



United Nations
Educational, Scientific and
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UNEVOC

United Nations
Educational, Scientific and
Cultural Organization
International Centre
for Technical and Vocational
Education and Training

UNEVOC Global Forum on

Advancing Learning and Innovation in TVET

2-3 December 2019
UN Campus, Bonn, Germany



Education
2030 

Background

The UNESCO-UNEVOC International Centre for TVET, in collaboration with partners in the UNEVOC Network, is engaged in promoting learning and innovation in technical and vocational education and training (TVET), paying close attention to 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

TVET stakeholders are faced with various challenges, including tackling youth unemployment, promoting lifelong learning, and contributing to achieving the Sustainable Development Goals. Yet, these challenges cannot be addressed using ‘business-as-usual’ approaches. They require existing systems and institutions to not only anticipate the impact of innovations taking place in businesses and labour markets, but also to act upon them. UNESCO plays a leading role in advocating and monitoring the progress of SDG4 on Education. This task is complemented by its work and partnerships with partners to achieve SDG8 – on inclusive growth, employment and decent work – by leveraging on quality and lifelong learning TVET provisions.

In this context, efforts to achieve SDG4 and SDG8 need to be complemented by strategies that adapt to new demands and disruptive changes brought about by rapid technological evolution and climate change. While Member States and other actors – including members of the UNEVOC Network – have made significant strides in prioritizing their actions towards achieving the SDGs, some of these efforts have not been sufficiently effective or systemic enough to make a significant impact. Indeed, these efforts may not always correspond with nor address rapidly evolving issues like digitalization, the emergence of artificial intelligence (AI), and shifts towards circular economies and clean energy.

Skills gaps and mismatches act as a hindrance to the development of technology-rich environments and innovation-savvy cultures. At the same time, employers have difficulty finding people with the adequate skills and competencies to grow and innovate. In the midst of these challenges, TVET has emerged as a key player that connects economic, social and environmental opportunities. Member States have demonstrated distinct capacities to make TVET an important source of innovation in teaching, learning and inclusion. Furthermore, although innovations to promote excellence and inclusion in TVET are already taking place in some countries, many of these examples are not yet mainstreamed in institutional systems and practice, and are therefore not translated in a whole-system or whole-institution approaches.

The 2019 UNEVOC Global Forum seeks to discuss these issues and explore new thinking behind innovative practices and scalable solutions. It also aims to draw reflections on new challenges, future developments and opportunities for improved peer learning, based from the discussion of ongoing opportunities as well as from innovative practices that are evidenced in two ongoing projects managed by UNESCO-UNEVOC including the Skills for Innovation Hubs and the Bridging Innovation and Learning in TVET. Together, these reflections can inform the review of UNESCO Strategy for TVET (2016-2021), the UNEVOC Medium-term strategy (2018-2020) and the strategic work of the TVET community at large.

Forum objectives

- Identify and discuss innovative solutions, products and scalable models that tackle challenges related to skilling young people in the context of digitalization and climate change
- Showcase examples of institutional innovation in TVET, including in curricula and qualifications design, pedagogical methods, TVET programmes and services to communities, and partnerships
- Discuss the link between downstream solutions and institutional- and system-level innovations and transformations

Expected outcomes

- Stakeholders are informed about innovative contexts, approaches and outcomes, to foster excellence and inclusion in TVET
- Stakeholders and partners contribute and inform the mid-term review of UNESCO’s Strategy for TVET
- Partners share innovations in TVET policy, teaching and learning methods, curriculum development and new qualifications, and network collaboration
- Stakeholders convene to exchange knowledge and strengthen communities of practice within the framework of the TVET projects implemented/supported by UNESCO-UNEVOC

Language

The Forum will be delivered in English, with simultaneous translation in French.

Agenda

02 December 2019	
08:00 – 09:00	Registration / Arrival of participants (AAH Building Lobby)
09:00 – 10:00	<p>Opening session and welcome address / keynote address <i>Masters of ceremony: Jens Liebe, Senior Programme Expert and Miki Nozawa, Programme Specialist, UNESCO-UNEVOC</i></p> <ul style="list-style-type: none"> • Shyamal Majumdar, Head of Office, UNESCO-UNEVOC International Centre for TVET • Borhene Chakroun, Director, Policy and Lifelong Learning Systems, UNESCO • Remarks from stakeholders <ul style="list-style-type: none"> ○ Youth representatives: Laura Gam and Alaeddin Al Khoraki ○ Teacher representative: Boon Seong Woo ○ Workers/Employee representative: Christoffer Jørgensen
10:00 – 10:30	Group photo and Coffee / Tea Break
10:30 – 11:30	<p>Special session – Official launching of the UNEVOC Bridging Innovation and Learning (BILT) in TVET project</p> <p>The rapid technological innovations, the increasing awareness of environmental responsibility and the social demand for inclusive and sustainable development are changing the way we live and work. TVET systems need to keep pace with these developments, remain attractive to learners and relevant to potential employers. With ever-faster innovation cycles, the demand for peer learning is also increasing, both in Europe and internationally.</p> <p>To support TVET institutions in addressing these transformative challenges and explore innovative approaches and new practices, the BILT project kicked-off in July with an initial focus on Europe, and is now launching its bridging to Africa and Asia.</p> <p>The BILT project enables the exchange of experiences and peer learning across the UNEVOC Network in the thematic areas of Digitalization/Industry 4.0, Greening, Entrepreneurship, and Migration. A special focus is placed on exchanging experiences of how new qualifications and competencies find their way into practice through their integration in training and curricula. The session will present the BILT Project as a peer learning platform on these thematic areas.</p> <p><i>Moderated by Jens Liebe, UNESCO-UNEVOC</i></p> <p>Bridging Innovation and Learning in TVET – What is the purpose?</p> <ul style="list-style-type: none"> • Shyamal Majumdar, Head of Office, UNESCO-UNEVOC International Centre for TVET • Oliver Diehl, Deputy Head of Unit 312, Regulation of Vocational Training, BIBB, BMBF Germany • Birgit Thomann, Director / Head of Department 3, VET International, BIBB, Germany <p>Peer Learning on the key challenges for TVET – Quicker and better impact through exchange of experiences?</p> <ul style="list-style-type: none"> • Ronny Sannerud, Professor, Oslo Met, Norway (Digitalization/Industry 4.0) • Louis Aquilina, Director for Partnership, MCAST, Malta (Greening TVET) • Iñigo Araiztegui, International Manager, TKNIKA, Basque country, Spain (Entrepreneurship) • Volker Wedekind, Nottingham University, UK (Migration and TVET) • Erik Swars, Head of international affairs, SFIVET, Switzerland (New Qualifications and Competences) <p>Reflections on bridging innovation and learning with Asia and Africa</p> <ul style="list-style-type: none"> • Edwin Tarno, Principal, Rift Valley Technical Training Institute, Kenya • Wenming Yang, Director of UNEVOC Centre, Shenzhen Polytechnic, P.R. China

