DOB – compulsory subject	Level 7 NQF and Level 7 EQF	Master program- Advances in Footwear Design and Technology / Dezvoltări în proiectarea produselor de încăltămintă și marochinărie

Such integration demonstrates the capacity of the Shoe 5.0 model to function as an applied, modular educational resource embedded in formal academic structures, bridging the gap between technological innovation and competence-based higher education.

Proposal for Inclusion in the National Catalogue of Qualifications

The second strategic direction targets proposal of including Shoe 5.0 training toolkit as a professional qualification at EQF level 5 within the National Catalogue of Qualifications (RNC). This route aims to enable national-level recognition beyond academia and facilitate the adoption of Shoe 5.0 modules by Vocational Education and Training (VET) centres, lifelong learning providers, and companies offering continuous professional development.

In this context, the National Centre for the Development of Technical and Vocational Education and Training (CNDIPT), under the coordination of the Ministry of Education, is currently implementing the project *“Increasing the Relevance of Initial Vocational Training through Anticipating Labour Market Needs”* (SMIS Code 327432). The project aims to enhance the competitiveness of Romania’s VET system and strengthen the knowledge-based economy by improving the relevance and quality of vocational education in line with European quality standards.

Through its specific objectives, the project focuses on: (1) the digitalisation and optimisation of VET management and monitoring systems, (2) the development of mechanisms for quality assurance in work-based learning, (3) the revision and alignment of qualifications and curricula with labour market needs, and (4) the promotion of entrepreneurial and digital competences among students and teachers. Notably, the project introduces integrated IT platforms for monitoring graduate employability and anticipating skill needs, new tools for assessing and certifying learning outcomes, and mechanisms for ensuring the quality of workplace learning.

These developments create an enabling framework for integrating the Shoe 5.0 training kit within Romania’s vocational education and training ecosystem. The project’s emphasis on anticipating skill needs, digitalisation, and quality assurance in work-based learning aligns closely with the methodological principles of Shoe 5.0 — modular design, outcome-based learning, and digital/AR-enhanced assessment. Moreover, the planned revision of professional qualifications and curricula under the National Centre for the Development of Technical and Vocational Education and Training (CNDIPT), coordination provides an excellent opportunity to include the Shoe 5.0 competences in the updated national qualification standards for the leather and footwear sector.

Alignment with Non-Formal Training Recognition Processes

In Romania, recognition of prior and non-formal learning is regulated by the National Education Law and coordinated by the National Authority for Qualifications (ANC) in cooperation with the Ministries of Education and Labour. This legal framework establishes a national system for validating competences acquired outside formal education through authorised professional competence assessment centres.

ANC is responsible for accrediting evaluation bodies, training and certifying professional competence assessors, and maintaining the National Register of Evaluators. Candidates who wish to have their competences recognised apply to an authorised centre, where they undergo a structured process including self-assessment, evidence collection, and evaluation through both written and practical tests, in accordance with relevant occupational or training standards.

The Shoe 5.0 modular structure and clearly defined Units of Learning Outcomes fit naturally within this mechanism. Each unit can serve as evidence of competence for validation, enabling participants who complete Shoe 5.0 modules—whether in higher education, VET, or company training—to obtain official recognition of their learning outcomes. Documentation such as portfolios, digital badges, and certificates can be submitted to ANC-authorised centres for partial or full qualification recognition.

Through this alignment, Shoe 5.0 supports Romania's objective of building a flexible system that values learning achieved in diverse contexts and ensures compatibility between innovative, non-formal training and the National Qualifications Framework (NQF).

Opportunities and Barriers for Integration of the Shoe 5.0 results in Romania

The integration of the Shoe 5.0 training toolkit offers various solutions to modernise its education and training ecosystem in line with Industry 5.0 principles, promoting digitalisation, sustainability, and human-centred innovation. The project aligns with national priorities such as the digital transformation of education, the enhancement of VET–industry cooperation, and the development of advanced manufacturing competencies.

