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Education and Training



# Advancing learning and innovation in TVET

Key highlights of UNESCO-UNEVOC's Global Forum

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Education  
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## Key highlights of UNESCO-UNEVOC's Global Forum

The following report presents the highlights of UNESCO-UNEVOC's Global Forum on 'Advancing learning and innovation in TVET' that took place on 2 and 3 December 2019 in Bonn, Germany.

All presentations, recordings and related information can be accessed at

[www.unevoc.unesco.org/alit](http://www.unevoc.unesco.org/alit)

# Background

**‘Networking is about bridging experiences [...]. It is important to bridge experiences by establishing dialogue and an understanding of other contexts and local ecosystem responses. [...] The lessons learned from the successes and failures of others can play an important role in bridging the knowledge gap and evolving innovation in TVET’**

*UNESCO-UNEVOC Learning Forum, May 2018*

In 2018, UNESCO-UNEVOC’s Learning Forum on ‘Managing skills in a time of disruption’ considered the challenges and opportunities brought about by disruptions – with a focus on digitalization, climate change, and migration and demographic change – and examined their implications for institutions engaged in delivering technical and vocational education and training (TVET). At the end of the forum, participants highlighted the importance of developing the capacity of leaders to drive innovation and change in TVET, and one of the recommendations was to strengthen networking and partnerships to achieve this.

One year later, more than 110 participants from the international TVET community – representing all key TVET sectors – met in Bonn, Germany, at UNESCO-UNEVOC’s 2019 Global Forum on ‘Advancing Learning and Innovation in TVET’ to revisit policy actions and practices that have been taken to pursue the advancement of innovation.

The way TVET is organized, planned and practiced is changing to make it more responsive – and therefore relevant – to prevailing issues in society, the economy, and the environment. TVET stakeholders committed to this transformation are facing various challenges in the form of high levels of youth unemployment, guaranteeing opportunities for lifelong learning, and contributing to fulfilling the Sustainable Development Goals to name a few. Global experiences show that these challenges cannot be addressed using ‘business-as-usual’ approaches. Existing systems and institutions not only need to anticipate the impact of innovations taking place in businesses and labour markets, but also to act upon them.



Participants of UNESCO-UNEVOC's 2019 Global Forum on the opening day

While the international TVET community, including members of the UNEVOC Network, has made significant strides to promote innovation and foster excellence and inclusion in TVET, these are not yet mainstreamed in institutional systems and practice, and are therefore not translated into whole-system or -institution approaches.

Organized with the support of the German Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Cooperation and Development (BMZ), UNESCO-UNEVOC's Global Forum on 'Advancing Learning and Innovation in TVET' successfully:

- » **Underlined the challenges** to fostering innovation at national, regional and international levels, and discussed potential innovative solutions, products and scalable models that could support the international TVET community to overcome these
- » **Showcased examples of innovation in TVET** – including in curricula and qualifications design, pedagogy, services to communities, and partnerships – that inspire and encourage further innovation from the bottom up
- » **Outlined a way forward** that builds on the current opportunities that promote peer learning for innovation in the UNEVOC Network, as well as in projects led by members of the international TVET community

The UNESCO-UNEVOC International Centre for TVET, together with its partners, extends its gratitude to all participants and experts who took part in the Global Forum and provided valuable input and examples of cooperation in the field of TVET.



'The youth expect to be challenged by schools, where they can learn from experiences rather than theory. That challenge can easily come from innovation'

Laura Gam,  
High school student from  
Herningsholm erhvervsskole og  
gymnasier, Denmark



## Coming to a common understanding of innovation in TVET

Innovation in TVET can have different meanings depending on location and context. This fact is becoming increasingly apparent the more the international TVET community moves from theory to action. Having said this, while differences exist, broadly speaking the international TVET community agreed that innovation in TVET constitutes a move from the 'business-as-usual' approach to how activities are undertaken. Innovation in TVET is forward-looking, and as such there is a greater emphasis on anticipating future demand rather than looking at supply. Innovation in TVET must also take into account the numerous societal, economic and environmental demands; while one of these may play a more pronounced role in some initiatives than others, all demands need to be taken into account when developing, implementing and evaluating activities.