11:30 – 12:30	<p>Plenary 1 - Innovating policies and strategies for the workforce of the future</p> <p>Disruptions in the world of work triggered by climate change, digitization and artificial intelligence, demographic transitions and human capital mobility, are keeping skill demands in a state of constant and ever deepening flux. Set against this complex backdrop, sustained progressive changes in the education and training systems across the world are required to equip individuals with productive employment and lifelong learning opportunities. Such responsive transitions require concerted and innovative actions from all stakeholders in the education, training and employment sectors. This plenary aims to outline some experiences in policy development and complementing initiatives at the downstream levels across Europe & CIS, Africa and the Arab States. A particular focus will be placed on how these initiatives at each of these levels have helped nurture cultures and capacities for innovation in TVET as part of lifelong learning, skills anticipation and mapping job transitions.</p> <p><i>Moderated by: Hervé Huot-Marchand, Chief of Section, Youth, Literacy and Skills Section, UNESCO</i></p> <ul style="list-style-type: none"> • Mika Tammilehto, Director General, Department for Upper Secondary Education and Vocational Education and Training, Ministry of Education and Culture, Finland • Mohamed Sennou Slassi, President of the Management Board, Observatory of Professions and Skills of the Professional Branches, Morocco • Edwin Tarno, Principal, Rift Valley Technical Training Institute, Kenya
12:30 – 13:30	<p>Lunch / Networking</p>
13:30 – 14:30	<p>Plenary 2 – Networking and partnerships as assets for innovation in TVET</p> <p>In addition to policies and strategies, networking and partnership are essential assets to overcome barriers to fostering innovation; this was one of the key findings of UNESCO-UNEVOC's <i>Trends mapping study on innovation in TVET</i>. Shortcomings in ideas and inspirations, financial resources, equipment and expertise are often cited examples of barriers that hinder the TVET sector in general – and education and training providers specifically – to innovate. There is a clear demand for collaboration projects, arrangements, and the pooling of resources and expertise to develop concrete innovative solutions. This plenary looks at the different networking possibilities and partnerships that exist, articulate the character of the different ecosystems within them, and tries to understand how they work together to overcome barriers and stimulate innovation and ensure enhanced outcomes for TVET. Based on the examples presented, the session will come up with some key advice to support networking and partnerships that participants can reflect upon, take home and practice in their own contexts.</p> <p><i>Moderated by: Hélène Guiol, Programme Specialist, Youth, Literacy and Skills Section, UNESCO</i></p> <ul style="list-style-type: none"> • Stefano Tirati, Vice President, European forum for VET • Shyamal Majumdar, Head of Office, UNESCO-UNEVOC International Centre for TVET • Jos de Goey, President, World Skills International • Ethel Agnes Valenzuela, Director, South East Asia Ministers of Education Organization Secretariat • Michel Faye, Expert in VET, West African Economic and Monetary Union (UEMOA) region
14:30 – 14.45	<p>Coffee / Tea Break</p>
14:45 – 16:00	<p>Innovation Marketplace (Atrium)</p> <p>The marketplace session aims to showcase what happens when action and bottom-up innovation come together. It seeks to showcase bottom-up innovative practice and examples in the institutional domains including in TVET strategies, curricula and qualifications design, pedagogical/didactical methods, TVET products, institutional services and partnerships models. It provides a dynamic and interactive marketplace of ideas where people can collaborate and share their innovation strategies and pitches that can be applied, replicated or scaled up in TVET.</p>

	<p>Slot 1: Institution-level innovations in TVET contents, delivery and learning outcomes</p> <ul style="list-style-type: none"> • The Flatfish Case: Integrating innovation projects for industry in TVET Luis Alberto Breda Mascarenhas, Deputy Director of Innovation and Technology, SENAI- CIMATEC, Brazil • BKaL 360° Lars Lamers, Berufskolleg an der Lindenstrasse (BKAL), Germany • ATMI: preparing Indonesian youth to be productive and engage in ‘greening’ T. Agus Sriyono, Director, Politeknik ATMI Surakarta, Indonesia • Interoperable data systems: Enabling a South African innovation Kelly Shiohira, JET Education Services, South Africa • Oxygeni.us: Innovation and entrepreneurial case (<i>Winner of the World Skills BeChangeMaker 2019</i>) Laura Gam, Mathias Kannegaard and Alaeddin al Khoraki, Oxygeni.us
16:00 – 17:30	<p>Plenary 3 - Innovations in TVET teacher, trainer and learner engagement</p> <p>While policies and partnerships are conducive to the development of innovation in TVET, institutional readiness is at the core of implementing innovation in TVET. Innovating at the institutional level needs to be in line with the changing internal (changing learning patterns, adjustments in the pedagogical and didactic approach, tools and techniques, etc.) and external (changing job roles, technologies to improve teaching-learning experience and outcomes) demands. However, in the context of TVET, where teaching and learning may happen in various forms, locations and has to rapidly evolve to keep pace with changes in the job market, empowering teachers and trainers is the key. This session explores approaches that strengthen teacher and trainer capacities, develop long-term professional development, teacher qualifying methods and teaching competency frameworks, improve teaching-learning engagement, and use newer innovative methods inside classroom , and at the workplace, to name a few.</p> <p><i>Moderated by: Cesar Onestini, Director, ETF</i></p> <ul style="list-style-type: none"> • Rikardo Lamadrid, Director, Technology and Advanced Learning, Vice Ministry, Basque Government, Basque country Spain • Boon Seong Woo, Director, Learning Academy, Temasek Polytechnic, Singapore • Wenming Yang, Director of UNEVOC Centre, Shenzhen Polytechnic, P.R. China • Denise Amyot, President/CEO, Colleges and Institutes Canada
17:30	End of session
19.00 – 21.00	<p>Welcome cocktail and reception hosted by the Lord Mayor of the City of Bonn</p> <p>Venue: Old Town Hall of the Federal City of Bonn Address: Markt 2, 53111 Bonn Dresscode: Cocktail attire</p>