A key opportunity lies in the compatibility of Shoe 5.0 modules with Romania's National Qualifications Framework (NQF). Their modular, outcome-based design facilitates registration both in the National Register of Higher Education Qualifications (RNCIS) and the National

Catalogue of Qualifications (RNC) at EQF levels 5–7. The methodology used by Gheorghe Asachi Technical University of Iasi (TUIASI) for curriculum development (PO.DID.04) and the National Authority for Qualifications (ANC) qualification registration process creates a structured pathway for formal recognition.

The toolkit also addresses the skill needs of Romania's footwear and leather industry — a sector with strong export capacity and a growing demand for digital and sustainable expertise. Its modularity allows flexible integration across higher education, VET, and lifelong learning, encouraging collaboration between academia and business.

However, several barriers could slow implementation. Administrative approval processes remain complex and time-consuming; awareness of micro-credentials and non-formal learning recognition is still limited. In some cases, Shoe 5.0 competencies may not fully align with existing COR occupational codes, requiring updates or new standards.

To overcome these challenges, awareness campaigns on micro-credentials and targeted funding for digital infrastructure are essential. By addressing these factors, Romania can establish Shoe 5.0 as a model for modern, competence-based, and industry-relevant education that strengthens both national skills policy and the competitiveness of the footwear sector.

BELGIUM

Belgium's education and training system is highly regionalised, with competencies divided between the Flemish, French, and German-speaking communities. Each region manages its own education policies, curricula, and vocational training pathways. Vocational and professional qualifications are structured in regional qualification catalogues: Flanders maintains its Vlaamse kwalificatiestructuur, Wallonia uses the Référentiel de qualifications, and Brussels aligns partly with both systems while offering bilingual provisions. Key stakeholders include VDAB in Flanders, Le Forem in Wallonia, and Bruxelles Formation in Brussels, responsible for employment services, vocational training, and coordination of adult learning and skills development in their respective regions.

National Education and Training Framework, Governance and Responsible Authorities

European VET is structured around the European Qualifications Framework (EQF), ESCO occupational profiles, and the European Credit System for Vocational Education and Training (ECVET), providing a harmonised reference for competences and learning outcomes. Governance is multi-level: the European Commission's DG EMPL and Cedefop oversee policy guidance and research, while national authorities implement VET provision. The framework supports modular learning, validation of non-formal and informal learning, and alignment across sectors and countries, facilitating cross-border recognition of skills.

Relevant Shoe 5.0 Results for Integration and alignment with national education training systems in Belgium

SHOE 5.0 outputs are well-suited to European VET priorities:

- Self-Assessment Tool: supports diagnostics and validation of prior learning across countries.
- Learning Modules & Curricula: modular, competence-based content aligns with EQF and ESCO, suitable for micro-credentials and VET integration.
- Trainer Guidelines: strengthen CPD and digital/AR teaching competences for VET educators.
- Validation Frameworks: enable recognition of informal/non-formal learning, supporting lifelong learning initiatives.
- E-Courses and AR Content: provide flexible, digital and practical units for skills development in Industry 5.0, adaptable across national systems.

Approaching strategy to National and International authority

Integration at the European level can be promoted by:

- Demonstrating alignment with EQF, ESCO, and ECVET standards to highlight formal recognition potential.
- Engaging with Cedefop, DG EMPL, and European Skills Agenda initiatives to showcase sectoral relevance and scalability.

- Linking SHOE 5.0 to industry associations (CEC, EURATEX) and sectoral skills strategies to support adoption in member states.
- Emphasising Industry 5.0, digitalisation, sustainability, and human-centred production as key EU policy priorities to gain policy support and funding opportunities.

The Belgian partner, The European Footwear Confederation (CEC), did not have the opportunity to approach the Belgian national authorities since there is no footwear manufacturing industry in the country. However, it was decided to engage directly with TCLF education providers across Europe, as they are the final beneficiaries of the project activity. Thanks to the extensive network of education centres that CEC has with the ongoing consolidation of two EU Networks of TCLF Education Providers across Europe promoting excellence, the CEC organised two workshops in October 2025 to present, among other things, the project and its outcomes:

Erasmus+ Blueprint METASKILLS4TCLF workshop

The first workshop took place under the Erasmus+ Blueprint METASKILLS4TCLF project, which current Network gathers 22 centres in 8 countries. The workshop gathered 14 TCLF education providers, including 18 education professionals, from Portugal, Greece, Sweden, Spain, Italy, Germany, Romania, and Ukraine.

