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TVET MODELS, STRUCTURES AND POLICY REFORM

EVIDENCE FROM THE EUROPE & EURASIA REGION

JULY 2014

This publication was produced for review by the United States Agency for International Development. It was prepared by Caroline Fawcett, Gwen El Sawi, and Christine Allison for JBS International, Inc. with the assistance of the SOCIAL II team

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ACRONYMS

AGCE	Advanced General Certificate of Education (UK)
BIBB	Bundesinstitut für Berufsbildung (Germany)
CAP	Certification of Professional Aptitude (France)
CEDEFOP	European Centre for Development and Training
CTS	Continuing training system
E&E	Europe and Eurasia
ECOP	Education for Competitiveness Operational Program (Czech Republic)
EFA	European Finance Association
ET 2020	Education and Training 2020 (Czech Republic)
ETF	European Training Foundation
EU	European Union
GCSE	General Certification of Secondary Education (UK)
GER	Gross enrollment ratio
GNVQ	General National Vocational Qualifications (UK)
ILO	International Labor Organization
ISCED	International Standard Classification of Education
ITS	Initial training system
MES	Ministry of Education and Science (Republic of Macedonia)
MEYS	Ministry of Education, Youth and Sport (Czech Republic)
NGO	Non-governmental organization
NQF	National qualifications framework
NVQ	National Vocational Qualifications (UK)
PHARE	Programme of Community Aid to the Countries of Central and Eastern Europe
SEA	Secondary Education Activity (Republic of Macedonia)
SZI	Szakiskola (Hungary)
SZKI	Szakkozepiskola (Hungary)
TVET	Technical and vocational education and training
UK	United Kingdom
UNESCO	United Nations Educational, Scientific, and Cultural Organization
USAID	United States Agency for International Development
VEP	Vocational Education Program (Georgia)

EXECUTIVE SUMMARY

The purpose of this paper is to describe and analyze trends in Technical and Vocational Education and Training (TVET) in the Europe and Eurasia (E&E) region, identifying the major structures, reforms, policies, and effective practices in the region.[1] This is not an easy task, as there are many variations among country systems and large differences in the assessments of TVET structures. Yet there are common factors and trends that shape these systems. The ultimate aim of this paper is to provide information and analysis that will help policy makers and program developers better understand the existing TVET structures, policies, and practices, and to identify the most promising reforms. The analysis examines reforms within a broader context of secondary and tertiary education, TVET, and education and training for workforce development.

The paper is organized into four main sections. The first section describes three models of TVET structure and reform—the United Kingdom, Germany, and France—widely used throughout the world and a synthesis of those models, lessons learned, and reform trends. The second section describes and analyzes the TVET structure and enrollment patterns in the 24 countries of Europe and Eurasia. The third section provides case studies of three countries that have undergone major TVET reforms: Czech Republic, Hungary, and Republic of Macedonia. The final section summarizes the main lessons learned and makes recommendations to USAID for addressing TVET issues relative to economic growth and development, workforce and youth development, and education and training systems in the E&E region.

FINDINGS & LESSONS LEARNED

The Models: An in-depth description and analysis of the three Western modes of structuring TVET (UK, Germany, and France which are widely used as models throughout the world) is summarized in Table 1: Key Characteristics of TVET Models on pages 11-12. The main components of effective programming and reform in these systems can be summarized as follows:

1. **National Qualifications Framework (NQF):** Education and training systems, in partnership with private sector stakeholders, must develop, classify, and establish sets of criteria for levels of learning and competency attained in knowledge, application, skills, and the use of technology. NQF has become the cornerstone of most European and Australian TVET reforms.

2. **Curriculum Blending and Ladders:** The curricula at the upper secondary and tertiary levels have been widened to incorporate both general and vocational-technical content in experiential learning programs. Blending allows for greater mobility within the system, whereby students who demonstrate competency can access higher education opportunities. There should be clear "ladders" and opportunities for TVET students to progress in their careers and to move on to additional training or higher education through lifelong learning initiatives and specialized partnerships in higher education.

3. **Apprenticeships, Internships, and On-the-Job Learning**: The effectiveness of practical learning through apprenticeships, internships, and on-the-job learning has been demonstrated by the German dual system. Both the UK and German experiences have shown the benefits and highlighted the challenges in generating sufficient numbers of apprenticeship and internship placements for young people. Public policies along with business support are essential to promoting and supporting this TVET component. Training on how to implement apprenticeships

1. E&E (Europe and Eurasia) refers to the 24 countries in the region consisting of USAID-assisted countries (* indicates ongoing assistance) Albania*, Armenia*, Azerbaijan*, Belarus*, Bosnia and Herzegovina*, Bulgaria, Croatia, Czech Republic, Estonia, Georgia*, Hungary, Kosovo*, Latvia, Lithuania, Republic of Macedonia *, Moldova (Republic of)*, Montenegro, Poland, Romania, Russia, Serbia*, Slovakia, Slovenia, Ukraine*

(for students, teachers, and administrators of both TVET institutions and hosting business enterprises) is an important component in this process.

4. **Lifelong Learning and Adult and Continuous Education**: Effective career guidance—as early in the education system as possible—is needed to help limit student uncertainty regarding training and employment, lower drop-out rates, and improve student commitment. Opportunities and access beyond initial education and training is needed to: (a) provide "second chances," (b) retrain to meet labor market demands and changing circumstances and technology, (c) enable mobility with certifications that meet standards throughout country, and (d) enhance social inclusion for unemployed and underserved populations, i.e. minorities and traditionally excluded populations.

5. **Partnerships with Industry and the Private Sector**: Working with social partners, such as industry associations, nonprofit organizations, and other NGO entities, has proven to be helpful in the reform process. Industry and Sector Skills Councils have been established to elicit and coordinate information, research labor market needs, and assist in establishing partnerships among educational institutions and social partners. These partnerships are essential to providing relevant, high quality training through any TVET system.

6. **Mix of Financing of TVET and Equity**: The three models provide a continuum of financing options for TVET systems: (a) full subsidy of TVET within the national education system (France), (b) private sector financing and delivery (UK), and (c) mixed public and private financing (Germany). All reform systems consistently demonstrate the benefits of public-private support for TVET, offering "needs-based" public sector subsidies and private sector financing through user fees to a wider group of participants and firms.

7. **TVET and Higher Education**: Throughout Europe and the world, TVET is rapidly being integrated into tertiary education, particularly through the use of short-cycle programs linked to two-year certification programs. Incorporating these wider tracks in higher education offers more flexibility in achieving qualifications and skills.

8. **TVET institutions should be linked with higher education institutions** with clear procedures for how TVET students can continue to learn and progress in their careers or move on to higher education or continued learning.

E&E Region TVET Reforms—The Torino Process: Prior to the 1990s, the Soviet-style socialist model of centralized planning and workforce education was the dominant TVET model in most Eastern European and Eurasian countries. This model connected the projected demands of a highly centralized production economy to the supply of technical graduates from the TVET system. After the dissolution of the Soviet Union (1991), these countries have chosen distinct paths to market-based economic development, including policies and programs to support workforce development through TVET. Most countries in Eastern Europe and Eurasia have followed the principles of the Torino Process (see page 14) that builds relationships among education, government, and private sector firms and industries. The support of donor agencies, such as the European Training Foundation (ETF), has furthered these reforms primarily through the Torino Process.

Key concepts of the Torino process include the following components:

- Linkages to economic development strategies
- Tools designed to monitor the economic market that allow for regular and systematic consultation and involvement of social partners
- Fostering cooperation among higher education institutions

- Emphasis on lifelong learning, integration of initial and continuing TVET to stress formal, non-formal, and informal learning

These components have become a foundation for TVET reform throughout the region and have largely been supported through ETF and EU funding. Most E&E countries have adopted the dual system model, linking public sector programs for initial training and vocational education (through upper secondary and tertiary education) with private sector support through apprenticeships, on-site training components, and upper secondary education and post-secondary training. A number of countries in the region were at the forefront of reform prior to the 2010 initiation of the Torino Process. The Republic of Macedonia, Montenegro, Bosnia and Herzegovina, and Georgia have all been leaders in national TVET reform, yet for all countries, reform remains a continuing process.

Case studies of three countries. The Czech Republic, Hungary, and Republic of Macedonia were analyzed to understand better a representative sample of TVET structures, policies, and practices in E&E countries. The three case studies present a wide range of policy and program reforms at the upper secondary and higher education level of TVET. The case studies fully describe the structures, policies, practices, and reform efforts of each country. Below is a brief summary of each country with the primary focus of its reform efforts.

The Czech Republic offers a complete and comprehensive reform of a dual system: (a) significant strides in achieving skills standards through a national qualification framework, (b) establishing TVET in higher education and lifelong learning systems, (c) broadening education at the upper secondary levels by blending general and vocational education tracks, and (d) building a wide range of partnerships with social partners, from industry private sector organizations to new population groups. The comprehensive reform of the Czech system is integrated and holistic.

Hungary has built similar types of dual TVET reforms into its educational system, yet the policies have been somewhat overlapping and inconsistent. This "messy" reform in Hungary, though, has achieved significant progress, such as widening the upper secondary tracks through blending the curriculum of general and vocational education and expanding TVET into the higher education system and lifelong learning programs. Private sector partnerships, quality, and access continue to be challenges in the upper levels of the Hungarian education system.

Republic of Macedonia offers a distinct case of TVET reforms that remain unfinished. Republic of Macedonia, like most countries in the E&E region, is promoting the dual TVET model, offering upper secondary education as well as apprenticeships and internships in companies. Starting in 2005, Republic of Macedonia initiated many important reforms in TVET, such as launching the national qualifications framework and establishing lifelong learning and adult education. Yet due to under-funding and lack of political will, many of these initiatives remain unfinished.

TVET REFORM: LESSONS LEARNED

Analysis of the model TVET systems of Europe, along with the E&E region case studies, suggests there are seven major components to effective TVET reform:

1. Partnerships among education and training institutions and industry and private enterprises are essential for building a relevant and highly skilled labor force that supports economic growth and development. It is essential for education and training institutions to work with business enterprises to assure that the skills being taught are needed in the workplace.
2. National Qualifications Frameworks that set criteria for levels of learning and competencies attained through education and training are developed in partnership with industry and the private sector.

3. Quality curricula and teaching coupled with on-site, practical hands-on experience, both linked to the needs of enterprises, are needed to produce an appropriately skilled, employable labor force.

4. TVET institutions should be linked with higher education institutions with clear procedures for how TVET students can continue to learn and progress in their careers or move on to higher education or continued learning.

5. Lifelong learning, adult, and continuing education policies and practices, combined with career guidance and counseling, are needed to continuously meet changing needs of the labor market and provide "second chances" for people to retrain to fit labor market demands.

6. Diversified sources of financing of TVET are needed with particular attention to alternative financing through user fees, along with both public and private sector support, to meet needs of both students and private industry.

Effective TVET reform should include all six of these components, but without other key mechanisms, they cannot sustain effective TVET reform. TVET reform also requires a long-term, system-oriented mindset among policy makers and enterprise stakeholders:

- Human resource development and training is essential to economic growth and viability.
- Ongoing commitment of time and political will to allocate human and financial resources is required to create and sustain systems for ongoing improvement of education and training.
- Management and policies of TVET systems must be industry-focused, enterprise-specific, and demand-driven.

TVET FORWARD FOR USAID: RECOMMENDATIONS

The above analysis highlights the lessons learned from the E&E reforms of the TVET systems. In addition, USAID policies provide guidance on the new priorities and practices for effective TVET programs within the Agency. Five new USAID policies shape the current context of USAID policies and programs in TVET: USAID Forward, USAID Evaluation Policy, USAID Education Strategy, USAID Gender Equality and Female Empowerment Policy, and USAID Youth Policy. Based on these policy directives, TVET priorities for the E&E region center on the following five principles:

- Using evidence based research and evaluation on TVET policies and programs. Rigorous performance and impact evaluations along with systematic reviews of policies and programs are needed to ensure that TVET reforms achieve expected outcomes and behaviors. Conducting this policy and evaluation research is a high priority to establish the types of policies and programs that can work.
- Promoting innovations and new ideas. USAID and other donors are currently experimenting with new models to achieve local capacity, partnership and effectiveness in TVET projects. Special attention has been given to TVET reforms, particularly in the areas of new qualifications frameworks, skill competencies, partnerships with industry, and increasing access to higher education and social inclusion. The section on Innovation in TVET Case Studies highlights some of these innovations and the evidence and indicators of successful outcomes.
- Supporting equity and access to education and training through the reforms of the TVET system. Specific reforms of the TVET systems have been developed to increase equity and access to secondary and post-secondary education. The national qualifications and competency systems within TVET encourages education and employment mobility. The creation of lifelong learning systems creates various entry points for students to return to education—a "second chance" to

gain the skills and education required to be competitive in the workforce. Inclusion of gender considerations and disadvantaged groups remains a priority for all TVET systems in the E&E region.

- Building partnerships with stakeholders to encourage scale and sustainability in TVET. To achieve greater relevance, equity and access, the TVET systems of the E&E region must work through a wide network of partners. In so doing, partnerships can ensure wider participation in TVET programs, alongside demand-driven solutions to ensure that TVET prepares youth for the needs of the private sector. In addition, mixed financing of TVET, with both public and participation in paying for TVET, allows for greater scale and sustainability.

- Policy coordination and governance. Effective TVET crosses various levels of government, as well as a host of Ministries and a wide range of stakeholders. TVET requires established coordinating structures of governance and a policy framework that encourages incentives and rewards for cooperation and coordination. Leadership is needed within a wide range of governmental and non-governmental organizations, as well as government to ensure effective budgeting, management and procurement processes to implement the policy reforms and programs.

I. INTRODUCTION

In the past two decades, economic and political transitions in Europe and Eurasia (E&E) countries have led to fundamental reforms of the region's technical and vocational education and training (TVET) systems.[2] A highly skilled workforce is a key ingredient to promoting productivity, economic growth, and competitiveness within the E&E region and in the global marketplace. Equipping the workforce with necessary skills is a fundamental role of the education system, particularly TVET programs. TVET enrollment remains high in upper secondary education for many E&E countries, and TVET has now expanded its role into tertiary and continuous education in several E&E countries. Most governments in the E&E region have undertaken important policy reforms in their education and TVET systems, yet the reform agenda remains unfinished.

This paper explores the context, policies, and practices in the TVET systems of 24 E&E countries. The first section of the paper highlights the main models of TVET found in the E&E region. The second section of the paper examines the main trends in TVET reforms in the 24 countries of the E&E region, identifying the main structure of the TVET system, the enrollment patterns, and the main elements of the reform agendas in the countries. The TVET reforms reflect the underlying educational structures in the countries, and mirror the broader shifts in educational policies in the respective countries. Three cases are examined in-depth, and the final section highlights specific challenges facing the reforms, the main lesson learned and ways forward for USAID in addressing TVET reforms, as it examines its effectiveness and sustainability.

The ultimate objective of this study is to provide information and analysis that will help policy makers and program designers better understand existing TVET structures, policies, and practices. This paper provides the reader with a straightforward explanation of an effective TVET system, basic tools for working with TVET systems, and the various policy paths that E&E countries are now taking to face these challenges. This will help policy makers and practitioners understand the need for urgent institutional reforms of TVET systems. Most simply, the private sector needs to be engaged with the policies and practices of the TVET system. Similarly, the TVET system must be flexible and responsive to the knowledge and skills needs of the labor market, especially in growth enterprises. In short, TVET is a complex and challenging endeavor involving multiple stakeholders and institutions that must work together to create an effective and relevant system.

KEY RESEARCH QUESTIONS AND METHODOLOGY

The analysis was based on the following research questions:

- What are the main concepts, structures, and models of TVET?
- What are the policies, practices, reform trends, and lessons learned across the 24 E&E countries?
- What countries have undertaken significant reforms of their TVET system? Have these reforms achieved the intended objectives? What has worked or not?
- How do these reforms compare with those in Western European-model countries?

To answer these questions, two types of literature reviews were completed: (a) documentation of the three models of TVET—UK, France, and Germany—with particular attention to the major reforms of these systems during the last thirty years; and (b) documentation on all 24 countries' TVET systems,

2. Please see the next page which lists the specific 24 countries to be studied in this report.

including overviews of the existing TVET systems, in-depth country-based studies of recent reforms in specific countries, and regional studies of reform of TVET education in the E&E region.

The paper presents a wide range of information on TVET and the factors that shape TVET for 24 countries of Europe and Eurasia. The following countries are included in the analysis:

Albania	Armenia	Azerbaijan	Belarus	Bosnia and Herzegovina
Bulgaria	Croatia	Czech Republic	Estonia	Georgia
Hungary	Kosovo	Latvia	Lithuania	Republic of Macedonia
Moldova	Montenegro	Poland	Romania	Russia
Serbia	Slovakia	Slovenia	Ukraine	

The regional analysis allows us to identify major TVET reforms across countries and identify new and effective reforms. To the extent possible, all countries have been included in the analysis. Unfortunately, several countries, such as Kosovo and Tajikistan, have relatively limited information and poor quality data. The comparative analysis of TVET structures, enrollment, and financing (especially in upper secondary education) was a concern throughout. As cited in 2006 by UNESCO's International Centre for Technical and Vocational Education and Training in *Participation in Formal Technical and Vocational Education and Training Programmes Worldwide: An Initial Statistical Study*, there are large discrepancies in how TVET systems are structured, assessed, and funded. For that reason, this paper compares different sources of data and presents a qualitative analysis of the statistics, to ensure a full understanding of the appropriateness and comparability of various data on TVET. See Appendix A: Estimates of TVET Enrollment in the Upper Secondary Education System.

To a great extent, all of these reforms embraced common policy themes, including the development of national qualifications frameworks, the blending of vocational education and upper secondary education, enhancing apprenticeship and continuing education systems, and the development of partnerships with the private sector.

II. DEFINITION AND STRUCTURE OF TVET SYSTEMS

TVET is defined as general education along with the technological and practical skills needed for the workplace and daily life. Most multilateral and regional donor organizations, such as World Bank, and European Finance Association (EFA), use the following definition:

> *TVET is a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding, and knowledge relating to occupants in various sectors of economic and social life*…. Technical and vocational education is further understood to be:
>
> *a) an integral part of general education;*
>
> *b) a means of preparation for occupational fields and for effective participation in the world of work;*
>
> *c) an aspect of lifelong learning and a preparation for responsible citizenship;*
>
> *d) an instrument for promoting environmentally-sound sustainable development;*
>
> *e) a method of facilitating poverty alleviation.*
>
> *(UNESCO & ILO, 2002, p. 7)*

The original goal of TVET was to prepare youth to enter the workforce. In many developing countries, this remains the primary objective, making TVET an important part of the educational agenda. The global technological revolution, however, demands higher levels of education and technological skills for the 21st century, which is an important objective for all education initiatives and reforms, including TVET (UNESCO, 2011).

TVET contains three main organizational components. The first component, considered the foundation for TVET, is ***general education***. General education provides the basic skills required as a foundation for courses specifically related to vocational skills. Most countries do not clearly distinguish between the skills gained in general education and those gained in TVET. Although TVET traditionally follows general education (i.e. it depends on the general skills of basic education), recent reforms in Australia and the United Kingdom have turned this thinking around. In these countries, all competencies and skills can be gained in either general education or TVET. Under such reforms, general education offers a curriculum that includes vocational and workplace components, while TVET can lead to higher and more advanced education.

A second organizational component, ***Initial Training Systems* (ITS),** is often referred to as "vocational education." Initial vocational training begins as early as age 14 and is offered in the curriculum of upper secondary and tertiary education. However, new trends promote greater flexibility for initial vocational training by incorporating vocational skills in general or academic courses and expanding vocational education into tertiary education.

A third component, ***Continuing Training Systems* (CTS),** concerns lifelong vocational training and has become the new direction of TVET throughout Europe and around the world. This is largely in response to changes in the skills required as both labor supply and labor demands change. Continuous training systems support a wide range of skill learning and training, including on- and off-the job and formal and informal training funded from multiple sources, such as, state, labor union, enterprise, social organizations, etc. (Keating, et al., 2002).

Employment and workforce policies (laws and regulations governing certification, on-the-job training, collective bargaining agreements, tax policy, and credit) as well as industrial and social traditions, all strongly influence the implementation and success of continuous training. Continuous training programs reflect the ongoing adaptation of industries and firms to technology and its uses, an aging workforce that may need retraining, and globalization trends. The financial and tax policies of economies and enterprises determine the economic feasibility of firms and industries paying for training (Finegold & Soskice, 1988).

THREE MODELS OF TVET WORLDWIDE

TVET systems worldwide represent three distinct models that largely reflect the European experience: the UK liberal market model; the French state-regulated bureaucratic model, and the German dual system model. This overview highlights the main models, their structure and the new reform policies. The paper then develops a framework to study TVET policy reforms in the E&E region.

