



Co-funded by
the European Union



SECOVE

Project number: 101056201

D6.4 Success stories and policy recommendations



SECOVE

SECOVE
SUSTAINABLE ENERGY CENTRES
FOR **VOCATIONAL EXCELLENCE**

<https://secove-project.eu>

D6.4 Success stories and policy recommendations M48

WP6: Promoting and Sustaining Quality and Innovation in VET

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Project acronym:	SECOVE
Project full title:	SUSTAINABLE ENERGY CENTRES OF VOCATIONAL EXCELLENCE
Grant agreement no.:	101056201
Responsible partner for deliverable:	CRES
Contributing partners:	P1, P2, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18 , P20, P21, P22
Author(s):	Eftychia Mavrou
Distribution level:	PU- Public
Total number of pages:	35
Version:	3.0
Language	English
Reviewed by:	
Status:	Delivered
Delivery date:	10.08.2026

Version control

Number	Date	Description
1	14/06/2026	First version uploaded to the portal
2	20/07/2026	Updated version uploaded to the portal
3	10/08/2026	Final version, including the comments of the peer review
4	19/10/2026	Including the comments of the PO



D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Table of Contents

1	Executive Summary	4
2	Success stories from the implementation of the innovation hubs	5
2.1	Operation of the Innovation Hub	5
2.2	The cooperation with industry	7
2.3	The organisation of VET student mobilities.....	9
2.4	The promotion of WBL.....	10
3	Challenges faced and proposed solutions.....	12
3.1	Operation of the Innovation Hub	12
3.2	Cooperation with the industry.....	14
3.3	Organization of vet student mobilities	17
3.4	Promotion of Work - Based Learning	18
4	Obtaining sustainability in the Hubs.....	20
4.1	Sustainability of the operation of the Innovation Hub.....	20
4.2	Sustainability of the cooperation with the industry.....	21
4.3	Sustainability of the VET student mobilities.....	22
4.4	Sustainability of the Work- Based- Learning	23
5	Policy recommendation.....	24



Abbreviations and Acronyms

CIOFS-FP	Centro Italiano Opere Femminili Salesiane – Formazione Professionale
CoVE	Centre of Vocational Excellence
ICT	Information and Communication Technologies
IH	Innovation Hubs
IoT	Internet of Things
ISEP	Instituto Superior de Engenharia do Porto
IT	Information Technology
MOOC	Massive Open Online Course
SECOVE	Sustainable Energy Centres of Vocational Excellence
SME	Small and Medium-sized Enterprise
SOLTEX	Solar Textiles
VET	Vocational Education and Training
VR	Virtual Reality
WP	Work Package

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

1 Executive Summary

Deliverable *D6.4 Success stories and policy recommendations* gathers the experience gained through the implementation of Work Package 6 (WP6) into one policy paper.

The primary objective of WP6 is to propose an educational structure that sustains quality and innovation within Vocational Education and Training (VET), equipping the future workforce with cutting-edge, market-relevant skills. As sustainable industries evolve, VET systems should become increasingly dynamic to keep pace with technological trends. Accordingly, WP6 supports the integration of state-of-the-art advancements into energy sector sustainability—focusing on both quality and innovation—while building robust networks and synergies among academic institutions, stakeholders, and industry players.

To maximize project impact, the main outputs of WP6 include:

- A collaboration platform acting as a facilitator for networking among VET staff, educators, researchers, and students.
- A defined cooperation model for national Innovation Hubs at a transnational level.
- The organization of national and transnational competitions in applied research, focusing on green, digital, and soft skills to promote sustainability in the energy sector.
- The active engagement of SMEs and industry in CoVEs and Innovation Hub activities.
- Students' mobility
- The integration of Work- Based- Learning (WBL) in the VET

The finalization of the Task raises questions: Have the targets been achieved? Have challenges been met? What are the partners, as experts after the implementation of the tasks described in WP6, proposing to overcome the challenges encountered and to establish the sustainability of this idea for the future?

These issues and other findings are gathered in this document, which presents the collection of success stories of (a) the operation of innovation hubs, (b) the cooperation between the VET system and the industry/ SMEs through the Hubs, (c) the organization of VET student mobilities and (d) the promotion of WBL (Work-Based Learning). Furthermore, the organization of applied research competitions on innovation is mentioned in several points, since it was a significant activity, which affected the operation of the hubs, and enhanced the cooperation of the industry through mentoring and supporting the student projects.

For the implementation of this document, besides the gathering of the partners' input on the operation of the Hub on the above-mentioned issues, interviews with stakeholders and beneficiaries of the WP were conducted. Furthermore, the D7.4 «Impact evaluation of innovation hubs» was used for the issuing of policy recommendations.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

2 Success stories from the implementation of the innovation hubs

In this chapter, the success stories of the following activities of the Innovation hubs are presented as mentioned by the partners who run the hubs and then analyzed and synthesized on common ground.

1. Operation of the innovation hub
2. The cooperation with industry
3. The organization of VET student mobilities
4. The promotion of WBL

2.1 Operation of the Innovation Hub

For the Centre for Research and Innovation in Building and Construction HUB in Slovakia, the most effective aspect of its operation was the establishment of a multi-stakeholder innovation ecosystem, which brought together VET providers, universities, research institutions, industry partners, and professional organizations. This structure enabled coordinated activities, joint problem-solving, and efficient knowledge exchange. The Hub functioned as:

- a connector between stakeholders,
- a demonstrator of innovative solutions, and
- an accelerator for skills development and innovation.

This integrated approach allowed the Hub to go beyond traditional educational activities and contribute to systemic change in the sector.

The same concept is recognized by the Italian Innovation Hub, and its role as a dynamic, collaborative ecosystem where vocational education, academic research, industrial innovation, and sustainable energy technologies converge is cited as the success story of the hub's overall operation. A remarkable achievement of this initiative was the development and deployment of the SECOVE Digital Twin platform, and the establishment of a dedicated educational laboratory hosted at Sardegna Ricerche.

A practical learning and experimentation environment was created by exploiting tools provided by the Hub (BIM models, IoT devices, real-time energy monitoring systems, and advanced data analytics) and was successfully used. This setup empowered students, trainers, and regional stakeholders to tackle real-world sustainability challenges. More specifically, the Digital Twin platform created in the Hub, enables the seamless monitoring and analysis of energy consumption, effectively supporting both day-to-day educational activities and applied research initiatives.

Looking ahead, the Hub has established a solid foundation for long-term sustainability. By leveraging the existing infrastructure and deep expertise of Sardegna Ricerche, it ensures that

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

the outputs developed under the SECOVE project will continue to drive skills development, innovation, and technology transfer well beyond the project's official lifecycle.

The Digital Transformation Lab at Politeknika Txorierri has successfully implemented an Innovation Hub focused on strengthening collaboration with industry, promoting continuous skills development, and integrating advanced technologies into vocational education and training. Its most notable achievement has been the creation of a specialization programme in Digital Transformation for IT and Automation students, developed together with partner companies. This programme combines training in IoT, cybersecurity, programming, data management, and AI with internship periods in companies, ensuring that students gain both technical expertise and direct exposure to real industrial environments. It was and continues to be used to train students and other workers interested in IOT and related technologies (Cybersecurity and AI).

The Hub of Flexible Solar Energy Application Lab in Greece, pointed out that the daily operation of the Hub, with the technological provisions and networking possibilities, cultivated immense inspiration, passion, and dedicated leadership among the trainers, who treated the Hub as a genuine startup ecosystem.

In addition, the integration of the SECOVE consortium deliverables as ready-to-use, foundational material provided immense functional efficiency. Instead of expending thousands of man-hours reinventing curricula or administrative frameworks, the team was able to deploy proven SECOVE modules immediately. This strategic shortcut allowed the Hub's leadership to focus entirely on high-value activities: student engagement, active mentoring, and industry networking.

The most successful aspect of operating the Technology-Driven Education Innovation Hub in Portugal was the integration of real industry challenges into the academic curriculum. The close involvement of the Vice-Rector of IPP ensured institutional backing, and the study visits to companies and municipalities provided hands-on learning experiences that students and teachers highly valued.

