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Globalisation opportunities for VET

How European and international initiatives
help in renewing vocational education
and training in European countries



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Europe 123, 570 01 Thessaloniki (Pylea), GREECE
PO Box 22427, 551 02 Thessaloniki, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

Mara Brugia, *Acting Director*
Tatjana Babrauskiene, *Chair of the Governing Board*

Foreword

Global competition, rapid technological change, increased movement of people and goods, and global regulatory standards are transforming occupations in some sectors, creating new jobs while some skills are becoming obsolete. In such a complex landscape (vocational) education and training systems must stay ahead of developments or at least follow them closely to equip people with the right skills to help them cope socially and remain employable. At European level, the ministers in charge of VET in European Union (EU) Member States, candidate countries and those from the European Economic Area (EEA) have acknowledged in Riga in 2015 the importance of responsive vocational education and training (VET) to contribute to the international competitiveness of the labour force in a global context. Many European countries use the opportunities offered by European and international initiatives to broaden national qualifications and inform their VET content.

This research paper explores how globalisation influences the review and renewal of VET standards and the way qualifications, training programmes and curricula address global requirements. It analyses the changing VET landscape, where different forms of VET provision and qualifications are emerging and new players (international sectoral bodies, multinational companies) provide training and award their own qualifications. Based on evidence from 15 European countries and 10 case studies in five sectors, this study confirms that national responses to globalisation depend on institutional structures and steering mechanisms, relying on the involvement of labour market stakeholders in developing and revising VET content and delivery. Evidence from the study shows that cooperation and policy learning between European countries is a key success factor in responding to changing skill needs and global pressures. It also complements the country analysis with a sectoral dimension to reflect the fact that sectors' exposure to globalisation differs. Findings show that, although VET renewal is heavily embedded in the national structures and much in line with local economic needs, in fast-growing sectors strongly influenced by globalisation there is a great pressure to use international sectoral standards as a response to global requirements.

This publication is an integral part of Cedefop's work on the development and renewal of qualifications, the role of international qualifications, and the feedback mechanisms between the worlds of (vocational) education and of work. It goes hand in hand with current work under the project *The changing nature and role of VET* complementing knowledge of the external factors influencing

VET. Findings will inform future activities in this area and will support stakeholders involved in the responsiveness of national VET systems to change at European, national and sectoral levels.

Mara Brugia
Acting Director

Loukas Zahilas
*Head of department for VET systems
and institutions*

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Executive summary

This research paper presents the outcomes of the Cedefop comparative study on the influence of globalisation on the review and renewal of vocational education and training (VET) in European countries. The cross-border flow of capital, goods, services, people and ideas, together with rapid technological developments, transforms occupations and the skills needed in the labour market. It creates pressure on VET systems to respond quickly to changing skill needs and to renew their qualification requirements, training programmes and curricula. In this global context, some European countries broaden their national perspectives by integrating an international dimension when developing or reviewing their VET content. The study tries to understand the different ways that countries respond to such global trends and pressures; to what extent they open up to actors at sectoral, regional, national or international level in order to shape their VET systems, including initial and continuing VET (IVET and CVET), as well as vocational education at higher levels.

The study covers 15 countries: 14 European Union (EU) Member States (Bulgaria, Czech Republic, Denmark, Germany, Estonia, France, Greece, Spain, Italy, the Netherlands, Austria, Poland, Finland, UK-Scotland (as a country of the UK)), and Switzerland. Five economic sectors were selected for an in-depth analysis: road transport and logistics, hospitality, automotive manufacturing, information and communication technology and health care.

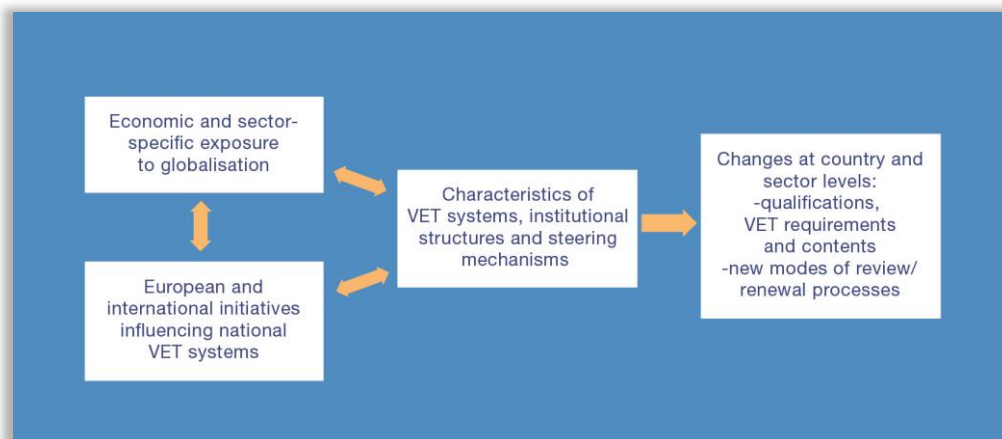
The study is built around the following research questions:

- (a) to what extent do VET systems review their national standards as a direct response to globalisation?
- (b) do European and international sectoral standards add value to national VET systems?
- (c) to what extent do European and international initiatives influence VET requirements and content?

The analytical framework of the study is built on the assumption that VET system responsiveness to globalisation is the effect of an interaction between three factors. First is the country and sector-specific context. This includes the exposure of a country's economy to global trends as measured by the share of exports in GDP, direct outward or inward foreign investment, and the share of foreign workers in the labour market. The sector-specific context is also important as each sector faces different challenges in terms of changing skill needs and skills gaps. The second factor is the existence of European and international initiatives expressed through the development of international standards and

qualifications that may inform national VET systems. Third is the specific governance and structure of VET systems, expressed through the different institutional arrangements and participation of different stakeholders in national VET systems, which may influence the pace of a country's response to changing skill needs. These determine the country's response to changing labour market requirements stemming, among others, from globalisation.

Analytical framework



Source: Cedefop.

The empirical research included desk research and 330 individual in-depth interviews with national and international stakeholders, both at system and sectoral level. A total of 15 country reports were prepared based on the desk research and in-depth interviews. The research was enriched by 10 case studies of VET revision and/or renewal, inspired by existing European initiatives, in four selected sectors and nine countries.

During the desk research the study identified two groups of countries, reflecting exposure to global trends and with reference to several economic and other country characteristics. The first group, named 'active players' ⁽¹⁾ includes countries characterised by a higher position in the global competitiveness ranking: they are active in foreign direct investment, have a higher participation of adults in education and training, and an overall higher level of skills in the adult

⁽¹⁾ The group of active players includes Austria, Denmark, Finland, France, Germany, the Netherlands, Switzerland and UK-Scotland.

population. These are frequently countries with a coordinated ⁽²⁾ or participatory VET governance model, with high involvement of labour market stakeholders in VET systems. The second group, named ‘aspiring countries’ ⁽³⁾ have a lower position in the global competitiveness ranking: they are net receivers of foreign direct investment and are characterised by lower participation of adults in education and training, as well as by a lower level of skills. They also more frequently have a statist model of VET governance in place, with lower involvement of stakeholders in VET policy. The empirical evidence shows that countries belonging to the same group tend to have similar responses to global pressures, as explained below.

In addition to identifying two groups of countries with common characteristics, the desk research developed seven hypotheses to guide the research and understand the different responses of VET to globalisation. The hypotheses examined responses either at national or sectoral level as well as differences between initial VET (IVET), continuing VET (CVET) and VET at higher level in relation to the three interrelated factors of the analytical framework.

Economic characteristics influencing VET

The response of VET to globalisation is frequently triggered by the economic and labour market context. Exposure to foreign markets through a high level of exports, foreign direct investment or migration flows, has an impact on skills needs and, in turn, VET developments. The study findings show that, at country level, globalisation is perceived by stakeholders as having an impact on skills demand, either in broad terms or in a selective way, for example on specific sectors and occupations but not on others.

⁽²⁾ In a coordinated model, social partners assume the major steering role and there are effective mechanisms of communication between the government, social partners, training providers and firms. In the participatory model, the role of social partners is consultative: their influence is mediated by the State regulation. In the liberal system, market signals are the main coordination mechanism and there is a low level of central coordination. The statist model implies the strong role of state regulation to respond to the skill needs of the economy (Cedefop, 2013a).

⁽³⁾ The group of aspiring countries includes Bulgaria, Czech Republic, Estonia, Greece, Spain, Italy and Poland.

Hypothesis 1: exposure to global trends, such as export-driven terms of trade or flows of investment and workers, makes a VET system more likely to be influenced by globalisation and international standards.

Study findings show that globalisation is rarely expressed explicitly in strategic documents related to VET. Evidence, however, points to strategies or initiatives that implicitly relate to globalisation in countries with a higher exposure to global trends: these include Austria, Bulgaria, Czech Republic, Denmark, Estonia, Germany, the Netherlands, Poland and Switzerland. These approaches include the development of internationalisation strategies that include references to VET to bring an international dimension to VET programmes, to increase the mobility of learners and to improve employability of graduates in a global market.

Hypothesis 2: countries with a high share of foreign workers are more inclined to provide VET that is focused both on the inclusion of foreign workers in the labour market and equipping residents with skills relating to working in a multicultural environment.

Migration induces the development of education programmes that help migrants upgrade their knowledge and skills and improve multicultural skills; it also increases the demand for the recognition of prior experience. The presence of multinational companies in local labour markets and the increased geographic mobility of workers increase needs for foreign language and intercultural skills. The most important transversal skills underlined by the interviewees are: intercultural skills (ability to work in a multi-cultural environment); foreign language skills; life and career skills (flexibility, teamwork, responsibility, problem solving skills); learning and innovation skills; and ICT skills. The demand for these skills is also reflected in changes in VET content. In many countries, there is a focus on improving foreign language skills (as in Austria, Estonia, Germany, Poland, Switzerland), as well as on knowledge about international business cultures (Estonia, Switzerland). In Germany, due to the high number of immigrants, there are initiatives to include them, particularly refugees, in the education and training system and the labour market.

VET systems responses to globalisation

Analysis of empirical data did not reveal evidence of causal relationships of globalisation as a driver for renewing VET systems. Most interviewees referred to the following pressures for VET systems, indirectly linked to globalisation: need

for the VET system to be flexible enough to adapt quickly to the demand for emerging skills, possibly including modularised approaches, increased work-based learning, flexible framework curricula; need for lifelong learning to allow workers to keep up with changing skills demand over time and avoid the risk of becoming marginalised in the labour market; increased need for recognition of qualifications, especially in sectors with increased worker mobility such as hospitality and ICT; need for flexible learning pathways and improved transparency and comparability of qualifications, with learning outcomes approaches mentioned as an important means of achieving this; tension between highly specialised and broader qualifications. While this last aspect is not new to VET systems, globalisation intensifies it as evidence shows in the Netherlands and Finland. But how do VET systems respond to these pressures?

Hypothesis 3: CVET and VET at higher level seem to react faster to changes stemming from globalisation than IVET subsystems.

The findings confirm that IVET systems seem to react more slowly than CVET and higher VET (HVET) to changing skills requirements posed by globalisation. IVET tends to be more regulated and its programmes are broader, preparing learners for the labour market and active citizenship through a mix of transversal and job-specific skills. IVET qualifications require the agreement of a broad range of stakeholders which are well integrated into the education and training system. As a result, it takes time to accommodate the demands of the different actors involved in shaping and reviewing IVET qualifications. The more diverse CVET subsystems in most countries tend to have less strict forms of regulation and, frequently, also shorter training modules. HVET providers tend to have more autonomy. There is also a growing diversity of forms and patterns of learning at CVET and HVET that include on- and off-the-job locations and formal and non-formal settings. The flexibility of CVET systems also lies in various new forms of training, including very short, practically oriented modules or online training, particularly relating to developing narrow on-the-job vocational skills (identified particularly in the automotive sector). In Austria and the Czech Republic, evidence shows that integrating VET subsystems, as well as understanding the complementary roles and responsibilities of IVET and CVET systems, is a solution to improving the overall system response to challenges caused by globalisation.

Hypothesis 4: countries with a significant role for labour market stakeholders in the development and delivery of IVET and CVET are more responsive to the labour market challenges caused, among others, by globalisation.

European countries vary in terms of the scope and nature of the labour market stakeholder involvement in VET. Strong employer and trade union participation in IVET is a characteristic of coordinated and participatory feedback mechanisms ⁽⁴⁾. The types of coordination in which social partners assume important roles in regulating VET are more effective in securing the labour market relevance of skills and qualifications. Labour market stakeholders are the main source of information on changing skills demand; they are also aware of international standards and qualifications which often inform VET revision, as seen in the case studies in the hospitality (France), logistics (Bulgaria), ICT (Estonia) and automotive sectors (Spain and Poland). Even systems traditionally known to have weak labour market stakeholder involvement in VET show signs of greater industry involvement to increase their responsiveness to changing skill needs, especially in countries mostly exposed to global trends (Bulgaria, Czech Republic, Estonia and Poland).

Hypothesis 5: initiatives at local and provider level are an important channel of responsiveness to globalisation in all types of VET governance.

The findings of the study point to several initiatives taken by VET providers to respond to changing labour market needs caused by globalisation. They take part nationally in formal discussions to define and renew VET; at local level, when they have appropriate autonomy, they establish direct partnerships with local branches of multinational companies, they review their training programmes in line with international standards and sometimes provide international qualifications as add-ons to the national ones. In countries with coordinated and participatory VET governance, VET providers take part in bodies responsible for

⁽⁴⁾ In a coordinated model, social partners assume the major steering role and there are effective communication mechanisms between the government, social partners, training providers and firms. In the participatory model, the role of social partners is consultative: their influence is mediated by State regulation. In the liberal system, market signals are the main coordination mechanism and there is a low level of central coordination. The statist model implies the strong role of State regulation to respond to the economy's skill needs (Cedefop, 2013a).

the revision of VET programmes (Austria, Germany, Denmark, Netherlands and Switzerland). In countries with statist VET governance, providers play a smaller formal role in VET revision. However, as the case study from Estonia shows, VET providers may be part of the working group that engages in the revision of a national occupational standard (the ICT sector). In Poland and Spain, a VET provider was the key partner in a local partnership with multinational automotive manufacturers to provide training programmes in line with latest needs.

European and international initiatives in the interplay between globalisation and VET systems

Study findings show that VET renewal in response to global pressures is a complex landscape and depends heavily on the national and sectoral context. Different actors such as active-player countries, multinational companies, sectoral organisations, European bodies and international initiatives shape international skills in the labour market and the way they influence VET in European countries. The study identifies two main channels of reviewing VET standards: policy learning between active-player countries and aspiring countries in Europe through several cooperation initiatives; the use of international standards and qualifications, especially in sectors greatly exposed to globalisation.

Hypothesis 6: international/sectoral/VET standards established by international institutions, European bodies or transnational companies are perceived as useful and are used to inform VET renewal in European countries.

Study findings show that acceptance of international standards and their use to inform VET revision depends on the country. In active-player countries, national practices and standards are recognised to be of high quality and well fitted to labour market requirements. International standards would not make national VET systems more relevant and responsive to globalisation; they are sometimes perceived as being below the national standards or too general compared to the specific needs of the country, region or sector (as in Denmark, Germany, the Netherlands, Austria and Finland). National practices of active-player countries influence global developments, as well as international and European initiatives relating to skills needs. In contrast, aspiring countries see international standards as benchmarks that can be particularly useful in informing national VET system revision. Since the involvement of labour market stakeholders in VET is not extensive, international standards are seen as a good source of inspiration to respond to changing skills requirements caused by global

developments. However, all countries referred to the added value of cooperation that results in policy learning either through direct cooperation between countries or through involvement in European projects and initiatives.

Hypothesis 7: in sectors strongly influenced by globalisation (fast-growing sectors providing services globally, requiring international cooperation and facing constant technological developments), regular adjustments of standards/qualifications/curricula to global requirements take place regardless of institutional structures and steering mechanisms.

Study findings show that in sectors largely influenced by globalisation, as well as in areas requiring international cooperation, such as border guarding or law enforcement, international standards are widely used. New players outside the jurisdiction of any national body are increasingly providing training (in automotive, hospitality, ICT) and rapidly award their own qualifications. In the four sectors for which case studies were carried out, multinational companies, international organisations (ISO, WorldSkills) and sectoral associations with worldwide networks (such as the International Federation of Freight Forwarders Associations), provide benchmarks for their sector. European cooperation in specific sectors develops through EU-funded project common standards, occupational profiles and competence frameworks in areas where joint action is seen as beneficiary. International standards mainly affect CVET developments, but there are also some examples of transposing skills needs to the IVET curricula or VET training in hospitality, the automotive industry, ICT and logistics. The developments observed are similar both in active-player countries and aspiring countries, regardless of the VET governance model.

Policy messages

The study contributes to broadening knowledge on the impact of globalisation on VET. It shows that although VET renewal is deeply embedded in national structures and steering mechanisms, several initiatives at European and international level complement and support the way national systems respond to changing skill needs caused by globalisation. Cooperation between actors at European, national, sectoral and local levels was found to be the key success factor in responding to global pressures. Evidence from the study revealed examples of policies and practices that support such cooperation to inform the revision of national VET systems. These examples are used to form several

recommendations at European, national and sectoral level to improve the responsiveness of VET systems.

At European level:

- (a) promote European cooperation to assist national VET systems to address globalisation challenges. Policy learning and structured dialogue between European countries can be materialised through:
 - (i) bilateral cooperation between countries on topics of common interest (such as development of apprenticeship systems to respond to changing labour market needs);
 - (ii) joint work between several countries to develop common European profiles and/or joint VET qualifications, building on their national ones;
 - (iii) developing sectoral standards agreed at European level in areas where joint action is seen as beneficiary (such as the Frontex sectoral framework for border guards, CEPOL standards);
- (b) support work related to understanding procedures followed by Member States to include international sectoral qualifications in their national qualifications frameworks (NQFs). This seems necessary given the dominant presence of international qualifications in fast-growing sectors that are strongly influenced by globalisation (such as ICT, hospitality) and the importance of developing consistent approaches between Member States.

At national level:

- (a) developing and implementing coordinated VET strategies that consider IVET, CVET and VET at higher levels as complementary components of lifelong learning, equipping individuals with the right skills to cope with the changing labour market landscape caused by globalisation and other factors;
- (b) introducing systemic approaches for the regular revision of VET in relation to changing labour market needs;
- (c) further dialogue with and involvement of labour market stakeholders in the renewal and revision of VET systems at national, regional and local level;
- (d) promoting partnerships between VET providers and companies at local level as a way of addressing the challenges caused by globalisation.

At sectoral level:

- (a) promoting sectoral dialogue between employers, employees and institutions responsible for VET development and delivery at all levels to develop trustworthy sectoral standards;
- (b) supporting the establishment of sectoral skills councils, involving representatives of employers, employees and VET providers in VET renewal;

- (c) encouraging the development of sectoral organisations at European level, capable of quickly capturing changing skill needs in their sectors and supporting national actors in complementing their VET content with a European/international dimension.

CHAPTER 1.

Setting the study framework

1.1. Study background and purpose

This comparative study examines how national vocational education and training (VET) systems (including initial VET (IVET) and continuing VET (CVET), plus VET at higher levels) in selected European countries are responding to the changing requirements triggered, among others, by globalisation. In a globalised world, the VET landscape is becoming increasingly complex. Occupations are transformed, some skills become obsolete while demand for others, either vocational or transversal, is changing. Different forms of VET provision and qualifications appear and new players (international sectoral bodies, multinational companies) are providing training and awarding qualifications. This diversity, if managed correctly, can support VET systems in responding to local, national and global needs, and can play an important role in supporting the continuous development of skills.

There are several definitions of globalisation as a phenomenon impacting various spheres of social and economic development. Green (1997) refers to globalisation as the rapid acceleration of cross-border flows of capital, goods, services, people and ideas. The United Nations Department of Economic and Social Affairs (2001) defines globalisation in broader terms as 'the increasing and intensified flow of goods, services, capital, ideas, information and people between countries, which generates the national cross-border integration of several economic, social and cultural activities'.

Both these definitions indicate that globalisation stimulates stronger and more frequent interactions between markets at local, national and international levels. The emergence of transnational corporations, the fragmentation of production processes and the increased outsourcing of service tasks, generate an increasingly interdependent system of labour and service flows across regions and different countries. Enterprises operating in such a global and interconnected environment need to respond quickly to new demands and update the knowledge base of the company and its employees. Globalisation consequently impacts VET policies and delivery, calling for increased flexibility to adapt qualifications to new challenges emerging from, inter alia, economic and rapid technological changes (Hobart, 1999; Cedefop, 2000; 2013b; Shaw et al., 2016).

1.2. Study scope and methodology

Given this background, the study analyses the responsiveness of VET and how globalisation influences the review and renewal of VET content; it also looks into interrelations with European and international sectoral standards and qualifications. The following definition of responsiveness of VET to globalisation is adopted for the purpose of the study:

The responsiveness of VET to globalisation is understood as the capacity of VET systems to adapt and update their content, qualifications requirements and governance to respond to changing labour market requirements stemming, among others, from globalisation.

1.2.1. The research questions

The study addresses the following key research questions:

- (a) to what extent do VET systems review their national standards as a direct response to globalisation?

The question focuses on the role of globalisation in reviewing VET and its references in national VET strategies. It also addresses the channels and mechanisms through which VET systems respond to global developments;

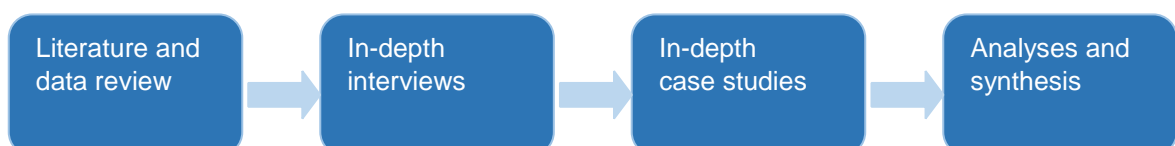
- (b) do European and international sectoral standards add value to national VET systems?

This question looks at the opinion of countries and sectors on whether European and international initiatives that develop VET standards are useful and help inform the revision of national VET systems;

- (c) to what extent do European and international initiatives influence VET requirements and content?

This question examines the channels through which European and international initiatives develop international standards which are used to inform VET revision in the countries and specific economic sectors.

Figure 1. The four stages of the research process



Source: Cedefop.

1.2.2. Literature review and selection of countries and sectors

Literature and statistical data reviews focused on better understanding the different factors influencing the responsiveness of national VET systems to globalisation, such as the characteristics of national VET strategies, types/models of national VET systems, student participation in VET, economic developments, and the availability of European and international initiatives.

During this phase of the study, a sample of 15 countries and five economic sectors were identified for further empirical evidence collection.

1.2.2.1. *The selection of countries*

The study covers 15 countries: 14 Member States of the European Union (EU) (Scotland as a country of the UK), plus Switzerland. The selection represents different geographic locations in Europe and different times of entering the EU. The group also represents different types of VET system in place and different governance structures (centralised, decentralised). Further, the selected countries differ in their labour market arrangements and exposure to globalisation.

The country sample includes a balanced mix of small (Denmark, Estonia, Finland, Switzerland and UK-Scotland ⁽⁵⁾), medium-sized (Bulgaria, Czech Republic, Greece, Austria and the Netherlands) and large countries (Germany, Spain, France, Italy and Poland). It is representative in terms of geographic location, including a balanced mix of northern countries (Denmark, Estonia, Finland and UK-Scotland), southern countries (Greece, Spain and Italy), western countries (Austria, France, Germany, the Netherlands and Switzerland) and eastern countries (Bulgaria, Czech Republic and Poland) ⁽⁶⁾. The countries included in the study are varied in their history of EU membership (including Bulgaria, Czech Republic, Estonia and Poland as ‘new’ Member States) and level of economic development (GDP per capita).

The countries are also diverse in terms of the types of VET system in place. The study includes five countries in which the share of upper secondary students in IVET exceeds 65% (Austria, Czech Republic, Finland, the Netherlands and Switzerland) and three countries in which this share is below 40% (Estonia, Greece and Spain) ⁽⁷⁾. Countries with a high share of work-based training in IVET are included (Denmark, Germany and Switzerland) and those in which it is very

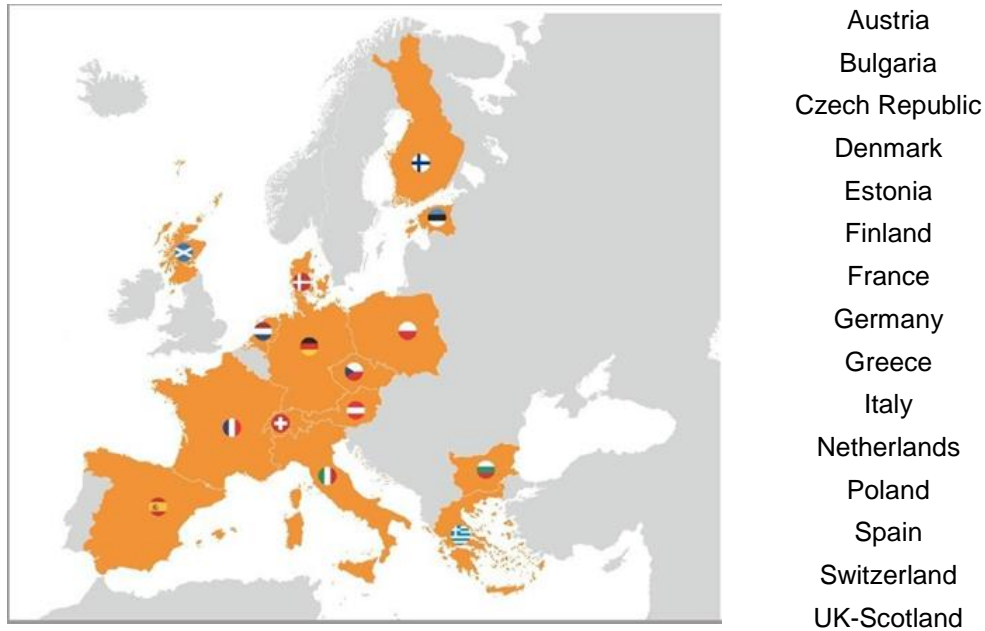
⁽⁵⁾ Scotland’s size is comparable to the other countries in this group.

⁽⁶⁾ The grouping of countries is based on the United Nations [Standard country or area codes for statistical use](#).

⁽⁷⁾ Based on Cedefop 2017c. Data for 2014.

low (Czech Republic, Estonia and Spain). The sample includes countries with high participation in CVET (Denmark, Finland and Switzerland) and countries in which CVET participation is low (Bulgaria, Greece and Poland) ⁽⁸⁾. The study covers federal countries (Austria and Germany) and those with strong regional autonomy (Spain and Switzerland).

Figure 2. **Countries where empirical evidence was collected**



Source: Cedefop.

The study also considers the four different models of feedback mechanism (statist, liberal, coordinated and participatory) between VET and the labour market, identified in Cedefop study (2013a) as a governance criterion: the liberal type (UK-Scotland), the statist model (Bulgaria, Czech Republic, Germany (school-based VET), Estonia, Greece, Austria and Poland); the participatory model (Spain, France, Italy and Finland) and the coordinated model (Austria (dual VET), Denmark, Germany (dual VET), the Netherlands, and Switzerland).

⁽⁸⁾ See Table A1.1 in Annex 1.

Box 1. Feedback mechanisms between VET and the labour market

In a coordinated model, social partners assume the major steering role and there are effective mechanisms of communication between the government, social partners, training providers and firms.

In the participatory model, the role of social partners is consultative: their influence is mediated by State regulation.

In the liberal system, market signals are the main coordination mechanism and there is a low level of central coordination.

The statist model implies the strong role of State regulation to respond to the skill needs of the economy.

Source: (Cedefop, 2013a).

The selected countries differ in their exposure to globalisation, as seen through economic indicators. Foreign direct investment (FDI) has been an important driver of globalisation: Denmark, Austria and UK-Scotland have a relatively high share of outward FDI stocks as a percentage of GDP; Czech Republic and Estonia have a high share of inward FDI stocks while the Netherlands and Switzerland both have high shares of inward and outward FDI (Annex 1). Some of the selected countries engage in the internationalisation of VET because of national industries operating abroad (Germany, France, the Netherlands and the UK) (European Commission, 2015). Internationalisation of education and training is mostly perceived as a development strategy vital for the survival of individual companies or education/training institutions in the face of global competition: it is a form of defence against the threat of globalisation (Risager, 2000). Along the same lines, Knight (1999) sees internationalisation as a response to globalisation.