In the ***liberal market economy model*** (as seen in Great Britain and Australia), TVET and its supply reflect the demands of the private market led by industries and firms. In this approach, industry sector skills councils decide the types of occupational qualifications that industry and support firms need to train their workers. This is often referred to as a volunteer model, in which private industries and firms volunteer to pay for workers' training and apprenticeships. As a rule, state subsidies support "at-risk" youth to increase access and opportunities for them to obtain workforce education and training. In this model, governments (a) fund necessary research on occupational and industry demands for skills and (b) establish skills councils and national qualifications frameworks (Sellin, 2002). Training depends on the

demands of private companies and in some instances can lead to a narrow interpretation of certain professions.

In the ***state-regulated bureaucratic model*** (present in France, Italy, Sweden, and Finland), national education systems define, provide, and finance vocational education and training. Public-private partnerships with firms, industries, and labor unions function mainly on a consultative level. Within this model, TVET is largely an extension of the national education system and historically has underperformed due to theoretical curricula and insufficient exposure of students to the workplace with on-the-job or hands-on training. Therefore, the national curriculum fixes the content of the courses, but often does not reflect local labor demand realities (Sellin, 2002).

In the ***dual system model*** (seen in Germany, Austria, Switzerland, Denmark, and Norway), the design, development, and implementation of TVET all include a wide range of public and private stakeholders, such as trade unions and state agencies and organizations. Therefore, the dual system consists of strong public-private collaboration; enterprises finance apprenticeship training and state agencies finance the TVET schools. The main weakness of this model is the limited number of apprenticeship openings in enterprises and the high cost of vocational education compared to general secondary education (Sellin, 2002).

The following sections provide a more detailed explanation of the three TVET models, and also identify trends and lessons learned in each.

LIBERAL MARKET ECONOMY MODEL: GREAT BRITAIN

The liberal market economy model, first developed in Great Britain, focuses on the response of vocational education and training to the demands of the free market economy. This TVET model was the economic policy response to the massive privatization of industry in the 1980s. In Great Britain a network of 24 sector skills councils identifies the main occupational needs of industries, and tracks the expansion of service sectors, working intensively with both to establish occupational workforce projections. The main public policy responsibility is to ensure full information about industry needs and to share this information with education and training systems and job seekers. Australia, Canada, and New Zealand, in addition to other countries, have adopted the sector approach to TVET that supports rapid economic change as these countries move from the manufacturing to the service sector as the base of employment (Sung, Raddon, & Ashton, 2006).

The British education system is organized around two main structures: a provider structure and a qualifications structure. Figure 1 below presents the system as it exists today.

Initial Training Systems. In the British system[3] (England and Wales), general education is compulsory between ages 5 and 16. At age 16, students who have just finished middle secondary level education take the General Certificate of Secondary Education (GCSE) or the Advanced General Certificate of Education (AGCE). The General National Vocational Qualifications (GNVQs) was phased out in 2005 and replaced by GCSE to "promote the parity of esteem between vocational and more traditional academic subjects" (Cuddy & Leney, 2005). Upon completion of the GCSEs, students elect to continue academic education, to pursue vocational training, or to seek employment (Schoolswork, 2007). Thus, as early as 14 years of age, students start exploring the specific tracks of vocational courses open to them (Cuddy & Leney, 2005).

3. The system in Scotland differs from that in England in Wales. The qualifications framework for upper secondary level is not set by law, placing the responsibility on local schools and authorities. See TVET UK website: http://www.tvetuk.org/en/about-us/keyfacts.

At the upper secondary level, students can enter various institutions. Some students—now a minority—remain in upper secondary schools (grammar and comprehensive schools), while others enter various academic institutions such as community and two-year technical colleges, and sixth form colleges.[4] These colleges also provide the GNVQs and are the main off-the-job providers of youth training and apprenticeships. Through the early to mid-2000s, there was a rapid increase in the number of students entering university with the GCSEs and all universities except Oxbridge (Oxford and Cambridge) accept these qualifications (Cuddy & Leney, 2005; Sung et al., 2006).

The foundation of TVET in Britain is the newly reformed qualifications system—the National Qualifications Framework (NQF).[5] This new integrated framework awards an NQF level for all accredited courses. The NQF now comprises nine levels and largely integrates all types of learning in secondary education into a single qualifications framework. In addition, there is a separate stream of qualifications for higher education. These recent reforms of the British system have been an attempt to promote vocational qualifications as a highly regarded alternative to academic qualifications (Cuddy & Leney, 2005).

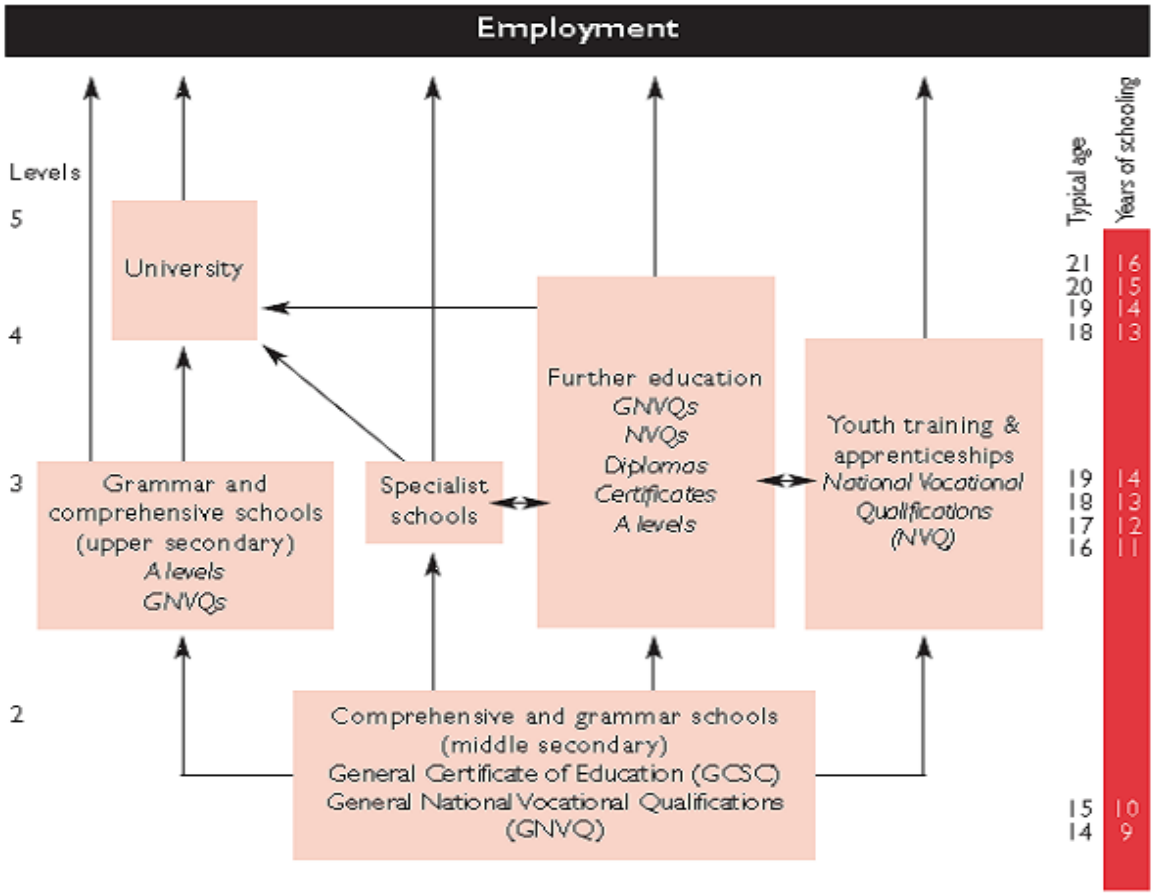
Continuing Training Systems. Perhaps Great Britain's most important contribution to TVET is in continuing vocational training through on-the-job training and apprenticeships. The British model relies on the "volunteerism" of private firms to conduct on-the-job training and apprenticeship programs. Yet, with few organized programs and limited financial support on-the-job and apprenticeship training has declined. Volunteerism has been problematic in various industries, and in recent reforms, the government has begun to promote this kind of training and human capital investment in small business and for adults transitioning to new career pathways. Britain now has developed special programs using vouchers to underwrite private training for key target beneficiaries. These pilot programs have experimented with new ways to promote public-private solutions in a market-led model (Cuddy & Leney, 2005).

Proponents of the market model stress its low cost and responsiveness to market demands. Private companies design and offer training specifically for the skills that are needed, which usually ensures that those trained will be able to put their skills to work. A disadvantage of the British model is that training depends on the demand of private companies, thus forcing a narrow interpretation of certain professions. Since broad professional degrees are less common in this model, it is uncertain whether skills learned in one company will be applicable in other company or professional settings (Cuddy & Leney, 2005).

4. Sixth form colleges provide specialized studies for 16 – 18 year olds usually, over a two year period of time where students choose the subjects they are interested in and take 3 – 4 courses a year. Year one ends with the Advanced Subsidiary (AS) Exam; the second year ends with the A2 exam, and completes A level education. The A2 units are studied during the second year, when students are given the opportunity to improve the marks obtained in the AS units where appropriate. See http://www.sixth-form.com/Gcse

5. NQF retrieved from http://www.courtauld.ac.uk/degreeprogrammes/documents/NQF.pdf

Figure 1: TVET Model in the United Kingdom[6]



STATE-REGULATED BUREAUCRATIC MODEL: FRANCE

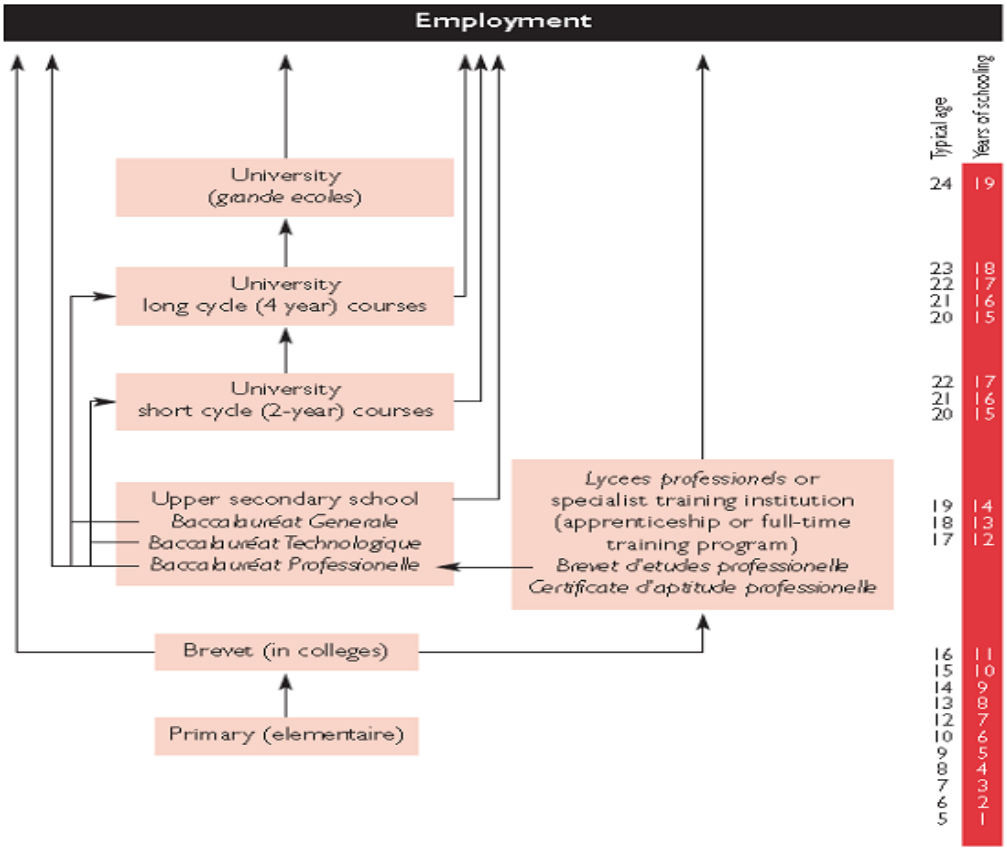
The French model centers on the state providing and controlling education, including TVET. The national government is the central player in the education system and is the main provider of vocational education. TVET is part of the national education system, funded by the government through its national education budget. The state takes on the responsibility of ensuring that workers are "qualified" and meet state-regulated vocational qualifications. Therefore, TVET policy is largely the responsibility of the Ministry of Education, and national education policy and state bureaucracies determine TVET priorities (Greinert, 2004).

Initial Training Systems. The foundation for TVET is the primary and lower secondary education. Starting at the upper secondary level, students take a *baccalauréat* qualifying examination in one of three forms: general, technological, or vocational. Apprenticeships or full-time training programs are another option open to students. The *baccalauréat* qualifications are supposedly set at the same level for all three forms, but a clear status difference exists. While the general course leads to entrance into university for a four-year degree, the technological course usually leads to a two-year university degree

6. Source: Keating et al., 2002; Sung et al., 2006.

and a vocational course usually leads directly into the labor market with these graduates increasingly attending tertiary institutions part-time (Sung et al., 2006; Centre INFFO, 2011).

Figure 2: Education System in France[7]



General education is compulsory in France between ages 6 and 16. At age 17, government-provided training programs, referred to as professional schools (*lycées professionels*) or specialist training institutions, offer vocational skills training for youth. In the past, these professional schools have been academically oriented, with little emphasis on applied workplace and technical skills. Recent reforms integrate technical and vocational skills into the *baccalauréat* curriculum of the upper secondary schools. Such an approach introduces new forms of training, such as work-based training, and expands the apprenticeship program (Centre INFFO, 2011). Figure 2 above provides an organizational chart of the French model.

Under recent reforms, all upper secondary degrees have some flexibility in becoming a prerequisite for university or tertiary enrollment. The integrated accreditation system allows for a wide range of diplomas, from the *Certification of Professional Aptitude (CAP)* at level five (lower grade vocational certificate) to an engineering diploma from an engineering college or university at level one. Tertiary or university education offers general and vocational courses, as well as courses with high levels of technical content, from training courses for technicians (two years of tertiary-level work) to engineering courses (five years of tertiary-level work). These vocational pathways reflect the distinct traditions of

7. Source: Keating et al., 2002; Sung et al., 2006; Centre INFFO, 2011.

the leading engineering colleges. Under the French model, TVET is largely controlled by strong centralized ministries that were once the core of state economic planning (Centre INFFO, 2011).

Continuing Training Systems. Continuing education and training in France—often referred to as lifelong vocational learning—provides continuous learning opportunities for the current workforce. These programs allow workers to learn new techniques, maintain or improve their vocational qualifications, and aid in professional development. Continuous training is organized through a decentralized, public-private partnership approach, in which central and regional governments work with national multi-sector unions in industry and commerce (Centre INFFO, 2010).

Several key policies are at the heart of France's continuous training system.

- **Training plan.** Employers are responsible for identifying training activities both inside and outside of the firm to develop their employees' skills.
- **Individual training leave.** Paid leave allows workers to attend training programs during work hours.
- **Individual training benefit**. Every employee earns a training time credit of 20 hours per year.
- **Personal and vocational skills analysis.** Staff members assess their personal and professional skills as part of developing a personal training and development plan for themselves as well as for the students (Centre INFFO, 2010).

The French model's advantages are its consistency and state regulation. Continuous training, clearly defined and systematic, offers uniform and consistent training within occupational skill categories. All trainees in a certain skill get the same certificate, which is applicable across companies and even industries. On the other hand, experts criticize the French model for being heavily politicized and rigid. Because it is state-run, a change in the TVET qualifications framework, for example, requires a series of time consuming bureaucratic approvals. Adversely affected political stakeholders often impede or challenge changes. Overall, TVET is less responsive to market changes and more responsive to the political climate (Greinert, 2004). To address these issues, various reforms, such as the National Qualification Framework (NQF) in 2002, have been adopted in the last decade.

DUAL SYSTEM MODEL: GERMANY

The German dual system of TVET uses a combination of the other two models. It offers vocational education at the secondary and tertiary levels, and provides an extensive system of apprenticeship and on-the-job training. Public-private partnerships form "intermediary" institutions that are independent of both the state and the private companies, yet regulate vocational education qualifications. These institutions ensure the stability of TVET in times of economic change and limit the control that the state and the market can have on the vocational education system.

The dual system largely promotes a *corporatist*[8] model in which the state's role is to provide an enabling environment that supports public-private partnerships between state, private businesses, and labor unions. The government supports highly regulated labor markets through wage and occupational policies. The high standards of workforce qualifications and the industry sector agreements that do not permit poaching of employees result in low turnover and long-term investment in human resource development. Recent political and economic change, such as the cost of reunification and rising unemployment, is prompting reform of this traditional system (Sung et al., 2006).

8. **Corporatist model:** theory and practice of organizing society (employers and employees) into industrial and professional corporate entities subordinate to the state. Used in Western Europe to mediate and reduce conflict between business and trade unions and enhance economic growth (Britannica Encyclopedia).

Initial Training Systems. German secondary education has traditionally comprised a three-track system of academic preparation: *Gymnasium*, *Realschule*, and *Hauptschule,* with a new model called the *Gesamtschule* recently being added as well. While this system encourages flexibility, in the past it has also offered unequal choices and tracked students into specific areas of study as early as age 10. At the end of primary school, students choose either academic or vocational tracks at the lower secondary level.

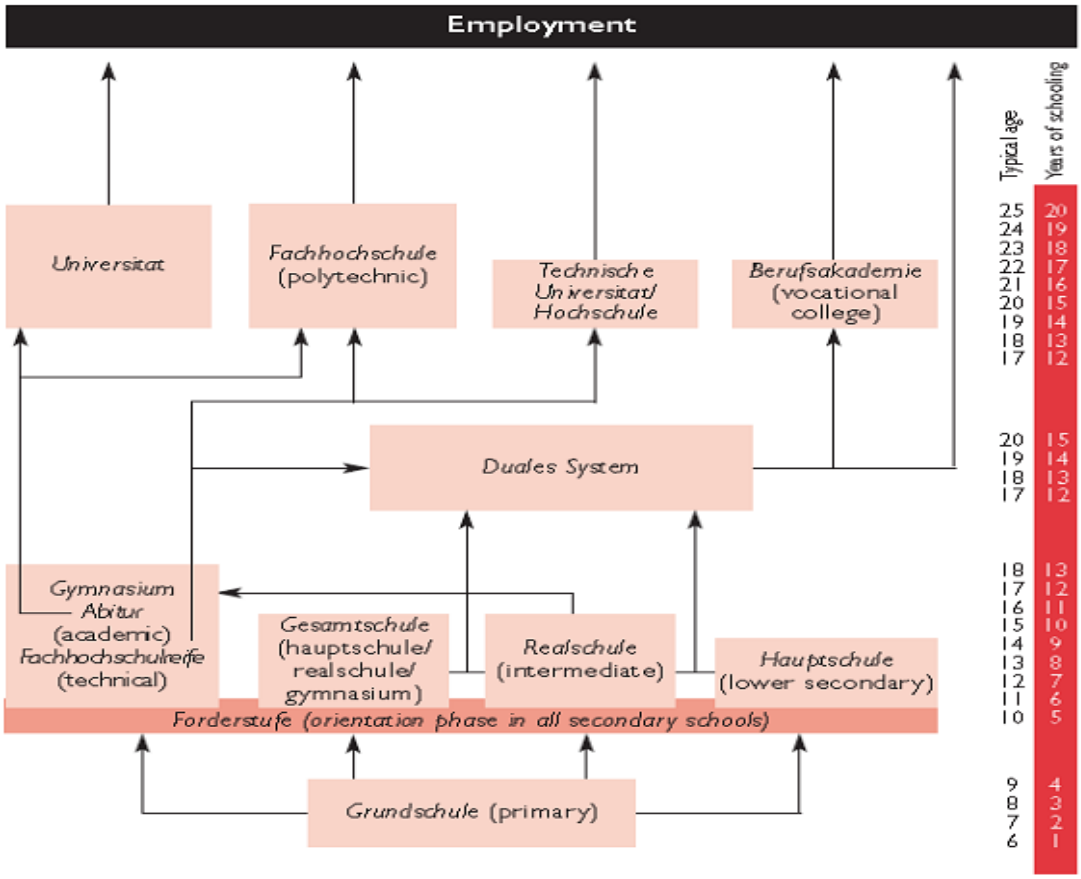
Around 30 percent of students enter the first track—academic G*ymnasium*—and finish with the final examination (*Abitur)* at the end of grade 12 or 13. After this examination, a majority of these students enter a university, though some may attend a university specifically intended for applied training *(Fachhochschule)*. After four or five years at this type of university, students receive a diploma and can enter the workforce (Keating et al, 2002; Sung et al., 2006).

The other secondary school tracks provide initial vocational training, and eventually feed into the dual system. The second track—the *Realschule*—is a secondary school emphasizing science courses in contrast to the *Gymnasium* that emphasizes the classics and humanities. *Realschule* students who meet the entrance requirements can continue their education past grade 10 at a *Gymnasium* and then follow the university or polytechnic track.

