



Business cooperating with vocational education and training providers for quality skills and attractive futures



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Executive Summary

Vocational education and training (VET) can play a crucial role in tackling many of the most pressing challenges that Europe is faced with today, such as competitiveness, youth unemployment and social inclusion. To put the VET-sector in the best possible position to do so, it is crucial to increase quality and attractiveness of VET.

The main conclusion in the existing studies that include elements of VET-business cooperation is that **the link between the world of education and the world of work is of paramount importance for VET-quality and attractiveness**. In light of this, the European Commission, Directorate General Employment and Social Affairs, has commissioned Panteia, LSE Enterprise and Oxford Research to undertake a study on VET-business cooperation.

The main purpose of this study is to present and analyse **examples** of how VET-business cooperation influences quality and attractiveness of VET. On single issues, for instance apprenticeships and skills anticipation, many relevant publications exist which touch upon VET-business cooperation, or at least discuss the role of business. This is the first study to focus on VET-business cooperation as an overarching theme.

Twelve case studies were selected from a longlist of 36 examples, identified through expert interviews and desk-research. In the selection process, decisive elements were: diversity of characteristics, geographical diversity, innovativeness and availability of data. The **twelve case studies** are:

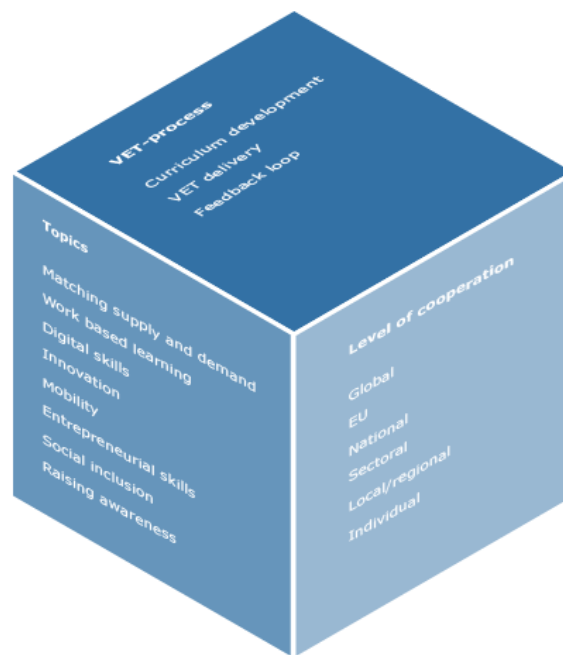
- **Workplace-oriented qualification for unemployed**, Austria
- **Coop Food School**, Denmark
- **Trimola Campus** and **Robola lab project**, Finland
- **Dual Study Programmes**, Germany
- **Higher Technical Institutes**, Italy
- **Educate for Business**, Latvia/Lithuania
- **Techwise Twente**, The Netherlands
- **Cooperative Education**, Serbia
- **Step Ahead**, Slovakia, Czech Republic & United Kingdom
- **Labour Foundation of the Construction sector**, Spain
- **Tech Partnership**, United Kingdom
- **Nestlé needs YOUth**, Global

In addition to case studies, this study builds on **expert interviews** and a succinct **desk research** component. The section on the desk research is succinct, as the study focuses on the presentation of case studies with a broad array of characteristics. Accordingly, this study uses a **broad definition of VET-business cooperation**: VET-Business cooperation concerns every form of cooperation between VET-providers and companies. This can range from cooperation organised between individual teachers and in-company trainers, to institutionalised incorporation of business in for instance skills governance. VET systems as such have not been subject to this study.

Three dimensions have been identified to classify VET-business cooperation:
1) the **VET process** (Curriculum development, VET delivery, feedback loop),
2) the **topics of cooperation** Matching supply and demand, Work-based learning, Digital skills, Innovation - including digitalisation aspects not related to skills development, Entrepreneurial skills, Mobility, Social inclusion, Raising awareness) and
3) the **level of cooperation** (individual, local/regional, sectoral, national, European, global).

The dimensions are used to describe VET-business cooperation as a flexible analytical grid to categorise the study findings, building on the findings from the case studies. The three dimensions are presented in the figure below.

Figure 1 Three dimensions of a VET-business cooperation classification



Source: Study Team

Study findings, conclusions, and recommendations

The final chapter presents a number of key **findings** and provides an overview of the main enabling and constraining factors of VET-business cooperation. Based on these findings, the chapter also presents **conclusions** on how cooperation influences quality of VET and on how cooperation influences attractiveness of VET. It then makes **recommendations to policy makers**:

- Public institutions at all levels should **recognise the potential of VET-business cooperation and stimulate and facilitate its development**;
- Governance systems should **allow for sufficient flexibility** to adapt the VET-business cooperation to the **specific needs** of businesses;
- **Further studies** should be developed on a number of key topics identified in the process of this study (see chapter 12) in the context of VET-business cooperation.

1 INTRODUCTION

The (possible) contribution of VET to meeting economic and societal challenges

Skills have become an ever increasing concern for public and private actors over the last two decades. Indeed, there are excellent reasons to give skill formation a central place in contemporary societies which seek a prosperous and socially inclusive pathway of economic progress. It is no surprise that, in this context, skills have received central attention from European institutions in their pursuit of turning the European Union into the 'the most competitive and dynamic **knowledge-based economy** in the world'¹. In the fast changing, contemporary world, vocational training has a unique role in addressing many of the socio-economic challenges that European societies have to tackle. This has been made clear in recent years in high-profile events² and high-level statements³.

The concept of turning welfare states into **social investment states** has emerged amongst policymakers and scholars alike as a desirable policy direction to move into⁴. Following insights from the new economics of the welfare states⁵, social investment states have a key characteristic in their ability to combine equity and efficiency aims – that is to complement the development of successful knowledge economies (i.e. efficiency), while tackling inequalities and social exclusion (i.e. equity)⁶.

The main thrust of social investment states has to do with **human capital accumulation**. (Higher) Education systems and vocational and training systems are expected to play a major role here, as they equip individuals with the skills needed to succeed in today's labour markets – supporting therefore, high-skilled knowledge economies and minimising individuals' risks of unemployment and social exclusion, as a result of low skills. In other words, better training promises to have high returns on both economic and social grounds.

A clear **insight and transparency with regards to the required competences** is crucial in this context; these are obvious elements of vocational education and training (VET) quality and attractiveness. Continuous vocational education and training (CVET) and continuous professional development (CPD), in which employers and employees play crucial roles, are important elements in anticipating changes. In a world where it is unclear which jobs exist and which competences are needed in 20 years, it is very difficult to rely only on initial education.

Skill-biased technological change (SBTC) has differential impact on labour markets, based on skills level. SBTC is at the same time a challenge and an opportunity for (higher) VET-systems. It is a challenge as current sets of competences can become redundant. SBTC provides an excellent opportunity for a reformed VET-sector. The emergent 'Industry 4.0' across Europe is a major example of the contribution that VET can make to support economic development. VET can provide the skills needed for industries that seek to operate on the technological frontier and thus increase the chance of finding a well-matched job. This can substantially increase the attractiveness of VET for both learners and employers. Again, businesses partnering with VET-

¹ European Parliament (2000). Lisbon European Council 23 and 24 March. Presidency conclusions.
http://www.europarl.europa.eu/summits/lis1_en.htm.

² DK Presidency conference (2012). VET-Business Cooperation. Promoting New Skills, Innovation and Growth for the Future.

³ Statement by Directors General for Vocational Training and European Social Partners (2012). Promoting VET-business cooperation and partnerships in vocational education and training
<https://gnse.files.wordpress.com/2012/12/promoting-vet-business-cooperation-and-partnerships.pdf>

⁴ Morel, N., Palier, B., & Palme, J. (2012). *Towards a social investment welfare state?: ideas, policies and challenges*. Policy Press.

⁵ Barr, N. (2012). *Economics of the Welfare State*.

⁶ Morel, N., Palier, B., & Palme, J. (2012). *Towards a social investment welfare state?: ideas, policies and challenges*. Policy Press.

providers or higher education institutions play an important role in terms of work-based learning, apprenticeships, forecasting required consequences, providing trainers, etc.

The brief discussion above has already implicitly introduced the **level of qualification** dimension. Recent developments in higher VET shift the level of qualification from the traditional secondary to post-secondary, non-tertiary level or even to a full tertiary qualification. Indeed, higher VET has the potential to provide the high technical skills that a knowledge-based economy requires (see the discussion above on skill biased technological change) as well as to increase the attractiveness of VET, particularly where a vocational qualification can be coupled with a higher education degree. It is well documented how, for instance, dual study programmes in Germany are very appealing among high achievers in secondary school.

Population ageing is proving to be a major challenge for labour markets. Most labour markets in the EU, according to forecasts by Cedefop⁷, will be heavily affected by the phenomenon of 'replacement demand', namely the filling up of vacancies left by a large number of 'baby boomers' retiring. In this context, and with fertility rates low in most European countries, **skills shortages are likely to emerge if education and training systems do not provide the skills needed in the labour market**. In this respect there is strong evidence that VET is better placed than general education in providing the skills needed in the labour market *if* VET programmes are well-aligned with labour market needs. Systems with heavy employer involvement (e.g. Austria, Germany and Denmark) tend to perform better in terms of supplying the skills needed by the economy⁸. Therefore, with skills shortages promising to be a major challenge for the years to come, VET-business cooperation appears to be a chief strategy to pursue.

This overview leads to a simple, yet crucial conclusion: **VET can play a crucial role in tackling many of the most pressing challenges that Europe is faced with today**. To put the VET-sector in the best possible position to do so, however, it is crucial to increase its quality and attractiveness. VET-business partnerships can be key in achieving this.

VET-quality and attractiveness related to VET-business cooperation

There are several studies available concerning VET-quality and attractiveness. However, only some of these studies focus directly on how VET-business cooperation can enhance VET-quality and attractiveness.

Most of the identified studies perceive increasing VET-quality and attractiveness as a challenge. However, a European Commission study concludes that there is no kind of stigma attached to vocational training as an alternative to academic studies, with an estimated 71% of all European citizens saying that VET has a positive image in their country.⁹ Nevertheless, there are significant differences concerning the image of VET in different Member States.

Other studies point out that attractiveness is not only related to VET students. According to IBF¹⁰, **challenges also exist in making teaching VET attractive for teachers and trainers**. The main issues of concern are deterioration of working conditions for

⁷ Cedefop (2015) Replacement demand: driving millions of job openings across the EU: http://skillspanorama.cedefop.europa.eu/en/analytical_highlights/replacement-demand-driving-millions-job-openings-across-eu

⁸ Buechtemann, C. F., Schupp, J., & Soloff, D. (1993). Roads to work: school-to-work transition patterns in Germany and the United States. *Industrial relations journal*, 24(2), 97-111.

⁹ European Commission. (2011). *Special Eurobarometer 369. Attitudes towards vocational education and training*. Link, 02-03-2017: http://ec.europa.eu/public_opinion/archives/ebs/ebs_369_en.pdf. Note: this study is on EU28, Iceland and Norway.

¹⁰ IBF. (2013). *Study on Policy Measures to Improve the Attractiveness of the Teaching Profession in Europe*, vol 1&2. Link, 02-03-2017: http://ec.europa.eu/dgs/education_culture/repository/education/library/study/2013/teaching-profession1_en.pdf

teachers, the difficulty for teachers to adapt to frequent changes to the education system, the loss of autonomy, the poor image of teachers amongst the public, the lack of pedagogical skills of trainers, and the lack of time trainers have available to spend on their training tasks.

The main understanding of existing studies is that quality and attractiveness are crucial for VET. Ensuring quality and attractiveness of VET is important both in terms of providing the right competencies for the labour market, but also as a means of securing the quantity and the quality of VET graduates. **One of the key aspects in securing VET-quality and attractiveness is related to VET-business cooperation.** A study by the KOF Swiss Economic Institute concludes that the main features of VET in top performing countries include the fact that employers are involved in: setting qualification standards, deciding when an update is needed, and setting the examination form. In these systems, students spend most of their time in the workplace instead of the classroom.¹¹

A survey report developed for the purpose of preparing for the European Forum on Vocational Training concludes that **collaboration between companies and VET-providers is a key ingredient for ensuring quality in apprenticeships.** In addition to this, the main discussion points from the European Business Forum 2014 underline that businesses and VET-providers need to engage in collaboration and dialogue with each other at the regional and local level in order to increase VET-quality¹².

Work-based learning and apprenticeships are at the core of VET. In 2015, the European Commission published a report on the **20 guiding principles of high-performance apprenticeships and work-based learning.** Systematic cooperation between VET schools and companies was one of the identified principles to ensure high performing apprenticeships and work-based learning¹³. Some years before, Business Europe presented **12 main recommendations on how to improve quality and image of apprenticeships** on three levels; the European Union, the Member States and employers' organisations through cooperation. The purpose of the collaborations should be to improve quality by facilitating exchange of curricula¹⁴. On this subject, EQAVET finds that, by involving actors at different levels, including businesses, it is possible to guarantee that: 1) labour supply will match demand, 2) the skills delivered by VET will be the skills in demand, and 3) trainers and equipment in VET schools will be up to date¹⁵.

The main conclusion in the existing studies concerning VET-business cooperation is that **the link between the world of education and the world of work is of paramount importance for VET quality and attractiveness.**

¹¹ KOF Swiss Economic Institute (2016). *Feasibility Study for a Curriculum Comparison in Vocational Education and Training Intermediary Report II: Education-Employment Linkage Index (DRAFT)*. Available: <http://e-collection.library.ethz.ch/eserv/eth:49542/eth-49542-01.pdf>

¹² ICF (2014), *European Business Forum on Vocational Training Business & VET-Partners for Growth and Competitiveness*. Link, 02-03-2017: http://ec.europa.eu/education/events/20140923-business-vet_en

¹³ European Commission (2015). *High-performance apprenticeships and work-based learning: 20 guiding principles*. Available: <http://www.cedefop.europa.eu/nl/events-and-projects/projects/apprenticeships-work-based-learning>

¹⁴ Business Europe. (2012). *Creating Opportunities for Youth: How to improve the Quality and Image of Apprenticeships*. <http://www.buinesseurope.eu/Content/default.asp?pageid=568&docid=29967>

¹⁵ EQAVET (2014), *On EQAVET and the quality assurance approach in adult learning in the context of Continuing VET*.

Study objectives

In light of the above, the European Commission, DG Employment and Social Affairs, has commissioned Panteia, LSE Enterprise and Oxford Research to perform a study on VET-business cooperation.

The main purpose of this study is to present and analyse examples of how VET-business cooperation influences quality and attractiveness of VET. The examples will be discussed on the basis of 5 main research questions:

1. How can VET-business partnerships be classified and what is a fitting working definition of this form of cooperation?
2. What are the trends and developments in VET-business cooperation?
3. What are the challenges and success factors for VET-business cooperation contributing to high quality and attractive VET?
4. What are examples of good practices of VET-business cooperation which impact, or are aimed at raising the quality and attractiveness of VET?
5. What recommendations can be made on VET-business cooperation aimed at raising the quality and attractiveness of VET?

For a further demarcation of the study, it is important to note:

- To date, there is no overarching study on VET-business cooperation. There are a few studies on university/HE-business cooperation. In addition, there are some publications, EU-funded projects, partially relevant studies which touch upon VET-business cooperation.
- VET-business cooperation covers a broad variety of topics and dimensions. To comprehend this, one could think of national skills anticipation systems, local arrangement of business visits and regional organisation of apprenticeships, to name but a few examples that differ substantially on dimensions such as content, level of cooperation etc.
- The study is set up to provide a first look into VET-business cooperation, with the aims of starting a productive debate on the issues and providing recommendations for future steps, both in terms of VET-business cooperation as such, and for future, targeted studies on the topic.

Working definitions of VET and VET-business cooperation

Before discussing the approach to the study, it makes sense to discuss a working definition of VET-business cooperation. This should start with a working definition of VET, which appears less straightforward to establish than one would expect.

The following definitions for VET, IVET, and CVET are applied:

1. *Vocational education and training*: Cedefop's definition describes VET as 'education and training which aims to equip people with knowledge, know-how, skills and/or competences required in particular occupations or more broadly on the labour market'.¹⁶
2. *Initial education and training*: Cedefop describes initial education and training as 'general or vocational education and training carried out in the initial education system, usually before entering working life', whereas, (a) some training undertaken after entry into working life may be considered as initial training (such as retraining); and (b) initial education and training can be carried out at any level in general or vocational education (full-time school-based or alternance training) or apprenticeship pathways.¹⁷

¹⁶ Cedefop (2014). *Terminology of European education and training policy*. Second edition. A selection of 130 key terms. Luxembourg: Publications office of the European Union, 2014.

¹⁷ Cedefop (2014). *Terminology of European education and training policy*. Second edition. A selection of 130 key terms. Luxembourg: Publications office of the European Union, 2014.

3. *Continuing education and training*: Education or training after initial education or training after entry into working life aimed at helping individuals to: improve or update their knowledge and/or skills; acquire new skills for a career move or retraining; or continue their personal or professional development.

The study aims to present case studies with a broad array of characteristics. Accordingly, it uses a very broad definition of VET-business cooperation: VET-Business cooperation concerns every form of cooperation between VET-providers and companies.

Study Design

Desk research

Through desk research, the study team identified existing studies and reports on developments in the VET-business cooperation since 2010, mainly at EU and other international levels. Limited material was available.

Expert interviews

As a further step into collecting existing knowledge on the study topic, the study team interviewed ten experts representing scientists and EU-level and national stakeholders representing both VET-providers and the business world. Given the small number of interviews and to preserve anonymity, the stakeholders that were interviewed are listed in the box below by organisation. In the report, statements were not attributed to interviewees.

Box 1 Stakeholders interviewed

1. Representative of the Organisation for Economic Cooperation and Development (OECD)
2. Representative of the National association for the vocational training of adults in France (AFPA)
3. Representative of the European Trade Union Confederation (ETUC)
4. Representative of Business Europe
5. Representative of Cedefop
6. Representative of the Swiss Dual Education Project (DOMINO) in Bulgaria
7. Representative of social affairs and training policy at UEAPME
8. Representative of EfVET
9. Representative of the national association of VET-providers in the Netherlands (MBO-Raad)
10. Scientific expert

Stakeholders' survey

The results from both previous steps were used to develop a questionnaire for an internet survey amongst VET-providers, businesses, and business associations. The purpose of the online questionnaire was to provide quantitative knowledge on the *level and extent* of the different aspects of VET-business cooperation as well as to identify correlations between background factors and successful VET-business cooperation. Associations of VET providers were not included, as they were asked to forward the survey invitation to their members. Asking them to fill in a survey as well was considered a risk for the VET provider response - a priori the more important target group.

For each of the target groups (VET-providers, businesses, and business associations) a specific questionnaire was developed. The survey was made available in 6 of the main EU languages: English, French, German, Italian, Polish and Spanish. Invitations and four reminders were sent during a very short time period of only five weeks. In the end however, the response rate was too low to be relevant for the analysis in the study.

Case studies on examples of good practices

Twelve case studies were performed, each focussing on an example of good practices of VET-business cooperation. The aim of the case studies was to gain more in-depth insight into the factors of success and failure, working mechanisms and effective elements of VET-business cooperation. The examples of good practices were selected from a longlist of 36 examples, collected from expert interviews, the stakeholder survey and desk-research. In the selection process, key criteria were: diversity of characteristics, geographical diversity, innovativeness and availability of data. In Chapter 3, relevant characteristics of the 12 case studies are presented.

The desk research and each of the semi-structured in-depth interviews with stakeholders, supporting each other in the claims they make, have been used to validate the research outcomes.

The information on the case studies was collected in a semi-structured format, ensuring comparability. A further analysis at the level of VET-business cooperation topics (see Chapter 2) was performed; each topic is discussed in a separate chapter. As most case studies are relevant for more topics, reference is made in all relevant chapters. In addition, long descriptions per case study have been included in the annex.

Report Outline

Chapter 2 discusses a classification of VET-business cooperation. Chapter 3 presents an overview of the main characteristics of the 12 case studies and a short description. Chapters 4 to 11 discuss the topics distinguished in the classification:

- 4 Matching supply and demand
- 5 Work-based learning
- 6 Digital skills
- 7 Innovation (including digitalisation aspects not related to skills development)
- 8 Entrepreneurial skills
- 9 Mobility
- 10 Social inclusion
- 11 Raising awareness

These chapters follow roughly the same structure, with sections discussing:

- Introduction to the topic
- Relevant case studies and other examples
- VET process dimension (explained in Chapter 2)
- Level of cooperation (explained in Chapter 2)
- Relation to other topics (explained in Chapter 2)
- Impact on quality and attractiveness

Chapter 12 presents the key findings, conclusions and recommendations for policy makers.

This chapter is followed by a bibliography and an annex presenting the long descriptions of the case studies.

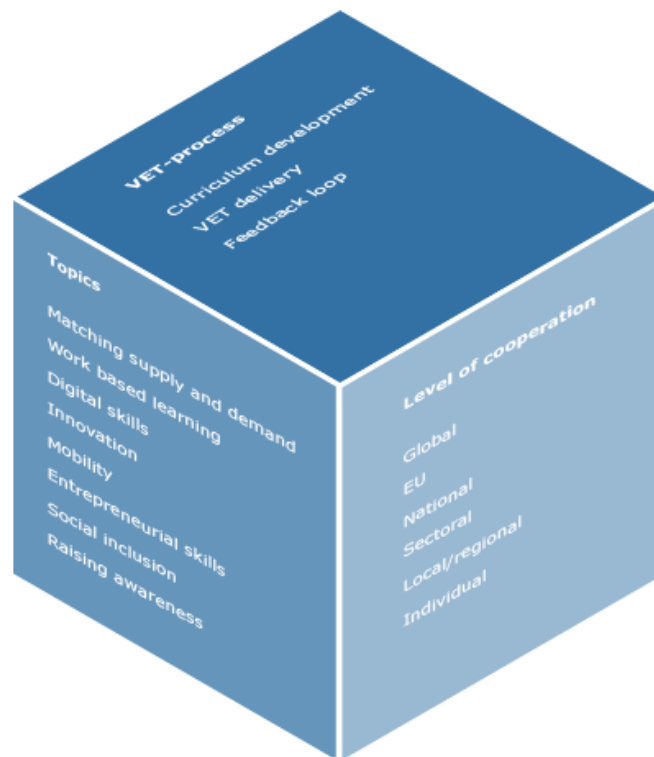
In addition to this report and the technical deliverables provided to the European Commission, the contractor provided three additional deliverables that aim to disseminate the findings to a broader audience: a leaflet, a video and a Power Point presentation.

2 DIMENSIONS OF VET-BUSINESS COOPERATION

A classification system of VET-business cooperation helps to group and compare practices and allows for the description of VET-business cooperation trends at a more aggregate level. This study casts the net wide and includes examples that are at first glance not part of the dominant VET-model at the national level. After all, good practices can occur outside of the 'mainstream' system and it is precisely this 'outsiderness' that can make it interesting for policymakers to learn about and consider adopting it.

Three dimensions are used to describe VET-business cooperation (see figure 2) as a flexible analytical grid to categorise the study findings, and in particular the case studies (examples of good practices). Each case study can stretch across several dimensions, together mapping the multiple features that case studies have.

Figure 2 Three dimensions of a VET-business cooperation classification



Source: Study Team

The three dimensions of VET-business cooperation that are distinguished in the study are:

1. VET process;
2. Topic of the cooperation;
3. Level of cooperation (National, regional, local, sectoral, individual (one business and/or one provider)).

VET process

Steps in the VET process:

- Curriculum development
- VET delivery
- Feedback loop

Curriculum development sets targets for VET-providers and possibly for other organisations involved (e.g. businesses providing training to apprentices). The aim of curriculum development is to make the provision of VET efficient in terms of matching supply and demand given certain conditions.

The core business of VET providers is to deliver VET to learners.