1.2.2.2. Selection of sectors

The five economic sectors chosen for empirical data collection were selected on the basis of three characteristics: rates and forms of technological, institutional and economic change within the sector; importance of the sector for economic growth in Europe; and the existence of international occupational/competence standards or qualifications within the sector. Based on these criteria, the following economic sectors were chosen:

- (a) road transport and logistics: this is one of the fastest growing industries; during the last 10 years, new occupations appeared and traditional occupations have fundamentally changed, mainly due to digitalisation. This sector is also important from the point of view of the need for increasing energy efficiency and/or reducing the environmental impact of various modes of transportation. Road freight is common to all European countries:

- about 75% of the inland transport of goods in the EU is done over roads ⁽⁹⁾. It faces specific challenges connected, on one hand, to safety, efficiency, environmental protection and fast growing technologies (such as using integrated intelligent traffic guidance systems) and, on the other, to existing regulations and corresponding standards, certificates and training solutions. Further, the industry expresses the need to encourage, promote and assist the development and implementation of common policies, as well as the harmonisation of standards (including VET standards) among Member States. This is exemplified by the work at European level through EU regulation (e.g. Directive 2003/59/EC the initial driving qualification and periodic in-service training of professional drivers) and several EU-funded projects to define the skills and competences of transportation professionals (such as the 2002 *Professionnalisation durable*, the 2016 *Skillful* project);
- (b) hospitality: the tourism sector faces several challenges relating to security and safety (environmental, the safety of food and accommodation), seasonality, keeping up to date with IT developments caused by the globalisation of information and advances in technology (IT tools for booking holidays, social media providing advice on tourism services), the growing demand for customised experiences, new products, and growing competition. It is also a significant sector in the European economy, generating over 10% of EU GDP (directly or indirectly), with substantial employment of over 12 million jobs ⁽¹⁰⁾. For the purpose of the study, the hospitality subsector accommodation and food service activities (defined as NACE Rev. 2 code I) was chosen, where international sectoral standards seem particularly important due to the functioning of international hotel chains and high customer expectations of services provided, regardless of the country where the hotel is located;
 - (c) automotive manufacturing: providing 12 million jobs, the automotive industry is a key EU employer. Due to its strong economic links to many other sectors, it has an important multiplier effect in the economy. Its important subsector – vehicle manufacturing – produces 17.2 million cars, vans, trucks and buses per year. The 2.3 million high-skilled jobs in automotive manufacturing represent 7.6% of the EU manufacturing employment, and

⁽⁹⁾ According to the European Union Road Federation (*Keeping Europe moving: a manifesto for long-term, effective management of a safe and efficient European road network*).

⁽¹⁰⁾ According to the [World Travel and Tourism Council](#).

5.6% of the whole EU workforce ⁽¹¹⁾. At the same time, the sector faces challenges of competitiveness, the market and the economy (including the consequences of the 2007-08 global financial crisis), the environment and sustainability, international trade, research and innovation and safety. Both original equipment manufacturers and suppliers must equip their employees with skills that allow them to confront the realities of such a fast-changing environment. To reinforce the industry's competitiveness and address climate, environmental, and societal challenges, in 2012 the European Commission adopted the CARS 2020 action plan (European Commission, 2012b) which identifies human capital an area of particular importance for the entire automotive sector. The highly specialised and innovative production methods used in automotive manufacturing, and resulting frequent skills shortages, contribute to the formation of local/regional partnerships (such as between factories belonging to multinational companies and vocational schools/training providers);

- (d) information technology: as defined in the Skills Panorama ⁽¹²⁾, the sector includes 'the production and distribution of information and cultural products and the provision of the means to transmit or distribute these products, as well as data or communications, information technology activities, and the processing of data and other information service activities'.

IT is a rapidly expanding sector with new digital trends such as cloud computing, mobile web services, smart grids, and social media. Genuine skill shortages particularly affect a small group of dynamic, internationally oriented European enterprises in this sector (Cedefop, 2015c). There is a large gap between demand for and supply of skilled IT workers ⁽¹³⁾, especially medium-level employees. The digital economy sector is developing rapidly worldwide: it is the most important driver of innovation for multinational companies as well as small and medium-sized enterprises in almost all sectors;

- (e) healthcare: this is a highly labour-intensive field and one of the largest sectors in the EU. According to Eurostat, in 2010, there were about 17.1 million jobs in the healthcare sector, accounting for 8% of all jobs in the EU. Some healthcare sector professions (nurses, midwives) are regulated by Directive 2005/36/EC, amended by Directive 2013/55/EU. On this basis, the

⁽¹¹⁾ According to the European Automobile Manufacturers Association (*Facts about the automobile industry*).

⁽¹²⁾ [Skills Panorama](#).

⁽¹³⁾ European Commission, 2017c.

European Federation of Nurses Associations (EFN) prepared the *EFN competency framework for mutual recognition of professional qualifications*. This study does not cover bachelor/master degree programmes (Bologna process), so the sectoral standards and good practices, educational programmes and qualifications requirements for paramedics and emergency medical (ambulance) technicians were selected as the healthcare professionals in Europe that are not required to have a higher education degree.

1.2.3. In-depth interviews

The second stage of the study consisted of empirical data collection in the selected 15 countries and five sectors. A total of 260 in-depth interviews were carried out as illustrated in Table 1.

Table 1. **In-depth interviews**

Interview type by category of respondent	Total number of interviews
European and international level	20
System level stakeholders	67
Sector level stakeholders	62
VET providers	60
Representatives of companies/enterprises	51

Source: Cedefop.

The in-depth interviews were carried out according to a structured modular scenario covering the following themes: general reflections on globalisation; review of national VET systems in a global context; and the influence of European and international sectoral standards at national and sectoral level. The interviews were summarised in standardised grids; these were then coded using computer-assisted qualitative data analysis software and prepared for further analysis. An overview report was prepared for each country, summarising the findings from the interviews and desk research. The initial results from the country reports enabled the selection of 10 in-depth case studies, with the aim of identifying and analysing the arrangements and practices in more detail.

1.2.4. Case studies

The third phase of the study consisted of case study research and was aimed at delivering context-specific information on the arrangements and practices of VET systems responding to globalisation. The selected case studies cover four

sectors ⁽¹⁴⁾: IT, automotive, hospitality, and road transport and logistics and were examined in nine countries. The case studies include different parts of VET subsystems (IVET, CVET, VET at higher levels), VET feedback mechanisms ⁽¹⁵⁾ and levels of intervention in nine European countries. Table 2 provides an overview of the case studies. They focus on the development and revision of VET standards and VET qualifications, as well as developing national and local partnerships for the delivery of VET provision.

Case study empirical data collection was based on desk research and 70 additional interviews conducted by the country experts with relevant stakeholders at national and sectoral levels, as well as VET providers and representatives of companies. A case study report was prepared for each selected case, summarising the findings from the interviews and desk research. Annex 2 summarises the key findings from each case study.

1.2.5. Analysis and synthesis

The final phase of the research focused on analysis and synthesis of the literature review, statistical data and empirical findings analyses. It was conducted within the analytical framework described in Chapter 2.

⁽¹⁴⁾ Paramedics and emergency medical (ambulance) technicians were not included because there were insufficient insights from the individual in-depth interviews providing enough evidence on the development of responses to globalisation in the studied areas of the VET systems. See the section on challenges encountered.

⁽¹⁵⁾ See Section 2.3 for more details.

Table 2. **Overview of case studies**

Country/sector	Type of VET system	IVET feedback mechanism	Subject	Focus/unit of analysis	Level of intervention
Austria/hospitality	IVET	Coordinated (dual VET)	Development of the apprenticeship qualification 'hotel management assistant'	Development of a new VET qualification	National
France 1/logistics	Higher VET	Participatory	BTS (<i>brevet de technicien supérieur</i>) in transport and logistics services	Revision of a VET qualification	National
France 2/hospitality	Higher VET	Participatory	BTS (<i>brevet de technicien supérieur</i>) in tourism	Revision of a VET qualification	National
Germany/hospitality	Higher VET	Coordinated (dual VET)	Dual study programme in business management: tourism, hotel industry and gastronomy	Revision of a VET qualification	Local
UK-Scotland/ICT	CVET and higher VET	Liberal	The Scottish Qualifications Authority's Digital Media and ICT Vendor Alliance (DIVA) programme	Development of a formalised partnership programme with industry partners	National
Switzerland/logistics	IVET	Coordinated	Revised VET programme for logistician (<i>Logistiker/in EFZ</i>)	Revision of a VET qualification	National
Bulgaria/logistics	IVET and CVET	Statist	New development of the VET standard for freight forwarder and logistician	Development of a new VET standard	National
Estonia/ICT	IVET	Statist	National occupation standard in the ICT sector incorporating the e-competence framework	Revision of occupational qualifications standards	National
Poland/automotive	IVET	Statist	IVET qualification in car mechatronics with the active participation of the Volkswagen Group	Development of a local partnership for tailored VET provision	Local
Spain/automotive	IVET	Participatory	Dual VET at the SEAT Apprentice School	Introduction of a dual VET model at local level	Local

Source: Case studies.

1.3. Challenges encountered

Several challenges were encountered during study implementation.

The first is the complexity of the topic. The diverse and complex perception of globalisation, which largely depends on the country and sector context, made it difficult at times to communicate the essence of the study to the interviewees. Further, the broad definition 'European and international initiatives in the area of skills' (Section 2.2) adopted for this study was sometimes difficult for the interviewees to understand. The country experts reported difficulties in discussing the impact of globalisation on national VET systems because many respondents (particularly VET providers or sector level stakeholders) did not attribute changes occurring locally to global trends. To mitigate the risk of misunderstanding, country experts were equipped with written guidelines and took part in Skype briefing sessions with the core research team, during which the concepts were explained to them, so they could convey them to the interviewees.

The second challenge was recruitment of interviewees. Many country experts stated that it was difficult to get in touch with respondents from all the chosen groups of stakeholders and sectors, especially representatives of companies/enterprises at both the international and national level. To overcome this problem, contact lists were expanded at national level via country expert networks.

The case study phase uncovered a third major challenge in one of the chosen sectors. The healthcare sector was selected for the study as it faces several global challenges and because there are many European and international initiatives in health and social services sector (European Commission, 2016). However, these mainly address standards in fields that were not the focus of this study (such as care services). This may be the reason why the first phase of the study did not identify any relevant European or international initiatives on paramedics and emergency medical technicians for the in-depth study analysis. As a result, this economic sector was excluded from the case study phase and additional cases were carried out in hospitality and logistics.

Another difficulty in implementing the case study phase is linked to its design, which assumed a minimum of 10 interviews per case. This often turned out to be a challenge due to the very narrow focus of the cases; in just one particular learning pathway/programme or qualification the number of potential respondents who can be interviewed and are informed about the respective process of qualification development or update is limited. This is particularly so when the qualification in question is only offered by a limited number of providers. Also in this phase of the study, several country experts reported that it took a lot of time and effort to recruit respondents and schedule an interview. Frequently,

after the initial agreement to an interview, there was lack of response to follow-up calls and emails. In one case, it took six weeks to obtain the consent to take part in the study from the main stakeholder.

Where these complications occurred, the case studies were based mostly on analysis of existing written evidence, as the process of creating and revising qualifications is frequently regulated and documented. Further, the case study reports were also based on the country experts' knowledge, as some of them work for institutes involved in the revision process.

1.4. Outline of the report

After a brief introduction to the background of the study, the scope and methodology in this first chapter, Chapter 2 presents in detail the analytical framework used to carry out the research. It offers analysis of the desk research describing the conceptual issues and the key factors which, according to the analytical framework, shape the responsiveness of VET systems to the pressures and challenges of globalisation. Based on analysis of these factors, seven hypotheses are formulated at the end of Chapter 2, which are tested in the chapters that follow. Chapter 3 is based on qualitative analysis of the in-depth interviews and case studies to understand how the impact of globalisation on VET is perceived by different stakeholders, what kind of pressure globalisation exerts on VET systems, and how these respond. Chapter 4 focuses on the interrelationships between the revision of VET systems, the international standards and the way the European and international initiatives and bodies act upon them. It presents an analysis of the findings from two different perspectives: national and sectoral. Chapter 5 addresses several policy messages to policy-makers and practitioners at European, national and sectoral level to improve the responsiveness of VET systems in the challenging global landscape.

CHAPTER 2.

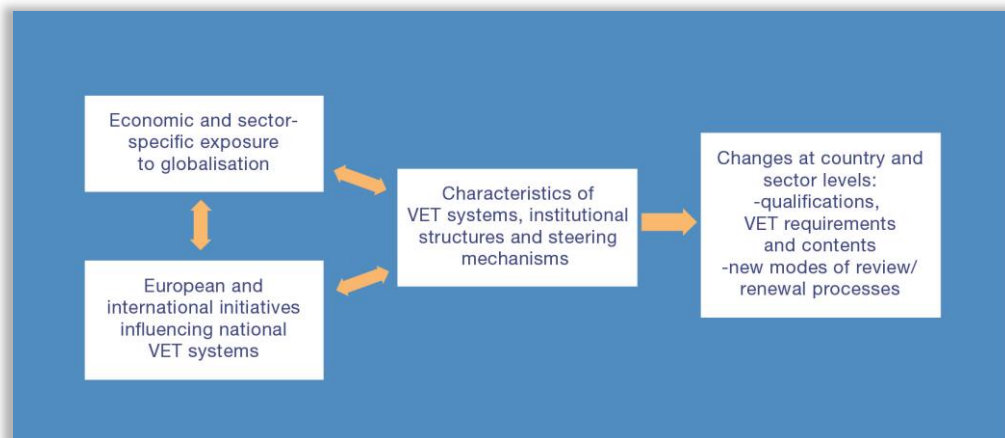
Analytical framework and formulation of hypotheses

The analytical framework of the study is built on the assumption that the responsiveness of VET systems to globalisation is the effect of the interaction between three major groups of factors:

- (a) economic and sector specific developments;
- (b) the existence of European and international initiatives in skills influencing national VET systems;
- (c) the characteristics of a national VET system in place (VET governance).

Figure 3 illustrates this interdependence which is discussed in the following sections using the evidence from the desk research. The analysis in Sections 2.1 to 2.4 leads to the formulation of the hypotheses, which are outlined in the Section 2.5.

Figure 3. **Analytical framework**



Source: Cedefop.

2.1. Economic and sector-specific context

Globalisation does not affect all countries in the same way, nor to the same extent. The effect depends on factors such as trade exposure as measured by share of exports in GDP, the role of exports in the economy, and foreign direct investment either outward or inward. Globalisation is not only about the spatial expansion of markets. Even though most economic activity remains nationally

and even locally bounded; value chains in many enterprises and industries are now spread across multiple countries. Much of global trade consists of transactions between different parts of the same firm across national boundaries (Dicken, 2015). Exposure to globalisation differs by sector. In some sectors, especially relating to manufacturing, economic activities have been increasingly linked across national jurisdictions through trade and globally dispersed value chains. These links require the alignment of organisational principles and practices. The need for harmonisation is also visible in services. These sector-specific developments can be exemplified by the proliferation of standardised management systems based on ISO, which occurred first in manufacturing, and lately in many service sectors (such as tourism), or through private transnational standards in the financial sector (as with accounting standards). This is why the study looks at processes that take place both at national and sectoral levels and it is why the chosen sectors are those facing major transformations and rapid changes in business processes, occupational structure and skills requirements.

2.1.1. Exposure of national economies to globalisation

The concept of competitiveness is used in ranking a country in a global context. The *Global competitiveness report 2015-16* (World Economic Forum, 2016a) ⁽¹⁶⁾ shows that the 15 studied countries rank relatively high in an assessment of 138 national economies, with 13 out of the 15 countries being in the top 50. Five countries: Germany, Finland, the Netherlands, Switzerland and the UK are in the top 10 and their high position is stable in the ranking. The lowest position (86th) of all countries covered in the study is held by Greece followed by Bulgaria, Italy and Poland.

Figure 4 shows that European countries face increasing exposure to global developments, as indicated by the growing role of exports in relation to GDP and the share of foreign workers in the total labour force. Over the past five years, the share of foreign workers increased in most European Union (EU) Member States, as did the role of exports in national economies. Countries with a high position in economic competitiveness more frequently experience increases in the share of foreign workers, while the share of increases of exports was higher in countries with a lower position in the global competitiveness index (GCI).

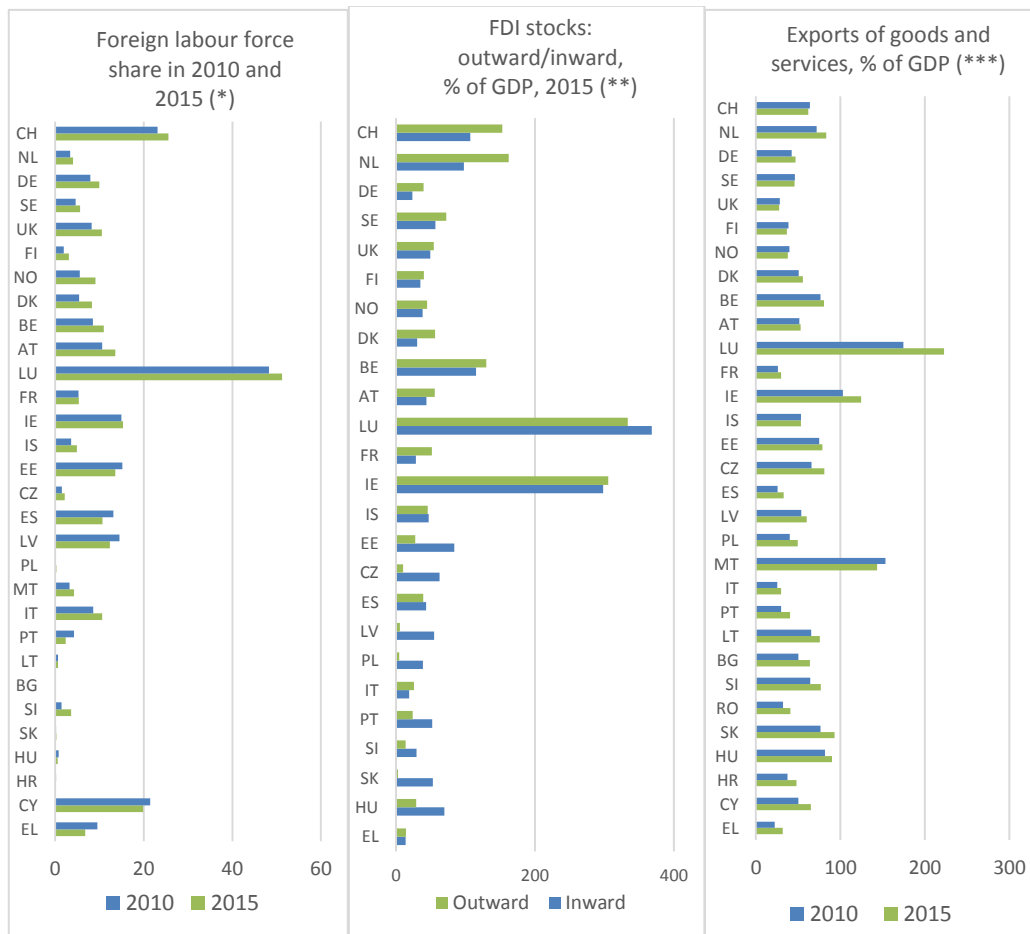
In countries with a low position in the GCI the level of foreign direct investment (FDI) stocks inwards is higher than outward, indicating the important role of foreign investors as providers of jobs in the economy. In countries with a high position in the GCI, FDI stock outwards is higher than inwards, showing their

⁽¹⁶⁾ Updated [Global competitiveness report 2017-18](#).

active role in globalised markets as companies from these countries are active in investing in other countries and creating jobs in these labour markets.

Considering these indicators, most of the countries selected for this study are exposed in different ways to global markets and international flows of capital and workers.

Figure 4. **Changing exposure of European countries to global markets**



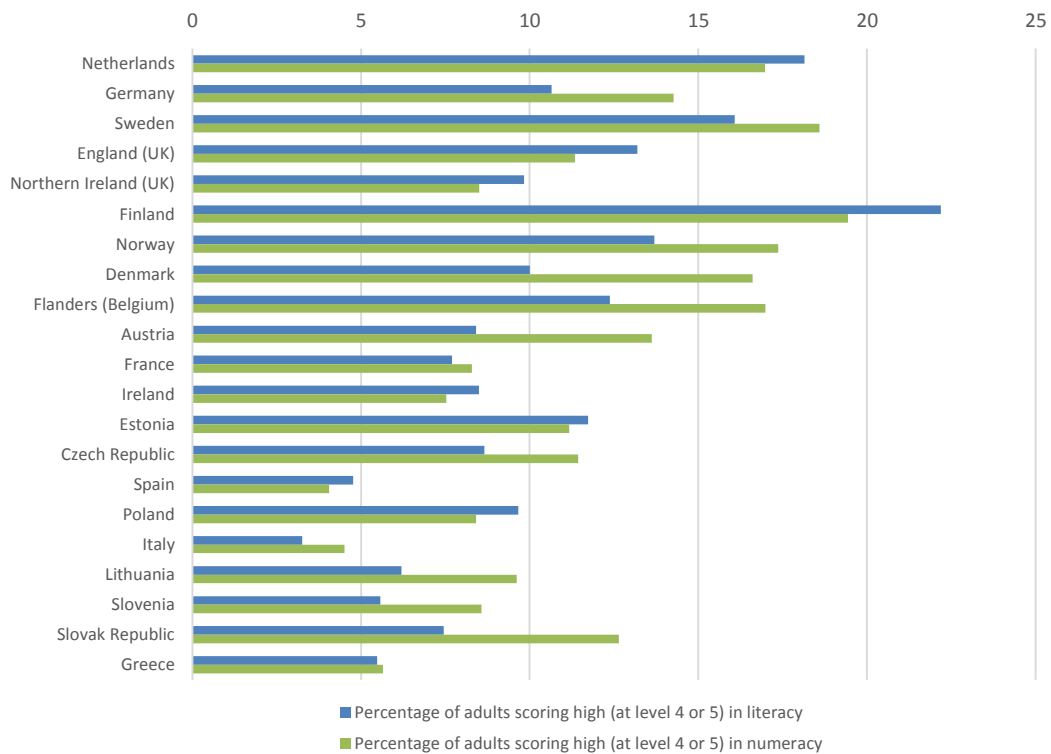
NB: countries are shown in the order of their position in the *Global competitiveness index 2015-16* (World Economic Forum, 2016a).

Source: (*) Eurostat [lfsa_egan]; (**) OECD (2017), FDI stocks (indicator); (***) Eurostat [nama_10_gdp]

2.1.2. Skills matter in global competitiveness

A skilled workforce is an important asset in a global context. Countries with a higher position in the GCI generally have more adults who are characterised by a high level of numeracy and literacy skills, as measured by the survey of adult skills as part of the programme of international assessment of adult competencies (PIAAC).

Figure 5. **Share of adults with highest numeracy and literacy scores**

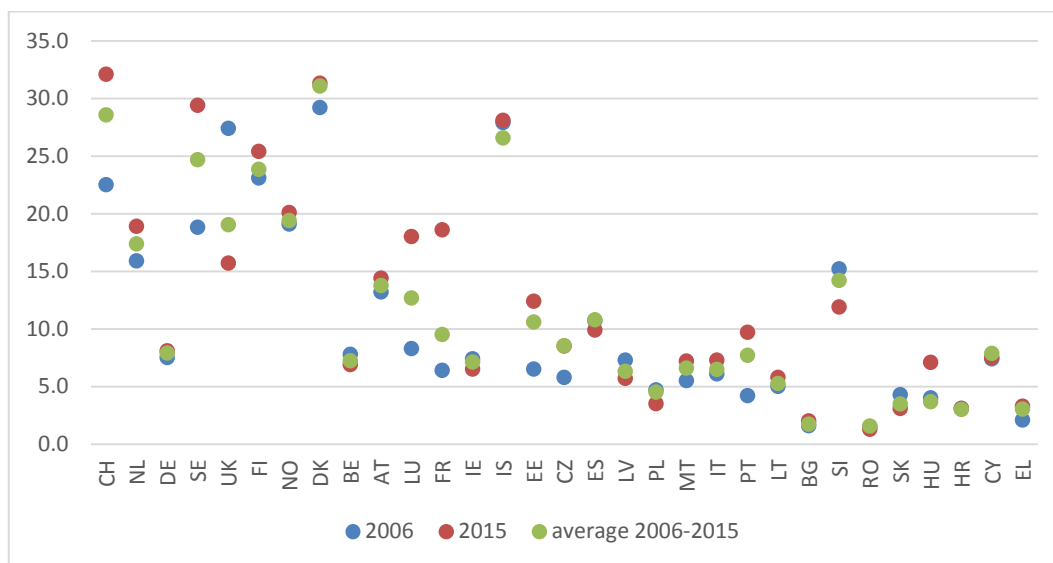


NB: Countries are presented in the order of their rank in the *Global competitiveness index 2015-16* (World Economic Forum, 2016a).

Source: Survey of adult skills, PIAAC (2012, 2015).

Countries with a high position in global competitiveness encourage the participation of adults in lifelong learning, as illustrated in Figure 6. The importance of lifelong learning is also underlined by Cedefop’s European skills and jobs survey, which sees the participation of adults in continuing training and a high commitment to upgrading skills as a key ingredient in coping with the dynamic challenges of competitive job markets (Cedefop, 2015b).

Figure 6. Participation of adults in education and training



NB: Countries are presented in the order of their rank in the *Global competitiveness index 2015-16* (World Economic Forum, 2016a).

Source: Cedefop calculations based on Eurostat data.

2.1.3. Sector-specific characteristics

In addition to the national and country focus, the sector-specific context should be considered. Cedefop's European skills and jobs survey shows that the need for changing skills differs across sectors. More than half of employees with jobs in the sectors covered by the study (services relating to education and health, manufacturing or engineering and ICT) as well as more than 40% in transportation and storage are experiencing a rise in the need to learn new things. At the same time, employees believe that their skills are likely to become outdated in the next five years. This includes 58% of adult employees in the ICT sector, 47% in manufacturing and engineering, 43% in accommodation and food services, and the same share in education and health services (Cedefop, 2015b). This indicates potential areas of skills gaps, particularly for core occupation-specific and selected transversal skills in the sectors analysed at European level; these could be addressed through CVET training. Skills gaps lead to bottleneck vacancies, which, according to the European Commission (2014) are observed in several sectors, including the five examined in this study. Attracting migrant workers (both from the EU and outside) is an important strategies in reducing these bottlenecks (European Commission, 2014).

The ICT sector is usually seen as having significant potential for innovation and export-oriented growth. It has not been affected much by the world economic crisis and the number of jobs available in the sector is growing dynamically in most countries. It is also a sector in which international companies are broadly represented (including Microsoft, Cisco, IBM), which develop their own standards

and qualifications. Due to the intense pace of change in ICT technologies, this sector is seen as the leading one in Estonia and Finland. The skill level for bottlenecks in the sector is noted mainly in highly skilled occupations.

The logistics sector is seen as having increasing specialisation and scope of services, leading to the development of relevant standards, also at national level. It is a particularly important sector in countries that want to take advantage of their geographic locations in Central Europe (such as Bulgaria, Estonia and Poland). The rapid development of the sector resulting from the increased global flow of goods, and the concurrent surge of technological advancements is leading to the emergence of skills gaps and shortages in many countries. The skill level bottlenecks in transportation and storage are found mainly among skilled manual workers.

The automotive sector faces increased shortages of suitable workers (qualitatively and quantitatively). This is due mainly to the ageing workforce (23% are approaching or starting to approach retirement age), the poor image of the manufacturing sector among young people (particularly women), the wide diversity of national education systems and cultures, and the accelerating pace of technological change. The sector is also facing many structural changes relating to global developments: stricter emission standards and decarbonisation, new mobility concepts leading to a reduction in the dependency on cars and reliance on alternative modes of transport (public transport, cycling, walking), using available space in more efficient ways (such as car-sharing), the growing use of connectivity and digital technologies in vehicles, changes in consumer preferences, the relocation of production lines to low-cost countries and the development of global manufacturing systems (European Commission, 2017a). Relocation is visible in many foreign direct investments, particularly in the Czech Republic, Spain, Poland and Slovakia. Investments are made by foreign companies, including German or French car producers. The skill level bottlenecks in the automotive manufacturing sector are mainly among skilled manual workers.