About 25 percent of students from primary schools enter the third track—the *Hauptschule*—a general secondary school with a relatively broad curriculum. Students in *Hauptschule* often have the same subjects as those in the G*ymnasium* and *Realschule,* though they are taught in less depth, as the course of study is shorter.

Most students from the *Hauptschule* and the *Realschule* enter the dual system, a system of schooling combined with apprenticeship. Vocational schools called *Berufsschule* combine two days a week in the classroom with three days at a professional employer. Around 60–70 percent of the young people have undertaken an apprenticeship over the last two decades in the various dual system programs of *Hauptschule*, *Realschule* and *Berufsschule*. Levels of participation in education and training are high, and government requires that all young people undertake some form of full- or part-time education and training until the age of 19 (Keating et al., 2002). Figure 3 presents the basic organizational schema of TVET education in Germany.

Figure 3. Education System in Germany[9]



The Federal Institute for Vocational Education (*Bundesinstitüt für Berufsbildung)*, a public-private institution, acts as the foundation of the TVET system. It rests on the willingness of employers to provide apprenticeship placements and the willingness of young people to complete them. Apprenticeship wages are lower than entry-level wages in Germany, and employers are willing to hire apprentices for short-term employment. The completion rates for apprentices in the dual system are high (typically 90 percent and over). Most experts praise the high standards of occupational skills in the German TVET. Over 65 percent of German labor force has occupational qualifications (Keating et al., 2002).

Continuing Training Systems. The continuing education and training system is an extension of the dual system. A large percentage of workers has completed initial training and pursues further training at a later time. Continuing vocational education and training is one of the biggest sectors within continuing education. It contains all courses and programs leading to qualifications that maintain and expand vocational knowledge and skills.

Compared to other European systems, the German system of continuing vocational training is characterized by its market-led approach. Continuing vocational training is offered by multiple providers, including companies and other employers; private institutions; chambers of commerce; professional associations; academies; polytechnics, technical and vocational schools; adult evening learning centers; employers' associations; occupation cooperatives; labor unions; church institutions; and correspondence

9. Source: Keating et al., 2002; Sung et al., 2006.

schools. Employers/companies are the most frequent providers of continuing vocational training, 61 percent of all firms in 2010 (Eurostat, 2014). Among those firms, in 2010 47 percent of employees participated in continuing vocational training (Eurostat, 2014). Private institutions and chambers are the second and third most frequent providers (see Buchter & Gramlinger, 2005).

Although participation in continuing education and training has increased in the German workforce, there are two caveats. The first is that employers are more likely to support continuous education and training for employees who are most likely to remain with the firm; employers seldom offer workers incentives for mobility. Secondly, new and emerging industries that do offer greater mobility may experience lower worker retention. Therefore, they have few incentives to support continuous education and training. This lack of market incentives for training workers is often cited as the main weakness in the German continuous training system (Keating et al., 2002). To encourage broader participation in the TVET system, the German government adopted a National Qualifications Framework to encourage more access and mobility to the system in 2005.

COMPARING TVET MODELS

These three models of TVET systems represent the main conceptual models of TVET used throughout the world, and their key characteristics are summarized in Table 1. The German dual model is particularly relevant to the E&E region and has influenced TVET in many countries. The system encourages inclusion through public-private partnerships and promotes apprenticeship and on-the-job training. It produces graduates with in-demand skills and results in high employment among graduates. Critics note that apprenticeships are demand-driven and influenced by the economy. Therefore, when the economy is doing well, the apprenticeship program thrives; however, when companies are unwilling to offer apprenticeships for certain skills or professions, apprentices do not get "hands-on training". There is also some concern that TVET within the dual system is independent of general higher education, and as a result, youth trained through TVET are less likely to enroll in higher education. Ultimately this leads to a misalignment of the skills needed in the workplace and those offered through training institutions (Greinert, 2004).

Table 1. Key Characteristics of TVET Models[10]

Characteristic	Great Britain	France	Germany
Training Market	Private companies choose the skills needed and offer training based on market demand. The market demand for specific occupational skills determines the type and standards of qualifications attained through training. The state does not control the size of the training market, rather, the Sector Skills Councils provide research and support industry groups in identifying skills standards and estimating occupational demand.	State agencies decide on the training demand and specify vocational trainings provided in state-run schools. Decision-making on the content of the curriculum is largely political and does not reflect economic demands. The general vocational training focuses on a smaller number of basic professions.	Public-private institutions are run independently of the general education system. The organizational structure combines public and private entities, and the training criteria are regulated by both the state and private companies.

10. Source: Keating et al., 2002, Greinert, W.D., 2004; Sung et al., 2006; Centre INFFO, 2011.

Characteristic	Great Britain	France	Germany
Training Qualifications	Professional qualifications depend on firm and industry demand in the labor market. Companies needing certain skills choose their qualifications for trainings, and skills are not always applicable across companies. States provide national skills frameworks to support this process.	Professional qualifications are established by the state education system--they are more theoretical and depend less on the occupational demands of firms and industries. As a result, students gain a more abstract understanding of their profession, which may be less directly applicable in the workplace.	Qualifications are established through the apprenticeship and vocational education system. Students sign a training contract with specific companies, in which they become employees with trainee status. Aside from their training, students are also required to attend a vocational school, with rules following the general education system.
Training Practices	Training practices are not standardized and each company or school can apply its own organizational structure, management, and curriculum. Schooling or in-company training varies based on the skills needed. Certificates are specific to each company or trade and there are few broadly accepted certificates.	Training schools are organized around specific occupations and professions. Demand varies given the number of students desiring certificates. Students either present general education records or take entrance exams to enter vocational schools.	Employers, trade unions, and legislatures coordinate to determine training practices and curricula. Career profiles are approved through acts of parliament.
Cost of Training	Paid individually, usually by the person that needs training. Companies also pay fees for training they provide. Specific government programs may include vouchers subsidize training for at-risk youth.	The state budget pays for vocational training. Schools limit the number of new entrants every year, creating an elitist system.	Individual companies pay for the training and costs are categorized as operating expenses. The public sector finances vocational schools. Trainees receive a stipend as employees from the company during their apprenticeship or on-site training.
Education vs. Training	State schools conduct vocational education and private providers or companies provide training. The state supports the national skills frameworks for accreditation. Various certifications within private industry lead to confusion and inefficiency.	Vocational education and training are combined in the school environment. Students learn a combination of theoretical and practical concepts related to their profession, with increasing qualifications over time.	The dual system combines concepts of education and training, incorporating knowledge and skills acquisition in both formal school and "learning while working" settings.

The main elements of reforms featured in these systems are:

- **National Qualifications Framework (NQF):** Education and training systems, in partnership with private sector stakeholders, develop, classify, and establish sets of criteria for levels of learning and competency. A National Qualifications Framework that establishes skills and competencies associated with each level of learning—best known as part of the British reform—has become the cornerstone of all TVET reforms. This approach allows a wide range of general

and vocational content to be inserted into various levels of education and creates wider pathways for learning skills needed by the workforce as well as qualifications to proceed to academic studies from the vocational and general education foundation.

- **Curriculum Blending and Ladders:** Throughout much of the European system, curricula at the upper secondary and tertiary levels are now broader, to incorporate both general and vocational content. This curriculum blending allows for greater mobility in the system, allowing students who demonstrate their qualifications to access a greater variety of pathways to higher education opportunities and career advancement.
- **Apprenticeships, Internships, and On-the-Job Learning:** The effectiveness of practical learning through apprenticeships, internships, and on-the-job learning has been demonstrated by the dual system model of Germany. Both Great Britain and Germany have experienced challenges in generating sufficient numbers of apprenticeship/internship placements for young people. Public policies are essential to promoting and supporting this TVET component along with private sector support and engagement.
- **Lifelong Learning and Adult and Continuous Education:** Effective career guidance in the education system is needed as early as possible to lower drop-out rates and improve student commitment by limiting their uncertainty regarding training and employment. Opportunities and access beyond initial education and training is needed to provide "second chances." Strategies include: (a) retraining workers to meet labor market demands, and changing circumstances and technologies; (b) mobility with certifications that meet standards throughout a country; and (c) social inclusion for unemployed and/or underserved populations, such as minorities and traditionally excluded populations.
- **Partnerships with Industry and the Private Sector Employers:** Working with social partners, such as industry associations, nonprofit organizations, and other NGO entities, has proven to be most effective in the reform process. Industry and Sector Skills Councils have been established to elicit and coordinate information, research labor market needs, and assist in establishing partnerships among educational institutions and social partners. Skill needs are identified through partnerships and coordination with local industry/sector and industry associations. Local planning authorities are engaged in the development, implementation, and evaluation of new programs.[11]
- **Mix of Financing for TVET and Equity:** The three models provide a continuum of examples of financing for TVET. The fully subsidized TVET within the national education system (France), the private sector financing and delivery in the UK system, and the mix of public-private financing in the German system, demonstrate the various methods of financing TVET. Recent reforms, however, have shown the benefits of mixed financing: public-private support allows TVET to serve a wider group of participants and firms through both *needs-based* public sector subsidies and *user fee-based* private sector financing.
- **TVET and Higher Education:** Throughout Europe and the world, TVET is rapidly becoming integrated into tertiary education, particularly through the use of short-term programs linked to two-year certification programs. Incorporating these shorter-term certificates within higher education offers more flexibility in achieving higher levels of skills and qualifications.

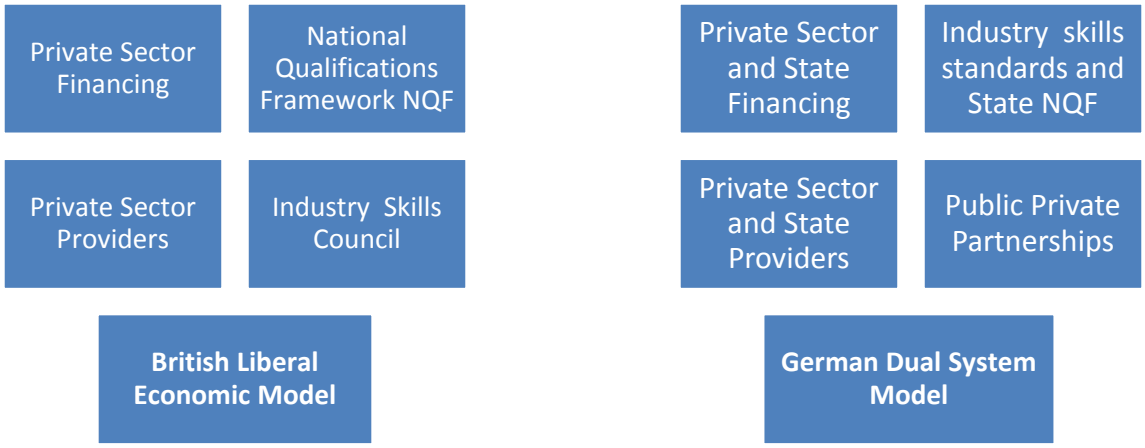
11. Adapted for E&E region from previous USAID TVET assessments and recommendations in Indonesia and Jordan by David Lowther, Australia, and Gwen El Sawi, USA.

Al-Weydan, H., Lane, T.S., Lowther, D., & El Sawi,, G. (2009). "Public-Private Partnerships: Lessons Learned from a Partnership: Consolidated Contractors Company and the Morganti Group Inc. (Ccc/Morganti), Al-Balqa' Applied University (Bau)/Al-Huson University College (Ahuc) and the USAID Jordan Economic Development Program". Paper 35. *Center for Social Policy Publications.*

CONSISTENT POLICIES WITHIN EACH MODEL

Within each of these systems, the TVET policies must be consistent to support an overall vision and strategy for the system. Often referred to as "policy consistency", this concept emphasizes the need to have a broad range of education and workforce policies that are mutually reinforcing and synergistic within the overall TVET system. This can best be illustrated by the British and German models. Figure 4 highlights the main policy elements that ground these distinct systems.

Figure 4. Policy Consistency of TVET Models



Great Britain's liberal economic model has created a demand-driven system where the private sector is held responsible for the training and investment in workforce. All major policies focus on leveraging the action of the private sector through the provision of training by private sector providers, the financing of training through firms and workers, and the direct engagement of industries in articulating their occupational and skills demands. State policy is held at a minimum, with the NQF and additional government subsidies to encourage greater access and mobility in the system.

Germany's dual system model also incorporates market approaches into its TVET system. Here both the state and the private sector stakeholders actively support the public-private partnership model. Each has specific roles and responsibilities in the TVET system, with the state education system supporting the initial training system through upper secondary and higher education, and the private sector responsible for the placement and financing of the apprenticeships and in-firm training, the design and development of occupational industry skills standards, and the overall coordination between the various stakeholders of the TVET system.

As can be seen from the European experience, a successful TVET system requires consistent policies on a wide range of policy issues, from governance, delivery, financing, and access. To achieve successful reforms, policies must be placed in the broader TVET policy framework of the country.

A FRAMEWORK FOR TVET POLICY REFORM

This section highlights the main policy issues to be considered as part of a TVET policy review. At the national level, the TVET reform policies need to reflect the broader economic, social and political context. At the institutional level, TVET policies must be considered in the context of the governance, service delivery (inputs and its organization), and financing related to the management of, access to, and mobility within the system. At the level of the beneficiary, the issues of access and relevance remain

central to an individual's decision to participate in the system. Six broad questions can be posed in the assessment of TVET policy reform:[12]

1. **What is the national context of TVET policy?** Broad socio-economic, regulatory and policy contexts are the foundation of the TVET system. Strategic vision aligned with social, economic and political context is an imperative for successful TVET systems in a country.

2. **What is the current governance structure and participation in TVET policy?** TVET is governed largely through a series of institutions and stakeholders. National legislation and regulation governs these relationships, and drives the policy dialogue and reform agenda in the countries. The roles of governments, private sectors, labor unions, industry associations, and advocacy groups must be understood within a policy reform process. For many countries, decentralization of education systems is the lynchpin in the reform, widening the participation of institutions and stakeholders in the process.

3. **What are the main inputs and service provision in the system?** The organization, management and quality of inputs into the system largely determine the efficiency of the system. Highly trained teachers and well-equipped classrooms, organized and well-managed schools, are all fundamental inputs into the TVET process. Service provision largely reflects the overall policy framework in a country. For example, the liberal economic model largely uses private sector training providers and incentives to provide training services. This is in contrast to the traditional formal TVET education provision supported by the State education system.

4. **What is the level and mechanisms for financing and budget of TVET?** TVET systems depend on adequate financing of their resources, budgeted through a sound and transparent process. In most developing countries, TVET funding is often the largest constraint in the system, largely reflecting fiscal constraints of the country. Funding includes the sustainability of financing mechanisms and other non-financial inputs. New mixed financing policies require considerable reform of budget policy and decision-making. Financial authority must be decentralized to the regional and local levels of the schools in developing demand-driven TVET programs.

5. **What policies promote access and relevance?** The new reforms largely are centered on the need for greater access and participation in the TVET system. There are a large number of policies that address equity in the system. For example, the NQF and curriculum blending and ladders provide greater access and mobility for all students throughout the education system, eliminating the tracking of students in TVET programs. Widening participation of TVET to civil society stakeholders invites greater access to box sexes and all ethnic groups. Private sector participation in curriculum planning, governance, scholarships, and apprenticeships allow for more relevant TVET instruction and better job placement. Social inclusion has been a fundamental policy shift and various TVET reforms address this important equity issue.

6. **What is the existing evidence of main outcomes, impact and sustainability of the policies?** Successful policies and practices lead to better outcomes and impact of the TVET system. At the student level, completion rates, drop-out patterns, labor market transition, self-employment rates, labor market mobility and contributions to community and volunteerism are all positive outcomes of successful TVET programs. Broader measures of impact and

12. Developed from the UNESCO Guidelines of Policy Review for TVET. UNESCO (2010). "Guidelines for TVET Policy Review". Paris, France: UNESCO.

sustainability are the overall equity, gender equality, reduction of poverty, social inclusion, sustainable finance, and links to strategic economic development. Drawing on the existing knowledge base allows for evidence-based policy making. Throughout the world, there is new attention to evidence-based policy making, such as through the Torino Process (see next section).

The "right" policy for a country depends on aligning the reforms with this broader policy framework within a country, whereby the consistency of policies provides the foundation for successful TVET programs. As we will see in the next section, the E&E countries have many similarities to their European counterparts. They have undertaken substantial reforms of their TVET system, and have participated in a comprehensive reform process. Which countries have been successful in implementing the reforms? What basket of reforms has been successful? How have these reforms contributed to strengthening the capacity of the local institutions? The next section of the paper examines the TVET systems in place in the E&E region, followed by a section that uses the policy framework to systematically analyze TVET policy reforms in three countries – Hungary, the Czech Republic, and the Republic of Macedonia – and its findings reveal some important lessons learned on effective TVET reform.

III. OVERVIEW OF TVET SYSTEMS IN THE E&E REGION

Recent reforms of the TVET systems reflect the changing economic, political and social dynamics in the in the E&E region: the move toward open market economies, the reforms of the education system, and the urgent need to address unemployment and social inclusion in the region. Many E&E countries inherited an antiquated model of TVET, largely grounded in the political economy of the Soviet Union and its satellite countries.[13] Since the 1990s, E&E countries have taken distinct paths of reform, yet there remain strong similarities in the TVET systems between the countries. This section presents an overview of the TVET systems in the E&E region, distinguishing these systems by their organization, structure, and enrollments in TVET.

REFORMING THE SOVIET MODEL

In the TVET model utilized in the Soviet Union, the vocational education system was administratively linked to an employment system that lacked the competitiveness of the free-market economies. Prior to the 1990s, the Soviet-style socialist model of centralized planning and workforce education was the dominant TVET model in most E&E countries. This model connected the projected demands of a highly centralized production economy with the institutions that supplied the technical graduates from the TVET system. Following the end of World War II, TVET supported the rapid transformation of the socialist economies from agriculture to manufacturing. TVET graduates were directly linked to labor-intensive employment and centrally-planned production and management. In the long run, however, the Soviet economy lacked the flexibility to become a high-tech manufacturing and knowledge economy, with its required higher levels of specialization and technological change.

After the dissolution of the Soviet Union in 1991, the newly independent countries of Europe and Eurasia chose distinct paths to more market-based economic development, including policies and programs to support workforce development through TVET. The main challenges in reforming the systems were:[14]

13. Those that did not were based on the German system, reflecting their historical ties to Germany.
14. Madlen Serban and Lucian Ciolan (2010). "Widening participation in technical and vocational education and training: experiences from Romania". Vocational Training No. 36. *European Journal.* CINTERFOR.

- Extremely narrow areas of specialization, with early entry into TVET, creating a rigid and inadaptable TVET program;
- Centralized decision-making and little stakeholder participation;
- Outdated curricula largely tied to a few industries; and
- Poor partnership with employers and little responsiveness to economic change.

In the last two decades, a wide range of reforms have been initiated to address these challenges. Most recently, E&E countries have adopted the principles of the Torino Process—a social dialogue in the countries to build relationships among education, government, and private sector firms and industries.[15] The support of donor agencies, such as the European Training Foundation (ETF), has furthered TVET reform primarily through the Torino Process.

TORINO PROCESS AND TVET REFORM

In 2010, the European Training Foundation (ETF) introduced the Torino Process as a means to assess the progress of TVET reforms in ETF partner countries and European Union member states. The Torino Process is a participatory process to document the main TVET reforms in each country. It focuses on key policy trends, challenges and constraints as well as good practice and opportunities. Thus, its aim is to analyze TVET reforms by identifying similar policy trends, challenges, constraints, good practices, and opportunities for improvement (ETF, 2010c, p. 1).

From this knowledge base, the Torino Process promotes evidence-based policy making in TVET reform throughout the E&E region. Stemming from evidence obtained in the various member countries, the Torino Process recommends the following objectives as part of TVET policies (ETF, 2010c, p. 3-4):

- Provide linkages to economic development strategies;
- Design tools to monitor the economic market, that allow for the regular and systematic consultation and involvement of social partners;
- Stimulate cooperation on training among and between educational institutions; and
- Emphasize lifelong learning and the integration of initial and continuing TVET, through formal, non-formal, and informal learning.

The Torino Process uses a general framework of best practices that can be adapted to different government structures and TVET systems. Although it is an evidence-based tool that leaves ultimate decision-making to individual governments, the ETF does highlight the role of the European Union in driving policy change in the E&E region: "The prospect of privileged relationships with the EU is a strong incentive for reforms. The incentive is all the more powerful when it is supported by an economic and political agenda binding countries to the EU" (ETF, 2010c, p. 2).