For the Entrepreneurship Academy HUB of Greece, the most successful element during the operation of the Innovation Hub has been the RISE Applied Research Competition, which acted as the flagship entrepreneurial activity of the Entrepreneurship Academy. The competition generated strong interest among VET learners and encouraged active participation in innovation and sustainability-related topics. Students worked on practical project ideas addressing real challenges connected to energy efficiency, renewable energy, artificial intelligence, automation and smart technologies. The competition successfully promoted entrepreneurial thinking, creativity and application-oriented learning, while strengthening both technical and transversal competences such as teamwork, communication and problem-solving.

Another important success factor was the combination of the competition with complementary learning and mentoring activities. The webinar series on business strategy, design thinking, business model development and marketing strategy supported students in developing

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

entrepreneurial and innovation management skills that could be directly applied to their projects. Teachers also played an active role in mentoring and supporting student teams throughout the process. In parallel, the involvement of external stakeholders and SMEs strengthened the practical relevance of the activities and reinforced the connection between VET education, sustainability and labor market needs.

An additional positive outcome was the strong participation of female students in the competition activities. Female participants represented the majority of students involved in the submitted projects, reflecting the inclusive character of the Hub and its contribution to promoting gender participation in innovation and sustainable energy-related fields.

Complementing these efforts, the Entrepreneurship Academy of Greece served as a highly effective incubator for promoting business acumen, sustainability, and hands-on learning within VET education. Through a targeted mix of webinars, mentoring sessions, and innovation-driven initiatives, the Hub fostered essential entrepreneurial, digital, and green skills among learners. Ultimately, this approach enhanced interaction among students, educators, and external partners, deeply embedding a culture of innovation across the entire VET community.

2.2 The cooperation with industry

The cooperation with the industry had interesting results from various aspects: it inspired students in the applied research competition, and in some cases, the student's projects surpassed the expectations of the industry, resulting to a continuing cooperation. Additionally, the provision of real- world case studies and/ or technologies contributed to the upskilling of the future work force, and helped industry to define its market needs. More detailed description of these as well as more benefits of the cooperation of the industry with the Hubs – which has been evaluated as one of the most successful activities- are described in the next text.

The strengthening of cooperation with industry and regional stakeholders resulted to the integration of advanced technologies into educational methodologies. It was supported by the promotion of applied research activities involving VET students. These contributed to increasing awareness of sustainable energy challenges, encouraging innovation-oriented learning, and supporting closer alignment between training provision and labour market needs. The most successful aspect of the Innovation Hub in Energy Efficiency of Buildings was the integration of vocational education, research, and innovation within a single collaborative environment. The cooperation with the industry in this case, resulted the development of the SECOVE Digital Twin platform and the establishment of the educational laboratory at Sardegna Ricerche, which provided a practical framework for testing innovative solutions, supporting applied learning, and promoting collaboration among students, trainers, researchers, and external stakeholders. The close connection with Sardegna Ricerche also facilitated access to expertise, facilities, and

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

technological resources, strengthening the Hub's capacity to support the green and digital transition.

The most successful aspect of the active participation of industry partners in education and training processes of the Centre for Research and Innovation in Building and Construction Hub was the result that knowledge transfer, as this was achieved through webinars, mentoring and other activities was relevant, up-to-date, and directly applied in practice.

The applied research competition was a good application of the cooperation of the Hubs, since it was used as a mean to connect the students with the industry. In Portugal, for example, 5 companies proposed real-world sustainable energy challenges and 20 Master's students developed solutions. Companies were so impressed by the students' prototypes that they requested to continue working with them. In addition, formal collaboration protocols were signed between IPP (ISEP) and industry, and a joint workshop with Energaia successfully brought together SMEs, public authorities and the academic community.

A key success story of the cooperation with industry within the Digital Transformation Hub has been the development of a "Smart School" model in partnership with a company. By installing an IoT-based monitoring system in the school building, the Hub has created a practical learning environment where students and other participants can install, configure, and use devices to monitor energy and material consumption. This allows learners to apply digital technologies to real sustainability challenges, directly supporting the objectives of the project while also improving their professional and transversal skills through a collaborative learning methodology called ETHAZI. Within this framework, students have developed very interesting projects and upskilled in the technical fields related to the Innovation Hub (IOT, Cybersecurity, programming and AI).

The HUB of Flexible Solar Energy Application Lab recognized the vital "human element" in investment dynamics. While private sector partners were initially attracted by the technical viability of the ideas, the actual commitment and engagement came when we shifted the focus to pitching the people—highlighting the resilience, adaptability, and execution capability of the students and teams behind those ideas. This human-centric approach proved highly persuasive to private capital.

Similarly, for the Entrepreneurship Academy HUB, the most effective element in the cooperation with industry has been the strong alignment between students' work and real market needs, which was highly valued by SMEs and industry partners. Companies responded very positively to the projects developed, particularly appreciating the creativity, practicality, and clear focus on sustainability demonstrated by the students. Solutions related to smart energy management, AI-based optimization, renewable energy applications, and energy efficiency stood out as especially relevant to current industry and environmental challenges.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

A key success factor was the ability of students to address real business problems with innovative and applicable ideas, showing that VET learners can contribute meaningfully to industry needs when they are provided with the right framework and support.

Through applied research competitions such as RISE, the Hub created continuous interaction between education and the business sector. These activities not only strengthened partnerships but also ensured that learning remained closely connected to real-world applications. This cooperation generated clear benefits for all parties involved. SMEs enhanced their innovation capacity by gaining access to fresh perspectives and entrepreneurial ideas brought by students, while students benefited from direct exposure to professional environments, gaining practical experience and building valuable networks.

At a broader level, this collaboration contributed to a stronger link between education and the labor market, creating a feedback loop in which industry needs inform VET provision, and VET delivers graduates equipped with relevant, up-to-date skills.

2.3 The organisation of VET student mobilities

The participation of VET students in SECOVE international activities provided valuable opportunities for intercultural exchange, exposure to different educational approaches, and interaction with peers and stakeholders from other European countries. Students particularly appreciated the possibility of presenting their projects and of learning about innovative practices related to sustainable energy and digital technologies.

The mobilities supported international exposure, exchange of good practices and the development of transversal skills. The organized workshops for the students using the SECOVE mobilities were highly appreciated for the hands-on, practical approach and the quality of the facilities available.

Furthermore, the mobility provided students with valuable opportunities to engage directly with industry-related environments and professionals. Activities such as the visit to the Faculty of Civil and Industrial Engineering at Sapienza University enabled participants to connect with cutting-edge research in sustainable building design and energy-efficient technologies, strengthening the link between academic knowledge and industry practice.

A key added value was the direct contact with professionals, whose contributions enriched the learning experience and reinforced the importance of collaboration between education and industry. These interactions created strong synergies, allowing students to better understand both technological developments and sector needs while establishing meaningful professional connections.

Equally effective was the use of innovative technologies, such as the Matterport VR platform, which allowed students to explore immersive digital replicas of real-world environments. This

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

experience demonstrated how advanced digital tools can support vocational education and open new pathways for collaboration between training institutions and industry.

Another major success factor was the hands-on, applied learning approach. This activity, led by industry professionals, combined entrepreneurship, prototyping, and green innovation, helping students understand how sustainable energy solutions are developed and applied within real business and regional innovation ecosystems.

Moreover, the structured programme—combining presentations, practical sessions, laboratory visits and reflection activities—facilitated continuous engagement and knowledge exchange, enhancing both technical and entrepreneurial skills.

This mobility not only strengthened the connection between VET education and industry needs but also fostered long-term synergies and collaboration opportunities between participants and stakeholders.

2.4 The promotion of WBL

During the implementation of the Innovation Hub on Energy Efficiency of Buildings, the most effective aspect of Work-Based Learning was the opportunity to connect training activities with real-world challenges related to sustainable energy, energy efficiency, and digital technologies. The use of practical projects, applied research activities, and Digital Twin technologies helped learners develop technical and problem-solving skills in authentic learning contexts.

At the Centre for Research and Innovation in Building and Construction Hub, WBL enabled students to gain practical, hands-on experience in real working environments, which significantly improved their understanding of industry processes and requirements. It also strengthened the link between theoretical knowledge and practical application.

