



Liana Lehmus © BILT

EXAM 4.0 HUB

Submitted by Tknika, Spain

Digitalization in TVET

4.0

In view of emerging technological trends such as Advanced Manufacturing, this Erasmus+ project seeks to establish five 'European regional Skills Ecosystems' that bring together Technical and Vocational Education and Training (TVET) and Higher Vocational Education and Training (HVET) centres, companies, policy makers, job seekers and TVET students. The aim is to create a web-based Excellent Advanced Manufacturing (EXAM) 4.0 HUB in order to identify and define future skills needs in the AM sector and to propose a model of a TVET/HVET centre 4.0 in terms of its infrastructure, Information and Communications Technology (ICT) applications, tools, skills needed and working processes.

- Start date: 11/2019
End date: 06/2021
- Type of implementing institution:
Private - Public
- Target groups:
Advanced Manufacturing TVET centres, industry and other related stakeholders

Tknika, Spain

Tknika is a centre promoted by the Deputy Ministry of TVET of the Education Department of the Basque Government, Spain. Innovation and applied research are at the core of Tknika in its ongoing efforts to place Basque TVET at the forefront of European TVET. Tknika is modelled after some of the world's most advanced TVET centres, and through networking and direct involvement by TVET teaching staff the Centre develops innovative projects in the areas of technology, education, and management.

Description of activities

Through its partners and associated stakeholders, the EXAM 4.0 HUB consists of a network of eleven TVET/HVET centres, three private sector companies and 16 regional, national and European stakeholders, who contribute with a different but complementary degree of experience in the identification of skills needs in the Advanced Manufacturing sector.

Together, these partners created the EXAM 4.0 HUB as a web-based Platform of Excellence, allowing for additional TVET centres interested in the development of AM training to become members. The platform supports a community of practice allowing members to discuss, share, provide peer review, and learn from each other concerning different key factors of Advanced Manufacturing.

The Platform of Excellence serves to:

- Support the introduction of new technological, social and environmental trends in the educational and industrial fields
- Design best practice approaches, methods and interventions to anticipate skills needs in the Advanced Manufacturing sector and adapt training provisions
- Support regional development by providing a portfolio of skills required to implement those strategies in the Advanced Manufacturing sector
- Develop innovative learning methodologies and implement joint initiatives and projects
- Enhance the continuing professional development of teachers and trainers by providing pedagogical and technical skills and facilitating their participation in joint research projects
- Provide business incubators for TVET learners to develop their entrepreneurial skills and projects
- Incentivize the participation of women, and individuals coming from disadvantaged backgrounds

In addition to the online platform, the project will serve as a model for a physical TVET/HVET centre 4.0. Here, the aim is to design an Advanced Manufacturing Workshop 4.0 model in terms of its infrastructure, ICT applications, tools, skills needed and working processes. This details the minimum features that an Advanced Manufacturing centre should have in order to be considered 'excellent'.

Added value

What current challenges does your initiative address?

Excellent Advanced Manufacturing 4.0 addresses the lack of innovative strategies and approaches at the regional, national, and European levels. For example, it promotes a common skills database in the sector, strengthens regional development strategies, and allows research in the sector as well as work to update Advanced Manufacturing qualifications and understand what new competencies are needed for working in a 4.0 environment.

Additionally, the EXAM 4.0 HUB promotes dialogue among stakeholders, so they understand their various interests, reinforces the culture of collaboration on training, and helps forge closer links between TVET training institutions and the private sector. This allows for the greater involvement of private sector in terms of funding, and for proactively providing feedback for updating curricula and Advanced Manufacturing training offerings. In turn, teacher and trainer support is enhanced and new methodologies that benefit learners such as Work-Based and Challenge-Based Collaborative Learning are offered.

Why is this initiative a success?

This initiative began in November 2019, and as such it is too early for an evaluation or provide successful elements.

What is the added value of this example?

EXAM 4.0 HUB is an example of how a TVET centre can be adapted to a sectoral specific new scenario in terms of sector-specific technical skills and transversal digital skills. It is also a successful collaboration strategy among TVET centres of excellence and wider stakeholders.

Impact on curricula

What implications does this example have for current or future curricula?

The project will be a source of information to update curricula and training regulations with regards to Advance Manufacturing. The process of identifying new skills and competences is being carried out by interviewing different stakeholders and industrial referential agents. This is very complex due to the differences in competence

models used, the national curriculum systems, regional and geographical differences, and technological heterogeneities. When this process is complete it can provide a blueprint for assessing a technical sector in partnership with industry and understanding the impact on training and curricula.

How does this example impact TVET systems?

The impact from this initiative will be at the local, national, and regional levels for the Advanced Manufacturing sector.

How does this example respond to industry and social demands?

EXAM 4.0 HUB is a response to industry demands towards an emerging sector of high potential. From a social perspective, providing meaningful careers in the AM sector provides TVET students with a range of in-demand skills that allow for flexibility and longevity in the sector.

Transferability

Which components of this practice may have practical value to other UNEVOC Centres/TVET institutions?

With some contextualization, the model for a VET/HVET 4.0 centre can be transferred and adapted to the realities of other location. The web-based EXAM 4.0 HUB is available to all TVET centres who are official participants, and as a free resource for the wider TVET community and others beyond the original consortium.

What challenges do you see if transferred to another context?

Every geographic region has its contextual features that must be understood and accounted for. Due to the technical nature of the equipment and facilities uses, a main challenge will be the funding needed to afford the equipment and infrastructure for the EXAM 4.0 HUB model.

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Part of the BILT project involves collecting Innovation and Learning Practices that address systemic challenges within the five work streams of the project, with the purpose to understand what elements lead to their success and can be transferrable to other contexts.*

Access more BILT Innovation and Learning practices in the thematic areas of:



*UNESCO-UNEVOC does not endorse any of the practices included in this database and is not responsible for their management or implementation.



The Bridging Innovation and Learning in TVET (BILT) project provides TVET stakeholders with a platform for exchange and supports them to address current challenges in TVET systems, which arise due to technological, social, environmental, and workplace changes.

Within BILT, the overarching thematic area is New Qualifications and Competencies in TVET, which is supported by four work streams:

- Digitalization and TVET,
- Greening TVET,
- Entrepreneurship in TVET, and
- Migration and TVET.

Through regular knowledge exchange, thematic project activities, and expert working groups, BILT offers opportunities for collaboration between UNEVOC Centres and TVET stakeholders in Europe, and a platform for bridging of innovation and learning between European UNEVOC Centers and TVET stakeholders in the Asia-Pacific and Africa regions.

The results of ongoing activities are accessible on BILT's web page and will be disseminated during a BILT Learning Forum.

The BILT project is carried out in collaboration with UNEVOC Network members, coordinated by UNESCO-UNEVOC with support of the German Federal Institute for Vocational Education and Training (BIBB), and sponsored by the German Federal Ministry of Education and Research (BMBF).

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