TVET reforms in European Union candidate countries are already closely aligned to the EU TVET framework and policies. Various initiatives address the needs of specific sub-regions, such as the Black Sea Initiative, which support reforms in Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine (ETF, 2009). The Black Sea region represents both EU and non-EU countries, and includes Greece, Bulgaria, Romania, and Moldova in the west, Ukraine and Russia in the north, Georgia, Armenia and Azerbaijan in the east and Turkey in the south. Today most non-EU European and Eurasian countries are nevertheless participants in the Torino process, as are a number of Middle Eastern, North African,

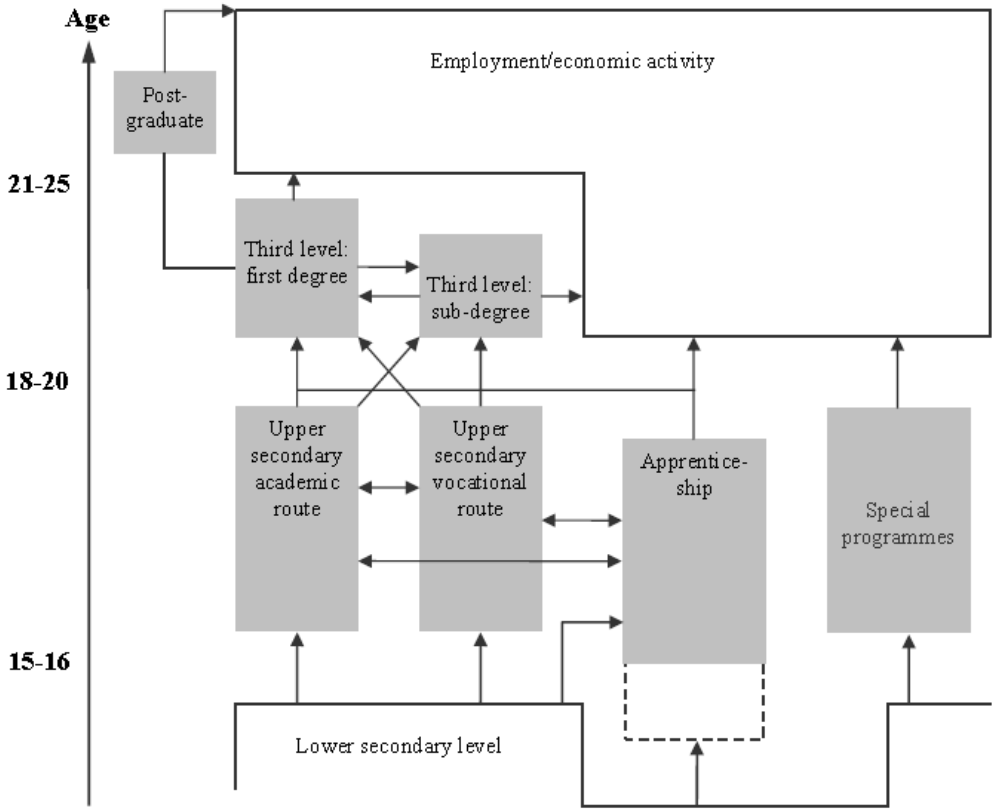
15. The Torino Process includes a total of 31 counties in Europe, Eurasia, Northern Africa and the Middle East.

and Asian countries.[16] The starting point of the Torino process is the review of the existing structure and organization of the TVET system.

Countries that are member states of the EU participate actively in the European Centre for Development and Training (CEDEFOP), a lifelong learning network of the EU that promotes a reform agenda for TVET systems. Bulgaria, the Czech Republic, Hungary, Poland, Slovakia, and Slovenia are all participants in the CEDEFOP network. The next section presents an overview of the main TVET system and models in the countries of E&E region.

E&E REGION TVET STRUCTURES AND ORGANIZATION

Figure 5. Structure of TVET in Most E&E Countries[17]



The TVET system spans from lower secondary education to higher education and lifelong learning. Most E&E countries offer various levels of technical and vocational education and training, and most TVET is concentrated at the upper secondary and tertiary levels of education (see Figure 5). Few countries offer TVET curriculum at the lower secondary-level. Education systems within the region are now beginning to offer continuous education (lifelong learning). Apprenticeships, although limited, are present in most countries throughout the E&E region. Figure 5 sketches the main structure of the TVET system in most E&E countries. The educational structure is distinguished by international standard classification of education (ISCED) levels, consistent with international UNESCO standards.

16. Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Kosovo, Moldova, Montenegro, Russia, Serbia, and Ukraine. Republic of Macedonia and Croatia are currently candidate countries in the Torino Process.

17. Source: CEDEFOP, 2008.

The ISCED[18] levels of TVET are:

- **ISCED 2** (lower secondary) offers a "less academic" pathway to lower secondary students, who can opt for a more focused vocational track in secondary school or leave the school system early and transfer to vocational or apprenticeship programs. In the E&E region, only Bulgaria, the Czech Republic, and Slovakia offer lower secondary TVET programs.
- **ISCED 3** (upper secondary) is the most common level for initial TVET in E&E. Sub-categories A, B, and C, further identify the expected "next steps" for the learner. The 3A curricula provide students with a strong academic foundation, as well as some limited amount of vocational content. The 3A curricula progress toward ISCED 5A tertiary courses at university levels.

  Upper secondary courses at the 3B level have a higher degree of technical content and lead to TVET tertiary institutions, classified as 5B levels. Level 3C upper secondary education offers traditional vocational education courses that lead directly to the labor market, includes a wide range of apprenticeship opportunities, and offer a national certification qualification.
- **ISCED 4 sub-degree** (post-secondary, non-tertiary level) offers a wide range of vocational courses. It is equivalent to the short-term training for technician and other occupational certificates. Older students most often attend these courses, as they are considered an alternative pathway to technical and occupational training.
- **ISCED 5** represents the first stage of tertiary education, and requires successful completion of an upper secondary education (levels 3A, 3B, or 3C). Level 5A programs are largely theoretically-based, involve at least three years of learning, and are intended to provide qualifications for entry into advanced research programs. Level 5B programs are practically-oriented, occupation-specific vocational programs. Many of the 5B courses lead to short-cycle, two-year technical degrees.

Yet, as has been noted, there are large differences between the various TVET systems in the E&E countries. Table 2 distinguishes the main models of TVET and the program levels of TVET offered in the 24 countries.

18. ISCED is the international standard classification of education that is used as the basis for international education statistics, describing different levels of education, as well as fields of education and training. The current version, ISCED 97, distinguishes seven levels of education: pre-primary education (level 0); primary education (level 1); lower secondary education (level 2); upper secondary education (level 3); post-secondary non-tertiary education (level 4); tertiary education (first stage) (level 5); tertiary education (second stage) (level 6).

Table 2. Models and Levels of TVET Offered in E&E Countries[19]

	Liberal Market Economy Model	State-regulated Bureaucratic Model	Dual System Model	ISCED 2 Lower secondary	ISCED 3 Upper secondary	ISCED 4 Post-Secondary Non-tertiary	ISCED 5B Short Cycle-Two year Tertiary
Albania			X		X		X
Armenia			X		X	X	
Azerbaijan		X			X	X	
Belarus		X			X	X	
Bosnia and Herzegovina			X		X	X	X
Bulgaria			X	X	X	X	X
Croatia			X		X		X
Czech Republic			X	X	X	X	X
Estonia			X		X	X	
Georgia	X				X		X
Hungary			X		X	X	X
Kosovo			X		X		X
Latvia			X		X		X
Lithuania			X		X		X
Macedonia, Rep. of			X		X	X	
Moldova			X		X		X
Montenegro			X		X	X	
Poland			X		X	X	X
Romania					X		
Russia		X			X	X	
Serbia		X			X	X	
Slovakia			X		X	X	X
Slovenia			X		X	X	X
Ukraine		X	X		X	X	X

Note: X indicates adoption of TVET model and levels of TVET offered in a country's education system.

Most E&E countries have adopted the dual system model of TVET. Eighteen of the 24 E&E countries have adopted a dual system of TVET. This dual model combines initial training with vocational

19. Source: UNEDOC, 2006; ETF, 2010b.

education, which the public sector provides throughout upper secondary and tertiary education. Alongside this formal education, students also take on apprenticeships, providing them with the practical training components. Overall coordination of the dual system of TVET requires that public-private institutions, similar to the Federal Institute for Vocational Education and Training (*Bundesinstitut für Berufsbildung*, BIBB) in Germany negotiate partnerships between the vocational education providers and employers. These partnerships coordinate the various aspects of the system—whether curriculum content, the placement of apprenticeships, or regulating enterprise training.

State-regulated TVET models operate in several countries: Azerbaijan, Belarus, Russia, Serbia, and Ukraine. These systems offer public TVET education provided through their Ministries of Education. These systems are just beginning to adopt new reforms to encourage greater decentralization, quality enhancement through a national qualifications framework, greater linkages with the private sector and other social partners, and lifelong and continuous education to unemployed and adult populations. Georgia is the only country that decided to adopt a liberal market economy model, which is mainly due to the strong decentralization of its education system and the adoption of a private sector model of TVET programs.

The TVET system is concentrated at the upper secondary education level. All 24 countries offer some type of vocational education at the level of upper secondary education, though there are substantial differences between the countries. TVET student enrollment, faculty, equipment and facilities are considered part of the upper secondary education in most countries. Governance of the upper secondary schools and TVET curriculum remains the purview of the Ministries of Education. For these reasons, TVET is intricately linked to secondary education reform policies and processes in the country. For effective TVET reforms, upper secondary education must be reformed to establish a foundation of policies and practices.

Post-secondary and tertiary levels are an increasingly important part of TVET education; this trend is largely a response to the higher skill demands of the global market. Seventeen of the 24 countries have post-secondary, non-tertiary education offering short-term and long-term study tracks (4B ISCED offerings). Most popular are the two-year certificate technical classes in primarily technical fields (5B). The 5B offerings offer higher levels of skills, and provide considerable flexibility in terms of access and mobility within the system. In several countries, students have the ability to cross into higher levels of technical training and education.

Lower secondary vocational education programs exist in few countries. Only three countries (Bulgaria, the Czech Republic, and Slovakia) offer vocational education at the lower secondary level. Throughout the world, lower secondary vocational education programs have become less common, as countries move away from tracking students in lower secondary schools, and offer higher level of basic skills in their general lower secondary curriculum (EFT, 2007, p. 16).

TVET ENROLLMENT TRENDS IN E&E REGION

The TVET enrollment trends in the E&E region reveal considerable variation due to multiple factors, making it challenging to measure enrollment trends in TVET accurately. They also point to the underlying differences of the various TVET systems among the 24 countries, as well as the perceived value of vocational education and training. In 2007, UNESCO began reporting using a new measure, "percentage of technical/vocational enrollment in upper secondary education," to reflect the TVET enrollment relative to total upper secondary enrollment. To calculate this, gross TVET enrollment is divided by gross upper secondary enrollment. UNESCO, however, noted that these estimates may be skewed, given the small number of TVET students reported and broad differences among systems in the countries. Data collection at the national level is difficult, which contributes to a lack of consistency among countries in previous reporting (UNESCO, 2006, p. 2). See Appendix A for more information

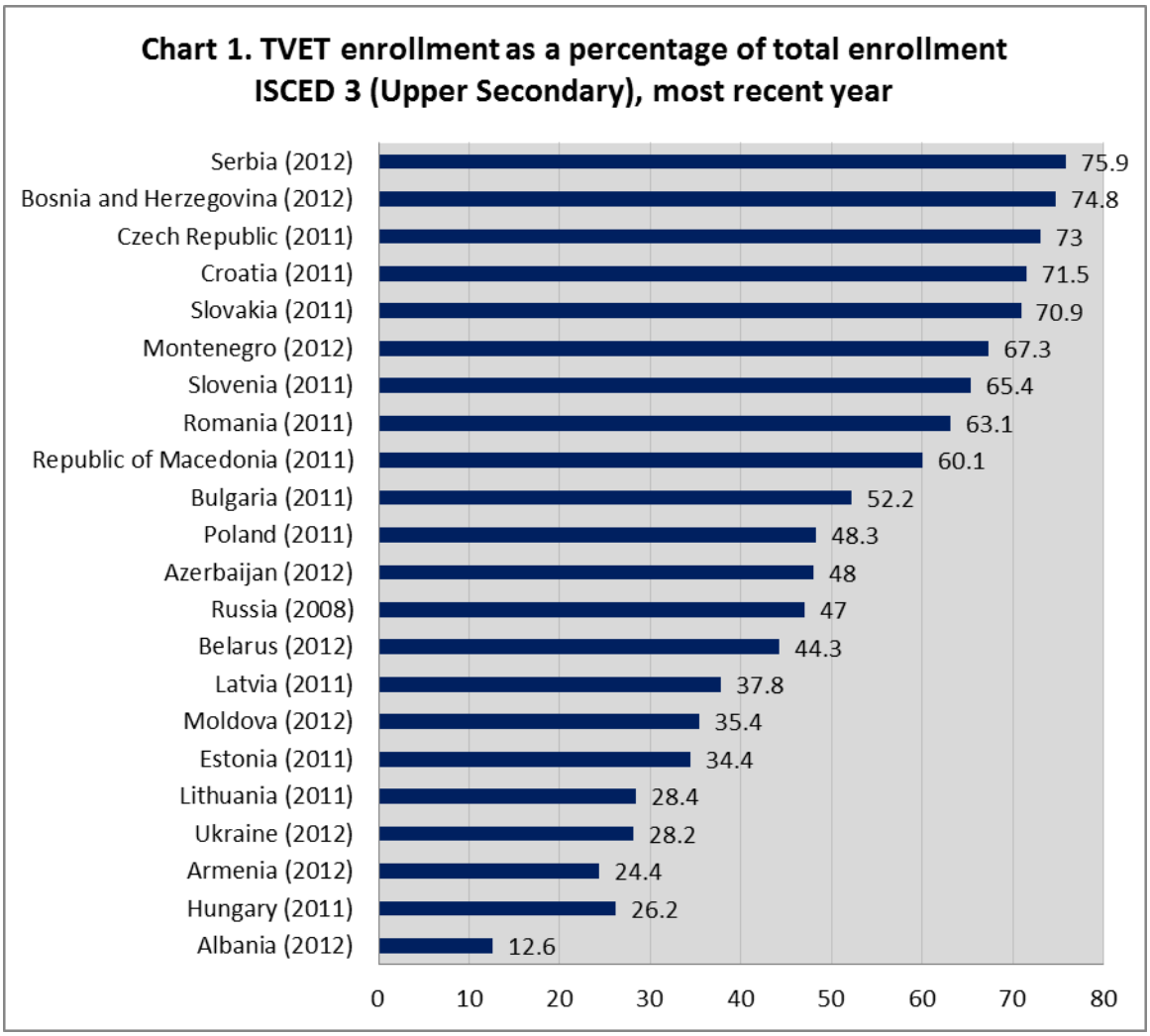
about TVET enrollment data. For our purposes, comparative statistics are presented on the two major sub-systems of TVET: upper secondary education and higher education.

Chart 1 and Table 3 provide TVET percent enrollment for 2011, and over time (2001-2011) for the E&E countries.[20] The percent enrollment measure is used worldwide to estimate the percentage of students enrolled in technical vocational education and training courses as part of their upper secondary education. These enrollment numbers show a broad spectrum of TVET enrollment across the region, and demonstrate the challenge in comparing systems of such wide variation.

Serbia has the highest rate of TVET enrollments in upper secondary education. Over 75 percent of students enrolled in upper secondary attend TVET schools in Serbia. Serbia's TVET system is organized around the public provision of TVET upper secondary education, and little change in enrollments in the last decade (see Table 3). Similarly Azerbaijan and Russia—countries with the regulated and bureaucratic model of TVET—have a large percentage of TVET upper secondary enrollments. These countries have witnessed little change in the traditional state-regulated structures in the last decade, and represent the sleeping giants of TVET reform in the E&E region.

Many new EU member states and pre-accession countries have high rates of TVET in upper secondary enrollment. Czech Republic, Slovakia, Slovenia, Romania, and Bulgaria are among the countries with the highest rates of TVET upper secondary enrollment; greater than 50 percent of upper secondary students attend TVET schools in these new EU member states. Countries that are currently seeking admission to the EU, such as Montenegro and Republic of Macedonia, also have large TVET upper secondary enrollment rates, at 67 and 60 respectively. These new EU member states and pre-accession countries have adopted a wide range of reforms revolving around the dual system German model.

20. Data have been collected from various sources. For all countries in the E&E region with the exception of Montenegro, ETF estimates are used. These estimates have been harmonized, and reflect in depth field research conducted by teams of ETF experts. Similarly, CEDEFOP estimates enrollment and other TVET data for EU countries. The estimates for all new member of the EU are collected from the CEDEFOP data base. The Montenegro TVET enrollment statistics are based on UNESCO estimates, as they are the only estimates available for the year 2010. The following are some main trends of TVET enrollments in upper secondary education in the E&E region. The ETF statistics use the UNESCO enrollments, and adjust them based on in-country research on TVET enrollment trends. Appendix A of this report details the different estimates of TVET participation in upper secondary education. As shown in the Appendix A, the TransMonee/UNICEF estimates and ETF estimates are most similar and have the least amount of variance.



Source: UNESCO, 2013; EUSTAT 2013. Data not available for Kosovo.

In several E&E countries, education system reforms resulted in declines in TVET enrollment rates. Some E&E countries have undertaken significant reforms of their TVET systems. Most notably, as part of a comprehensive education sector reform, Georgia has experienced a drastic decline in TVET enrollments. The reform led to closing 260 TVET and in 2010, TVET enrollments accounted for just 1.2 percent, or fewer than 2000 students.

Although there are different methods for calculating changes in enrollments (see Appendix A), several countries in the region have experienced large swings in their upper secondary TVET enrollment, as presented in Table 3. Armenia, Hungary, and Georgia represent the largest changes (resulting from reform efforts in all cases). As noted above, Georgia experienced the largest decrease in TVET enrollments, where the recent share of TVET enrollments in upper secondary education has been less than two percent.

Many EU countries have introduced more flexibility in the general and TVET curricula, which in turn has resulted in lower reporting of TVET enrollment in upper secondary education. Poland, Hungary, Latvia, and Lithuania are all countries that implemented significant curriculum restructuring of their upper secondary education system. In Hungary, for example, upper secondary TVET enrollment is around 25 percent of total upper secondary enrollment. Prior to the reforms, around two-thirds of

upper secondary students were enrolled in TVET. With the reform, vocational schools offering ISCED 3B courses are shifted to a 3B-4B track, creating a pathway for continuous education. In addition, curriculum blending of the upper secondary curriculum has allowed for vocational and workforce content to be incorporated into the general upper secondary curriculum (CEDEFOP, 2011, p. 35-36).

Table 3. Percent Change in TVET, Upper Secondary Enrollment, 2001-2012

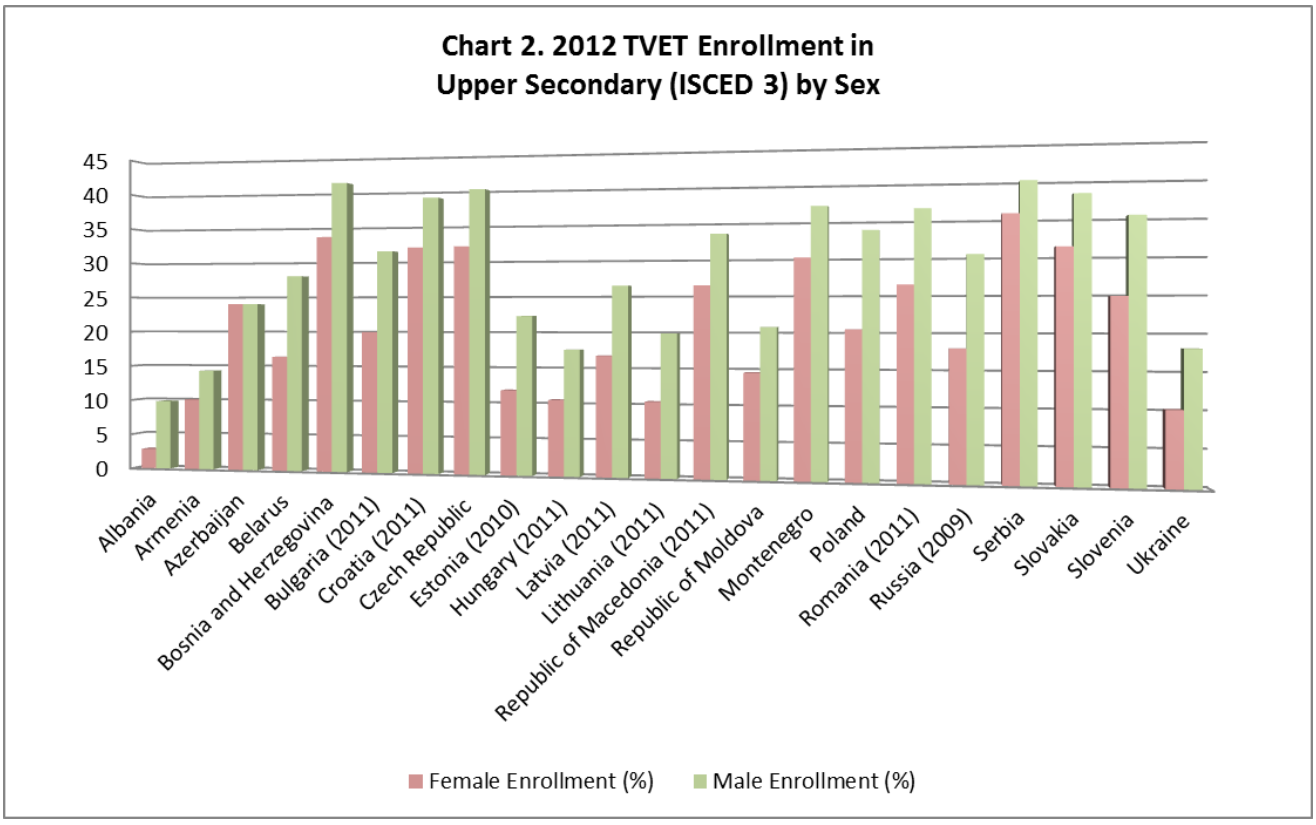
Countries	% Change in Enrollments UNESCO data	Countries	% Change in Enrollments UNESCO data
Albania	-14.6	Lithuania (2011)	-5.7
Armenia	381.3	Republic of Macedonia (2011)	-4.7
Azerbaijan*	25.7	Moldova	37.0
Belarus*	5.9	Montenegro	-3.1
Bosnia and Herzegovina*	-1.0	Poland (2011)	-13.0
Bulgaria (2011)	-7.8	Romania (2011)	-1.2
Croatia (2011)	-4.4	Russia* (2009)	19.9
Czech Republic (2011)	-9.3	Serbia	0.2
Estonia (2010)	7.5	Slovakia (2011)	-9.4
Georgia (2009)	-80.3	Slovenia (2011)	-17.2
Hungary (2011)	145.7	Ukraine	26.1
Latvia (2011)	12.9		

Source: UNESCO, 2013. Data not available for Kosovo.
* Data not available for 2001. Change calculated based on first available year's data.