03 December 2019

09:00 – 10:30	<p>Plenary 4 – Adopting curricula and training changes to prepare for digital, inclusive societies and circular economy</p> <p>The way we live has been severely altered by the so-called megatrends. Enabling technologies, the rise of the individual and the resource stress, just to name a few of them, have posed challenges and opportunities for society in general and for TVET institutions in particular. If, in the past, high rates of obsolescence were restricted to a limited range of goods and services, today we witness this dynamic becoming ever-present. This reality calls upon TVET institutions to respond and intervene in a precise and sustained manner to align training according to the demands for new competencies and new skills that are required by employers and consumers. This plenary highlights inspiring TVET institutions that are innovating in the way they update their curricula in order to offer new teaching and learning experiences that allow societies, and TVET learners in particular, to be equipped to perform their professional roles in contemporary society and labour market.</p>
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	<p><i>Moderated by: Juan Carlos Villagran de Leon, Head of Office, UN-SPIDER</i></p> <ul style="list-style-type: none"> • Luis Alberto Breda Mascarenhas, Deputy Director of Innovation and Technology, SENAI- CIMATEC, Brazil • Odette Brown, Director, TVET Consultancy and Institutional Capacity Building, HEART Trust, Jamaica • Pieter de Jong, European Representative, Wetsus, Netherlands • Rosanna Urdaneta, Deputy Director General, TESDA Philippines • Sampo Suihko, General Director, Omnia, The Joint Authority of Espoo Region, Finland
10:30	Coffee / Tea break
10:30-12:30	<p>Innovation Marketplace (Atrium) Slot 2: Innovations in making TVET relevant for inclusive, sustainable and digital societies and economies, with new careers and new job qualification demands</p> <ul style="list-style-type: none"> • VIKEN Academy 4.0 – a bottom up approach to addressing key challenges and competence demands related to Industry 4.0 in SMEs Hans Bjørn Paulsrud, VIKEN Technology Cluster, Norway • ThingLink’s Virtual Course on Entrepreneurship Louise Jones, ThingLink • CIV Water: Upskilling and re-skilling for sustainable water technology Pieter de Jong, European Representative, Wetsus, Netherlands • Training for Amazon indigenous communities on clean energy and planning Valerie Graw and Javier Muro, ZFL, University of Bonn, Germany • Self-sustainable school Luis Cateura, Fundacion Paraguaya • Oxygeni.us: Innovation and entrepreneurial case (Winner of the World Skills BeChangeMaker 2019) Laura Gam, Mathias Kannegaard and Alaeddin al Khoraki, Oxygeni.us
12:30 – 14:00	Lunch / Networking
14:00 – 14:30	<p>Special session: UNEVOC Skills for Innovation Hubs Project</p> <ul style="list-style-type: none"> • Wilson Lima Junior, Project Officer • Peter Greenwood, Advisor
14:30 – 16:00	<p>Plenary 5 - Panel discussion on the enablers of TVET and skills innovation</p> <p>Drawing from the examples of innovation in TVET presented in the last two days, this session will review the evidences and outcomes from policy, as well as institutional and project-based innovations as downstream solutions. The session will share the perspectives from international organizations that are working in the field of TVET. The invited perspectives will help explain the new strategies and indicators for successful TVET innovation, as well as investments to stimulate a balanced approach to innovation and inclusion in the current TVET policy and practice; analyse the gaps that remain to be addressed; and discuss new ideas to further advance innovation in TVET to support long-term and systemic transformations.</p> <p><i>Moderated by: Hubert Ertl, Vice President and Director for Research, BIBB</i></p> <ul style="list-style-type: none"> • Borhene Chakroun, Director, Policy and Lifelong Learning Systems, UNESCO • Cesar Onestini, Director, European Training Foundation • Dana Bachmann, Head of Unit, VET, Apprenticeship and Adult Learning, European Commission • Ina von Frantzius, Head of Division for Education, BMZ, Germany • Milagros Lazo Castro, Technical Officer, International Labour Organization
16:00-17:00	<p>Closing session – The way forward</p> <p><i>Masters of ceremony: Jens Liebe and Miki Nozawa</i></p> <ul style="list-style-type: none"> • Borhene Chakroun, Director, Policy and Lifelong Learning Systems, UNESCO • Shyamal Majumdar, Head of Office, UNESCO-UNEVOC International Centre for TVET
17:00	<p>Coffee / Tea break End of the Global Forum</p>

04 December 2019 (By invitation only)

08:15 – 16.00 Room 2112, LE Bldg., 21 st floor	Skills for innovation hubs (i-Hubs) Project meeting Organizer: UNEVOC i-Hubs Project team Contact: unevoc.i-hubs@unesco.org
08:45 – 16.00 Room 2516, LE Bldg., 25 th floor	UNESCO TVET Community Meeting Organizer: UNESCO Section for Youth, Literacy and Skills
09:00 – 13.00 Room 2705, LE bldg., 27 th floor	Bridging Innovation and Learning in TVET Project meeting Organizer: UNEVOC BILT Project team Contact: unevoc.bilt@unesco.org

Speaker biographies

Denise Amyot

President and CEO
Colleges and Institutes Canada, Canada

Denise Amyot is the President and CEO of Colleges and Institutes Canada (CICan). Over the years, Ms Amyot has occupied a number of high profile leadership positions in several federal departments, including Human Resources Development Canada, National Defense, Natural Resources Canada, Canadian Heritage, and the Public Service Commission.