The hospitality sector is heavily affected by globalisation due to increased demand for travel and tourism services. The tourism sector, where 13% of employees are younger than 25, is one of the main entry points to the labour market, providing a tangible answer to youth unemployment. It is also the largest employer of migrant, part-time, and female workers (58% of people employed in core tourism activities are women) and it provides many job opportunities to workers re-entering the labour market (European Commission, 2017b). It is a sector where standards are set by multinational hotel chains, particularly with several or more decades of experience. Key skill gaps have been identified for traditional core skills: foreign languages, interpersonal skills, communication and

multicultural knowledge. But there are also new skills needed for newly developed occupations such as destination management, sustainable tourism, cultural tourism, adventure tourism, accessible tourism, green tourism. Tourism professionals are expected to deliver innovative and customised services for a wider range of target groups, including seniors or travellers with special needs. ICT developments require new, specific knowledge in the sector, including e-management skills to keep up with the developments of online marketplaces and distribution channels, as well as new forms of marketing and communication with customers. Education providers have a limited understanding of employers' requirements and travellers' expectations (European Commission, 2017b).

The healthcare sector, broadly understood as also including long-term care and social work activities, faces several challenges. This includes increasing labour demand as the population ages, accompanied by a decreasing number of professionals due to retirement, and difficulties in recruiting and retaining health care staff. Other challenges include the growth of new technologies and new medical equipment and diagnostic techniques (including the expansion of e-health) which require technical know-how in addition to clinical knowledge (European Commission, 2012a).

2.2. Initiatives influencing VET systems

The second part of the analytical framework covers European and international initiatives in VET. The development and use of various types of European and international standards in skills is one of the channels through which globalisation influences national VET systems. Such actions can inform the renewal of national VET standards, especially when they are widely used or are perceived as important in business practice.

International standards and qualifications can originate either from international markets or from cooperative actions taken by the EU or other major international organisations. These may include sectoral bodies, institutions, associations, or private companies that develop VET standards and training programmes, provide training or award international or sectoral qualifications in specific sectors.

2.2.1. European level developments

European initiatives are broadly recognised as having an impact on national VET policies. Powell and Trampusch (2012, p. 285) understand Europeanisation as 'the effects of EU policies and programmes on national VET systems ... to varying degrees across Europe.' European developments, particularly at EU

level, affect education and training. The Lisbon and Copenhagen processes influenced, for example, the development of the European qualifications framework (EQF) based on learning outcomes, the referencing of national qualifications frameworks (NQFs) to the EQF and the development of validation systems for non-formal and informal learning in line with the 2012 Council recommendation (Council of the EU, 2012). At European level the Bologna process guides the collective effort of 48 European countries to improve the internationalisation of higher education.

Box 2. The European qualifications framework

The EQF provides a tool for international comparison of qualifications and learning outcomes, based on an eight-level structure. It is a comprehensive reference framework, which applies to different types of (VET, higher education, general education) acquired through formal, non-formal and informal learning. National qualifications framework/system levels are referenced to the EQF levels. Qualifications awarded in a given country, including international ones, are aligned with EQF levels through relevant national framework levels. By May 2018, 35 countries had linked their national qualifications levels to the EQF.

Source: Cedefop, events and projects, projects, <http://www.cedefop.europa.eu/en/events-and-projects/projects/national-qualifications-framework-nqf>

These instruments are not meant for harmonisation but are voluntary, with no formal legal obligations for national governments. According to Trampusch (2008), the Copenhagen process⁽¹⁷⁾ and its specific instruments have had a significant influence on how VET has been shaped, particularly with NQFs based on learning outcomes and the design, quality, relevance and comparability of qualifications. However, the way that these instruments are used varies greatly between countries, is in line with national training systems and does not lead to a convergence of training regimes (Ante, 2016).

The EU directly also influences qualification standards and training programmes in the Member States through directives targeting specific professions. Examples relevant for the logistic sector include:

- (a) Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003 on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers, amending Council

⁽¹⁷⁾ For more information on the Copenhagen process see Eur-lex publication *Enhanced EU cooperation in vocational education and training* and Cedefop project, *Reporting on European training policy*.

- Regulation (EEC) No 3820/85 and Council Directive 91/439/EEC and repealing Council Directive 76/914/EEC (logistics);
- (b) Directive 2007/59/EC of the European Parliament and of the Council of 23 October 2007 on the certification of train drivers operating locomotives and trains on the railway system in the Community (logistics);
- (c) Directive 2008/106/EC of the European Parliament and of the Council of 19 November 2008 on the minimum level of training of seafarers (recast); (logistics).

(European Parliament and Council of the EU, 2003; 2007; 2008)

Several EU-funded initiatives also promote joint work between Member States to develop occupational profiles, qualifications standards and common training programmes that influence national VET systems and provision.

Box 3. International sectoral initiatives

Sectoral initiatives linked to the sectors examined in the present study include:

- e-competence framework: the idea for a European competence framework for ICT skills was sparked by the request of national sectors to make them more comparable. The framework is the result of 10 years of continuing effort and commitment by multiple stakeholders and institutions from the European ICT sector. It provides a reference for 40 competences used in the information and communication technology (ICT) workplace, using a common language for competences, skills, knowledge and proficiency levels that can be understood across Europe. As of 2016, the e-competence framework became the European standard and was published officially as the European norm EN 16234-1^(a);
- the global standards of the World Federation for Medical Education (WFME) ^(b): the WFME programme on defining international standards in medical education was launched in 1997 to provide a mechanism for improving the quality of medical education in a global context;
- European federation of nurses competence framework: established by the European Federation of Nurses and legally binding for all EU Member States as of 18th January 2016. The initiative started as a common effort to implement Article 31 of the 2013 professional qualifications Directive, which amended the Directive 2005/36/EC.

^(a) CEN, European Body for Standardisation, *ICT professionalism and digital competences* https://standards.cen.eu/dyn/www/f?p=204:110:0:::FSP_PROJECT,FSP_ORG_ID:41798,1218399&cs=17B0E0F8CABCDBDB8066A46FA937510B

^(b) WFME, Standards, <http://wfme.org/standards/>

2.2.2. International initiatives

The European Commission (2016) identifies several types of international sectoral initiative that set standards as a response to changing needs in specific sectors. Their objective is to raise or secure the standards for a particular

profession or qualification, increase coherence of qualifications across countries and improve the quality of training:

- (a) international sectoral qualifications framework: an instrument for classifying qualifications from a specific economic sector, according to a set of criteria for specified levels of learning achieved (clearly structured by levels); at least two countries are involved in their development. These frameworks can be developed for a sector, but often focus on a specific professional or occupational area;
- (b) international sectoral competence framework: clearly structured by levels setting out different levels of knowledge, skills and competences required by individuals to act in a specific field of activity or to perform specific job roles. These frameworks are not populated with qualifications but are developed as a competence framework that can be used, for example, as a reference for developing qualifications in a sector;
- (c) international sectoral qualifications awarded by a legally established international body (association, organisation, sector or company) or by a national body acting on behalf of an international body, used in more than one country and including learning outcomes assessed with reference to standards established by an international body' ⁽¹⁸⁾. These include, for example, ICT qualifications provided by private vendors such as Microsoft and Cisco and others in transport and logistics provided by the International Maritime Organisation (Cedefop, 2012b). International qualifications, including international sectoral qualifications, are used in sectors with active international sectoral organisations or multinational companies; they are also frequently linked to high worker mobility. Some countries have procedures for including international qualifications in the national framework (Bulgaria, France, the Netherlands, Portugal and the UK (England, Wales, Northern Ireland and Scotland)). In Lithuania and Slovakia procedures are under development. In Slovenia it is technically possible to include international qualifications but there is no explicit procedure (European Commission, 2016). In Ireland the issue is being discussed;
- (d) international sectoral standard(s): a set of learning outcomes relevant to one or more occupations that is used for developing qualifications in a given sector; these standards may be developed and maintained by international sectoral organisations or other bodies cooperating across countries, such as international project partnerships, multinational companies or bodies. These include: World Skills; European Welding Federation; European Logistics

⁽¹⁸⁾ Definition is provided by Council of the EU, 2017.

Association; European Automobile Manufacturers' Association; multinational car manufacturers; and international hotel chains.

2.3. VET system characteristics

Literature shows that global developments such as the liberalisation and integration of global financial markets have been channelled in various ways in different countries; the divergent responses of VET systems are linked to existing policies and institutional configurations. Similar pressures on VET resulting from globalisation and deindustrialisation had different effects in the institutional contexts of Denmark, Germany and the Netherlands (Thelen, 2014). Shaw et al. (2016) underline that VET provision is deeply embedded in the national context and that it remains largely locked in the character of a national service, serving economic, social and cultural goals. They argue that while the national focus is important, globalisation brings pressure to:

- (a) increase the ability to take part in fully international research leading to learning new skills and raising overall standards in a sector;
- (b) support labour mobility through the training of transferable skills;
- (c) reduce economic waste, particularly relating to the better use of the skills of migrant workers.

2.3.1. Initial vocational education and training

To understand better the extent to which differences in the structure and governance of VET systems influence responsiveness to global developments, the study uses governance models in IVET established by Cedefop (2013a). The 2013 study defines four types of IVET governance model (liberal, statist, coordinated, participatory) ⁽¹⁹⁾ depending on the level of coordination and differences in the type of regulation and engagement of stakeholders. This interpretation offers a means to understand the qualifications and curriculum renewal process. In the IVET system, framework curricula or other forms of setting standards for VET are most frequently coordinated by ministers responsible for the education sector, as listed in Table 3. The involvement of

⁽¹⁹⁾ In the liberal system, market signals are the main coordination mechanism and there is a low level of central coordination. The statist model implies the strong role of State regulation to respond to the skill needs of the economy. In a coordinated model, social partners assume the major steering role and there are effective mechanisms of communication between the government, social partners, training providers and firms. In the participatory model, the role of social partners is consultative: their influence is mediated by the State regulation.

labour market stakeholders, most exposed to global trends, can be one way to improve the responsiveness of VET systems to globalisation. The role of social partners is particularly important in countries with coordinated and participatory VET governance models, though with clear differences between the two models: Austria, Denmark, Finland (also at local level), Germany, Spain and Switzerland. According to Brockmann et al. (2011, p. 6) countries with coordinated market economies, characterised by high level of social partner involvement in VET, have been able to reform their VET systems in line with new economic challenges and as a strategy for innovation. By contrast, initial VET (IVET) in liberal economies has been marginalised and increased emphasis is placed on general and higher education, albeit of vocational nature. In countries with a statist governance model (Estonia and Poland), the role of social partners and sectoral bodies is weaker, though increasing in recent years.

2.3.2. Continuing vocational education and training

Continuing vocational education and training (CVET) programmes are usually market-based and only partially regulated in some countries (Cedefop, 2015a). However, there are substantial differences in accessibility to CVET programmes and their financing. In Scandinavian countries public funding plays an important role and CVET is broadly offered, also as part of active labour market policies. These programmes are also better linked to IVET programmes. In countries with a strong IVET sector, such as Austria, Germany and Switzerland, CVET consists of both formal CVET training and non-formal training, mostly in-company, which has an important role. In the countries of central Europe and to the east and south of Europe, CVET is less developed both in terms of participation levels and public investment. Statistical analyses confirm that in-company CVET courses have a greater impact than external courses on innovation and are integrated better into the firm's innovation process (Cedefop, 2012a, p. 42). As a result, such CVET training may lead to adapting faster to globalisation-induced needs at company level.

Table 3. **VET systems in the studied countries: IVET feedback mechanisms and responsibility**

Country	Type of feedback mechanism in IVET (VET labour market)	Responsibility for revising IVET qualifications
Austria	School-based: statist, dual VET: coordinated	Federal Ministry of Education, Science and Research
Bulgaria	Statist (tends to integrate social partners slowly within national VET policy)	Ministry of Education and Science
Czech Republic	Statist (tends to integrate social partners slowly within national VET policy)	Ministry of Education, Youth and Sports
Denmark	Coordinated	Shared responsibility of the Ministry for Children, Education and Gender Equality, social partners and VET providers
Estonia	Statist (tends to display characteristics of the liberal type)	Ministry of Education and Research
Finland	Participatory	Finnish National Agency for Education
France	Participatory	National Commission on Professional Qualifications – inter-ministerial commission under the authority of the Ministry of National Education
Germany	School-based: statist, dual VET: coordinated	Training regulations: Federal Institute for Vocational Training, on behalf of the federal government; KMK (Conference of Ministers for Education) for framework curricula (not compulsory)
Greece	Statist	Greek Ministry of Education
Italy	Coordinated	Multi-level governance involving national and regional stakeholders.
Netherlands	Coordinated	Sector chambers and schools
Poland	Statist (tends to integrate social partners slowly within national VET policy)	Ministry of National Education
Scotland (UK)	Liberal	National occupation standards are set with the involvement of sector skills councils
Spain	Participatory	National Institute of Qualifications, with the involvement of social partners
Switzerland	Dual VET: coordinated; school-based: statist,	Responsibility of three partners: the confederation, the cantons and professional organisations

Source: Type of feedback mechanism: Cedefop (2013a) with updates based on information from country experts.

2.3.3. Higher VET

The organisation of VET at higher levels can affect responsiveness to globalisation-induced changes. More flexibility in offering courses that react to the needs of the labour market can be conducive to a quicker adaptation of skills needs to international developments. According to Cedefop (2014b), most EQF level 5 qualifications are clearly linked to occupations/professions, with distinct professional profiles and labour market relevance. Further, level 5 programmes offer flexibility both in the adjustment of the programme content and organisation to meet the needs of learners, as well as through recognition of prior learning or through the testing of adult or mature students (Kirsch and Beernaert, 2011).

Renewal of VET requirements as a response to globalisation may be implemented in different ways nationally through top-down solutions, decentralised (such as through local partnerships at VET provider level), or occur through employer-led initiatives. These differences in VET structures, and differences in feedback mechanisms, are discussed in more detail in Chapter 3.

2.4. Countries' shared globalisation features

Analysis of the interplay between the three groups of factors presented in the analytical framework shows differences between the selected countries in terms of global competitive position, exposure to global trends, governance of their VET systems and participation in IVET and CVET. Closer analysis of the differences leads to the identification of two groups of countries that share some common features.

The first group are countries that, in this study, are called 'active players'. This group can be characterised as having a higher position in the global competitiveness ranking and are active in foreign direct investment (FDI) (their level of outward FDI is higher than the level of inward FDI). They are characterised by a larger share of adults with high levels of skills, such as numeracy or literacy, and higher levels of adults participating in education and training.

The second group can be called 'aspiring countries'. They have lower global competitiveness ranking (below 30) and are net receivers of FDI. They are characterised by an average or below average assessment of their higher education and training and a lower share of adults with high skills levels. This group of countries is also characterised by lower participation of adults in education and training.

Coordinated IVET governance seems to be predominant in the group of active players, while the statist model prevails among aspiring countries (except

Spain and Italy). The analysis in Chapters 3 and 4 uses this classification of active players and aspiring countries to discuss common trends and characteristics identified through the analysis of empirical evidence as a response to globalisation.

Table 4. **Active players and aspiring countries: competitiveness position, skills and selected VET characteristics**

	Country	Global Competitiveness ranking 2016	Share of FDI outward – FDI inward	Share of adults with highest numeracy scores	Participation in lifelong learning (2015)	VET governance
Active players	Switzerland	1	46	n.a.	32.1	Coordinated
	Netherlands	4	65	17.0	18.9	Coordinated
	Germany	5	16	14.3	8.1	Coordinated
	United Kingdom	7	5	11.3	15.7	Liberal
	Finland	10	5	19.4	25.4	Participatory
	Denmark	12	26	16.6	31.3	Coordinated
	Austria	19	12	13.6	14.4	Coordinated
	France	21	23	8.3	18.6	Participatory
Aspiring countries	Estonia	30	-56	11.2	14.4	Statist
	Czech Republic	31	-52	11.4	8.5	Statist
	Spain	32	-4	4.1	9.9	Participatory
	Poland	36	-34	8.4	3.5	Statist
	Italy	44	7	4.5	7.3	Coordinated
	Bulgaria	50	n.a.	n.a.	2.0	Statist
	Greece	86	0	5.6	3.3	Statist

NB: In Germany and Austria, the coordinated model refers to dual VET. School-based VET in both cases would be classified as 'statist'.

Source: Cedefop, OECD.stats, OECD Education GPS.

2.5. Globalisation and VET system interplay

This section presents the seven hypotheses on the interplay between economic developments, the availability of European and international initiatives and VET systems. They are formulated from the analysis in this chapter and follow the adopted analytical framework. In Chapter 3 and 4, these hypotheses are further

discussed in the context of the qualitative empirical evidence collected in the study (in-depth interviews, case studies).

2.5.1. Country economic context

As shown in Section 2.1, economic developments, particularly exposure to foreign markets through a high level of exports, foreign direct investment or migration flows, have an impact on skills needs and, in turn, VET developments, both at initial and continuing levels. Countries with higher competitiveness scores have higher shares of adults participating in training and so with high levels of skills, such as numeracy or literacy. Foreign investors, apart from providing financial inflows, also engage in adjusting workers' skills to their needs and practices. When firms from countries with higher competitiveness scores invest in other countries, they tend to bring with them their national experiences and practices, stimulating policy learning that leads to the revision of national standards. In some cases, national VET practices in countries with higher competitiveness scores are perceived as benchmarks for other countries.

Globalisation also motivates companies to restructure their operations internationally through outsourcing and offshoring activities. International production, trade and investments are increasingly organised within global value chains where the different stages of the production process are located across different countries. This leads to the development of international standards in products, services or processes which have an effect on skills demand. As a result, countries with a high share of inward FDI stocks or production sectors engaged in global value chains are expected to adapt their VET provision to offer skills aligned to the new standards required in the value chain. Therefore, the following hypothesis is formulated:

Hypothesis 1: exposure to global trends, such as export-driven terms of trade or flows of investment and workers, makes the VET system more likely to be influenced by globalisation and international standards.

Migration flows are another important aspect of exposure to globalisation. Transnational migration induces the development of education programmes that help migrants upgrade knowledge and skills, improves multicultural skills and increases demand for recognition of experience and prior learning. The presence of foreign companies and increased geographic mobility of workers increase the need for foreign language and cultural diversity skills. Research in the past has also indicated that the skill levels of immigrants differ by country, with some countries attracting fewer skilled immigrants and other countries characterised by

relatively high-skilled immigrants (Cedefop, 2014a, p. 45). This means that the presence of foreign workers influences education, training and skill supply in different ways.

Hypothesis 2: countries that have high shares of foreign workers are more inclined to provide VET that is focused both on the inclusion of foreign workers in the labour market and on equipping residents with skills relating to working in a multicultural environment.

2.5.2. VET systems and governance structures

While much of the discussion in literature is focused on IVET, both CVET and higher level VET assume an important role in reskilling and upskilling workers to changing skill demands. As shown in Section 2.2.2, these parts of VET systems also differ in terms of governance and regulation. Generally, while IVET tends to be strongly regulated, the more diverse CVET subsystem is less strictly regulated and CVET providers have more autonomy, while higher VET can be usually situated in between. Countries differ in terms of their public commitment to VET through active labour market policies. There is also a growing volume of on- and off-the-job non-formal learning opportunities. Some may be directly related to international standards, as privately financed training companies provide training leading to international certificates such as those of major ICT vendors. At the same time, work-based learning is assuming a major role in VET training in countries with a coordinated type of feedback; it is also gaining importance in some of the State-regulated VET systems. Enterprises invest in training as it is strongly correlated with innovation performance (Cedefop, 2012a). IVET programmes tend to be broader and include a mix of transversal and job-specific skills; programmes tend to last three years or more and usually it also takes time to accommodate the demands of the different actors involved in shaping qualifications. While IVET qualifications are renewed, this process is longer; CVET is more likely to change curricula or introduce the types of training that support the upgrading of employees' existing skills. Therefore, the following hypothesis is formulated:

Hypothesis 3: CVET and VET at higher level seem to react faster to changes stemming from globalisation than IVET subsystems.

European countries differ markedly in terms of the share of upper secondary students in IVET, participation in work-based training and CVET. They also vary in stakeholder involvement, available resources and processes implemented. High social partner participation in initial and continuing education and training is characteristic for a coordinated and, to a lesser extent, participatory type of feedback mechanism. Previous work by Cedefop (2013a) showed the decisive role of social partners and their influence in renewing IVET. As evidenced by literature on comparative capitalism and skill formation systems (Busemeyer and Trampusch, 2012; Hall and Soskice, 2001), the types of coordination in which employers and other social partners assume important roles in governing VET are more effective in securing labour market relevant skills and qualifications. Therefore, we hypothesise that:

Hypothesis 4: countries with a significant role for labour market stakeholders in the development and delivery of initial and continuing vocational education and training are more responsive to the labour market challenges caused, among others, by globalisation.

Increased economic interactions at different levels and the interdependence of markets are distinguishing aspects of globalisation. VET curricula have been traditionally defined for the local labour market with its national focus, traditions and existing technologies (Shaw et al., 2016). Globalisation increased the scope of markets and fragmentation of value chains. Some job requirements are defined internationally or driven by international product or service standards required in more fragmented production chains, which may make them incompatible with nationally specific education programmes. The internationalisation of production chains has also created niches that have been filled at different levels, including the level of providers who attempt to respond to the new needs of employers. This is an important opportunity for CVET providers, where new qualifications, requiring shorter training time, can be introduced quickly. It may also be an opportunity for IVET providers: they can, for example, engage in international mobility schemes, partnerships, cross-national Erasmus projects or provide learners with the optional courses that give access to certificates in technology-specific areas not described in the national curricula. We can therefore hypothesise that:

Hypothesis 5: initiatives at local and provider level are an important channel of responsiveness to globalisation in all types of VET governance.

2.5.3. Sectoral level perspective

Exposure to globalisation differs by sector; an understanding of cross-sector variation is an important addition to cross-country analyses. Sectoral standards may be established through European initiatives, by international standard-setting bodies (such as ISO), through the international cooperation of employers or professionals (as in the e-competence framework) or originate from transnational companies that play an important role in the sector (such as standards in the automotive sector dominated by few producer groups, reservation systems in the tourism sector). The adaptation of VET requirements and content in the countries exposed to globalisation may be informed by standards developed as a result of European or international initiatives. As the following hypothesis states, it depends on the extent to which they are perceived as useful by users.

Hypothesis 6: international/sectoral VET standards, established by international institutions, European bodies or transnational companies are perceived as useful and used to inform VET renewal in European countries.

The differences between sectors can be exemplified by the diversity in business organisation models, the extent of using international sourcing and degree of standardisation and codification of business processes. There are also variations within sectors when it comes to the importance of different types of international initiatives, such as international sectoral qualifications or competence frameworks or international standards. The popularity of international standards and qualifications in a sector influences adjustment at national level and seems to be more likely in sectors strongly influenced by globalisation.

Hypothesis 7: in sectors strongly influenced by globalisation (fast-growing sectors providing services globally, requiring international cooperation and facing constant technological developments), regular adjustments of standards/qualifications/curricula to global requirements take place regardless of institutional structures and steering mechanisms.

CHAPTER 3.

VET system response to global developments

3.1. Perceptions of the impact of globalisation on VET

This section is based on the qualitative analysis of the interviews conducted as part of the country research phase, providing an insightful panorama of how global developments and their implications are perceived across countries, sectors, and stakeholder types. The following types of stakeholder were interviewed for the study: European and international level, (national) system level, sector level stakeholders, vocational education and training (VET) providers, and representatives of companies. As an introduction to the chapter, this section aims to provide an overview of the impact of globalisation on skills demand, as experienced by the interviewees, rather than drawing a universal and comprehensive picture of the impact of globalisation on skills demand.

Evidence from the in-depth interviews and case studies confirms that the impact of globalisation on VET is often implicit and difficult to disentangle from other causes of change. This implicit aspect of globalisation's impact can affect stakeholder views, which are individual perceptions. In cases where they have little direct exposure to international trends, stakeholder responses may suggest that the changes are driven by national needs, with little direct change resulting from global developments. At the same time, national needs, reflected by some of the stakeholders, especially employers and sectoral representatives, are influenced by international developments and globalisation.

Perceptions often seem to be related to the idea that VET is primarily designed to foster and grow the skills that are responsive to the country's commercial interests, and to deliver specific practical skills for particular vocational opportunities at local level (Shaw et al., 2016). They may tend to overestimate the extent to which national economic and political drivers for change are truly national and entirely free of the impact of a globalised economy.

The findings confirm that globalisation is an important external driver influencing VET developments. It is, however, not the only external driver to VET developments; this can make the identification of causal relationships a complex endeavour.

Many of the interviewees are aware of a significant impact of globalisation on national skills demand and requirements. However, there are diverging opinions on the scope/extent of exposure to globalisation, also among

respondents from the same sector. Some argue that specific sectors are particularly exposed to the implications of globalisation, while others argue that every job is in a way affected by them. Only in rare cases did interviewees perceive that globalisation has no impact on skills demand at all. In broad terms, stakeholder responses can be grouped into the following three 'types':

(a) broad impact of globalisation on skills demand:

stakeholders perceived a broad impact of globalisation on skills demand, affecting most sectors and occupations in a country. Such an opinion was expressed by many stakeholders of all types and from all sectors, particularly in ICT, logistics and automotive manufacturing sectors, considered as the most 'internationalised' by many respondents;

(b) selective impact of globalisation on skills demand:

stakeholders who believed in the presence of a selective impact of globalisation on skills demand, with impact on some sectors and occupations, but not on others.

Some of the stakeholders from logistics and automotive sectors differentiated the impact on skills demand according to different areas: sales and higher management were reported to be affected most, while lower-skilled workers were seen as not affected by global developments. However, some pointed out that the general trend towards automation will have a major impact on lower-skilled workers in the long term, as they may be among the groups whose jobs will be most affected by job substitutability caused by increased automatisisation ⁽²⁰⁾.

In the hospitality sector, stakeholders located the selective impact of globalisation on skills demand particularly in those areas dealing with rising numbers of international guests and a high degree of worker mobility (such as in international hotel chains).

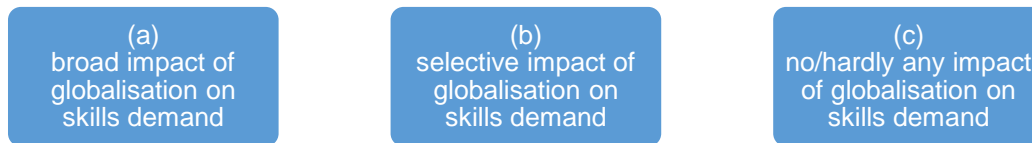
Many stakeholders in the paramedics sector perceived only a selective impact of globalisation on skills demand, often relating to migration developments and the need for language skills and intercultural competences brought by these movements;

(c) no/little impact of globalisation on skills demand:

⁽²⁰⁾ This observation is backed by the outcomes of a recent study on the digitalisation of work and the related substitutability of jobs, focused on the Austrian labour market, on behalf of the Federal Ministry for Social Affairs. Researchers found that 9% of Austrian employees held jobs that were potentially at risk of being replaced through automation. Labourers in mining, construction, manufacturing and transport (ISCO-08 code, 93) were among the workers at highest risk of being substituted by machines.

stakeholders who saw no or little impact of globalisation on skills demand. Few respondents belong to this group, who are from those areas where global forces have had an impact for a long time (as in hospitality). Changes were not considered to stem directly from globalisation, but rather from technological developments, which were differentiated from the term 'globalisation' by the interviewees.

Figure 7. **Types of perceptions on the impact of globalisation**



Source: Based on qualitative analysis of in-depth interviews.

Globalisation is understood by many stakeholders as ubiquitous, linked to other parallel and intertwined developments, such as automation, digitalisation and robotification. Rather than having an impact in itself, globalisation intensifies the importance of the other developments by enhancing competition among companies across the world. The changes brought about by digital technologies are illustrative. They have a striking impact on the processes of producing goods and services, pushing forward the creation of global value chains, and so are intrinsically linked to globalisation itself (as in the concept of Industry 4.0 or the rise of crowd working). In this sense, respondents believe that digital change pushes forward and accelerates the globalisation process.