The Technology-Driven Education Innovation Hub invited companies to submit real operational challenges in the field of sustainable energy, and assigned those challenges to Master's students. In that way, the Hub created a genuine work-based learning environment grounded in industry reality rather than simulated exercises. Students worked directly with company contacts, navigated real constraints, and were expected to deliver concrete prototypes and technical solutions, mirroring the dynamics of professional practice. The national evaluation event, attended by company representatives, stakeholders and academic partners, gave students a high-stakes public forum in which to present their work, further reinforcing the professional dimension of the experience. The response from companies was telling: several requested continued access to the prototypes developed, and some expressed interest in pursuing the collaboration beyond the competition.

To reinforce WBL, the Hub organized study and work visits, which included visits to municipalities and one of the largest electric sector companies globally. This provided students

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

and teachers with direct exposure to industrial-scale sustainable energy operations. These visits worked particularly well because they were structured around specific learning objectives and followed up with a comprehensive report, ensuring that the experience translated into documented knowledge rather than remaining a one-off event.

The STEAM summer school for VET trainees and the workshops for VET teachers, organised in partnership with one of the most recognised VET schools in the country, also proved effective in embedding work-based approaches into teaching practice — not just in student learning. Equipping teachers with WBL methodologies created a multiplier effect that extended the impact of the Hub beyond its direct participants.

The Digital Transformation specialization program of the respective Hub, took full advantage of the WBL approach proposed in SECOVE project, since they organized a “dual system” for their students, which spent part of the training in the school and part working in a company in projects related with what they are learning at the moment.

The absolute most effective strategy for implementing Work-Based Learning (WBL) within the SOLTEX Innovation Hub was the heavy integration of advanced digital tools, specifically the Augmented Reality (AR) training modules developed and delivered by the SECOVE project. Rather than relying solely on traditional, physical workplace placements—which are often difficult to secure—we utilized these AR environments to simulate highly complex, real-world sustainable energy applications directly within the Hub's facilities. This approach provided students with an immediate, immersive, and highly practical hands-on WBL experience. It allowed trainees to interact with advanced technical scenarios, troubleshoot mechanical issues, and visualize energy flows in a risk-free, high-fidelity digital space, effectively bridging the critical gap between theoretical classroom instruction and the practical realities of a modern industrial worksite.

One of the elements that worked best for the Entrepreneurship Academy HUB was the development of a comprehensive and highly structured guide for the implementation of WBL, based on the SECOVE traineeship model. This guide provided clear step-by-step instructions covering all phases of the process (before, during, and after the traineeship), including templates, tools, and defined roles for all actors involved (VET providers, companies, mentors, and students).

In particular, the use of structured tools such as the Traineeship Plan, Learning Agreements, logbooks, and assessment templates ensured that the process is well-guided, transparent, and easy to follow for all participants. The model promotes strong collaboration between VET institutions and companies, including structured matching processes, mentoring, and continuous communication. This helps strengthen long-term relationships and ensured that traineeships are aligned with real labour market needs.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Finally, some collaboration agreements have been established during the project between VET centres and industry partners, creating a solid foundation for future cooperation and the continuation of joint activities.

3 Challenges faced and proposed solutions

3.1 Operation of the Innovation Hub

The main challenge for the Centre for Research and Innovation in Building and Construction Hub was ensuring long-term engagement and commitment of stakeholders, particularly balancing the different expectations, capacities, and priorities of academic institutions and industry partners. In addition, organisational and administrative differences between institutions sometimes created barriers to smooth implementation of activities. Limited time availability of industry experts also affected the intensity of cooperation.

To address these challenges, it is recommended to:

- develop clear governance structures and defined roles,
- formalise partnerships through agreements and strategic frameworks,
- introduce flexible participation models adapted to stakeholder capacities,
- strengthen coordination through dedicated management structures,
- use digital tools to facilitate communication and collaboration.

Similarly, for the Innovation Hub on Energy Efficiency of Buildings, the challenge is to transform the initial interest from industry and academic partners into sustained, active participation. This requires continuous follow-up and personalized outreach, which is a significant challenge. Companies, in particular, faced competing internal priorities that limited the time their representatives could dedicate to Hub activities, making it difficult to keep them engaged between events. On the academic side, coordinating across different departments, schools and partner organisations within a large polytechnic institution introduced bureaucratic complexity that occasionally slowed decision-making and the deployment of activities.

A second significant challenge was the alignment of timeframes: academic calendars, company availability and project deadlines did not always coincide, creating pressure on the team to com-

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

press activities or reorganise schedules at short notice. This was felt especially during the preparation of the applied research competition and the coordination of workshops that required simultaneous availability from students, teachers and company mentors.

Finally, the institutional dimension presented its own difficulties. Embedding a new structure, the Innovation Hub, within an established institution like IPP required navigating existing governance processes and building internal awareness of the Hub's purpose and value. Ensuring that the Hub was perceived not as an isolated project activity but as a lasting institutional asset demanded deliberate effort in communication and stakeholder management at the highest levels, including engagement with the Vice-Rector.

A proposed solution for the above-mentioned challenges indicated by the Technology-Driven Education Innovation Hub is to establish a dedicated internal coordination team for the Hub, with a clear mandate and simplified administrative procedures, which would significantly reduce friction. Designating a permanent Hub coordinator role within IPP would ensure continuity and responsiveness. Regular internal reporting meetings would also help anticipate bottlenecks.

For the Digital Transformation - Internet of Things Hub, the rapid incorporation of new technologies such as AI was a significant challenge. Additionally, the need to align educational programmes with the diverse needs of companies. To address these issues, the Hub emphasizes close and honest collaboration with industry partners to improve the training facilities and capabilities, the careful selection of long-term alliances, and continuous curriculum. These challenges are still considered a work in progress.

For the HUB of Flexible Solar Energy Application Lab of Greece, the most severe and restrictive challenge has been systemic bureaucratic inertia, characterized by a complete lack of support, guidance, or interest from external public authorities, combined with a highly frustrating lack of resource allocation from the university's own internal Technology Transfer Office (TTO). This institutional apathy forces the Hub to operate in a high-friction environment, relying almost entirely on existing legacy infrastructure and the unpaid, voluntary dedication of professors, trainers, and students. The ultimate proof of the Hub's unrecognized internal value is that it has actively attracted acquisition interest from the TTO of a competing university, highlighting a critical failure of internal institutional support.

The proposal to overcome this institutional bottleneck is a strategic pivot away from relying on internal university funding or local public authorities. Moving forward, the Hub will aggressively bypass these traditional channels by pivoting entirely toward private capital generation and high-level competitive funding. We are proposing a roadmap that targets national development funds (such as the NSRF) and European funding mechanisms (specifically the Horizon EIC Pathfinder), leveraging the advanced grant-writing capabilities of our team to secure independent, top-tier financing that operates outside the limitations of our local TTO.

For the Entrepreneurship Academy HUB of Greece, one of the biggest challenges has been ensuring the active engagement, motivation, and sustained collaboration of all target groups

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

involved in the project. In particular, it has been proven challenging to effectively involve and maintain the interest of the different stakeholders, including VET students, teachers, trainers, and industry representatives. Each group has different expectations, priorities, levels of availability, and ways of working, which has sometimes made coordination and collaboration more complex than initially anticipated.

Another important difficulty has been encouraging continuous participation rather than occasional involvement. While many stakeholders showed initial interest in the Innovation Hub activities, maintaining long-term commitment and fostering proactive participation required constant communication, follow-up actions, and the creation of meaningful opportunities for interaction and cooperation.

In addition, bridging the gap between the educational sector and industry stakeholders has also represented a significant challenge. Aligning the needs of companies with the learning objectives and capacities of VET institutions required continuous dialogue, flexibility, and adaptation from all parties involved.

The proposed initiative to overcome these challenges is to focus on continuing to strengthen and further enhance the established communication strategy in order to ensure more effective outreach, greater stakeholder participation, and long-term engagement.

Implementing targeted campaigns will be maintained as an effective strategy, tailoring social media content to the specific needs and interests of different audience groups. In addition, organising more webinars—similar to the ones held to launch the Hub—would help sustain engagement and visibility over time.

Another proposed initiative is to place stronger focus on engaging industry stakeholders by clearly communicating the benefits of participating (or continuing to participate) in the Innovation Hub. This includes highlighting the opportunity to access new, innovative ideas developed by young talents that are closely aligned with current market needs, thereby fostering mutually beneficial partnerships.