Prior to joining CICan, she was the President and CEO of the Canada Science and Technology Museums Corporation, a federal crown corporation that includes three national science museums. She has also served as Senior Vice-President of the Leadership and Talent Management Sector at the Canada Public Service Agency (now the Treasury Board), where she led and managed leadership development programmes, and helped develop policies for employees and executives throughout Canada's public service. She has been involved in the World Federation of Colleges and Polytechnics and, after four years and a half at its helm, continues to sit on its Board as past Chair of the Federation.

Ms Amyot holds a Master's Degree in Education and three Bachelor's Degrees in Biology, Arts/Humanities and in Education.

Louis Aquilina

Director of Partnerships and the International Office
Malta College of Arts, Science and Technology (MCAST), Malta

Louis Aquilina is the Director of Partnerships and the International Office at the Malta College of Arts, Science and Technology (MCAST). As well as acting as UNEVOC Centre Coordinator, he is also currently the MCAST coordinator for the i-hubs and BILT projects. In his current position, Mr Aquilina is responsible for the college's partnerships with other countries and industry. He identifies and develops collaboration agreements and manages MCAST's European Union Erasmus+ programme, enabling students and teachers to gain experience outside of Malta.

An electrical engineer by profession, Mr Aquilina has 22 years' experience working in the semiconductor and manufacturing sector. He joined MCAST in 2009 as a senior lecturer in robotics, electrical engineering and quality assurance.

Dana Bachmann

Head of Unit of VET, Apprenticeship and Adult Learning
European Commission

Dana Bachmann is Head of the Unit in charge of VET, Apprenticeships and Adult Learning at the European Commission. She is responsible for working together with Member States, social partners and stakeholders to develop and implement policies to empower citizens with the skills they need, so that they can play an active role in society and improve the effectiveness, quality and attractiveness of VET and adult education. Part of her mandate also includes coordinating and managing relations with the European Centre for Vocational Education and Training (CEDEFOP).

Before joining the Commission in December 2011, Ms Bachmann worked as a lawyer at the European Court of Human Rights, the European Court of Justice, and she managed regional projects in the field of environmental law in Central and Eastern Europe.

Ms Bachmann has a Master's Degree in International relations, Conflict Analysis and Resolution, and a Postgraduate Degree in International Relations.

Odette Brown

Director, TVET Consultancy and Institutional Capacity Building
HEART Trust, Jamaica

Odette Brown is Director of TVET Consultancy and Institutional Capacity Building at the HEART Trust in Jamaica. In her current position, Ms Brown leads a team of managers and develops strategies that target the use of ICT, amongst other methods, to deliver technical support for career development. She is also involved in WorldSkills Jamaica and provides support and capacity building opportunities to various TVET providers. Ms Brown has been involved in the Jamaican TVET system for the past 15 years, where she has contributed significantly to the development of quality systems and processes.

Ms Brown was instrumental in the re-launch of the HEART Trust as a UNEVOC Centre. Over her extensive career she has planned, participated and presented at several forums and TVET conferences, both regionally and internationally.

Borhene Chakroun

Director of the Division of Policy and Lifelong Learning Systems
UNESCO

Borhene Chakroun is Director of the Division of Policy and Lifelong Learning Systems at UNESCO, Paris. Mr Chakroun was involved in the Third International Congress on TVET held in Shanghai in May 2012.

Mr Chakroun was previously the Chief of Section of Youth, Literacy and Skills Development at UNESCO. He has also worked as a chief trainer, TVET project manager as well as a short-term consultant for the European Union, World Bank and other international organizations. Mr Chakroun joined the European Training Foundation in 2001 and worked as the Senior Human Capital Development Specialist and Team Leader of the EU funded regional project Education and Training for Employment (MEDA-EET). He has also coordinated the ETF's community of practice on National Qualifications Frameworks and the Recognition of Qualifications.

Mr Chakroun holds a Ph.D. in Education Sciences from Bourgogne University in France, and his academic work focuses on the certification and validation of prior learning.

Jos de Goey

President
WorldSkills International

Jos de Goey is the President of WorldSkills International, an organization that every two years organizes the world championships of vocational skills and brings together young people, industry, government, education, and institutions, to promote the benefits of and need for skilled trade professionals.

Mr de Goey started as an Expert at the WorldSkills Competition in Seoul in 2001 and was appointed as CEO of the then newly founded WorldSkills Netherlands organization in 2002. Since 2015, WorldSkills Netherlands has established a new national skills competition format in close cooperation with the VET-sector. In 2007, he became the President of WorldSkills Europe and was a key player in bringing together European countries to promote vocational skills through competitions. He was directly involved and had the overall responsibility for the organization of the regional event – EuroSkills. After serving two terms as President, he became the WSE Secretary-General (voluntary function).

Before working at WorldSkills Netherlands, Mr de Goey worked in several management positions at different companies. He has a background in marketing, communication and business administration.

Pieter de Jong

European Representative
Wetsus, the Netherlands

Pieter de Jong is an Environmental Engineer who is active for Wetsus, a European Centre of Excellence for Sustainable Water Technology.

In his role, he links the institute located on the WaterCampus in Leeuwarden to European regions, companies and universities. In addition to his current position, Mr de Jong is also the co-Chair of ERRIN and the coordinator of the Water Working Group. Moreover, he is also the Secretary of the technology platform WssTP Working Group on Resource Recovery. Prior to his current position, Mr de Jong worked in Brussels as a representative of Dutch schools, universities and research centres.