3.2. Economic influences on VET

The response of VET to globalisation is frequently triggered by the economic and labour market context. This section presents information on existing approaches and practices revealed during desk research and the analysis of the collected opinions of interviewed stakeholders and case studies.

At national level, globalisation is rarely expressed explicitly in strategic documents on VET. Further, there is little evidence that countries have broader strategies in place to account explicitly for the impact on VET of globalisation and internationalisation developments. Few countries (Denmark, Germany and the Netherlands) can point to official political documents that directly refer to the topic, yet VET systems react to economic and labour market changes, which are affected by globalisation.

Discussing hypothesis 1: exposure to global trends, such as export-driven terms of trade or flows of investment and workers, makes the VET system more likely to be influenced by globalisation and international standards.

Countries that are the most exposed to global trends, measured by the share of exports in the gross domestic product (GDP) and a high level of inward foreign direct investment (FDI) relative to GDP, include the countries listed in Table 5 (ranked according to share of exports in GDP).

Table 5. **Countries that are most exposed to global trends**

Country	Share of foreign workers in the workforce	Outward FDI as share of GDP	Inward FDI as share of GDP	Share of exports in GDP
Netherlands	4.1	162.0	97.5	83.4
Czech Republic	2.2	10.0	62.4	81.0
Estonia	13.6	27.6	83.6	78.6
Bulgaria	0.1			64.1
Switzerland	25.6	152.8	106.9	62.1
Denmark	8.3	56.0	30.4	55.7
Austria	4.1	55.8	43.7	52.9
Poland	0.3	4.7	38.5	49.5
Germany	10.0	39.8	23.4	46.9

Source: As in Annex 1 Table A1.1.

The existence of strategies directly referring to the importance of changing VET systems or skills in response to international developments may be treated as one of the indicators of a direct influence of globalisation on VET. Selected examples of such strategies or initiatives ‘implicitly’ relating to globalisation in the countries analysed are listed below, in line with the defined two groups of active players and aspiring countries.

In active-player countries, highly exposed to global trends, the following links to globalisation were found in VET-related policies:

- (a) Denmark: the focus in current strategies is on attracting more and better qualified young people to the VET system by raising the quality of VET programmes. In 2005, a Globalisation Council was set up to advise the government on Denmark’s role in the global economy. In 2013, an internationalisation plan *Enhanced insight through global outlook* (Danish Ministry of Higher education and Science, 2013) was developed for higher education, which includes VET at higher level;
- (b) Austria: the School Organisation Law, defining the duties of the Austrian school system, states that young people should be equipped to ‘take part in

- the economic and cultural life of Austria, Europe and the world'. The Austrian Vocational Training Act was amended in 2015 by a general paragraph on the objectives of vocational training that now also explicitly refers to the need for more emphasis on the international dimension of VET ⁽²¹⁾;
- (c) Netherlands: there is no explicit overarching strategy on how the VET system should cope with the challenges stemming from globalisation. There are more general economic policies to situate the Dutch key economic sectors better in the globalised world: these impact parts of the VET system, such as providing more means to establish world-class VET and higher education to train the talents of the future for those sectors. There is also an internationalisation policy for VET at higher levels ⁽²²⁾ which describes the intention of the Dutch government to promote and invest in internationalisation as a way to improve the employability of students in the global labour market;
- (d) Switzerland: there is no federal-level VET policy or strategy that explicitly relates to the internationalisation or globalisation of VET. There is, however, a strategy on Swiss international cooperation in vocational and professional education and training (VPET). Yet, according to the interviewees, many reforms in recent years were influenced by international, global developments. Economic globalisation is not a recent development and has had an impact on VET systems for many decades, as illustrated in Box 5;
- (e) In Germany, there is a federal strategy on the internationalisation of education, science and research, as well as a separate action plan on the international cooperation of the Federal Ministry of Education and Research. Both documents specifically refer to globalisation and growing international interdependencies. According to the strategy, adequately trained professionals help to promote sustainable development in partner countries and are also an important precondition of German companies' commitment in target countries. The Federal Government plans to take steps to expand cooperation in vocational training with industrialised and emerging countries, to increase the mobility of trainees and to simplify the recognition of

⁽²¹⁾ This new paragraph of the Vocational Training Act states that vocational education should 'contribute to the competitiveness of companies', ensure the 'labour market relevance of occupational profiles', and 'promote the attractiveness of vocational training by paying attention to permeability and internationalisation'. See Schlögl, 2015; Cedefop, 2017b; RIS, *Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Berufsausbildungsgesetz, Fassung vom 13.09.2018* [Federal law consolidated: entire legal provision for the vocational training Act, version of 13.9.2018].

⁽²²⁾ Dutch Ministry of Education, Culture and Science, *Government's vision on the international dimension of higher education and VET*.

qualifications that foreign professionals have obtained abroad. The international cooperation in VET aims to promote Germany's dual model worldwide through cooperative VET activities with many countries. There are also other strategies on topics that touch on globalisation (and issues such as digitalisation and Industry 4.0 strategy processes).

Box 4. Denmark's 'Enhanced insight through global outlook' internationalisation plan

In 2013, an internationalisation plan *Better understanding through global outlook* was developed for higher education, including VET at higher level. This action plan was followed by a second part in 2014, *Denmark - an attractive study destination: How to attract and retain talent from abroad*, focusing on attracting talented foreign students to Denmark.

This action plan encourages the academies to consider the international aspects of their programmes, and to focus on student mobility.

The Ministry of Business and Growth set up a Production Council in October 2014 to generate ideas and recommendations on how to strengthen the development of Denmark as an attractive country for production. This included considering skills needs and demands.

Source: Interviews.

Box 5. Globalisation as a driving force in the institutionalisation of Swiss VPET in the 19th century

Economic globalisation is not a recent development. Global trade grew strongly in the second half of the 19th century, putting pressure on traditional crafts and providing new perspectives to industrialists in many European countries and in North America. Switzerland was affected by this trend as well. It was in this context that the Schweizerischer Gewerbeverein SGV was founded. One of its key missions was to lobby the Swiss government to provide the first federal subsidies for vocational education. This support was critical for the further development of the VPET system. (VPET: vocational and professional education and training) (Gonon and Maurer, 2012; Werner, 2000; Wettstein, 1987).

Source: Swiss country report.

In aspiring countries highly exposed to global trends:

- (a) in Bulgaria, modernisation of VET and improving the quality of VET are the main goals of VET policy. For example, the *National strategy for the development of VET (2015-2020)* highlights the need to modernise vocational education and training due to increased global competition, an aging population, dynamic technological development and the wish to improve social cohesion. (Ministry of Education and Science of Bulgaria, 2014b);

- (b) in the Czech Republic, the principal education policy document responding to globalisation impulses is the *Long-term conception for the development of education subsystems including IVET, CVET and higher VET*. The document was introduced in 2014 as a national strategic response to global challenges, inter alia. However, some of the larger challenges, such as the internationalisation of sectors and the virtualisation of industries, are explicitly named as impossible to tackle over a five-year period and treated as multi-period topics to be continually addressed in upcoming strategic periods as well;
- (c) in Poland, respondents referred to several documents to illustrate the country response to global developments: the *Long-term development strategy 2030*, the *National Development Strategy 2020*, the *2014-20 digital Poland operational programme* as well as the *Lifelong learning perspective*. Further, the comprehensive Polish qualifications framework was developed in response to the European qualifications framework, and addresses the inclusion of non-statutory 'market' qualifications awarded outside formal education and training to the national qualifications system. Sectoral qualifications frameworks (SQFs) are recognised as a part of the national qualifications system, and are referenced to the structure of the Polish qualifications framework. Establishing SQFs, according to the interviewees, helps to identify the changing skills needs of particular sectors as a response to globalisation, and can be used in adapting curricula to labour market demands (as with the sectoral frameworks in the financial services, tourism, ICT sectors);
- (d) in Estonia, elements of internationalisation are included in the Estonian lifelong learning strategy adopted by the government in February 2014 and the vocational education programme for 2016-19, adopted by the Ministry of Education and Research in 2015 to implement this strategy.

In countries that are less exposed to global trends, that is Greece and Italy, no evidence of such strategies was identified by the study. In Greece, there are no clear strategies that address and essentially review all the issues relating to VET as an actual process for skills development in response to globalisation. Quality improvement and the enhancement of VET systems are a priority in many legislative interventions in Italy, but the study did not find evidence of globalisation being addressed in strategic documents on VET.

Evidence collected in the study shows that countries exposed to global trends either developed globalisation or internationalisation strategies that include references to VET systems or their VET strategies include references to globalisation or internationalisation. This confirms hypothesis 1.

Discussing hypothesis 2: Countries that have high shares of foreign workers are more inclined to provide VET that is focused both on the inclusion of foreign workers in the labour market and equipping residents with skills relating to working in a multicultural environment.

Most interviewees – across sectors, stakeholder types and countries – believe that globalisation has an impact on the type of skills needed. Many respondents believe that globalisation calls for an increased focus on transversal or soft skills ⁽²³⁾. When taking a closer look at these skills as reported by the interviewees, they can be grouped into five main categories: intercultural skills, foreign language skills, life and career skills, learning and innovation skills, ICT skills. The need for transversal skills is confirmed in countries that have a high share of foreign workers: Estonia, Germany, Italy, Spain, Switzerland and the UK.

Table 6. **Share of foreign workers in the workforce (2015)**

Switzerland	25.6	Germany	10.0	Netherlands	4.1
Estonia	13.6	Denmark	8.3	Finland	3.1
Spain	10.7	Greece	6.8	Czech Republic	2.2
Italy	10.6	France	5.4	Poland	0.3
UK	10.6	Austria	4.1	Bulgaria	0.1

Source: Eurostat [Ifsa_egan].

In Switzerland, the VPET systems place particular emphasis on transversal and generic competences so that learners are able to adapt to the challenges, which may arise in the future. The general revision of the VPET Act and VET ordinances and training plans introduced a competence-based approach in VET. It also included the integration of key competences into all VET curricula. Many cantons focus on improving the foreign language skills of their inhabitants. The canton of Lucerne, for instance, introduced a strategy three years ago specifically

⁽²³⁾ The study defines transversal skills as those skills that are relevant to a broad range of occupations and economic sectors. They are the building blocks for the development of the 'hard' skills and competences required to succeed on the labour market (based on [ESCOpedia](#)).

While the ESCOpedia definition suggests 'soft skills' as a synonym for transversal skills, this study applies a narrower approach to the term 'soft skills', defining them as skills that are cross-cutting across jobs and sectors, and relate to personal (confidence, discipline, self-management) and social competences (teamwork, communication, emotional intelligence) (based on [Skills Panorama](#)).

to promote bilingual instruction in VET schools, including the related training of teachers, while the cantons of Zug and Basel offer bilingual education specifically targeting international or export-oriented companies (such as English-speaking VET programmes for ICT technicians and commercial employees in 2015 in Zug).

In Estonia, according to the information collected in the interviews, companies exposed to global markets are seeking employees with foreign language skills and knowledge of different business cultures, who are able to work in teams, are strongly motivated and have a vision of their career development. The challenge for VET schools is more effectively to provide studies for international learners and combine foreign language education with job-specific skills. To meet this challenge, learners' mobility and the achievement of key competences for lifelong learning is assessed in the accreditation of VET schools conducted by the Estonian Quality Agency for Higher and Vocational Education (EKKA). International cooperation among VET schools is considered a criterion in accreditation. The renewed national upper secondary VET curricula reinforce foreign languages that are also integrated into vocational subjects. New curricula also include learning outcomes linked to working in an environment with cultural differences.

In Spain, respondents indicated that companies have noticeably increased their language training requirements. These skills are also developed through the student mobility projects of the Erasmus programme, which are increasingly gaining in popularity.

System level stakeholders at national level in Italy also emphasise the need to develop language abilities: an increased knowledge of English as 'the lingua franca' is seen as a particular requirement. It is considered as important to upgrade and adapt the skills of students and workers to cope with the scenario of greater territorial mobility. The skills identified as greatly required to face the impact of globalisation include language skills, networking capabilities in the global market and innovation skills. Employer representatives also confirm that on the top of the 'hard' vocational skills there is a great demand for soft skills as well as the skills of working in transnational environments.

Internationalisation has also led to changing skills needs in Scotland where the sector skills councils report that foreign languages are now much more required and there is a shortage of people with these skills. Some soft skills are also in greater demand, such as critical thinking and creativity. International worker mobility strongly impacts all of the UK, with many foreigners coming to the country, influencing the need for intercultural skills.

In Germany, one of the challenges of the labour market is the shortage of a skilled labour force: recognising VET qualifications attained in foreign countries is

an important tool in increasing the inclusion of skilled foreign workers in the German labour market. In 2012, the Assessment and Recognition of Foreign Professional Qualifications Act came into force, supporting the economic integration of migrants. Many initiatives to validate and recognise the qualifications of migrants and to provide education and training have been developed over recent years and gained relevance because of the large group of refugees living in Germany since 2015. Several programmes also aim to include refugees in education and the labour market. System level stakeholders, VET providers and employers interviewed in the study also highlight the need for foreign language competences and strong social, personal and intercultural abilities, required to work in different cultural environments and in intercultural teams.

Preliminary results from a current Cedefop study (Cedefop, 2018a) support these observations. Evidence suggests a broadening of course content (and a reduction in the number of qualifications available) that reflects pressures to equip people with broad skill sets to meet changing labour market demands. This broadening of courses has led to more transversal skills to complement those of direct relevance to one particular job or sector. Such a skills set makes it possible that skills remain valid over the long term, allowing people to change professions and sectors should economic developments demand it.

The need for specific transversal skills is also expressed at sectoral level. Figure 8 looks at the findings from a sectoral perspective and lists the top five transversal or soft skills mentioned by interviewees in the five sectors. Both foreign language and intercultural skills are included in all the five sectors covered by the study; foreign language skills are ranked first (mentioned most often) in three out of five sectors. Logistics and road transport, ICT, and automotive (albeit less prominently) mention the significant role of the ability to adapt to change more often than intercultural competences.

Figure 8. **Top five transversal or soft skills mentioned by sector**

Tourism and hospitality	Logistics and road transport	Information technology (*)	Automotive	Paramedics and EMT
<ul style="list-style-type: none"> • Language skills • Cultural understanding /intercultural skills • Customer relations • Flexibility • Ability to research information 	<ul style="list-style-type: none"> • Language skills • Ability to adapt to changes • ICT skills • Flexibility • Intercultural skills 	<ul style="list-style-type: none"> • Ability to adapt to changes • Ability to learn (LLL) • Intercultural skills • Language skills • Innovation skills 	<ul style="list-style-type: none"> • Language skills • Willing to be mobile • Ability to adapt to changes • Team work • Intercultural skills 	<ul style="list-style-type: none"> • Communication skills • Intercultural skills • Language skills • Responsibility • Dutifulness

(*) Digital skills were mentioned most often in the ICT sector, but were not counted as 'transversal' skills.

Source: Qualitative analysis of in-depth interviews. Based on 82 (out of 260) interviews, for which interviewees could be clearly assigned to one of the five sectors.

Evidence collected in the study confirms hypothesis 2. In countries that have a high share of foreign workers, as well as sectors exposed to global trends, skill needs such as communication or intercultural skills are sought by employers. Recent VET system reforms in these countries tend to reinforce these skills.

3.3. VET system renewal responding to globalisation

This section presents the findings on the ways VET systems incorporate global changes in their development and renewal ⁽²⁴⁾. Although globalisation is an important external driver that influences VET developments, there is little evidence for causal relationships between globalisation as a driver for change and the response of VET systems. There is little to suggest that globalisation developments act as a direct/sole trigger for system-level renewal and review in VET, nor is there evidence of a separate process responding to globalisation developments in the countries studied. This is particularly the case for countries that regularly review their VET systems, following the needs of the labour market. In such cases, there is an indirect influence, expressed through the changing needs identified by stakeholders at sectoral level.

International stakeholders that have a broad outlook on VET developments across countries believe that various types of international standard are important drivers of change. They eventually affect national VET systems, providing inspiration for their renewal. The way international standards feed into national systems varies: they can be incorporated in national VET qualifications, inspiring changes in VET content, but they also can be seen as a top-up, supplementing national qualifications and providing access to international qualifications. The national responses depend on the characteristics of the respective VET system, as well as the VET processes and mechanisms in place, but also on the broader country context, including the economic, labour market and social situation.

⁽²⁴⁾ During the last phase of the qualitative part of the study, 10 case studies were conducted, with the aim of developing a better understanding of the process of developing and renewing the VET offer as a response to global developments. This section analyses the case study findings, exploring in more detail the processes of developing and/or reviewing VET. Besides covering different sectors and segments of VET, the case studies also focused on different units of analysis and levels of intervention. This information is complemented by data from the country research carried out in 15 countries. The list of case studies is presented in Chapter 1 and a summary of their main findings in Annex 2.

3.3.1. Globalisation pressures on VET systems

Stakeholders across all types and sectors were asked to name the most important implications for VET systems, and their related processes, arising from globalisation. These observations can be grouped into the following five common broad groups:

- (a) ensure alignment with labour market needs.

This aspect refers to ensuring that VET systems are responsive to changes resulting from globalisation. Flexibility and adaptability allow VET to respond to the demand for new skills and emerging new jobs. This includes approaches such as modularisation, curriculum planning for both framework curricula and school curricula, and increasing work-based learning, including apprenticeships and open curricula. This aspect was specifically highlighted among system and sector-level stakeholders, and by stakeholders from the automotive sector.

Cedefop (2018a) confirms a policy preference and increased emphasis on work-based learning (including apprenticeship models) in many countries over the last two decades. This is seen as a particularly effective means of linking training to the needs of the labour market and involving labour market actors in both the design and provision of qualifications. Related developments can be observed in many countries, including the Czech Republic, Greece, Spain, Italy, the Netherlands, Poland, Finland and the UK;

- (b) need for lifelong learning.

Lifelong learning has become essential to keep up with changing skills demand over time and to avoid the risk of individuals becoming marginalised in the labour market. This was expressed in many interviews (particularly by VET providers and less so by other stakeholder groups), calling for an increased focus on lifelong learning, with globalisation playing a role as a trigger for changing skills demand. This also includes the increased importance of VET at higher levels, offering access to more specialised qualifications;

- (c) need for flexible learning pathways.

Flexibility and permeability in VET systems and across education sectors (VET higher education, VET general education, IVET and CVET) are becoming increasingly important, allowing for possibilities of long-term career progression. System-level stakeholders and VET providers stated that globalisation and its implications have led to an increasing need for improved transparency, comparability and readability of qualifications, as well as the permeability of education and training systems, in particular between VET and higher education, both within and across countries;

- (d) need for the recognition of qualifications.

This was especially highlighted in the hospitality sector, where many national stakeholders mention the difficulties graduates face when working abroad. It is also an issue for the higher-skilled workforce in the logistics sector, though it does not seem to be a specific issue of concern for the ICT sector. The need for recognition of skills and qualifications is also seen in the increasing migrations flows. For example, Germany has developed measures, especially since 2015, to integrate refugees and provide them with vocational training and to recognise their qualifications and prior experience. A law on the recognition of foreign qualifications was established (Erbe et al., 2015) and entry into occupational positions and the recognition of individual achievements is expected to be eased. Data on qualifications indicate a strong demand for measures to integrate and train refugees over the coming years (Maier et al., 2016; cf. Cedefop, 2018a);

- (e) tension between highly specialised and broader qualifications.
- System-level stakeholders specifically referred to tension between focusing on highly specialised technical qualifications and broader, more general ones, with a greater focus on transversal, or soft skills, which are becoming increasingly important due to globalisation requirements (NL, FIN). While this tension is not new to VET systems, globalisation intensifies it: an increasingly globalised economy requires broad competences to a larger extent, such as the adaptability to continuous change, while the growing complexity of the tasks in many sectors calls for specialisation in relatively narrow fields of expertise to offer added value in the labour market.

Figure 9. **Key pressures for VET systems arising from globalisation**

Implications of VET systems	Ensure alignment with labour market needs	Observed in particular for system-level and sectoral-level stakeholders; automotive sector
	Need for lifelong learning	Observed particularly for VET providers and sectoral-level stakeholders
	Need for flexible learning pathways	Observed particularly for VET providers and sectoral-level stakeholders
	Need for the recognition of VET qualifications	Observed particularly for stakeholders in the hospitality and logistics sectors
	Tension between highly specialised and broader qualifications	Observed particularly for system-level and sectoral-level stakeholders

Source: Qualitative analysis of stakeholder interviews.

The way that VET systems respond to the global pressures are described in the following section.

3.3.2. VET systems responses to global pressures

3.3.2.1. Complementarity between IVET, CVET and VET at higher level

Discussing hypothesis 3: CVET and VET at higher level seem to react faster to changes stemming from globalisation than IVET subsystems.

The research findings confirm that IVET systems, for several reasons, tend to react more slowly to globalisation challenges. One frequently mentioned issue is the fixed period for renewing VET standards in IVET (Austria, Bulgaria, Czech Republic, Germany, France, Poland, Spain and Switzerland) which does not provide a direct response to labour market demand. Another reason is the collective governance processes that require the agreement of a broad range of stakeholders and, therefore, make the review of standards a long process. These factors are also frequently combined, which means the adjustment to expected needs is too slow to be perceived as responsive by labour market stakeholders. Interviewees in Switzerland, for example, see curriculum review as much slower than the rate of technology change, so a detailed curriculum is never able to include the latest technological trends. In several countries, changes in the IVET system are aimed at increasing flexibility, such as the framework curricula at national level with the greater autonomy of VET providers (Czech Republic and Poland), open curricula or modularisation (Poland).

CVET in many countries is perceived as more responsive to the need for faster, shorter and tailored training, making it an important part of skills development. These different dynamics are perceived both at national level and also among international level stakeholders. The ability to adjust more quickly is associated with a lower level of regulation and fewer bureaucratic procedures (compared to many IVET systems), which means they are able to apply review processes without following time-consuming procedures set out in legal regulations. As a result, CVET provision is flexible and continuously adjusted. There is also an economic aspect promoting adaptability to change. As CVET systems largely depend on private funding, they are more exposed to market pressures, requiring them to keep their VET offer up to date to continue attracting learners. For instance, the private sector offers a multitude of international sectoral qualifications, the majority of which relate to continuing education and training. They are developed as a direct response to globalisation and digitisation of economies and labour markets, setting new international standards responding to the need for specialisation and update of skills and competences. For similar

reasons, VET at higher levels is also reported to be flexible and quicker, especially by Danish and Scottish interviewees.

Box 6. The responsiveness of CVET and higher VET in the Czech Republic

The Czech CVET system is seen as a response to the need for reskilling and updating qualifications throughout a person's work life without having to enter a formal education process. The past decade brought a major development in creating and implementing a formal CVET system. It is implemented through the National Register of Qualifications, jointly governed by stakeholders, such as qualifications authorities and sector councils (which include trade unions, employer representatives, trade associations, labour market experts, schools). It has been operational since 2009.

Higher VET has been consolidated over the past several years to produce well-trained experts through non-university higher education, focused on narrow fields of expertise. It is characterised by a high responsiveness to labour market demand, especially in sectors such as ICT, hospitality and healthcare.

Source: Interviews.

Different approaches have been adopted to keep CVET and VET at higher level training up to date with recent developments. These include trainers who combine (part-time) training with a regular job in the sector (Austria), the organisation of CVET training in company premises (Germany), and short, quick forms of training (including online), as reported in the automotive sector in the Czech Republic. This helps CVET to follow developments in the respective industry closely, initiating changes through a bottom-up process, as trainers with regular jobs in a sector train in a way that directly responds to the skills needs of employers.

IVET, CVET and higher VET are seen as complementary by most interviewees, each playing an important role in providing the skills needed in a changing labour market. While IVET assumes the role of a stable provider of education and training, offering a broader set of learning outcomes, CVET systems are perceived as a 'fast-adjuster' to innovation and change, offering narrow qualifications with learning outcomes to cover for specific needs. This complementarity ensures a balanced VET system overall.

3.3.2.2. Revising VET content to reflect new skills needs

The revision of VET content is one way to react to globalisation changing labour market skills needs. Such revision can adjust content to new needs by developing new or updating and reviewing existing qualifications, standards or curricula. The latter can be either done through the regular revision embedded in some of the VET systems or ad-hoc. The shift towards a learning outcomes

approach enables such outcomes to be described in a way that meets emerging skills needs. There are also trends to increase the flexibility of VET, including more modularisation of VET content. These developments are presented below.

(a) Revision of existing VET standards.

In countries with established VET revision mechanisms, particularly with coordinated VET governance mechanisms, there is a tendency to revise existing VET standards or qualifications or develop new qualifications in existing occupations, rather than develop completely new ones. This often happens because qualifications are broad enough and therefore it is possible to revise them and include new requirements.

For example, German experts and stakeholders indicated that new occupations are not being developed due to global trends, such as green jobs or renewable energy. For instance, a roofer can also install solar panels. About 50% of occupations were revised during recent years. Most of the updates were aimed at modernising VET content, such as how to work with a 3D printer, how to programme new machinery. When the occupational profiles in the training regulations are updated, an investigation is conducted into how international requirements are fulfilled. One of the reasons for this update, rather than the development of a new occupation, is that an occupation (*Beruf*) in Germany is negotiated between three groups of stakeholders, so adding new occupations is time-consuming. Box 7 presents examples of how increased globalisation is reflected in VET content in Austria.

The revision of VET content is also subject to meeting various interests. For instance, in Switzerland, companies represented in professional organisations form a heterogeneous group. In the case of technical occupations (such as mechanical engineering), the respective professional organisation includes both small and large companies. They all have different capacities to follow existing VET ordinances, such as having the necessary infrastructure and equipment to cover all learning outcomes in apprenticeship training. For this reason, there is a tendency not to include the latest technological changes in the curriculum, at least not in its practical part: it is left to the individual companies to introduce their apprentices to the latest technologies according to their own needs.

In some cases, VET revision leads to increased requirements in qualification content and so increases the level of the qualification. For example, in Poland, the revision of skills content in the occupation of paramedic (a former IVET qualification) led to its classification in higher education. This was part of a broader change in 2014, when different health sector-related qualifications were transferred to higher education.

(b) Developing new standards or qualifications in VET.

Several trends identified in the study are associated with the development of new standards or qualifications in VET:

- (i) the rising need for cross-sectoral occupations ensuring greater flexibility in the global labour market. In the Netherlands, IVET schools and businesses started a new experimental pilot for cross-over VET programmes, which is being implemented from 2017 to 2025 to meet the rising need for flexibility in the globalising labour market. New VET programmes are being developed for new occupations that cross two or more sectors. The qualifications are being developed with the cooperation of vocational institutions and regional businesses. The possibility of cross-overs gives IVET schools the freedom to develop new education programmes under strict conditions;
- (ii) the need for new occupations linked to the management of increasing flows of good and services:
 - a new qualification of 'freight forwarder' was established in Bulgaria in 2016. Developments in the logistics sector at international level and the geographic potential of the country as a transportation hub led to the need to create such an occupation and develop a corresponding state VET standard;
 - in the hospitality sector, the increased presence of international hotel chains in Austria has led to the creation of the entirely new qualification of hotel management professional (apprenticeship training), because the existing qualification did not sufficiently respond to the needs of international chains. It served as the trigger for developing a new VET qualification with a strong international focus;
- (iii) the growing role of ICT systems increases the need for e-skills relating to the greater flow of information and people in a globalised world. New technologies have created entirely new industries across borders, such as online trading, the video and audio streaming industry, resulting in the need for new occupations and jobs. Digitisation also affects other sectors, where new technologies are used in production or services. Examples of new qualifications include:
 - the occupation of hotel communication specialist (*Hotel-Kommunikationsfachfrau/-mann EFZ*) in Switzerland was established in 2017. It was developed directly in response to changing client needs, since hotels require personnel with broad technical knowledge and skills. These include excellent communication, people and networking skills, and professionals who can

understand the principles of a comprehensive service, be flexible and undertake coordination and managerial tasks;

- a new training regulation that is being prepared in Germany for a new occupation in the online trade sector 'management assistant in e-commerce'.

(c) Implementing learning outcomes approaches.