Furthermore, increasing the number of face-to-face activities and mentoring could significantly enhance engagement, particularly among students and teachers. These interactions would help participants better understand the concept and value of Innovation Hubs, while allowing communication styles and messages to be adapted more effectively to each target group, contributing simultaneously to mainstreaming the positive impact of the IH.

3.2 Cooperation with the industry

For the Innovation Hub on Energy Efficiency of Buildings in Italy, the main challenge faced during the cooperation with the industry was coordinating the different actors involved in the Hub, including VET providers, research organisations, companies, and public stakeholders, since each

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

one was operating with different priorities, timelines, and organisational procedures. Another challenge was ensuring the effective adoption of innovative technologies such as Digital Twin systems by users with different levels of technical expertise, requiring additional support and capacity-building activities.

A proposed solution for this is to build on the positive results achieved so far, future activities could focus on further strengthening stakeholder engagement, knowledge sharing, and collaboration opportunities. Continued training, dissemination activities, and exchange of experiences would support the wider uptake of innovative approaches and contribute to the long-term development of the Hub.

For the Centre for Research and Innovation in Building and Construction HUB, the main challenge was the limited availability of industry experts, who often face high workload and time constraints. Aligning academic schedules with business operations also proved challenging.

The proposed activities are to introduce incentives for industry engagement (visibility, access to talent), to develop modular and flexible cooperation formats and to strengthen communication and planning between partners.

For the Technology-Driven Education Innovation Hub, the main challenge was motivating companies to commit time and internal resources to the competition and to the definition of meaningful challenges. Companies' participation required ongoing follow-up by the IPP team, and the short timeline sometimes limited the depth of industry engagement. Aligning academic calendars with companies' operational schedules also proved complex.

Establishing a structured "challenge pipeline" at the start of each academic year – where companies register their challenges in advance through the SECOVE portal – would reduce last-minute coordination pressure. Incentivising companies with recognition (certificates, media coverage) and clear intellectual property agreements would also increase their willingness to participate.

Digital Transformation - Internet of Things Hub faced a similar problem, the continuous engagement of the SMEs: most companies are motivated for short-term economic reasons. In order to face this challenge, the Hub looked for alliances with companies that were also interested in helping the Hub to improve our training capabilities in a medium-long term. The Hub had honest conversations with companies about the specific needs and have chosen what we thought were the best options as collaborative partners. A selective and careful procedure for choosing the interested parties for the cooperation, based on the sharing of the needs and offerings of the Hub and the SMEs resulted to engaging the most suitable participants that supported the activity with success.

For the HUB of Flexible Solar Energy Application Lab, the primary hurdle was the economic reality of the regional market: the vast majority of our industrial representatives, particularly the SMEs, operate with relatively low capitalization. Consequently, they exhibited a strong

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

reluctance to provide direct, liquid financial investments into the Hub or its startups. Instead, they vastly preferred to offer in-kind contributions, such as dedicating their time, offering technical consultancy, or providing access to equipment. While valuable, this creates a severe challenge when the Hub requires actual cash flow to maintain daily operations and keep its "head above water."

To overcome the lack of direct cash investment from smaller partners, the Hub proposes the formal establishment of an "Industrial Advisory Board." This structure allows us to formalize, capture, and showcase the immense non-financial value (mentorship, market access, consultancy) these SMEs provide. More importantly, by integrating these diverse industry players into a formal, structured board, we instantly elevate the prestige and market-validation of the Hub. We can then leverage the collective credibility of this Advisory Board to confidently approach larger, highly capitalized institutional players (VCs and international funds) who require proof of existing market integration before committing serious financial resources.

For the Entrepreneurship Academy Hub, the main challenge in cooperating with industry was time constraints. Business representatives often have demanding schedules, which can limit their availability to engage consistently in collaborative activities within the Innovation Hub.

In addition, it was sometimes difficult to clearly communicate the added value of participation. For some companies—particularly SMEs—it was not always immediately evident how taking part in applied research competitions, innovation activities, or Hub events would translate into tangible benefits for their operations.

As a result, encouraging sustained engagement required additional effort, both in terms of flexibility in collaboration formats and in more effectively demonstrating the practical outcomes and long-term value of their involvement.

To further strengthen collaboration and stakeholder engagement, building mutually beneficial (win-win) cooperation models that clearly demonstrate value for both industry partners and VET institutions is proposed.

First, making greater efforts to better align project timelines and activities with industry schedules can significantly improve participation and engagement. Organizing events and collaboration opportunities that fit industry schedules—such as flexible deadlines or shorter, well-structured engagements—can significantly improve participation.

Second, it is important to increase motivation among businesses by clearly showcasing the tangible benefits of their involvement. This includes highlighting concrete examples of successful outcomes, such as results from applied research competitions like RISE, where students have developed innovative solutions addressing real-world challenges. Demonstrating these success stories can help companies better understand the added value of participation.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Furthermore, fostering continuity beyond isolated activities is key. To maximize impact, promising ideas generated through competitions and collaborative projects should evolve into longer-term initiatives, allowing for further development, implementation, and potential commercialization. This approach would enhance both the relevance and sustainability of the collaboration outcomes.

3.3 Organization of vet student mobilities

The student mobilities were not organized by all the Hubs, only the ones which were created or operated in VETs- not the ones in Universities.

For the Innovation Hub on Energy Efficiency of Buildings, the main challenge for this activity was coordinating logistical and organizational aspects. As a proposition, future activities could benefit from continued cooperation among partners, and the sharing of organizational practices that facilitate student participation and preparation before mobility experiences.

Similarly, the Centre for Research and Innovation in Building and Construction Hub noticed the administrative complexity and coordination and a solution could be the streamlining procedures and improving the coordination tools.

For the Technology-Driven Education Innovation Hub, the coordination of international student mobility required significant advance planning and administrative effort, particularly regarding visa procedures, accommodation, and alignment of academic programmes across partner institutions. Differences in academic calendars between partner countries sometimes restricted the timing of mobility activities. As a solution- proposed is the creation of a shared academic calendar among the institutions that are taking part in the mobilities and establishing an agreed-upon mobility window would reduce scheduling conflicts. Pre-agreed hosting protocols and a shared checklist for administrative requirements (visa, insurance, accommodation) would streamline the process for future mobility activities.

For the Entrepreneurship Academy Hub, the main challenge was again the alignment of schedules and availability between students and company representatives. Coordinating timelines for joint activities proved particularly difficult, as industry partners often have demanding workloads and limited flexibility, making it hard to match their availability with academic calendars.

In addition, fostering long-term collaboration—such as internships and work-based learning opportunities—was also challenging. The structure of the mobility programme, which included multiple visits and short-term activities, made it difficult to identify the right timing and conditions for all stakeholders to come together and develop sustained, joint initiatives.

Although the coordination challenges were successfully managed during the implementation of the mobility activities, several improvement measures were identified to further strengthen

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

cooperation with industry partners. A more flexible scheduling approach could improve coordination between VET institutions, students and companies, particularly regarding the planning of visits, workshops and joint activities.

In addition, the organisation of targeted co-creation sessions involving students, teachers and company representatives could further support the development of long-term collaboration. These activities would allow participants to jointly discuss real industry challenges and explore opportunities for future applied projects, internships or work-based learning activities. Such an approach could strengthen the continuity of cooperation beyond short-term mobility activities and contribute to more sustainable collaboration between VET education and industry stakeholders.

3.4 Promotion of Work - Based Learning

The Digital transformation Hub noticed that sometimes is not easy to align company needs and activity with the training program, as in its daily activities each company has particular procedures and uses different technologies and brands. The students are trained in the most valuable technical and transversal competences, but it's difficult to teach them everything a company may need. As an alternative, there was a close collaboration with companies for the definition of our training program objectives and curriculum.

For the Innovation Hub on Energy Efficiency of Buildings, the key challenge was adapting Work-Based Learning activities to the evolving context of sustainable energy and digital innovation, ensuring that educational experiences remained relevant and responsive to emerging skills needs. A solution could be to build on existing collaborations. In that way, future activities could further strengthen the integration between training providers and external stakeholders through regular exchanges, practical projects, and opportunities for joint experimentation and knowledge sharing.