Latvia and Lithuania have followed a similar path, with large degree of blending of curricula, ultimately integrating various tracks of upper secondary education (CEDEFOP, 2010, p. 51). In addition, the two countries have restructured several Ministries and social service delivery to achieve greater efficiency and cost savings.

A noteworthy gender gap exists for all TVET upper secondary education in the E&E countries, with the exception of Azerbaijan. UNESCO data are disaggregated by sex and are presented in Chart 2. This gender gap exists consistently, whereby male enrollment is around 5 to 10 percent higher than female enrollment. There are a host of factors that shape these enrollment trends. Little outreach to female students, fewer opportunities in new career pathways, and persistence of traditional social and occupational roles that discourage girls to enroll in what are considered male professions are just some of the factors that limit the number of female enrollees in TVET.[21] Another important factor is the increase in female enrollments in general upper secondary education. In short, TVET upper secondary education, regardless of country and its policy reform agenda, continues to play catch up in addressing the gender gap, where a larger percentage of male students enroll in the TVET upper secondary system. This finding is disturbing, as many TVET reforms were expressly intended to decrease the gender gap.

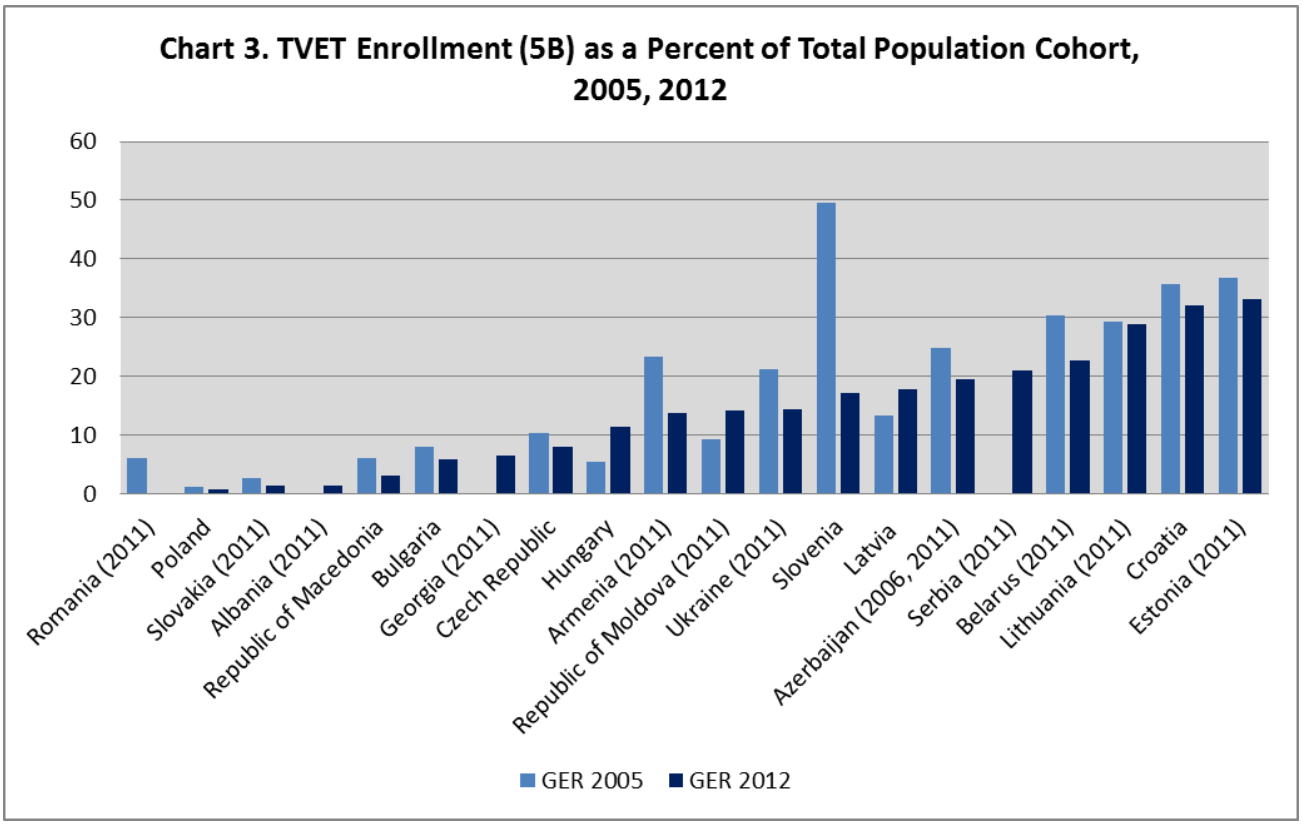
21. European Commission (2006). "Briefing Note in Gender Equality and Technical and Vocational Training (TVET).



Source: UNESCO, 2013. Sex-disaggregated data not available for Georgia.

TVET enrollment at the higher education level experienced rapid growth between 2005 and 2010, but has leveled off or decreased since 2010 in most E&E countries. TVET in higher education is on the rise given the higher skill demands of the knowledge economy. This new trend reflects market demands for higher levels of technical and knowledge-based skills required in the global economy. The greatest enrollment gains have occurred in the two-year occupational certification, referred to as the 5B courses. The 5B TVET is most similar to the two-year community college degree certifications, and provides graduates with greater connection with the needs of the labor market, as well as access to tertiary education in these countries. This reflects the larger global trend as countries grapple with the need to quickly educate young people for the global marketplace. Only Georgia, Hungary, and Estonia are exceptions. Chart 3 presents the gross enrollment ratios (GER) of TVET (5B) in tertiary education, which includes two-year technical degree certificates.[22]

22. Gross enrollment ratios in tertiary education measures a nation's total enrollment "in a specific level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education" (UNESCO Institute for Statistics website, www.uis.unesco.org/Pages/default.aspx).



Source: EUROSTAT, 2013; UNESCO, 2013. No data were reported for Bosnia and Herzegovina, Montenegro, or Russia.

Most impressive are the gains in 5B enrollment in Hungary, where the GER rate has doubled, and in Latvia, where it increased by 30 percent. GER rates have dropped rapidly in most countries in the region over the past several years, most notably in Slovenia and Armenia. While a few years ago, the E&E region seemed to be increasingly committed to the 5B two-year TVET curriculum, the current data no longer support that conclusion.

IV. E&E TVET POLICY REFORMS

Countries in the E&E region have undertaken a series of reforms of their respective TVET systems. Policies include comprehensive education reform addressing system structure and financing; reforms of TVET curricula, financing, and social partnerships; and new policies to establish the national qualifications framework and lifelong learning. Each country has taken its own path to reform its existing TVET system and to adopt new policies. For the most part, the policy reform is sequential, with one policy building on another. Policy reforms have attempted to create more flexible TVET systems of higher quality, access, and relevance. This section of the report examines the key policy reforms of the TVET systems. It begins with a classification and analysis of the TVET policy reforms in the 24 countries, allowing us to identify the various stages of reforms in the respective countries. The second part of this section examines countries that have achieved some success with their reforms: the Czech Republic, Hungary, and the Republic of Macedonia.

CLASSIFICATION OF TVET REFORMS IN THE E&E REGION

Since the 1990s, E&E countries have adopted a wide range of reforms that relate to the governance, quality, access, and relevance of TVET. At the broadest level, the reforms of education have dismantled the antiquated structure of the highly centralized education structures of the communist era, to achieve

systems that are more flexible, responsive to community and regional stakeholders, and demand-driven to meet the needs of students, families, and the private sector. These reforms have been grounded in two major phases:

- **First phase reforms:** Initiated in the 1990s, E&E countries have conducted several stages of education policy reforms addressing the governance and structure of education. The first phase of reforms in the E&E countries largely restructured the different sectors of education, including TVET, and donor organizations provided technical support in the process. These initial reforms reflected the new legal frameworks and constitutions emerging in these countries during the first decade of reforms. This first phase was marked by initial decentralization of service delivery at the regional and local levels. Decentralizing the management of schools and decision making has been a top priority. Donors provided financing for these programs, such as the EU-funded Programme of Community Aid to the countries of Central and Eastern Europe (PHARE) programs. [23] The first phase of PHARE financed modern equipment and training materials, as well as provided technical assistance to the development of new TVET systems.

- **Second phase reforms:** Often referred to as TVET reform, these new policies specifically addressed the need to adapt the structure of TVET delivery to the needs of the market economy. These reforms included the design of new curricula based on the needs of the demand-driven labor market, and the creation of a new social partnership through the establishment of the dual system of TVET. Widening participation in TVET continues to be an important goal of these second phase reforms. To achieve these goals, continued progress in decentralization of management, budget and financing is required at the regional and local levels of governance. The main donor for these TVET reforms has been the EU, through its continuation of PHARE funding (Serban and Ciolan, 2010, p. 51).

Underlying these reforms are four main objectives: decentralization, quality, participation, and relevance. These key policies form the main framework of analysis of the current reform agenda of the TVET system within a country.

- **Decentralization:** To a large extent, first stage reforms established the basic foundation that is required to establish TVET reforms. Second stage reforms have addressed decision-making within the various aspects of TVET, such as the curriculum the teachers and their training, the certification of courses, and the budgeting and financing of TVET. Without the decentralized system, TVET systems find it difficult to create demand-driven systems (Serban and Ciolan, 2010, p. 54). The fundamental goal of the reforms is to move to a flexible TVET system. *Decentralization* of decision-making is a key component of such a flexible system. There are multiple layers of decision-making within a TVET structure. For example, regulation, quality assurance, information, budget and financing, and service delivery all have distinct channels of decision making within a Ministry structure. Decentralization and autonomy are particularly important for TVET, given the need for partnership with the private sector. Curriculum content, apprenticeships, and fee-based budgeting must take account of local autonomy and control over the curriculum, outplacement, and budget.

- **Quality of TVET:** Comprehensive TVET reform has placed priority on improving the quality of the TVET programs. Crucial to these efforts is the adoption and implementation of a *national qualifications framework* that is linked to the needs of the market economy. Based on the qualifications framework, the TVET system revises the curricula and trains teachers to ensure a

23. The Programme of Community aid to the countries of Central and Eastern Europe (PHARE) and is the main channel for financial and technical cooperation for pre-accession the Central and Eastern European countries (CEECs) which have applied for membership of the European Union. PHARE has two main priorities: institutional capacity-building and investment financing. Activities and assistance are adapted to each country's needs and priorities (European Union, 2007).

system that delivers education to these standards. The national qualifications framework establishes the road map for the reforms of TVET in terms of curriculum, teacher training, and linkages to the labor market (CEDEFOP, 2011, p. 15-16).

- **Partnerships supporting TVET:** *The inclusion of social partners* has been a fundamental goal of TVET reform policies. Widening participation in TVET takes place at various levels: the government agencies, industry associations, and university experts that identify high growth sectors and their occupational clusters; the enterprises and trade unions that participate in the skills framework and curriculum revision; the various NGOs and other civil society groups that represent specific disenfranchised groups; and the youth (and parents) that are the direct participants in the system. The TVET reforms provide guidance on the inclusion of these groups, as well as the decision-making processes to feed into TVET (Serban and Ciolan, 2010, p. 54).
- **Relevance of TVET:** The ultimate objective of the reforms is to achieve a TVET system that promotes greater employment and efficiency in the labor market. *Lifelong learning policies* promote continuous education of the workforce, aligned with the current needs of the economy. Reducing skills shortages and skills mismatches results from a TVET and educational system aligned with the needs of the market economy. In addition, the combined effects of the quality and partnership policies increase participation in the labor market, as well as enhance productivity of the workers and the firms (ETF, 2007, p. 53-54).

The next section analyzes these reforms for the 24 countries, and identifies the lead reformers in the region.

AN ANALYSIS OF TVET REFORMS IN THE E&E REGION

TVET reforms include a cluster of policies including decentralization, national qualifications framework, inclusion of social partners, and lifelong learning strategies. Each country in the E&E region has a distinct history of support for these reforms. As Table 4 illustrates, all of the 24 countries of the E&E region have initiated some aspect of this reform agenda. Yet there are important differences and similarities in the reform path of the various countries. Please see Appendix B that discusses the methodology for the ranking of countries by high-mid-low rankings. The main trends of reforms are noted in Table 4 below.

Table 4. Classification of TVET Reforms in E&E Countries[24]

Country	Decentralization	NQF	Inclusion of Social Partners	Lifelong Learning
Albania	Mid	Yes	Low	Low
Armenia	Low	Yes	Low	Low
Azerbaijan	Low	Yes	Low	Low
Belarus	Low	No	Low	Low
Bosnia and Herzegovina	Low	Yes	Low	Low
Bulgaria	Low	Yes	Low	Low
Croatia	High	Yes	Mid	Mid
Czech Republic	High	Yes	Mid	Mid
Estonia	High	Yes	Mid	Mid
Georgia	Mid	Yes	Mid	Low
Hungary	High	Yes	Mid	Low
Kosovo*	Mid	Yes	Low	Low
Latvia	High	Yes	Low	Mid
Lithuania	High	Yes	Mid	Mid
Macedonia, Republic of	High	Yes	Mid	Mid
Moldova	Low	No	Low	Low
Montenegro	High	Yes	Low	Mid
Poland	High	Proposed	Mid	Mid
Romania	Mid	Yes	Mid	Mid
Russia	Low	Proposed	Low	Low
Serbia	Low	Yes	Low	Low
Slovakia	Low	Yes	Low	Low
Slovenia	Mid	Proposed	Mid	High
Ukraine	Low	Proposed	Low	Low

** Analysis of TVET reforms in Kosovo have been greatly influenced by the presence of international organizations and donors. The level to which the emphasis on TVET reforms is driven by these external forces is unknown.*

Decentralization of TVET remains incomplete in most E&E countries. As reported in the Country Reports of the ETF and CEDEFOP, the 24 countries have all initiated important education reforms that have increased decentralized decision making on the curriculum content and the quality improvements in the

24. Sources: ETF (2011). Torino Process—Compendium of country reports. CEDEFOP (2011). The Development of National Qualifications. Country reports of CEDEFOP countries. Select statistics of CEDEFOP members. See http://www.cedefop.europa.eu/EN/statistics-and-indicators/browse-by-topic.aspx. See http://www.cedefop.europa.eu/en/information-services/vet-in-europe-country-reports.aspx

education program. Yet second stage reforms, such as budgetary and financial autonomy at the regional and local levels, increasing representation of social partners in TVET decision-making, and outsourcing of continuous training, have not been implemented in many of the E&E countries. Top reformers of decentralization include the Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Republic of Macedonia, Montenegro, and Poland. These EU member and candidate countries have been the champions of the TVET reform process, and provide many examples of successful TVET policies.

National qualifications framework are now in place and being implemented in just under half of the E&E countries. To a large extent, the same top reformers in decentralization have adopted and started implementing their national qualifications frameworks, including: Albania, Bosnia and Herzegovina, Croatia, the Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Republic of Macedonia, Montenegro, and Serbia. For most of the other E&E countries, however, national qualifications are still not a reality, whereby TVET curriculum and skills have not been aligned to the needs of the market economy.

Little progress has been made in establishing TVET social partnerships. Only a handful of countries have implemented policies to promote social inclusion in TVET. The Czech Republic, Estonia, Georgia, Lithuania, Republic of Macedonia, Poland, and Slovenia have established active partnerships and included social partners into key decision making roles in the TVET programs. These countries also have reported some progress in increasing access to TVET programs among underserved populations. Consistently reported in the research literature, however, social inclusion remains an elusive goal for the TVET systems of the E&E region.

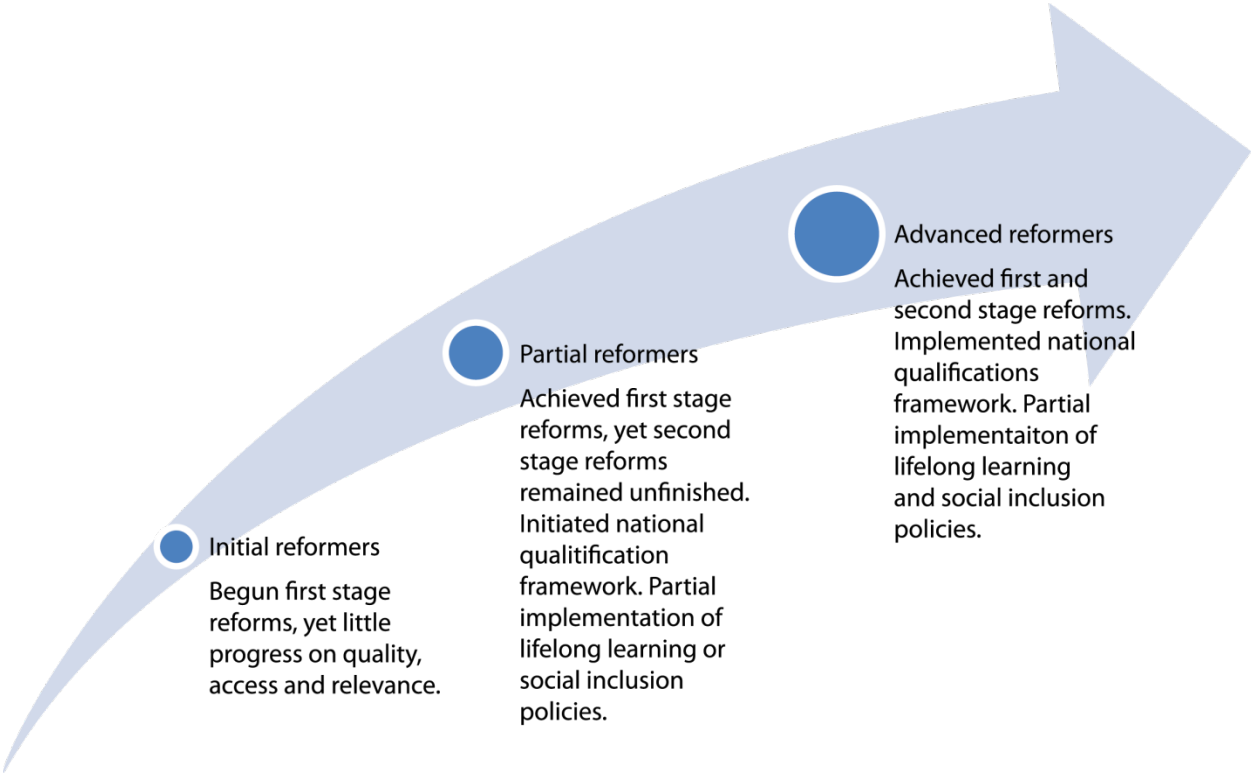
Many E&E EU member countries have well-established policies in place to promote lifelong learning programs, yet non-EU countries are just beginning to adopt and implement such policies. Many EU countries under the dual system model have established lifelong learning policies over a decade ago. These policies are just beginning to bear fruit, with most countries recording some gains in lifelong learning participation rates. Only Slovenia has achieved high rates of lifelong learning and adult education, being the top performer in this policy reform area. Non-EU countries offer few opportunities of lifelong learning mostly due to fiscal constraints. ETF country briefs indicate that most countries simply do not have the resources to currently focus on lifelong learning (ETF, 2010a).