During the discussions, participants highlighted the relevance of incorporating the Shoe 5.0 results into VET provision. They agreed that these tools offer a practical way to illustrate how Industry 5.0 technologies and concepts can concretely enhance training systems. Several participants noted that such innovations could support learner engagement, improve skills acquisition, and provide a flexible learning opportunity aligned with the rapid evolving needs of industry.

Erasmus+ Blueprint AEQUALIS4TCLF workshop

The second workshop was held under the Erasmus+ Blueprint AEQUALIS4TCLF project, gathering 17 centres in 7 different countries. The workshop was attended by 18 education professionals from Croatia, Czech Republic, Finland, The Netherlands, Serbia, and Slovenia.

Discussions focused on the transferability of the Shoe 5.0 learning approach to different national VET systems, as well as its potential to support education providers in modernising curricula.

Participants showed strong interest in how the project's outcomes could complement existing modules and strengthen the integration of innovative, learner-centred methodologies across the TCLF sectors.

Next steps

Across both workshops, participants emphasised the importance of continuous collaboration between European TCLF education providers. The results of the Shoe 5.0 project were perceived as valuable resources that could be adapted and integrated into training programmes beyond the footwear sector.

Both Networks will reconvene next year, and their collaboration, as well as future joint initiatives, will be facilitated through the Virtual Fashion Campus, currently being developed under the METASKILLS4TCLF Blueprint. This virtual platform will further support the dissemination, integration, and exploitation of the Shoe 5.0 results across Europe.

Participants first workshop

Country and Region	Education Provider	Name of participants
Non-project partners		
Spain, Valencian community	IES NIT DE l'ALBA	Raquel González Alberol
Spain, Catalonia	La Gaspar Art and Design School	Carla Vélez
Italy, Toscana	PIN Foundation	Alessandro De Rosa
Italy, Firenze	Fondazione ITS MITA	Elena Pierattini
Germany, Rhineland-Palatinate	PFI - Prüf- und Forschungsinstitut Pirmasens e.V.	Tatjana Hubel
Germany, Baden Wurttemberg	Hochschule Albstadt-Stigmaringen	Sara Howlett
Portugal	MODATEX	Gualter Carvalho
Portugal, Porto	Escola Artística e Profissional Árvore	Rita Amado