For the Centre for Research and Innovation in Building and Construction Hub, the main challenge was the limited capacity of companies to provide placements, as well as the need for structured supervision and coordination. The proposed solutions are to develop structured WBL frameworks, to provide incentives for companies, and to strengthen coordination between education providers and industry.

For the Technology-Driven Education Innovation Hub, the main challenge was to ensure that company mentors had sufficient time and pedagogical guidance to support students effectively. Some company representatives were enthusiastic about the outcomes but had limited availability during the project phases, which required the IPP team to act as intermediaries more than initially planned. It is proposed that providing company mentors with a short orientation on WBL pedagogy and recognizing their contribution formally (e.g., through certificates or public acknowledgement at events) would increase commitment. Structuring the WBL timeline with

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

clear milestones and check-in points would also reduce the coordination burden on the academic team.

For the Hub of Flexible Solar Energy Application Lab, the most significant operational hurdle in executing a traditional WBL framework was securing dedicated time, personnel, and financial resources from our local industry partners to physically host students on-site. As previously noted, the regional industrial ecosystem relies heavily on SMEs with limited capitalization and tight operational margins. Consequently, these companies simply do not have the surplus workforce capacity or the financial flexibility to safely and effectively manage, mentor, and supervise cohorts of VET students on their actual factory floors or project sites for extended periods.

To overcome the physical and economic limitations of our industrial partners, it is proposed to aggressively expand the Hub's reliance on advanced digital simulations. By continuing to leverage and refine the AR modules, we can create a highly scalable, in-house WBL alternative. This digital-first proposal ensures that students still receive the critical, practical exposure required for their technical disciplines without placing an unsustainable administrative or financial burden on local SMEs. It effectively bypasses the logistical bottleneck of physical placements while still delivering a rigorous, industry-relevant training experience.

For the Entrepreneurship Academy hub, the biggest challenge was moving from the planning phase to the actual implementation of traineeships and activities. This proved difficult mainly due to time constraints faced by the participating organizations and the limited availability and engagement of stakeholders, particularly companies. While there was strong interest at a conceptual level, ensuring consistent commitment and coordination among all parties involved was more complex in practice.

As a result, transitioning from structured planning and agreements to hands-on, real-life implementation of Work-Based Learning activities required significant effort and remains the main challenge.

To address these challenges, it would be highly beneficial to organise a dedicated webinar aimed at presenting and promoting the Trainer's Guide on the development of entrepreneurial skills through Work-Based Learning. Promoting it more actively would help companies better visualise the process of hosting traineeships and collaborating with VET students, reducing uncertainty and increasing their willingness to participate.

In addition, a more strategic approach would be to link Work-Based Learning with existing activities such as applied research competitions (e.g., RISE Competition). These competitions can serve as an effective entry point for companies to engage with students. By participating as jury members, companies can directly observe students' skills, creativity, and potential. This experience can then be leveraged to establish targeted Work-Based Learning agreements with VET centres.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Furthermore, these collaborations could be structured around specific, time-defined projects emerging from the competitions, allowing companies to transform promising ideas into practical internship or work-based learning opportunities. This approach would make the collaboration more concrete, relevant, and manageable for all parties.

4 Obtaining sustainability in the Hubs

4.1 Sustainability of the operation of the Innovation Hub

The Digital Transformation - Internet of Things Hub secures the sustainability of its activities by continuing to use it as another training resource for students and workers. In that way, the Hub enhances and upgrades Politeknika Txorrieri's educational services, and the financial resources needed for its operation will come from the regular income as a school.

For the Innovation Hub on Energy Efficiency of Buildings, the sustainability will be ensured through the continuation of the operation of the SECOVE Digital Twin platform. This platform attracted the interest of the students, the engagement of the stakeholders and established a foundation for long-term sustainability by leveraging the existing infrastructure and expertise of Sardegna Ricerche.

For the Centre for Research and Innovation in Building and Construction Hub, sustainability can be achieved by embedding the Hub within existing institutional structures (e.g. lifelong learning centres), ensuring long-term strategic commitment of key partners, diversifying funding sources (EU projects, national funding, private sector contributions) and aligning activities with policy priorities such as the European Green Deal and digital transformation. A key success factor is the integration of the Hub into regional innovation and skills ecosystems.

For the Technology-Driven Education Innovation Hub, sustainability will be ensured through the Strategic Plan developed by IPP, which anchors the Hub's activities within IPP's long-term internationalisation and sustainability strategies. The meeting with the Vice-Rector confirmed institutional commitment. Embedding the Hub into IPP's regular curriculum (micro-credentials, MOOC development, VR modules) and maintaining formal protocols with industry partners will secure its operation beyond the SECOVE project's funding period.

For the Hub of Flexible Solar Energy Application Lab, sustainability will be completely decoupled from internal university budgets. It will be secured through a dual-pillar financial model: first, through the continuous acquisition of external, highly competitive European grants (acting as

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

operational baseline funding), and second, through private venture capital and equity streams generated by the successful commercialization and spin-off of the Hub's own tech startup incubator projects.

For the Entrepreneurship Academy Hub, sustainability is ensured through its integration into the long-term strategic priorities of the participating organisations. During the implementation of SECOVE, the Hub established its core operational elements, including learning resources, stakeholder networks, mentoring activities and collaboration mechanisms, which can continue beyond the project's duration. Following the completion of the project, the Hub will continue to evolve through the integration of new training materials, methodologies and practices developed within future European and national initiatives involving the partner organisations. In parallel, the network established among SMEs, VET providers, teachers, mentors and learners will support the continuation of collaboration and innovation-oriented activities. The SECOVE digital platform also contributes to sustainability by ensuring continuous access to educational resources, dissemination material and Hub-related activities.

In addition, IDEC S.A. and SAEK DELTA 360 have committed to maintaining and updating the Hub's content and services, while dedicated staff members from both organisations have been allocated to support its operation and integration into their long-term educational and innovation activities.

4.2 Sustainability of the cooperation with the industry

The Digital Transformation - IoT Hub proposed to sustain the cooperation with the industry by exploiting the success which resulted from the implementation of this Task. More specifically, by providing the companies already engaged in the SECOVE project, with workers trained in the technologies they need to compete for projects (for example "Smart "cities and buildings) that require personnel qualified in IoT, cybersecurity and AI competences. This provides a win-win situation since the students are becoming an essential part of the future work force, and the companies/ industry reinforces their personnel with well- trained in the necessary skills candidates.

The Centre for Research and Innovation in Building and Construction Hub encourages long-term partnerships, is embedding cooperation into curricula, and is maintaining regular interaction through events and joint activities. As a conclusion of the implementation of this task, the Hub underlines that the sustainable cooperation requires mutual benefits and shared ownership.

In the Technology-Driven Education Innovation Hub, the signed collaboration protocols between IPP/ISEP and industry provide a formal framework for sustained cooperation. The annual applied research competition will be embedded into the curriculum of Master's programmes in sustainable energy and engineering. The MOOC being developed with 5 companies will further anchor

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

industry participation in the Hub's activities. Regional stakeholder networks (municipalities, En-ergaia, sector associations) will be maintained through regular networking events.

For the Hub of Flexible Solar Energy Application Lab, the formal integration of these partners into the Industrial Advisory Board is the sustainability mechanism itself. It transforms casual, project-by-project interactions into a permanent, structured, and mutually beneficial govern-ance relationship that ensures continuous, long-term engagement from the private sector.

The sustainability of cooperation within the Entrepreneurship Academy Hub can be ensured through the establishment of continuous and structured collaboration with SMEs, industry part-ners and other stakeholders. Active industry engagement is essential for maintaining the prac-tical relevance of the Hub's activities and strengthening the connection between VET education and labour market needs.

Companies can contribute through participation in applied research competitions, mentoring activities, workshops, webinars and networking events, while also providing practical insights related to sustainability and entrepreneurship. Such involvement supports learners in under-standing real market challenges and promotes application-oriented learning approaches.

In parallel, maintaining a stable network of external stakeholders through regular communica-tion and collaborative activities is important for ensuring long-term engagement. The develop-ment of partnerships at both national and European level can further support knowledge ex-change, dissemination of good practices and the creation of future cooperation opportunities connected to innovation and sustainable development.