To make education systems and qualifications more transparent and comparable within and across borders, many countries are increasingly focusing on learning outcomes/competence-based approaches (Austria, Bulgaria, Czech Republic, Estonia, Germany, Italy, the Netherlands, Poland and Switzerland). This essentially refers to qualifications and standards being described in terms of learning outcomes rather than input characteristics, such as duration or content. This can be observed both for IVET and CVET systems (to a slightly smaller extent). This approach is stimulated by European developments, particularly the European qualifications framework, and implementation of corresponding national qualifications frameworks based on learning outcomes. Their level descriptors are increasingly used not only for describing but also for reviewing existing and designing new qualifications, assessment standards and curricula (Cedefop, 2018b).

Learning outcomes approaches can support communication with employers and companies, which seem to be well positioned to respond to globalisation challenges. New policy developments have reinforced the learning outcome focus and contributed to a more coherent definition of learning outcomes, often integrating knowledge, skills and attitudes, as well as transversal competences. The shift to learning outcomes is also associated with learning in an active way, rather than being taught, which was highlighted by Austrian respondents. In Bulgaria, knowledge, skills and competences relating to occupation-specific learning outcomes are defined by employer and worker organisations. In the Czech Republic, a two-stage IVET curriculum was introduced. Stage one is the framework education programme, which defines general categories of learning content and elementary learning outcomes in terms of knowledge skills and competences for a specific qualification; it also introduces explicit sets of transversal competences into VET curricula, such as communication, languages, ICT skills, intercultural and environmental skills, which respond to globalisation needs. In stage two a VET provider develops a school curriculum in cooperation with local industry. In Germany, the shift to learning outcomes also helps stakeholders to reflect on the capacity of different parts of the VET system to deliver in the form of achieved outcomes. It also helps to define which learning outcomes

can be covered in VET schools and which are to be covered through in-company training. In the Netherlands, qualifications expressed in terms of learning outcomes support cooperation of VET providers with companies.

The delivery of learning outcomes also leads to increased attention being paid to work-based learning, paired with the industry's willingness to take responsibility for the training provided to learners. The revision of VET curricula in France and Italy led to an increased share of work-based learning over recent years.

According to interviewees in several countries, the shift to learning outcomes also supports the implementation of mechanisms for the validation of non-formal and informal learning and increased access to VET qualifications (this was referred to in Bulgaria, Italy, Austria and Poland).

Learning outcomes is also the preferred way to describe international sectoral qualifications (European Commission, 2016). This provides a common language for users of international sectoral qualifications and aids communication with national systems and sectoral stakeholders, making them transparent and understandable across borders.

(d) Modularisation and increasing the flexibility of VET content.

Modularisation is seen by interviewees as a way to improve adaptability to change in several countries. This is based on the concept that a revision of specific (smaller) modules or units is easier to achieve than revising an entire qualification. As a result, the flexibility of VET systems increases, making it possible to respond to changing skills needs.

Finland, for instance, relies on a modularised system of qualifications and the extensive autonomy of VET providers to ensure the flexibility of its VET system and the possibility of making quick changes when required. The Finnish National Agency for Education can update a single module of any qualification within a few months. VET providers are able to incorporate updated qualifications requirements quickly because assessment consists of demonstrations of skills and is based on competence requirements.

The 'open' formulation of VET content has been identified as a key aspect in making standards, qualifications and programmes more flexible in response to change. This refers to an 'open' (in the sense of not too prescriptive) description of VET qualifications and programmes, to allow important developments or changes to be incorporated into a qualification without having to make a full revision. This aspect is seen as particularly relevant for IVET and is most applicable in those settings where framework curricula or standards are set in the legislation. It was highlighted in Austria, the Czech Republic, Germany and Switzerland: examples follow.

Box 7. The revision of content in the Austrian dual VET

In Austria's dual VET system, qualification requirements are reviewed regularly. Taking a look at how the requirements for one particular qualification have changed over the years makes it obvious that changes caused by increased globalisation and internationalisation impact VET qualifications. For example, one of the learning outcomes in the occupational profile for a retail sales professional in apprenticeship training assumes that 'he or she must know the importance of sustainable and ecological manufacturing and the effects of globalisation'. Another example from a retail trade qualification is the gradual inclusion of a module on online trade to account for the fact that many retailers increasingly earn part of their income from online sales.

Source: Austrian country report.

Box 8. Example: framework curricula (IVET) in the Czech Republic

The State-issued framework curriculum of the Czech Republic, valid for all State-accredited schools (public and private), has a lengthy review process that includes required discussions with different stakeholders. It is slow in its ability to adapt to the newest technologies: industrial developments happen much faster. It is seen as crucial to formulate such a 'slowly adapting' framework in a 'technology-open' way. As an example, when the latest curriculum was issued, 3D printers were not as widely available as they are now and so were not mentioned. If they were added now, it would take years before the curriculum could actually be implemented in the classroom. By then, the technology could already be outdated. It is therefore considered important to leave room for the newest technologies by developing teaching content that follows the framework curricula in an open way. This allows VET providers to develop school curricula in cooperation with local industries.

Source: Interviews.

The collected evidence indicates that CVET systems are perceived as more flexible, offering various forms of acquiring learning outcomes that meet the skills needs arising from globalisation, which confirms hypothesis 3. There is evidence of changing IVET practices and approaches to introduce more flexibility, so that IVET is better able to address the quickly changing skills needs caused by globalisation.

3.3.3. Labour market stakeholder involvement in developing, updating and delivering VET

The systematic and close involvement of labour market stakeholders (social partners, professional branches) in reviewing VET is widely considered one of the key success factors in keeping VET standards and qualifications adjusted to changing skills needs. This provides a regular response to changing needs and ensures the incorporation of cutting-edge trends and developments into VET.

Discussing hypothesis 4: countries with a significant role for labour market stakeholders in the development and delivery of initial and continuing vocational education and training are more responsive to the labour market challenges caused, among others, by globalisation.

Countries with significant involvement of employers in VET among the 15 countries studied (both IVET and CVET) include Austria, Denmark, Germany, France, the Netherlands, Switzerland and UK-Scotland (Table 7). These are mostly countries characterised by coordinated (Austria, Denmark, Germany, the Netherlands, and Switzerland in dual VET) VET governance model, built on the involvement of labour market stakeholders in the functioning of VET systems.

Table 7. **Work-based learning and training enterprises in selected European countries**

Country	Share of IVET that is work-based	Country	Training enterprises as % of all enterprises (CVTS 2010) (*)
Denmark	96.8	Denmark	91.0
Switzerland	91.8	United Kingdom	80.0
Germany	88.2	Netherlands	79.0
Austria	76.1	France	76.0
Czech Republic	43.6	Czech Republic	72.0
France	26.9	Estonia	68.0
Finland	16.8	Italy	56.0
Poland	13.7	Bulgaria	31.0
Spain	4.3	Greece	28.0
Estonia	0.8	Poland	22.0

(*) CVTS = continuing vocational training survey.
Source: Eurostat.

In several cases, working groups, expert groups and committees are in place to assume a key role in developing or updating VET, either as ad-hoc or permanent bodies. According to the interviewees, social partners participating in these bodies are at the heart of shaping revision in line with international standards.

3.3.3.1. Evidence from countries with coordinated feedback mechanisms

Companies often seem to be the initiators of adjustments to VET standards or qualifications, particularly in dual VET systems. In the case of Germany, initial and continuing VET are characterised by a strong partnership between the regional governments (*Länder*), employers and trade unions. Study results

confirm that respondents consider social partners, and especially companies, as the main drivers of VET system revisions (particularly referring to dual VET). Social partners are involved at all stages of the process, such as in the development of occupational profiles, training regulations, the delivery of training and assessment. Companies indicate the need to revise an occupational profile when they observe new skills needs that require such action. Then, the German Federal Institute for Vocational Education and Training (BIBB) investigates how the occupational profile could be changed together with social partners. One of the important external factors affecting VET is increasing international competition in a global market (Hippach-Schneider and Huismann, 2016).

In Austria, the Federal Advisory Board of Apprenticeship (BABB) is the main body through which stakeholders have a decisive role in VET revision. The BABB, set up by the Ministry of Economy, is composed of six representatives of employer and employee representatives, respectively, plus two advisory members representing vocational schools. In addition, a member of the Austrian Economic Chamber (ibw) research institute attends BABB meetings. The BABB, through its subcommittees, is officially responsible for the design of training regulations and their orientation towards qualification requirements. It submits expert opinions to the Ministry of Economy. In the case study, the process of developing a new apprenticeship qualification (IVET) was initiated by the free representation of the hotel industry (ÖHV), as well as the formal representation (Chamber of Economics, hospitality branch), whose members are hotel managers. These sectoral representatives called for an additional qualification to be developed, focusing on new commercial and administrative skills resulting from the expansion of online booking platforms, the increased presence of international hotel chains and the need to communicate in foreign languages.

In the Danish IVET system, social partners are the drivers of renewal processes and are partially responsible for implementation; they play an active and decisive role. Social partners play an institutionalised role at all levels of VET, from the national advisory council on vocational upper secondary education and training (*Rådet for de grundlæggende Erhvervsrettede Uddannelser*), which advises the education ministry on principal matters concerning VET, to an advisory role at local level through local training committees comprised of representatives of social partners who advise colleges on local adaptations of VET (Andersen and Kruse, 2016). Their most important role is to ensure that VET provision is in line with the needs of the labour market, which also changes in reaction to international trends and globalisation. According to representatives of the training committees, the new skills demands are most often identified by the employer organisations through their members. The organisational set-ups of IVET and CVET are identical in Denmark and built in such a way to allow

companies and public institutions to respond quickly to changes in demand and shifts in the economy (Rasmussen, 2017). The Danish system of VET at higher levels is set up in a different way, with the feedback mechanism having characteristics of both the coordinated and the participatory models. Social partners are involved only at local level through education committees appointed by the academy. The committees have a consultative rather than a decisive role, but they have a function in renewing the curricula or standards of VET at higher levels. The board of the academy takes the decisions. Examples of successful reforms demonstrating Denmark's adjustment to international trends include the transformation of the textile industry that was no longer competitive internationally to a textile design industry, or retaining and channelling shipbuilders from internationally uncompetitive shipyards to the windmill industry. The Danish model allows society to benefit from the changes caused by globalisation, while its less desirable effects are mitigated (Rasmussen, 2017).

The renewal of IVET content in the Netherlands is the responsibility of the Foundation for Cooperation on VET and Industry (SBB). SBB is responsible for the development of qualifications structures, accreditation and the support of companies offering work placements for students. To help match the supply of VET graduates and labour market demand, SBB organised eight sectoral *sectorkamers* to ensure that social partners play an active role in secondary VET implementation. The renewal of the University of Applied Sciences' (government-funded) higher VET programmes is autonomous and driven by the university. Programmes are developed in cooperation with the business community. Social partners are also involved in the work of the Social and Economic Council (SER), which advises the government on the issues and challenges resulting from globalisation (Box 9).

In Switzerland, each VET programme has a committee for occupation development and quality (CODQ) that supports the review of VET ordinances and training plans, as well as their implementation. These committees have an advisory role and consist of representatives from the State Secretariat for Education, Research and Innovation (SERI), the cantons, VET schools and professional organisations (employers). Trade unions are also represented in some of the committees. The CODQ meets twice every year or more frequently in the case of revising an ordinance and training plan. The example in Box 10 illustrates the important role of representatives from the logistics sector in applying international and European standards in the revised federal logistician qualification.

Box 9. SER recommendations in response to globalisation

The Social and Economic Council (SER) of the Netherlands was asked recently by the Dutch Government/ Parliament to advise about the best ways to react and anticipate the transition to a robotic society or a digital economy. The report *Shifting economic balance of power* (SER, 2016) shows the consequences of this transition for the labour market, the organisation of work and labour relations. The study concludes that digitalisation provides opportunities the Netherlands should take advantage of, with a need to adjust to the dynamics of a digital economy in the future. Therefore, the government must move with the technology and the market to ensure that social and public interests are safeguarded. The critical points mentioned are (SER, 2016):

- shortages of talent for current and future technologies (ICT);
- entrepreneurs lagging behind in the application of innovative ICT knowledge and technology;
- the need for sustained investment in state-of-the-art infrastructure;
- increasing cyber threats.

Source: Country report.

Box 10. Revision of the Swiss logistician qualification

The case study shows that content of the Federal VET diploma for logistician qualification was aligned to the needs of the labour market. A key player within the logisticians' CODQ is the Swiss Association for VET in Logistics (SVBL), which unites representatives from a broad number of companies from the sector and also operates eight training centres, where VET students follow their branch courses. References to international standards are found in the revised training plan, and especially in the teaching material prepared by the SVBL. The revision addressed changing skill needs due to technological changes in distribution and cargo, the expansion of e-commerce and direct marketing, etc.

Source: Case study.

3.3.3.2. Evidence from countries with participatory feedback mechanisms

The VET governance model in France is based on the participation of various stakeholders in standards' development, including representatives of the labour market. This is confirmed by the findings from the case studies of the *brevet de technicien supérieur* (BTS) in transport and logistics services and the BTS in tourism. In both cases, the standards were developed with the participation of the Ministry of Education and the consultative vocational committee (CPC, *commission professionnelle consultative*), with representatives of the Ministry of Education, employers, employees, teachers and parents.

In the case of the BTS in transport and logistics services, two working groups supported the process, providing information on international standards

relevant for the qualification. The first working group was organised by the French-German Secretariat (ministerial body), which supported designing the national qualification in line with European regulations and the preferences of each country. The standard describes EQF level 5 qualifications of the transport and logistics sector: description of four professional activities, seven certification units organised by skills, behaviour and knowledge requirements. The second group was part of Euro Trans Log, a lifelong learning programme project, coordinated by the French Association for the Development of Vocational Education in the transport sector (AFT). It brought together 10 European countries. Among the project objectives was the development of shared standards for a common qualification in Transport and Logistics (EQF level 5), which included the definition of the profession, professional context, general conditions of professional practice, standards of professional activities, certification units, and knowledge requirements. In the case of the BTS in tourism, all participants in the revision process saw the need to include the skills demands emerging from global trends, such as foreign languages and digital tools in tourism.

In Spain, the case study illustrates the involvement of international stakeholders representing German employers (the International Training Committee of Volkswagen Group and the German Chamber of Commerce in Spain) in developing a dual VET qualification. The process involved the department of Education of the Regional Government of the Generalitat de Catalunya and Esteve Terradas Institut (a provider of school-based education and training). Following broad consultation, the international standards and the German dual VET system informed the revision of the VET qualification, enabling learners to attain dual Spanish and German VET qualifications.

3.3.3.3. *Evidence from countries with liberal feedback mechanisms*

In UK-Scotland, the feedback system in VET is based on two-way dialogue between employers and national authorities. Employers are in charge of articulating their needs. The key elements in the system are the national occupational standards, which link together employers, VET providers and national authorities and translate employer needs into curricula. The national occupational standards specify standards of performance that people are expected to achieve in their work, and the knowledge and skills they need to perform effectively. They are agreed by employers and employee representatives and are available for almost every role in every sector.

In the case study, the main intention behind the introduction of the DIVA formalised partnership programme (at CVET and higher VET) was to offer ICT qualifications relevant to the labour market in cooperation with industry partners,

the global industry vendors, who provide industry access to users of Scottish Qualification Authority (SQA) qualifications. The purpose of creating the programme was to increase Scotland's competitiveness in the global digital economies. SQA was careful to ensure the vendors recruited were large international organisations, in order to identify the right skills in line with international standards for the growing ICT and digital media workforce and to raise the global profile of Scotland in the sector. The programme includes members who are responsible for the management of international qualifications in ICT – CISCO Networking Academy and Oracle Academy – which provide the channel to use the benchmark of international qualifications in reviewing and renewing VET qualifications.

3.3.3.4. *Evidence from countries with statist feedback mechanisms*

In countries with a statist VET governance model, research indicated that there is a gradual change with regards to the involvement of stakeholders. This change is noted by interviewees in Bulgaria, the Czech Republic, Estonia and Poland.

Several Estonian interviewees reported that representatives of professional organisations and employers have recently been involved more actively than before in the development of occupational standards. The Estonian VET system strategy refers to the cooperation with social partners and enterprises as an important condition to respond flexibly to the needs of the labour market and ensure a competitive workforce for Estonia (Cedefop, 2018a). The working groups of occupational qualifications standards involve representatives of sector organisations, employers and the Estonian Qualifications Authority. In the case study, revision of the national occupation standard in the ICT sector was conducted in cooperation with a working group consisting of employer representatives and specialists and VET providers; it was approved by the ICT sector skills council. The industry representatives pointed to the e-competence framework (an international sectoral competence framework) which informed the revision of the national standard.

In Bulgaria, the VET system has started to involve social partners within national VET policy in recent years. The expert commissions at NAVET provide methodological support and review the design of VET standards. The commissions are tripartite bodies, and include representatives of State, employer and worker organisations. They are divided by professional area. The case study from Bulgaria shows that the development of the new standard for freight forwarder was developed with major involvement of labour market stakeholders, the Bulgarian Association of Freight Forwarding, Transport and Logistics (NSBS),

which initiated the process. They also promoted the use of the FIATA ⁽²⁵⁾ diploma international standard.

In the Czech Republic one of the current national priorities is to augment the role of employers and increase their involvement in VET. This is seen as a continuation of the important steps taken in the last decade systematically to link VET qualifications to the labour market needs. This included the development of the national register of vocational qualifications (NSK) that contains descriptions of qualifications in the form of standards.

In Poland, there are attempts to introduce a more participatory model of VET governance involving labour market representatives. These initiatives are often financially sponsored through European Social Fund projects, are driven by State institutions and face challenges in increasing employer involvement in the VET system. In the Polish case study, a German VET qualification was used to develop the VET programme of the car mechatronics IVET qualification, with the active participation of the Volkswagen Group. This local level initiative involved several partners: the manufacturer Volkswagen Poznan (which initiated the cooperation and provides the practical training); county authorities, who established links to VET providers; VET schools providing school-based education and training; and Gestamp Poland, the second sponsor of practical training.

Greece has strong State regulation of general education and school VET with weak links to the labour market in terms of formal communication (tripartite social dialogue). Social partners are involved but they do not have any substantial role in decision-making processes on VET. In the study, no specific examples of international standards informing VET revision in Greece were identified.

Among the countries that are highly exposed to global trends (Table 7), many are characterised by the coordinated VET governance model, with a significant role of labour market representatives in VET revision. According to the examples in this section, these countries (Austria, Denmark, Germany, the Netherlands and Switzerland), are responsive to changing labour market needs caused, among others, by globalisation. However, countries exposed to global trends but traditionally known for weaker involvement of labour market stakeholders in VET revision (Bulgaria, Czech Republic, Estonia and Poland), show signs of greater industry involvement to increase their responsiveness to changing skill needs and increase their competitiveness in the global landscape. Therefore, the analysis presented in this section confirms hypothesis 4.

⁽²⁵⁾ International Federation of Freight Forwarders Associations.

3.3.4. Training provider contribution to VET responsiveness to global developments

The evidence shows that the involvement of providers is also important in VET revision. In all case studies, VET providers were the initiators or important participants in the process.

Discussing hypothesis 5: initiatives at local and provider level are an important channel of responsiveness to globalisation in all types of VET governance.

The type of VET governance in the countries affects the autonomy of VET providers. As emphasised by Cedefop (2009), effective governance implies partnerships between VET institutions (including teacher and student representatives) and other VET stakeholders (companies, sectoral organisations and chambers of industry and commerce, government and local authorities, social partners, and social groups). The autonomy of VET providers determines their flexibility and orientation, providing opportunities to develop local partnerships and react to local labour market needs. At the same time, VET providers autonomy allows them to react to developments caused by globalisation in their local economies. The examples of potential activities of VET providers identified in the interviews and case studies are:

- (a) establishing direct partnerships with local companies owned by international investors;
- (b) reviewing the teaching programmes and delivery in line with international standards;
- (c) cooperating with international companies in the provision of international qualifications to students.

As highlighted in *Spotlight on VET: Finland* (Cedefop, 2016b), flexibility and individualisation have become the means of responding to changing labour market requirements, enabling education providers to meet both regional and local labour demands more effectively. In Denmark, VET colleges and social partners share responsibility for developing curricula to ensure responsiveness to local labour market needs (Cedefop, 2016a). In Estonia, employers' representatives belong to VET school advisory bodies (Cedefop, 2017a). Colleges in UK-Scotland also align their VET provision to the needs of employers and the Scottish economy. This is done for a range of qualifications by developing outcome agreements between colleges and local stakeholders (Cedefop, 2014a).

In countries with coordinated IVET governance, VET providers take part in bodies responsible for revising VET programmes (Austria, Denmark, Germany, the Netherlands and Switzerland). In the case of higher VET in Denmark and the Netherlands, providers have the autonomy to revise curricula, which they do in cooperation with local companies whose skills needs are shaped, among others, by globalisation and international competition.

In participatory systems, VET providers are an integral part of the institutions responsible for the renewal and revision of VET. But there are also initiatives at local level, which is described in the case study of dual VET at the SEAT Apprentice School in Spain. VET providers in Finland also have significant autonomy, which supports flexibility, enabling curricula to be adjusted to the demands of globalisation.

In the liberal system of UK-Scotland, the DIVA case study in Annex 2, demonstrates how VET providers implement a curriculum informed by international qualifications.

In countries with statist VET governance, providers have a less formal role in VET revision. However, as the case study from Estonia shows, VET providers took part in the working group engaged in the revision of the national occupational standard in the ICT sector. In Poland, a VET provider was a key partner in the local partnership for the IVET qualification in car mechatronics. In the Czech Republic, VET providers also have flexibility in developing part of the course content.

The need for the provider flexibility, allowing them to apply the latest technologies and trends in curricula, is highlighted as important by international and national level interviewees. They use the flexibility they have to engage in European projects and international cooperation (as we can see in more detail in Chapter 4) to adapt their programmes to the changing and international skills needs.

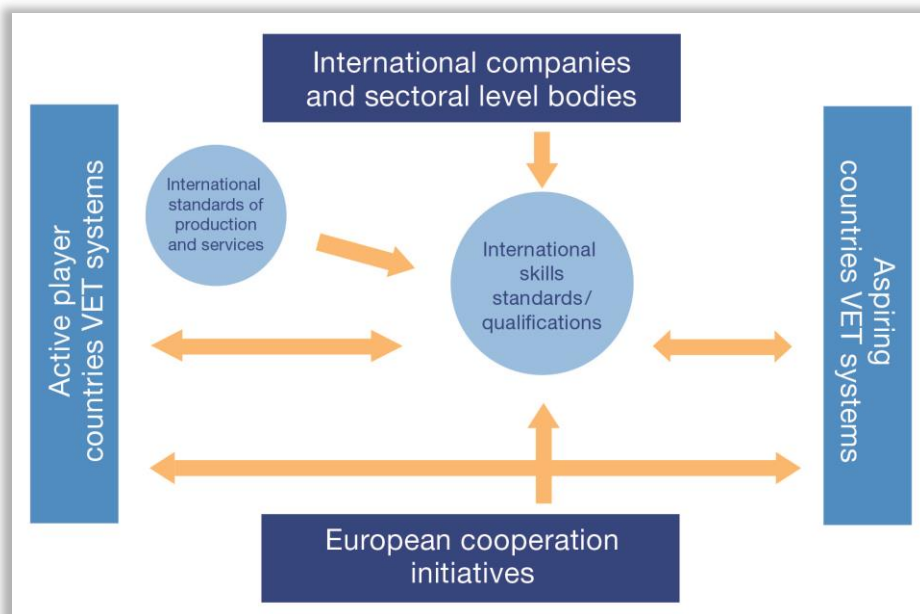
In relation to hypothesis 5, the evidence collected in the study shows that when VET providers have flexibility in the delivery of the programmes, they use it to introduce new elements into the teaching content, following labour market needs, including those resulting from globalisation. However, additional evidence in this area would be needed to identify the processes that are crucial for considering European and international initiatives in the delivery of VET training by different types of VET providers.

CHAPTER 4.

European and international initiatives impacting globalisation and VET systems

There are multiple ways in which VET systems respond to global changes, which depend heavily on the national and sectoral context. In this chapter, a synthesis of these options is presented in light of the main research questions of the study.

Figure 10. **Channels and actors in VET revision responding to globalisation**



Source: Cedefop.

Figure 10 illustrates the interrelationships between the revision of VET systems, international standards and the way the European and international initiatives and bodies act upon them. It is a complex landscape influenced by various actors, including active-player countries that have a high position in global competitiveness rankings, international companies operating at sectoral level that develop and use their own standards, and international institutions providing platforms to support the exchange of knowledge and practices that lead to the emergence and development of international standards.

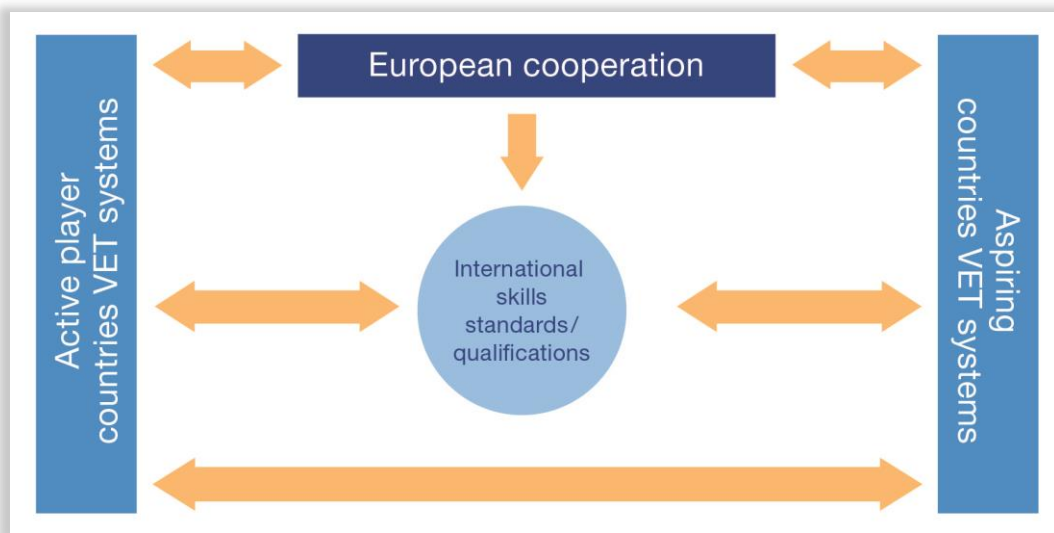
The horizontal perspective of Figure 10 depicts the interconnections between the VET developments in the studied countries. The vertical perspective

depicts the role of international bodies in the context of VET renewal, as discussed in Section 4.2.

4.1. Approaches to international standards for reviewing VET

The opinions of the interviewees on the overall role of European and international initiatives in the national VET context vary between respondents from active-players and aspiring countries.

Figure 11. **Informing the revision of VET systems and practices in response to globalisation: the country perspective**



Source: Cedefop.

Discussing hypothesis 6: international/sectoral/VET standards established by international institutions, European bodies or transnational companies are perceived as useful and used to inform VET renewal in European countries.

4.1.1. The views of active-player countries

Interviewees from active-player countries emphasised that national practices and standards are of high quality and well suited to the needs of their national and local labour market. According to respondents from these countries, the credibility of national systems is sufficient and the adoption of international standards would not make national VET systems more relevant or responsive to globalisation. They believe that international standards, developed through

European and international initiatives as a compromise among many countries, frequently use the best national practices as benchmarks but are more general. As a result, they are perceived as being below their national standards or too general compared to the specific needs of the country, region or sector (as in Denmark, Germany, the Netherlands, Austria and Finland). In active-player countries, national VET standards are frequently more elaborated and detailed than international ones. Their VET systems are reviewed and regularly modified following the existing VET governance approaches, with extensive involvement of labour market stakeholders where the coordinated model with dual VET and the participatory model prevail. This means the revision of VET systems in these countries is informed by labour market needs in a systemic way. As such needs are affected by global developments, there is an indirect impact, frequently not identified by the stakeholders.

Active players are active at transnational level and their national practices influence global developments, as well as international and European initiatives relating to skills needs. For example, the shift of goods production in the manufacturing sector (such as automotive) from active-player countries to aspiring countries triggers skills need changes at both ends. In the active-player countries, there is increased demand for high-level skills for those services that remain in the country while the country to which the manufacturing was moved has an increased need for skills relating to the relevant production. Active-player countries, from which many international investors originate, are also involved in VET development in the countries where such investments are made. They frequently replicate the practices of their originating countries in their internationalisation policies (see the Polish and Spanish case study in Annex 2).