Based on the above analysis, three types of reformers can be distinguished: initial reformers, partial reformers, and top reformers. Figure 6 presents these three categories, and classifies the achievements and challenges facing these reformers.

Advanced reformers. The research consistently shows that most new EU member countries and some candidate countries have been the top reformers in TVET. The Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Republic of Macedonia, Montenegro, and Poland have decentralized their education systems, as well as achieved important strides in achieving TVET reforms—such as the NQF, social partnership, and lifelong learning policies. While the pathways of reforms are distinct in the various countries, the larger reform frameworks are consistent across these countries.

Partial reformers. Partial reformers show wide discrepancies in the achievement of the TVET reforms. Albania, Georgia, Kosovo, Romania, and Slovenia are all countries that are in the midst of active TVET reforms, yet the agenda remains unfinished. For example, Kosovo has undertaken an aggressive policy reform agenda, with decentralization and establishment of a national qualifications framework, but budgetary constraints and other national concerns have slowed the impact of these governance policies. Another example is that of Georgia, the only country with a market economy model, but so far decentralization remains incomplete and financing of the current system is inadequate. The EU members, Romania and Slovenia, continue to face issues related to governance and the decentralization of their systems.

Figure 6: Classification of reformers: Initial Reformers, Partial Reformers and Advanced Reformers[25]



Initial reformers. Over forty percent of all of the E&E countries remain in an initial stage of TVET reform. Armenia, Azerbaijan, Bosnia and Herzegovina, Belarus, Moldova, Russia, Serbia, Slovakia, and Ukraine are all classified as initial reformers. These countries have just begun initial reforms related to new market driven TVET systems—decentralization, NQF, social inclusion, and lifelong learning. Many of these countries continue to support the public provision of TVET through its regulated and bureaucratic model. The limited success in the reform comes at large cost, as many of the countries have large TVET enrollments in upper secondary and tertiary education. These countries remain the "sleeping giants" of the E&E region. In each of the countries, the Torino Process is pushing for a comprehensive reform agenda within each of the respective TVET system.

The pathways to reform are grounded in the political, economic, and educational reality of each country. Let us now examine the reform pathways that reflect country-specific challenges and constraints. The next section highlights three top reformers and the sequence of reforms and challenges within each one.

COUNTRY CASE STUDIES

Case studies allow for a more detailed analysis of TVET within the country context. Three countries have been chosen from the list of top reformers. These three countries exemplify distinct pathways to TVET reform.

25. Sources: Author assessment based on the analysis of Reform Matrix and the review of the following literature. ETF (2011). Torino Process—Compendium of country reports. CEDEFOP (2011). The Development of National Qualifications. Country reports of CEDEFOP countries. Select statistics of CEDEFOP members. See http://www.cedefop.europa.eu/EN/statistics-and-indicators/browse-by-topic.aspx. See http://www.cedefop.europa.eu/en/information-services/vet-in-europe-country-reports.aspx

- **The Czech Republic—dual system model.** The Czech Republic, using the EU 2020 Strategy for TVET reform, has decentralized its educational system, empowering regions, schools, and parents to take a more active role in decision-making. The Czech Republic adopted comprehensive reforms including: establishing a national qualifications framework, blending general and vocational education courses into the upper secondary curriculum, and increasing access for students moving from TVET to tertiary education opportunities. Lifelong learning and career education continue to be policy priorities as well.
- **Hungary—dual system model.** Hungary's TVET reform has included decentralizing the educational system (including TVET), establishing a national qualifications framework, widening the academic tracks of upper secondary education by blending general and vocational education, introducing lifelong learning, and building private sector partnerships in key sectors. However, many of these reforms are incomplete, overlapping, and inconsistent, and the system still faces important challenges in the quality of TVET education.
- **Republic of Macedonia—dual system model.** Republic of Macedonia has expanded and decentralized its education system, including TVET, incorporating public and private partners and stakeholders in the process. Important strides have been made in expanding education to upper secondary and higher education and doubling enrollment in tertiary education in the last decade. Republic of Macedonia has approved several major initiatives in TVET reform, such as establishing national qualifications and passing legislation for lifelong and adult learning. Yet progress remains elusive, largely due to the fiscal constraints facing the national government.

These three countries have achieved a combination of comprehensive TVET reform integrated with educational reform and national policy dialogue. For the most part, TVET reform is synonymous with and a part of education policy reform. Comprehensive educational reform requires substantial political support and buy-in from various local, regional, national, and in some cases, donor stakeholders. These three studies showcase the depth and breadth of reform agendas and the challenges they still face.

CZECH REPUBLIC

The vocational education system in the Czech Republic is a comprehensive system and the country has initiated TVET reforms adapted from and consistent with the "Europe 2020" strategy and the Education and Straining Strategic Framework for 2020 (ET 2020). This is the EU strategy for improving education and training, which includes new innovations (such as curriculum reform that blends general and vocational education at the upper secondary education level), the establishment of a national qualifications framework, industry sector partnerships, and the creation and expansion of lifelong learning and apprenticeship programs.

Czech Republic: Key Indicators 2012
Education
- Primary Gross Enrollment: 100.4%
- Primary Gross Enrollment, Gender Parity Index: 1.01
- Lower Secondary Gross Enrollment: 104.45%
- Lower Secondary Gross Enrollment, Gender Parity Index: 1.00
- Upper Secondary Gross Enrollment: 90.5%
- Upper Secondary Gross Enrollment, Gender Parity Index: 1.00
- Upper Secondary TVET Enrollment: 72.2%

Economic and Labor Trends 2012
- GDP Growth Rate: -1%
- Employment Rate: 56%
- Total Unemployment Rate: 4%
- Youth Unemployment (ages 15-24): 10%

Sources: UNESCO; EUROSTAT; World Bank (2014)

Appendix C contains an outline of the educational structure within which TVET operates in the Czech Republic. The section below provides brief discussion of policies, practices, and recommendations for reform and improvement.

TVET POLICIES, PRACTICES, AND REFORMS

Fundamental reform of the Czech Republic's education system occurred in 2001 when operational responsibility for compulsory education was shifted from the central government to the regional administration in 14 regions. This process of decentralization granted schools more decision-making powers, including curriculum development. Under this reform, additional offerings can be made available in a school if (a) the students are interested, (b) the school head agrees, (c) parents support the addition, and (d) the subject/content is within the Framework Educational Program for that level of education. This is particularly important for TVET education, because it makes it possible to customize the curriculum to local labor market demands.

Teachers choose their own teaching methods within the scope of the National Framework and the general policy of the school. Each school sets up its own educational plan within Framework guidelines. Assessments of student progress are set by each school in a School Code they develop, using the principles of the Education Act and consistent with the degree and curriculum specifications of the Ministry of Education, Youth and Sport (MEYS). MEYS authorized use of a five-point written scale, verbal assessments, or a combination of both in 2005.

The Czech Republic has adapted many of the policies and practices related to Education and Training 2020 (ET 2020), the EU strategy for improving education and training, and has implemented the policies and practices of Education for Competitiveness Operational Program (ECOP) administered by the MEYS, with financial support from the European Social Fund. "The ECOP is focused on the area of human resources development by means of education in all its various forms with an emphasis on a complex system of lifelong learning, the creation of a suitable environment for research, development and innovation activities and the stimulation of cooperation of participating entities. Many areas of support are directly related to the priorities set by the 'ET 2020' (Eurypedia, n.d.).

The main aims of the Czech Republic's ECOP activities are: (a) making lifelong learning and mobility a reality; (b) improving the quality and efficiency of education and training; (c) promoting equity, social cohesion and active citizenship; and (d) enhancing creativity and innovation, including entrepreneurship at all levels of education and training.[26]

Strengths of the reformed Czech Republic TVET system include:

- Setting up a new qualifications system consistent with the European Qualifications System;
- Introducing a new national standardized exam in apprenticeship programs;
- Launching a new adult "lifelong learning and mobility" education initiative;
- Implementing new tools to improve career guidance, including developing an information system to assist students in making informed decisions about professions and their educational requirements;
- Maintaining an impressive database on education and labor market outcomes of education;
- Fostering strong participation of social partners in TVET by the government;

26. The official document that provides the framework for policies supporting the above activities was issued in 2007 and is titled, *Long- Term Policy Objectives of Education and the Development of the Education System.*

- Establishing Sector Councils that provide examples of good public-private cooperation (OECD, Directorate for Education, Education and Training Policy Division, 2010); and
- Producing good average levels of academic achievement for 15 year old students, plus high levels of participation (96%) in and completion of upper secondary schools—one of the highest in OECD studies (OECD, 2011).

Through comprehensive and systematic reform of its entire educational system, the Czech Republic has made important strides in making all education, including TVET offerings, more relevant to its communities and markets. The Czech system represents a comprehensive approach that focuses on: (a) the quality of TVET through the National Framework, and (b) attention on regional management and effectiveness. Despite considerable achievements, four major challenges identified as critical to improving the Czech Republic TVET system remain:

1. *Improving the quality of basic skills*, i.e., listening, speaking, reading, writing, and numeracy, is necessary to increase the competency and proficiency of graduates from TVET and technical upper secondary education programs. Students must attain higher skill levels to increase their potential for employment and higher education through improved curricula, better teaching and learning methods, and higher quality of teaching.
2. *Partnerships and greater engagement of employers with education and training institutions* are crucial to improving the quality and relevance of TVET. Such collaborations would provide effective apprenticeship opportunities for students to engage with the private sector. Incentives for employers to help develop curricula, train teachers, and provide apprenticeships could include tax breaks or apprenticeship wage supports. Ultimately, it is important to ensure the relevance of curricula along with practical, "on-site" experience for students through mutually beneficial partnerships among the private sector and education and training institutions.
3. *Improvement in the management, governance, and transparency of regional TVET institutions.* With the creation of regional TVET institutions, greater efficiencies could be achieved. This should be accompanied by high quality management and governance of the regional TVET centers, along with improving the outreach and transparency of the institution with the community.
4. *Effective career guidance* can help students assess their interests and abilities, and acquire better knowledge of career opportunities. Career guidance requires a different knowledge base (about careers, employment, and employment needs in career areas) than that provided by traditional counselors in school systems. Thus career counselors must receive specific career development training that is not just an "add-on" activity for existing counselors or teachers.

TVET Priority: Better information on career choices for youth

OECD recommendations for the Czech Republic emphasize the need for career guidance for students. Included are

- Create a career advisor position and split pedagogy and psychological counseling from career guidance.
- Introduce a focus on career guidance and initial training of career advisors along with better and higher quality in-service training for existing staff.
- Diversify forms of career guidance at multiple levels in the education system.
- Focus on career guidance especially at the upper secondary TVET levels.
- Engage the private sector and social partners to serve as career examples, career role models, and mentors.

Source: OECD, 2011

HUNGARY

Hungary: Key Indicators 2012
Education

- Primary Gross Enrollment: 101.1%
- Primary Gross Enrollment, Gender Parity Index: 0.99
- Lower Secondary Gross Enrollment: 100.2%
- Lower Secondary Gross Enrollment, Gender Parity Index: 0.97
- Upper Secondary Gross Enrollment: 70.8%
- Upper Secondary Gross Enrollment, Gender Parity Index: 0.98
- Upper Secondary TVET Enrollment: 28.3%

Economic and Labor Trends 2012

- GDP Growth Rate: 1%
- Employment Rate: 46%
- Total Unemployment Rate: 8%
- Youth Unemployment (ages 15-24): 20%

Sources: UNESCO; EUROSTAT; World Bank (2014)

The Government of Hungary has undertaken a number of strategies to reform education and TVET systems, including making vocational education a part of higher education offerings and focusing on lifelong learning. Yet some of these reforms are overlapping and incomplete because new policies and practices have been implemented without eliminating previous ones. Hungary has an enterprise tax that supports TVET and consultative advisory boards at the national, regional, and local levels, which collaborate with enterprises. The European lifelong learning paradigm provides a basis for reforms, and the EU supports them with structural funds.[27]

The primary goal of TVET is to produce graduates with the skills needed in the workplace. Hungary approaches this practical training in three ways: (a) school-based workshops; (b) enterprise-based training through cooperative agreements between schools and enterprises; and (c) student contract-based training through individual student contracts with enterprises. Apprenticeships are based on student contracts and availability of positions. In theory, a student contract can be organized in any TVET program offered within the school system, but in reality, availability varies by sector and occupational field. "In 2009, student contract-based training took place in 277 occupations. Almost 90 percent of apprentices, however, were training for ISCED 3 in only 10 occupations" (CEDEFOP, 2011, p. 37).

Enrollment estimates show that in Hungary TVET participation in upper secondary education (25%) is considerably lower than in most European countries. This is largely a result of the "blending" of the general secondary and TVET secondary vocational education (*Szakkozepiskola (SKZI)*) curricula, whereby both types of schools offer 3A education levels.

It is a challenge to understand and interpret how the Hungarian system works, at least in part because each system of reform has generally added another layer or blended one type of training with another, while leaving the previous system and structures in place. The lack of clarity over how the TVET system in Hungary is working comes from overlapping initiatives and disagreement among policy makers as to the content of vocational and technical education (Eurydice, 2011, p. 4). There are differing opinions about how to achieve adequate basic skills, (reading, writing, numeracy, communications, and learning) along with work-based practical application, and the time frame in which these skills should be mastered.

Nevertheless, the efforts undertaken to improve the system—to increase the quality of skills and knowledge attained by graduates—have resulted in improvements that are consistent with EU strategy recommendations to engage enterprises in policy and decision making processes, provide opportunities for qualified graduates who desire to proceed on to higher education, and provide university level vocational education and training.

27. Eurypedia, "Hungary: Ongoing Reforms and Policy Developments" retrieved from https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Hungary:Ongoing_Reforms_and_Policy_Developments

Appendix C contains an outline of the educational structure within which TVET operates in Hungary. The section below discusses policies, practices, and recommendations for TVET reform and improvement.

TVET POLICIES, PRACTICES, AND REFORMS

Until 1990, enterprises ran most vocational training workshops. As the Hungarian economy declined in the 1990s, , schools gradually assumed control of most of these workshops. Since 2000, TVET's "reputation has been low among learners and stakeholders. Young people prefer general education that promises better life chances" (CEDEFOP, 2011, p. 17). As in many countries, TVET is seen as a last resort for those not motivated or able to pursue academic higher education.

Though a significant TVET reform effort was undertaken in 1998, the effort was not fully successful. , The reform did not address the two main issues facing TVET: improving access to training for highly skilled occupations and reducing program dropout rates. Only one third (160) of the TVET schools participated in the reform process (CEDEFOP, 2011). Without sufficient government financial support and political commitment, these reform efforts ended in 2009.

The 2009 TVET reform legislation introduced new initiatives: (a) start TVET at 14 rather than 16 years of age; (b) set up a scholarship program in occupations facing skill shortages (regional development and training committees maintain a list of occupations facing shortages) and (c) contract for employment benefits based on the completion of enterprise-based training.. Initial indications show that applications to upper secondary schools with blended curricula (SKZIs) have increased, but it is too early to determine if the initiative will improve student's careers and income-earning potential. (CEDEFOP, 2011)

In 2010, the Hungarian government set out to raise the share of students enrolled in TVET and increase the prestige of TVET programs. The primary goal was to move toward a dual system model with strong apprenticeship systems, such as found in Germany, by increasing work-based programs for practical skills development in enterprises. The Hungarian Chamber of Commerce and Industry and the Prime Minister of Hungary signed an agreement toward that end to solidify their efforts. Beginning in 2012, the National Chamber of Commerce and Industry, with financial assistance from the state, was scheduled to take major responsibility for developing and managing the three-year secondary vocational schools (*szakiskola*, SZI), which students will enter after the 8th grade (age 14).

TVET Priority: Greater number of TVET students in practical training and on-the-job training.

Recommendations for Hungary emphasize the need to promote practical training by:

1. Establishing incentives to businesses for providing "on-site" training of student highlighting the benefit to the company of not needing to recruit and train new workers if the quality of apprentice/trainee is high.
2. Promoting benefits to companies of collaborating with TVET training institutions.
3. Developing and training companies on a set of rules to secure the quality of training provided and ensure that levels of competencies attained meet industry requirements.

Source: OECD, 2011

Economic and social trends had a significant impact on the policies and practices of education in general and TVET in particular. The expanding elderly population and the shrinking number of youth makes the need for targeted training that meets labor force demand critical. Many aspects of the overall educational reform have "set the stage" for TVET reform in Hungary. The structural reforms include advisory boards consisting of representatives from enterprises and government (Ministry for the National Economy with shared responsibility for TVET with the Ministers of Health, Tourism, and other economic sectors and the Ministry of National Resources [formerly the Minster for Education and Culture]); such boards are essential to successful reform. Additional reforms initiated include (CEDEFOP, 2011):

- *Establishing new governance and funding mechanisms* whereby higher education providers (schools, churches, and private entities) can assume a more significant role and greater responsibility. State funding will be granted primarily to state- and church-maintained higher education institutions. The state will guarantee state-funded places for 45 percent of the 18-year-old age population cohort group.
- *Setting up a new National Qualifications Framework (NQF)* consistent with the European Qualifications System, adopted in 2008.
- *Developing and implementing a lifelong learning strategy and road map*, consistent with EU lifelong learning strategies. [28] A new Lifelong Guidance Council and employment information and guidance centers (Foglalkozási Információs Tanácsadó bázisok) provide information to students (and other job seekers) about education and training opportunities linked to the needs of employers in their local area, in other areas of the country, and across the EU.
- *Expanding learning mobility* by providing a framework for students to complete their apprenticeship in a minimum of 3 or maximum of 39 weeks abroad.
- *Developing teacher/trainer professional development programs.* State employment of teachers is perceived as a way to raise teacher's social prestige, which is a high priority issue.
- *Improving the quality and efficiency of education and training through language learning* (a new requirement of learning one foreign language from grade four and two languages in upper secondary school) and improving basic skills in reading, mathematics, and science.
- *Promoting equity, social cohesion, and active citizenship* through a system that facilitates greater access and flexibility to the expanded offerings at all educational levels, particularly pre-primary, secondary, and higher education.

As part of the reform plan of the last decade, the Hungarian government developed an agenda for a competitive education and training system with several goals: (a) TVET graduates will be better prepared and better able to respond to the demands of the economy and the labor market; (b) the Government will provide students with marketable knowledge; and (c) it will enable them to start their own businesses and continuously renew their skills and competencies. The increasing involvement of private sector stakeholders with TVET will contribute to achieving these goals, particularly to increasing apprenticeships, internships, and mentoring in the TVET system. Priority is now being placed on engaging the private sector and other social groups in the TVET agenda of the country (CEDEFOP, 2011, p. 25).

28. Adult participation in "lifelong learning" (2.7%) remains well below the EU average (9.3%) in 2009 with the Hungarian target for 2020 at 8 percent; it remains well below the EU projected target of 15 percent by 2020. (CEDEFOP, 2011)

REPUBLIC OF MACEDONIA

Republic of Macedonia: Key Indicators
Education 2012

- Primary Gross Enrollment: 90.0%
- Primary Gross Enrollment, Gender Parity Index: 1.00
- Lower Secondary Gross Enrollment: 90.3%
- Lower Secondary Gross Enrollment, Gender Parity Index: 0.99
- Upper Secondary Gross Enrollment: 75.7%
- Upper Secondary Gross Enrollment, Gender Parity Index: 0.97
- Upper Secondary TVET Enrollment: 60.0%

Economic and Labor Trends 2012

- GDP Growth Rate: 5%
- Employment Rate: 37%
- Total Unemployment Rate: 34%
- Youth Unemployment (ages 15-24): 56%

Sources: UNESCO; EUROSTAT; World Bank (2014)

The Republic of Macedonia's Ministry of Education and Science (MES) has initiated a number of fundamental reforms, within both the general educational system and the TVET system. This new system has extended primary education from eight to nine years, and made secondary education compulsory. Also the three-cycle framework for academic degrees (bachelor, masters, and doctoral) established by the Bologna Process[29] is being introduced in higher education. Basic education curriculum now includes life skills, physical education, and an English language program. A national qualifications framework and lifelong learning strategy have been adopted, though only limited progress has been made integrating them into upper secondary and tertiary education. Sub-sector strategies and laws have been developed, although separately rather than as part of a closely interlinked system. Republic of Macedonia has taken important steps forward in TVET reform, though funding limits have prevented fully integrating these new reforms in the education system.

In the last two decades, enrollments in higher education have consistently increased. Between 1990 and 2006, higher education enrollment has more than doubled. In 2002, the Republic of Macedonia passed changes to the higher education law that reduced barriers to establishing private institutions in the higher education sector. Factors contributing to increased enrollment rates include: the opening of new universities working in languages other than Macedonian (Albanian, English);[30] state scholarships and loans to students; offering study programs in more diverse topics; and measures to encourage young people from ethnic minorities to enroll in higher education.

Appendix C contains an outline of the educational structure within which TVET operates in Republic of Macedonia. The following section discusses policies, practices, and recommendations for TVET reform and improvement.