4.3 Sustainability of the VET student mobilities

The Digital Transformation - IoT Hub is planning to provide and sustain student mobilities by mentoring the students and their mobility closely and making sure they provide added value to the hosting companies besides improving their skills and competences.

For the Innovation Hub on Energy Efficiency of Buildings, the sustainability of VET student mo-bilities can be supported through continued participation in European cooperation initiatives, the strengthening of partnerships within the SECOVE network, and the integration of interna-tional experiences into the regular activities of the Hub.

The Centre for Research and Innovation in Building and Construction HUB considers to embed mobilities into long-term institutional partnerships, while the Technology-Driven Education In-novation Hub ensures the sustainability of the mobilities through the internationalization agree-ment signed between CIOFS-FP and ISEP for student work placements. Through this formal framework for sustained mobility, IPP will continue to encourage and support student to use the mobility which will be provided within its internationalisation strategy. Furthermore, the Hub

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

will seek Erasmus+ funding to support transnational placements in the sustainable energy sector beyond the SECOVE project lifecycle.

In the Entrepreneurship Academy Hub, the sustainability of VET student mobilities can be ensured by reinforcing long-term cooperation frameworks established during the SECOVE project. In particular, collaboration between partner countries will continue through the SECOVE Innovation Hubs and national Centres of Vocational Excellence (CoVEs), where stakeholders are already engaged in discussions to maintain and expand joint activities beyond the project's lifetime.

The participation in the SECOVE transnational network has laid the initial foundations for sustainability by connecting students, teachers, SMEs, and institutions within a broader European ecosystem focused on sustainable energy and VET excellence. Through mobility activities, international exchanges, and collaboration with partners across Europe, participants have gained valuable exposure to innovative teaching methods, applied research practices, entrepreneurship approaches, and green technologies. These experiences foster long-lasting relationships and shared practices that support the continuation of mobility programmes.

At both regional and European levels, mobility initiatives can be sustained by maintaining active networks and continuing joint activities such as internships, collaborative projects, and exchanges of good practices. Integrating mobility into the regular operations of VET institutions and linking it with industry cooperation will further ensure its continuity.

4.4 Sustainability of the Work- Based- Learning

Companies are very interested in bringing in talented people with strong technical skills. The Digital Transformation – IoT Hub proposes the collaboration with the Hub for the training of the students at all levels through the WBL as one of the best solutions the companies can have, in order to secure well- trained work force for the future. This theory in action applied in all sectors, especially in the most qualified and worker demanding sectors, such as the IoT/ AI sector, which is highly evolving and innovating, and is related to this Innovation Hub.

The sustainability of Work-Based Learning activities in the Innovation Hub on Energy Efficiency of Buildings can be supported through the continued involvement of companies, research organisations, and stakeholders within the Hub ecosystem. The use of practical methodologies, applied projects, and digital tools such as the Digital Twin platform will continue to provide opportunities for experiential learning and skills development aligned with labour market needs.

The Centre for Research and Innovation in Building and Construction Hub proposes the integration of WBL into the existing curricula, the establishment of long-term agreements with companies, and the provision of continuous support from policy and funding mechanisms.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

In the Technology-Driven Education Innovation Hub the WBL will be sustained by embedding the applied research competition model into the regular curriculum of Master's programmes at ISEP, with companies enrolling their challenges annually through the SECOVE portal. The MOOC being developed in collaboration with 5 companies will serve as a permanent WBL resource. The formal protocols with industry and the regional stakeholder network (municipalities, Energaia, sector associations) will ensure a continued pipeline of real-world WBL opportunities for students.

In the HUB of Flexible Solar Energy Application Lab, the sustainability for the WBL initiatives will be achieved through a two-pronged approach. First, by establishing a protocol for maintaining, updating, and expanding the digital AR infrastructure, ensuring the simulated WBL environments remain at the cutting edge of sustainable energy technology. Second, by permanently embedding WBL criteria directly into the DNA of the Hub's highly successful applied research competitions. By mandating that future student projects must include a practical, industry-validated component or digital simulation, WBL ceases to be an isolated activity and becomes a self-sustaining, foundational requirement of the Hub's core operational output.

For the Entrepreneurship Academy Hub, the sustainability of the promotion of Work-Based Learning within the Innovation Hub can be achieved by systematically embedding WBL into entrepreneurial training programmes and maintaining continuous, structured cooperation with industry partners. Integrating WBL as a core component of entrepreneurship education ensures that it becomes a regular and expected part of the learning pathway, rather than a one-off activity. This allows students to continuously engage with real-world challenges and strengthens the practical relevance of the training offered by the Hub. Finally, continuously showcasing successful examples, student outcomes, and benefits for companies will further support the promotion of WBL, encouraging more stakeholders to participate.

5 Policy recommendations

5.1 Policy background and Key Findings

The implementation of the Innovation Hubs created in the frame of SECOVE project provides a scalable and transferable model for modernizing vocational education and training systems. As mentioned in the literature review made by Flego & Tei (Flego and Tei, 2025) "IHs serve as intermediary entities across different phases of innovative processes, supporting dynamic development and competitiveness (Prajogo et al, 2006 & Schiuma et al 2023). Jiménez and Zheng (Jiménez and Zheng, 2021) describe IHs as relational spaces that promote collaboration among diverse parties (Howells, 2006) and act as nodes within knowledge networks, facilitating the exchange of information, skills, and resources (O'Hare et al, 2008 & Schmidt and Brinks,

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

2017). They enable the transformation of knowledge and ideas into value (Dvir and Pasher, 2004 & Engel, 2014)”.

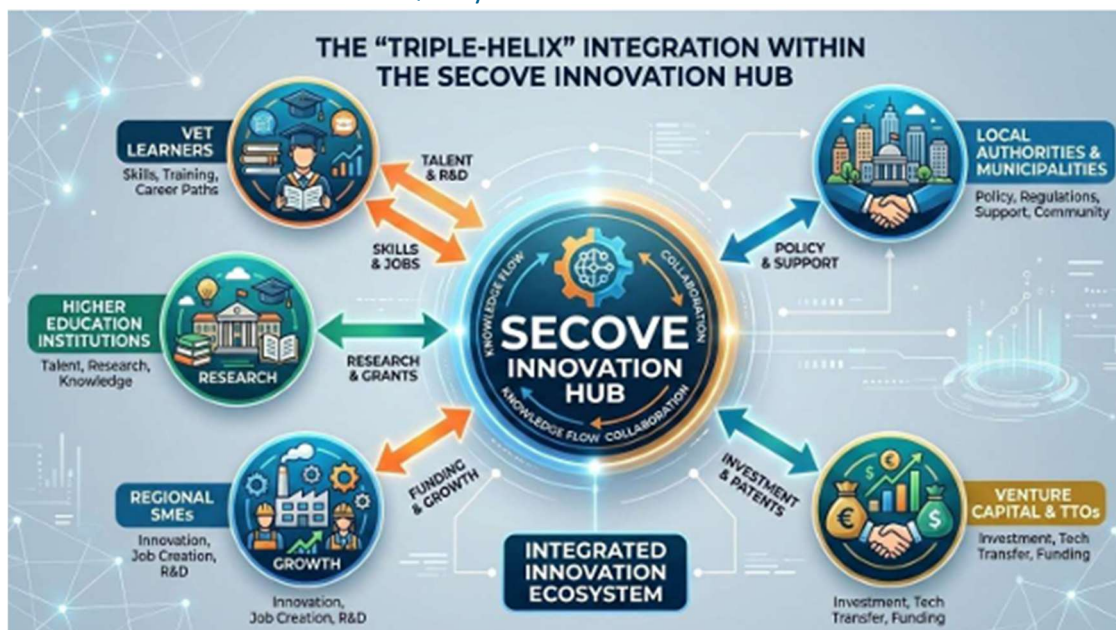
In the literature, IHs are identified as dynamic catalysts for sustainable development and competitiveness. Positioned within global networks, these hubs operate as relational and collaborative spaces that enable cross-border knowledge exchange and foster open innovation (Flego and Tei, 2025). Also, in the same paper is mentioned that “IHs emphasize co-working, lifelong learning, and skill development—offering environments conducive to capacity building, mentorship, and community-driven innovation”, while the findings of the research “highlight a consistent gap between the social mission of this and the market-oriented nature of their performance indicators. Despite their stated commitment to social impact and sustainability, IHs often lack structured mechanisms with which to measure or communicate their broader social and environmental value (Flego and Tei, 2025).