Oliver Diehl

Deputy Head of Unit 312, Regulation of Vocational Training
Federal Institute for Vocational Education and Training, Federal Ministry of Education and Research, Germany

Oliver Diehl is Deputy Head of Unit 312, Regulation of Vocational Training, at the Federal Institute for Vocational Education and Training (BIBB), Federal Ministry of Education and Research (BMBF) in Bonn, Germany.

Before taking up his current position, Dr Diehl was Assistant Head of Basic Policy Issues in Vocational Education and Training at the BMBF. He joined the Ministry in 2002 and previously held positions in the areas of cooperation with Latin America, Mediterranean countries and Africa, and was involved in projects related to sustainability, culture, environment, and basic energy research. He was Head of the BMBF's FONA (Research for Sustainable development) Brussels Liaison Office from 2011 to 2013.

Dr Diehl holds a Ph.D. in Social Psychology from Mainz University, Germany.

Hubert Ertl

Vice President and Director of Research
Federal Institute for Vocational Education and Training, Germany

Hubert Ertl is the Vice President and Director of Research at the Federal Institute for Vocational Education and Training (BIBB) in Germany. His work focuses on issues related to permeability between vocational and higher education and challenges for vocational education and training arising from digitalization.

Mr Ertl has previously worked as a lecturer and researcher at the Universities in Munich and Paderborn, and as an Associate Professor of Higher Education at the Department of Education, University of Oxford. He became a Senior Research Fellow of SKOPE (Centre on Skills, Knowledge and Organizational Performance, University of Oxford) in 2010. Mr Ertl is the editor of the *Research in Comparative and International Education* journal, associate editor of *Empirical Research in Vocational Education and Training*, and member of the Oxford Review of Education international advisory board.

Mr Ertl completed his vocational training in the German dual system and gathered work experience in the automotive industry. He studied business education and economics at the Ludwigs-Maximilian- University in Munich, where he conducted his doctoral research on European Union policies in the area of vocational education.

Michel Faye

Coordinator of the School Business Learning Programme
Ministry of Vocational training, Apprenticeship and Handicraft, Senegal

Michel Faye is, since October 2018, the Coordinator of the School Business Learning Programme (in French: Programme de Formation Ecole Entreprise, FP2E) carried out by Senegal that aims to close the gap between the offer and demand for training. Previously, Mr Faye was previously Director of the TVET Department at the Ministry of Vocational training, Apprenticeship and Handicraft in Senegal.

Mr Faye is a trained engineer. He was trainer in building technics and sciences, then a quality manager, before becoming an inspector. He was later Officer in Charge of the planification within the Ministry for TVET and a technical manager for the establishment of three sectorial training centres, which were the results of a partnership between the State and the

professional branches. He also worked in Mali for Luxdev (Luxemburg's aid and development agency) as Programme leader in international cooperation and technical assistance.

Ina von Frantzius

Head of Division for Education
Federal Ministry for Economic Cooperation and Development, Germany

Ina von Frantzius is Head of the Division for Education at the German Federal Ministry for Economic Cooperation and Development (BMZ). She was previously posted at the German Embassy in Indonesia as Head of Development Cooperation, where TVET was an important priority area of German-Indonesian cooperation. She has previous work experience in dealing with bilateral and international issues, such as the UNFCCC negotiations and the Green Climate Fund (GCF) Board. Other previous positions include postings to Afghanistan and the European Commission in Brussels, as well as working at the EU Department and as desk officer for bilateral development cooperation with Morocco. She started her professional career as a consultant with a UN organization in the area of biodiversity protection.

Ms von Frantzius has an L.L.M. in French and German law and a Master of Arts in International Politics.

Peter Greenwood

Advisor
UNESCO-UNEVOC International Centre for TVET

Peter Greenwood is an advisor at UNESCO-UNEVOC, supporting the development and implementation of the Skills for Innovation Hubs (i-hubs) project. Mr Greenwood has also helped strengthen the UNEVOC network collaboration and partnerships, in particular in the European region, as well as contributed to the development of some of UNESCO-UNEVOC's thematic knowledge resources, particularly in the fields of youth employment and entrepreneurship and facilitating the transition to green economies and sustainable societies.

Mr Greenwood previously worked at the ETF, where he had different responsibilities including the development of the ETF national Observatory network and the launch of the Torino Process. He also helped coordinate the ETF's operations and leadership for the ETF corporate performance, including its cooperation with strategic partners, including UNESCO.

Hélène Guiol

Programme Specialist
Youth, Literacy and Skills Section, UNESCO

Hélène Guiol is a Programme Specialist at Section of Youth, Literacy and Skills Development at UNESCO Headquarters. She joined the section in 2013 and has been providing technical assistance for the TVET thematic area of the flagship UNESCO capacity development programme (CapED), implemented in 25 Member States. She has also been engaged in the UNESCO's projects on promoting Youth Employment in the Mediterranean (YEM), and coordinating UNESCO's work on the anticipation of future skills needs in the Mediterranean region through the Networks of Mediterranean Youth (NET-MED Youth) project. Ms Guiol also coordinates an Inter-Agency Working Group focusing on work-based learning.

Hervé Huot-Marchand

Chief of Section
Youth, Literacy and Skills Development Section, UNESCO

Hervé Huot-Marchand is the Chief of the Section of Youth, Literacy and Skills Development at UNESCO Headquarters. Prior to taking up his current position, Mr Huot-Marchand has held numerous positions at UNESCO and has extensive work experiences working in Africa. He was the Head of the National Bureau in Bamako in Mali and worked at the UNESCO Regional Office in Dakar.

Rikardo Lamadrid Intxaurreaga

Director of Technology and Advanced Learning
Vice-Ministry of Education of the Basque Government, Spain

Rikardo Lamadrid Intxaurreaga is the Director of Technology and Advanced Learning at the Vice-Ministry of Education of the Basque Government, Spain. His Directorate is responsible for the training of VET teachers, the STEAM strategy in VET

centres, and the applied innovation that takes place in cooperation with SMEs. He also promotes VET centres' participation in European programmes, mainly ERASMUS +.