TVET POLICIES, PRACTICES, AND REFORMS

The EU has supported TVET reform since 1999 with four successive PHARE or Community Assistance for Reconstruction, Development and Stabilization projects. As part of the process, Republic of Macedonia initiated important steps in the reform of its education system as it relates to TVET and

29. The overarching aim of the Bologna Process is to create a European Higher Education Area (EHEA) based on international cooperation and academic exchange that is attractive to European students and staff as well as to students and staff from other parts of the world. (See Bologna Process website http://www.ond.vlaanderen.be/hogeronderwijs/bologna/about/. The envisaged European Higher Education Area will: a)facilitate mobility of students, graduates and higher education staff; b) prepare students for their future careers and for life as active citizens in democratic societies, and support their personal development; and c) offer broad access to high-quality higher education, based on democratic principles and academic freedom.

30. South East European University, International Balkan University, Euro College, International University of Struga, and FON University, for example. Also officially recognizing and funding Tetovo University contributed to higher enrollment rates.

higher education, particularly as it relates to the upper secondary system within the education sector. Important initiatives include:

- Launching the national qualifications framework and accompanying accreditation system, making learning outcomes comparable across various levels of upper secondary and tertiary education though out the country.
- Adopting new legislation on adult education, establishing the Center for Adult Education and the Council for Adult Education.
- Reorganizing upper secondary TVET into 14 occupational fields and developing 44 occupational profiles that are linked to the NQF and skills outcomes.
- Integrating general upper secondary and TVET upper secondary curricula, with the attempt to build bridges and ladders between the two upper secondary learning programs.
- Adopting the new law on higher education.

Many of these initiatives, however, remain underfunded and unfinished. For example, the TVET three-year programs have yet to be fully revised. Profiles and curricula are still too narrow and are considered partly outdated, with too little emphasis on practical work experience. In order for young people to develop necessary practical skills, they need access to adequate workshop equipment and closer links with employers. The two-year programs have not been reformed, even though these could be suitable for many of the additional students now staying in school following the extension of the school leaving age. Post-secondary level TVET (ISCED 4, ISCED 5B) programs are almost completely lacking, as reported in a recent ETF report (ETF, 2011c, p. 4). Some remedial courses that TVET schools provide may be attributed to the level of post-secondary education, though this is difficult to assess in the absence of clear national standards and levels of competence.

The system continues to face several challenges:

- *Fiscal constraints continue to cause delay and frustration.* Insufficient funding makes it difficult to improve education quality at all levels or to undertake many of the recommended reforms. Many pre-EU-accession education policies do not appear to take into account the fiscal realities facing the Republic of Macedonia, and there is still no consensus within the country on the recommended EU policies. With limited financial resources, the multiple demands on the Ministry of Education—varying from increasing access to preschool education to improving quality of higher education—make it difficult to move forward with these new initiatives for reforming TVET and higher education (ETF, 2011c, p. 5).
- *Limited progress on the national qualifications framework.* With the exception of the school leaving (State Matura) exams in a few subjects, examination specifications are not defined on the basis of agreed upon qualifications or standards of knowledge or competence. After several unsuccessful attempts, a new initiative has been launched to develop a NQF, and related accreditation systems.
- *Supporting the establishment of a system for adult education, including literacy and elementary education.* Efforts are underway in the country to develop career and lifelong learning guidance system (ETF, 2011). The government has recently enacted a new law on adult education and established an Adult Education Center and Adult Education Council. These are intended to revitalize adult education covering all areas from (second-chance) basic skills courses to training, re-training, and skills upgrading tailored to the needs of both employed and unemployed individuals as well as companies. This goal can be realized only if the Government acts in true partnership with all stakeholders and provides a facilitative framework to give incentives to individuals and companies to co-invest and leave maximum leeway to local actors to deliver.

- *Modernizing vocational training, in particular in the two- and three-year streams.* There has been very little progress in the reform of the TVET curricula for the two- and three-year streams. It is necessary to prioritize linking these streams to business partners in order to increase the vocational competencies of students, including development of computer, entrepreneurship, and foreign language skills.
- *Promoting the inclusion of women and ethnic Roma and Albanians*. A major policy priority is increasing the overall employment rate, including that of women and older workers. Economic inactivity is high, particularly among women with less than a secondary education (Republic of Macedonia State Statistical Office, 2011, p. 24). According to the State Statistical Office, out of the total population of the Republic of Macedonia, 48,569 of the 63,562 illiterate people are women. Raising the employment rate of women and ethnic minorities will be a key to improving overall labor market participation.

Macedonian education policies mainly focus on dealing with segmented educational supply systems and limited mobility and flexibility within the separate sub-systems. There are few over-arching or systemic objectives that include the various sub-systems, thus making it difficult to achieve consensus and change throughout the system. Several fiscal constraints make such policy change even harder. By tackling many TVET reforms simultaneously, Republic of Macedonia has started important processes of reform, but has not yet achieved the intended outcomes. As discussed earlier, the Republic of Macedonia has made significant progress in the decentralization of education as well as TVET reforms. Yet, reforms such as lifelong learning and the inclusion of social partners, remain challenges that face the system. Positive outcomes of TVET reforms will not be achieved unless they are conceptualized and implemented within a broader framework of national education reform that includes effective linkages among the sub-sectors of the system. "Band-Aid" solutions and small projects are no substitute for systematic reform within the educational context.

V. TVET REFORM – LESSONS LEARNED AND MOVING FORWARD

The review of the TVET structures and reforms in the E&E region and the policies and practices of the British, German, and French TVET models, illustrate the ongoing challenge of relevancy and effectiveness. Training a labor force to meet the needs in the work place and delivering programs that are accessible, affordable, and efficient is increasingly important. This experience is the basis for succinct descriptions of the policies and practices essential for real, sustained reform.

Table 5. Components of Relevant and Effective TVET Systems

1.	**Partnerships with industry and the private sector:** These partnerships are critical to developing, delivering, assessing, and continuously updating curricula; skill standards; and competency requirements to meet labor market demands. Skill needs are identified through effective partnerships and coordination with local industry/sector and industry associations. Local planning authorities are engaged in the development, implementation, and evaluation of new programs[31]
2.	**National Qualifications Framework:** These frameworks develop, classify, and establish sets of criteria for levels of learning and competency attained by graduates of education and training

31. Adapted for E&E region from previous USAID TVET assessments and recommendations in Indonesia and Jordan by David Lowther, Australia, and Gwen El Sawi, USA.
Al-Weydan, H., Lane, T.S., Lowther, D., & El Sawi,, G. (2009). "Public-Private Partnerships: Lessons Learned from a Partnership: Consolidated Contractors Company and the Morganti Group Inc. (Ccc/Morganti), Al-Balqa' Applied University (Bau)/Al-Huson University College (Ahuc) and the USAID Jordan Economic Development Program". Paper 35. *Center for Social Policy Publications.*

systems, in partnership with private sector stakeholders. All qualification frameworks are aimed at establishing a basis and standard for: (a) evidence-based quality improvement, i.e., increasing level and depth of knowledge, skills, and competencies in the workforce; (b) accessibility to initial education, training, and to further education and training; (c) strengthened linkages and engagement with labor market stakeholders; and (d) certification systems and recognition, socially and in the labor market, of qualifications acquired through education and training

3. **Quality competency-based curriculum, blended with practical hands-on learning on-site and ladders to career and further learning opportunities**: Students of TVET experience: (a) a relevant workplace-based curriculum that includes competency in basic skills, theory, applied learning, and practical on-site experience; (b) evidence-based assessments and measurements of competency in knowledge and skills; (c) on-site experience; and (d) the involvement of highly skilled and experienced, independent, industry-based teachers, trainers, and assessors. There are clear *ladders* and opportunities for TVET students to progress in their careers and to move to higher education if desired.

4. **Linkages between TVET institutions and higher education institutions:** Education systems should provide for clear procedures for how TVET students can continue to learn and progress in their careers or move on to higher education or continued learning. TVET is rapidly becoming integrated into tertiary education, particularly through the use of short-term programs linked to two-year certification programs. Incorporating these shorter-term certificates within higher education offers more flexibility in achieving higher levels of skill and qualifications.

5. **Lifelong learning, adult and continuing education policies and practices with vocational and career guidance and counseling:** Effective career guidance as early as possible in the educational process is needed to help students identify their interests and abilities, and to limit their uncertainty regarding training and employment. Ultimately, this should result in better choices, lower dropout rates, and improved student commitment. Opportunities and access beyond initial education and training is needed to provide: "second chances;" retraining to fit labor market demands from changing circumstances and technology; increased mobility with certifications that meet standards throughout country; and social inclusion for unemployed and/or underserved populations, i.e. minorities and traditional excluded populations.

6. **Diversified sources of financing of TVET and equity:** It is necessary to examine the mix of financing open to TVET, with particular attention to alternative financing through user fees, particularly at the post-secondary level. Recent reforms, however, have shown the benefits of mixed financing: Public-private support allows TVET to serve a wider group of participants and firms through both *needs-based* public sector subsidies and *user fee-based* private sector financing.

These components for relevant and effective TVET systems rest on a number of assumptions that need to be made explicit:

1. Policy makers need to recognize that the economic viability of a country depends on investing in human resource development through vocational education and training that is linked to higher education.

2. Political will must be sufficient to allocate the human, political, and financial resources needed to accurately assess the skills needed, develop the appropriate curriculum, and train teachers, with the engagement of the private sector in nationwide implementation.

3. Continuous learning and updating of skills is required to keep pace with the changes that technology will bring to many industries. Technology cannot remain the "unnoticed elephant" in the room. The education and training of the workforce thus needs to provide

a solid, high quality foundation of basic skills along with the attitude that lifelong learning is required to keep up to date with the changing skills needed over a worker's lifetime.

4. Management of any proposed TVET institution should be industry-focused and demand-driven with strong negotiation and coordination between the management of training providers and business enterprises.

Education and training institutions have limited ability to keep pace with industry changes unless their management style incorporates ways to achieve greater flexibility and transparency using public funding. To achieve this, institutional management should delegate the needed authority and assign the following key responsibilities that are the source of institutional dynamism:

- *Planning and Programming:* Managing an institutional strategy that sets targets with the flexibility to add new, demand-driven courses and to terminate old courses no longer deemed necessary by local industry. The cornerstone of success has been research and evidence-based programming.
- *Budgeting and Finance:* Autonomy and authority to determine budgetary allocations, modify pay systems, spend revenues, and earn and retain income from production units or contracted work.
- *Flexible Staffing:* Authority to hire and fire full time, contract, and part-time staff, and to develop courses that meet new market demands by taking advantage of teachers with industry experience.
- *Technical Support:* Specific operating units with responsibility to conduct labor market analysis, negotiate production work, identify employment and internship opportunities, and develop flexible curricula and teaching materials.
- *Management Information System:* A fully computerized management information system capable of tracking all student progress in real time and student Internet access for research and information gathering to minimize the need for a paper- and book-based library.
- *Sector-Specific Skill Development*: Lessons learned have shown the need for sector-specific skill development programs. The approach requires adopting a national qualifications framework and designing new occupational profiles for strategic economic growth industries. Financial incentives, creating a "skills and learning" culture, adopting new value chain approaches, strategic leadership and stakeholder involvement are all necessary elements.

TVET PRIORITIES FOR USAID

The above analysis highlights the lessons learned from the three major types of TVET systems and the E&E reforms of the TVET systems. Current USAID policies provide guidance on the new priorities and practices for effective TVET programs within the Agency. Five new USAID policies shape the current context of USAID policies and programs in TVET:

- *USAID Forward*: Reforms to build local sustainability and service delivery, foster innovation, and strengthen USAID capacity to deliver results.
- *USAID Evaluation Strategy*: Evidence-based policies and programs in TVET and workforce development.

- *USAID Education Strategy*: Workforce development to strengthen demand-driven systems; strengthen institutional capacity to deliver relevant services; Access and equity to education in conflict areas.
- *USAID Gender Equality and Female Empowerment Policy*: Increasing women's empowerment and reducing the gender gap in terms of skills and economic opportunity.
- *USAID Youth Policy*: Youth are better able to access economic and social opportunities, share in economic growth and contribute to household, community, and national well-being.

Approved in 2010, USAID has adopted an agenda of reform titled *USAID Forward*. As part of this initiative, the Agency has been oriented to changing the way it partners with others, encouraging local capacity and reducing the need for U.S. assistance over time. This ambitious agenda is oriented to fostering innovation through advances in science, technology, private sector activity and academic research, and strengthening USAID capacity to achieve greater effectiveness and results. Evidence based policy and programs are at the heart of this new initiative—where new ideas are tested and rigorously evaluated to achieve broader and development results while reducing costs.

Alongside this policy is the *2011 Evaluation Policy that* promotes evidence-based policy making. The new evaluation policy sets ambitious standards for high quality, relevant, and transparent evaluations to demonstrate results, generate evidence to inform decisions, promote learning, and ensure accountability. Since its inception, the Policy has promoted the following principles: integrating evaluation into the design of the project, promoting unbiased measurement and reporting of results, encouraging rigorous evaluation design, and orienting evaluation to strengthen local capacity and transparency. The evaluation results will contribute to evidence-based policy at USAID. Under USAID Evaluation Strategy, emphasis is now being placed on rigorous evaluations that confirm the success of specific development programs.

The 2011 *USAID Education Strategy* addresses the needs of workforce development programs through its Goal 2 that calls for the improvement of tertiary and workforce development systems and programs that support country development goals. Effective TVET is an important component to achieve a skilled workforce responding to the needs of industries and employers to enhance productivity and competitiveness. To achieve this goal, Goal 2 highlights the need for strengthening of systems (including TVET) to promote employer involvement and direction of TVET programming, and improving the overall capacity to meet employers' needs.

Equity and access are important objectives of the *USAID Education Strategy* and *Gender Equality and Female Empowerment Policy.* The new gender policy promotes increasing women empowerment and reducing the gender gap in terms of skills and economic opportunity. Under this policy, USAID investments are aimed at three overarching outcomes:

- Reducing gender disparities in access to, control over and benefit from resources, wealth, opportunities and services economic, social, political, and cultural;
- Reducing gender-based violence and mitigate its harmful effects on individuals and communities; and
- Increasing capability of women and girls to realize their rights, determine their life outcomes, and influence decision making in households, communities, and societies.

Supporting similar objectives to access and equity, the 2012 USAID *Youth Policy* aims to strengthen youth programming, participation and partnership, (Objective One) and to mainstream and integrate youth issues and engage young people across Agency initiatives and operations (Objective Two). Ultimately, the goal of the policy is to improve the capacities and enable the aspirations of youth. Similarly to

promoting gender equality, youth are important partners in the development process, and their effective inclusion remains an important objective for USAID.

Based on the above USAID policy directives, TVET priorities for the E&E region center on the following five principles:

- Using evidence based research and evaluation on TVET policies and programs. Rigorous performance and impact evaluations along with systematic reviews of policies and programs are needed to ensure that TVET reforms achieve expected outcomes and behaviors. Conducting this policy and evaluation research is a high priority to establish the types of policies and programs that can work.
- Promoting innovations and new ideas. USAID and other donors are currently experimenting with new models to achieve local capacity, partnership and effectiveness in TVET projects. Special attention has been given to TVET reforms, particularly in the areas of new qualifications frameworks, skill competencies, partnerships with industry, and increasing access to higher education and social inclusion. The section on Innovation in TVET Case Studies highlights some of these innovations and the evidence and indicators of successful outcomes.
- Supporting equity and access to education and training through the reforms of the TVET system. Specific reforms of the TVET systems have been developed to increase equity and access to secondary and post-secondary education. The national qualifications and competency systems within TVET encourages education and employment mobility. The creation of lifelong learning systems creates various entry points for students to return to education—a "second chance" to gain the skills and education required to be competitive in the workforce. Inclusion of gender considerations and disadvantaged groups remains a priority for all TVET systems in the E&E region.
- Building partnerships with stakeholders to encourage scale and sustainability in TVET. To achieve greater relevance, equity and access, the TVET systems of the E&E region must work through a wide network of partners. In so doing, partnerships can ensure wider participation in TVET programs, alongside demand-driven solutions to ensure that TVET prepares youth for the needs of the private sector. In addition, mixed financing of TVET, with both public and participation in paying for TVET, allows for greater scale and sustainability.
- Policy coordination and governance. Effective TVET crosses various levels of government, as well as a host of Ministries and a wide range of stakeholders. TVET requires established coordinating structures of governance and a policy framework that encourages incentives and rewards for cooperation and coordination. Leadership is needed within a wide range of governmental and non-governmental organizations, as well as government to ensure effective budgeting, management and procurement processes to implement the policy reforms and programs.

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APPENDIX A: ESTIMATES OF TVET ENROLLMENT IN THE UPPER SECONDARY EDUCATION SYSTEM

To examine trends in TVET participation in upper secondary education, the JBS team estimated TVET participation rates using two sources: TransMonee data and UNESCO/World Bank 2001–2009 data (see the tables on following pages). Both sources report that most countries experienced declines in TVET participation in upper secondary education; the UNESCO/World Bank data reports greater declines than the TransMonee data.

First, the measurement depends on three variables: (a) source of population number, (b) reference period of enrolled students, and (c) reference period of population number. TransMonee estimates are based on numbers provided by the National statistical Office (UNESCO seems takes from UN); its population number refers to the end year and its enrolled students are reported at the beginning of the school year. For example, the enrollment rate for 2010 is based on estimates of numbers of students at the beginning of 2010/2011 school year and is divided by population number at the end of 2010. UNESCO uses another reference period for enrolment - end of school year. These different measures largely explain the differences in the TransMonee and UNESCO for the upper secondary enrollment numbers.

Georgia is a useful example. The radical reform of the upper secondary system in Georgia closed 260 TVET schools, and enrollment in the system is less than 2,000 students. UNESCO reported that approximately 2.9 percent of upper secondary enrollments were in specialized TVET centers compared to the TransMonee estimate of 1.2 percent. The difference in these percentages is largely due to differences in the estimated number of upper secondary enrollments.

TransMonee estimates a larger upper secondary enrollment than UNESCO. This would be expected since enrollment numbers are measured at the beginning of the school year, not the end of the school year. Similarly, TransMonee general education upper secondary enrollments are larger than UNESCO estimates. The TransMonee estimate of TVET participation is a constructed estimator. The percentage of TVET participation is simply 1 – (General Education Upper Secondary Enrollment/Total Upper Secondary Enrollment. By overestimating these enrollment numbers, the percentage of TVET participation is reduced. With smaller estimates, the percent change difference in 2001-2009 periods is also smaller using TransMonee data. Let us take a look at the case of Georgia. This in turn makes for a smaller change in TVET participation in Georgia over time; using the TransMonee data, TVET trend change is estimate at -17.0 percent compared to UNESCO data estimator of -57 percent.

Both estimators consistently measure declines in TVET participation rates over time for many countries in E&E. Eighteen of the 24 countries experienced some decline in TVET participation in upper secondary enrollment. The most dramatic change occurred in the three countries that have undergone radical change in their TVET systems: Georgia, Slovakia, and Belarus. Azerbaijan, Latvia, Lithuania, and Poland have also experienced significant declines. Countries with consistent estimate of gains in TVET participation are Russia and Ukraine.[32]

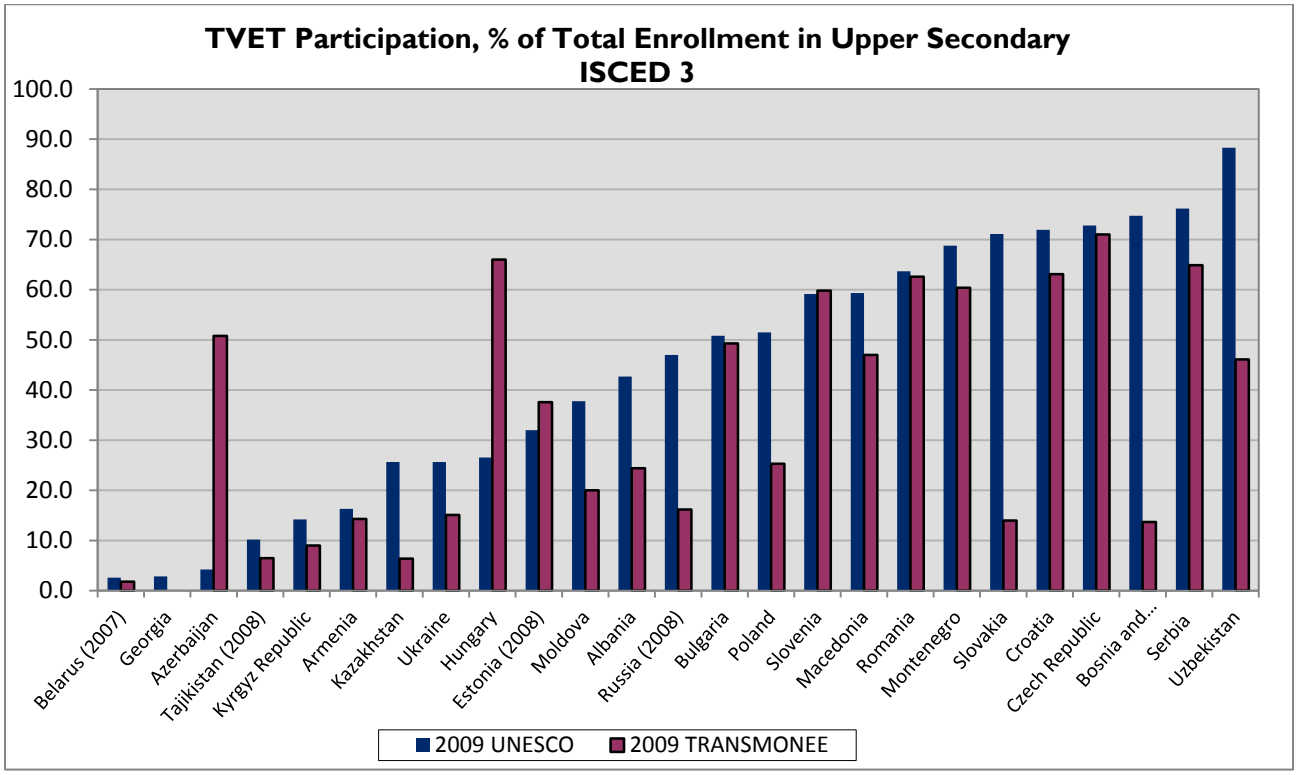
32. It should be noted that the estimator sign is not the same in all countries. For example, Uzbekistan with a large gains in secondary enrollments, finds that TVET participation percent change over time has increased when estimated by TransMonee estimators, and decreased slightly when calculated using UNESCO. For that reason, qualitative background on the enrollment patterns must accompany the discussion of enrollment trends, particularly given the lack of quality data in many countries.