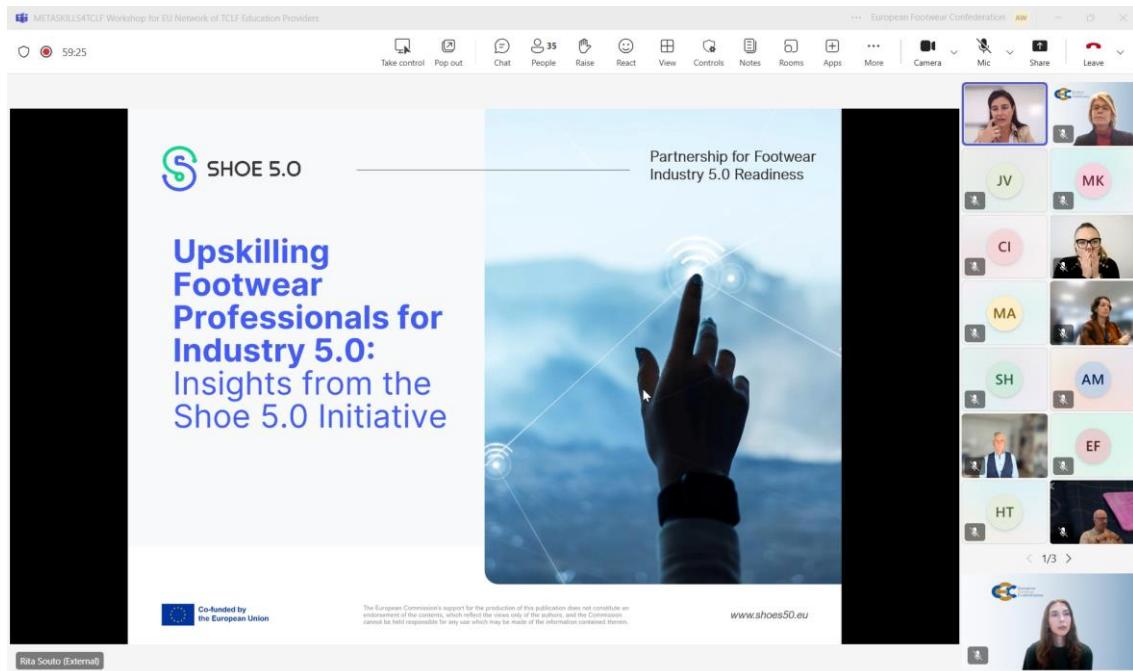
Portugal, Gondomar	CINDOR - Vocational Training Centre for the Goldsmiths and Watchmakers Industry	Laurence Alves
Portugal, North region	CITEVE	Alexandra Cardoso, Andreia Ribeiro, Elsa Faria
Greece, Attica	University of West Attica	Nikitas Gerolimos, Ioannis Chronis
Sweden, Boras	University of Boras	Susanne Edstrom
Romania, Giurgiu	Liceul Technologic Dimitrie Bolintineanu Bolintin-Vale	Neguta Stefan
Ukraine, Kyiv	Kyiv College of Applied Sciences	Anna Sokol, Maria Ivasenko
Shoe 5.0 project partners		
Belgium, Brussels	The European Footwear Confederation (CEC)	Carmen Arias, Alice Widerberg, Viola Rana
Portugal, North region	CTCP – Technical Footwear Centre	Rita Souto, Flora Bastos,
Italy, Veneto	Politecnico Calzaturiero	Alice Marcato, Eleonora Finotti
Romania, Northeast	Gheorghe Asachi Technical University of Iasi	Aura Mihai

Participants second workshop

Country and region	Education provider	Name of participants
Non-project partners		
Croatia, Adriatic Croatia	Sibenik University of Applied Sciences	Ivana Kardum Goles
Croatia, Vukarovsko-srijemska zupanija	Stredna strukovna skola Vinkovci	Lovorka Tkalcic Dulic
Croatia, Northwest, Zagreb region	University of Zagreb - Faculty of Textile Technology	Sanja Ercegovic Razic

Czech Republic, Liberec	Technical University of Liberec – Faculty of Textile Engineering	Veronica Tunáková
Czech Republic, Liberec	Strední prumyslova skola Vyssi odborná skola Liberec, prispevkova organizace	Jaroslav Semerad
Czech Republic, Liberec	Strední skola odevniho designu Katerinky	Irena Sandleiterová
Czech Republic, Prague	Academy of Art, Architecture, and Design in Prague	Linda Kaplanová
Czech Republic, Zlín	Tomas Bata University in Zlín	Dr. Nibedita Saha
Finland, Pirkanmaa	Tampere University of Applied Sciences	Marja Rissanen
Lithuania, Klaipeda	Klaipeda Technology Training Centre	Zaneta Rebrovaite
Netherlands, Noord-Holland	ROC van Amsterdam	Janneke van Lieshout
Netherlands, Holland, Brabant	Amsterdam University of Applied Sciences (AMFI)	Troy Nachtingall
Netherlands, Twente	Saxion	Karen Bosch
Serbia, Zrenjanin	Technical Faculty "Mihajlo Pupin"	Marija Pesic
Serbia, Western Serbia	University of Kragujevac, Faculty of Technical Sciences	Vesna Petrovic
Slovenia, Ljubljana	Strvkovni izobrazevalni centre (SIC) Ljubljana	Tjasa Rozman
Slovenia, Savinja	School Centre Celje	Mateja Logar, Masa Jurgelj
Shoe 5.0 project partners		
Belgium, Brussels	The European Footwear Confederation (CEC)	Carmen Arias, Viola Rana, Alice Widerberg

Portugal, North region	CTCP – Technical Footwear Centre	Rita Souto
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Partnership for Footwear Industry 5.0 Readiness