The third step in the process concerns a feedback loop. A reflection on the provision of VET can have multiple elements, but the relevance of skills and competences of graduates and the efficiency of the process are very important in this context. The feedback loop can identify required changes to the curriculum, thus closing the policy circle.

Although, the three are clearly related, the team considers it useful to make a distinction as the direct purpose and role in the VET process of these three elements is different. In addition, the organisations/staff involved will often be different. In a study by the KOF Swiss Economic Institute¹⁸, a slightly different but largely comparable classification is used: curriculum design phase, curriculum application phase and curriculum feedback phase.

Topic of the cooperation

The following topics are distinguished:

- Matching supply and demand
- Work-based learning
- Digital skills
- Innovation
- Mobility
- Entrepreneurial skills
- Social inclusion
- Raising awareness

The list of VET-business cooperation topics used the 2011 study on University Business Cooperation as a starting point¹⁹. This list has been supplemented and adapted on the basis of desk research and expert interviews. As such, it is a pragmatic list combining the focus areas for this study with other topics that are potentially important for VET-business cooperation. In a way, the list is somewhat arbitrary; a very detailed list including very small issues would not be workable, so a selection had to be made. There is also some overlap between the topics, for example between digitalisation, and the matching of supply and demand.

Level of cooperation

The study includes the following levels of cooperation:

- Global
- EU
- National
- Sectoral
- Local/regional
- Individual

Combining the previous dimensions results in specific content (topics) of cooperation for each step in the VET process. At different levels of cooperation, this can entail different activities, which is where the third dimension comes in. For example: governance at the national level, monitoring implementation and advice at the sectoral level and practical implementation at the individual or local level. These can both be separate steps and encompassing policy structures.

¹⁸ KOF Swiss Economic Institute (2016). *Feasibility Study for a Curriculum Comparison in Vocational Education and Training Intermediary Report II: Education-Employment Linkage Index (DRAFT)*. Available at: <http://e-collection.library.ethz.ch/eserv/eth:49542/eth-49542-01.pdf>

¹⁹ Davey, T. et al. (2011). *Study on the cooperation between Higher Education Institutions and public and private organisations in Europe*, Science-to-Business Marketing Research Centre.

3 CASE STUDIES

Selection on characteristics

Twelve case studies were developed, each focussing on an example of good practices of VET-business cooperation. The aim of the case studies is to present the variety of possibilities for mutual and societal gain through VET-business cooperation. A comparison of the case studies serves to showcase the differences and demonstrate that there is no standard approach to VET-business cooperation. Also, it provides an idea of the success and fail factors, working mechanisms, and effective elements of VET-business cooperation.

The case studies were selected from a longlist of 36 case studies, based on expert interviews, stakeholder survey and desk research. In the selection process, crucial elements were:

- Diversity in the context of the classification (3 dimensions see chapter 2)
- Geographical diversity
- Type of VET
- Business size and sector
- Innovativeness
- Availability of data

This chapter provides a brief overview of the 12 case studies that have been developed over the course of the project. As discussed in the introduction, the case studies have been selected to cover a variety of examples of good practices. Width was prioritised over depth, allowing the collection of a variety of examples across the main dimensions of interest within the project. The following table provides a synthetic overview of the theme(s) that each case study touches upon.

Table 1 Case study characteristics

		Process		Topic				Level of cooperation		Type of VET		Main actors		Funding												
Name	Country	curriculum development	VET delivery	feedback loop	Matching supply and demand	WBL	Digital skills	Innovation	Mobility	Entrepreneurial skills	Social Inclusion	Raising awareness	EU global	national regional	sectoral	firm level	IVET	cVET	Higher VET	LLL	businesses	providers	other educational institutions	government	other	
Workplace-oriented qualification for unemployed	Austria	x	x	x	x	x					x			x	x		x		x	x	x	x	x	x	Public (national and regional)	
Coop Food School	Denmark	x	x	x	x	x					x	x					x	x			x	x			Mix of private and public funding	
Trimola Campus and Robola lab project	Finland	x	x	x	x	x	x			x			x	x	x	x					x	x			Mix of national and EU-funding	
Dual Study Programmes	Germany	x	x	x	x	x										x			x		x	x			Mix of private and public funding	
Higher Technical Institutes	Italy	x	x	x	x	x	x					x	x	x	X				x	x	x	x	x		Mix of private and public funding (partly ESF)	
Educate for Business	Latvia and Lithuania	x	x	x	x					x	x		x	x	x	x		x			x		x		Mix of national and EU-funding	
Techwise Twente	the Netherlands	x	x	x	x	x	x	x	x			x		x	x	x	x	x		x	x				Mix (regional and local government)	
Cooperative Education	Serbia and Germany	x	x	x	x	x				x			x	x		x		x				x			Publick (Germany)	
Step Ahead	Slovakia, Czech Republic and United Kindom	x	x	x	x		x		x				x		x	x	x			x	x	x			Erasmus+	
Labour Foundation of the Construction sector	Spain	x	x	x	x						x			x	x			x		x	x			x	Mix of private (construction companies)	
Tech Partnership	United Kingdom	x	x	x	x	x						x		x		x	x		x		x				Mix of private and public funding	
Nestlé needs YOUTH	Global	x	x	x	x	x						x	x			x	x	x		x	x				Private	

Source: Case Studies

A short description of the 12 case studies is presented below, which the next 9 chapters will draw upon. If the reader is interested in a specific case study, please refer to the annex for the full version. The short descriptions follow roughly the same structure as presented in the box below. The following chapters build on the insights gained through the 12 case studies to discuss key thematic aspects of business cooperation in VET.

Short description case studies

Box 2 Outline short description examples of good practices

- Heading (title, country, title in national language, years running, type of funding)
- Overall aim
- Type of VET
- Main actors involved in the initiative
- Relevant aspects of VET process (curriculum development / VET delivery / feedback loop)
- Main topics of the cooperation (matching / WBL / digital skills / etc)
- Level of cooperation? (Global / EU / etc)
- Results of the initiative
- Challenges (both the ones overcome and the ones remaining)
- Success factors

Workplace-oriented qualification for unemployed - Austria

Name in national language: Arbeitsplatznahe Qualifizierung für Arbeitslose (workplace-oriented qualification for unemployed), or AQUA

Years Running: Since 2010

Funding: Public (mix of funding from national and regional governments)

AQUA is an active labour market programme of the Austrian Public Employment Service (AMS), targeted at unemployed persons without adequate qualifications with an above average distance to the Austrian labour market. AQUA started in 2010 at the regional level in Oberösterreich and financially supports cooperation between companies and training institutions in educating an unemployed person and enabling that person to obtain a recognised qualification. In subsequent years the programme expanded to other regions and can now be considered a national programme.

The PES develops customised education plans that often end with a VET certification, but sometimes with validation of experience-based knowledge. The aim is that the participating company employs the person after he/she has completed the programme. AQUA provides help with matching companies, unemployed persons and VET institutions, and with designing a training plan that may or may not result in the trainee obtaining a recognised diploma. The training may take up to one year. On average, two thirds of the time is spent on work-based learning in the participating company, one third is spent on schooling.

The programme can thus be categorised as Life Long Learning programme and contributing to improving social inclusion, as it attempts to provide unemployed persons with education that teaches durable skills. As such, the main goals of the VET-business cooperation are Work-Based learning, social inclusion, raising attractiveness of VET and matching supply and demand on the labour market.

The main partners are businesses and VET providers, with the PES and a private 'cooperation partner' playing a facilitating 'broker' role between them. The main focus of cooperation is the reintegration of unemployed persons, and as such the programme improves social inclusion of VET. The level of cooperation is both at the firm level, regional, and national level, as the national PES works in conjunction with individual firms and cooperation partners to realise these work-learning tracks for unemployed persons. The programme has achieved good results, and with a total of 3,000 concurrent participants and a dropout rate of 35%, the programme has a yearly outflow of 2,000 people that receive a qualification, 65% of whom are still employed three months after completion.

The programme has a few internal factors that promote its success. Firstly, the fact that the education plans are tailor-made, means that AQUA is adaptable to a great range of company-employee needs. Secondly, the fact that it subsidises education for the unemployed and labour for the company causes a win-win-win situation in which the unemployed, the company and the PES gain from cooperation. A challenge that AQUA has confronted head-on is the fact that participating businesses may have an incentive to apply for the programme to gain production at low cost. In such a case, they would not substantially invest time in improving the skills and competences of the unemployed. The challenge was tackled by closely monitoring the dropout rate of participating companies, as a high dropout rate indicates abuse of the programme.

The case study, overall, provides strong evidence for recommending deep business involvement in VET delivery if VET is to be improved in its inclusiveness and attractiveness.

Coop Food School - Denmark
Title in national language: Coop Madskolen
Year running: Since 2016
Funding: Mix of private and public funding

The Danish retail chain Coop has developed its own VET programme at IVET level for butchers, bakers and delicatessen assistants. The programme follows the national requirements for the three professions and is made in close cooperation with Zealand Business College, a public and national accredited VET provider. The programme has a much higher focus on WBL compared to standard education and training programmes for butchers, bakers and delicatessen assistants. Among others, there is an 'apprenticeship guarantee' for all students, which implies that all students enrolling for the Food School are assured an apprenticeship spot in one of Coop supermarkets.

The Food School has been very well received across actors in the system. Among VET students it has also been popular from the beginning. For example, the Food School stood for over 50 percent of all enrolled butchery VET students in Denmark in the second semester of 2016. Students enrolling in the programme tend to have a high vocational level and enthusiasm. One of the main results from the first enrolled class is that there has been a lower drop-out rate from the Food School compared to regular VET programmes.

The main challenge is that some of the enrolled students have weaker social and personal competencies than VET students from normal VET programmes, which may be related to the removal of the grade based entry requirements. Hence, some of the students' need more support and counselling than regular VET students. Furthermore, the Food School is co-financed by Coop. It is therefore crucial to involve a company who are willing to invest a significant amount of time and resources if this kind of initiative is to succeed. Finally, it is necessary that the national VET-system allows a large component of work based learning in an accredited VET programme.

At an overall level the Coop Food School case study shows how close cooperation between a VET-school and a company can improve the attractiveness of VET and the matching of skills supply and demand. Furthermore, the case study shows how a higher involvement of the business side in the VET-system can also enhance the possibility of improving social inclusion of young people in VET as companies perhaps tend to have a higher focus on young people's willingness to learn instead of focusing solely on academic skills.

Trimola Campus and Robola lab project - Finland

Year running: From 2011 until 2013

Funding: Mix of national and EU-funding

Valkeakoski Campus is a unique learning environment that brings together the local vocational school (initial-VET), university of applied science (higher-VET) and upper secondary school.

The overall aim of the Campus Trimola project was to support cooperation and synergies between the local educational institutions and companies. Other project objectives were to bring company based problems from local companies into the curricula through project based learning and to foster entrepreneurial spirit and skills among campus students.

The Valkeakoski Campus provides working space for companies and remote workers as well as students seeking to start their own business. A co-project within the overall project called Robola Lab focused on developing a learning environment for robotics and automation that can be used by the local students. The Robola Lab was designed after close consultation with local companies. Finally, the Trimola project focused on improving study pathways for students from I-VET to H-VET as well as resource sharing between the educational institutions located on campus.

The project has succeeded in creating an interesting and international campus environment that raises attractiveness of VET for all students studying at the campus and in creating more cooperation between the different educational institutions. Regarding the goal of more collaboration between campus institutions and companies, there are both positive and negative results. The collaboration between the local higher-VET institutions has improved while cooperation with the I-VET institution remains the same as before the project. Finally, the objective to foster entrepreneurial spirit among students by providing access to office facilities and entrepreneurship courses have not resulted in a range of new start-ups among students.

The project shows how a higher degree of cooperation between VET institutions can improve overall VET attractiveness. On the other hand it is also clear that co-location of companies and educational institutions is not a guarantee for closer collaboration. The main critical factor remains the relevance of the potential cooperation, as the I-VET institution is still primarily cooperating with larger manufacturing companies and smaller retailing companies not located on campus. However, if there is potential for cooperation, as was the case study between the companies located on campus and the h-VET institution, sharing a location can enhance VET-business cooperation. Finally, the project shows that even though students have access to facilities supporting entrepreneurship and that this is underpinned by entrepreneurship courses, it remains a complex process to foster entrepreneurial spirit and skills among VET students.

Dual Study Programmes - Germany

Title in national language: Duales Studium

Years running: Since 1972

Funding: Mix of private and public funding

Dual study programmes (German name: Duales Studium) have been established in 1972 in Baden- Württemberg, however, after a long period as 'niche programmes' narrowly located in this Lander and enrolling a limited amount of students, the dual programmes became an increasingly important segment of the German skill formation system since the late 1990s, and most significantly, during the last decade. Dual Study Programmes are now offered across the whole country and almost 100,000 students are enrolled in the programmes. Dual Study Programmes are delivered by higher education institutions (most frequently Universities of Applied Sciences) and they lead to a Bachelor degree and a vocational qualification, or to a Bachelor degree alone. Hence, they follow the logic of traditional apprenticeships, but they foresee the class-based component of the programme to take place at a university. The Dual Study Programmes are therefore an example of higher VET characterised by close cooperation between employers and higher education institutions in course design and delivery with a strong work-based learning component.

In contrast to traditional apprenticeships, however, the cooperation is much less based on sectoral arrangements underpinned by employers' associations, instead it is organised at the company-level, i.e. between individual companies and individual higher education institutions. Some dual study programmes also serve a lifelong learning function. The majority of these programmes are in STEM subjects (engineering in particular) and business administration, and they are seen by companies as important means to face skill shortages in STEM occupations. The programmes have achieved significant success in terms of employment outlooks for their graduates and they have therefore gained prominence among high-achieving upper-secondary school leavers.

The downside of the programmes is that their development is likely to be structurally constrained (i) because of their cyclical nature (i.e. given the substantive investment that companies are required to do to run these programmes, they are expected to develop significantly at times of economic expansions) and (ii) because the high demands and expectations that companies put on participants in these programmes make a relatively limited number of secondary school-leavers suited to them. The Dual Study Programmes provides evidence of how business' entrepreneurial attitude towards the VET system might result in policy innovations and policy developments that keep VET attractive at times where VET is challenged by the expansion of academic education.

Higher Technical Institutes - Italy

Title in national language: Istituti Tecnici Superiori

Year running: Since 2010 (legal basis had been laid down in 2008)

Funding: Mix of private and public funding (including ESF within public funding)

The Higher Technical Institutes (HTIs, official Italian name: Istituti Tecnici Superiori) were established in 2010 by the government with the aim to provide technical and technological skills in areas deemed strategic for the country's economic development. The HTIs provide VET at the tertiary level, although the certifications granted are not higher education degrees. The actors involved in the HTIs are: upper-secondary professional or technical schools; local governments; training providers accredited by the regional government; businesses; and university departments. At least one of each of the actors listed above is expected to be involved for the establishment of an HTI. The cooperation among actors focuses strongly on curriculum development and VET delivery, hence featuring a strong component of work-based learning, and are geared towards innovation, to the extent that the six streams identified for the operation of HTIs respond to the needs of an innovative, future-oriented economy. Indeed, the HTIs operate in six areas, according to a smart specialisation approach: (i) new technologies to promote made in Italy products; (ii) sustainable mobility; (iii) energy efficiency; (iv) technologies for cultural heritage preservation; (v) ICT; (vi) medical technologies.

The HTIs operate across the countries, but the cooperation among actors is best characterised as a regional-level cooperation among individual actors operating in the same economic sector. Training is organised at the regional level to reflect the regional skills needs in a specific sector of the economy. Currently, the initiative counts as many as 370 training programmes offered across 93 HTIs with a strong work-based learning components of at least 30% of the entire duration of the programme and 50% of teachers and trainers drawn from industry. An evaluation of the initiative based on detailed data collected from a sample of 97 programmes offered by 57 HTIs found that 42 programmes have been high performers across a set of indicators and, within the high-performing group, 33 programmes have been given the 'premium' status, which mostly refers to programmes in the area 'New Technologies for Made in Italy' and have recorded extremely high employment rates upon graduation (sometimes at 90% or above).

The programmes offered by HTIs have been most successful where the presence of local-sectoral businesses is strong: not only is a vibrant business community able to inform the supply-side (e.g. in terms of detailing the types of skills needed) but also to be in the position, subsequently, to 'demand' these skills and therefore smooth the school-to-work transition of HTI graduates. Thus, where HTIs have been set up in areas characterised by relatively weak demand from businesses, their performance in terms of, for instance, graduate employability has been rather problematic, while the opposite holds true for HTIs embedded within strong business networks. This case study therefore points to the symbiotic relationship and mutual reinforcement between the supply- and demand- side needs: excellent training programmes are matched with and reinforced by a strong local economic context and its businesses.

Educate for Business, Latvia and Lithuania

Year running: From 2012 until 2014

Funding: Mix of national and EU-funding

The Educate for Business project was established in 2012 and ran until the beginning of 2014. The project was supported by the 'Latvia – Lithuania Cross Border Cooperation Programme' which was co-financed by the European Regional Development Fund. The total budget of the Educate for Business project was 790.000 EUR.

The overall aim was to increase the competitiveness and productivity of the new generation labour force in the Latvian-Lithuanian border region. In doing so the programme contributed to sustainable and cohesive socio-economic development of the Euroregion 'Country of lakes', and increased the employment and entrepreneurship among graduates from vocational schools. The project also focused on improving VET quality and aligning VET with labour market needs. As part of the project there was also a strong focus on improving VET infrastructure, namely, equipment and study materials. Furthermore, the project supported cooperation between the involved schools, and underpinned the development of relevant study programmes in accordance with labour market needs. To reduce skills mismatch between VET graduates and labour market needs the project emphasized close cooperation with and the involvement of local companies in updating of existing VET programmes.

The project resulted in an update of existing VET programmes, purchase of new equipment and improved possibilities for work based learning and competence development for VET students and teachers. A weakness was that it was very difficult to involve students in the entrepreneurial activities. However, the project clearly shows how the involvement of companies plays a crucial role in improving the relevance, quality and attractiveness of VET.

Techwise Twente – the Netherlands

Years Running: Since 2013

Funding: Public (regional and local government)

Techwise Twente is a cooperation between VET- schools and business organisations that started in 2013. The overall aim of the project is 'to facilitate the cooperation between education providers and business organisations to organise (higher) VET-training which respond to the needs of the manufacturing industry'. As such, the primary focus is to provide added value to the companies involved by ensuring VET in the sector is up to par.

The partnership incorporates educational partners (secondary education, vocational secondary education and business trainings), business associations and business organisations from the manufacturing industry. Within Techwise Twente partners work together to provide answers on the following questions:

- How can we bring the knowledge and skills of the workforce in the manufacturing industry to a higher level?
- How do we train employees from other industries?
- How do we develop and determine the training offer with all stakeholders involved?
- How to recruit, bind, and keep our employees up to date through joint pooling?

The cooperation is mainly focussed on updating curricula, connecting supply and demand through new and currently qualified workers, raising the profile of VET through education in innovative technologies, and mobility of VET students in the region. Because Techwise has a wide scope of member organisations, the cooperation takes place on regional, firm and sectoral levels.

Because the partnership does not release its internal targets, it is hard to ascertain whether the partnership's goals have been met through these evaluations. Moreover, the evaluations do not mention the amount of students Techwise has educated or provided with an apprenticeship. Respondents from the organisation itself, however, attest to the fact that targets have been met consistently through the initiative's runtime.

A success factor of the initiative is that Techwise is able to efficiently play the role of broker between a company, a student and a VET institute due to low overhead costs, as Techwise officials are employees of VET institutes and companies in the region. This also facilitates the close ties and knowledge sharing between the organisations within the cooperation.

Challenges that have been largely overcome include the fact that different partners have had opposing interests in the past. VET institutes in the region competed for students in the past, but now they have specialised in specific occupations and technologies. Furthermore, whereas Techwise struggled with a lack of brand awareness in the region in the past, due to its runtime of 7 years and good results, the project has become more renowned. A further challenge to overcome is that the project is still dependent on government subsidies, the sustainability of which is questionable. The question remains whether partners in the cooperation will continue to cooperate if and when subsidies run out.

The main lesson that can be taken from the Techwise case study is that sectoral cooperation, whose primary goal is to provide added value to private companies, can also have a substantial impact on quality of VET.

Cooperative education – Serbia and Germany

Year running: April 2013 - December 2017

**Funding: Federal Ministry for Economic Cooperation and Development,
Germany (BMZ)**

Unemployment is very high in Serbia (14% in 2016). A disproportionate share of unemployed people has a secondary vocational education. Yet at the same time, employers report a shortage of skilled workers with appropriate skills for the modern workplace due to the out-dated and ineffective system of secondary vocational education in Serbia. Vocational schools have inadequate resources, obsolete equipment, and out-dated curricula.

The project 'Reform of Vocational Education and Training in Serbia', managed by GIZ, aims to improve this situation by introducing elements of the German dual education system in Serbia. The level of cooperation is national in that the project has a national scope, while at the same time local in that cooperation takes place between a school and local companies. Rather than adopting a company-based approach as in traditional dual education, the VET process that has been adopted can be characterised as a school-based 'cooperative education'. This is a school-based approach that is adapted to the Serbian legal and economic environment. The project has succeeded in engaging 16 secondary vocational schools in partnership with 25 companies, and a further 25 companies are set to join the project. It has modernised several 3-year vocational profiles with the assistance of participating companies.²⁰ The topic of the cooperation has been matching supply and demand through the introduction of work-based learning. Secondary vocational students are given day release to participating companies where they receive work-based learning supervised by trained mentors. The early indications are that the project has been successful in meeting its aims of improving the employability of secondary vocational school graduates. The participating companies have employed all of the first batch of graduated secondary vocational students which participated in the project. More schools and companies have expressed an interest in joining the project, and public esteem for vocational education is on the rise. The government supports the project and is preparing a new law on dual education in Serbia.

Drivers for the success of the project include the involvement of all relevant stakeholders in the design of the new VET process and the way in which the experience of German dual education has been adapted to the local circumstances, institutions, level of development, and legal environment in Serbia, resulting in the adoption of a school-based approach more suited to Serbian conditions. Challenges remain, including increasing the motivation of students from disadvantaged family backgrounds, and raising the participation of young Roma and girls.

²⁰ Secondary vocational schools in Serbia offer both 3-year and 4-year study programmes. The latter offer a route to higher education and tend to be more theoretical than practical in content. The former offer a direct entry to the labour market and tend to have a higher practical content.

Step Ahead - Slovakia, Czech Republic and United Kingdom

Year running: 2015-2017

Funding: Erasmus+

The 'Step Ahead' project was initiated by the Erasmus+ programme (EU), and the project will run from September 2015 till August 2017. The purpose of the project is to foster cooperation for innovation and the exchange of good practices through strategic partnerships for vocational education and training. The project is built on real and concrete needs verified by 71 respondents in an online research survey among 87 secondary IVET schools in Slovakia from automotive professions. Besides providing three national conferences and an intensive training programme for Slovak VET teachers, the project provides new teaching materials for the participating schools, such as interactive learning screens (Erasmus, 2015). The partner group behind the project consists of SOŠA Bratislava (coordinator of the project), INAK oz (SK), NAPA Trucks (CZ), Institute of Motor Industry (UK) and Automotive Technician Training (UK). The project centres on ensuring that the supply of skilled car technicians matches the demand from the automotive businesses. The goal is to ensure this through keeping VET teachers' skills updated, developing curricula and providing digital teaching materials.

In Slovakia, car production companies and industrial parks created 200 000 work places, totalling 9% of the total employment rate in 2015. This requires qualified VET teachers, relevant training programmes and innovative, high quality teaching materials reflecting the job market needs (Erasmus, 2015).

More information about the results, challenges and success factors would be required to make any substantial conclusions about the project potential and its impact.