With this in mind, UNESCO-UNEVOC suggests a broad definition of innovation in TVET that can be applied across the world: 'Making substantial changes in the way TVET is organized, planned and practiced to make it more responsive, and therefore relevant to the current issues in society, the economy, and the environment'.

Altogether, innovation in TVET puts into focus:

- » A **rights-based approach to education and training** which aims to empower all learners to make a positive contribution to sustainable development in their communities
- » **'Inclusive excellence'** that makes sure that no one is left behind
- » **Partnerships and networks** that facilitate the sharing of experiences across countries and institutions
- » **Multi-stakeholder collaborations** through which teachers and trainers are motivated and engaged with industry, students are engaged in programmes that focus on solving current problems, and social partners work together across the ecosystem to develop skills for the future
- » Courses that are **learner-centred** and orientated towards developing new competences, qualifications and credentials, including entrepreneurial skills that empower young people to develop their own innovative ideas
- » The **active participation** of all stakeholders to co-construct our future rather than merely anticipating what will happen next



'A rights-based approach to education needs to be a part of innovation design'

Borhene Chakroun, UNESCO



'Shared responsibility and ownership ensures that cooperation and individual interests of partners are targeted when educating and upskilling the workforce of the future'

Christoffer Jørgensen,  
HK Denmark

UNESCO-UNEVOC and the BIBB were joined by members of the UNEVOC Network to launch the BILT project



Panelists identify ways to innovate policies and strategies for the workforce of the future



Panelists discuss how networking and partnerships can be fostered to promote innovation in TVET



Panelists put the spotlight on innovations in teacher, trainer and learner engagement  
 Moderated by: Cesare Onestini



Panelists discuss how to adopt curricula and training changes to prepare for digital and inclusive societies, and circular economies



Panelists consider the enabling factors that TVET stakeholders can harness to foster innovation

# Challenges to advancing learning and innovation in TVET identified by the forum

## » Addressing data gaps is essential to bridging policy and practice

The international TVET community is still struggling to address the changing societal, economic and environmental needs, as outlined in the Sustainable Development Goals. Limitations with regards to availability of data means that gaps between policy and practice persist, and that the international TVET community still does not have a clear understanding of future jobs and skills demands. In cases where experiences or data do exist, these are not effectively shared with the rest of the community. There is a need for all stakeholders to pool resources and bridge the knowledge gap together.

## » Current opportunities for collaboration need to be strengthened and scaled up, while new spaces for collaboration should be encouraged

While the remaining challenges are clear, examples presented over the two days demonstrate that the international TVET community has made substantial progress, particularly with regards to strengthening networking and partnerships. Recently launched initiatives are already yielding results, demonstrating the power of peer learning. These collaborative spaces also ensure that 'no one is left behind' and that countries from around the world can learn from each other. However, frameworks that promote networking and partnerships also need to be strengthened and scaled up to be able to systematically contribute to advancing innovation in TVET.

## » Institutions need to be empowered in order to stimulate innovation from the bottom up

Schools, training centres and colleges have an important role to play in local innovation systems; this realization was one of the main outcomes of the Global Forum and the UNESCO-UNEVOC Trends mapping study on Innovation in TVET. Institutions facilitate the interaction between government, businesses, learners and societies. However, institutions need support to be able to play this role. Policies, strategies and action plans need to create an enabling environment for innovation from the bottom up. Mechanisms need to be developed that enable institutions to map and assess the actors in their local skills ecosystem, and their potential to act as partners in the development and implementation of innovative practices.