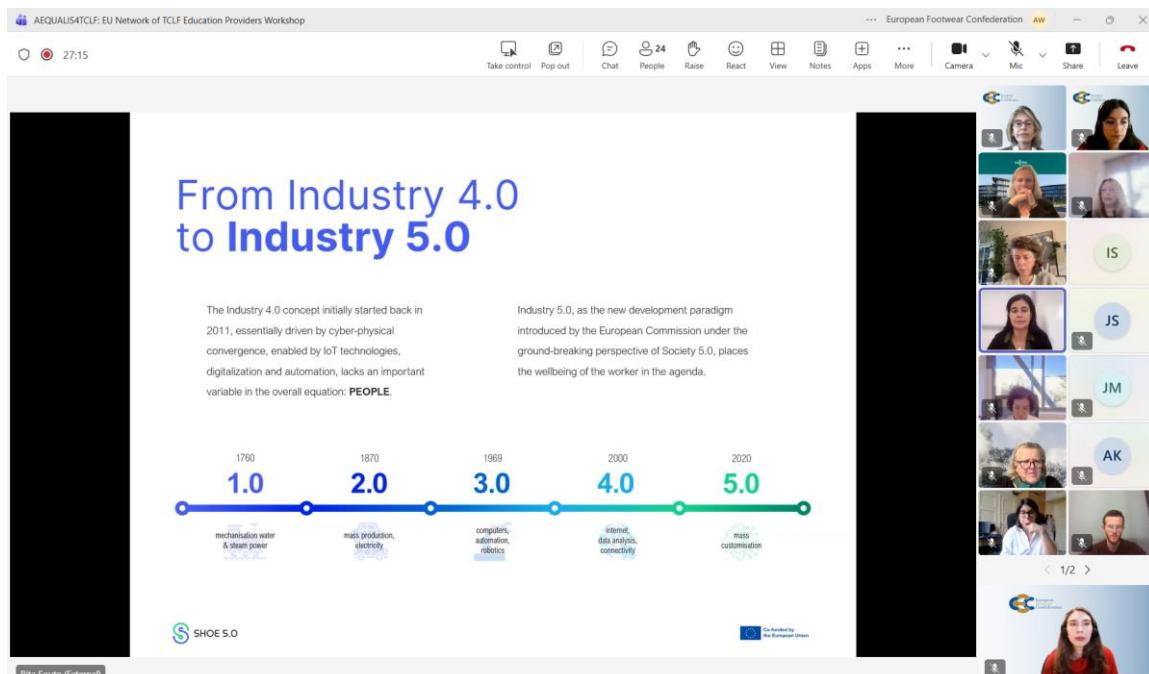
Upskilling Footwear Professionals for Industry 5.0: Insights from the Shoe 5.0 Initiative

Co-funded by the European Union

www.shoe50.eu

Rita Souto (External)

Shoe 5.0 presented for the METASKILLS4TCLF Network for TCLF Education Providers



From Industry 4.0 to Industry 5.0

The Industry 4.0 concept initially started back in 2011, essentially driven by cyber-physical convergence, enabled by IoT technologies, digitization and automation, lacks an important variable in the overall equation: **PEOPLE**.

Industry 5.0, as the new development paradigm introduced by the European Commission under the ground-breaking perspective of Society 5.0, places the wellbeing of the worker in the agenda.

1760: mechanisation water & steam power
1870: mass production, electricity
1969: computers, automation, robotics
2000: internet, data analysis, connectivity
2020: mass customisation

Shoe 5.0

Co-funded by the European Union

Rita Souto (External)