The work implemented in the frame of SECOVE project aims to fill in this consistent gap and the experience gained resulted in the policy recommendation that proposes a methodology and a framework of implementation with structured mechanisms which can be used by the IHs to develop, strengthen and communicate their broader social, educational and environmental value.

Under the frame of the SECOVE project, six (6) Innovation Hubs were created across Europe focusing on smart/ digital and green energy sectors. Several activities and tasks were planned and performed, and the successful key findings are presented in the following paragraphs. The several key findings can be used for the further development of IHs in Centres of Vocational Excellence (CoVEs) and similar innovation ecosystems. These findings can serve as guidelines either for the designing of new hubs, or for further development and improvement of the operation of the existing ones, aiming to a sustainable educational model based on the SECOVE experience. For the development of these policy recommendations, input from the “Impact Evaluation of Innovation Hubs” (Deliverable D7.7 of the project) and the “Innovation Hubs and Operational Manual” (Deliverable D6.2 of the project) is used, as well as feedback from all the partners’ experience and Work Packages.

Figure 1 shows a visual representation of the main elements of the SECOVE Innovation Hubs structure: this intergraded innovation system gathers VET learners, educational institutions and research centers, SMEs and industry representatives, local authorities and aims to attract investments, funding and create patents to obtain sustainability of the Hubs.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET



Source: D7.7

Figure 1. The VET-Industry Regional Integration Model established by SECOVE Innovation Hubs

5.2 Policy recommendations

5.2.1 Institutionalize Industry-Education "Challenge Pipelines"

The benefits

Structured and continuous cooperation between education and industry is essential. The cooperation with the industry was proven to be one of the most effective activities of the SECOVE project, since it gave solid results in win-win terms for the industry, the students and the institutions. The industry benefited from the innovative minds and work of the youth, students got access to hands-on and work-based learning provided by companies, in addition to real-world problems and infrastructures/ technologies/ applications and finally the institutions broaden their network, created synergies and updated their curricula and educational programmes.

Furthermore, this activity has significant impact on the three Sustainability pillars- Environment, Society and Economy benefits through the provision of a well-trained workforce to the necessary digital and green skills. The SECOVE's students have collaborated with the industry to develop knowledge and skills necessary to meet its needs to support and evolve the green

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

economy for a sustainable future. This cooperation enables regular feedback loops and co-creation of training content.

To gain sustainability and fully benefit for this cooperation, long-term partnerships between VET providers, universities, and industry should be supported, including incentives for companies to actively participate in education and training processes.

The Challenge

Aligning rigid academic calendars with the dynamic, unpredictable availability of SME experts causes severe administrative friction and limits deep industry engagement (D7.7), both in the short term (like attending an event) and in the long-term commitment.

The Recommendation

VET institutions must establish formalized "Challenge Pipelines" prior to the start of the academic year, utilizing centralized portals where companies can register their operational problems well in advance. They can also indicate their availability and the IHs can better align timelines and activities with industry schedules.

Furthermore, VET institutions must provide company mentors with short, standardized pedagogical WBL orientations to streamline the mentoring process and ensure corporate partners are equipped to teach effectively. To further strengthen collaboration and stakeholder engagement, building mutually beneficial (win-win) cooperation models that clearly demonstrate value for both industry partners and VET institutions is proposed.

Fostering continuity beyond isolated activities is a key for the sustainability of a collaboration. Promising ideas which were generated through competitions and collaborative projects should evolve into longer-term initiatives, allowing for further development, implementation, and potential commercialization.

5.2.2 Leverage Digital Simulations to Scale Work-Based Learning (WBL)

The benefits

The Work-Based Learning is one of the most solid benefits provided by the IHs to the students, since they are offered the chance to actively enter a workplace and experience the industry process and requirements in the real work environment. This strengthens the link between theoretical knowledge and practical application and helps them to develop technical and problem-solving skills in authentic learning contexts.

The integration of real-world challenges into education and training activities significantly enhances learning outcomes. This perspective reinforces by prioritizing work-based learning, project-based education, and real-life case studies that enhance practical and transversal skills

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

aligned with labor market demands. Furthermore, the students engage more to the real-world problems and relate to the studies in a more personal way, since it feels related to the society and real life. On the other hand, society and companies benefit from the creative minds of the youth and can challenge them in finding innovative projects, or, at least, train them towards a problem- solving mindset.

As a result, opportunities may occur from these collaborations, as proven by the SEVOVE project: some SMEs that witnessed the students' exploitation of the WBL, as used and presented in their submitted projects to the Applied Research Competition, expressed interest in pursuing the collaboration with them beyond the competition.

The Challenge

Many regional SMEs operate with low capitalization and lack the surplus workforce capacity, financial flexibility, or safety infrastructure to physically host cohorts of VET students on active industrial sites for extended WBL placements.

The Recommendation

European and national funding frameworks must heavily subsidize the development of Digital Twins, Augmented Reality (AR), and Virtual Reality (VR) simulations within VET institutions. As demonstrated by the project, the "digital-first" tools used in specific Hubs, allow CoVEs to provide rigorous, industry-validated WBL experiences safely in-house, bypassing the physical and financial bottlenecks of SME placements.

5.2.3 Capture Non-Financial Value via Formal "Industrial Advisory Boards"

The benefits

Besides the educational and technological benefits of the implementation of IHs in a CoVE or other ecosystem, is the setting the stage for collaborations, synergies and networking that can support its sustainability, both practically and financially. The activities organized in the Hubs of SECOVE project had a significant impact on the students, academia, and industry involved, however, they required economic resources, which were provided by the project's funding. This provided the CoVEs and the IHs with experience of participation in an EU-funded project, which could be a starting point for future proposals. Innovation Hubs can be included into national and regional initiatives of strategies with diversified funding sources to ensure continuity and sustainability. It is essential to secure sustainable funding and institutional support. Usually, funded projects require a consortium or a supporting network and a community of interest in the scope of the project. In that sense, it is important to capture non-financial value in order to benefit from the collaboration with the SMEs and the relevant stakeholders, which could enhance the financial support from official funding sources.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

The Challenge

Smaller regional SMEs are often reluctant to provide direct cash investments to Innovation Hubs, vastly preferring to offer in-kind contributions (e.g., mentoring time, equipment access, technical consultancy). Furthermore, some Hubs do not have the legal framework to accept money directly from the industry. The funding for the financial sustainability of the Hub should be through other, official funding opportunities like national or EU projects, while exploiting the benefits of the collaboration and the networking with the SMEs.

The Recommendation

Hubs should formalize these invaluable in-kind contributions by establishing "Industrial Advisory Boards". This governance structure legally captures the immense non-financial value SMEs provide, elevating the institutional prestige of the Hub. This collective credibility can then be aggressively leveraged to approach highly capitalized institutional players (such as Venture Capitalists and EU funds) who require proof of deep industry embedding before committing financial resources.

5.2.4 Decouple Hub Agility from Institutional Bureaucracy

The benefit

The IHs created in CoVEs offer some benefits mainly referring to the representation of the academia. As proven by the project's implementation and mentioned in D6.2 (Mitxelena, 2026), "hubs support innovation in the VET system, [...] and moves innovation into action. [...] They create opportunities for learners to test ideas, work with technologies, solve real problems and develop practical competences. At the same time, they help institutions strengthen their role within local and regional ecosystems by creating stronger links with employers, public bodies, research organizations and other actors. Their value is not only technical. A hub is useful because it connects people, organises knowledge and supports activities". Furthermore, as mentioned in the same document, IHs support a more collaborative model of education, since they make it easier to involve external stakeholders in training, to develop joint activities, and to create spaces where education and innovation can meet. In this sense, they are part of a wider transformation in VET, in which institutions move from being only providers of training to becoming active participants in innovation ecosystems.

The Challenge

Systemic bureaucratic inertia and complex internal academic administration often stifle the operational agility required to run a fast-paced Innovation Hub. Bureaucracy and other barriers which are usually embedded in the existing education system. In the specific case- study,

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

bureaucracy slowed decision-making and the deployment of activities, especially when concerning different schools and organizations, or internal procedures that were new to the existing structures and bureaucratic procedures, which even resulted in failure of internal institutional support.