Labour Foundation of the Construction sector - Spain

Title in national language: Fundación Laboral de la Construcción

Years running: Since 1992

Funding: Mix of Public and Private (Mix of funding through the Ministry of Social Affairs and levies on member companies of the social partners in the construction sector)

The 'Fundación Laboral de la Construcción' (FLC) is a paritarian organisation, i.e. governed by employer organisations and unions that was established in 1992. The goals of the FLC are to enhance vocational training among workers in the construction sector, to encourage health and safety at the workplace, and to promote employment in the sector. The main actors involved in the Foundation are Spanish employer organisations and trade unions. Thus, the FLC aims at providing businesses and workers in the construction sector with the necessary skills and knowledge to develop a more professional, qualified, and educated sector. The FLC is a national partnership which involves nation-wide actors and addresses target groups across Spain. The FLC provides over 400 different training tracks in 45 training centres with over 1500 teachers which are located throughout the country, and has developed over a 100 study manuals on subjects relevant to the construction sector. Consequently, the FLC has welcomed hundreds of thousands of construction workers into its training centres, preparing them for new technologies and improving knowledge of health and safety standards. The FLC promotes social inclusion and mobility of VET in the construction sector in Spain, by offering free qualification opportunities to unemployed persons. Educational efforts of the FLC mostly focus on the development of curricula by incorporating new practices from the field into VET training for the sector (feedback loop).

FLC is specialised in VET courses within the Vocational Training for Employment system in Spain, which includes continuous training for the employed (CVET), and occupational training for the unemployed. Besides this, it also offers Initial Vocational Training (IVET) programmes, mainly aimed at young people before entering the labour market. With regard to occupational sectors, the Foundation works exclusively in the construction sector, although it is interested in increasing its training offer towards other related sectors (e.g. metal, renewable energies).

Most of the training is offered free of charge and ends in a qualification that is recognised throughout the country, which is a great success factor of the FLC's education. A challenge that still remains for the FLC is that it relies heavily on levies raised from its member companies, the height of which is based on yearly company turnover. A reduction in turnover throughout the sector could therefore severely cut the income for the FLC and threaten the sustainability of its activities.

All in all, we can learn from the FLC case study that the involvement of sectoral social partners can be a very relevant factor in increasing quality and attractiveness of VET.

Tech Partnership - United Kingdom

Years running: Since 2014

Funding: Mix of private and public funding

The Tech Partnership was established in 2014. Its overall aim is 'to create the skills for growth in the global digital economy'. The Partnership covers two main types of VET: IVET at the post-secondary level (through apprenticeship programmes) as well as IVET at the tertiary level (through degree apprenticeships and regular university degrees). The key actor in the initiative is a network of employers of different sizes working in the tech sector, which qualified the partnership as a not-for-profit organisation, then turned into a charity. A number of other actors are also involved, most importantly training providers and universities who take part in the delivery of the programmes developed by the Tech Partnership, and the government which has provided co-funding for the establishment of the Partnership.

The cooperation is focused on curriculum development and co-delivery of VET. In particular, the Tech partnership designs apprenticeship programmes as well as bachelor and master degrees. In addition, the Partnership is also active in raising the profile of VET for the development of digital skills through school visits delivered by a number of so-called TechFuture Ambassadors. The initiative features elements of work-based learning (apprenticeships at all levels designed by the Tech Partnership involve elements of work-based learning) with a focus on digital skills. It takes place on a national level and across the entire UK tech sector.

The initiative achieved significant results: in particular, across several indicators the quality of programmes (be them apprenticeships or degrees) designed by the Tech Partnership fare better than comparable programmes. For example, Tech Partnership apprenticeships tend to be at a higher level than average apprenticeships, and graduates in Tech Partnership degrees have better employment prospects than graduates from computing subjects.

The key to the success of the Tech Partnership has been a strong commitment at the senior level from the management of the participating companies, which has ensured deep involvement of business in the initiative.

Shortcomings also exist, notably, a training fund that had elicited training efforts on the side of SMEs in particular had to be discontinued due to the decision of the government to not re-finance such initiative. This points to a broader problem of financial constraints and division of 'efforts' between private and public actors when it comes to training.

The case study, overall, provides strong evidence for recommending deep business involvement in course design if VET is to be improved in its quality and attractiveness.

Nestlé needs YOUTh - Global

Years running: Since 2014

Funding: Private

The Nestlé needs YOUTh initiative is led by the multinational company Nestle. The initiative fits squarely in the curriculum development and design mechanisms, with the company stepping up its work-based learning programme by creating 20 000 jobs, apprenticeships and traineeships across Europe between 2014 and 2016. Nestlé needs YOUTh's overall aim is to reduce youth unemployment in the European Union and better prepare Europeans under 30 for their professional lives. It mostly focusses on IVET, as it provides opportunities for those who are still pursuing their education and are new to the labour market. Partners in the project are mostly from the private sector and are government bodies, while educational institutes are targeted in the project. Large private partners include multinationals like DHL, Twitter, Google, Facebook, and Ernst & Young that are active in the initiative across the EU, while smaller companies cooperate with national Nestlé offices. As such partners are located in Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

The second part of the initiative represents a feedback loop for raising awareness of VET as Nestle also provided for 120 ambassadors who give advice and guidance to smaller companies which wish to start or strengthen apprenticeship schemes; these ambassadors have reached out to up to 60 000 small businesses. These companies have been contacted by Nestlé, either because they had been clients in the past, or because they are a part of Nestlé's production chain. As such, these businesses are in several sectors, but mostly in hotel, restaurant, logistics, transport, finance, food and drinks, manufacturing, administration, human resources, sales, marketing, finance, engineering and R&D sectors.

The project can be categorised as promoting work-based learning and raising the profile of VET education, as well as improving mobility. Nestlé needs YOUTh is a transnational initiative that is mostly executed at the firm level. Nestlé has expanded the initiative to the Youth Employment initiative, which aims to provide 35 000 young people in Europe, the Middle-East and North-Africa with labour market opportunities by 2020. Nestlé cooperates with schools and universities by recruiting from those institutions directly and organising career events, thereby meeting students and providing them with CV clinics, interview preparation, and advice on how to enter the job market.

Nestlé Needs YOUTh has seen good results, overachieving on most of its initially set targets and being expanded beyond the initial European region. The company has been able to hire 20,000 young persons under 30, twice as many as the initial target. The hiring of young persons is special in this project because Nestlé makes an effort to provide young people with the professional and employability skills to increase their chance of finding a job. A success factor for the project is the coherence of the approach and alignment of the project with the Nestlé values, including awareness of the importance of the private sector for the quality of VET. A major risk factor for the project is Nestlé's financial results and management's belief that the project is aligned with Nestlé's goals. A decrease in profits or turnover and/or a change of heart in management could cause Nestlé to decide that fewer people and funds should be allocated to Nestlé needs YOUTh.

All in all, the lesson to be taken from the Nestlé needs YOUTh initiative is the positive effect that company awareness of their corporate social responsibility regarding the education and employment of youth can have on the attractiveness of VET and work-based learning.

4 MATCHING SUPPLY AND DEMAND

Introduction to the topic

Rapid technological changes, continuing globalisation and an ageing workforce are examples of developments that companies are currently facing. Dealing with these new developments requires a good match between the demands of the labour market and the skills and number of (potential) employees. A good match between supply and demand is important for all actors involved:

- For the success of businesses in their market as a good match makes them able to adapt to new developments and/or to create innovation
- For VET providers which can benefit from a good match for the attractiveness of their education
- For VET students, as a good match increases their job opportunities on the labour market²¹.

The 2010 Bruges Communiqué on Enhanced European Cooperation in Vocational Education and Training calls for flexible, high quality education and training systems which respond to these labour market needs. The document highlights the importance of improving the 'capacity of VET to respond to the changing requirements of the labour market', and goes on to state that 'We need to adapt VET content, infrastructure and methods regularly in order to keep pace with shifts to new production technologies and work organisation.' It is suggested that labour market actors, VET providers and public authorities need to be involved in a constant dialogue for developing and renewing standards in order to fight against skills mismatches. This requires close and systematic cooperation between authorities and providers.²²

The World Economic Forum, the ILO and the OECD have also drawn attention to the challenges which skill mismatches pose for many Western economies.²³

Besides these issues of a more qualitative nature, the regulation of shortages or surpluses of VET graduates from certain studies can also be important in addressing skills mismatches, and this is predominantly a quantitative aspect. Regulation of shortages is especially interesting for sectors with higher employment growth potential such as health and care, green sectors, and the ICT sector. Investments in VET to address skills shortages can support growth in these sectors. A surplus of VET graduates can for example be regulated by limiting the number of students for one or several studies²⁴.

The relevance of the topic is also evident from the substantial efforts carried out by Cedefop in this field. The variety of relevant actions and products (tools, reports, reviews, etc.) also makes it abundantly clear that matching supply and demand of skilled labour plays a key role in all steps of the VET process, and is linked to many of the topics distinguished above. It should therefore be important at all levels of stakeholder cooperation.

²¹ VOCOL TRIANGLES and Erasmus+ (2015). *Guide to best practice in Employer Engagement: Vocational Education and Training*.

²² Council of the European Union; European Commission (2010). *The Bruges Communiqué*. Available: http://www.cedefop.europa.eu/EN/Files/bruges_en.pdf

²³ World Economic Forum (2014). *Matching Skills and Labour Market Needs Building Social Partnerships for Better Skills and Better Jobs*. Davos: World Economic Forum. Available: http://www3.weforum.org/docs/GAC/2014/WEF_GAC_Employment_MatchingSkillsLabourMarket_Report_2014.pdf; OECD (2016). *Getting Skills Right: Assessing and Anticipating Changing Skill Needs*. OECD: Paris; OECD, Cedefop, ETF and ILO (2014). *Anticipating and Responding to Changing Skill Needs*;

²⁴ European Commission, Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions: *Rethinking Education: Investing in skills for better socio-economic outcomes*, 2012

A few examples of relevant work from Cedefop illustrate this:

- Shift to learning outcomes²⁵
- The challenge of analysing skills mismatches²⁶
- Understanding feedback mechanisms between initial VET and the labour market²⁷
- Tackling unemployment while addressing skill mismatch²⁸
- Matching Skills and Jobs²⁹
- Governance of EU skills anticipation and matching systems: in-depth country reviews³⁰

To achieve a good match between the supply in terms of VET graduates and the demands of the labour market, more VET-business cooperation is needed. This cooperation can be focused on regulating the match in terms of skills for certain professions, or the numbers of VET graduates. In addition to IVET, VET-business cooperation can also focus on the skills of the current employees by organising CVET³¹. To conclude, in most case studies matching supply and demand is a direct or indirect aim for all types of VET-business cooperation.

Examples and case studies

The aim of matching skill supply and demand comes across very strongly in several case studies of good practices regarding cooperation between businesses and VET. In particular, even where matching skill supply and demand is not the explicit main aim of the initiative, it is still an objective which any given VET-business cooperation contributes to. In particular, two main types of 'skill matching' were encountered: a qualitative and quantitative one.

A qualitative skills mismatch refers to a mismatch between the type of skills required on the labour market (for instance, engineers that do not possess the right skillset demanded by employers), whilst a quantitative mismatch refers to issues around skills shortages (for instance, there are not enough engineers) or surpluses (not found in the case studies in this study). Of course, some initiatives might tackle both aspects at once (for instance by triggering the supply of more engineers with a different skillset).

The following table provides an overview of the matching activities found in the case studies. A long description of the case studies can be found in the Annex.

²⁵ Cedefop (2008). *The shift to learning outcomes Conceptual, political and practical developments in Europe*. Luxembourg: Publications Office. www.cedefop.europa.eu/files/3054_en.pdf

²⁶ Cedefop (2010) *The Skills Matching Challenge: Analysing Skills Mismatches and Policy Implications*. Luxembourg: Publications Office of the European Union;

²⁷ Cedefop (2013). *Renewing VET provision: Understanding feedback mechanisms between initial VET and the labour market*. Luxembourg: Publications Office. Cedefop research paper; No 37. http://www.cedefop.europa.eu/EN/Files/5537_en.pdf

²⁸ Cedefop (2015). *Tackling unemployment while addressing skill mismatch: lessons from policy and practice in European Union countries*. Luxembourg: Publications Office. Cedefop research paper; No 46. <http://dx.doi.org/10.2801/648140>

²⁹ Cedefop (2015). *Matching Skills and Jobs in Europe*. Luxembourg: Publications Office of the European Union;

³⁰ See: <http://www.cedefop.europa.eu/nl/about-cedefop/public-procurement/governance-eu-skills-anticipation-and-matching-systems-depth>

³¹ Cedefop (2015). *CVET in Europe: the way ahead*, Luxembourg: Publications Office of the European Union.

Table 2 Aspects of the case studies related to matching supply and demand

Case study	Case study aspects related to matching supply and demand
AQUA (AT)	<i>Qualitative matching</i> - AQUA (Arbeitsplatznahe Qualifizierung für Arbeitslose, or workplace-oriented qualification for unemployed) targets unemployed persons with an above average distance to the labour market for CVET and life-long learning education. It sets up education plans that are customised to the unemployed individual in cooperation with the participating company and VET institute – matching the skills of the unemployed with the needs of the employer. An important characteristic of AQUA is its capacity to include SME's; employers with only one or two vacancies.
Coop Food School (DK)	<i>Quantitative matching</i> – the initiative aims to solve the increasing shortage of workers in several occupation in the food (retail) industry such as butchers, bakers and delicatessen assistants
Valkeakoski Campus, (Trimola Campus and Robola lab project) (FI)	One of the reasons for building the Robola lab was that by giving students access to the equipment used and demanded by local companies it could improve the VET students' possibilities to learn the right digital skills. Hence the Robola lab was developed in close dialogue with the local companies so that the space would include company relevant equipment and so the VET students could obtain the right digital skills within automation and robotics fields.
Dual Study Programmes (DE)	<i>Quantitative matching</i> – the initiative fills skill shortages in a bottom-up manner, i.e. driven by the skills needs of individual firms who promote the programmes. STEM areas (e.g. engineering) arose as critical ones at the aggregate level <i>Qualitative matching</i> – the programmes also address the lack of practical skills that companies identified as a problem amongst graduates with 'regular' degrees.
Higher Technical Institutes (IT)	<i>Quantitative matching</i> – the initiative ensures a stable pipeline of skills at the local level in sectors identified as having strategic importance. <i>Qualitative matching</i> – strong involvement of businesses in course design ensures that the skills taught are those needed in the local-sectoral labour market.
Educate for Business (LT, LV)	<i>Qualitative matching</i> – through the initiative the curricula of VET programmes have been updated to align with labour market needs.
Techwise Twente (NL)	<i>Qualitative matching</i> – the initiative was started out of a perceived inadequacy of skills in the High-Tech Materials sector. It targets VET Institutes to ensure that skills taught are those needed by the sector. <i>Quantitative matching</i> – the initiative aims to stimulate the supply of qualified workers in the High-Tech Materials sector <i>Qualitative skills</i> – the cooperation brings new technologies that are used in the private sector into VET classrooms.
Cooperative Education (RS, DE)	<i>Quantitative matching</i> – the initiative tries to improve the supply of workers in the following occupations that suffer from skill shortages, namely: electricians, locksmith-welders, and industrial mechanics. <i>Qualitative matching</i> – training in these occupations was deemed out-of-date, hence curricula have also been updated.
Step Ahead (SK, CZ, UK)	<i>Qualitative matching</i> – the initiative is born out of a perceived inadequacy of skills in the car industry. It therefore targets VET teachers to ensure that the skills taught are those needed by the sector.
Labour Foundation of the Construction sector (ES)	<i>Qualitative matching</i> – the initiative upgrades the skills of existing workers in the construction sector and it also provides up-to-date curricula for initial training.
Tech Partnership (UK)	<i>Quantitative matching</i> – the initiative aims to stimulate the supply of workers in the digital sector. <i>Qualitative matching</i> – the Partnership also certifies a variety of educational programmes.
Nestlé needs YOUTH (global)	<i>Combined Quantitative matching and Qualitative matching</i> - developing dual learning opportunities and creating curricula together with VET schools. Consultations determine which skills are highly sought by companies in the region or country and how curricula can best be updated.

Source: Panteia

VET process dimensions

As discussed through the brief overview of specific initiatives aimed at matching (qualitatively and quantitatively) supply and demand of skills, this appears to be a core concern in VET-business cooperation. Two processes in particular enable the matching of skill supply and demand: curriculum development and VET delivery.

The former has obvious elective affinities with the idea of *qualitative matching*, while the latter contributes to both. In terms of curriculum development, different types of cooperation were found:

- **Between individual firms and individual educational institutions** (e.g. in Dual Study Programmes and the Coop Food School examples): in this case, individual VET colleges or higher education institutions cooperate to develop a curriculum that responds to the firms' needs. In these instances, the key success factor appears to be the presence of a committed company that has the capacity to identify its skills needs and engage in cooperation with educational institutions to have them matched in curricula. However, such capacity is often a function of firm size and therefore it is unlikely that small companies can be expected to be able to initiate this kind of cooperation;
- **Between a network of firms at the sectoral level and various educational institutions** (e.g. in the Tech Partnership and Techwise Twente): here the programme is primarily designed by companies, and delivered by educational institutions; this model allows the creation of wider benefits which spill over to smaller companies as well. Curriculum development designed at the sectoral level is expected to cover the needs of a wider set of companies. In these cases, the ability of smaller companies to participate might be hampered by sunk costs attached to participation in these networks. Yet, if strong commitment from senior personnel across participating companies is present, this model appears to be potentially successful. A further example here is that of the HTIs, where cooperation in curriculum development aimed to achieve a 'qualitative matching' in the supply and demand of skills occurs at the local-sectoral level, i.e. through the involvement of businesses and their associations of a specific industrial cluster with various educational institutions also located in that cluster;
- **Between a variety of companies and a variety of schools mediated by the government** (e.g. in the Cooperative Education Project and in the Educate for Business examples): in these cases, government agencies (not necessarily domestic) provide the financial incentives to structure the cooperation between business and schools towards curricula. This model of cooperation appears particularly relevant for countries where there is not an established tradition of business cooperation. To ensure that companies take active part in defining their skills needs and contribute to well-matched training programmes, financial incentives might be crucial. The AQUA programme also provides an example of cooperation between various companies and schools mediated by the PES and 'cooperative parties'. The programme mostly aims to provide unemployed with qualifications that are needed to be employed at partnered companies;
- **Cooperation led by social partners** (e.g. in the Labour Foundation for Construction): this case provides an example of social-partnership, i.e. where the curricula are developed primarily by trade unions and employers;
- **Skill matching via the updating of teachers and trainers** (e.g. in the Step Ahead example): here, the core element is to update teachers on the newest technologies through new education materials and new methodologies, including online modules, which are informed via consultation with a private company in the sector. This type of cooperation mostly works via feedback regarding course design, and it can be therefore an effective approach of qualitative skill matching without deep involvement of businesses. Techwise Twente also provides a case in which businesses update teachers on the newest technologies by offering training inside private companies.

Despite the variety of cooperation in curriculum development, the main idea behind all these cooperative efforts is to ensure that the skills taught in VET programmes are those needed by the labour market, thus enhancing the qualitative skill matching.

VET delivery in turn, offers an entry point to both qualitative and quantitative skill matching. First, the involvement of businesses in the delivery of training ensures that the skills taught are not only *theoretically* up-to-date (as discussed with respect to curriculum development) but also practically oriented. This was a key feature in particular of the Coop and Dual Study Programmes examples. While completely different in terms of target groups (the Coop targets primarily academic low achievers, while Dual Study Programmes attract high achieving secondary school leavers), in both cases the idea of stepping up practical skills was central in fostering cooperation at the level of VET delivery.

Cooperation in VET delivery is also a signal for matching supply and demand on a quantitative level. As the next chapter on work-based learning will make clearer, when businesses are strongly involved in the delivery of an educational programme, and this forms a strong signal for the need in the labour market for that particular skill profile. Indeed, literature shows that – at the macro-level – the demand and supply of skills tend to be facilitated in those systems characterised by significant involvement of employers in course delivery, and the case study level findings confirm this insight. For instance, particularly promising labour market perspectives are enjoyed by graduates from Dual Study Programmes in Germany and from the Cooperative Education Project in Serbia – despite the significantly different socio-economic contexts of the two programmes. The involvement of private parties in the Techwise Twente cooperation has further increased the labour market perspective of graduates in the relevant sector and consequently, raised the number of students enrolled in study programmes, thereby contributing to quantitative matching of supply and demand of skills in the sector and region.

Level of Cooperation

Matching supply and demand is usually thought of as a macro-level exercise conducted by national or international agencies. Indeed, while these efforts are crucial in providing a better understanding of the macro-level picture in terms of skills mismatches and shortages (think for instance of Cedefop's labour market forecasts), the case studies also provide strong evidence for a meso-level / sectoral approach. Especially in qualitative terms, sectoral cooperation seems crucial in ensuring that the skills of VET programmes reflect the needs of a specific industry. For instance, the Tech Partnership example, the Coop Food School, the HTIs as well as the Cooperative Education Project have in common the strong role of sectoral cooperation in defining the VET offer, despite all belonging to widely different countries.

Relation to other topics

Matching supply and demand has obvious synergies with work-based learning, and indeed the two can be thought of as two sides of the same coin. In other words, increasing work-based learning is expected to lead almost 'by default' to increasing the match between supply and demand, both qualitatively and quantitatively. Qualitatively this happens in the sense that graduates from work-based learning programmes are 'already socialised' into the company environment. They therefore have a 'skill advantage' over graduates from non-work-based settings (see the case study on Dual Study Programmes for a more developed discussion of this). Quantitatively this occurs because once a company engages in the delivery of work-based learning programmes, it tends to do so to respond to a specific skill demand; in the absence of such a demand, it would invest resources in training.

In addition, matching demand and supply displays affinities with the idea of 'raising awareness of VET'. This was evident for instance in the case study of the Tech Partnership, where skills ambassadors visit a school with the idea of raising the profile of VET (in particular with respect to digital skills in this case study). This is also a way to seek to increase enrolments in VET, and therefore counter a skill shortage that was identified in the sector. The Valkeakoski Campus case study is another example of a project where the local VET-schools seek to provide students with the right digital skills through the opening of a Robotics learning environment developed in close dialogue with local businesses. Thus, overall, positive synergic relationships are noted between (i) VET-business cooperation aimed at matching supply and demand, (ii) work-based learning opportunities, (iii) raising awareness of VET and (iv) digital skills. An interesting relationship also exists with social inclusion, in particular in the Coop case study.

Impact on quality and attractiveness

It is expected that where systems for matching demand and supply are in place, the quality of VET becomes higher and VET becomes more attractive. The connection between matching supply and demand on the one hand, and quality on the other is direct and straightforward: to the extent that VET systems produce graduates in a field that is not needed in the labour market or that do not have the required skills, quality will suffer. In contrast, where VET systems provide the skills needed in the labour market, its quality will improve. In order to improve the fit between skills taught and skills needed in the labour market, cooperation with businesses plays a key role. Several of the examples discussed in this chapter (e.g. the Tech Partnership, the Dual Study Programmes, the Cooperative Education Project) show that the employment outlook for graduates is very promising, suggesting that well-matched programmes increase VET quality and connected outcomes. In turn, better quality reverberates positively on attractiveness. Indeed, we might expect that finding VET programmes that confer to their participants 'well-matched' skills are attractive to perspective candidates. Evidence from Dual Study Programmes provide a promising way forward in this respect.

5 WORK-BASED LEARNING

Introduction to the topic

Work-based learning (WBL), a key aspect of VET, is directly linked to the goal of helping learners acquire the knowledge, skills and competences which have direct relevance to the labour market. Broadly speaking, there are three main forms of WBL³².