'There is a need to actively engage stakeholders in the co-construction of the future, rather than merely anticipating what will happen next'

Mohamed Sennou Slassi,  
Observatory of Professions and  
Skills of the Professional Branches,  
Morocco



'Teachers need classrooms to teach, but today's learners no longer need classrooms to learn'

Boon Seong Woo,  
Temasek Polytechnic, Singapore





» **Stronger linkages with the private sector are needed to identify needs and co-develop solutions**

71% of companies consider that businesses will play a critical role in contributing to the Sustainable Development Goals, and innovations in companies have already led to changes in products and services, as well as new skills needs. Companies also are a potential source of funding and therefore can address one of the major challenges identified during the Global Forum: financing. Any response to the changing demands and the attainment of the 2030 Agenda for Sustainable Development requires close collaboration with companies to identify needs and co-develop innovative solutions. To this end, stronger linkages and frameworks need to be developed with the private sector to meaningfully involve them.

» **Understanding the context is important to the successful translation of innovative TVET practices from one setting to another**

While examples of innovation in TVET across the world can inspire others to action, it is essential to understand the context in which these practices were developed, as well as the context to which the practice will be transferred. While innovative examples of bottom-up action can have profound impacts on the grassroots level, they are also developed with particular circumstances in mind. This means that what succeeds in one situation, may not have the same desired impact in another. The international TVET community needs to be aware of these significant differences when sharing practices, and find ways to facilitate the sharing and contextualization of innovative practices.

While challenges exist, discussions during the plenary sessions showcased how organizations and institutions have embraced innovation and used it to explore new thinking in TVET.

Examples included:

- » **Developing mobility programmes** targeted at students and teachers to assist international exchange at all levels. Examples shared during the Global Forum include initiatives by the European Forum of Technical and Vocational Education and Training and the SEAMEO Secretariat
- » Ensuring that students have the option to **personalize their study paths** (Ministry of Education and Culture and Omnia in Finland) and have access to mobile learning and career guidance (Heart Trust Jamaica – Electronics lab on wheels and career coaching)
- » **Changing the image of TVET** through skills competitions, as explained by WorldSkills International and the WSI-HP BeChangeMaker project
- » Engaging learners in **finding solutions to real-life challenges**, as shown by TKNIKA's (Basque country, Spain) challenge-based collaborative learning, SENAI's (Brazil) Theoprax method, and Wetsus' (Netherlands) training students in the circular economy



'European innovative examples are embedded in cultural settings. The European initiatives will not translate to all country settings, but the goal is to find out how to translate them'

Oliver Diehl, BMBF

- » Engaging learners in the **co-design of learning spaces** (Temasek Polytechnic, Singapore) and engaging youth and adults in **open and flexible learning spaces** (Omnia, Finland – AI laboratory)
- » Making sure that graduates have **STEM and other essential and emotional skills** for the Fourth Industrial Revolution (TESDA, Philippines – 4.0 Equipped Learner)
- » **Using data and technology** to improve TVET governance (JET Education Services, South Africa) and teaching processes (Temasek Polytechnic, Singapore), cloud technology to facilitate knowledge sharing (BMZ, Germany), and artificial intelligence to improve the curriculum (Shenzhen Polytechnic, P.R. China)
- » **Developing innovation accelerators** (ILO's Skills Innovation Facility) and **new guidance frameworks** (UNEVOC's Skills for Innovation Hubs [i-hubs] framework)
- » **Stimulating TVET schools and training centres' ability** to play a leading role in the interaction between research, education and innovation ('knowledge triangle') (European Commission's Centres of Vocational Excellence)

## A marketplace of innovative practices - inspiring action from the bottom up

The Marketplace' showcased what happens when action and bottom-up innovation come together and gave a platform for contributors from the UNEVOC Network and the TVET community to share their concrete steps and approaches to designing innovative practices, projects, products, and solutions.





## The Flatfish Case

The Flatfish – developed by SENAI-CIMATEC, DFKI and Shell – is an Autonomous Underwater Robot that is used for underwater inspection. As 'The Flatfish' combines a real-world project with new skill needs, SENAI-CIMATEC created a strategic programme to prepare a project team that included trainees, technicians, interns, engineers and experts in different areas such as leadership, scheduling, team risk analysis and technical support. This example effectively demonstrates the importance of using real projects and problem-based learning to bring students closer to market needs.