The Recommendation

VET and Higher Education institutions must grant Innovation Hubs semi-autonomous operational mandates, supported by dedicated coordination teams with simplified administrative procedures. To ensure long-term sustainability, Hubs must diversify funding through a dual-pillar model: aggressively targeting elite, competitive European grants (e.g., Horizon Europe EIC Pathfinder) while structurally integrating Hub applied research activities into formal, fee-generating educational programs, such as Master's programs or micro-credentials.

Adaptation and flexibility are essential for the creation of synergies and cooperations. Once the challenges are addressed in this initial implementation of the activities under the SECOVE project, it would be useful for the existing Hubs to maintain the structure and gain from the experience for the better maneuvering of the institutional and administrative barriers. This gained experience can be applied to other hubs by reducing regulatory and administrative barriers to innovation and cross-sector cooperation. Another suggestion to increase flexibility in education systems is through modular learning, micro-credentials, and adaptive curricula. This recommendation concerns the necessary flexibility for the integration of projects, learning materials and subjects which may result from the WBL, the mobilities and SMEs contribution, which may not exist in the current curricula, however can be useful to learning innovating technologies and learning methodology.

5.2.5 Align Academic Calendars for Transnational Mobility

The benefit

The transnational mobility, which exploited the creation of the network created between the Innovation Hubs within the SECOVE project, offered a variety of benefits which makes it good practice to duplicate, and encourages the creation of similar network system among relative Hubs in a transnational level. Creation of networks and opening to the society has encouraged the participation of the students, and well as the cooperation of the SMEs. Successful implementation requires alignment between local, regional, and European levels and mobility was the way to achieve the European dimension in the innovation exchange

The Challenge

Coordinating international student mobilities is consistently hindered by highly misaligned academic calendars and complex administrative protocols across European Member States.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

The Recommendation

European CoVE networks must establish shared, synchronized academic calendars featuring predefined "mobility windows". Furthermore, consortiums should develop standardized hosting protocols covering visas, insurance, and accommodation requirements well in advance to eliminate administrative friction during cross-border skills exchange.

5.2.6 Anchor Work-Based Learning (WBL) to Applied Research Competitions

The benefit

Students were thrilled to participate in a national competition of applied research projects, and even more, to measure themselves at a transnational level, among other peers from the EU. Companies and the industry benefit from the opening to the local and regional level, while contributing to the cultivation of the necessary skills to the youth and future workforce. The applied research competition contributed significantly to the cultivation of soft skills like critical thinking, collaboration, data analysis and synthesis, problem-solving, decision-making, presentation to audience etc. Furthermore, the competitions integrated actively green and digital skills in the curriculum. The participation of the SMEs in the competition and their provision of WBL was a bonus (in comparison to an internal and local student competition) which inspired students and urge them to participate and exploit this opportunity, resulting to the provision of innovative ideas in high quality projects which proposed solutions responding to real-life problems.

The Challenge

The Hubs noted a significant hurdle in transitioning WBL from the "planning/agreement" phase to actual, physical implementation, as companies often struggle with the time constraints of hosting trainees and integrating them seamlessly into daily operations.

The Recommendation

VET institutions should strategically use Applied Research Competitions (such as the "RISE" competition model) as the primary entry point for SME engagement. By inviting companies to serve as jury members, industry partners can directly observe the students' skills, creativity, and work ethic in a low-risk environment. These competitions serve as "talent bootcamps," allowing companies to identify promising ideas and smoothly transition them into formalized, time-defined WBL placements or internships.

6 Conclusions

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

Policy support is essential to scale up the successful practices implemented and ensure their long-term impact. The development of flexibility in the educational system which is proposed through the Innovation Hubs, and the support of regulatory frameworks, can enable cooperation with the industry in order to promote work-based-learning and to cultivate green and digital competencies and skills relevant to sustainability and technological transitions.

Furthermore, Innovation Hubs in CoVEs can encourage student mobilities and networking between institutions, stakeholders and companies, resulting modernizing vocational education and training systems. The use of contemporary opportunities (internet communication, facilitation in EU travelling, mutual recognition of the training system in the EU etc), which enables transnational networking and embraces challenges such as the Applied Research Competition, can inspire youth and engage the industry to a beneficial collaboration. This collaboration is resulting in the familiarization of the VET community (students and teachers) with the real-life challenges as introduced by the SMEs/ industry engaged in the Competitions. This resulted that the student teams which participated in the Applied Research Competition provided applicable solutions to real life problems. Furthermore, the extension of the Competition in a Transnational level stimulated the participants, since the networking, the possible synergies, the exchange of knowledge and the presentation of their project's idea at EU level, created dedicated and inspired contributions. An extra benefit of this activity is the familiarization of the CoVEs' academia with the educative (both theoretical and technical) approaches and methodologies of other CoVEs, through their Innovation Hubs networking activities. The competition also increases the social mission of the Innovation Hubs in the CoVEs, since it responds to real life problems, and it engages society directly. The transnational competition and the presentation of the Hubs' work in front of transnational stakeholders' function as a dissemination activity.

Another positive outcome supported by this project, which should be further supported in the future Hubs, was the encouragement of women's participation in the SECOVE's activities and, by extension, the encouragement of the women's professional participation in the sustainable energy sector. Indeed, women were actively and largely represented in the participant teams at the Applied Research Competitions, reflecting the Hub's contribution to promoting gender participation in innovation and sustainable energy-related fields.

The methodology implemented under SECOVE project concerning the development of Innovation Hubs in the CoVEs opens paths towards a more sustainable future, since the students will consist of a future workforce equipped with the necessary green, digital and soft skills. The adoption of policies that enable and integrate education, research, and industry, contributes to building resilient skills ecosystems and supports the green and digital transition across Europe.

D6.4 Success stories and policy recommendations M48 - WP6: Promoting and Sustaining Quality and Innovation in VET

References

- Dvir, R.; Pasher, E. Innovation engines for knowledge cities: An innovation ecology perspective. *J. Knowl. Manag.* 2004, 8, 16–27. <https://doi.org/10.1108/13673270410558756>
- Engel, J.S. *Global Clusters of Innovation: Entrepreneurial Engines of Economic Growth Around the World*; Edward Elgar Publishing: Cheltenham, UK, 2014; pp. 1–409. DOI: 10.1525/cmr.2015.57.2.36.
- Flego, C., & Tei, A. Innovation Hub Drivers and Activities: A Desktop Assessment for Sustainability. 2025. *Sustainability*, 17(17), 7963. <https://doi.org/10.3390/su17177963>
- Howells, J. Intermediation and the role of intermediaries in innovation. *Res. Policy* 2006, 35, 715–728. <https://doi.org/10.1016/j.respol.2006.03.005>
- Jiménez, A.; Zheng, Y. Unpacking the multiple spaces of innovation hubs. *Inf. Soc.* 2021, 37, 163–176. <https://doi.org/10.1080/01972243.2021.1897913>
- O'Hare, J.; Hansen, P.; Turner, N.; Dekoninck, E. Innovation Hubs: Why do these Innovation superstars often die young? In *Proceedings of the 9th International Design Conference, DESIGN 2008, Dubrovnik, Croatia, 19–22 May 2008*. ISBN 978-953-6313-89-1.
- Prajogo, D.I.; Ahmed, P.K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *RD Manag.* 2006, 36, 499–515. DOI: 10.1111/j.1467-9310.2006.00450.x
- Schiuma, G.; Santarsiero, F. Innovation labs as organisational catalysts for innovation capacity development: A systematic literature review. *Technovation* 2023, 123, 102690. DOI: 10.1016/j.technovation.2023.102690
- Schmidt, S.; Brinks, V. Open creative labs: Spatial settings at the intersection of communities and organizations. *Creat. Innov. Manag.* 2017, 26, 291–299. DOI 10.1111/caim.12220
- Also, Deliverable D6.2 “Innovation Hubs and Operational Manual” by GAIA, and Deliverable D7.7 “Impact Evaluation of Innovation Hubs” by UNIWA. In the frame of SECOVE project, 2026.