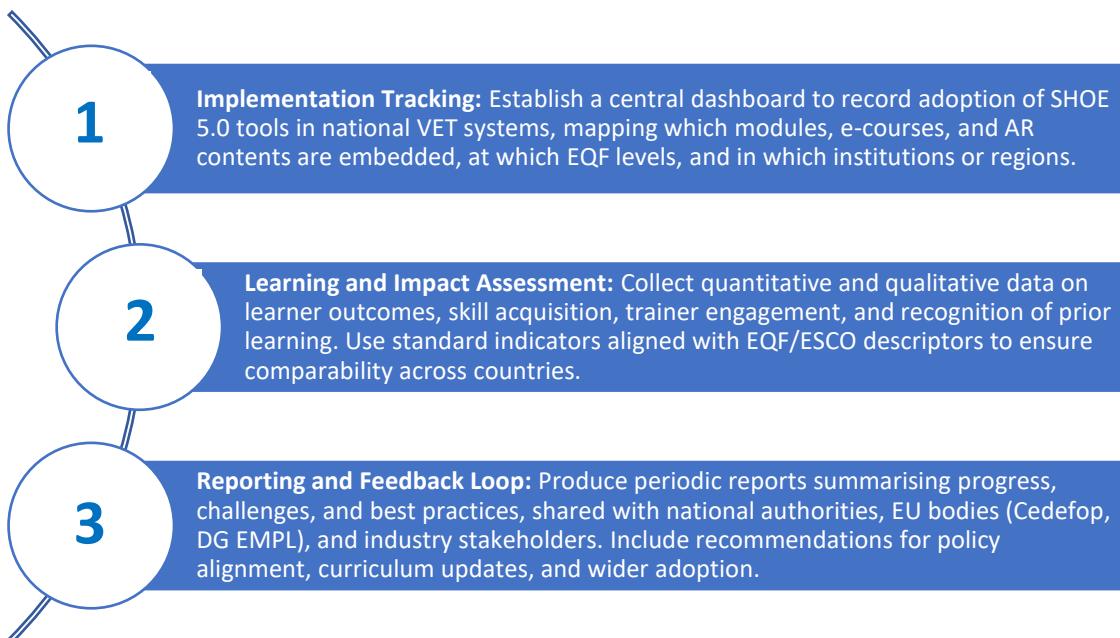
Shoe 5.0 presented for the AEQUALIS4TCLF Network of TCLF Education Providers

Opportunities and Barriers for Integration of the Shoe 5.0 results in Belgium

- Opportunities: the pan-European VET framework enables cross-border adoption, modular and competence-based content fits EQF/ESCO structures, and strong EU policy emphasis on digital skills, sustainability, and lifelong learning supports scalability. SHOE 5.0 can fill skills gaps in the footwear sector, supporting micro-credentials, adult learning, and reskilling.
- Barriers: regional/national variations in VET implementation, differing recognition procedures, limited digital infrastructure in smaller companies, and varying capacity of VET providers may slow uptake. Formal integration into national qualification catalogues may require alignment with national curricula and certification rules.

Monitoring and Reporting Mechanisms

A Monitoring and Reporting Mechanism for integrating SHOE 5.0 results across European countries can be structured around three key components. This mechanism ensures transparent, scalable, and comparable monitoring, supporting continuous improvement and long-term integration of SHOE 5.0 across Europe.



Timeline

The following timeline outlines the key steps and milestones for the integration of SHOE 5.0 results into European education and training systems. It highlights the sequence of activities from initial engagement with stakeholders, through adaptation and piloting of learning modules, to full implementation, monitoring, and evaluation. This structured approach ensures a coordinated, scalable, and sustainable adoption of the project's outputs across multiple countries and VET contexts.

Period	Activity	Responsible Partner
Month 1–2	Stakeholder mapping and engagement planning	All Partners
Month 3–4	Meetings and presentation of Shoe 5.0	All Partners
Month 5	National event/briefing sessions	Each Partner
Month 6	Collection of feedback and status update	Each Partner
Month 7–8	Final lobbying and proposal submission	All Partners
Month 9	Reporting and documentation of results	Each Partner

Success indicators

The following indicators will be used to monitor the progress and effectiveness of SHOE 5.0 integration across European education and training systems. They provide measurable evidence of stakeholder engagement, policy uptake, practical implementation, and institutional interest, helping to assess the project's impact and guide future scaling and sustainability efforts.

Key indicators include the number of meetings with national stakeholders, policy briefs or proposals submitted, the number of countries piloting SHOE 5.0 within their national qualification catalogues, and positive feedback or interest expressed by authorities.

- Number of meetings held with national stakeholders.
- Number of policy briefs or proposals submitted.
- At least 2 countries integrating or piloting Shoe 5.0 in their national catalogues.
- Positive feedback or interest expressed by national authorities.