- Work-based learning in the form of apprenticeships, internships and traineeships potentially assist with the transition from school to work, albeit in different ways;³³
- School-based VET with on-the-job training includes on the-job training periods in companies;
- Work-based learning in school is a system in which WBL is integrated in a school-based programme through on-site labs, workshops, kitchens, restaurants, junior or practice firms, simulations or real business/industry project assignments. This form is less relevant for this study as a business is usually not directly involved.

Evidence shows that the prospects of students who have some work experience, particularly experience gained through apprenticeships, perform better on the labour market. The apprenticeships provide them with a mix of job-specific and transversal skills that are difficult to acquire in classroom environments. Due to their acquired work experiences the youth unemployment rate in countries where VET-education includes apprenticeships are relatively low³⁴. In addition, especially VET graduates who complete apprenticeships tend to make a smoother transition to work than graduates from general education. For those reasons, there has been increased attention at both the national and international level for apprenticeships and other forms of dual VET-systems. In order to organise work-based learning (at least in the two first forms above) cooperation between VET schools and enterprises is necessary.

Work-based learning has been a high policy priority at the European level in recent years. The Bruges communiqué on enhanced European Cooperation in Vocational Education and Training for the period 2011-2020 indicates that 'Work-based learning is a way for people to develop their potential. The work-based component contributes substantially to developing a professional identity and can boost the self-esteem of those who might otherwise see themselves as failures. Learning on the job enables those in employment to develop their potential whilst maintaining their earnings. A well performing VET, which enables learning on and off-the-job on a part-time or full-time basis, can thereby also strongly contribute to social cohesion in our societies.'³⁵

In Riga in 2015, the Member States agreed to 'promote work-based learning in all its forms, with special attention to apprenticeships, by involving social partners, companies, chambers and VET providers, as well as by stimulating innovation and entrepreneurship'.³⁶

³² Definitions taken from European Commission (2015). *Good for Youth, Good for Business*. <http://ec.europa.eu/social/BlobServlet?docId=14127&langId=en>

³³ European Commission (2013). *Key features of Apprenticeship & Traineeship schemes*. ec.europa.eu/social/BlobServlet?docId=10392&langId=en. An earlier definition by Eurostat defined apprentices as 'all employees who do not participate fully in the production process of the unit because they are working under an apprentice's contract or because of the fact that they are undertaking vocational training impinging significantly on their productivity'. While completion of an apprenticeship leads to being qualified to enter an occupation but not necessarily a job in this definition the concept of being in employment is incorporated (Eurostat (1998), *Definitions of SBS Regulation variables* (16 13 2), Eurostat, Luxembourg. <http://stats.oecd.org/glossary/detail.asp?ID=6228>)

³⁴ Cedefop (2012). *From education to working life: the labour market outcomes of vocational education and training*. Luxembourg: Publications Office. http://www.cedefop.europa.eu/EN/Files/3063_en.pdf

³⁵ Council of the European Union; European Commission (2010). *The Bruges Communiqué*. Available: http://www.cedefop.europa.eu/EN/Files/bruges_en.pdf

³⁶ Council of the European Union; European Commission (2015). *Riga Conclusions 2015 on a new set of medium-term deliverables in the field of VE for the period 2015-2020, as a result of the review of short-term deliverables defined in the 2010 Bruges Communiqué*

As described in the previous chapter, the activities developed and conducted by Cedefop demonstrate the relevance of this topic for the European Commission and for social partners. In this context, the European Alliance for Apprenticeships (EAfA) should also be mentioned. Since 2013, this platform has been bringing governments together with other key stakeholders, including businesses and VET providers. The goal is to strengthen the quality, supply, and image of apprenticeships in Europe, and more recently, the mobility of apprenticeships has also emerged as an important topic.

Examples and case studies

Work-based learning is a key element across several case studies and it entails a conceptualisation of training as a dual effort in which theoretical learning (based in the classroom) is combined with practical learning (based in the company). While the obvious benchmark for this type of training is the dual apprenticeship system of Germany and Austria, elements of work-based learning have been promoted across very different institutional settings, attempting to approximate parts of the dual system but also adapting the systems to the local contexts. Indeed, one of the case studies even shows (partial) deviation from the traditional German model of work-based learning precisely in Germany (i.e. the Dual Study Programmes case study). The main elements of work-based learning found in the case studies are summarised in the table below. A long description of the case studies can be found in the Annex.

Table 3 Aspects of the case studies related to work-based learning

Case study	Case study aspects related to work-based learning initiative
AQUA (AT)	AQUA (workplace-oriented qualification for unemployed) targets unemployed persons with an above average distance to the labour market for CVET and life-long learning education. It sets up education plans that are customised to the unemployed individual in cooperation with the participating company and VET institute. It provides dual (work-based) learning in which a third of the time is spent on theoretical training and two thirds on practical, in-company training. A related challenge in this case study is the issue of a substantial proportion of employers not investing sufficiently in the learning aspect of WBL.
Coop Food School (DK)	A key feature of this initiative has been to create a vocational qualification that has a stronger component of work-based learning compared to traditional Danish programmes, the aim being attracting non-academically gifted candidates in particular.
Valkeakoski Campus (Trimola Campus and Robola lab project), (FI)	Real company problems and projects were brought into the curricula of the different study programmes – especially through project based learning. The reasoning was that by giving students better possibilities to work with real company problems it would improve the innovation and entrepreneurial skills among the students and give them a better understanding of labour market needs. Furthermore the rationale was that the presence of companies on the local campus could improve the possibilities for collaboration between students and companies.
Dual Study Programmes (DE)	The initiative is strongly geared towards work-based learning: the student / apprentice is under contract with a firm and he/ she spends part of his/her time at a university studying towards a

Case study	Case study aspects related to work-based learning initiative
	Bachelor degree and part of the time in-company learning practical skills on the job.
Higher Technical Institutes (IT)	The higher level training courses provided by the Higher Technical Institutes are set out by regulation to entail at least 30% of time to be spent as on-the-job training. Businesses provide a significant amount of trainers (up to 90% of teachers and trainers in some case studies).
Educate for Business (LV, LI)	Educate for Business focuses on improving opportunities for VET students to attend work based learning activities in companies in the Latvian – Lithuanian cross border region.
Techwise Twente (NL)	Techwise uses so-called Field Labs at companies and education institutes, in which students can practice working with machines and new technologies in a 'real' environment, while mistakes are still allowed.
Cooperative Education (RS, GE)	The initiative aims to create a system of work-based learning in Serbia similar to the German dual system. However, the starting point is the Serbian school-based system of VET, on top of which the project has added one day per week to be spent in company (in year 1), two days per week (in year 2) and three days per week (in year 3).
Tech Partnership (UK)	The Partnership provides certification for apprenticeships and degree apprenticeships and therefore designs training programmes with strong components of work-based learning.
Nestlé needs YOUTH (Global)	More business-driven apprenticeship places for youth form the core of the Nestlé needs YOUTH initiative. WBL is provided by participating companies. In addition, 120 ambassadors provide advice and guidance to smaller companies that wish to start or strengthen apprenticeship schemes.

Source: Case studies

VET process dimension

When talking about work-based learning, cooperation between businesses and educational institutions (be it at secondary or tertiary levels) in VET delivery is, of course, a strong component. In four of the five case studies (i.e. all except for the Tech Partnership), cooperation in VET delivery is a core direct element of the initiative, and the participating companies provide a certain amount of on-the-job training. In the case study of Tech Partnership, the process by which work-based learning is achieved is however, indirect, namely by designing courses that entail elements of WBL. In other words, the companies that are part of the initiatives design courses which entail WBL (e.g. apprenticeships) but the actual implementation of these programmes is not directly managed by the Tech Partnerships, but it happens at a decentralised level instead.

Level of cooperation

Cooperation towards work-based learning takes place at different levels, to a significant extent mirroring the levels of cooperation found under the skill matching topic. Three main levels of cooperation have been identified:

- **Individually negotiated cooperation:** this type of cooperation is found in both the Dual Study Programmes and the Coop example. Both case studies are of particular interest because they provide examples of deviation from the 'standard' national model of VET in two countries whose VET systems are widely (and appropriately) perceived as best practices. In particular, in the case study of the Dual Study Programmes, the elements of work-based learning are part of a decentralised negotiation between the firm sponsoring the programme, and the higher education institution offering the class-based component of the programme. This one-off cooperation provides a stark contrast with the collectively negotiated and standardised sectoral training in the regular dual system. Similarly, the Coop programme in Denmark, while leading to a 'regular' VET certification, is different than the main Danish system, with a relatively large proportion of in-company training. Both examples are based on the entrepreneurial agency at the company level that pushed the boundaries of the national systems to create a different type of work-based learning. The Nestlé need YOUth initiative shows another, albeit trans-nationally implemented, form of individually negotiated VET-business cooperation, in which Nestlé and allied companies reach out to VET schools in regions and countries they are active in. In determining which apprenticeships the companies will offer, the schools and companies decide together how these apprenticeships best fit into existing or updated curricula.
- **Standardised (top-down) cooperation:** the case studies of the Higher Technical Institutes and of the Cooperative Education Project show instead a different level of cooperation, which occurs in a rather top-down way and the features of work-based learning are set out by the regulation of the programme. In the case study of the Cooperative Education Project, it is set at one, two and three days per week during the first, second and third year of the programme respectively. In the case study of the Higher Technical Institute, national level regulations demand that a minimum of 30% of the programme is spent in-company.
- **Mandated cooperation via course design:** yet another level of cooperation is found in the British case study. The Tech Partnership is best characterised as a case of 'mandated' sectoral cooperation, i.e. a sectoral organisation designs training featuring work-based learning, whose actual implementation is then mandated to the company taking up the given training programme (e.g. hiring an apprentice in one of the apprenticeships designed by the Tech Partnership).
- **Cooperation that is mediated by government and private parties on a case-by case basis,** is found in the Austrian case study. In AQUA, the Public Employment Service and private cooperative partners act as a broker between schools, businesses and individual unemployed persons. An education plan is set up which is tailor-made to the unemployed in which he gets an apprenticeship that provides practical in-company training for four days in the week. The remaining day is used for theoretical training that happens at a certified VET school.

Relation to other topics

The relationship between WBL and the skill matching topic is self-evident from this brief overview of examples. It is clear that where companies engage in work-based learning, it is inspired by the need to boost skill matching – either quantitatively or qualitatively, or both. High graduate employment rates from work-based learning programmes, which are found across case studies, speak in favour of this relationship (please refer to the individual case studies in the Annex for details). However, an important element worth

stressing in the relationship between work-based learning and skill matching is that work-based learning should not be considered as a silver bullet that can solve demand problems from the supply side. The case study of the Higher Technical Institutes in Italy provides an enlightening case here: all programmes entail considerable elements of work-based learning. However, some of these programmes are extremely successful at getting their graduates into work, while others are not. In this sense, it is clear that work-based learning provides an excellent supply of adequate skills only if and where such skills are in demand.

While in general it can be assumed that when companies engage in work-based learning it is because there is a demand, it should be also considered that – when there are other incentives to participate in work-based learning (e.g. financial incentives) – companies might participate even in the absence of a clear skill demand. This has sporadically been the case in the AQUA programme, in which companies sometimes offered apprenticeships in the programme in order to access subsidised labour and focus less on actual education. An enforcement mechanism was set up, however, to counter this. To ensure that work-based learning is mutually reinforcing a skill matching process, it should therefore be clear that an exclusive supply side focus (i.e. on the provision of skills) is unlikely to be successful in the absence of a strong demand for such skills on the labour market side.

Impact on quality and attractiveness

Work-based learning also contributes towards the quality and attractiveness of VET. It is common knowledge that programmes which entail in-company elements tend to smooth school to work transitions. They are therefore already attractive programmes of high quality at the outset, precisely thanks to the good employment prospects attached to them. However, the case studies also offer new perspectives on the role of work-based learning in increasing the attractiveness of VET. The Coop, Techwise and the Dual Study Programmes are examples of how specific VET programmes have become attractive to ‘audiences’ that might have been previously excluded or uninterested in these programmes.

In the Coop case study, by increasing the level of work-based learning and making practical skills (instead of pure academic skills) a prerequisite for access, the programme created its own larger pool of applicants that would be otherwise be excluded due to being disinterested in training which was not geared enough towards practice, or being unable to access programmes as a result of leaving school with insufficiently high grades. Similar – but at the opposite end of the skills distribution – Dual Study Programmes in Germany, combine work-based learning with academic education and have made (higher) VET appealing to students that would otherwise have preferred a purely academic route. However, adding a strong work-based component to the pursuit of an academic degree became a particularly attractive feature to the extent that graduates expect, for instance, a smooth transition to the labour market upon completion of these programmes. They also receive a stipend while studying which is also a particularly attractive proposition.

In the Techwise case study, by enhancing the level of practical experience available in VET by offering apprenticeships at top-of-the-bill companies in which gaining experience with cutting-edge technologies is possible, labour market perspectives of students improved. Consequently, the attractiveness of VET in the sector was improved. Moreover, the Nestlé case study has improved the attractiveness of VET through work-based learning cooperation by offering career-oriented training as part of apprenticeships which are offered through the programme. This training includes CV-writing, networking and interviewing workshops that aim to improve participant’s labour market perspectives.

6 DIGITAL SKILLS

Introduction to the topic

Despite the fact that the level of digital skills increased³⁷ in the European labour market, PIAAC concluded that the majority of Europe's population of working age, are not sufficiently equipped to face the challenges of the digital world, regardless of their age³⁸. In addition, the younger generation of VET students includes many digital natives; most of them already have basic digital skills. This indirectly illustrates the importance for VET education to focus more on supporting the development of advanced digital skills and not just provide basic ICT competences.

Due to rapid societal developments, as well as specific developments in the labour market, digital skills have emerged as part of a set of competences that are crucial to keeping pace with developments in the labour market and beyond. VET systems can be an important route to acquiring these skills. The importance of digital skills within and beyond the workplace has recently been highlighted at the European level by the Digital Skills and Jobs coalition which identifies digital skills along four lines: (i) digital skills for all (i.e. enabling citizens to participate in the digital society); (ii) digital skills for the labour force (i.e. the development of skills for the digital economy); (iii) digital skills for ICT professionals (i.e. providing the ICT skills needed across all economic sectors); and (iv) digital skills in education.³⁹

ICT skills will become increasingly critical in terms of getting and keeping a job and in managing everyday life⁴⁰. Moreover, parts of the productivity gap between the USA and Europe can be explained by the way employees acquire ICT skills across sectors, which speaks directly to the objective of the Digital Coalition to improve the digital skills for the labour force. More focus on the ICT skills required on the labour market within VET education is important to reach and maintain excellence in vocational education. In order to stimulate this, the Bruges Communiqué emphasises that vocational education and training providers must become more open to new forms of partnerships with enterprises and other relevant partners⁴¹.

Examples and case studies

Four case studies constitute examples of good practices that focus on the digital skills which touch upon three of the four aims outlined by the Coalition. These are digital skills for the labour force, for ICT professionals, and for education. These aims contribute to filling the gaps that still characterise the existing general knowledge of the role of VET in the development of digital skills. The four case studies provide examples of good practices. They are drawn from Finland (the Robola lab, part of the Valkeakoski Campus), the Netherlands (Techwise), Italy (the HTIs) and the United Kingdom (Tech Partnership). The specific measures implemented as part of these projects to develop digital skills are summarised in the following table. A long description of the case studies can be found in the Annex.

³⁷ Cedefop (2012). See: www.cedefop.europa.eu/node/12877

³⁸ OECD (2013). *OECD skills outlook 2013: first results from the survey of adult skills*. Paris. See: <http://dx.doi.org/10.1787/9789264204256-en>

³⁹ DG Connect (2017). See: <https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition>

⁴⁰ See: http://ec.europa.eu/dgs/education_culture/repository/education/policy/vocational-policy/doc/brugescom_en.pdf

⁴¹ ICF GHK (2012). *The role of vocational excellence for smart and sustainable growth: final synthesis paper*.

Table 4 Aspects of the case studies related to digital skills

Case study	Case study aspects related to digital skills
Valkeakoski Campus (Trimola Campus and Robola lab project) (FI)	The Robola lab was developed in close dialogue with the local companies so that the space would include company relevant equipment and so that VET students could obtain the right digital skills within automation and robotics fields. The combination of this space with the concept of bringing real company problems and projects into the curricula of the different study programmes provides ground for cooperation on innovation. It provides students with the digital skills that are required of ICT-related professional across the economy.
Higher Technical Institutes (IT)	The HTIs have been setup to respond to employers' demands for new and higher technical and technological competences amongst (future) employees. The education sector (schools and universities), and the business sector join forces to design programmes and to deliver them. The partnership approach appears to be a key principle in ensuring that the skills taught in the HTI programmes are up-to-date in terms of content. One of the main areas of activity of the HTIs is the ICT sectors, as well as other technologically advanced sectors, such as medical technologies. In this respect, the HTIs provide both digital skills for the workforce in the digital economy, as well as for ICT professionals across sectors.
Techwise Twente (NL)	Techwise aims to confront the changing skill needs in the manufacturing industry due to digitisation and robotisation through VET programmes. It also works as a hub for companies by inquiring about the (technological) skills they need for their workforce and by cooperating with schools to develop and update curricula to accommodate the needs of businesses. As in the previous case study, Techwise contributes to an improvement of digital skills for ICT professionals, in particular those that are, or will be, employed in the manufacturing sector.
Tech Partnership (UK)	Tech Partnership aims to provide the skills needed in the UK digital economy both in terms of quality and quantity by relying on the following main activities: (i) designing training and education programmes in line with the needs of businesses in the digital sector and (ii) raising the profile of technical careers among young people in secondary schools, including the introduction of tech-related modules in secondary schools. This is a case study that speaks more directly to the issue of digital skills for the labour force by targeting (future) workers in the digital economy. However, as more and more companies from other sectors have joined the partnership, the initiative has also started to tackle the broader issue of improving skills amongst ICT professionals regardless of their sector of employment. Finally, the introduction of modules in secondary schools is also contributing to the development of digital skills in education.

Source: Panteia

VET process dimension

In the case studies of the HTIs, Techwise and Tech Partnership, sectoral networks provide strong input into both curriculum development and VET delivery. In the case study of the Tech Partnership, the network of businesses developed training programmes at the post-secondary and tertiary levels (in terms of apprenticeships, degree apprenticeships, and regular degrees). As far as Techwise is concerned, not only IVET is offered at post-secondary and higher levels, but forms of CVET have been developed as well. In particular, a component of TechWise, Life Long Learning: Fit for the Future, provides training for the unemployed in High Tech Systems and Materials (HTSM), thus also performing a re-training role.

We also find a strong feedback loop effect in all three examples. As far as Robola lab is concerned, we instead find the role of businesses to be providing insights into the digital skills needed, which had led to the creation of a learning environment in a lab where such skills can be developed. Thus, the lab primarily represents a resource for the VET school, whose features have been shaped by consultation with businesses. Businesses involved in Techwise and Tech Partnership vouch for the quality of digital skills programmes. The Techwise Twente Academy is one such example, aiming at marketable VET-propositions and providing certification to VET institutions in order to ensure the quality of training. A similar approach has been followed by the Tech Partnership through the establishment of a Tech Industry Gold Apprenticeship which refers to apprenticeship programmes accredited by tech sector employers. These apprenticeships have been delivered since 2015 by 27 providers and they support the creation of skills in particularly desired areas, such as such as cyber security, big data, mobile, e-commerce and the Internet of Things. Furthermore, the Tech Partnership also developed a Tech Industry Gold Degree, which refers to degree programmes designed by the Tech Partnership which take place in nearly 30 universities across the country. A key programme developed by the Partnership is the 'IT Management for Business' honours degree.

Level of cooperation

In the Techwise and Tech Partnership examples, the key trend that emerges is one of business ownership through sectoral networks. This seems critical to ensuring that VET programmes are responding to the needs of businesses in a fast changing socio-economic environment, and in particular in a field such as digital skills, which is heavily affected by fast technological change. Partnerships and cooperation among businesses and between businesses and other stakeholders (educational institutions, governments) emerge as crucial drivers of 'business ownership' of skills development. The case study of the Tech Partnership particularly highlighted how the network of employers that took part in the initiative was strengthened by high-level commitment from senior management across the participating firms. The Valkeakoski Campus, on the other hand, provides an example of geographically limited cooperation as centred on key actors from the Valkeakoski municipality. It is therefore a local cooperation which, being of a geographically rather small scale, also enables physical proximity to the extent that the campus is home to VET schools and also hosts schools. It is therefore conducive to close cooperation between students, schools and companies. The HTIs interestingly combines these two aspects by merging local and sectoral cooperation due to the embedding into specific industrial clusters of network of businesses (as well as business associations and other actors).

Relation to other topics

The examples collected for digital skills identify strong synergies within the area of matching supply and demand. As the role of digital skills becomes increasingly important in today's knowledge economies, sectoral networks of firms or partners located in closer geographical proximity have come together to ensure that the quantity and quality of supply of digital skills is appropriate for the national or local context. In the case study of the HTIs, an explicit link between ICT and innovation has been drawn, with ICT being included in the areas of activity of the HTIs, thus targeting future-oriented strategic sectors of the economy. In addition, digital skill formation through VET programmes might also contribute to raising profile of VET.

Impact on quality and attractiveness

Both initiatives have yielded high levels of attractiveness for firms. Indeed, in both case studies several new companies joined the network since their establishment suggesting that the network, by responding to business' skills needs, is simultaneously able to attract firms. In the case study of the Tech Partnership, the number of firms participating has skyrocketed to over 1 000, reaching out to firms of all sizes, and beyond the digital sector strictly speaking. This suggests that digital skills are required across the board. The initiatives have been attractive to students as well. Structured data from the Tech Partnership suggests that the number of students taking part across the various training programmes is in line with, or has exceeded, the targets set by the Partnership's steering board.

Table 5 Assessing the attractiveness of the Tech Partnership

Indicator	Target	Achievement
Number of companies joining the Tech Partnership	400 (by 2015)	550 (by March 2015)
Number of trainees funded through Training Fund	240 apprentices / 1 000 tech specialists (by 2015)	242 apprentices / 1 126 tech specialists (by March 2015)
Students more likely to pursue tech career (measured by survey)	40 000 (by 2017)	35 000 (by March 2015) according to propensity survey
University students in Partnership accredited degrees	2 000 (by 2017)	1 258 (by March 2015)

Source: authors based on case studies (see Annex)

Further indications of the attractiveness of the Tech Partnership come from comparing headline statistics on apprenticeships in the digital sector vis-à-vis the rest of apprenticeships in the country. This data shows that the tech sector performed above average: between 2015 and 2016 there was an increase in 'digital apprenticeships' of 21% compared to 10% amongst all apprenticeships. Furthermore apprenticeships in the tech sector attract younger applicants compared to the rest of apprenticeships (74% were below the age of 24, compared to 59% of all apprenticeships). Finally, on top of being attractive, tech apprenticeships also tend to be of higher quality compared to other apprenticeships. A proxy indicator for this is the level at which these apprenticeships take place compared to other apprenticeships in the country (71% were at level 3 or above, compared to 42% of all apprenticeships)⁴².

⁴² Tech Partnership (2016). *Factsheet: Digital apprentices in the UK*. Available at: https://www.thetechpartnership.com/globalassets/pdfs/research-2016/factsheet_apprenticeships_2016.pdf

Finally, contributions towards attractiveness are also made by developing VET programmes at the tertiary level. This is the case, for instance, with the Tech Partnership, which has developed degree programmes and degree apprenticeships in a country, like the UK, which has traditionally suffered from a lack of esteem for VET compared to academic education. Such a 'disparity of esteem' between VET and academic education is characteristic of several European countries. Therefore, blurring the boundaries between the two, and specifically locating VET within higher education, can contribute to a structural increase in the attractiveness of VET.