Prior to joining the Basque Government, Mr Lamadrid worked as a VET teacher and was Principal of the Aretxabaleta VET Integrated Centre. He was the Vice-President of IKASLAN GIPUZKOA (Association of public VET centres in Gipuzkoa) from 2015 to 2017.

Milagros Lazo Castro

Technical Officer, Skills and Employability Branch
International Labour Organization

Milagros Lazo Castro is a Technical Officer in the ILO'S Skills and Employability Branch and oversees its work on innovation. Prior to her current post, she worked as a Policy Analyst and Communication Specialist at the OECD. She also worked for four years as a Technical Officer at the ILO Youth Employment Programme, supporting the implementation, coordination and monitoring of numerous development cooperation programmes. She has extensive experiences in development cooperation, communications and knowledge management and dissemination, with a specific focus on youth employment, social inclusion and well-being.

She holds a Bachelor's Degree in History from the Sorbonne University, France, and a Master's Degree in International Relations from Nouvelle Sorbonne University, France.

Jens Liebe

Senior Programme Expert
UNESCO-UNEVOC International Centre for TVET

Jens Liebe is a Senior Programme Expert at the UNESCO-UNEVOC International Centre for TVET. He leads the UNEVOC Network Secretariat and is in charge of the UNEVOC TVET Leadership Programme, the Bridging Innovation and Learning in TVET (BILT) Project, acts as Regional Focal Point for Europe, CIS and North America, and provides the Head of Office with strategic and management support.

Prior to joining UNESCO-UNEVOC, Mr Liebe held positions as Assistant Director and Programme Officer of the UN-Water Decade Program on Capacity Development (UNW-DPC), as a Senior Scientist at the Center for Development Research (ZEF) of the University of Bonn – where he served as scientific coordinator of the interdisciplinary “GLOWA Volta Project” – and with the German Technical Cooperation in Zambia. He has extensive international work experience and enjoys working at the interface of science and implementation.

Mr Liebe holds a Ph.D. in Biological and Environmental Engineering from Cornell University, USA, and a Master of Science in Geography from the University of Bonn, Germany.

Wilson Lima Júnior

Project Officer
UNESCO-UNEVOC International Centre for TVET

Mr Wilson Lima Júnior is a Project Officer at the UNESCO-UNEVOC International Centre for TVET. Mr Lima Júnior is responsible for the Skills for Innovation Hubs (i-hubs) project, an initiative that aims to develop and test an innovation framework that can be used by TVET institutions to place themselves assertively in the skills and innovation ecosystem. The project also aims to identify and document the pilot institution's innovation capacity.

Prior to his current assignment, he served as a Industrial Development Specialist at the Brazilian National Service for Industrial Training (SENAI), where he participated in the implementation of SENAI's Innovation Institutes Network and was in charge of managing the provision of TVET to Brazilian companies operating in Africa and Latin America. He has also held positions in international organizations such as the UNDP and UNFPA.

Mr Lima Júnior has authored numerous articles and technical documents on a variety of topics, including TVET, technical cooperation and offsets. He is a TVET graduate from SENAI and holds a Masters of Business Administration in Strategic Management of Organizations from the Faculdade de Estudos Administrativos, Belo Horizonte, Brazil.

Shyamal Majumdar

Head of Office

UNESCO-UNEVOC International Centre for TVET

Shyamal Majumdar is Head of the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training, and former Director General of the Colombo Plan Staff College for Technician Education (CPSC) Manila, Philippines.

Mr Majumdar has worked as a TVET expert for more than 30 years in various capacities. He has been engaged in various development-oriented, research and capacity building projects and programmes by UNESCO Offices in Bangkok, Beijing and Cairo, GTZ and INWEnt (both now GIZ), Colombo Plan Staff College for Technician Education, the Food and Agriculture Organization, the Asian Development Bank, Asian Development Bank Institute, and the World Bank.

He has strong expertise in technical teacher training, ICT, total quality management, greening TVET, and qualifications frameworks and quality assurance in TVET. Mr Majumdar holds a Bachelor's degree in electronics and communication engineering, a Master's degree in telecommunications engineering, and a Ph.D. in educational computing.

Luis Alberto Breda Mascarenhas

Deputy Director of Innovation and Technology

SENAI-CIMATEC, Brazil

Luis Alberto Breda Mascarenhas is Deputy Director of Innovation and Technology of SENAI-CIMATEC in Brazil. He is an International Welding Engineer at the International Institute of Welding and has work experience as a mechanical engineer, focusing on manufacturing/welding processes.

Mr Mascarenhas holds a Ph.D in Aeronautical and Mechanical Engineering from the Technological Institute of Aeronautics, and a Master's Degree in Mechanical Engineering from the Federal University of Santa Catarina, Brazil, with a specialization in manufacturing/welding processes.

Miki Nozawa

Programme Specialist

UNESCO-UNEVOC International Centre for TVET

Miki Nozawa is a Programme Specialist at the UNESCO-UNEVOC International Centre for TVET. She has almost 20 years of experience working at UNESCO both at its Headquarters and in the field. After working at the Division for Youth and Sports Activities and at the Section for Technical and Vocational Education in Paris, she served as Programme Specialist in charge of secondary education and quality of learning at the Regional Bureau for Education in Bangkok from 2004 to 2011. From 2012 until June 2016, she led the Education Programme at UNESCO Beijing Office, coordinating and implementing activities in East Asia. Ms Nozawa pursued her studies in Japan, the United Kingdom and France and holds a Pre-Doctoral Diploma in Comparative Research on Development from Ecole des Hautes Etudes en Sciences Sociales in Paris.

Cesar Onestini

Director

European Training Foundation

Cesar Onestini is the Director of the European Training Foundation. Prior to joining the ETF, Mr Onestini was Deputy Head of the EU Delegation to India and Bhutan. He began working for the EU in 1995, starting by promoting cooperation in education and training. He has developed intercultural education projects, coordinated school partnerships and teachers' mobility across Member States, and was part of the team that developed proposals for the first EU programme for Lifelong Learning.