Conclusion

Activity 5.2 is an important dissemination action, since it allows Shoe 5.0 to be used as a reference case of informal learning in the field of VET, raising awareness not of the I5.0 topic but also for the capability to use different ways of learning validated at national level. This activity helps reaching the objectives of the project since it promotes the project sustainability and potential to be exploited by more education providers.

The integration of SHOE 5.0 results into the Portuguese education and training system is both feasible and strategically relevant. Portugal's modular, competence-based VET framework, combined with the NQF, CNQ, and RVCC mechanisms, provides clear pathways for embedding the project's digital, AR-based, and flexible learning units at levels 2 to 5. While formal recognition and widespread adoption may require administrative alignment, capacity-building, and sustained funding, the project's outputs offer a valuable opportunity to modernise

footwear-related qualifications, support lifelong learning, and align national skills provision with Industry 5.0 priorities.

Spain offers highly favourable conditions for integrating Shoe 5.0 results, thanks to the ongoing modernisation of its VET system and its alignment with European skills strategies.

The main challenges lie in regulatory adaptation, territorial coordination, and institutional adoption, barriers that can be overcome through collaboration between VET authorities, teacher training networks, and industrial partners such as CTCR.

Italy offers a fertile ground for incorporating Shoe 5.0 results thanks to its competence-based qualification system, strong industrial districts, ongoing institutional reforms, and increasing emphasis on digital and green transitions. However, successful integration will require navigating regulatory complexity, supporting teacher readiness, and addressing the cultural and structural barriers inherent in a diversified and crafts-oriented sector.

With coordinated regional and national action - already initiated through Politecnico Calzaturiero - the project has significant potential to influence future training standards and professional profiles in the Italian Footwear and Leather Goods Sector system.

In conclusion, SHOE 5.0 results are well-positioned to support the European footwear sector by providing modular, competence-based, and digitally enhanced training aligned with EQF, ESCO, and ECVET frameworks. Their integration can strengthen cross-border recognition of skills, support lifelong learning, and address Industry 5.0 priorities such as digitalisation, sustainability, and human-centred production. While national variations in VET systems and provider capacity may pose challenges, the project's outputs offer a scalable, flexible, and policy-aligned solution to modernise footwear-related qualifications across Europe.

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- DualTrain E+ Project 2014-2016
- ICSAS E+ Project 2017-2020
- Ministero dell'Istruzione e del Merito (MIM): <https://www.mim.gov.it>
- Ministero del Lavoro e delle Politiche Sociali (Repertorio Nazionale dei Titoli di Istruzione e Formazione; Quadro Nazionale delle Qualificazioni (QNN)): <https://www.lavoro.gov.it>
- INAPP – Istituto Nazionale per l'Analisi delle Politiche Pubbliche (National Qualifications Framework of Italy): <https://www.inapp.gov.it>
- ANPAL – Agenzia Nazionale Politiche Attive del Lavoro: <https://www.anpal.gov.it>
- Regione del Veneto – Direzione Formazione e Istruzione: <https://www.regione.veneto.it/web/formazione>
- European Commission. *European Qualification Framework (EQF)*: <https://europa.eu/europass/en/european-qualifications-framework-eqf>
- Digital Competence Framework for Educators (DigCompEdu) [DigCompEdu - The Joint Research Centre: EU Science Hub](https://digcompedu.eu/)
- SEPIE (Servicio Español para la Internacionalización de la Educación) [Servicio Español para la Internacionalización de la Educación](https://www.mec.es/estadisticas/internacionalizacion-educacion/)
- INCUAL (Instituto Nacional de las Cualificaciones, España) [Bienvenido - Web incual](http://www.incual.es/)
- SEPE (Servicio Público de Empleo Estatal, España) [Servicio Público de Empleo Estatal](http://www.sepe.es/)
- [SEPE](http://www.sepe.es/)

- Ministerio de Educación, Formación Profesional y Deportes (España) [Bienvenido a la Web del Ministerio de Educación, Formación Profesional y Deportes | Ministerio de Educación, Formación Profesional y Deportes](#)
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