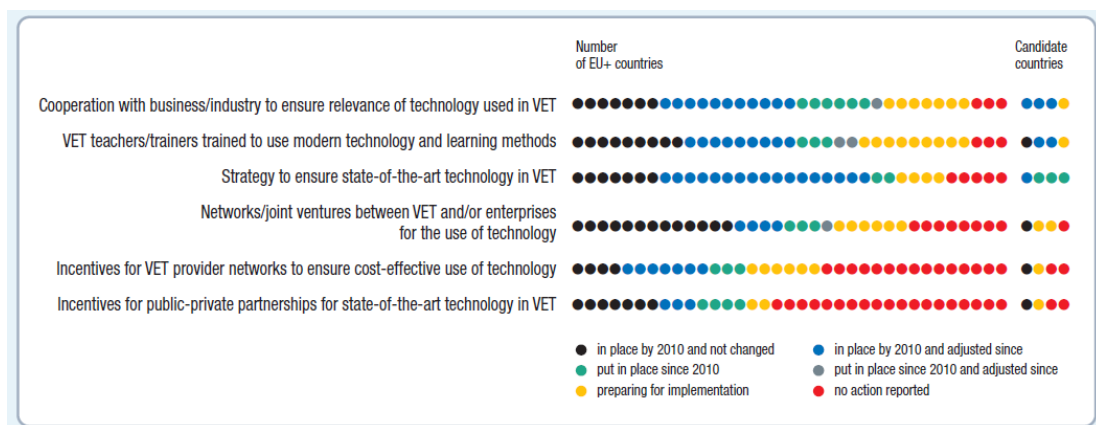
7 INNOVATION - INCLUDING DIGITALISATION ASPECTS NOT RELATED TO SKILLS DEVELOPMENT

Introduction to the topic ⁴³

National policies for including innovation - including digitalisation aspects not related to skills development, and competitiveness in education and training curricula have traditionally focused on higher VET, and Cedefop concludes that the potential of VET as a factor contributing to innovation on all levels has been neglected thus far. And yet, there is general agreement that VET can foster skills to innovate and drive new ideas in business and industry. Furthermore, it can also support competitiveness through the development of new technologies, processes, and services.

A key aspect of innovation - including digitalisation aspects not related to skills development - in VET is the use of innovative technology. As the figure below shows, in 2010, two out of three EU+ countries reported having strategies in place to ensure that VET-providers use state-of-the-art technology. This type of strategy has proven to be dynamic, as half of the countries adjusted the policy in the 2010-2014 period.

Figure 5 Strategies for use of State of the Art Technology



Source: Cedefop (2015). *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-14*.

Before 2010, cooperation with business and networks between VET providers and enterprises for the use of technology already existed in the majority of EU+ countries. In other countries (most of the 'new' member states), cooperation arrangements are more popular than networks, often taking the form of employers equipping school workshops with state-of-the-art technology.

Examples and case studies

New VET measures or adaptation of existing VET measures are visible in several countries, indicating an increasing acknowledgement of the role of VET in innovation - including digitalisation aspects not related to skills development. For instance, incentives to encourage innovation and creativity partnerships have been introduced in several

⁴³ Based on Cedefop (2015). *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-14*. Available: <http://www.eqavet.eu/gns/library/publications/2015publications.aspx>

EU+⁴⁴ countries. Clusters⁴⁵ and knowledge exchange platforms for businesses, education and training, and research involving VET providers are not yet common practice in the EU and candidate countries. Some countries only have them in specific sectors, or have plans to establish clusters⁴⁶.

Box 3 Examples of innovation partnerships - including digitalisation aspects not related to skills development

Examples of policies stimulating partnerships and platforms:

- **Croatia.** Using EU funds, the Croatian VET and adult education agency supports partnerships between VET providers and other stakeholders to encourage VET innovation.
- **Cyprus.** Cyprus introduced a scheme encouraging enterprises to implement innovative ways of training staff.

Examples of innovation partnerships and platforms:

- **Italy.** Based on successful pilots, Italy adopted new legislation to set up networks of different types of upper secondary and higher education VET institutions and enterprises in the regions, to stimulate technical and scientific mindsets and promote employability among young people.
- **Slovenia.** Financed by the Ministry of Education, local communities and companies, and intercompany training centers act as knowledge exchange platforms and increase the capacity to train students, workers, and VET teachers.
- **Romania.** Romania established a platform in 2013 linking education with the business world to promote innovation by sharing knowledge and promoting partnerships. As a result, 16 sectoral innovation clusters involving VET schools have been set-up.

Examples of incentives for cooperation on innovation and technology:

- **Germany.** In 2011, the German Ministry of Education started funding research and development projects for public-private partnerships for a period of up to 15 years.
- **Slovakia.** Slovakia's largest car manufacturer and a metallurgy company received a grant (2013) aimed to better link the world of education, research, and work; this focuses on tertiary education but also includes basic and secondary education.
- **Wales.** A programme in the UK (Wales) that supports knowledge and technology transfer projects and public-private partnerships of business with higher and further education was amended to include non-technological projects in 2013.
- **Turkey.** The government provides incentives for business contributions to education.
- **Montenegro.** In Montenegro a law on public-private partnerships is being prepared, and tax incentives for employers cooperating with schools are under discussion.

Examples of networking to ease access to technology:

- **Italy.** In Italy, a network of VET institutions and employers established in 2013 supports access to technology and enables more flexible learning.
- **Croatia.** To modernise VET curricula and support modern and up-to-date school-based practical training, Croatia implemented a grant scheme in 2013 that supports partnerships between VET providers and other stakeholders.
- **Netherlands.** As part of the Dutch technology pact (2013), enterprises will invest in joint study programmes, or make available technical installations and laboratories for VET.
- **France.** As part of the education reorganisation act (2013), France is reinforcing partnerships by creating campuses which involve VET, businesses, and research institutions. These campuses are licensed for four years, are created within industries with job creation and innovation potential, and help combine class-based instruction with work-based learning.

⁴⁴ EU, Iceland and Norway.

⁴⁵ Clusters can be defined as a group of firms, related economic actors, and institutions that are located near one another and have reached a sufficient scale to develop specialised expertise, services, resources, suppliers and skills.

⁴⁶ Cedefop (2015). *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-14*. Available: <http://www.eqavet.eu/gns/library/publications/2015publications.aspx>

The following table highlights specific innovation-oriented aspects that have been found in the case studies. A long description of the case studies can be found in the Annex.

Table 6 Aspects of the case studies related to innovation - including digitalisation aspects not related to skills development

Case study	Case study aspects related to innovation - including digitalisation aspects not related to skills development
Valkeakoski Campus (Trimola Campus and Robola lab project) (FI)	The Robola lab was developed in close dialogue with local companies so that the space would include company relevant equipment and so the VET students could obtain the right digital skills within automation and robotics fields. The combination of the space with the concept of bringing real company problems and projects into the curricula of the different study programmes provides a good ground for cooperation on innovation.
Higher Technical Institutes (IT)	The cooperation is geared towards innovation by providing skills in line with a smart growth strategy focussing on six future-oriented economic sectors, such as: (i) new technologies to promote 'Made in Italy' products; (ii) sustainable mobility; (iii) energy efficiency; (iv) technologies for cultural heritage preservation; (v) ICT; (vi) medical technologies.
Techwise Twente (NL)	Techwise creates and coordinates innovation projects commissioned by High Tech Systems and Materials companies in which students are involved and through which they are exposed to state-of-the-art technologies. The initiative has been marked as 'Centre for Innovative Craftsmanship'.

VET process dimension

In terms of process dimensions, it is found that both curriculum development and curriculum delivery have innovation-related elements. Curriculum development and delivery occurs at the macro-level through the identification of those innovative sectors where skills are needed (as in the Italian case study) and at the meso level, through the organising the participation of businesses into so-called 'field labs' which are located at VET institutes, or through apprenticeships at companies that train students or existing workers to work with innovative technologies (as in the Dutch case study).

Level of cooperation

Two levels of cooperation stand out from the examples. The Higher Technical Institute case study (IT) provides an example of national-level cooperation geared towards innovation in a top-down approach. This is achieved through the identification of strategic areas for national economic development by the government, for which training has been designed cooperatively between businesses and a variety of other actors (including associations; schools; universities; and local governments). The opposite logic applies to Techwise, in which the innovation-related element of the programmes come about in a sectoral bottom-up approach, i.e. by the identification on the side of companies that participate in the network of a set of innovative elements (e.g. the use of specific technologies) that are then incorporated into training programmes. This resembles the approach that is used in the Trimola Campus and Robola lab project where the need for specific innovative technologies was identified among local companies before the investment in lab facilities and new technologies began.

Relation to other topics

In the case study of the Higher Technical Institutes, it can be observed that a partnership between universities and businesses appear to be particularly interesting when it comes to innovation - including digitalisation aspects not related to skills development - and therefore there is a clear synergy between innovation and higher VET. Similarly, given the assumption that significant innovations are likely to be driven by technological change in the field of robotics and digitalisation, it is found that innovation and digital skills interact strongly in the case study of Techwise. In this case study, part of the activities promoted include the creation and coordination of innovation projects commissioned by High Tech Systems and Materials companies which are part of the network. In these projects, students, and employees are trained in, and exposed to, the use of state-of-the-art technologies. Again, a straightforward link can be seen here between the discussion of the digital skills themes, and this brief section on innovation.

Impact on quality and attractiveness

There is no direct evidence on the impact of innovation-oriented initiatives on the quality and attractiveness of VET. However, it can be inferred from the case studies that in the context of de-industrialisation occurring across countries, both Techwise and Higher Technical Institutes provide strong evidence for the capacity VET-business cooperation to serve the needs of a more innovation-oriented, and high-tech manufacturing sector, which is arguably the only viable future direction for European manufacturing. In this respect, it can be expected that a systematic linkage between VET and innovative economic sectors might contribute to increasing the appeal and quality of VET, given that training programmes need to serve skill-intensive economic sectors, such as those broadly subsumed under the umbrella term of Industry 4.0.

8 MOBILITY

Introduction to the topic

International mobility encompasses different elements including work-based learning in companies abroad and exchange stays in VET-schools in other countries for both students and teachers. Within European programmes, mobility in VET is stimulated over de years. This was mainly done through the Leonardo da Vinci programme and the current Erasmus+ programme. These programmes included projects that improved infrastructures for mobility and individual mobility of learners and teachers/trainers.

Concerning the individual mobility, the Erasmus+ programme offers the possibility of a VET traineeship abroad for up to 12 months. This activity is open to both apprentices and students in vocational training schools. These learners undertake a vocational training placement in another country. Learners are hosted either at a workplace (in an enterprise or other relevant organisation) or at a VET school (with periods of work-based learning in an enterprise or other relevant organisation).⁴⁷ Based on the most recent data (2015), more than 100,000 VET learners and VET staff were engaged in international mobility.⁴⁸ The Erasmus+ programme has an annual budget of 2.1bn, approximately 83% of which is spent on the objective of education and training. Mobility is primarily pursued under key activity 1: the international learning mobility of individuals (learners and staff)⁴⁹.

As indicated, within Erasmus+ (Key Activity 2) and the predecessor programmes (Leonardo da Vinci, Transfer of Innovation), many projects are funded that – amongst others - try to build the VET systems to better allow mobility. Work has been done on the EQF, Sectoral Qualifications frameworks to allow for recognition of qualifications; ECVET to improve mobility of credits and guidance systems for VET students in schools and companies doing an internship /apprenticeship abroad.

Internationalisation and mobility are increasingly important aspects in many education strategies. In the strategies mobility is often not an objective in itself but a mean to obtain other objectives. A current study on the impact of globalisation on VET commissioned by Cedefop as well as examples within this study shows that international mobility is used as a tool to reach different objectives⁵⁰. First, international mobility is a tool to meet some of the skills needs related to the changing labour market demands fostered by globalisation. For example, international mobility is perceived as a tool to improve VET-students' transversal skills e.g. language skills and intercultural understanding but also competencies such as independence and maturity. Second, international placements can also be used as means for students to learn vocational skills at a higher level if a specific country or VET-school in another country is specialised in a certain vocational field. This element is relevant for both VET-students and teachers. Finally, international mobility is also a tool used to improve the attractiveness of VET as it gives VET-students the possibility to meet students in their field internationally and gain international experience in their field. This improves labour market perspectives because graduates with international experience and connections are usually perceived as better qualified. Consequently increased mobility should, at least in theory, improve the attractiveness of VET both quantitatively and qualitatively. Increased mobility for VET staff is beneficial as it allows for learning different teaching methods in different teaching environments, as well as the acquisition of new domain-specific knowledge that is available in other Member States.

⁴⁷ See: https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/three-key-actions/key-action-1/mobility-vet-staff_en

⁴⁸ See European Commission (2016), *Annex I, Erasmus+ Programme Annual Report 2015, Annex 6b*.

⁴⁹ http://ec.europa.eu/programmes/erasmus-plus/node_en

⁵⁰ Cedefop (unpublished). *The Impact of Globalisation on Vocational Education and Training*.

The Erasmus+ mobility programme for VET learners and staff, has seen mixed results in different member states. Some member states, such as the United Kingdom and Germany, received a disproportionate amount of foreign staff and learners with well over 19,000 and 14,000 persons respectively out of 104,000 in 2014. Furthermore, exchanges seem to be largely concentrated in large bilateral flows of staff and learners. For example, learners and staff sent from the United Kingdom to Germany alone comprises more than 6,000 persons, e.g. almost 6 percent of all mobility under the Erasmus programme in 2014⁵¹. According to recent Cedefop studies, the main obstacles for VET learner mobility are the young age of VET students and the lack of recognition for qualifications abroad⁵². However as will be shown within this study there are examples of successful initiatives enhancing international mobility among VET-students.

Finally mobility can also broadly be understood as activities where VET-schools and governmental actors engage in countries abroad to improve current and VET-systems as seen in the Slovakian and Serbian case studies.

Examples and case studies

In the field of VET-business cooperation, international mobility is primarily related to the possibility for VET students and teachers to attend work-based learning and competence development in a company abroad.

For example, some multinational companies are providing training and/or apprenticeship places across borders and/or branches. The Nestlé case study for instance, is an example of a multinational company making efforts in that area. A similar example can be found in the Educate for Business programme – a cooperation between Latvian and Lithuanian actors. This project tried to facilitate the opportunity for students to get an apprenticeship placement in the neighbouring country. A final example of a project promoting international mobility among VET students is the project called EURIAC⁵³. The EURIAC project was part of Leonardo Da Vinci Erasmus programme and gave VET students the possibility to attend a European VET class focusing on industrial automation developed in close cooperation with the European industry. The programme included VET-classes abroad, as well as international company placements for the VET students participating in EURIAC.

In many Member States, such as in Slovakia, there is cooperation in place between VET schools and subsidiaries of foreign companies to support company placements abroad. Increasing mobility in VET is also part of an agreement from 2012 between Slovakia and Germany, which expects to receive support through the European alliance for apprenticeships.

The case studies show that the mobility initiatives do not only target VET students but also VET-teachers. This is also the case for instance in The Educate for Business project where teachers were offered a company placement in the neighbouring country as a means to develop their vocational competencies. Another project, the HansaVET project⁵⁴, a project within the Leonardo Da Vinci Erasmus programme, supported the possibility for both VET students and teachers to participate in international work placements in order to acquire better vocational, language and intercultural competencies.

⁵¹ European Commission (2016), *Annex I, Erasmus+ Programme Annual Report 2015, Annex 6b*,

⁵² Cedefop (2015). *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-14*.

⁵³ <http://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details-page/?nodeRef=workspace://SpacesStore/35dc179d-0e75-4769-a277-b59a8ba66051>

⁵⁴ <http://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details-page/?nodeRef=workspace://SpacesStore/9516d5cb-454a-4c86-8532-dbded9e4f4a9>

The Educate for Business as well as the two aforementioned Leonardo Da Vinci projects are also instances where international mobility is used as a means to promote regional and European cohesion.

Within the framework of the current study, the following five case studies touch upon international mobility. The case studies are briefly introduced in the table below. A long description of the case studies can be found in the Annex.

Table 7 Aspects of the case studies related to mobility

Case study	Case study aspects related to mobility
Educate for Business (LV, LI)	The Educate for Business project was supported by the 'Latvia – Lithuania Cross Border Cooperation Programme' was co-financed by the European Regional Development Fund. The overall aim was to increase the competitiveness and productivity of the new generation of the labour force in the Latvian-Lithuanian border region, contributing to sustainable and cohesive socio-economic development across the two countries, and to increase employment and entrepreneurship among graduates from vocational schools in the border region.
Techwise Twente (NL)	Techwise promotes visits for Vet students to multiple companies and institutes in the HTSM sector in the region during their education. This is so that VET students learn to work with the newest technologies and methods in the sector. Additionally, the best performing students within certain techniques (welding, milling) can compete in international competitions that involve activities abroad.
The cooperative education project (RS)	The Cooperative Education Project has aimed to introduce elements of the company-based dual education system in secondary vocational schools in Serbia. Inspired by the German VET-system, one of the main objectives of the project is to improve the possibilities for VET students to attend work-based learning. The project is not directly related to international mobility but is an example of a project with international cooperation and transnational funding.
Step Ahead (SK, CZ, UK)	The 'Step Ahead' project is initiated by the Erasmus+ programme, and the project runs from September 2015 till August 2017. Mobility in this case should be understood in broad terms as the cross border cooperation Step Ahead Slovakia is a transnational cooperation between VET schools, private companies, and NGOs with the aim of providing training programmes for Slovak VET teachers within the automotive industry.
Nestlé needs YOUTH (Global)	Nestlé need YOUTH promotes the mobility of VET students that take part in the initiative, due to its ability to offer transnational mobility in the placement of students in apprenticeships. Given that several multinational companies are involved in the project, it is easier for students to apply for internships abroad through the project. In this way Nestlé needs YOUTH also helps VET institutes offer students international training opportunities within their curricula.

Source: Panteia

VET process dimension

Almost by definition, mobility is generally relevant in the VET provision phase of the VET process.

Level of cooperation

The case studies and examples show that VET-Business activities focusing on international mobility can happen at many different levels. Obviously, all the projects have a transnational and sometimes European dimension. Many of the projects happen at the firm level (e.g. Nestlé) and in some case studies the level of cooperation is sectoral (e.g. EURIAC, Techwise, Educate for Business and Step Ahead). For the Nestlé case study, the cooperation is not only trans-national between Nestlé and other companies, but also within the company itself. Practically, this means that positions available through the programme are posted centrally so students that are interested in a position abroad can apply easily. In the Serbian case study, the issue of international mobility is mainly taken up through student exchanges between participating schools in Serbia and educational institutions based in Germany. Of course, a crucial factor mediating the Serb-German relationship is the international funding for the project, which comes from the German government.

Relation to other topics

Projects encompassing international mobility often use mobility as a tool to improve the possibility of attending work-based learning in companies in other countries and thereby, to match skills supply and demand. One example of this is the Educate for Business project. Furthermore, matching supply and demand can be also achieved through fostering regional labour mobility, hence preventing a context of territorial mismatches, whereby an oversupply of a given skillset in a certain region is accompanied by a skill shortage in a different region. This issue is tackled in the Serbian case study through participating secondary vocational schools, which arrange for their students to visit other participating schools, as well as participating companies in other towns and cities, to see how learning and working takes place in a different environment. There are also examples of mobility projects combining this with a focus on entrepreneurial skills (HansaVET and Educate for Business) and digital skills (EURIAC).

Furthermore, mobility is also related to the competence development of teachers and used as a means to support the development of transversal and vocational skills for VET students. As was previously mentioned, this is the case for the Educate for Business case study. Another example is the Step Ahead project, but in this case mobility is primarily related to transnational cooperation across countries and not physical mobility involving movement of people.

Impact on quality and attractiveness

As explained in the introduction to this chapter, there is ample evidence of the positive impact of international mobility of learners and teachers on the quality and attractiveness of VET. However, in the case studies included above, international mobility was not a key objective. As a result, the information collected on results, challenges and success factors was limited.

The Techwise case study is related to raising overall VET attractiveness and quality in the sector. This is the case because opportunities are given to students to participate in international competitions in crafts and competences that have been learned at field labs in schools and companies, as well as during apprentices. Finally, international mobility is among actors in the VET-system perceived as a means to raise overall VET attractiveness by offering international study experiences for young people attending VET.

9 ENTREPRENEURIAL SKILLS

Introduction to the topic

Entrepreneurial skills are highly demanded by enterprises and policymakers across Europe and will remain so in the future. Those skills can encompass more than just the skills and abilities that are required to start one's own business. Entrepreneurial skills entail a sense of creativity and problem solving competences. Due to this broader definition, these skills are relevant for everyone. Within the European Small Business Act, entrepreneurship is one of the four key priorities.⁵⁵ Entrepreneurship is closely related to 'Sense of initiative and entrepreneurship' as defined by the key competences for lifelong learning.⁵⁶ 'Sense of initiative and entrepreneurship' refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance.⁵⁷ The European Commission emphasises the value of entrepreneurship competences in the Skills Agenda⁵⁸ and published an 'Entrepreneurship Competence Framework' to raise consensus about what entrepreneurship skills are (see box).⁵⁹

Box 4 Entrepreneurship Competence Framework

EntreComp defines entrepreneurship as a transversal competence, which applies to all spheres of life: from nurturing personal development, to actively participating in society, to (re)entering the job market as an employee or as a self-employed person, and also to starting up ventures (cultural, social or commercial).

It builds upon a broad definition of entrepreneurship that hinges on the creation of cultural, social or economic value. It thus embraces different types of entrepreneurship, including intrapreneurship, social entrepreneurship, green entrepreneurship and digital entrepreneurship. It applies to individuals and groups (teams or organisations) and it refers to value creation in the private, public and third sectors and in any hybrid combination of the three. Lastly, it is domain neutral: one can act upon ideas and opportunities to generate value for others in any domain and possible value chain.⁶⁰

⁵⁵ Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions (2008). 'Think Small First' - A 'Small Business Act' for Europe. {SEC(2008) 2101} {SEC(2008) 2102}.

⁵⁶ EC (2006). RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 on key competences for lifelong learning (2006/962/EC)

⁵⁷ EC (2006). RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 on key competences for lifelong learning (2006/962/EC)

⁵⁸ <http://ec.europa.eu/social/main.jsp?catId=1223&langId=en>

⁵⁹ Bacigalupo, Margherita, Kampylis, Panagiotis, Punie, Yves, Van den Brande, Godelieve (2016), *EntreComp: The Entrepreneurship Competence Framework*. Available: http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=8858&lang=fr

⁶⁰ Ibid.

One of the key challenges that needs to be tackled is that education should offer the right foundation for an entrepreneurial career. Entrepreneurship education prepares people to be responsible and enterprising individuals. It helps people develop the skills, knowledge, and attitudes necessary to achieve the goals they set out for themselves.⁶¹ The European Commission expert group on Entrepreneurship in Vocational Education and Training concluded in 2009 that the uptake and the effectiveness of entrepreneurship education in European vocational schools are still far from being fully satisfactory. It also concluded that there seem to be no major administrative obstacles to cooperation between schools and enterprises and this type of cooperation is generally well established, particularly in countries where a 'dual system' is in place. It can be however difficult to ensure the participation of small and micro enterprises.⁶²

According to a survey⁶³ among enterprises, a large share of them think that VET curricula need to be updated based on the entrepreneurship skills that are needed today. Cooperation between VET schools and enterprises to develop entrepreneurial skills are rare. More than two thirds of the large companies in the survey had no experience with this type of cooperation. A sizeable number of enterprises have little interest in cooperation on this specific topic. According to them, cooperation for the development of basic skills is enough. Development of entrepreneurial skills is the responsibility of VET schools. On the other hand, some larger enterprises do not need cooperation with VET schools because they have the capacity to train their own employees with a trainer in entrepreneurial skills. Furthermore, some enterprises are willing to cooperate but indicate they are waiting for the initiative of VET schools.