4.1.2. The views of aspiring countries

Respondents from the group of aspiring countries are more open to the use of international standards in the renewal of national VET systems. They believe that using international standards as a benchmark can lead to improved VET system quality. Interviewees from countries in this group attribute the tendency to rely on international standards to the fact that, in the past, labour market stakeholders were involved in the revision of VET mainly ad-hoc. As a result, international standards are seen as the main source of inspiration to respond to changing skills requirements caused by global developments. Only in recent years, as indicated in Section 3.3.3, have efforts been made in some of these countries to increase the participation of labour market representatives in VET.

Although aspiring countries have a lower position in the global competitiveness index, the economies of some are exposed to global trends, as discussed in Section 2.1. International investors, for example, play an important

role in the economies of these countries as they create jobs with skills needs shaped by global requirements. Evidence collected in the study points to aspiring countries recognising the need to adjust their systems to globalisation in their national strategies (Czech Republic), using international standards directly in their VET renewal activities (Bulgaria and Estonia) or using good practices applying standards developed in active-player countries (Spain and Poland). Aspiring countries that are less exposed to global trends (Greece and Italy) referred to the lack of systemic solutions conducive to the implementation of international sectoral standards in VET systems (Italy). The large share of micro, small and medium-sized enterprises, and of self-employed workers, limit the possibilities of implementing international standards and reduce the potential benefits of using such standards (Greece).

Respondents from both groups (active players and aspiring countries) acknowledged the value of cooperating and engaging in dialogue at European and international level. The European Commission (2015, p. 10) identified five reasons why countries decide to develop international cooperation in VET. Two match the motivations of the respondents of the two groups:

- (a) to strengthen and promote, at international level, the positioning and recognition of countries' VET systems, qualifications and certificates. This goes in hand-in-hand with willingness to promote their country as an attractive location for education, training and business;
- (b) to modernise their own VET systems: countries that engage in international cooperation in VET want to make sure that their VET system and VET schools are in line with the innovations and technological developments of a given sector worldwide.

The first of these reflects the willingness of active-player countries strategically to position their country as an international reference to VET; the second one relates to the efforts of aspiring countries to keep up with global developments.

The answer to the hypothesis 6 question, of whether international standards are perceived as useful and used to inform VET renewal in European countries, depends on the country. In active-player countries most stakeholders do not see the value added of international standards in making national VET systems more responsive to globalisation. In contrast, aspiring countries are more open to them, recognise their value and use them to inform their VET systems.

4.1.3. Interaction between active-player and aspiring countries

Mechanisms of reviewing VET systems in response to globalisation generally follow national procedures and practices in line with the existing VET governance

models. The study, however, identified specific responses to global developments that feed into and complement the national approaches.

One such response is the international cooperation between active players and aspiring countries that results in a policy-learning process. This process is indicated by the arrows in the lower part of Figure 11 and is triggered by the internationalisation strategies of active-player countries, such as Austria, Denmark, Germany, the Netherlands and Switzerland, with the active participation of aspiring countries. The study collected evidence at system and provider level. An example at system level is the cooperation between Germany, Austria and Slovakia (Box 11) to introduce dual VET in Slovakia. Similar projects of transferring national approaches to other countries are also found in Switzerland (Econcept, 2014).

Box 11. Policy learning in VET between Germany, Austria and Slovakia

In 2013, an international conference on dual education was held, to call for the introduction of a dual system of VET education in Slovakia. One of the starting points for developing the conference was a memorandum, signed in Berlin. At the conference, German employers presented the dual training system, as well as their cooperative activities with Slovak vocational secondary schools.

This was followed by a meeting of representatives from the Ministry of Education of Slovakia, the Federal Ministry of Education and Research (BMBF), the German Federal Institute for VET (BIBB), the German Chambers of Commerce Abroad (AHK), the Association of German Chambers of Commerce and Industry (DIHK), T-Systems and T-Mobile Deutschland in Germany. Consultations and an exchange of concepts on VET was held with German partners, and an example of dual training in ICT in Germany and Slovakia was presented. Examples of good practices of the German Chamber of Commerce, secondary vocational schools, T-Mobile and BIBB were also presented. The programme included a practical training excursion to the T-Mobile Centre, as well as interviews with apprentices.

In 2014, the Austrian Chamber of Commerce (WKÖ) and the Ministry of Education, Science, Research and Sports of Slovakia signed a memorandum of understanding to strengthen their cooperation in implementing elements of the dual education system in VET in Slovakia. As a result, the pilot project Young star was launched in Zlate Moravce to introduce elements of the Austrian dual system of VET in Slovakia.

Source: Interviews.

At provider level, the Polish and Spanish case studies (Annex 2) demonstrate the outcome of Germany's internationalisation strategy in the automotive sector. In these examples VET providers cooperate directly with a German multinational company to shape training programmes and qualifications. There is value-added for all beneficiaries since companies find workers trained in their production standards and graduates receive double certificates (national and German) on completion of their programmes.

The second type of cross-country cooperation depicted in Figure 11 is the development of European standards or common qualifications in which countries from both groups participate. This is a bidirectional channel as these European standards, once developed, are used to inform VET revision nationally. This process is frequently supported by European bodies and their funding (ESF, Leonardo da Vinci, Erasmus+).

4.2. International VET standards and sectoral perspectives

The vertical interaction in Figure 10 shows different actors (international companies, sectoral organisations, European bodies and international initiatives) that shape international skills requirements and the way they influence initial and continuing VET (IVET and CVET). These include:

- (a) multinational companies, such as international hotel chains and leading car manufacturers, which apply common production and service standards across borders and set their own requirements on skill needs in local labour markets. Some of them develop their own training academies (examples being Skoda, Renault), training standards (Marriot hotels) or international qualifications (the Microsoft or Cisco certificates in the ICT sector);
- (b) well-established international sectoral bodies with affiliates in several countries worldwide, playing an active role in determining the skills required within their sector. They accumulate the skills needs and expectations of their national members to develop international qualifications (International Welders Federation qualifications, FIATA diploma in freight forwarding) and international standards widely accepted in their sector;
- (c) international organisations such as ISO ⁽²⁶⁾ and WorldSkills ⁽²⁷⁾ develop standards in several sectors; these are used nationally because they have become the norm and they are perceived as international benchmarks accepted worldwide;
- (d) European institutions which, in cooperation with Member States, develop sectoral qualifications frameworks (Frontex SQF for border guards), sectoral competence frameworks (the European e-competence framework for ICT

⁽²⁶⁾ The standards in the welding industry (EN ISO 3834 (37) (formerly EN 729) on quality requirements for welding, and EN ISO 14731 (38) (formerly EN 719) on welding coordination.

⁽²⁷⁾ The WorldSkills standards specifications are the reference points for WorldSkills competition and provide a benchmark for national and regional standards.

professionals), training standards (CEPOL) in policy areas where joint action between European countries gives an added value and is seen as beneficiary.

These international and European initiatives inform national VET systems. The study revealed that the way they shape skills and competences provided by IVET and CVET in the five sectors – hospitality, automotive, logistics, ICT and paramedics – is highly sector-specific; it is summarised below.

Box 12. Frontex sectoral qualifications framework

The Frontex SQF for border guarding offers specific reference points for all border guard learning requirements and ensures the comparability of qualifications. As it is specific to the border guard sector, the SQF for border guarding creates synergies within the European law enforcement training community and facilitates inter-agency cooperation and coordination in law enforcement training. The SQF was developed with the engagement of stakeholders from different European countries, experts from various levels of education, trainers, and operational units. The education standards are based on the SQF for border guarding and all border guards in Europe are trained according to this standard in their national training agencies. Frontex also directly delivers courses, which are to become European qualifications. The training is based on the curricula established by Frontex in consultation with experts and national agencies, developed with a focus on the needs of stakeholders and with their participation. The SQF is used nationally:

- the UK border agency used the competence profiles from the SQF to review their qualifications at levels 4 and 5 and accredited them in the UK;
- Finland modified the bachelor and master curricula in border security, based on the SQF, and added learning outcomes in the area of human rights;
- the Netherlands developed a bachelor degree in military police with the component of border guarding based on the SQF;
- schools in Romania and Germany established international cooperation, based on the same common curriculum. There are plans to develop an international consortium to support a mobility exchange programme for training according to the curriculum;
- in Austria, a mid-level management course certificate can be the basis for validating non-formal and informal learning and some 15 credit points can be recognised towards the bachelor module.

Source: Interview with the Frontex representative and <http://frontex.europa.eu/>

Discussing hypothesis 7: in sectors strongly influenced by globalisation (fast-growing sectors providing services globally, requiring international cooperation and facing constant technological developments), regular adjustments of standards/ qualifications/curricula to global requirements take place regardless of institutional structures and steering mechanisms.

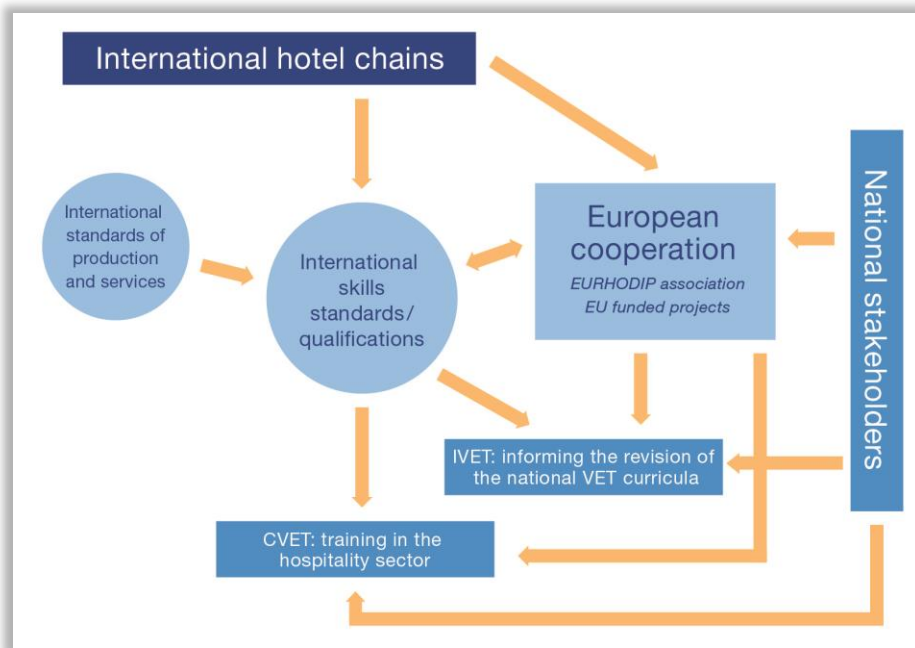
4.2.1. Hospitality sector

The international standards of service set by the leading hotel chains are seen as important benchmarks for the sector. These standards are changing, with globalisation leading to increasing flows of people travelling among countries. This gives way to growing expectations regarding the services provided. Further, the expansion of internet has widened the sources of information on the variety of services in offer, leading to a greater need for tailor-made offers (such as trips customised to the profile of the customer). Another important change in service requirements linked to ICT developments is the emergence of new distribution channels (such as internet booking services) and the wider use of different internet and mobile applications by clients. According to the interviewees, despite the fact that many of the standards developed by international chains are similar, this does not lead to developing commonly accepted international sectoral qualifications or international competence/qualifications frameworks in hospitality. Competition between various hotel chains means they prefer following their individual practices.

Standards developed by international hotel chains are used for CVET training of their employees, including of employees in this sector in general at national level to align the services provided with those of the international hotel chains.

Through the national mechanisms of reviewing IVET systems, these standards also inform the revision of IVET curricula. As identified in the case studies, this can take the form of developing new standards (case study of Austria) or reviewing existing VET standards (case studies of Germany and France). Respondents indicated, however, that, in addition to international standards, national and regional specificities are also appreciated by clients, so national and local perspectives should be considered when defining VET content.

Figure 12. **Impact of international companies and international and European initiatives on VET: the hospitality sector**



Source: Cedefop.

Box 13. Case study: hospitality sector (France and Austria)

The case studies showed that a review of national diplomas and qualifications is sometimes driven by employers and professionals who have close contact with labour market requirements. For example, reform of the *brevet de technicien supérieur* (BTS) in tourism, a French national diploma of higher education, was initiated by professionals supported by teachers who saw the mismatch between former BTS standards and the skills expected/needed by companies, particularly for IT tools and platforms and foreign language skills.

In Austria, the development of the apprenticeship qualification ‘hotel management assistant’, was started by the free representation of the Austrian hotel industry (ÖHV), as well as the industry’s formal representation (Austrian Economic Chamber, hospitality branch); members are hotel managers, who saw the need for a more specialised apprenticeship focusing on commercial and administrative skills, including new technologies. They undertook a survey among members to stress the need and desire for this new qualification.

Source: Case studies.

Cooperation between VET providers under the umbrella of the European association Eurhodip ⁽²⁸⁾ is another influence on VET in the hospitality sector. An

⁽²⁸⁾ International association supporting hospitality and tourism education and training.

association of 180 hotel and tourism schools in 35 countries established in 1988, it helps schools improve the quality and relevance of their provision and include a European dimension in their programmes. In addition to organising seminars for teachers, publishing handbooks, coordinating internships throughout Europe, and issuing a quality label, it provides diplomas and degrees in line with learning outcomes developed according to internationally agreed standards, combined with national practices in VET curricula at national level. VET qualifications include the European technician diploma in restaurant, cuisine, pastry or reception and the European junior diploma in hotel management.

Several initiatives of European cooperation resulting from EU-funded projects develop common standards that influence national VET systems. One such example is the *Professionnalisation durable* project launched in 2001, aiming to develop methodology for the construction of common European qualification standards (*référentiels*) at sectoral level. The project has developed and tested its methodology in two sectors, one of which was hospitality, and developed a standard for hotel receptionists. The 12 countries participating in the project were invited to use these standards as the basis for professional diplomas that will be mutually recognised throughout Europe.

The main trends in the hospitality sector identified by the study are:

- (a) the leading role of international hotel chains in setting standards of service, skills and qualifications that influence national VET systems;
- (b) the development of common VET standards between countries with the active participation of national stakeholders;
- (c) the role of CVET training as an important channel of developing skills adjusted to the changing needs of the labour market.

4.2.2. Automotive sector

Many of the standards in VET training for the automotive industry follow international requirements developed by large transnational producers (including Renault, PSA ⁽²⁹⁾, Volkswagen) and leading global suppliers (such as Bosch or Delphi). Production in all countries must follow strict standards regarding quality and processes, specified by transnational corporations and other bodies. These regulate employee occupational standards and procedures ⁽³⁰⁾. The link between these multi-national players and national sectors is supported by the European Automobile Manufacturers' Association.

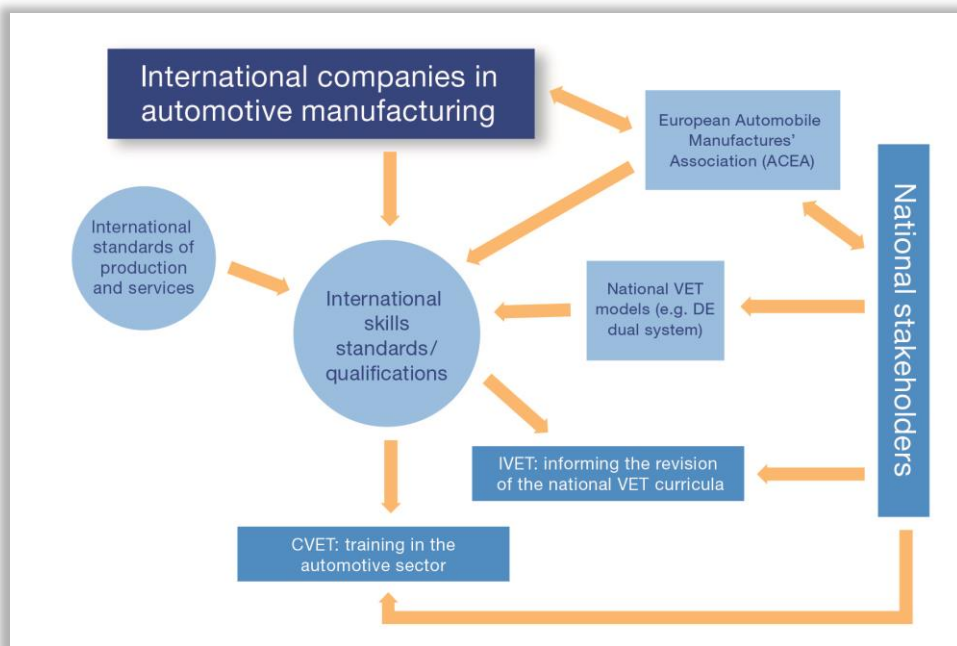
⁽²⁹⁾ Europe's second largest vehicle manufacturer (Peugeot, Citroën, DS Automobiles, Opel, Vauxhall).

⁽³⁰⁾ Global automotive emissions, fuel economy and aftermarket solutions provider.

In the automotive industry, the value added of multinational companies is particularly considered in two areas:

- (a) development of quick responses to emerging skills needs in the sector pertaining to technological trends, such as e-mobility, connectivity and digitalisation. These changes are disrupting business models for existing players, forcing them fundamentally to reconsider their operations. To change at the digital pace, players across the value chain will need to think about employee skills (World Economic Forum, 2016b), such as producing and servicing self-learning intelligent cars;
- (b) the transfer of innovation from active-player countries to aspiring countries (such as through the international direct investment of car producers in Czech Republic or Poland). This is seen as improving the international competitiveness of aspiring countries, where the production and services of multinational companies are located.

Figure 13. **Impact of international companies and international and European initiatives on VET: the automotive sector**



Source: Cedefop.

The standards set by transnational producers inform the content of CVET in the sector. One of the trends identified in the study is on-the-job fast training modules that allow new skills to be quickly absorbed (modularised training with new methods such as using tablets, online, including practical, short training modules). Leading automotive manufacturers also develop their own training

centres, such as the Renault, Skoda, SEAT and Volkswagen Academies. These international centres provide training and set standards for CVET (Box 14).

Box 14. **ŠKODA and Renault Academies as examples of developing responsive CVET practices**

ŠKODA Academy is responsible for the professional development of ŠKODA AUTO employees. The academy creates personal development concepts and tools within the framework of the VW Group Academy strategy. An educational online programme called the Innovation Academy, designated for employees of ŠKODA AUTO, is designed to be undertaken via the internal company network or an external network on a private phone, tablet or computer. The course is divided into modules based on different technology trends. Each module is composed of an educational part where a specific topic is introduced and a quiz part where the knowledge gained is verified. To encourage participation in this course, prizes are awarded for obtaining high results in the quiz part.

The Renault Academy was established in 2006 as a training centre developing technical and sales-oriented training programmes for Renault's entire international sales network. It was created to support the automaker's objective of becoming one of the top three in terms of service quality and to meet the service requirements of the 'Renault excellence plan'. Its goal is to reorganise the automaker's training system and reinforce professionalism among employees.

Source: ŠKODA, *Digital qualification offensive*; Just-auto, News, 30 May 2006, *France: Renault opens new dealer network training academy*.

The case studies also provide insight into the process of informing revision of the national IVET curricula and IVET practices in Poland and Spain in the automotive sector (Annex 2). The German IVET dual system informed the teaching practices of VET providers in these two countries through established partnerships with automotive companies from the Volkswagen Group. In this instance, dual training IVET qualifications for the car mechanic and mechatronic occupations in Germany have become an international benchmark for IVET training in Poland and Spain. IVET graduates in these programmes in Spain and Poland can obtain a double national and German diploma, which aids mobility within the business group. Interviewees also indicated that the application of international standards reduced the cost of preparing graduates to work in plants, as they undergo the necessary training during their formal education.

An important aspect highlighted by respondents was flexibility, including the autonomy of providers to adjust teaching programmes to the needs of manufacturers and international investors. They referred to the limited flexibility of IVET compared to CVET, as public secondary schools need to teach according to a State approved curriculum framework that allows the schools to decide the content of 30% to 50% of total education hours depending on the country. This

can be used to respond to manufacturer needs in the schools' teaching programme.

Evidence from the automotive sector shows two important developments affecting VET adjustment in response to globalisation needs that is not associated with a particular type of VET governance:

- (a) continuous revision of training, with modular and flexible approaches specific to the sector, particularly using online technologies, to adapt skills quickly to the changing needs as a part of the response to globalisation;
- (b) the important role of international car producers, who invest in the skills of workers and affect VET standards, particularly if they play a significant role in local or regional markets.

4.2.3. Transport and logistics sector

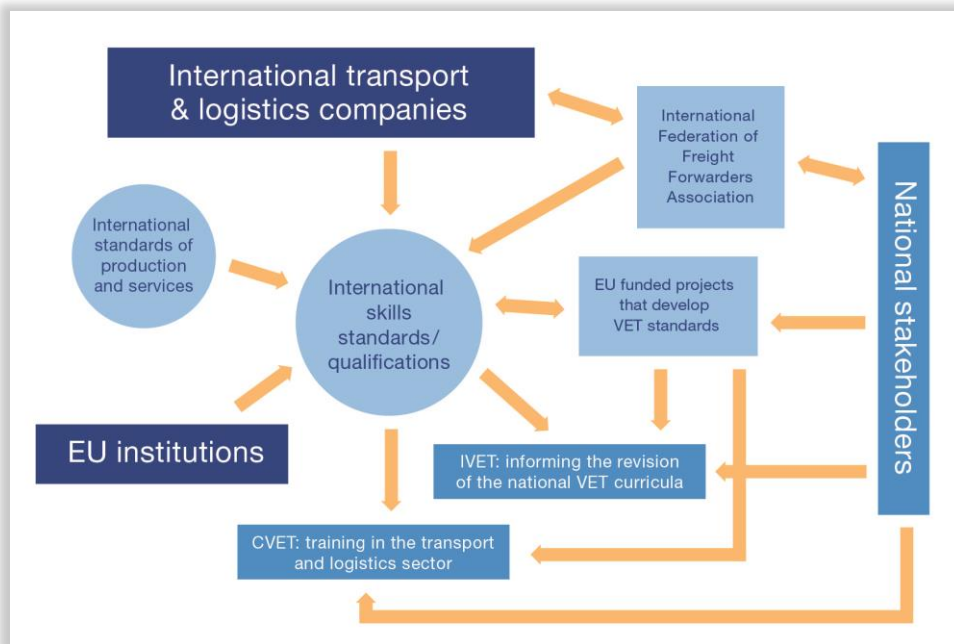
Globalisation is present through the emergence of global value chains in the sector, which leads to changing skills needs in the countries involved. The need for global logistics services is leading to an increased concentration of the sector in a smaller number of large firms. Another trend is the appearance of new corporate strategies and services, such as skill-based logistics that do not own assets ⁽³¹⁾, but provide a range of consultancy services in the sector worldwide.

International standards are prominent. The application of standards such as ISO ⁽³²⁾, according to the respondents, builds trust towards the services offered by companies. There are also European standards for truck drivers (European Parliament and Council of the EU, 2003; 2006) and the European driving licence. Benchmarks established by large international companies, such as Carrefour, Total, Airbus, Amazon, and Google are well known in the sector. These benchmarks mainly relate to service standards in the operation of warehouses, stores and factories. There are also many international aviation and maritime standards widely applied in the transport sector. In the case of maritime transport, global agreements for shipping and logistics inform the content of training standards in CVET.

⁽³¹⁾ A non-asset-based logistics service provider does not own the assets necessary to manage and implement a supply chain. Instead, it offers its expertise in negotiating contracts with carriers, maintaining carrier relationship management programmes, warehouses, and distribution centres in order to manage a supply chain at the lowest possible cost to client business. Source: <http://cerasis.com/2013/08/21/non-asset-based-logistics/>

⁽³²⁾ For example ISO 9001 standard on quality management systems, ISO 16091:2002 Space systems – Integrated logistic support, standards for environmental management (ISO 14001), energy management (ISO 50001).

Figure 14. **Impact of international companies and international and European initiatives on VET: the transport and logistics sector**



Source: Cedefop.

Two channels through which international standards inform VET systems and practices were identified in the transport and logistics sector.

The first, similar to the tendencies observed in the two previously discussed sectors, is through the standard-setting role of large international companies. To respond to the needs described above they organise their CVET training in-house. They are seen as having a decisive role in developing service standards followed by other companies in the sector. These requirements mainly inform CVET training. The involvement of employers in using international standards in transport and logistics to inform the development of national standards in IVET is illustrated by the case studies in France (BTS, *brevet de technicien supérieur*, in transport and logistics services) and Switzerland (revised VET programme for logistician, *Logistiker/in EFZ*).

The second identified channel is the development of international qualifications. This includes those certified by the International Federation of Freight Forwarders Associations (FIATA) (Box 15). The FIATA diploma in freight forwarding, as well as other international qualifications, was developed under the auspices of a European-funded project with the participation of relevant sectoral stakeholders. The endorsement of international sectoral bodies led to the credibility of this qualification. The FIATA qualification was also used to inform the state educational standard for freight forwarder and logistics in Bulgaria, as

presented in the summary of the case study in Annex 2. The process was initiated by the Bulgarian sectoral association that is also a member of FIATA. Another example of a European initiative in this sector is the qualification standard for logistics in the car industry developed by the *Professionnalisation durable* project.

Box 15. International qualifications developed by International Federation of Freight Forwarders Associations (FIATA)

As of 2017, the validation/revalidation working group of FIATA has accredited 60 programmes in 54 countries to issue the FIATA diploma in freight forwarding, and 16 programmes in 14 countries to issue the FIATA higher diploma in supply chain management. Additionally, 256 qualified trainers have successfully completed a train-the-trainer course and have received the FIATA trainer certificate in all four FIATA regions. The train-the-trainer programmes are committed to delivering high quality training in freight forwarding, employing various learning modalities, methodologies, and techniques.

Source: Case studies.

The cross-national trends observed in the transport and logistics sector, including in countries with different VET governance systems, are:

- (a) the development of international qualifications that inform the revision of IVET and CVET content;
- (b) the important role of international companies in setting standards for skills requirements.

4.2.4. ICT sector

The ICT sector is at the forefront of globalisation. There is a need for the constant updating of knowledge, as it becomes outdated quickly. According to some opinions, IVET revision through regulatory national approaches has difficulty in matching the pace. Interviewees from the ICT sector most frequently referred to international sectoral standards and qualifications developed by international ICT companies. International certificates used in the labour market are offered in areas of IT project management (Prince, PMI, Scrum), as well as in various products from software developers, such as Red Hat, Oracle Java, Cisco, Microsoft. They also develop training programmes that they offer through their own academies (Box 16).

Box 16. Cisco networking academy

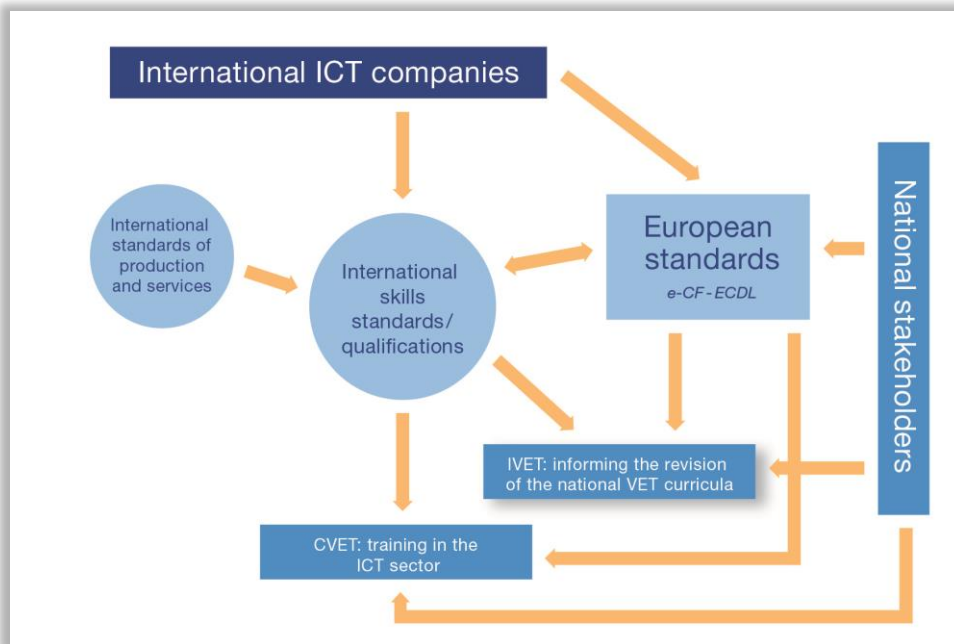
Cisco networking academy is a global education programme that teaches students how to design, build, troubleshoot and secure computer networks for increased access to career and economic opportunities in communities around the world. Cisco networking academy partners work closely with education institutions and instructors to develop and deliver a curriculum that gives students the digital, problem-solving and entrepreneurial skills they need to get a job, earn a promotion or start a business of their own. The Cisco networking academy programme is licensed free to non-profit institutions worldwide and its curriculum is updated continually to stay current with employer needs and the rapid pace of technology innovation. Launched in 1997, the academy has spread to more than 160 countries worldwide. Academies are located in high schools, technical schools, colleges, universities and community-based organisations. It is a growing community whose members, students, educators and business leaders learn from each other and cooperate in preparing tomorrow's workforce.