He has since worked for the European Union in external relations, international trade, security and crisis management, and in the EU Delegation to the United Nations in New York.

He was a Visiting Fellow at the Lee Kuan Yew School of Public Policy of the National University of Singapore in the 2013-14 academic year. Mr Onestini is a graduate of Oxford University.

Ethel Agnes Pascua-Valenzuela

Director
Southeast Asian Ministers of Education Organization Secretariat

Ethel Agnes Pascua-Valenzuela is the Director of the Southeast Asian Ministers of Education Organization Secretariat (SEAMEO Secretariat). Prior to her current position, Ms Pascua-Valenzuela served as a Deputy Director for Programme and Development at the SEAMEO Secretariat, where she worked and advocated for region-wide SEAMEO programmes with the Asian Development Bank for SEAMEO Colleges, and with UNESCO for inclusive and quality education, teacher professional development, open educational resources, massive open and online courses, and education for sustainable development and global citizenship.

Ms Pascua-Valenzuela also served SEAMEO INNOETCH as Head/Senior Specialist of SEAMEO INNOTECH from 2006 to 2015, and also served at the Philippine government as Education Commissioner of UNESCO National Commission from 2000 to 2010. She has published extensively in international and local articles, journals, technical reports and guidelines.

Ms Pascua-Valenzuela holds a Doctor of Education in Educational Management, a Masters of Arts in Science Education, and a Bachelor's Degree in Secondary Education.

Ronny Sannerud

Professor, Faculty of Teacher Education and International Studies, Department of Vocational Teacher Education
OsloMet, Norway

Ronny Sannerud is a professor in the Faculty of Teacher Education and International Studies, Department of Vocational Teacher Education, in OsloMet, Norway. Mr Sannerud's research interests focus on action research, evaluation, workplace learning, and professional didactics in different regions, covering Africa and Europe. One of his research projects aimed to provide young people and adults with sustainable livelihoods by reducing the gap between the content of education and the needs of the labour market.

Mohammed Sennou Slassi

President of the Management Board
Observatoire des Branches, Morocco

Mohammed Sennou Slassi is the President of the Management Board of the Observatoire des Branches in Morocco. Mr Slassi is also a member of the Confederation Generale des Entreprises du Maroc, which is committed to improving the international business and investment environment through its 52 business councils that represent the interests of the business community in the public policy development.

Mohamed Slassi Sennou holds a Ph.D. in Science from Paris XI-Orsay University, France, and is a graduate of Ecole Supérieure de Commerce de Paris and Institut National des Sciences et Techniques Nucléaires de Saclay.

Sampo Suihko

General Director
Omnia - The Joint Authority of Espoo Region, Finland

Sampo Suikho is the General Director at the Omnia Finland – The Joint Authority of Espoo Region in Finland. Mr Suikho is responsible for the development of strategies and oversees the implementation of action plans. He also manages, leads, plans, organizes and supervises OMNIA's activities, a mandated body and public sector organization that operates within the greater Helsinki area with a target group of over 1.5 million people. The services offered range from regional development and projects to education and training, and directly reaches over 40,000 learners in the public and private sectors. Omnia is a UNEVOC nominated Center of Excellence in VET.

Prior to his current position, Mr Suikho was Deputy Mayor and Director of Development (Education and Culture) of the City of Espoo. Mr Suikho has a Master of Philosophy and a Master of Political Science from the University of Helsinki, Finland.

Erik Swars

Head of International Affairs
Federal Institute for Vocational Education and Training, Switzerland

Erik Swars is the Head of International Affairs at the Federal Institute for Vocational Education and Training, Switzerland. He is responsible for various international cooperation projects in skills development, and also serves as the Coordinator of the UNEVOC Centre. Mr Swars has more than 15 years of international experience in both academic education and VET. Before joining SFIVET, he held positions at the Ecole Polytechnique Fédérale de Lausanne and at the Swiss Post. Together with the former Swiss parliamentarian Rudolf Strahm, Mr Swars co-authored a book on Vocational and Professional Education and Training in Switzerland, published 2016.

Mr Swars holds a Degree in Economics from the University of Tübingen, Germany, and an MBA from the University of Lausanne, Switzerland.

Miki Tammilehto

Director General of the Department for General Upper Secondary Education and VET
Ministry of Education and Culture, Finland

Mika Tammilehto is Director General of the Department for General Upper Secondary Education and VET at the Ministry of Education and Culture of Finland. Mr Tammilehto's department oversees initial and continuing VET, general upper secondary education and national matriculation examination, lifelong learning, employment training, the preparation of legislation and financing of VET, and general upper secondary education. The department is also responsible for qualifications structures, student selection criteria, work-based training, and international cooperation in VET and general upper secondary education. Mr Tammilehto has been working in Ministry of Education and Culture of Finland since 2001.

Edwin Tarno

Principal
Rift Valley Technical Training Institute, Kenya

Mr Edwin Tarno is Principal of the Rift Valley Technical Training Institute in Eldoret, Kenya, a Centre of Excellence in TVET in East Africa. Mr Tarno is also an Executive Council Member of the Commonwealth Association of Polytechnics in Africa. In 2010, he was awarded the Head of State Commendation by the President of the Republic of Kenya for distinguished service in technical education, and in 2012 was awarded a life membership award for the President's Award in Kenya.

Mr Tarno holds a Master's Degree in Business Administration-Entrepreneurship and Marketing from Moi University, Kenya. He is currently undertaking a Ph.D. in Organizational Development and Transformation at CEBU Doctors University in the Philippines.