Already the Expert Group indicated that teachers and teacher skills in entrepreneurship play a crucial role in providing a stimulating environment for entrepreneurship education in VET. The survey of VET-business cooperation on skills, entrepreneurship and apprenticeships⁶⁴ confirms this and reports that VET teachers are not properly qualified or that their connections to companies are too weak. It reports a need for the VET schools to develop their teachers' competences to enable them to teach in a way that develops the initiative and problem-solving capacities in VET students. Some SME associations suggested that the lack of entrepreneurial skills of teachers could be remedied through closer cooperation, which would entail that teachers spend more time in companies.

Examples and case studies

There are many different examples related to entrepreneurship education in VET that somehow involves businesses. VET-business cooperation (especially SMEs) plays a key role in entrepreneurship education. Some companies offer training programmes for VET teachers, sometimes in cooperation with schools. Some SME associations mentioned that either the association itself or (some of) its members offer internships to VET teachers and trainers to give them an insight into the culture and operating conditions in a small business. In one country, most VET teachers work half time in VET schools and the other half in a company. Furthermore, there are examples of projects aimed at supporting competence development in VET teachers by setting up a framework where the teachers are offered specialist advice from companies, see box 5.⁶⁵

⁶¹ See: https://ec.europa.eu/growth/smes/promoting-entrepreneurship/support/education_en

⁶² European Commission (2009). *Entrepreneurship in Vocational Education and Training Final report of the Expert Group*, p. 7.

⁶³ ICF GHK (2014). *Preparation of the European Business Forum on Vocational Training: Survey of VET-business cooperation on skills, entrepreneurship and apprenticeships*.

⁶⁴ ICF GHK (2014). *Preparation of the European Business Forum on Vocational Training: Survey of VET-business cooperation on skills, entrepreneurship and apprenticeships*.

⁶⁵ ICF GHK (2014). *Preparation of the European Business Forum on Vocational Training: Survey of VET-business cooperation on skills, entrepreneurship and apprenticeships*.

Box 5 Example of cooperation: Upgrading teachers to promote entrepreneurial skills

In Denmark, the project 'Horizontal Innovation through Competence Development – Everyday Innovation' was started by a partnership between four VET schools (secondary as well as postsecondary VET), a university research centre, and the Danish Federation of Small and Medium-sized enterprises. The aim of the project is to deliver entrepreneurial and innovation competences to small and medium-sized companies. In the project, VET teachers' competences to deliver entrepreneurial skills are developed in close cooperation with the SMEs. In the context of the project, VET schools can offer targeted advice to SMEs within their field of specialisation.

Within the framework of the European Commission study on 'Compilation of evidence on the impact of entrepreneurship education strategies and measures' 13 case studies were conducted on researching the impact of entrepreneurial education.⁶⁶ Some of the case studies relate to VET-business cooperation such as the JA-YE – Junior Achievement – Young Enterprise programme being active in 40 European countries⁶⁷. As described in the case study, to implement their activities, JA-YE member organisations bring the public and private sectors together to provide students in primary, secondary, and higher education with high-quality education programmes. Business representatives volunteer to mentor students in shaping and establishing their mini-companies, for example, or give guest lectures at schools. Consequently, JA-YE member organisations work depends on the partnerships it builds with schools and the business community.⁶⁸ The most widely known programme run by JA-YE member organisations across Europe is the Company Programme. The Company Programme is implemented in cooperation with schools in secondary education and lasts for one school year. It consists of five steps.⁶⁹

1. Motivation and ideas: Creativity and brainstorming to generate a business idea;
2. Organising: Deciding on the name of the company and the brand, contacting the business volunteers, defining the roles and jobs in the company, and establishing the boards;
3. Shaping and establishing: Generating start-up capital, defining the product and the market, finalising the business plan, and going international;
4. Getting ready for action: Dealing with procurement and production, proceeding with sales, budgets and bookkeeping;
5. Competing and closing: Closing the company, reporting and participating in competitions.

Within the framework of the current study, two case studies have been conducted that touch upon entrepreneurial learning. These are briefly introduced in the table below. A long description of the case studies can be found in the Annex.

⁶⁶ European Commission (2015). *Entrepreneurship Education: A road to success: 13 Case studies*. Prepared for the study 'Compilation of evidence on the impact of entrepreneurship education strategies and measures'.

⁶⁷ <http://jaeurope.org/about/network.html>

⁶⁸ European Commission (2015). *Entrepreneurship Education: A road to success: 13 Case studies*. Prepared for the study 'Compilation of evidence on the impact of entrepreneurship education strategies and measures', p. 22.

⁶⁹ European Commission (2015). *Entrepreneurship Education: A road to success: 13 Case studies*. Prepared for the study 'Compilation of evidence on the impact of entrepreneurship education strategies and measures', p. 23.

Table 8 Aspects of the case studies related to entrepreneurial skills

Case study	Case study aspects related to entrepreneurial skills
Valkeakoski Campus (Trimola Campus and Robola lab project) (FI)	In the case study of the Trimola Campus, the main cooperation partners are a university of applied science and two schools with support of a number of local companies. The Trimola campus fosters entrepreneurial spirit among campus students by giving access to workspace facilities in an environment with other companies. In addition to this, all students at the University of Applied Sciences (HAMK) have to follow an entrepreneurship course. Furthermore, the Trimola Campus project introduced real company problems and projects into the curricula of the different study programmes, particularly through project based learning. The reasoning was that by giving students better possibilities to work with real company problems, it would improve the entrepreneurial skills among the students and give them a better understanding of labour market needs.
Educate for Business (LT, LV)	Educate for Business aimed at improving entrepreneurial skills and spirit among VET graduates within selected vocational fields (mechanic field and tourism). The approach was that students as part of the VET programme had to develop new business ideas and create business plans. In the end they had to present the business plans to managers from local businesses who also functioned as mentors for the VET students during the project. Furthermore, the idea was also that the by attending work-based learning in local companies VET students could improve their entrepreneurial skills and understanding of how a company works.

Source: Panteia

VET process dimension

The study on 'Entrepreneurship Education: A road to success' lists the impact of institutional changes prioritising entrepreneurship education. It provides an enhanced level of innovation and entrepreneurial culture in the institution; it establishes an entrepreneurial ecosystem for students; it improves the collaboration with stakeholders; and it enhances reputation and promotes better access to funding.⁷⁰ The examples, both the Junior Achievement example and the two case studies show that entrepreneurial skills being provided at the interplay between VET institutions and businesses play a role in all three dimensions (curriculum development, VET delivery, and feedback loop).

In the context of curriculum development and VET delivery, there are a number of enterprises and associations that are involved in the development of innovative learning concepts which take place in schools or in companies. For example, by supporting 'junior companies' managed by students in VET schools, or enterprises participating in a special working group to reflect on the learning concepts⁷¹. The Educate for Business case study particularly focused on developing and updating curricula and on sharing resources with businesses in order to realise a better IVET – labour market connection, also by introducing apprenticeship-like programmes. One of the aims of the Trimola Campus project was to bring real company problems and projects into the curricula of the different study programmes, particularly through project based learning. The underlying reasoning was that by giving students better possibilities to work with real company problems, it would improve the innovation and entrepreneurial skills among the students and give them a better understanding of labour market needs. Furthermore the rationale

⁷⁰ European Commission (2015). *Entrepreneurship Education: A road to success; A compilation of evidence on the impact of entrepreneurship education strategies and measures*, p. 50-53.

⁷¹ ICF GHK, 3S, Danish technological institute and Technopolis (2014). *Preparation of the European Business Forum on Vocational Training: Survey of VET-business cooperation on skills, entrepreneurship and apprenticeships*. Also the initiatives of Junior Achievement can be mentioned here.

was that the presence of companies on the local campus could improve the possibilities for collaboration between students and companies.

With regard the feedback loop, integrating entrepreneurial learning in the VET provision closes the gap between the VET institution and the businesses, and allows a better alignment with what is actually needed in terms of skills (and (entrepreneurial) attitudes) on the labour market.

Level of cooperation

Cooperation in stimulating entrepreneurial learning through VET-business cooperation plays a role at all levels of cooperation (see European Commission study 'Entrepreneurship Education: A road to success'). The case studies identified in the course of the current study however, concern cooperation at the local/regional level involving universities, schools, and local companies (Valkeakoski Campus – Trimola Campus (FI)), VET institutions, other educational institutions, government institutions, and businesses to offer work-placements (Educate for Business LT/LV). Within the Junior Achievement project cooperation can be found at all levels ranging from the global to the individual.⁷²

Relation to other topics

Entrepreneurial skills can be applied for different purposes in different sectors as the examples show. There is a strong link with matching supply and demand. Entrepreneurial skills can also be related to innovation, digital skills and social inclusion (social entrepreneurship). In addition, as is illustrated by the Educate for Business programme in Latvia and Lithuania, it can be related to mobility and stimulating work-based learning.

Impact on quality and attractiveness

The examples of VET-business cooperation on entrepreneurial skills, as is also the case for innovation, show that the emergence of 'high' and forward-looking skills in the VET agenda can be facilitated by cooperation between business and higher education institutions (such as universities of applied sciences – as in the Trimola Campus project).

In addition, the cases (especially Trimola Campus) show that the focus on entrepreneurial skills can contribute to more attractive VET programmes. Respondents underline that the campus initiative has been successful in creating an interesting and international campus environment that raises attractiveness for all students studying there. This and the improved collaboration between the different educational levels thereby improving VET quality, are mentioned as the primary successes of the new Valkeakoski Campus.

⁷² <http://jaeurope.org/about/ja-worldwide.html>.

10 SOCIAL INCLUSION

Introduction to the topic

With the emphasis on NEETs (Not in Employment, Education & Training), the YEI (Youth Employment Initiative), the Youth Guarantee, and work-based learning (including apprenticeships), VET systems are looked t more and more to facilitate the social inclusion of those in danger of exclusion. Work-based learning is seen as both a preventive measure for drop-out, and a curative measure to re-engage young people in learning and as facilitating better access to the labour market.⁷³

Besides the already mentioned initiatives, the European Social Fund plays an important role in the area of social inclusion as one of the pillars of the programme is devoted to this topic. The ESF finances many thousands of projects to help people in difficulties and those from disadvantaged groups to get skills, to get jobs and have the same opportunities as others do.⁷⁴ ESF projects focus (amongst others) on improving local partnerships, including involving (VET) schools.

Examples and case studies

Based on an assessment of existing practices to combat youth unemployment and the initiative taken in establishing Youth Guarantees, many examples came to the foreground in which VET cooperate with businesses to facilitate the (re-)inclusion of young people into learning.⁷⁵ Often there is a key role played by the PES; VET providers are responsible for the learning component, together with the companies providing the work-places.

Within the framework of the current study, three case studies were conducted that relate to social inclusion. These are briefly introduced in the table below. A long description of the case studies can be found in the Annex.

⁷³ See Eurofound (2012). *NEETs Young people not in employment, education or training: Characteristics, costs and policy responses in Europe*.

⁷⁴ <http://ec.europa.eu/esf/main.jsp?catId=50&langId=en>

⁷⁵ Eurofound (2015). *Social inclusion of young people*.

Table 9 Aspects of the case studies related to social inclusion

Case study	Case study aspects related to social inclusion
AQUA (AT)	AQUA is a programme of the Austrian Public Employment Service (AMS). It targets unemployed persons with a distance to the labour market for CVET and life-long learning education. It sets up education plans that are customised to the unemployed individual in cooperation with the participating company and VET institute. In addition, it provides financial support to both the unemployed and participating companies to create an incentive to hire. Furthermore, AQUA promotes the attractiveness of VET by providing a subsidy to unemployed who participate and it provides dual (work-based) learning in which a third of the time is spent on theoretical training and two thirds on practical, in-company training.
Coop Food School (DK)	The Danish retail chain Coop has developed its own VET programme for butchers, bakers and delicatessen assistants. The programme follows the national requirements for the three profession and is made in close cooperation with Zealand Business College, a public and national accredited VET-provider. As Coop Food School provides the students with an apprenticeship place it is also a way of giving young people that do not meet the entry requirement for VET schools an opportunity to begin a VET education. The programme explicitly targets and provides special help for academically weak students.
Labour Foundation of the Construction sector (ES)	The FLC provides training to employees as well as unemployed people. For all learners, the training is free of cost. Historically, the large proportion of temporary contracts in the sector has been an important rationale for the social partners in the sector.

Source: Panteia

VET process dimension

In relation to the VET process dimensions, curriculum development, VET delivery, and feedback loop, the examples, show different approaches. In general, it can be observed that to use VET for social inclusion, no one-size-fits all approach is applicable. As is emphasised by the Youth Guarantee, the trajectory (whether it is learning or working) needs to be tailor-made. The example from Austria is a clear illustration of this: the AQUA programme is based on the idea that, while a certain percentage of unemployed people are in need of training, no unemployed person or company is the same and thus an approach using customised tracks is needed. By developing and designing individual VET tracks through the personal education plan and each route to work individually, matching demand and supply on the labour market is more easily facilitated by the programme. Within the Coop Food School the emphasis is on work-based learning. Hence, the social inclusion examples do not impact the (formal) curriculum development process as such or the delivery and feedback loop. Instead they work more directly on tailoring the approach and ensuring matching of supply and demand in the labour market (direct feedback loop).

Level of cooperation

How VET-business cooperation can contribute to social inclusion can be discussed at all levels of cooperation (as is evidenced by the different examples and approaches proposed in the framework of the Youth Guarantee and Youth Employment Initiative). Two case studies in the current study also illustrate that cooperation takes place at different levels. In the AQUA project, the cooperation takes place on the regional level because the project originated through regional measures for retraining unemployed with a distance to the labour market, although guidelines are set by the national government. Additionally, cooperation occurs at the firm or school level as individual firms, unemployed and VET schools work together in designing an education plan. The Coop Food School can be considered an example of a local or sectoral cooperation between a nationally operating retail chain and VET institutions.

Relation to other topics

Within the framework of the Youth Guarantee, YEI and ESF, social inclusion is closely linked to work-based learning and matching supply and demand in skills. It is less related (but can be) to digital skills, innovation, and mobility. In the case study of the Foundation of Labour for the Construction Sector in Spain, the social inclusion aspect is closely related to matching supply and demand, as well as to digital skills. This is the case because the training which the foundation provides aims at providing unemployed persons with the skills and knowledge which are needed in the sector. These skills include new digital skills as well as knowledge of health and safety best practices.

Impact on quality and attractiveness

The examples and further evidence regarding the Youth Guarantee show that the initiatives do not as such increase the attractiveness of VET. What it does do is to increase access to VET under conditions that fit the characteristics of groups that are in danger of social exclusion. Better tailoring the VET provision to their needs can be considered an impact on the quality of VET. The AQUA project increased the attractiveness of VET by making VET available free of charge to unemployed persons. Of the 8000 persons in Austria that engage in 'second chance' VET apprenticeships (apprenticeships for persons without a qualification), 3000 are in the AQUA programme. The Coop Food School initiative focuses on VET attractiveness as a means to reducing recruitment problems by offering an 'apprenticeship guarantee', good job opportunities, a hands-on approach to learning and a social and professional network for the students.

11 RAISING AWARENESS

Introduction to the topic

VET has been traditionally considered in many countries as 'second best' compared to academic education and it has often struggled to achieve what researchers refer to as 'parity of esteem' with academic education⁷⁶. Yet, it is equally true that some VET systems deliver excellent results and that the public holds them in great esteem (more specifically, and most importantly, by prospective students and their families). Hence, while in some countries there is a virtuous circle between (high) quality of VET and (high) public awareness and esteem (e.g. in Germany and Austria), other countries seem to be stuck in a vicious circle of low quality VET and lack of public awareness and esteem⁷⁷. The two circles are well-captured by one of the findings of a 2011 Eurobarometer survey on 'Attitudes towards vocational education and training' which finds that:

'Countries in which a high number of respondents think VET has a positive image in their country – notably Malta, Austria and Finland – are also the countries where the most people think VET offers high-quality learning. Respondents in countries with a relatively negative image of VET – such as Latvia, Lithuania and Slovenia – are the least likely to regard VET as offering high-quality learning⁷⁸'

Thus, if one is in a 'vicious circle' scenario, VET will be considered by students and their families as a poor option by default, and VET programmes in these countries, even when good or excellent, might be at disadvantage in recruiting (talented) candidates. Raising awareness of VET therefore becomes a potentially important direction to pursue to break the 'vicious circle'.

Examples and case studies

As part of the project, some case studies present possible strategies that businesses might undertake alone or in cooperation with other actors to raise awareness of VET. Table 9 provides examples drawn from case studies from the project. A long description of the case studies can be found in the Annex.

⁷⁶ See e.g. discussion in Hansen, K., & Vignoles, A. (2005). *The United Kingdom education system in a comparative context; What's the Good of Education?* 13-35.

⁷⁷ See e.g. for analysis: Iannelli, Cristina, and David Raffe (2007). *Vocational upper-secondary education and the transition from school*. European sociological review 23.1 (2007): 49-63.

⁷⁸ European Commission (2011). *ATTITUDES TOWARDS VOCATIONAL EDUCATION AND TRAINING Special Eurobarometer 369*.

Table 10 Aspects of the case studies related to raising awareness

Case study	Case study aspects related to raising awareness
Coop Food School (DK)	Coop Food School has tried to raise VET-awareness by offering an attractive VET programme with an 'apprenticeship guarantee' as well as highly profiled TV-chefs as teachers. Furthermore the students live at the VET-school in order to improve the social dimension of the VET programme. Coop hopes that this can enhance attractiveness as the weaker social dimension is often a downside in VET compared to upper secondary school for many young Danish people when they are deciding their educational future.
Higher Technical Institutes (IT)	Specific Higher Technical Institutes participate in 'orientation events' in (upper-) secondary schools located in the district where the Institute operates. This by and large means that representatives of the Institutes visit the schools to present the educational and training offer at Higher Technical Institutes to final year students. The main reason for this activity is that Higher Technical Institutes constitute a relatively recent initiative and therefore prospective students might not necessarily be aware of them.
Techwise Twente (NL)	Actions are taken to promote VET attractiveness in the eyes of (prospective) students and employees by organising roadshows and other events and meetings with VET institutes, companies and public bodies. The goal of this promotion is increasing the influx of both students and current employees in existing and new HTSM VET tracks.
Tech Partnership (UK)	The Tech Partnership engage with schools to raise awareness of training (and subsequent careers) in the tech sector. TechFuture Ambassadors have been visiting schools to talk to students about careers in the tech industry and the TechFuture Classrooms have delivered resources to students to carry out projects based on real life problems set by industry partners. Part of these efforts, through the TechFuture Girls, have been specifically targeted at tackling the gender gap in the tech industry, and have provided challenges designed by industry representatives for girls of age 10-14. These include exercises in coding, data management, cyber security and other areas.
Nestlé needs YOUTH (Global)	The Nestle initiative raised awareness of VET primarily among companies by providing 120 ambassadors who provide guidance to smaller companies that wish to start or strengthen apprenticeship schemes, reaching out to up to 60 000 small businesses. These companies have been contacted by Nestlé, either because they had been clients in the past, or because they are a part of Nestlé's production chain.

Source: Panteia

VET process dimension

For most of the examples above, the VET process dimension is not relevant. Raising awareness is a standalone matter which does not necessarily connect with the VET process dimension. However, in the Nestle case study it could be argued that strengthening apprenticeship schemes is part of VET provision.

Level of cooperation

The case studies suggest three different levels of cooperation when it comes to raising awareness. A first approach is national-sectoral and reflects the national-sectoral nature of the initiative. Thus, in the Tech Partnership example, the focus is on raising awareness of tech careers at the national level. Here the type of interaction is between businesses and perspective students. Another example of this kind of cooperation is the Coop Food School where a large company at the national level focuses on raising awareness for different food related study paths. A second level is also focussed on business – prospective students' interaction, though it takes place at a more local level. Thus in the case of both the Higher Technical Institutes and the Techwise examples, the raising awareness initiatives have a rather geographically limited scope targeting prospective students in the area in which the initiative takes place. A third level can be labelled as business-to-business, demonstrated in the Nestlé example, where a large company raises awareness of VET to other (smaller) companies.

Relation to other topics

The examples discussed in this section work in a symbiotic relationship with other themes treated in the report: raising awareness of VET to students contributes towards tackling skill shortages in a given sector and therefore helps the skill matching process (e.g. in the Tech Partnership, HTIs, Techwise and Coop examples), while raising awareness of apprenticeships among companies (as in the Nestle case study), is expected to interact with increased the provision of work-based learning. In the Techwise case study, apart from tackling sector-specific skill shortages, raising awareness and attractiveness of VET is also related to innovation. The introduction of 'field labs' in which students learn to work with innovative technologies and students' participation in international competitions contribute to both innovation and awareness.

Impact on quality and attractiveness

The information collected on this topic does not allow a systematic identification of results, challenges and success factors. However one broader insight emerges from the Tech Partnership, namely that despite a campaign specifically targeting girls, the rate of participation of girls in digital skills programmes has remained low compared to in the rest of apprenticeship programmes (please refer to the case study report in the Annex for details on this). This suggests that raising awareness campaigns are certainly important but that they cannot change deep-seated cultural behaviours (such as low female participation in STEM) on their own. Therefore, business-led awareness raising initiatives should be thought of as a complement, not a replacement, of broader government-led raising awareness initiatives to stir cultural change in the desired direction.

12 STUDY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Findings

The main findings of the study are:

- **VET-business cooperation can contribute in many ways to the quality and attractiveness of VET.** This study identified case studies that were relevant for a **broad array of topics**: matching supply and demand, work-based learning, digital skills, innovation (including digitalisation aspects not related to skills development), entrepreneurial skills, mobility, social inclusion and raising awareness.
- VET-business cooperation in the case studies comes about in **three broad sets of actor relationships**: individual businesses or sectoral networks of businesses leading the cooperation through a bottom-up approach; publicly-incentivised cooperation with heavy business involvement through a top-down approach; or publicly-incentivised cooperation geared towards educational institutions with relatively light business involvement. Sectoral and locational proximity appear to be more important foundations for the creation of VET-business cooperation than the governance systems.
- There is **no 'standard' recipe for effective cooperation** to the degree that VET-business cooperation can be effective even if it has no foundation in the national context (legal system, culture, policies, etc).
- In all case studies, there are **strong economic arguments for businesses to cooperate with VET providers**. A key argument is the need for sufficient graduates with the rights skills and experience. In terms of the topics that were distinguished, this suggests that 'matching supply and demand' could be seen as an overarching topic within VET-business cooperation, connected in various ways with the other topics. In most case studies, this matching takes place at the business-learner level, making the gains for the business very direct.
- In most case studies, work-based learning is part of the cooperation as well. Given that there are several case studies in countries where involvement of business in work-based learning is by no means a standard, it illustrates the **trend to introduce forms of work-based learning** in these countries.
- Several case studies show that businesses can play a key role in helping VET programmes to branch out (from their dominant national institutional framework) and reach a **specific target group of learners** not reached by VET programmes before. Branching out can occur vertically (programmes can be attractive to high achievers who would not normally consider VET) or horizontally (programmes can appeal to learners with a negative predisposition towards learning, who would otherwise run the risk of early school leaving).
- In each of the case studies that include a **'physical' area in which VET-business cooperation takes place** (such as on a campus for instance), a variety of actors usually participate. In one of these case studies, VET providers that provide different types of VET, secondary and higher VET, are involved amongst the cooperation partners. For realistic assignments, students from different schools cooperate in teams. The case studies concerning cooperation in a 'physical' area in the study have a broader orientation than other case studies; the various topics of cooperation appear to have a multiplier effect on the impact.
- Several case studies experience **problems in attracting qualified applicants**. Even in those case studies that explicitly target high achieving students as they promote demanding programmes. Substantial efforts are required from the providers and, to a lesser extent, from businesses to attract sufficient learners.
- **'Making it easier' for businesses to cooperate** is a strong facilitator for the development of effective VET-business cooperation. This is even the more so for SME's. Authorities can play an important role in facilitating businesses to cooperate with VET providers.