Source: <https://www.netacad.com/about-networking-academy/curriculum/>

These international qualifications are widely accepted in the labour market. CVET providers offer training to employees of companies and individual learners, preparing them for the acquisition of international qualifications. International qualifications are also valued by employers, who refer to them during recruitment and use them as part of their employees' development. For example, employers in Estonia highlighted the value added of using the training materials linked to international qualifications in on-the-job training, as they are well prepared and relevant to the latest technological developments. Qualifications in the ICT sector developed by large international software suppliers are also regularly updated, which is an important quality aspect recognised by the respondents.

International sectoral standards do not greatly influence national IVET systems as they are seen as too specific and narrow, but they are sometimes offered in parallel to the national training programmes (as with some IVET providers in Poland). As the case study in UK-Scotland shows, representatives of multinational companies in the ICT and digital media sector sometimes take part in IVET curricula revision. They also promote the use of their products in teaching, providing discounts to IVET providers for using their products (Cisco academy, Oracle academy); this is established practice. Local Cisco academies are also functioning within the structures of IVET providers nationally across Europe (as in Poland), providing access to free-of-charge courses (IT essentials, PC hardware and software).

Figure 15. **Impact of international companies and international and European initiatives on VET: the ICT sector**



Source: Cedefop.

A sector-level example of a European standard is the European e-competence framework (e-CF) developed by the European Committee for Standardization (CEN). It is a norm that informed IVET curricula revision in Estonia, as described in the Estonian case study (Annex 2). Another example of an international sectoral qualification which started off as an EU-funded project and then became a well-known and widely accepted qualification is the European computer driving licence (ECDL). This covers ICT transversal competences.

The cross-national trends observed in the ICT sector are:

- (a) the existence of international qualifications, particularly those developed by international companies;
- (b) frequently changing skills needs requiring constant development, necessitating well-developed CVET provision.

The discussion in Section 4.2 confirms hypothesis 7: in sectors influenced by globalisation included in the study, as well as in areas requiring international cooperation, such as border guarding or internal security, international standards are widely used. In the four sectors for which case studies were carried out (hospitality, automotive, logistics and ICT), international companies play a leading role, providing benchmarks for the rest of the industry. International standards mainly affect CVET developments, but there are also examples of transposing skills needs to IVET curricula or VET training in hospitality, the

automotive industry, ICT and logistics. The developments observed are similar in both active-player and aspiring countries, regardless of their steering mechanisms.

Box 17. ECDL qualifications

The ECDL Foundation is an international organisation dedicated to raising digital competence standards in the workforce, education and society. ECDL has grown from a project in Europe, founded with the support of EU funds, to an internationally recognised standard in digital skills. ECDL certification programmes are delivered through an active network of over 24 000 ECDL accredited test centres in more than 100 countries. 15 million people have benefited from ECDL in the past 20 years.

The ECDL programme defines the skills and competences needed to use a computer and common computer applications. ECDL develops vendor-independent standards that define the skills and knowledge required to use digital technology effectively. Programme delivery is done in cooperation with education and training partners, local and regional authorities, national governments, international development organisations, as well as public and private sector employers in all sectors.

The ECDL Foundation defines quality assurance standards, which all national operators must adhere to in implementing and promoting ECDL certification programmes. The ECDL Foundation has established a quality management system based on the internationally recognised quality standard ISO 9001:2015. Adherence to this standard ensures that the processes used by the foundation to develop and support its certification programmes are effective, efficient, and subject to continuous evaluation and improvement.

The foundation's certification programmes are designed, validated, and approved by academics and industry experts from around the world. It is mapped to national qualifications frameworks in Ireland, Malta and UK (England, Wales, Northern Ireland and Scotland). Outside of Europe it operates in Australia, Iran, New Zealand, Singapore, South Africa, Thailand and Viet Nam.

Source: In-depth interviews with the ECDL Foundation representative and <http://ecd.org/>

CHAPTER 5.

Policy messages

The study contributes to broadening knowledge on the impact of globalisation on VET developments and the role that various European and international initiatives on skills can potentially play in informing VET renewal in Europe. The detailed impact of globalisation on VET is not easy to pinpoint. Globalisation is not a stand-alone phenomenon, but a development closely linked to many other societal, economic and technological developments, the effects of which cannot easily be disentangled.

The evidence collected shows the diversity of responses that depend on several country-specific characteristics as well as other factors relevant to specific sectors of economy. National responses to globalisation depend on institutional structures and steering mechanisms including the involvement of labour market stakeholders in the development and revision of VET content and VET delivery. Countries which are exposed to global developments take either an active role ⁽³³⁾ in adopting strategies to set their standards as benchmarks for other countries or are inspired ⁽³⁴⁾ by other national, European or international initiatives to improve the quality of their training and the employability of their graduates in the global labour market (aspiring countries). Cooperation between actors at European, national, sectoral and local levels was found to be the key success factor in responding to changing skill needs and global pressures that influence VET systems. Evidence from the study revealed examples of policies and practices that support such cooperation and use its outcomes to inform the revision of national VET systems. These examples are used to form several recommendations at European, national and sectoral level to improve the responsiveness of VET systems.

5.1. European level

The study findings show how different stakeholders from the 15 selected countries are actively engaged in transnational cooperation, developing and

⁽³³⁾ This applies to active-player countries: Austria, Denmark, Finland, France, Germany, the Netherlands, Switzerland and the UK-Scotland.

⁽³⁴⁾ This applies to aspiring countries: Bulgaria, Czech Republic, Estonia, Greece, Spain, Italy and Poland.

using international and European initiatives to renew VET systems. Such cooperation can improve the responsiveness of VET systems to the international trends arising from globalisation and contribute to broader engagement of stakeholders in the improvement of national VET practices; this is shown by the case studies in Bulgaria, Estonia, Spain and Poland or the bi-lateral cooperation between Germany and Slovakia. Two main messages can be formulated at European level based on the findings of the study:

- (a) promote European cooperation to assist national VET systems to address globalisation challenges.

Policy dialogue between active and aspiring countries is seen as beneficial to both groups, particularly in sectors of the economy especially exposed to global pressures. Several initiatives can promote such policy dialogue and encourage the use of international and European standards in renewing VET systems:

- (i) encouraging bilateral cooperation between countries representing the groups of active players and aspiring countries to enable peer learning, leading to better VET system responsiveness to global trends (following the good practices of such cooperation developed by Germany or Austria with countries in Central and Eastern as well as Southern Europe);
- (ii) encouraging national stakeholders to take part in European dialogue to develop European standards in areas where joint action between countries is seen as beneficiary. This may include work to develop common European profiles and/or joint VET qualifications, with the involvement of national authorities, sectoral stakeholders and social partners to ensure relevance and credibility. The study has shown that in sectors such as transport, logistics, automotive manufacturing and hospitality, joint qualifications can benefit learners, employers and VET providers. Building on national qualifications, such joint qualifications take on added value and can be recognised in more than one country, supporting learner and worker mobility in a global economy. Such joint VET qualifications could also address international standards and requirements;
- (iii) promoting initiatives to develop sectoral standards or sectoral competence frameworks that describe the sector-specific requirements for knowledge, skills and competences in sectors where joint action at European level is seen as beneficiary (such as the Frontex sectoral framework for border guards, the European computer driving licence (ECDL) qualifications or CEPOL standards). European sectoral standards could be broadly recognised, trusted by national

stakeholders and be used to inform the revision of national VET standards;

- (b) supporting national practices in the levelling of international qualifications through national qualifications frameworks.

The study shows the increasing use of international qualifications often developed by large multinational organisations with a dominant presence in their sector, particularly in ICT and logistics/transport. Although system level stakeholders, especially in some active-player countries, are sometimes sceptical about the value of these qualifications, they have penetrated the labour market and are accepted by employers. Evidence also points to the benefits for learners holding these qualifications; they provide them with more opportunities to move thanks to their wide recognition in the international labour market. Some countries have recognised these benefits and established procedures to include international qualifications in their national qualifications frameworks (NQFs) (European Commission, 2017a). Work carried out within the European qualifications framework (EQF) advisory group underlined the need for increased transparency in these processes, and greater understanding of the procedures in place to assign EQF levels to international sectoral qualifications through the NQFs. Similarly the Council recommendation of 22 May 2017 on the *European qualifications framework for lifelong learning* specifies 'setting up of voluntary procedures on the levelling of international qualifications through national qualifications frameworks or systems, and to exchange information and consultations among Member States on those procedures to ensure consistency' (Council of the EU, 2017, p. 18). The findings of this study provide evidence to understand the dynamics of international qualifications and the way they influence national VET standards. They may also support cooperation between Member States in this area (for instance, by piloting the levelling of selected international sectoral qualifications to several NQFs) to develop consistent approaches among countries.

5.2. National level

The study has shown that, although VET is traditionally associated with responding to local and national labour market needs, graduates in active and aspiring countries are increasingly exposed to global pressures that affect labour markets and occupations. Regular renewal of VET systems, based on labour market and broader societal needs, is an important condition to provide graduates with adequate skills to respond to these global pressures, even within

their national borders. The regular interaction and involvement of labour market stakeholders in defining, renewing and delivering VET was stressed by many interviewees as a key success factor. Further, the participation of adults in CVET is conducive to developing skills as a response to a fast changing and complex global landscape. Given this evidence, the following practices have been identified, which could be considered in the further development of responsive national VET policies:

- (a) developing and implementing coordinated VET strategies that consider IVET, CVET and VET at higher levels as complementary components of the lifelong learning and career paths of individuals, acknowledging the distinct role of each, particularly with regards to globalisation as exemplified in Chapter 3 (as in the Czech Republic);
- (b) further developing the dialogue and involvement of labour market stakeholders in the renewal and revision of VET systems at national level. National institutions and stakeholders responsible for VET that define and revise national standards should put mechanisms in place to promote such dialogue; examples include the Federal Advisory Board of Apprenticeship in Austria, the State Secretariat for Education Research and Innovation in Switzerland, the Scottish Qualifications Authority, the Estonian Qualifications authority and the National Agency for VET in Bulgaria;
- (c) promoting practices leading to a closer link between VET training and labour market needs. These could take the form of promoting local partnerships between VET providers and employers, as explained in the case studies in the automotive sector, or VET providers incorporating international standards into their training programmes, as explained in the case studies in the ICT and the hospitality sector;
- (d) introducing systemic approaches to the regular revision of VET in relation to changing labour market needs, as in Austria, Denmark, Germany, the Netherlands and Switzerland.

5.3. Sectoral level

The study demonstrated the strong presence of sectors in taking the lead either to influence or set new standards in response to global pressures. Chapter 4 also shows that different factors shape the landscape of VET renewal depending on the exposure of the sector to international developments. It is useful, therefore, to promote cooperation between stakeholders at sectoral level, to develop a platform where changing labour market needs are identified and VET systems are informed. This may include:

- (a) sectoral dialogue between representatives of employers, employees and institutions responsible for VET development, plus delivery, focused on developing trustworthy and recognised sectoral standards. Such dialogue is important at all levels (national, regional and local); though not always obvious, it can be particularly challenging, especially at local and provider levels;
- (b) supporting the establishment of sectoral skills councils (in the countries where they do not exist) involving employer and employee representatives, and encouraging the involvement of sectoral bodies and VET providers in VET renewal;
- (c) encouraging the development of European-level sectoral organisations (such as Eurhodip, ACEA, ECDL Foundation) that are active in skills development and which are capable of quickly capturing changing skill needs in their sectors. These can support national actors in complementing their VET content with a European/international dimension.

Abbreviations

BABB	Federal Advisory Board of Apprenticeship (<i>Berufsausbildungsbeirat</i>)
BTS	<i>brevet de technicien supérieur</i>
CEPOL	European Union Agency for Law Enforcement Training
CPC	consultative vocational committee (<i>commission professionnelle consultative</i>)
CVET	continuing vocational education and training
ECDL	European computer driving licence
EQF	European qualifications framework
EU	European Union
FDI	foreign direct investment
FIATA	International Federation of Freight Forwarders Associations
GCI	growth competitiveness index
GDP	gross domestic product
ICT	information and communication technology
ISO	International Organisation for Standardisation
IVET	initial vocational education and training
NACE	statistical classification of economic activities in the European Community
NQF	national qualifications framework
OECD	Organisation for Economic Cooperation and Development
SERI	State Secretariat for Education, Research and Innovation
SQA	Scottish Qualifications Authority
SQF	sectoral qualifications framework
VPET	vocational and professional education and training

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ANNEX 1. Statistics

Selected indicators of country exposure to global trends

Country	IVET share (2015 or latest available) (1)	Share of IVET that is work-based (2015 or latest available) (2)	General lifelong learning participation 25-64 (LFS 2015) (3)	Training enterprises as % of all enterprises (CVTS 2010)(*) (4)	Share of foreign workers in the workforce (2015) (5)	FDI as share of GDP Outward (2015) (6)	FDI as share of GDP Inward (2015) (7)	Share of exports in GDP (2015) (8)
Austria	69.5	46.8	14.4	72.0	4.1	55.8	43.7	52.9
Bulgaria	52.6	n.a.	2.0	21.0	0.1	n.a.	n.a.	64.1
Czech Republic	73.4	8.8	8.5	62.0	2.2	10.0	62.4	81.0
Denmark	42.2	99.7	31.3	76.0	8.3	56.0	30.4	55.7
Estonia	35.7	1.4	12.4	57.0	13.6	27.6	83.6	78.6
Finland	71.3	13.6	25.4	67.0	3.1	40.0	34.8	36.5
France	42.7	25.8	18.6	71.0	5.4	51.5	28.3	29.7
Germany	46.8	86.0	8.1	61.0	10.0	39.8	23.4	46.9
Greece	31.5	10.5	3.3	21.0	6.8	14.0	13.8	31.7
Italy	56.1	n.a.	7.3	47.0	10.6	25.7	18.7	29.9
Netherlands	68.5	24.8	18.9	70.0	4.1	162.0	97.5	83.4
Poland	49.2	13.7	3.5	20.0	0.3	4.7	38.5	49.5
Spain	35.2	1.2	9.9	71.0	10.7	39.1	43,3.2	32.9
Switzerland	65.3	90.4	32.1	n.a.	25.6	152.8	106.9	62.1
UK	42.7	54.1	15.7	80.0	10.6	54.4	49.2	27.4

(*) CVTS = continuing vocational training survey.

(1) Eurostat [educ_ipart_s]; (2) Eurostat [educ_uoe_ens04]; (3) Eurostat [trng_lfse_01]; (4) Eurostat [trng_cvts06]; (5) Eurostat [lfsa_egan]; (6) and (7) OECD.Stat; (8) Eurostat [nama_10_gdp].

Source: Eurostat, OECD.

ANNEX 2.

Summaries of the case studies

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Case study country:	Austria
Type of VET system:	IVET
Economic sector:	Hospitality
Subject:	Developing the apprenticeship qualification Hotel management assistant
Carried out by:	Julia Fellingner and Monika Auzinger, 3s

Scope

The case study analyses the development of a new and specialised apprenticeship qualification in the Austrian hospitality sector, the Hotel management assistant. It complements the long-standing hospitality apprenticeship Hotel and gastronomy assistant, which trains apprentices to become hospitality generalists rather than specialists in a specific area. Apprenticeship training is open to all young people who have completed nine years of compulsory schooling. It leads to a skilled worker qualification. Apprenticeship qualifications are at NQF/EQF level 4.

Background and context

Hotel management assistant is one of about 200 apprenticeship trades in Austria. To obtain a certificate of apprenticeship, students have to complete both school- and company-based learning and pass an apprenticeship-leave exam (LAP). Training is at two places: in the training company and in part-time vocational schools.

Initiation of the review/development process

Development of the apprenticeship qualification Hotel management assistant was initiated by the free representation of the Austrian hotel industry (ÖHV) as well as the formal representation (the hospitality branch of the Austrian Economic Chamber), whose members are hotel managers. There was a need for a more specialised apprenticeship focusing on commercial and administrative skills, including new technologies. The Austrian Economic Chamber (ibw) drafted the qualification requirements based on a survey addressed to hotel managers to identify the needs for this new qualification.

Process: key players and aspects

The stages of developing apprenticeship qualifications are:

- setting up a committee/working group: the Federal Advisory Board of Apprenticeship (BABB *Berufsausbildungsbeirat*);
- analysis of labour market demand by carrying out a survey among members of the sector (interviews with company representatives, survey by ÖHV);
- analysis of jobs and identification of tasks carried out by the Austrian Economic Chamber (ibw);

- identification of competences required to complete these tasks, carried out by ibw.

BABB has six members drawn from employer and employee representatives as well as two advisory members representing vocational schools. One member of the ibw is also present during BABB meetings. When the final draft of the qualification is agreed, BABB conducts a nationwide consultation, allowing stakeholders to provide feedback on the proposal.

This procedure was established through the long-term cooperation of state institutions and associations representing employees and employers. It is based on the principle of social partnership and striving for consensus. The official renewing/reviewing process can take up to two years or longer. In the case of hotel management assistant, the process was suspended and later revived due to the lack of consensus.

Process outcomes

The new apprenticeship qualification was introduced in 2015. Due to technological advancements and the increased use of the internet the newly developed qualification needed to include aspects such as online-booking platforms and revenue management,, which is important both for large hotel chains and smaller businesses in the hospitality sector. As customers increasingly book their holidays via the internet, the importance of managing the marketing and communication of online platforms – in German as well as in English – is growing.

Evidence from the interviews suggests that the hotel industry in Austria is satisfied with the development of the new apprenticeship qualification. It is seen as high-profile compared to other qualifications, often chosen by more experienced students (selected by those having already obtained an upper secondary qualification, which is not the case for most other apprenticeship qualifications). Hotel management assistants are expected to be in high demand from national and international hotels after attaining their qualification.

Key findings

The main cross-sectoral global development initiating the need for the development of this new qualification was digitalisation. Sector specific global developments also played a role: the appearance of online booking platforms and the growing international focus on revenue management.

The case study highlights how the inclusion of stakeholders is crucial for the development of an up-to-date qualification embracing global developments. However, it also shows how it can delay the process when there is lack of consensus and how political support for reform and the administrative structure for renewing qualifications are important.

The direct involvement of industry stakeholders in the development process allowed for the inclusion of highly sought-after digital and language skills into the newly designed qualification.

Case study country:	Bulgaria
Type of VET system:	IVET, CVET
Economic sector:	Transport and logistics
Subject:	Developing the VET standard for freight forwarder and logistician
Carried out by:	Mariya Dzhengozova, 3s

Scope

The case study explores the energising role of the Bulgarian Association for Freight Forwarding, Transport and Logistics (hereafter, NSBS) in the design and delivery of the VET standard for freight forwarder and logistician. One of the objectives of the association was to develop a national VET standard, which would ensure the provision of specialised training for professionals in the transport and logistics sector, including skills and competences required by the national and international labour market.

Background and context

The foundations of the initiative date back to 2002 when a vocational training centre was established at NSBS. Its establishment responded to the need to define common professional knowledge and skills, as well as relevant competences for the freight forwarding profession. The need was identified by members of NSBS, mostly employers. Although the training centre has been operating since 2002, the certificates issued were not equivalent to state certificates for the attainment of a professional qualification.

Initiation of the review/development process

Up to 2016, there was no state education standard for the professional qualification for freight forwarder and logistician in Bulgaria. There were separate units of learning outcomes in related professions but they did not cover the knowledge, skills and competences required for this particular profession as required by employers. Further, the developments within the transport and logistics sector at national and international levels emphasised the need to:

- add 'freight forwarder and logistician' as a separate profession in the list of professions for VET;
- develop a corresponding state education standard, in compliance with the needs of the national and international labour markets.

Process: key players and aspects

The Bulgarian Association of Freight Forwarding, Transport and Logistics (NSBS) and the National Agency for Vocational Education and Training (NAVET) were the key players in developing the standard. To include the new profession in the list of

professions for VET, NSBS, in its capacity as a business branch organisation, was supported by a wide circle of stakeholders, including 100 freight forwarding companies, other transport branch organisations and the Ministry of Transport. When developing the VET standard, NSBS also played a key role as around 90% of the specific learning outcomes were developed by representatives of the Association. NAVET provided methodological support (as in designing units of learning outcomes) and also assisted dialogue with the Ministry of Education.

Other stakeholders involved included the Ministry of Education and Science, as the responsible body for the adoption of state VET standards, and vocational schools to run a pilot project in 2017/18 for the qualification Freight forwarder and logistician in the dual education system. The pilot was carried out with the support of the Commerce Department of the Austrian Embassy and the Bulgarian Ministry of Education and Science.

The NSBS used two international sources in developing the VET standard':

- the Common qualification reference for the freight forwarding agent developed within the Leonardo project *Certification for employment in transport and logistics in Europe* (CENTRAL);
- the FIATA international training programme for professional competence in freight forwarding.

In addition, NSBS considered all international conventions relating to international transport and commerce, ISO, TAPA standards, European and international safety and security programmes on customs procedures, health, safety and environmental regulations.

Process outcomes

The VET standard for Freight forwarder and logistician was developed in 2016 in the context of modernising the Bulgarian VET system. The modernisation is characterised by the increased involvement of employer organisations in designing education standards and the introduction of apprenticeship in the Bulgarian VET system. These developments point to the gradual change in VET governance from a 'statist' regulated model to a 'participatory' model of IVET feedback mechanisms ⁽³⁵⁾ where the role of social partners is consultative.

Referencing of the Bulgarian Qualifications System to the EQF relates to the adoption of the learning outcomes approach, applied in the design of Freight forwarder and logistician. This made the qualification more flexible, providing the possibility for the

⁽³⁵⁾ See the types of governance models in IVET defined by Cedefop (liberal, statist, coordinated, participatory defined by Cedefop, 2013a).

validation of non-formal and informal learning (also in relation to parts of vocational qualifications).

Vocational schools (IVET) and vocational training centres (CVET) can offer training for VET qualifications designed in accordance with employer requirements, which makes the training attractive to learners. For example, pilot training programmes for freight forwarding, transport and warehouse logistics (NQF 4/EQF 4) were introduced in three vocational schools in the 2017/18 school year.

Key findings

European (from the EU-funded project, CENTRAL) and international standards (such as FIATA) informed the development of the national VET standard, ensuring the relevance of the standard in the international labour market. The fact that development of the standard was driven by a professional association is significant since Bulgaria has a centrally governed national VET system. This may point to the increasing involvement of labour market stakeholders in the development of education standards. In all cases, the trend needs to be confirmed during the coming years.

Case study country:	Estonia
Type of VET system:	IVET
Economic sector:	Information and Communication Technology
Subject:	National occupation standard in the ICT sector incorporating the e-competence framework
Carried out by:	Evelin Silla

Scope

This case study provides an overview of the process of renewing occupational standards in ICT, using the European e-competence framework as a base. The ICT Sector Skills Council started the process of renewing the existing ICT occupational standards in 2010. In the course of the process, the main qualifications in ICT were identified and the European e-competence framework was used as the basis to describe the occupational standards.

Background and context

Qualifications in ICT are placed at EQF levels 3-7 and the following are included in this study: IT support specialist (EQF level 3), junior IT systems specialist (EQF level 4), junior software developer (EQF level 4), junior telecommunications specialist (EQF level 4) and telecommunications specialist (EQF level 5). The share of VET students (EQF levels 3-5) in ICT has been slightly increasing, from 8.6% in 2014/15 to 9.6% in the 2016/17 school year. The European e-competence framework was chosen as the basis for qualification renewal, allowing for the standardisation of the levels and certification process, to ensure their recognition and to improve the free movement of the Estonian labour force in the EU.

Initiation of the review/development process

The process of renewing standards in ICT, using the European e-competence framework as the basis for describing the ICT qualifications, started in 2010 and was completed by 2012. A standard procedure was used, initiated by the expiration of previous standards. Developing and reviewing standards in Estonia is coordinated by the Estonian Qualifications Authority. Stakeholder representatives, including employers, VET schools and universities were involved in the process.

Process: key players and aspects

Stages in the process of renewing the occupational standards in Estonia are regulated by the Professions Act, as well as by *The procedure for the preparation, amendment and recording of occupational standards* from the Minister of Education and Research. At the initial stage of the process, three working groups (IT specialist, telecommunications specialist and software developer) were formed to draft the new

occupational standards. The drafts were distributed to gather opinions from sector associations, employers and VET schools. Each standard was then approved by the ICT Sector Skills Council. After approval of the occupational standards, the process of renewal for the national ICT curricula (based on the occupational standards) was initiated. In-service training for all ICT VET teachers was organised for the implementation of the new curricula.

The working groups had the following composition: two-thirds of the members representing employers and specialists, and one-third representing training providers. There were about 10-12 members in different ICT working groups.

Process outcomes

The renewal process resulted in fully operational ICT standards based on the European e-competence framework. All respondent groups emphasised that the renewed ICT occupational standards are now more relevant to the needs of Estonia's labour market. Employers indicated that the framework helped to identify better the skills and competences expected from employees in ICT for each level of the EQF.

Key findings

Study respondents believe that using the European e-competence framework as the basis for the renewal of ICT standards positively influenced the process and its outcomes. National system-level representatives emphasised that the European e-competence framework introduced the use of a common, internationally understood terminology, leading to better understanding of the competences and aiding skills validation and comparability with other countries. VET providers pointed out that using the European e-competence framework as basis ensures that the ICT qualifications will be recognised by different European employers. Employer representatives indicated that the comparable content and quality of education provided by VET schools is a positive outcome of using the European e-competence framework.

Case study country:	France
Type of VET system:	Higher VET
Economic sector:	Transport and logistics
Subject:	Reform of the <i>brevet de technicien supérieur</i> (BTS) in transport and logistics services
Carried out by:	Françoise Kogut-Kubiak, Matteo Sgarzi and Florina Chindris

Scope

This case study focused on the process of reforming the BTS in transport and logistics services. The BTS is a level III diploma in the French diploma system (equivalent to EQF level 5) and is delivered by post-secondary training centres and the technical sections of many secondary schools.

Background and context

VET secondary and VET higher education qualifications (such as BTS), and continuing training qualifications (issued by the Ministry of Labour) are developed in France on the recommendation of consultative vocational committees (CPCs, *commissions professionnelles consultatives*)⁽³⁶⁾. The new BTS in transport and logistics services is based on the Decision of the Ministry of Higher Education and Research of 26 April 2011 on the definition of the BTS and the conditions for delivery. The regulation has a technical annex describing the professional standards, certification standards, associated knowledge, and the units comprising the qualification. Over the last five years, professional practice in the transport sector has become increasingly internationalised as the French transport companies are operating in a highly competitive European market. There is a growing difference between local/ regional transport services and large international carriers as they face globalisation challenges, particularly the diverse status and labour conditions of workers in different countries.

Initiation of the review/development process

The Ministry of Education (Directorate-General of School Education: DGESCO) initiated the revision by consulting the Transport, Logistics, Security and other Services CPC.

The main reasons for initiating the revision were:

⁽³⁶⁾ CPCs provide guidance and recommendations with regard to creating, updating or withdrawing degrees or diplomas and the establishing standardised learning outcomes for them. They usually consist of four colleges made up of representatives of employers, employees, local authorities and qualified professionals. The Ministry of Education has established 20 CPCs.