## BKaL 360°

For many young people, the path through school and into higher or technical education is often associated with rigid interpretations of what is considered the norm. At the Berufskolleg an der Lindenstraße (BKaL) in Cologne, Germany, a new approach to the entire concept of secondary school, vocational training, and university certification is taking hold and changing norms long held by teachers, students, parents, and business stakeholders. By working within the school's own network of 16 courses and by shifting expectations among external stakeholders, the BKaL 360° approach seeks to ensure that all students can utilize BKaL's vocational expertise, excellent general education, and links to the business community.

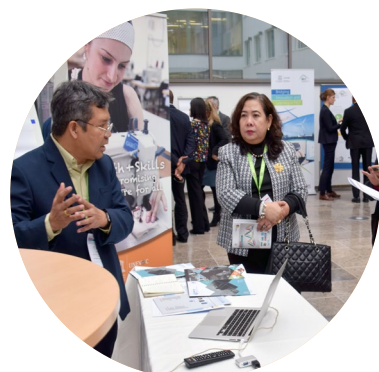


## Interoperable data systems

What if career advisors could guide school-leavers towards in-demand jobs, or young unemployed graduates could see employment vacancies in their immediate areas in real-time? The Post-School Education and Training Collaboration and Learning Opportunities for the Utilization of Data, or PSET CLOUD initiative, seeks to leverage new technology to improve governance of education and training, enhance strategic planning and decision-making, improve collaboration, harvest the knowledge and intelligence of the sector, and improve efficiency.

## Awareness of sustainability: Greening communities and entrepreneurship development

Greening TVET is a concern in many Member States, and particularly amongst young people. A challenge that many schools face is how to embed sustainability concepts into existing curricula, pedagogical approaches and campuses. The Polytechnic ATMI Surakarta in Indonesia raises awareness among youth on the topic of sustainability by engaging them in different activities that green the institution's processes. Education for sustainable development encourages students to think about how their practices – in the classroom, in the workplace and at home – have an impact on their environment.



## Oxygeni.us

Every day, air pollution kills approximately 1,500 children worldwide and is therefore one of the biggest health-threats facing society. While adults can easily purchase facemasks to protect themselves from the harmful consequences of air pollution, there is no adequate product for children. Oxygeni.us – a small company established by Danish high school students and one of the winners of the WorldSkill's BeChangeMakers 2019 Award – is at the forefront of developing innovative solutions to the problem. The example is proof of the innovative solutions students can develop when given a platform to do so, for example, in the form of problem-based learning.



### **ThingLink's virtual course on entrepreneurship**

Virtual lessons and learning experiences in TVET are increasingly being used for simulations, campus tours, and teacher training. ThingLink – a UNESCO ICT in Education prize 2018 laureate designed and produced with Omnia Education Partnership – explores the next steps to make globally accessible cloud-based TVET programmes, and the ways in which 360-degree learning environments can cost-efficiently improve access to quality education and increase instructional time in real-world working environments. The pilot project aims to build an example of a 360-degree course module that a remote learner could complete in their own time, and find ways for teachers and trainers to customize the learning experience for students.

### **VIKEN Academy 4.0**

One of the challenges faced by small and medium-sized enterprises is their limited capacity to deal with and respond to the effects of Industry 4.0. To answer this need, Norwegian company Viken Teknologiklynge 4.0 is creating a robust bottom-up competence development model for small and medium-sized companies to enable them to continuously upgrade their digital competences and, in doing so, improve their global competitiveness. What makes this model different is the fact that the cluster of SMEs become the teaching institution's customers; they work in close collaboration with the teaching institutions to define the competence areas and training needs of their companies.



### **Upskilling and re-skilling for sustainable water technology**

Concerns about the amount and quality of useable water have led to innovations in sustainable water treatment technologies. Wetsus, a European Centre of Excellence for sustainable water technology, is a unique environment that promotes collaboration between businesses, knowledge institutes and government bodies belonging to the water technology sector, in order to create synergy for world-class innovation, education and entrepreneurship. The WaterCampus in Leeuwarden, the Netherlands, offers a unique research infrastructure where scientists and companies from all over Europe can meet.