Finally, the following table illustrates the main enabling and constraining factors to successful VET developments which were raised during the expert interviews and which were encountered in the case studies.

Table 11 The main enabling and constraining factors to successful VET developments

Enabling factors	Constraining factors
<ul style="list-style-type: none"> - Full participation of business and their associations in the development and governance of the VET system - Customisation of the cooperation to businesses, providers and learners - Cost-effective systems that reward businesses - Low administrative burden on business engagement with providers and learners - Sectoral alliances between business and training providers, ensuring that all the stakeholders 'speak the same language' - Involvement of intermediary bodies such as chambers of commerce, industry and crafts, in particularly to ease SMEs participation - Permeability between vocational and academic tracks 	<ul style="list-style-type: none"> - Lack of effective dialogue between business, government and providers - Insufficient ownership of the needs of individual businesses and to a lesser degree, of providers, teachers, trainers and learners - High costs of training making companies, in particular SMEs, reluctant to invest - Lack of information about benefits of and opportunities in VET - Limited business' and learners' participation due to low reputation of VET in some countries - Insufficient investments by governments (e.g. in terms of providing up-to-date equipment to training providers) - Lack of capacity (also funding) on the provider side - Limited opportunities for innovative cooperation on work-based learning due to labour legislation

Conclusions

How cooperation influences quality of VET

There are multiple entry points towards increasing quality and attractiveness of VET, and VET-business cooperation is an important part of the story in this respect. Throughout VET processes, cooperation topics and various cooperation levels, the contributions of VET-business cooperation to VET quality are clear. The main overarching reason is that VET is better aligned with the needs of both the learners and the (future) employers.

Furthermore, there are mutually reinforcing relationships between the elements leading to higher quality VET. To illustrate this, it is noted several times throughout the report that skill matching is an important element in successful school-to-work transition. At the same time, work-based learning is critically important to maximise the skill matching process. By organising the VET provision close to the labour market, the skills needs can be more directly communicated and solved and do not (necessarily) depend on skills surveys or skills forecasting models. Thus, skill matching and work-based learning reinforce each other and both contribute towards increasing the quality and the attractiveness of VET. Similarly, to the extent that VET provides the highly skilled workers needed for the knowledge economy, its attractiveness will increase because VET learners will be positioned at the first frontier of labour market developments. This also contributes to raising the broader profile of VET in society, which in turn makes for a positive feedback effect towards VET programmes as they receive more attention from a broader pool of potential applicants. These are mutually reinforcing relationships; each element in these relationships contributes to the broader enhancement of VET quality and attractiveness.

How cooperation influences attractiveness of VET

Literature, interviews and case studies provide ample examples of the positive impact which VET-business cooperation has on VET attractiveness. In that sense, the study does not lead to surprising conclusions. There is a broad variety of modalities, but almost without exception, attractiveness increases for learners and business.

For learners as for businesses, a crucial element of the positive influence lies in the improved matching of supply and demand of skills: the learner is better equipped for his or her current or future job. A fitting curriculum, relevant practice, and direct contact between the world of education and the world of work, are just a few of the arguments in supporting this element.

For businesses, other advantages can be having the first pick of talents, a better educated workforce and more influence on curriculum development.

For providers, the advantage of VET-business cooperation often lies in the increased attractiveness for learners.

Especially when VET-business cooperation is innovative in terms of VET provision (compared to the regular national VET system), the involvement of business appears to have very concrete and direct advantages (such as an instant attractiveness for example). A specific need to respond to, such as insufficient inflow of adequately trained employees, or access to advanced materials or (technical) innovations, drives these businesses. Without such a specific need, VET-business cooperation that is successful in some regions, sectors etc. fails when it is transferred to others.

Despite the theoretically positive impact on attractiveness of VET amongst learners, actually attracting learners to participate in VET programmes remains an issue. This is even the case in the high-profile case studies which ensure that the learners receive an up-to-date (higher) VET qualification and a near certain job with one of the participating enterprises. This says a lot about the mountain that must be climbed in this context.

Recommendations to policy makers

It is clear that cooperation can be recommended to VET providers and businesses. The case studies might inspire them to strive for specific elements, depending on the needs of businesses, providers and learners. Due to the variety of the case studies, the study furthermore only allows for generic recommendations to policy makers.

Recognise and facilitate

Several reforms are underway across Europe to introduce more apprenticeship models or to implement other forms of work-based learning. Several case studies illustrate this development. However, since systems coming from very different institutional set-ups and legacies are trying to move in that direction, it is to be expected that the process of reform will be rather long and difficult. While it has become apparent that the apprenticeship system was often the implicit or explicit target of the initiatives, the case studies also offer interesting variations on the theme, suggesting that **high quality training with significant business involvement can be inspired by the "dual model", combining school-based learning with practice in a company. However, policy makers should not simply copy successful models from other countries.** The starting point for policy makers can also be an existing school based system, gradually including work-based learning elements. Aside from work-based learning, meaningful cooperation can be found at varying degrees of depth, requiring varying degrees of business involvement.

Policy makers can **ease businesses to cooperate with VET providers.** This is an important factor for effective VET-business cooperation. Their contribution can include financial support and non-financial support, for instance learning facilities to be shared

among all partners and, more generally, the removal of barriers hindering effective cooperation. The study provides examples of this, for instance the creation of campus-like facilities where VET providers and businesses are located close to each other. Another example is facilitating the possibility for businesses to start their own VET school within the national governance structure. Yet another is the contribution of stakeholders to dissemination of good practices.

Innovative forms (as seen from the national VET system context) of VET-business cooperation can pave the way for VET systems to raise quality and attractiveness of VET. Public institutions at all levels should **recognise the potential of VET-business cooperation**.

Customise

There is no 'standard' recipe for effective cooperation. Cooperation takes place on different topics and at different levels and can be of different depth. However, strong enabling factors for success include a strong demand from businesses and learners – a specific need and full participation of businesses in the development and governance of the cooperation.

Following this, policy makers should realise that it is **not useful to 'force' VET-business cooperation**, for instance to create employment for the unemployed. There **should be an explicit need on the business side**. In all case studies, there are strong economic arguments for businesses to cooperate. A key argument is the need for sufficient graduates with the rights skills and experience. When shortages occur or are expected in the short term, businesses apparently take a more active stance towards VET. In the case studies there are examples of both quantitative and qualitative needs.

Although governance systems are very important enablers of high quality, and attractive VET, for instance through financial support, arrangements around the position of learners and recognition of acquired competences, **governance systems should allow for sufficient flexibility to adapt the VET-business cooperation to the specific needs of business**. In other words, governance systems should not prescribe VET-business cooperation in too much detail. Such details should be based on the actual needs of businesses.

Further study

Given the broad variety of case studies of VET-business cooperation that were subject to this study, it has not been easy to draw generic lessons in terms of 'what works' in VET-business cooperation.

Still, **there is a clear need for further study**. Although a broad mapping of VET-business cooperation could have its merits in terms of advocating participation (business, providers), facilitation and stimulation (public institutions) and inspiration (all stakeholders), **a clear focus on specific aspects of VET-business cooperation would provide new insights for further improvements**. In fact, as it is made clear throughout this study, a variety of such general studies has already been carried out. Some issues that this study points to that would be of particular interest are:

- How to entice learners to participate?
- How can financial support be provided to participating business?
- How can teaching transversal skills be effectively included in VET-business cooperation?
- How can specific, important topics such as innovation, entrepreneurship, and digitalisation be included?
- How can the quality of teaching be raised through VET-business cooperation?
- How does effective cooperation between VET providers of different types (levels) work and what are the impacts?
- What impact will changes in the world of work (industry 4.0, globalisation) have on VET-business cooperation?

- What type of VET-cooperation fits best with specific VET governance systems, in particular the various systems on work-based learning?

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ANNEX LONG DESCRIPTION OF CASE STUDIES

In Chapter 3, 12 case studies were briefly introduced, including the criteria used to select the case studies. This Annex provides a more elaborate description of the case studies. They are presented in a standardised format in the following order:

1. Workplace-oriented qualification for unemployed, Austria
2. Coop Food School, Denmark
3. Trimola Campus and Robola lab project, Finland
4. Dual Study Programmes, Germany
5. Higher Technical Institutes, Italy
6. Educate for Business, Latvia/Lithuania
7. Techwise Twente, The Netherlands
8. Cooperative Education, Serbia and Germany
9. Step Ahead, Slovakia, Czech Republic and United Kingdom
10. Labour Foundation of the Construction sector, Spain
11. Tech Partnership, United Kingdom
12. Nestlé needs YOUTH, Global

Workplace-oriented qualification for unemployed - Austria

Name in national language: Arbeitsplatznähe Qualifizierung für Arbeitslose (workplace-oriented qualification for unemployed) or AQUA

Years Running: Since 2010

Funding: Public (mix of funding from national and regional governments)

Key facts

AQUA.....

- Targets unemployed persons with an above average distance to the labour market for CVET and life-long learning education.
- Sets up education plans that are customised to the unemployed individual in cooperation with the participating company and VET institute.
- Provides financial support to both the unemployed and participating companies to create an incentive to hire.
- Promotes the attractiveness of VET by providing a subsidy to the unemployed people who participate.
- Provides dual (work-based) learning in which a third of the time is spent on theoretical training and two thirds on practical, in-company training.

1. Description of the initiative: introduction and short summary

AQUA is an active labour market programme of the Austrian Public Employment Service (AMS), targeted at unemployed persons without adequate qualifications and with an above average distance to the Austrian labour market. AQUA started in 2010 at the regional level in Oberösterreich and financially supports cooperation between companies and training institutions in educating unemployed people and enabling them to obtain a recognised qualification. In subsequent years the programme expanded to other regions and can now be considered a national programme.

The PES develops customised education plans that often end with a VET certification, but sometimes with the validation of experience-based knowledge. The aim is that the participating company employs the person after he/she has completed the programme. AQUA provides help with matching companies, unemployed persons, and VET institutions, and with designing a training plan that may or may not result in the trainee obtaining a recognised diploma. The training may take up to one year. The programme can therefore be categorised as Life Long Learning and as contributing to improving social inclusion, as it attempts to provide unemployed persons with education that teaches durable skills. As such, the main goals of the VET-Business cooperation are work-based learning, social inclusion, raising the attractiveness of VET, and matching the supply and demand on the labour market.

The main partners are businesses and VET providers, with the PES and a private 'cooperation partner' playing a facilitating 'broker' role between them. The main focus of the cooperation is the reintegration of unemployed persons, and as such, the programme improves social inclusion through VET. The level of cooperation is both on the firm level, the regional and the national level, as the national PES works in conjunction with individual firms and cooperation partners to realise these work-based

The programme has achieved good results, with a total of 3,000 participants and a dropout rate of 35%, the programme has a yearly outflow of 2,000 people that receive qualification, 65% of whom are still employed three months after completion.

The programme has several internal success factors. Firstly, the fact that the education plans are tailor-made, means that AQUA is adaptable to a large range of company and employee needs. Secondly, the fact that it subsidises education for unemployed people taking part, and labour for the company causes a win-win-win situation in which the unemployed, the company, and the PES gain from cooperation. A challenge that AQUA has confronted head-on is the fact that participating businesses have an incentive to apply for the programme to gain cheap labour instead of to achieve the educational objectives for the unemployed. The challenge was tackled by closely monitoring the dropout rate of participating companies, as a high dropout rate suggests abuse.

Overall, the case study provides strong evidence for recommending deep business involvement in VET delivery if the inclusiveness and attractiveness of VET is to be improved.

2. Background

AQUA was started in 2010 by the Austrian Public Employment Service in the province of Oberösterreich, and has been continued at the national level as it is proved itself to be a successful programme in which jobseekers receive tailor-made training and qualifications in both theory and practice. These activities are financed by both the PES (AMS) and the future employer.

In short, the AQUA guidelines and strategy are set on the national level by the ministry of social affairs. The budget is set at the regional PES offices, while local PES offices implement the AQUA programme with the intermediary organisations (cooperation partners) at the practical level. The most important partners for execution are the 'cooperation partner', the unemployed, and the company, while the regional and national governments are more important for the funding and strategy development. The project is available for companies from all sectors, and the programme tends to strive for certification in lower levels of VET. Companies involved in the project are usually small or medium sized enterprises, looking for one or two employees.

The regional PES finances the educational costs up to an amount of 1650 EUR and a maximum of 50% per unemployed person, after which the participating company is responsible for financing the education. Companies are mostly willing to pay these educational costs because they essentially enjoy free labour from the unemployed apprentice. In addition to receiving financing for their education, participants receive their usual benefit, which is either an unemployment or disability benefit, or a social assistance benefit.

The most important partners in the programme are the PES and businesses, while VET providers have a minor role as the educator for the theoretical part of the training. The theoretical part of the training is usually covered by a VET provider while the unemployed and participating companies are responsible for the practical education and experience. Usually, participants spend 3 or 4 days a week in a company and 1 to 2 days a week focussing on theoretical aspects in a VET institute. The role of VET providers can, however, be more important in cases in which a formal diploma is the intended result of the training. At the beginning of an AQUA track an education plan is developed

by the PES, which is tailored to the individual knowledge and needs of the job seeker and company. Within the education plan the PES delegates the responsibility for the education of the unemployed person to the private company.

The programme was started to reduce the number of unemployed people without a good starting qualification, as a relatively large proportion of both short and long-term unemployed people in Austria do not have qualifications beyond secondary education. Secondly, the PES in Austria has the aim of reducing both unemployment and increasing the efficiency of its activities. Furthermore, the PES wanted to help individual unemployed people by connecting them with companies who need to hire one or two people. As AQUA is an active labour market policy, it contributes to reducing unemployment directly, as opposed to other PES policies. Additionally, the intermediary organisations efficiently play a broker role between individual unemployed people and company.

3. Objectives

The goals of AQUA are to help unemployed people i) overcome cost-related obstacles to work, ii) undergo training or preparation for a job, iii) re-integrate into the labour market, iv) remain employed in a job.

Target groups of these partnership are unemployed people in need of additional education to enter the labour market, and companies that have trouble finding qualified staff. The main groups of unemployed people which the AMS generally targets with this programme include:

- Persons who have not had any occupational training, or training which is not (or no longer) useful
- Young people with problems entering the labour market
- Persons who have been on the margins of working life for a longer period
- Older persons
- Persons with a partial labour disability

The main indicators which are used to measure the success of the programme are the number of participants in the AQUA programme, and their integration into the labour market, measured using a follow-up monitor that checks the employment status of participants at three different moments after completion of the programme. Initially, no targets were set for these indicators. In 2016 however, a target was set for 6 000 yearly participants, the actual number of participants (2016) level being 3 000. The target set is a political decision as it is the outcome of collective bargaining by the Austrian social partners. As this target is externally set, it is not necessarily perceived as realistic by the staff involved in implementing the programme.

4. Approach

The cooperation takes place at the regional level because the project originated through regional measures for retraining unemployed people with an above average distance to the labour market. The programme guidelines are however, set by the national government. Additionally, cooperation occurs at the firm or school level as the cooperation partners work with individual firms, unemployed people, and VET schools in designing an education plan for each participant.

The approach taken is one in which the financial incentives for both the unemployed people and the businesses involved are tied to a consultation by the PES and the goals of the education plan. In this way, the goals of each individual AQUA education plan can be customised to the situation of the unemployed person and the company involved. The PES can play a coordinating and development role by approving these plans according to the reliability of the companies and VET institutes involved.

For example, the PES offers programmes of twice the length, and consequently, twice the budget, if a diploma is attained upon completing the education track. Furthermore,

although work is a substantial part of the programme, a focus on education remains because a third of the hours spent by participants of the programme need to be devoted to theoretical education provided by a VET provider. The programme is guided at the national level, but implemented at the regional, local, and firm levels.

The rationale of the programme and its approach to reducing unemployment is based on the fact that a large portion of Austria's unemployed people do not have a certification beyond primary or secondary school levels. Making the education free of charge for those unemployed people creates an incentive to apply for a VET track. Because AQUA participants work for companies, participating enterprises profit from what is essentially free labour, so the project also provides added value to the private sector. Lastly, the programme offers a clear way out of unemployment, which is an overall goal of the PES.

Furthermore, the programme is based on the idea that, while a certain percentage of unemployed people are in need of training, no unemployed person or company is the same and thus an approach of customised education tracks is needed. By developing and designing individual VET tracks through personal education plan and designing each participant's route to work individually, the programme facilitates matching demand and supply on the labour market. Moreover, because the unemployed persons receive their salaries from the PES during their training, the participating companies can profit from labour that is almost free, only having to contribute 50% of the certification costs.

AQUA has raised the attractiveness of VET by making VET available free of charge to unemployed persons. In 2016, of the 8000 persons in Austria that engage in 'second chance' VET apprenticeships (apprenticeships for persons without a qualification), 3000 are in the AQUA programme. Because the apprenticeships are such an integral part of the education, and consequently of AQUA, it represents a good example of work-based learning.

By providing VET training for unemployed persons without a qualification, the AQUA project also contributes to improving social inclusion. Within the Austrian government, this is mostly achieved by monitoring dropout rates of AQUA apprenticeships at the firm level, in order to review the relationship between welfare, education, and the apprenticeship. The monitoring of dropout rates ensures that there is no exploitation of apprentices and consequently, no inadvertent disincentives to entering VET.

5. Implementation

The matching of unemployed persons with companies is done by private intermediary organisations called cooperation partners. The education plan which these partners set up have to be approved by the local PES office, as only certified training centres are recognised by the PES.

During its runtime, AQUA has been expanded from the region of Oberösterreich to 8 of the 9 regions in Austria. Furthermore, national regulations that set rules for regional implementation have been developed in order to make sure that the programme is uniform across the different regions. Furthermore, the programme has been adapted to screen participating companies on their commitment to the education of their AQUA apprentices. This has been done because some participating companies only used their apprentices for their labour, without providing guidance or actual training. The screening is performed by evaluating the number of AQUA dropouts which participating companies have had historically, and by banning them from the programme if they have a certain number.

6. Results

As far as information is publicly available, there has not been an evaluation of the results of the AQUA programme, although the use of available funds has been monitored and reported by PES. The national government does however conduct a follow-up monitor to investigate participants' labour market integration.

As of the latest available data (may 2016), the programme had 3000 participants annually. The number of participants can be a misleading indicator however, because 35% of the participants drop out. The 2000 participants that complete their education plan per year can be considered the project's true output. The high dropout rate is a consequence of the project's main fail factor; the fact that companies sometimes abuse the programme to hire subsidised labour, while not fulfilling their educational duties. Of the people who completed the programme, 65% were still employed three months after completion.

No targets have been set for AQUA until 2016, when a target of 6000 participants per year was set for 2018. Therefore, it is difficult to assess whether the overall aim of the programme is being pursued effectively.

A positive side-effect of the programme has been that companies are more prone to report their vacancies to the PES, as they are more likely to be contacted for the AQUA labour market subsidy when they do. However, a potential negative side-effect which the programme faces is the labour market displacement or 'band wagon' effect which the AQUA subsidy might have. This effect entails that companies that would have hired and trained an unemployed person anyway, now apply for the subsidy, causing unnecessary costs to the Austrian taxpayer.

In principal AQUA is transferable to other country-contexts where there is a significant portion of unemployed people with inadequate labour market qualifications. Policy makers should keep in mind the internal success and fail factors, as well as the potential negative side effects mentioned above. As regards the sustainability of the project, it can be said that as long as the population of unemployed persons is characterised by a portion of relatively short term unemployed people with insufficient qualifications (secondary and less), there will be a demand for the AQUA programme.

7. Challenges and success factors

The programme has a few internal factors that promote its success. Firstly, the fact that the education plans are tailor-made, means that AQUA is adaptable to a great range of company-employee needs. Secondly, the fact that it subsidises education for the unemployed and the labour in the company causes a win-win-win situation in which the unemployed person, the company, and the PES gain from cooperation.

There are also some internal factors that pose a risk to the programme. Firstly, there is a risk of objectives and processes of the education plan not being formulated clearly enough by the cooperation partner. This decreases the chance of the unemployed person actually completing the programme with a certificate. Secondly, the programme's selection of companies and unemployed is critical to its success, as both parties should be committed to both education and work. When companies are not invested in the educational needs of their AQUA apprentice, the chance that the apprentice drops out of the programme increases significantly.

A positive external factor that influenced the project's success is the fact that the Austrian economy saw growth in recent years, which had an upward effect on vacancies in Austrian companies and consequently on the number of participating companies in AQUA. An external factor that might influence AQUA negatively is the composition of the unemployed population. If the portion of persons with an extended unemployment period is too high, the programme might not find suitable candidates, because these unemployed are not always suitable to the AQUA programme due to their prolonged inactiveness.

In principal AQUA is transferable to other country-contexts when there exists a significant portion of unemployed with inadequate labour market qualification. Policy makers should keep in mind the internal success and failure factors, as well as the potential negative side effects mentioned before. As regards to the sustainability of the

project, it can be said that as long as the population of unemployed persons is characterised by a portion of relatively short term unemployed with insufficient qualification (secondary and less), there will be a demand for AQUA.

8. Conclusions and recommendations

All things considered, AQUA has mostly been and continues to be a successful project for promoting qualifications for the unemployed people in Austria. Moreover, the programme has an outflow-to-work rate that is higher than for other programmes of the PES in Austria. Recommendations of the respondent for this case study mostly relate to strictly monitoring the potential abuse by participating companies due to the incentive to apply for the programme and thus receiving what is essentially free labour, and by clearly formulating educational goals in the initial education plan.

Case study annex 1: Literature list

LandesKorrespondenz (2010). Information zur Pressekonferenz mit Wirtschafts-Landesrat KommR Viktor Sigl. Available at: http://www.land-oberoesterreich.gv.at/Mediendateien/LK/PK_Sigl_15.02.2010_Internet.pdf

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AMS (2012). Labour Market Policy in Austria 2012. Available at: http://www.ams.at/docs/labour_market_policy.pdf

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Case study annex 2: Respondents interviews

Hannes Edlinger, Lead Active Labour Market Policies, Sozialministerium, Austria.

Coop Food School - Denmark

Title in national language: Coop Madskolen

Years running: Since 2016

Funding: Mix of private and public funding

Key facts

Coop Food School ...

- is a company based VET programme for butchers, bakers and delicatessen assistants launched by one of Denmark's biggest retail chains.
- focusses on students with limited academic learning potential
- is an accredited VET programme where graduates obtain a national VET-degree.
- has a higher focus on work based learning than regular Danish VET programmes and offers an apprenticeship guarantee for students enrolling in the programme.

1. Description of the initiative: introduction and short summary

The Danish retail chain Coop has made its own VET programme at the IVET level for butchers, bakers and delicatessen assistants. The programme follows the national requirements for the three professions and is made in close cooperation with Zealand Business College, a public and national, accredited VET-provider. The programme has a much stronger focus on WBL compared to standard education programmes for butchers, bakers, and delicatessen assistants. An 'apprenticeship guarantee' is in place for all students, which implies that all students enrolling in the Coop Food School are assured an apprenticeship in one of Coop's supermarkets.

The Food School has been very well received across actors in the system and it has been popular amongst VET students from the beginning. For example, the Food School accounted for over 50% of all enrolled butchery VET students in Denmark in the second semester of 2016. The tendency is that students enrolling in the programme have a high vocational level and high degree of enthusiasm. One of the main results from the first enrolled class is that there has been a lower drop-out rate from the Food School compared to regular VET programmes.

The main challenge is that some of the enrolled students have weaker social and personal competencies than VET students from other VET programmes, which may be related to the removal of the grade based entry requirements. Hence, some of the students in the Food School need more support and counselling than regular VET students. The Food School is co-financed by Coop, and the company's willingness to invest a significant amount of time and resources is a crucial element of its success. Finally, a requirement for success is that the national VET-system allows for a large work based learning component within an accredited VET programme.