- (a) evolution of the professions and adapting to professional standards. Legal and environmental aspects needed to be incorporated in the BTS standard. Managerial and business skills and required knowledge of foreign languages also had to be reinforced;
- (b) the redesign of the BEP diploma in Logistics and Transport at EQF level 3 and the revision of the professional bachelor degree of transport and logistics at EQF level 4. The BTS had to evolve coherently with the evolution of other sectoral diplomas and take them into account at the time of developing the new standard.

Teachers raised issues concerning outdated skills assessment methods, which did not allow for the effective validation of competences.

Process: key players and aspects

The Ministry of Education (Directorate-General of School Education: DGESCO) commissioned a general evaluation of the former BTS in transport and logistics services. Three working groups were then set up to work on defining the transport profession and common standards. One was CPC-based and the two others were based on the Franco-German Secretariat for Exchanges in Vocational Training (SFA) and a Lifelong Learning Programme project entitled Euro Trans Log, coordinated by the French Association for the Development of Vocational Education in the Transport Sector (AFT). These working group consultations lasted for three years. In January 2011, CPC provided a unanimously favourable opinion on the revised draft of the BTS in transport and logistics services. The decree establishing the BTS in transport and logistics services was published in the National Education official journal on 26 April 2011 and in the Official Bulletin of the French Republic on 6 February 2012. The renewal process of the diploma took about five years.

Process outcomes

Enrolments in the BTS in transport and logistics services have increased over recent years. Some respondents attribute the steady growth in the number of enrolments to the BTS renewal. The renewed BTS in transport and logistics services reinforced several subjects linked to the internationalisation of the sector, such as foreign languages (especially English) and knowledge of business and marketing. Sector professionals were especially waiting for these improvements. Interviews show that even if the objective of better equipping the BTS transport and logistics services programme with new competences was achieved, the impact on student achievements is not fully satisfactory. BTS students do not have a proper command of English (or another foreign language) and the time devoted to developing business skills is thought to be insufficient. The system of skills assessment is also criticised for allowing insufficient marks in some subjects to be compensated by better marks in other learning units. This results in awarding certificates to students with unsatisfactory

results in some subjects. A phenomenon negatively influencing the French logistics sector is the issue of foreign workers in transport services with labour contracts from another country, employed under worse conditions in terms of salary and social benefits than their French counterparts. A new BTS revision has been initiated in January 2017 for the main purpose of regrouping units into 'learning blocks' and is expected to address some of the issues indicated above.

Key findings

The renewal of the BTS in transport and logistics services benefitted from the continued cooperation of the logistics sector at the European level. Its modernisation was inspired by two parallel European working groups, set up to establish common European standards for this training (EUROTRANSLOG Project and French-German Secretariat). The existing standard underwent general evaluation, the results of which triggered the renewal. The revision process involved a wide range of stakeholders: representatives of employers, employees, central administration, teachers, student's parents, and public administration. Nevertheless, the renewal did not solve all the problematic issues with the BTS in transport and logistics services (such as insufficient foreign language skills among students), so a new process was initiated in early 2017.

Case study country:	France
Type of VET system:	Higher VET
Economic sector:	Hospitality
Subject:	Reform of the <i>brevet de technicien supérieur</i> (BTS) in tourism
Carried out by:	Matteo Sgarzi and Florina Chindris, from Céreq

Scope

This is a study of the renewal of the *brevet de technicien supérieur* (BTS) in tourism. This qualification is delivered by post-secondary training centres and the technical sections of many secondary schools. The BTS is a level III diploma in the French diploma system (equivalent to EQF level 5). It is a quick way to access a professional qualification and is intended for entry into the workforce. However, further education is possible.

Background and context

Over the last decade, the tourism sector has undergone extensive technological transformation. The development of information and communication technologies has diversified product selling channels. Tourism agencies compete in an open market due to the existence of tourism internet portals and online services. This induces changes in the skills required for tourism professions, such as communication skills, the competence of selling custom-tailored products, new IT skills and foreign languages, which are becoming a priority. The BTS in tourism was established in 2012 by merging two previous certificates (BTS in tourism products design and retail; and BTS in local tourism conception and management). The new BTS in tourism has its legal basis in the Decision of the Ministry of Higher Education and Research of 5 April 2012 on the definition of the BTS and the conditions for its delivery and assessment. The Decision also specifies the possibility of passing partial examinations for limited sets of units. Conversion tables are set to facilitate the recognition of previous training achievements attained within the framework of the two previous BTS.

Initiation of the review/development process

VET secondary, VET higher education qualifications (such as BTS) and continuing training qualifications (issued by the Ministry of Labour) are developed in France on the recommendation of CPCs. Professionals were the main initiators of the renewal process; they rapidly obtained the full support of teachers who were fully involved in the work of renewing the two previous BTS.

The main reasons for renewal were:

- (a) the lack of adaptation of the former training provision to address market needs, particularly in the sales sector. According to professional representatives, there is

- increasing customer demand for tailored products and the former BTS was focused on knowledge about products, but not on customers' expectations;
- (b) the mismatch between the former BTS standards and skills requested by the companies, particularly relating to IT tools, internet platforms and foreign language skills.

Process: key players and aspects

The CPC is the board in charge of revising or creating new qualifications standards. This governance system is fully public and financed through the state budget. The General Inspectorate, belonging to the Ministry of National Education, is the driver of the whole process. The renewal process started in January 2008 with the professionals requesting input on the need to design a new qualification. A working group, consisting of stakeholder representatives, was established 12 months later to prepare a feasibility study for renewal of the BTS in tourism. The feasibility study identified the changes needed in the professional profiles and required skills. The working group highlighted the following shortcomings in the two previous qualifications: insufficient knowledge of the variety of tourism products; insufficient knowledge of selling methods and marketing strategies; weak communication skills and the need to increase new IT competences (booking software and online platform development, new e-commerce sectors, Internet 2.0). A significant need for knowledge of foreign languages was also identified. The CPC members agreed to merge the two existing BTS and established a working group to develop the new profession's standards and descriptors. These were presented during the CPC meeting of 30 June 2011. The validation modalities were defined and regulatory compliance established, and the CPC voted to implement the new BTS in tourism qualification on 3 January 2012, ending the process for overhauling the existing qualifications and creating a new one. The whole process took four and a half years.

Process outcomes

The new BTS is better adapted to accommodate changing market needs, which are dominated by a wider variety of tourism services and leisure destinations, with a more personalised approach to clients. A second important achievement was the expansion of IT competences and recognition of the crucially important trends of e-commerce and IT tools at the service of travel agencies. The global distribution system (GDS) is today's commercial environment in the tourism sector. GDS technology is used from the global network airlines to travel agencies. Several international companies, such as Amadeus, Sabre, and Galileo, provide GDS training courses for teachers so that they can train students. This BTS renewal has also worked out an agreement with the Ministry of Education, wherein all teacher training costs are covered by the companies.

This implies that new BTS in tourism holders are equipped with digital skills and can adapt to a company's needs quickly.

Key findings

The case study shows that the impact of globalisation is not directly mentioned throughout the renewal. However, some references to globalisation's influence were noted in the exploratory phase of the process. The feasibility report mentioned '...the development of outdoor activity centres of about 200 companies, theme parks – Disneyland, Park Asterix', 'the competition of different international companies coupled with low cost transport', 'the development of information and communication technology which modifies profession practice'. The renewal was triggered by changes in the tourism sector connected to the development of communication technologies, which are providing wide access to vast amounts of information. As a consequence, customers look for services and not information and the traditional tourism profession is changing, inducing the need for:

- (a) increased soft skills (customer relations, understanding other cultures);
- (b) increased IT skills (training courses in Amadeus tools, website design, updating social networks);
- (c) increased foreign language skills (mandatory English and two other optional languages).

The change in the sales approach in the tourism sector, together with the development of new ICT tools, induced changes in the composition of the competences provided in the BTS training. The learning is concentrated on IT, soft skills and foreign languages, leaving out historical and cultural topics, to be delivered at higher levels of education. Professional representatives pointed out that the length (4.5 years) and demands of this State-regulated qualifications revision process hinders the timely adjustment of professional training to market needs, when technology is rapidly evolving and new skills needs are emerging.

Case study country:	Germany
Type of VET system:	Higher VET
Economic sector:	Hospitality
Subject:	Dual study programme in business management: tourism, hotel industry and gastronomy
Carried out by:	Janine Wulz and Monika Auzinger from 3s

Scope

The case study analyses the review of the dual study bachelor programme at Baden-Wuerttemberg Cooperative State University (DHBW). Practical and theoretical phases alternate every six months. Learning is conducted at two sites: the higher education institution and the training company, interlinking practical and theoretical learning. Dual study bachelor programmes lead to a bachelor degree at EQF level 6, and may, depending on the form, also integrate an apprenticeship certificate.

Background and context

DHBW was founded in 1999 as the first higher education institution in Germany to integrate academic studies with workplace learning. The dual study programme in business management: tourism, hotel industry and gastronomy was launched in 2004 at two locations, Ravensbrück and Lörrach.

Initiation of the review/development process

Evaluation and renewal of the curriculum of the dual study programme for tourism at the DHBW is a continuing and regular process. It is based on the legal obligation for higher education institutions to implement an extensive quality assurance system at university level as well as at study programme level. It involves individuals and governing bodies and is organised as a 'quality cycle', including several tools to improve the quality of the study programme, such as regular student evaluations, formal bodies, informal meetings and discussions. Curriculum renewal is mainly based on inputs from the companies involved as training partners. Global developments are considered one of the main reasons for the need to change the curriculum.

Process: key players and aspects

The review process complies with the Standards and guidelines for quality assurance in the European higher education area and includes several stages. A 'quality circle' takes place once or twice a year in a workshop where students, teachers, companies and programme management discuss and make suggestions on the study programme. Statistical data (enrolment, graduates, dropouts) and student questionnaires are analysed to identify possible improvements. Any major changes that affect the general

character of a programme are discussed through a formal procedure involving the university board which includes an assessment by an expert commission. DHBW is also subject to accreditation by and external quality assurance agency.

Process outcomes

Several changes in the curriculum will be implemented in 2018. These include:

- (a) digitalisation is considered a major trend in the tourism sector (Tourism 4.0), which must be reflected in the curriculum. The growing relevance of booking platforms requires new competences, such as web-development and social media. The programme will continue to increase e-learning and blended learning opportunities;
- (b) sustainability will become an even more important part of the curriculum, as ecological, economic and social aspects of tourism gain importance;
- (c) foreign language competences are considered a major trend, so more lectures in English language and more international cooperation projects are foreseen, also allowing for invitations to international lecturers. The Common European framework of reference for languages is used as a basis;
- (d) the introduction of the elective course in intercultural management. The need for this elective course was identified by students and companies, reflecting the need for additional intercultural competences, facing an increasing number of international customers in tourism.

Key findings

Many large companies in the tourism sector are experimenting with dual study programmes and HE cooperation. Stakeholders (teachers, students, companies) are involved in continuous evaluation of the study programme. Results feed into a standardised quality assurance and reaccreditation procedure. This ensures the programme is up-to date, meets the challenges of globalisation and is tailored to the needs of the tourism sector, giving graduates access to European and worldwide labour market. Changes are driven by international and global trends in the tourism sector, such as digitalisation, the need for more foreign language competences, the international trend of sustainable tourism and the requirement for intercultural competences.

Case study country:	Poland
Type of VET system:	IVET
Economic sector:	Automotive
Subject:	IVET qualification in car mechatronics with the active participation of Volkswagen Group
Carried out by:	Maciej Pańków

Scope

This study is on the cooperation between the automotive companies Volkswagen Poznań Ltd. and Gestamp Poland Ltd. and two vocational schools located in a neighbourhood of the city of Poznań. The group of qualifications selected for the study includes: (a) mechatronics technician; (b) car electro-mechanic; (c) automation mechanic; (d) foundry machines and equipment operator; (e) precision mechanic.

Background and context

Cooperation between Volkswagen and the school in Swarzędz began in 2004, offering one of the above qualifications. In the following years, another three qualifications were introduced. In 2015, a second school located in Września, in the same region, was invited by Volkswagen to offer sponsored classes, in partnership with Gestamp Poland Ltd. The study identified several reasons for the companies' involvement in sponsoring the practical training in Poland:

- (a) the lack of skilled employees meeting the requirements of modern international manufacturing companies;
- (b) anticipation of shortages in the supply of qualified employees in the near future due to the establishment of Volkswagen's factories in Poznań and Swarzędz;
- (c) the wish to plan recruitment processes better to obtain highly skilled employees, familiar with new technologies and the organisation of production systems used in particular companies, ready to perform highly specialised tasks.

Initiation of the review/development process

The initiator in revising the qualifications and further cooperation with the schools was Volkswagen Poznań. The contribution of Poznań County authorities was important as they supported the company in identifying a suitable vocational education provider. The interest of local authorities in vocational education was also motivated by the specific structure of the local economy: Poznań County is strongly industrialised with a growing need for a specialised workforce in the automotive sector.

Process: key players and aspects

The company-school cooperation was as follows:

- (a) the initial stage, began with a Volkswagen Poznań decision to engage in the process, followed by the search for a school that would meet the requirements of the company. A significant role was played by the county governor, who suggested that School Complex no. 1 in Swarzędz had sufficient capacity to take part in such cooperative activities. A letter of intent signed by both parties concluded this stage;
- (b) the second stage included negotiations between the company and the school in developing the curriculum to meet both the requirements of the national core curriculum and the company's needs. This was a key stage in revising existing qualifications in Poland's initial vocational education system. Since negotiations covered only the content to be taught, they were held between Volkswagen Poznań specialists and vocational teachers rather than involving management representatives;
- (c) the third stage began with the submission of a proposal to the county office (governing authority) for the opening of a new mechatronics technician class, which resulted in holding the first pilot year of the class.

The key players in introducing sponsored classes in both schools were:

- (a) two German companies operating in the Polish market;
- (b) two local VET schools;
- (c) local public administration authorities.

The following constraints on the process were mentioned by respondents:

- (a) insufficient skills of vocational teachers (relatively low wages causing a 'brain drain': top specialists find more attractive employment outside the education sector);
- (b) the limited share of curricula that could be adapted to meet employers' needs was also a constraint, as was the minimum number of students needed to open a new class;
- (c) the time needed to introduce new occupations to the Polish classification of taught professions is another constraint. Therefore, companies strive to adjust existing qualifications to their needs.

Process outcomes

The main outcome was the effective cooperation between companies belonging to large international firms and vocational schools. The cooperation between Volkswagen Poznań and the school in Swarzędz broke new ground on a regional or even national scale. Today, about 250 students are taught in the dual education system supported by the two companies. The curriculum was adapted to include the international standards used by the companies. Students in the second year of their VET programme get

practical training at the premises of the two companies, with the perspective of getting an employment offer on completion of their programme.

Key findings

The cooperation was a pioneering step in building a long-term partnership between business and a local initial vocational education provider. Several aspects of the process enabled its success, especially the awareness of local authorities, who recognised the need for strong vocational education in the region. This partnership is a source of inspiration for other companies and schools. Through the established partnership, students and teachers gained access to the newest technologies, equipment and materials used in the learning process and to opportunities for additional training, including dedicated to 'soft' skills. The engaged companies gained an effective way of recruiting highly skilled and loyal employees, who are familiar with the technologies used by the company and have the 'soft' skills needed for effective teamwork.

Case study country:	Spain
Type of VET system:	IVET
Economic sector:	Automotive
Subject:	Dual VET at the SEAT Apprentices School
Carried out by:	Oriol Homs from NOTUS

Scope

This case study analyses how the School of Apprentices of the SEAT automobile company adopted a model of dual vocational training of three years' duration, awarding graduates a double Spanish and German qualification.

Background and context

SEAT School of Apprentices introduced a model of dual vocational training in 2012. It is an apprenticeship programme, so apprentices are hired under the conditions regulated in the collective agreement of the SEAT company. Most of the first year takes place in the school; during the second and third years, trainees follow a rhythm of two days a week in school and three days in the company. Each apprentice has a tutor in the company. Young people must be between 16 and 20 years old to enter the school. Graduates obtain the title of medium grade technician in their specialisation and may sit the exams of the German Chamber of Commerce to obtain the German professional qualification. The programme is popular: in the last call, more than 600 candidates applied for 74 apprenticeships.

Initiation of the review/development process

In 2012, the School of Apprentices decided to restructure its apprenticeship training plan, implementing the dual system in a pioneering way and designing its own training model with an international dimension. The technological and production changes and the increasing internationalisation of automobile production, as well as the international connection of SEAT within the Volkswagen Group, demanded new training needs to be incorporated in the training of its apprentices. The aim was to launch a dual training programme that was recognised in Spain and Germany and adapted to the needs of SEAT as well as in the different branches of the Volkswagen Group worldwide.

Process: key players and aspects

The two key players that initiated and piloted the process were the training department of SEAT and the SEAT Apprentice School. Other stakeholders included:

- (a) the international training committee of the Volkswagen Group;
- (b) the labour training commission of the SEAT Company;

- (c) the Department of Education of the Regional Government of the Generalitat de Catalunya (approved the agreement between the School of Apprentices of the SEAT Company and the Institute of Secondary Education Esteve Terradas);
- (d) Esteve Terradas, which acts as a reference centre for the delivery of vocational training courses offered at the School; the German Chamber of Commerce for Spain, which accredited the school for the provision of equivalent professional training in Germany.

The training programme was drawn up on the basis of curriculum content corresponding to vocational training courses regulated in Spain and in Germany. SEAT complemented the curriculum content of the two countries with additional training to respond fully to the needs of its production centres (transversal skills: language, communication, conflict resolution, teamwork and problem solving).

Process outcomes

SEAT is satisfied with this new apprentice profile, adapted especially to its corporate needs: better equipped to meet the challenges of innovation in the most automated systems of production, ability to manage its inherent complexity, and graduate readiness to become employable without additional training. There is also great satisfaction among apprentices, who appreciate the practical training process and its hands-on character. The plan for the training of apprentices at SEAT offers an innovative combination of the regulations of vocational training from two different countries, complementing them with the company needs to meet new competence requirements for its workers, in line with internationalisation, automation and organisational changes in the production of automobiles.

Key findings

Multinational groups dominate the automotive sector, putting pressure on training providers to adapt training offers to company needs. The experience of the Volkswagen Group in dual training in Germany has been decisive in SEAT becoming a pioneer in applying the dual system in Spain. The criteria established by Volkswagen Group's international training commission have served as a reference standard for curriculum design. The flexibility of the Spanish legislation has been a key success factor, allowing the training centre to adapt the training offer to the needs of the company. This made it possible to combine the training regulations of two different countries with the needs of SEAT. The case also illustrates how a school-company relationship at local level can be used as a source of innovation.

Case study country:	Switzerland
Type of VET system:	IVET
Economic sector:	Transport and logistics
Subject:	Revised VET programme for logistician
Carried out by:	Markus Maurer

Scope

The focus of the case study is on the qualification Federal VET diploma logistician and on the process leading to its review. This qualification can be attained by learners at upper secondary level during a programme period of three years and involves a considerable amount of company-based learning.

Background and context

Since the establishment of the logistician programme in 2001, it has been addressing three main areas: distribution, storage and transport. Graduates in the distribution subsector mainly work for the Swiss national post (Die Post), those from the transport subsector work for the Swiss railways (SBB) and regional railway providers (such as Rhätische Bahn), while those from the storage subsector work for different companies involved in storing and delivering goods. The programme for logisticians is among the 10 most frequently chosen occupations in Swiss VET at the upper secondary level. The curriculum content of the Federal VET diploma logistician qualification was considerably altered in 2015; the first graduates from the revised programme are expected in the summer of 2019.

Initiation of the review/development process

All VET ordinances and training plans in Switzerland must be reviewed every five years. Compared to the revision of 2010, the 2015 revision was more fundamental, as it affected the underlying VET ordinance. Key players of the review included the State Secretariat for Education, Research and Innovation (SERI), representatives of VET schools, the Swiss Association for VET in Logistics (SVBL) and leading companies in the sector. The following reasons were identified as the most important for the revision:

- (a) to allow for more specialisation within the logistics sector;
- (b) the European standardisation in VET, inter alia EQF;
- (c) rapid technological change in the logistics sector.

Process: key players and aspects

The process of revision followed the standard procedure rules as defined by the State Secretariat for Education, Research and Innovation (SERI) and was organised as follows:

- (a) assessment of existing VET ordinance and training plan;

- (b) preparation of the full revision;
- (c) revision of the VET ordinance and training plan;
- (d) enactment/agreement by SERI;
- (e) implementation (as of January 2016).

The decision to revise the qualification fully was taken by the committee for occupation development and quality (CODQ)⁽³⁷⁾ responsible for logistician VET programmes. A key player within the logisticians' CODQ is the Swiss Association for VET in Logistics (SVBL), which unites representatives from a broad number of companies from the sector and also operates eight training centres. The companies represented in the commission also include the Swiss post, Swiss railways (SBB), larger retailers (e.g. Migros) and some large private logistics companies. Company representatives have a clear majority in the commission. Labour unions or other representatives of employees do not take part.

Outcomes of the process

In November 2015, SERI enacted the VET ordinance and agreed with the training plan. The reviewed qualification is in the implementation phase (development of syllabi, teaching material, web apps, teacher training). References to international standards are found in the training plan, especially in the teaching material edited by the SVBL, which can be quickly adapted to changing labour market needs. Also, the number of days for practical training in companies increased, reflecting greater emphasis on the practical aspects of the vocational training. The stakeholders interviewed agreed that the qualification Federal VET diploma logistician needed modifications. However, there was some disagreement concerning the costs and benefits of the full revision. Some participants of the process believed that similar results could have been achieved with only a partial revision, which would have been less costly.

Key findings

The content of the Federal VET diploma logistician qualification was renewed, improving the qualification's orientation towards the needs of the labour market. The training plan included more references to the use of IT in logistics and the new professional competences approach developed for the qualification is in line with European standards. A considerable challenge encountered during the renewal process was to reflect the technological changes occurring in the logistics sector in the

⁽³⁷⁾ CODQ (committee for occupation development and quality) is a body that supports the review of VET ordinances and training plans as well as their implementation, established for every VET programme. These commissions consist of representatives from SERI, the cantons, VET schools and professional organisations (employers). In some of the commissions, labour unions are also represented.

respective VET programme, because many different types of solution are being adopted by companies. The variety of technological solutions used in the logistics sector was considered by some of the interviewees a hindrance to encouraging the use of common standards.

Case study country:	UK Scotland
Type of VET system:	CVET and VET at higher levels
Economic sector:	Information and communication technology
Subject:	SQA's Digital Media and IT Vendor Alliance (DIVA) partnership
Carried out by:	Rebecca Allinson, Billy Bryan and Adam Krcal from Technopolis

Scope

The Digital Media and IT Vendor Alliance (DIVA) is a partnership between the Scottish Qualifications Authority (SQA) and leading global companies in information and technology (IT) and digital media. DIVA is an umbrella term, covering individual agreements with several organisations that have their own training programmes and qualifications that map to some SQA qualifications.

Background and context

SQA develops qualifications within the DIVA partnership aligned to national occupational standards set by the sector skills councils in Scotland. SQA supports private vendors in having their units accredited and levelled so that they are able to fit to an SQA qualification. The purpose of creating the programme was to increase Scotland's competitiveness in the new knowledge and global digital economies, and to meet the demands of the workforce for workers with IT skills to match the growth of jobs in the sector. There was also a need to modernise qualifications, particularly HN (higher national) awards. Currently there are 14 global industry vendors within the alliance. Each vendor has a specific memorandum of understanding (MoU) with SQA and an action plan that sets out roles and responsibilities on a recurring annual basis. Current vendors include Adobe, Apple, Autodesk, Avid UK, Cisco Systems, CompTIA, IBM, Linux, Microsoft, Oracle, PTC, Serif, and VMware.

Initiation of the review/development process

The DIVA programme began in January 2004 when SQA signed an MoU with Microsoft. DIVA was modelled on this partnership to update and enhance the SQA's offering of IT qualifications by working with industry partners who provide access to users of SQA qualifications. In the summer of 2004, SQA used their screening process to select seven vendors covering software development, networking, web authoring, home technology, 2D & 3D design, film and music production. Since then, DIVA membership has increased to 14. VET providers were recruited via open tender, in which the VET provider would bid to be affiliated to a particular vendor.

Process: key players and aspects

Key players are:

- (a) vendors: DIVA vendors (alliance members) are typically large, globalised organisations in the IT and digital media sector with an investment in education. This investment may involve discounts on their products for institutions, free services/licences for educators, or the provision of specific qualifications and curricula;
- (b) the Scottish Qualifications Authority (SQA): SQA is the accreditation and awarding body for Scotland and operates DIVA;
- (c) VET providers, including schools, colleges, universities: VET providers cascade vendor qualifications/curricula to their learners; they are typically schools/colleges but some are universities. A consortium model of further education colleges has been adopted rather than lead centres partnering with one vendor.

The SQA ensures national occupation standards are followed in all SQA-accredited qualifications. Vendors approach SQA where they discuss how what they offer can be included in current qualifications and/or whether they can be matched to VET providers. If what the vendor offers can be included, SQA works with them to map their offering into the qualification framework. These are reviewed in the short (three years) and long term (seven to eight years) as part of SQA's qualification framework appraisals. This can also be done iteratively when SQA or the vendor wishes to make a change. In both cases, the changes are submitted to VET providers to gauge applicability; they are then drafted and reviewed by a panel (SQA, VET providers, industry, skills sector councils). Influence from international contexts comes directly through the vendor's resources and curriculum that is at a global standard for their respective sectors. For example, CISCO has recently created a cybersecurity curriculum and will soon have three courses on the topic in response to global developments. It is the role of SQA to ensure that what the vendor offers maps to the qualifications.

Process outcomes

To vendors, the DIVA partnership is an excellent route to having their qualifications referenced to the EQF through the Scottish credit and qualifications framework (SCQF). Learners have access to national ICT qualifications that have been enriched by industry and are mapped to the standard prevalent among ICT industry leaders. Learners benefit from cutting edge global standard units and resources.

Key findings

The DIVA partnership was established to respond to skills gaps in the digital and IT sector in Scotland. Through the partnership, private vendors inform training programmes in the formal VET system and allow it to adapt organically to advances in technology. The latest trends in ICT, already implemented through international sectoral qualifications and training programmes developed by multinational companies,

interact and inform national VET content. Learners benefit as, alongside their regular qualifications, they may get vendor certifications and be more employable in the labour market. Colleges believe the partnerships provide value for money as they can build on well-prepared training material based on latest trends in the ICT sector and tested through the private vendors' training academies.

ANNEX 3.

The research team

The following table provides a list of the research team who contributed to the study.

Name	Role
Dorota Holzer-Żelażewska	team leader
Agnieszka Chłoń-Domińczak	team member
Karin Luomi-Messerer	team member country expert – Austria
Mariya Dzhengozova	country expert – Bulgaria
Lubomir Valenta	country expert – Czech Republic
Johan Secher	country expert – Denmark
Clara Ellegaard	country expert – Denmark
Evelin Silla	country expert – Estonia
Juha-Ville Makinen	country expert – Finland
Olivier Joseph	country expert – France
Matteo Sgarzi	country expert – France
Monika Auzinger	team member country expert – Germany
George Zarifis	country expert – Greece
Manuela Bonacci	country expert – Italy
Simon Broek	country expert – Netherlands
Maciej Pańków	country expert – Poland
Michał Sitek	team member country expert – Poland
Rebecca Allinson	country expert – Scotland
Oriol Homs	country expert – Spain
Markus Maurer	country expert – Switzerland
Anna Maliszewska	research assistant
Agnieszka Szymczak	research assistant

Globalisation opportunities for VET

How European and international initiatives
help in renewing vocational education
and training in European countries

In a highly competitive global landscape, occupations are transformed, new jobs are created and the skills needed for the labour market are constantly changing. European countries are looking at redefining VET to respond promptly to such challenges and take advantage of the opportunities ahead. They are reforming to modernise their VET systems and strengthen the relevance of their national qualifications in an international context. This publication explores national responses to globalisation in 15 countries and five economic sectors. It aims to understand how European and international initiatives help VET renewal across Europe. It shows how countries' reactions are embedded in their national traditions but also depend on their interactions with European, sectoral and multinational players that provide training and award qualifications.

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CEDEFOP

European Centre for the Development
of Vocational Training

Europe 123, 570 01 Thessaloniki (Pylea), GREECE
Postal address: PO Box 22427, 551 02 Thessaloniki, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu



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