Table A1. Estimates of TVET enrollments in Upper Secondary Education

Countries	TransMonee, 2009†	ETF, 2008*	UNESCO, 2009	Education Hotspots
Czech Republic	73.1%	73.3%	72.8%	71.0%
Hungary	64.2%	24.5%	26.6%	66.0%
Poland	48.2%	47.2%	51.5%	25.3%
Slovakia	14.8%	71.6%	71.1%	-
Slovenia	59.4%	64.3%	59.2%	59.8%
Estonia	34.1%	33.0%	32.0%	37.6%
Latvia	36.0%	36.1%	40.6%	39.4%
Lithuania	27.7%	26.4%	28.6%	30.5%
Bulgaria	51.5%	51.8%	50.8%	49.3%
Romania	63.8%	63.7%	63.7%	62.6%
Albania	14.2%	16.3%	16.3%	24.4%
Bosnia and Herzegovina	20.7%	75.1%	74.7%	13.7%
Croatia	71.5%	72.4%	71.9%	-
Montenegro	68.2%	-	68.8%	60.4%
Serbia	76.2%	76.1%	76.2%	64.9%
TFYR Macedonia	60.0%	59.8%	59.3%	47.0%
Belarus	2.3%	2.6%	2.1%	1.8%
Moldova, Republic of	35.5%	34.5%	37.8%	20.0%
Russian Federation	33.7%	47.0%	47.0%	16.2%
Ukraine	31.2%	24.9%	25.7%	15.1%
Armenia	14.9%	3.3%	4.2%	14.3%
Azerbaijan	44.5%	38.4%	42.7%	50.8%
Georgia	23.7%	1.2%	2.9%	-
Kazakhstan	-	26.0%	25.7%	-
Kyrgyzstan	19.8%	13.0%	14.2%	-9.0%
Tajikistan	10.7%	10.2%	10.2%	6.5%
Turkmenistan	-	-	-	-
Uzbekistan	72.0%	81.0%	88.3%	0.0%

† Estimation using UNICEF/TransMonee data; * estimated using CEDEFOP/EUROSTAT data.

Chart A1. TVET Participation as a Percent of Total Enrollment in Upper Secondary, ISCED 3



Source: UNESCO, 2011; UNICEF/Transmonee, 2011

Table A2. Percent Change in TVET Enrollments

Countries	% Change in TVET enrollments TransMonee data 2001/2002-2009/2010	% Change in Enrollments UNESCO data 2001/2002-2009/2010
Albania	-0.93	-18.20
Armenia	14.94	-33.30
Azerbaijan	0.49	-26.30
Belarus	-0.73	-42.60
Bosnia and Herzegovina	-15.49	1.30
Bulgaria	-4.33	-17.60
Croatia	-2.78	-4.10
Czech Republic	-6.83	-10.00
Estonia	2.61	-28.50
Georgia	-17.03	-53.80
Hungary	-1.84	-10.10
Kyrgyz Republic	-1.20	-9.00
Latvia	-2.28	-33.20
Lithuania	-4.61	-32.60
Moldova	10.15	-4.20
Montenegro	-1.21	-5.70
Poland	-13.88	-31.30
Romania	-0.07	-12.50
Russia	4.00	9.10
Serbia	0.48	-1.10
Slovakia	-7.26	-49.30
Slovenia	-8.09	-9.70
Tajikistan	-4.97	-21.00
Macedonia	-2.86	-6.20
Ukraine	4.47	12.60
Uzbekistan	13.21	-3.50

APPENDIX B: ANALYSIS FRAMEWORK FOR TVET POLICY REFORMS

The analysis of the TVET policy reforms in the 24 countries of the E&E region drew on a comprehensive literature review of the TVET systems in the 22 countries. Particular attention was given to consistent sources and data. European Training Foundation (ETF), the International Labor Organization (ILO) and European Center for the Development of Vocational Training (CEDEFOP) offer large number of publications on the TVET systems of the 24 countries. The following sources are the main inputs to the analysis:

- ETF (2011). Torino Process—Compendium of country reports. CEDEFOP (2011). This compendium of country reports provides recent reviews of TVET and workforce policies, as well as key statistics on ETF countries.
- CEDEFOP (2011). Country reports for each of the EU and EU-candidate countries are available on the following website. These reports provide a history of the reforms and key statistics related to the inputs, outputs and outcomes of the systems. See http://www.cedefop.europa.eu/en/information-services/vet-in-europe-country-reports.aspx
- CEDEFOP (2011). "The Development of National Qualifications." CEDEFOP. Recent report on the main policy action in the CEDERFOP countries to achieve higher degree of quality and more responsiveness to market economy.
- Select statistics of ETF and CEDEFOP members. See ETF (2011) "Key Indicators of Torino Process" ETF. See CEDEFOP statistics on their website: http://www.cedefop.europa.eu/EN/statistics-and-indicators/browse-by-topic.aspx.

The review of the above literature and statistics allowed for the classification of countries using the following rankings:

- *Decentralization.* The review of the country reports allowed the countries to be ranked by the high, mid, low rankings. Low levels of decentralization were associated with initial policy actions on first stage reforms:, such as decentralization of school management and service delivery. Mid level of decentralization refers to countries that have achieved first stage reforms, but has limited achievement in secondary stage reforms—such as the establishment of the NQF or social partnerships. High reformers are countries that have achieved both first stage and second stage reforms.
- *National qualifications framework.* The review of the country reports as well as the CEDEFOP publication on National Qualifications Framework provided the information to classify countries by Yes/No and Proposed status.
- *Social inclusion of partners.* The review of the country reports as well as CEDEFOP statistics provided information on the percent participation of women and other key ethnic groups into the TVET system. Based on these reviews and statistics, countries have been classified by high-mid-low.
- *Lifelong learning participation.* The review of the country reports as well as CEDEFOP/ETF statistics provided information on the percent participation of older workers (over 25 years of age) into the TVET system. Based on these reviews and statistics, countries have been classified by high-mid-low.

APPENDIX C: CASE STUDIES - EDUCATION SYSTEM STRUCTURES

CZECH REPUBLIC

The new Education Act of January 2005 regulates education—from pre-primary to upper secondary and tertiary professional education—and its public administration. The Act on Educational Staff, the personnel legislation that regulates the teaching profession on the same levels, accompanied this new law. Administration of schools is a responsibility shared by the central government (Ministry of Education, Youth, and Sports—MEYS), the 14 regions, and communities. The Czech school system awards four degrees/certificates:

- Preschools (from 2 to 5 years old)
- Elementary (from 6 to 15 years old, mandatory)
- High schools, grammar schools, colleges, and training colleges
- Universities

Table C1. Education System Structure - Czech Republic[33]

Education	School/Level	Czech Republic Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/Certificate
Pre-Primary	Primary (age 3 – 6)	Mateřská škola	0	X							
Primary	Elementary First Stage (age 6 – 11)	Základní škola	1 -5		X						Vysvedcendi (certificate)
Lower Secondary Education	Second Stage (lower secondary education (age 11 – 15)	Základní škola	6 - 9			X					
	Art Education at conservatoire (age 11 – 15)	Konzervatoř – conservatoire	5 - 9			X					

33. Source: ForeignCredits.com, 2011.

Education	School/Level	Czech Republic Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/Certificate
Secondary	(Regular) Academic Upper General Secondary School (age – 15 -19) Leading to further education.	Gymnázium Program	6/7 - 12				3A				*Vysvedceni o maturitni zkousce examination (Secondary school leaving certificate)*
	Upper secondary technical education at secondary schools (15–17 years for 2 – 3 years)	střední vzdělání	6/7 - 12			2C	3C				
	Art Education at conservatoire (age 15 - 19)	Konzervatoř – conservatoire					3A				
	Secondary education leading to apprenticeship certificate	*střední vzdělání s výučním listem*					3C				Apprenticeship Certificate
Post-Secondary non-Tertiary Education	Technical Follow-up study at Secondary School (age 18+)	*nástavbové studium at secondary schools*						4A			*maturitni zkouška examination (required for higher education)*
	Post-secondary education leading to apprenticeship certificate (Vocational Shortened study) (age 18+)	*zkrácené studium at secondary schools*						4A			

Education	School/Level	Czech Republic Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/Certificate
Tertiary	Art Education (2 years)	Konzervatoř – conservatoire							5B		
	Tertiary Professional School	*Vyšší odborná škola*							5B		
	Higher Education Institution, University & Non-University type	*Vysoká škola*							5A		Bachelor's & Master's Studies
	Doctoral Studies	*Vysoká škola*								6	Doctorate

Many documents provide details of the Czech Education system (Eurydice, 2011). The TVET offerings start at the upper secondary level. Post-compulsory upper secondary education offers three types of programs (Kuczera, 2010):

- Upper secondary general education at *gymnazium* secondary schools in preparation for entering university-level education that ends in the *maturitni zkouska*, or school leaving exam (literally, maturity exam), which enables them to apply for tertiary education.
- Technical education (four-year vocational programs), which leads to the *maturia* exam and preparing the student either for the labor market or for tertiary education (*stredni odborne skoly – SOS).*
- Apprenticeship education (usually over three years, but with some two- and four-year programs), which concludes with an apprenticeship certificate *(vyucni list)* that provides access to the labor market but without the possibility of direct transition to tertiary education *(stredni adborne uciliste – SOU)*. Apprentice graduates may take two-year follow-up courses that lead to the *maturita* exam *(nastavbove stadium)* in preparation for tertiary school admission. Apprenticeship programs are available in 18 specializations (European Commission, 2009),

Prerequisites for entering secondary education programs include (a) completion of compulsory education and (b) successfully meeting the entrance requirements specified by the school head who also decides on the admission of a pupil. Requirements may include an entrance examination, possibly an aptitude test, organized by the school. Pupils can apply to three schools of their choice. Those who are not immediately enrolled in their first choice selections can participate in a second round of enrollment in schools with capacity for them. Prerequisites for acceptance in a post-secondary program are completion of a secondary program and successfully meeting entrance requirements.

Curricula from the MEYS Framework Educational Program for Upper Secondary General Education (*Gymnazium)* stipulate eight educational areas, five cross-curricular subjects, and the key competencies

that a school-leaver must have. The framework for technical and vocational education includes both general and technical/vocational education, cross-curricular subjects, and specific key competencies. The ratio of general to vocational subjects in the 2008 school programs for technical courses (ISCED level 3A) was about 60 to 40 (practical education/apprenticeships excluded). This blending of general and technical content has been an important feature of the reforms in upper secondary education.

Pupils acquire secondary education through successful completion of an educational program lasting one to two years. Upper secondary education leavers can enhance or change their qualifications in three types of post-secondary programs: Two-year follow-on programs and two types of shortened studies provide leavers of general or technical studies the qualifications needed for higher levels of certification. Currently approximately 74 percent of all leavers of upper secondary schools, in both general and technical fields, leave school with the *maturitni zkouska*, eight percent of whom achieved it in follow-on studies.

A 2010 OECD assessment reported declining enrollment in apprenticeship programs over the past decade, while the share of students in programs with the *maturita* exam has been increasing. Therefore, more students are participating in programs with the possibility of enrollment in tertiary education (Kuczera, 2010). In addition, the number of 15-year-olds has been declining steadily since 1990 and will continue to decline slightly for the next five years before increasing again around 2020. This demographic dip, as well as the increasing value and demand for programs leading to the *maturita* exam, means that apprenticeship programs are currently ,and will likely continue to be, challenged to find both adequate numbers of enrollees for their programs and adequate numbers of placements for their graduates.

There are two types of higher education institutions: universities (24 public, 2 state, and 3 private institutions) and non-universities (2 public and 43 private institutions) (Eurypedia).Tertiary education consists of three tiers, including professional schools providing diplomas, non- university higher education institutions offering undergraduate courses, and research universities educating through to the doctoral level (Credits, 2011). Tertiary professional schools provide students with advanced technical knowledge based on a curriculum prepared by the school and accredited by the MEYS.

HUNGARY

In Hungary, school attendance is mandatory from age 5 to 18. The percentage of early school leavers (11.2 percent) was lower than the EU average (14.4 percent) in 2009. Ninety-eight percent of the students complete eight years of primary education. Pre-primary education (*óvoda*, ISCED 0–1) is available for children ages three to seven years; it is optional through age 5 and compulsory thereafter. Primary education (*általános iskola*, ISCED 1+2) provides basic education in two four-year cycles. Children attend primary schools until age 14, after which they have to choose a secondary school. The main levels of education are:

- Pre-primary education (ISCED 0–1)
- Primary education (ISCED 1+2)
- Secondary education (ISCED 2–3) including vocational education and secondary vocational schools
- College basic and supplementary programs (ISCED 5)
- Higher education (ISCED 5–6)

Table C2 outlines the educational structure that provides the framework within which TVET operates in Hungary.

Table C2. Education System Structure - Hungary[34]

Education	School/Level	Hungarian Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/ Certificate
Pre-Primary	Primary (age 3 – 7)	Bolscode (MoEd not responsible) Ovoda (MoED Responsible)	0	X				0			
Primary	Elementary (age 6 – 14)	Altalanos Iskola	1 – 8		X	X					
Secondary	(Regular) Academic Secondary School (age 14 – 18)	Gimnazium Grammar Schools	9 - 12				3A				Erettsegi Bizonyitvany (Pre-req for Higher Education & Post-secondary VET)
Vocational	Secondary Vocational School (age 14 – 18)	Szakkozepiskola SZKI (4 years, 5 in bilingual schools)					3A				Bizonyetvany- (Secondary School Leaving) [Proceed to VET or H.E.)
	Vocational	Szakiskola SZI (General & pre-VET for 2 years, Vocational specialization, 1 – 3 yrs.)				2C	3C	4C			Proceed to labor market or Higher Education
Post-Secondary non-Tertiary	Non-degree advanced vocational programs	Felsofoku Szakkepzes						5B			Vocational qualification of Országos Képzési Jegyzék (OKJ), or National Vocational Qualifications Register

34. Source: ForeignCredits.com, 2011.

Education	School/Level	Hungarian Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/ Certificate
Tertiary	University level Undergraduate	Egyetemi Foiskola						X			
	University								5A	X	
	Master Degree	Mester							5A	X	
	Post Graduate	Szakiranyu Tovabbkepzesi Oklaevel							5A		
	Doctorate	Doktor							5A	6	
	Hungarian Doctorate								5A	6	

The Hungarian education system undertook significant expansion in secondary and tertiary education with increased enrollment in upper secondary schools that award the secondary school leaving certificate (*erettsegi bizonyitvanny*, ISCED 3A), the prerequisite for entrance to colleges and university. "Vocationally-oriented schools", (*szakiskola*, *SZI*, ISCED 2C or 3C) however, do not offer their students the option of taking the exam and have lost both prestige and student enrollments to grammar schools and "secondary vocational schools" (*szakkozepiskola*, *SZKI*) (CEDEFOP, 2010). As a consequence, the Hungarian upper secondary system is moving toward integrating general and vocational education courses.

The upper secondary education level offers three specific tracks:

- Upper secondary general education at *gymnasium* secondary school in preparation for entering university-level education ending in the *erettsegi, the* higher education leaving exam.
- Vocational education (*Szakkozepiskola, SZKI* classified as 3A education) offers a four-year vocational program leading to a *Bizonyetvany*-degree and progression into higher education or other VET programs.
- Vocational education (*Szakiskola,* classified as 3C education) offers a two-year program for students from lower secondary schools (classified as 2C) entering the labor market directly upon completion.

REPUBLIC OF MACEDONIA

Beginning in 2005, formal education starts with preparatory kindergarten year prior to entering elementary school. This preparatory year is now a part of compulsory education, though access remains limited. The elementary school has two cycles: (1) primary education for grades 1–5 and (2) lower secondary education for grades 6–9. The main levels of education and their ISCED associations are:

- Pre-primary education (ISCED 0-1)
- Primary education (ISCED 1+2)

- Secondary education (ISCED 2-3), including vocational education and secondary vocational schools
- College basic and supplementary programs (ISCED 5)
- Higher education (ISCED 5-6)

Table C3 highlights the organization of the education system, including TVET.

Table C3. Education System Structure - Macedonia[35]

Education	School/Level	Macedonian Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/ Certificate
Pre-primary	Kindergarten – Pre-school education		0	X							
Primary	Elementary School (age 7 – 15)		1 – 9		x	x					Certificate for completed Elementary Education/ Svidetelstvo za zavreno osnovno obrazonvanie
Secondary	(Regular) Academic Secondary School (age 15 – 19)	Gimnazija	10-13				3A				Secondary School Leaving Certificate/ Svidetelstvo za zavreno sredno obrazovanie; International Baccalaureate Josip Broz Tito Gymnasium, Skopje (2 years after2nd grade of secondary education
Vocational	Technical School (age 15 – 19)	Tehnicki Uciliste	10-12				3B				Secondary School Leaving Certificate/ Svidetelstvo za zavreno sredno tehniko obrazovanie
	Vocational School (age 15 – 19)	Uciliste Za Zanimanja	10-11				3C	4C			Secondary Vocational School Leaving Certificate: Svidetelstvo za zavreno sredno obrazovanie za

35. Source: ForeignCredits.com, 2011.

Education	School/Level	Macedonian Term	Grade	ISCED Level 0	ISCED Level 1	ISCED Level 2	ISCED Level 3	ISCED Level 4	ISCED Level 5	ISCED Level 6	Degree/ Certificate
											zanimaweto
Tertiary	Bachelor [4 – 6 yrs. depending on field of study]	Diplomiran							5A		Bachelor Degree or Profession degree
	Higher Vocational Education								5B		
	Master Degree/ specialization Each graduate student can specialize in professional field, e.g. surgery , Engineering which may require 1 – 5 years of practical training	Specijalizacija								6A	Master of Science / Master of Arts after 2 years of study, research and thesis defended in public.
	Doctorate	Doktor na nauki								6A	Doctor of Science conferred on with Master's degree and after an approved period of research and the defense of dissertation.

The upper secondary education level offers three specific tracks:

- Upper secondary general education at *gimnazija* secondary school in preparation for entering university level education ending in the *drzhavna matura*, the State Matura or secondary school leaving exam.
- Vocational education (*Tehnicki Uciliste,* classified as 3A education) offers a four-year vocational program leading to a *Svidetelstvo za zavreno sredno tehniko obrazovanie* degree that allows for progression into higher education or other VET programs.
- Vocational education (*Uciliste Za Zanimanja*, classified as 3C educational content) offers a two-year track, whereby students from lower secondary schools (classified as 2C) participate in these programs and can enter the labor market directly upon completion.

Approximately 40 percent of the secondary education students are enrolled in the academic gymnasium education. Over 50 percent of students attend four-year VET ('technicians' level) and the rest enroll in two- or three-year VET programs. The flagship project of the upper secondary system is the State Matura project, which was pilot-tested and subsequently made compulsory for all students of four-year secondary education programs (*gimnazija* and four-year VET) for the 2007-2008 academic year. The State Matura exam assesses learners' achievements in their native tongue, mathematics, and English, which allows for comparison across the country. A positive feature is that four-year TVET students can now choose to take a final VET exam if they do not want to continue on to university education; they can still take the State Matura exam later on in life (UNESCO, 2011).