Birgit Thomann

Head of Department, Director
Federal Institute for Vocational Education and Training, Germany

Birgit Thomann is the Head of the International Department at Federal Institute for Vocational Education and Training (BIBB), Germany. After gaining international experience in France and the Middle East, Ms Thomann worked as a senior advisor for VET and was the team leader of a bilateral VET project in the Western Balkan region. She is an appointed member in an expert committee on education at the German Commission for UNESCO and lecturer at the University of Darmstadt. She is a political and social scientist with an additional Master in Adult Education.

Stefano Tirati

Vice President
European forum for VET

Stefano Tirati is Vice President of the European forum for VET, one of the leading European-wide associations that has been created by, and for, VET providers. Prior to his current position, Mr Tirati directed a vocational training centre in Tuscany, implementing IVET, apprenticeships, CVET, vocational guidance, entrepreneurial support. He has also led several research and pilot projects. He has been responsible for establishing, nurturing and further expanding partnerships involving a wide range of stakeholders: local VET providers, SMEs and multinational businesses, public authorities, research centres, chambers of commerce, social partners.

Mr Tirati's recent assignments include acting as an advisor at Eurofound, in the FOME research project, focusing on apprenticeship systems and advanced manufacturing and acting as a member of CEDEFOP's Working Group on Technology Enhanced Learning.

Mr Tirati graduated in educational sciences at University of Florence, Italy.

Rosanna Urdaneta

Deputy Director General for Policies and Planning
Technical Education and Skills Development Authority, Philippines

Rosanna Urdaneta is Deputy Director General for Policies and Planning at the Technical Education and Skills Development Authority in the Philippines. Ms Urdaneta is responsible for ensuring that TESDA's policies are well executed and remain aligned to its vision, and that TVET remains relevant at a national level. She is also in charge of spearheading key policy reforms directed at guaranteeing the readiness of the TVET sector for the Fourth Industrial Revolution. She facilitated the strengthening of industry participation and partnership in TVET through the formulation of a blueprint for the TVET sector in the country; this blueprint is known as the National Technical Education and Skills Development Plan 2018 to 2022.

Ms Urdaneta has exemplary career in the government and she has been involved in project development, management and evaluation, systems and methodologies design, and staff and institutional capacity-building.

Juan Carlos Villagran de Leon

Head of Office
UN-SPIDER

Juan Carlos Villagran de Leon is the Head of the UN Platform for Space-based Information for Disaster Management and Emergency Response (SPIDER). He is an expert in disaster risk management and early warning systems and helps to promote the use of space-based technologies in disaster risk reduction, preparedness and emergency response efforts. He has also conducted research in experimental condensed matter physics, geophysics and disaster risk management.

He previously worked for UNU-Environment and Human Security as an Officer in risk management. Mr Villagran de Leon has a Ph.D. from the University of Texas, USA.

Volker Wedekind

Associate Professor of Vocational Education, Deputy Head of School, Faculty of Social Sciences
Centre for International Education Research
University of Nottingham, United Kingdom

Volker Wedekind is an Associate Professor of Vocational Education at the Centre for International Education Research (CIER), one of six research centres in the School of Education, University of Nottingham, United Kingdom.

His research focuses on vocational education policy in South Africa and curriculum responsiveness in vocational systems to labour market trends. His current research focuses on vocational education and migration, understanding vocational education in different contexts, and the historical development of vocational systems in sub-Saharan Africa. He teaches courses in research methods and education and development at undergraduate and post-graduate levels.

Prior to joining the University of Nottingham, Mr Wedekind held positions at the Universities of KwaZulu-Natal and Witwatersrand in South Africa, including periods as Head of School and Deputy Dean and Research Chair in Vocational Education and Pedagogy.

Boon Seong Woo

Director of the Learning Academy
Temasek Polytechnic, Singapore

Mr Boon Seong Woo is the Director of the Learning Academy at Temasek Polytechnic in Singapore. Mr Woo is responsible for driving pedagogical initiatives and innovations in digital transformation and analytics, and engaging lecturers in the design of innovative learning spaces. He also teaches and is responsible for consultancy projects and supervising a multi-disciplinary team in the delivery of courses and industry projects.

Over the course of his career at the polytechnic, Mr Woo has taught in the School of Informatics and IT, before joining the staff development team at the Learning Academy in 2011. Before joining Temasek Polytechnic, Mr Woo worked as an instructional designer and a project manager with a multimedia communications and consultancy firm, and worked with government agencies and statutory boards.

Mr Woo has a Doctorate Degree in Education from the University of Sussex, United Kingdom, and a Master's Degree in Information Environments from the University of Queensland, Australia.

Yang Wenming

Director

Shenzhen Polytechnic, People's Republic of China

Wenming Yang is the Coordinator of the UNEVOC Centre at Shenzhen Polytechnic in P.R. China. Additionally, he is the Director of the Shenzhen Translation Association and an expert in the Think Tank of Southern Metropolis Daily. He is also an advanced researcher at the University of Michigan, a visiting scholar to the University of Wolverhampton and University of Northumbria, and an expert in the Assessment Panel of Professors and Associate Professors in Guangdong province and Shenzhen.

He has been involved in 15 national and provincial research projects, and has produced 15 textbooks and 30 research papers. Mr Yang is currently engaged in international and comparative TVET research, as well as international TVET academic exchanges.

Iñigo Araiztegui

Manager of the International Department

TKNIKA, Basque Country, Spain

Iñigo Araiztegui is Manager of the International Department at TKNIKA. He coordinates the UNEVOC Centre and the Erasmus+ mobility programmes aimed at teachers of the Basque Network of TVET centres. He also collaborates in different international projects and initiatives, and provides training courses to TVET teachers on topics related to internationalization.

Iñigo Araiztegui holds a Degree in Philosophy from the Basque Public University, a Master's Degree in Teaching, and a Master's Degree in Philosophy Science and Values.

Ashok Alexander Sridharan

Lord Mayor of Bonn, Germany

Ashok Alexander Sridharan has been the the Lord Mayor of Bonn since 2015. He has over 20 years of experience in municipal administration. Before he became the Mayor of Bonn, he was the Head of Finance, School, Sport, Culture and Town Twinning and held the post of Deputy Mayor.