### **Training indigenous communities in the Amazon on clean energy and planning**

In addition to increasing the quality and relevance of education and training, innovations should also contribute to increasing learners' participation in socio-economic life. The indigenous communities of the Ecuadorian Amazon have in the past faced high levels of isolation, marginalization, and lack access to basic services including electricity. The Participatory Mapping to Support Sustainable Energy for All in the Amazon initiative (SE4Amazonian) aims to plan for the provision of renewable energy in these isolated areas, and is directly involving and empowering indigenous communities to help conduct their own data collection through a mobile application.



### **Self-sustainable schools**

Promoting entrepreneurial learning in TVET is increasingly recognized as an approach to ensure the relevance of education and training. Since 2003, Fundacion Paraguaya's self-sustainable school programme has been building a community of rural entrepreneurs. Inclusiveness is at the heart of the programme; it targets children of poor farmers and makes sure that they have the vocational, soft and financial skills to run their own business. The model advocates 'learning by doing' and 'selling and earning', and students and teachers participate in the complete product cycle.





# The way forward

UNESCO-UNEVOC's Global Forum helped to put the spotlight on what is needed to advance learning and innovation in TVET. The lively plenary discussions on policy, networking, teaching and learning, curricula and enablers brought into focus the main global challenges as well as the opportunities for innovation in TVET to contribute to sustainable development. The practical examples showcased in 'The Marketplace' from across the world outlined how innovation is already shaping the delivery of TVET, and how TVET is contributing to the capacity of skills ecosystems to innovate.

The Global Forum caught the attention of the international TVET community, and we invite them to work with UNESCO and UNESCO-UNEVOC to:

## » **Place innovation at the centre of global policy dialogues and strategies**

UNESCO is multiplying its efforts to act as a global policy convener and advocate to steer the TVET community towards innovative actions. Innovation, and the establishing rights to quality education and training, will be at the heart of the next decade of education, and more specifically, TVET reform. Through its Strategy for TVET (2016-2021) and international partnerships, UNESCO is developing pilot activities and establishing a space for the international community to work together, share, learn and scale up promising innovative practices. UNESCO's Strategy for TVET is currently being revised and the international TVET community is invited to take part in this process to ensure that innovation can play a critical role in all global policy dialogues and strategies in TVET going forward.

## » **Kick-off a decade for collective and open action**

After the policy discussions, the world is now hungry for action. The priority for TVET policy-makers, system engineers, institutions and practitioners is to create enabling frameworks that empower institutions. Such frameworks put innovation at the centre of their strategies and in their work with social partners, territorial bodies and community organizations in their ecosystems. Through such frameworks, the TVET Community can deliver the progressive pedagogies, curricula, competences, products and services that are needed to combat climate change and transform sustainable development into an inclusive opportunity for jobs and life for all, and especially disadvantaged groups. This cannot be fully achieved by individual institutions working in isolation or in silos. The TVET community needs to work as a global team through vibrant and progressive networks and partnerships that can share and learn from each other, as well as together with their stakeholders, including youth and adult learners.

## » **Strengthen platforms to build the capacities of actors to stimulate innovation from the bottom up**

With more than 240 members in more than 160 countries, UNESCO-UNEVOC's global network of TVET actors is perfectly placed to play a significant role in linking frameworks and programmes with concrete, specific and impact-based actions, which also ensure inclusive excellence and quality. Recent changes in the network means that it is more geared toward action than ever before. The launch of recent initiatives – notably the Skills for Innovation Hubs (i-hubs) and Bridging Innovation and Learning in TVET (BILT) projects – offer platforms for engagement. However, these initiatives also require close collaboration with other international, regional and national networks.



'Mere excellence is not the only the way forward. What we need is to pursue inclusive vocational excellence where no one is left behind'

Shyamal Majumdar,  
UNESCO-UNEVOC

UNEVOC Global Forum on  
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