Overall, the Coop Food School case study shows how close cooperation between a VET-school and a company can improve the attractiveness of VET and the matching of skills supply and demand. Furthermore, the case study shows how a higher involvement of the business side in the VET-system can enhance the possibility of improving the social inclusion of young people in VET as the companies perhaps tend to have a higher focus on young people's willingness to learn instead of focusing solely on their academic skills.

2. Background

The initiative is a cooperation between Coop, one of Denmark's two largest retail chains, and the VET school Zealand Business College (ZBC), which is a public and national accredited VET-provider located in the cities of Ringsted and Slagelse. Coop has more than 1200 supermarkets around Denmark but it is primarily the high-end branch of Coop (SuperBrugsen, Kvickly and Irma) that is involved in the Food School (around 400 supermarkets in all of Denmark). In Coop's discount supermarkets, there is seldom a butchery, bakery, or delicatessen.

Coop Food School was launched as a means to reduce problems in recruiting new butchers, bakers, and delicatessen assistants. One of the reasons for the recruitment problems is a general attractiveness problem for vocational education in Denmark, as upper secondary school and higher education have been the preferred education options for most young people during the last decade.

As a means to enhancing the quality and attractiveness of VET, the admission requirements to VET schools were raised in a VET-reform in 2015. Consequently, it became more difficult for young people with weak academic skills to enter the VET-system and recruitment problems for bakers, butchers, and delicatessen assistants are expected to increase in the coming years. However, if students already have an apprenticeship placement before enrolling in VET they are allowed to enter a VET programme even if they do not meet the minimum exam grade requirements. As Coop Food School provides the students with an apprenticeship place, it is also a way of giving young people that do not meet the entry requirement for VET schools an opportunity to commence with a VET education. This is described by a team manager at Coop:

*'It is scandalous that a large part of the young with clever hands and potential for excellent vocational skills are prevented entrance to VET because of rules focusing on academic grades. We do not believe that food talent is reflected in grades in Danish or maths. And we know that there is a big commitment among these youngsters!'*⁷⁹

Coop Food School is a nationally accredited VET programme where students obtain a national VET-degree through both an apprenticeship and a schooling component. In Denmark it is generally possible to acquire a VET-degree through an apprenticeship meaning that the larger work-based learning component in the Food School programme is not an exception within the Danish VET-system.

3. Objectives

The main objective is to attract more young people to VET programmes related to food and retail. The goal is to have 100 graduates each year and Coop hopes that many of the young people getting an education through the Food School will continue working with Coop when they graduate. This in turn also helps mitigate the current recruitment problems faced by Coop. Coop also hopes that the Food School can contribute to a more positive view of vocational education amongst young people and their parents.

Furthermore, the Food School initiative has a stronger hands-on focus and puts more emphasis on service and food handling competencies as this a central part of Coop's overarching strategy.

Finally, an underlying aim is to heighten social mobility amongst students, since the programme explicitly targets and provides special help for academically weak students.

⁷⁹ http://www.food-supply.dk/article/view/238462/coop_abner_egen_madskole_for_bagere_og_slagtere

4. Approach

The approach of the Coop Food School differs from the traditional VET programmes for butchers, bakers, and delicatessen assistants in several areas. First, admission for the programme happens through a process where possible students are nominated by schools, advisors, or parents. Afterwards the young people are 'headhunted' by Coop and invited to a 'food camp' which tests the abilities of the young people. At the food camp the young people execute different tasks under the observation of teachers from Zealand Business College, and butchers and bakers from Coop. This admission assessment of the young people is based on their motivation and enthusiasm, and not on their academic skills.⁸⁰

If the applicants are accepted and enrolled at the Food School they start with a WBL component in one of Coop shops instead of starting schooling at the VET school. In general, the programme has a much higher focus on WBL compared to the normal education programmes for butchers, bakers, and delicatessen assistants (ZBC, 2016). During the first six months the programme mixes work-based learning in local Coop shops and educational classes at the Food School. In total, students attend classes at the Food School for 20 weeks in three separate blocks. In between the school courses they work at one of the many Coop shops around Denmark (ZBC 2016). After the first six months the students have to decide which of the three VET specialisations they want to proceed with. The aim of the higher degree of work-based learning is to improve vocational skills through hands-on work, which can be especially fruitful and attractive for young people with weaker academic skills, and fewer successful experiences during regular school.

Another dimension is that during the 20 week long education component the students live at the VET-school (ZBC 2016). Coop hopes that this improves the social and professional network of the students, as well as the overall attractiveness of the programme. In Denmark one of the discussion points for the VET system is that it often lacks the same social dimension as is the case for example in upper secondary schools. In upper secondary schools students often have a rich social life and make many new acquaintances which many young people find attractive aspects to the education. Coop hopes that the new model where students live at the VET-school can improve their social lives and the well-being of the students enrolling at the Food School, and through this, improve VET attractiveness for potential VET students.

Finally, to enhance the retention of the Coop the Food School graduates, the programme also focuses on Coop values as well as Coop as a company.

5. Implementation

Coop Food School was launched in the summer of 2016 and has not yet been adjusted. The initiative is implemented at the programme level at the Zealand Business College. It is not a general initiative encompassing all national programmes for butchers, bakers, and delicatessen assistants. Students enrolling in the programme can decide which of the three subject areas they want to focus on during the Food School.

The initiative focuses on VET attractiveness as a means to reduce recruitment problems by offering an 'apprenticeship guarantee', good job opportunities, a hands-on approach to learning, and a social and professional network for the students. The apprenticeship guarantee implies that all students enrolling for the Food School are secured an apprenticeship place in one of Coop's supermarkets. In Denmark there has been a huge debate, especially during the financial crisis regarding the lack of apprentice places for many VET students. Therefore, the apprenticeship guarantee is an important element that can raise VET attractiveness for potential VET students. Another element in the programme that aims to raise VET attractiveness is that some of the teachers at the Food School are high-profile TV chefs.

⁸⁰ (ZBC, 2016).

Furthermore, the programme emphasises overall VET quality. This is primarily done by matching skills supply and demand through a work-based learning approach that aims to provide VET students with company-specific vocational skills. Furthermore, there is close cooperation between Coop and the ZBC on curricula development so that it matches labour market demands for vocational and transversal skills. Finally, Coop also gives the Food School access to some of the Coop shops so that VET students can attend some of the school classes in a real-life working environment. However, the main part of the school-based learning still takes place on ZBC premises.

6. Results

The first class of students began at Coop Food School in August 2016. Hence no official results or evaluations are available yet for the initiative. That being said, the initiative has already received considerable positive publicity from students, parents, advisors, and other VET schools.

According to Coop the impressions of the first food camp were very positive. In an anonymous small scale survey the participants expressed that they were very motivated by the food camp, and all participants declared that they wanted to enrol at the Food School. The attractiveness of the Food School compared to regular VET programmes is emphasised by the fact that Coop Food School stood for over 50% of all enrolled butchery VET students in Denmark in the second semester of 2016.

Furthermore, the teachers from ZBC and the HR-consultants from Coop assessed that the level and enthusiasm of the enrolled students in the Food School is higher than those of the students enrolled at regular baker and butcher programmes. One of the positive consequences of this has been a lower drop-out rate from the Food School compared to regular VET programmes. It is important to note that the current Food School is the first of its kind, so according to one of the informants the lower drop-out rates should only be interpreted as a tendency and not yet seen as an established fact.

7. Challenges and success factors

One of the main challenges in the project was that even though many of the students enrolled in the programme are very motivated and have strong vocational skills, some of the students have weaker social and personal competencies than VET students from the other VET programmes with academic entry requirements. Therefore, some of the students need more support and counselling than regular VET students.

Furthermore, it is important to note that Coop is a large company with more than 38.000 employees and an annual turnover of around 50 billion Danish kroner (around 6.6 billion Euro). This gives Coop the economic muscle and possibilities to launch their own VET programme when they meet recruitment problems or the like, which is seldom an option for smaller companies tackling similar problems. Finally, the Danish VET system provides the space for VET programmes with a large degree of work-based learning. Hence this kind of initiative will not be possible to initiate in all VET systems and it requires that the company involved be large and/or has enough resources to participate in such a resource intense collaboration as is the case for Coop Food School. Hence, this case may not be easily transferrable to all European VET systems and is not necessarily applicable to all types of VET-business cooperation forms. Therefore, crucial success factors for this type of cooperation are the willingness of a large company to invest time and resources in this kind of project, as well as a VET system that allows a large component of work based learning in an accredited VET programme.

Even though there are no evaluations available from Coop Food School, the case study also indicates that close cooperation between a VET-school and a company can improve the attractiveness of VET and the matching of skills supply and demand. Furthermore, the case study shows how a higher involvement of the business side in the VET system can enhance the possibility of improving social inclusion of young people in VET, as companies tend to have a higher focus on young people's willingness to learn instead of focusing solely on their academic skills.

8. Conclusion

Coop Food School is an interesting example of how a cooperation between a business and a VET institution can help remedy recruitment problems as well as improve the overall quality of VET. Through cooperation, the initiative uses well-structured apprenticeships and a higher degree of work-based learning as a means of improving students' vocational skills, especially students with weak academic skills, and to match skills supply and demand. Furthermore, the initiative focuses on attractiveness in the VET-system by providing an 'apprenticeship guarantee', good job opportunities, a hands-on learning approach, high-profiled teachers, and a social and professional network for the students. Finally, the initiative enhances the retail chain's chance to retain apprentices and improve the company-specific competencies of the VET graduates.

Case study annex 1: Literature list

- ZBC (2016). Svar på alt om Coop Madskolen. Available at:
http://www.uuv.dk/uploads/nyheder/20160518_svar%20p%C3%A5%20alt%20om%20ccop.pdf

Other information has been elicited through the following websites:

- <http://coopforum.dk/nyheder/coop-madskolen>
- <http://www.food-supply.dk/article/view/238462/coop-abner-egen-madskole-for-bagere-og-slagtere#>
- <http://zbc.dk/nyheder/zbc-generelt/coop-og-zbc-i-nyt-samarbejde/#>
- <http://detailfolk.dk/detailnyheder/nu-starter-coops-protest-madskole.html>
- <http://detailfolk.dk/detailnyheder/coop-dumper-karakterer-laver-egen-uddannelse.html>

Case study annex 2: Respondents interviews

- Anne Rahbek, Senior HR Consultant, Coop Danmark
- Charlotte Skøtt, Head of Education, Zealand Business College (ZBC)

Trimola Campus and Robola lab project - Finland

Year running: From 2011 until 2013

Funding: Mix of national and EU-funding

Key facts

Valkeakoski Campus...

- is a cooperation focusing on creating synergies between three educational institutions at upper secondary, vocational (IVET) and higher educational levels (among this higher-VET), and companies located on the campus area.
- is involving campus based companies in curricula development, project based learning and events.
- focuses on creating a pathway from initial-VET to higher-VET through shared resources, courses and lectures.
- is accommodating the Robola lab which is a digital learning environment designed in close collaboration with local companies so that students obtain digital skills demanded by the local labour market.

1. Description of the initiative: introduction and short summary

Valkeakoski Campus is a unique learning environment that brings together the local vocational school (IVET), the University of Applied Science (higher-VET), and upper secondary school.

The overall aim of the Campus Trimola project was to support cooperation and synergies between the local educational institutions and companies. Other project objectives were to bring company based problems from local companies into the curricula through project based learning and to foster entrepreneurial spirit and skills among campus students.

The Valkeakoski Campus provides a working space for companies and remote workers as well as students looking to start their own business. A co-project within the overall project called Robola Lab focused on developing a learning environment for robotics and automation that can be used by the local students. The Robola Lab was designed after close consultation with local companies. Finally, the Trimola project focused on improving study trajectories for students from i-VET to h-VET as well as resource sharing between the educational institutions located on campus.

The project has succeeded in creating an interesting and international campus environment that raises attractiveness amongst all students studying at the campus and in creating more cooperation between the different educational institutions. Regarding the goal of achieving more collaboration between campus institutions and companies, there have been both positive and negative results. The collaboration with the local higher-VET institution has improved while cooperation with the initial-VET institution remains the same as before the project. Finally, the objective of fostering entrepreneurial spirit among students by providing access to office facilities and entrepreneurship courses have not resulted in a range of new start-ups among students as was hoped for.

The project shows how a higher degree of cooperation between VET institutions can improve the overall attractiveness of VET. However, it is also clear that co-location of companies and educational institutions is not a guarantee for closer collaboration. The main critical factor remains the relevance of the potential cooperation, as the IVET institution still cooperates primarily with bigger manufacturing companies and smaller retailing companies not located on campus. However, if there is potential for cooperation, as was the case between the companies located on campus and the h-VET institution, co-location can enhance VET-business cooperation. Finally, the project shows that even though students have access to facilities supporting entrepreneurship, and even if this is underpinned by entrepreneurship courses, it remains a complex process to foster entrepreneurial spirit and skills among VET students.

2. Background

The Valkeakoski Campus is located in the Finnish municipality Valkeakoski in the south-western region of Finland. Currently around 22,000 citizens live in the municipality.

The idea to create Valkeakoski Campus started in early 2000, when the municipality of Valkeakoski wanted to unify the local educational actors in an educational hub with office space for local companies as well. Valkeakoski Vocational College (VAAO), Häme University of Applied Sciences (HAMK), and Tietptie High School were already located in the northern area of the city so the municipality saw a good opportunity to develop this part of the town by setting up a campus area. Furthermore the municipality supported the campus project to keep an interesting educational environment and making it attractive for local students and companies in the city.

In 2011 when the campus was already established as a physical environment with the three aforementioned educational institutions, the Campus Trimola project was launched as a means of improving cooperation between the three institutions and the local companies. The Campus Trimola project was funded by the European Regional Development Fund and was carried out from the beginning of 2011 to the end of 2013. All three local educational institutions were partners in the project, with Häme University of Applied Sciences being the leading partner. The local companies were not involved as partners in the project but played a central supporting role in many of the initiatives launched as part of the project.

The Robola lab was developed as an individual project within the campus project. Robola is a learning environment located on Valkeakoski Vocational College focusing on robotics and automation.

3. Objectives

The overall aim of the Campus Trimola project was to support cooperation and synergies between the local educational institutions and companies. This implied that the project targeted the educational institutions and companies on campus at an organisational level, as well as the students, teachers, and employees from the organisations located on the campus area.

Another objective of the project was to bring actual problems from local companies into the curricula through project based learning and to foster entrepreneurial spirit and skills among campus students.

The Campus Trimola project also focused on creating a vivid and international campus environment that could improve the overall attractiveness of the region for both students and companies.

Finally, the Robola lab was launched as a means of improving digital and robotic skills and the understanding of new equipment among the VET students especially. The idea was that by giving students access to the equipment used and required by local companies, it could improve possibilities of obtaining the appropriate digital skills.

4. Approach

The Campus cooperation are using different approaches to reach the desired objectives. The approaches are implemented primarily at a meso level between the educational institutions and companies located on campus.

One of the most important components of the Trimola project was to build a joint Campus Centre for the different institutions. The Campus Centre offers a workspace and meeting facilities for students and small companies looking for a permanent or part time office. The Campus Centre is open for all campus students as well as entrepreneurial students seeking to launch a start-up company. Other companies pay to use the facilities as well. The Campus Centre also provides a one door access for companies wanting to

collaborate with the local institutions. The aim of the Campus Centre is thus to both bring students and companies closer together, as well as providing facilities that can support students starting their own business in an entrepreneurial environment. The project thus had a focus on promoting synergies through co-location of schools and companies on the campus area, but also on improving entrepreneurial spirit among students by giving them access to facilities and office spaces on campus. At HAMK University of Applied Science, the aim of improving entrepreneurial skills was supported by the provision of a mandatory course in entrepreneurship.

A related aim of Trimola Campus project was to bring real company problems and projects into the curricula of the different study programmes, in particular through project based learning. The rationale was that by giving students better possibilities to work with real company problems it would improve the innovation and entrepreneurial skills among the students and give them a better understanding of labour market needs. Furthermore the idea was that the presence of companies on the local campus would improve the possibilities for collaboration between students and companies.

As part of the Trimola Campus project there was also a focus on facility and resource sharing between the local educational institutions, so that the different educational institutions had access to classrooms, auditoriums, lab facilities etc. at the other schools located on the campus area. These possible synergies also entailed joint events, lectures, free time activities etc. between the actors located on the campus area. As an example, an interviewee mentioned that students are sometimes allowed to participate in talks organised by local companies. Another example is that of a yearly Christmas fair hosted by local catering and business school students from the VAAO vocational school and students from Häme University of Applied Sciences (HAMK) in close collaboration with local businesses. The aim of shared facilities, resources, and activities is on the one hand to improve collaboration and synergies between the Campus actors, and on the other hand, to improve the overall attractiveness of the educational institutions and the companies located on the campus.

Another component of the Trimola project was to launch common study paths where, for example, VET students from Valkeakoski Vocational College could take classes at the Häme University of Applied Sciences. If students from Valkeakoski Vocational College want to continue their education at Häme University of Applied Sciences after graduation they can obtain ECTS points for the courses that they have already followed at HAMK. The reasoning behind this aspect of the campus collaboration was to raise VET quality and students' skills by giving them opportunities to follow lectures at a higher educational level, and to improve overall attractiveness by improving pathways between VET and higher education (comprising higher-VET).

The final aspect of the Valkeakoski Campus is the Robola lab. The Robola lab is a sister project to the EU financed Trimola Campus project. The Robola lab is located at the Valkeakoski Vocational College and is a learning environment for automation and hi-tech equipment. One of the reasons building the Robola lab was that by giving students access to the equipment used and required by local companies it could improve the VET students' possibilities to learn the right digital skills. Hence the Robola lab was developed in close dialogue with the local companies so that the space would include company relevant equipment and so the VET students could obtain the right digital skills within automation and robotics. As a result, appliances in the Robola lab include equipment for programming automation processes, robots, 3D printers, scanners, and different types of regulation and process industry equipment. The facilities are primarily used by the VET students, but students from the other educational institutions are also allowed access to the area.

5. Implementation

The approaches of the Trimola Campus and Robola lab projects involve key elements regarding digitalisation, matching supply and demand, entrepreneurship, and raising attractiveness. The initiatives are implemented at the institutional and programme level.

With regards to digital skills the Robola lab provides the necessary equipment for acquiring the right digital skills for students so that VET graduates meet labour market demands.

The Valkeakoski Campus as a whole and the Campus Center focus on getting students and companies closer to each other by giving companies access to office spaces on campus. The company focus also includes trying to bring real company problems into the curricula at the different educations, and to have joint lectures across the different educational levels (sometimes in collaboration with companies). By providing access to workspace and meeting facilities for students wanting to start their own companies, is the campus also hopes to improve entrepreneurial spirit and opportunities for students.

Finally the Valkeakoski Campus itself is focusses on the attractiveness of VET. The campus does so by creating an attractive and vivacious campus environment with an international spirit and more than 2500 students together with local companies, but also by improving pathways from initial VET to higher education.

6. Results, challenges and success factors

The interviewees point towards a range of aspects where the Trimola Campus project and the Robola lab initiative have had a positive impact.

Regarding the first objective of improving cooperation between the educational institutions located on the campus, there is a general consensus that the Trimola project is a success. The possibility for VET students to attend courses at HAMK university of applied science, together with the higher degree of facility and resource sharing between the institutions have been very successful initiatives, and the informants agree that this is raising VET quality and attractiveness. One of the interviewees points out that especially VET business students have used the opportunity to attend the local university of applied science whereas the students from the technical vocational fields have been less active users of the possibility to attend courses at a higher educational level.

As for the goal of more collaboration between campus institutions and companies, there are both positive and negative results. On the positive side, around 15 companies are now located on the campus area, and many of them are actively participating in campus cooperation. The interviews show that direct cooperation between initial VET students and campus based companies is limited compared to the degree of collaboration between HAMK students and companies located on campus. According to the interviewees this is a consequence of the type of companies located on campus, which in many cases are micro companies that don't have the resources to take in VET students or where VET competences taught on the campus are not always relevant. Often the students studying at Valkeakoski Vocational College cooperate with bigger manufacturing companies or with smaller retailing companies, and these kinds of companies are not located on campus. With regards to HAMK, data points towards increased collaboration between students and companies. Furthermore, the use of campus based company cases in curricula is more common at higher educational level compared to the initial vocational level.

Another objective of the Trimola Campus project was to foster entrepreneurial spirit among campus students by giving access to workspace facilities in an environment with other companies. In addition to this all students at HAMK followed an entrepreneurship course. However the interviews shows that the goal of improving entrepreneurship among students was not directly obtained as very few students went on to create start-ups. This shows that even though students have access to facilities supporting entrepreneurship and even if this is underpinned by entrepreneurship courses it is a complex process to foster entrepreneurial spirit and skills among VET students.

There are no official evaluations on the impact of the Robola lab available but according to the interviewees, the establishment of the Robola lab is supporting the possibility for

all campus students to acquire digital and automation related skills demanded by local companies.

Finally, the respondents underline that the campus initiative has been successful in creating an interesting and international campus environment that raises attractiveness for all students studying there. This and the improved collaboration between the different educational levels contribute to improving VET quality and are mentioned as the primary successes of the new Valkeakoski Campus.

7. Conclusions and recommendations

The Valkeakoski Campus is a good example of how geographical proximity between different educational institutions and companies can support cooperation and synergies between VET and business on different topics such as curricula development, talks and resource sharing. Furthermore the initiative shows how cooperation between educational institutions can improve the link between initial VET and higher VET. The Valkeakoski Campus also shows how localisation of different actors from both the education and business side in a limited geographical area can raise overall attractiveness for VET by offering an interesting environment which VET students, as well as companies, find attractive. Finally, the Robola lab is a good example of a feedback loop where VET schools can improve the possibility for VET students to achieve the right digital skills demanded by the labour market through close dialogue with companies.

That being said, the case study also shows that geographical proximity, dialogue, and facility sharing is not a guarantee for close cooperation between companies. Furthermore, the initiative shows that giving VET students access to an entrepreneurial environment with companies and free access to workspace facilities and labs is just one step out of many if the VET-system wants to foster entrepreneurial skills and mind-sets among students.

Case study annex 1: Literature list

The information has been elicited through the following websites and additional sources:

- <http://www.valkeakoskicampus.fi/en/campus-trimola>
- <http://www.valkeakoskicampus.fi/en/campus-center>
- <http://www.hamk.fi/english/applicants/automation-engineering/automation-engineering-learning-environment/valkeakoski-campus/Sivut/default.aspx>
- <http://www.vaao.fi/vaao/briefly-in-english/>
- PowerPoint presentation and e-mail on Valkeakoski Campus sent from Johanna Siuro

Case study annex 2: Respondents interviews

- Johanna Siuro, Project Coordinator, Häme University of Applied Sciences
- Janne Hietanummi, Head of Development, Valkeakoski Vocational College

Dual Study Programmes, Germany

Title in national language: Duales Studium

Years running: Since 1972

Funding: Mix of private and public funding

Key facts

Dual Study Programmes...

- have spread significantly particularly over the last two decades
- provide high quality vocational training at the higher education level, leading students / apprentices to a full bachelor degree and in-depth practical experience at the workplace
- help companies prevent skill shortages, particularly in the STEM field
- are attractive to high-achieving upper-secondary school leavers

1. Description of the initiative: introduction and short summary

Dual study programmes (German name: Duales Studium) have been established in 1972 in Baden- Württemberg. However, after a long period as 'niche programmes' narrowly located in this Lander and enrolling a limited amount of students, they became an increasingly important segment of the German skill formation system since the late 1990s, and most significantly, during the last decade. Dual Study Programmes are now offered across the whole country and almost 100,000 students are enrolled in the programmes.

Dual Study Programmes are delivered by higher education institutions (most frequently Universities of Applied Sciences), and they lead to a Bachelor degree and a vocational qualification, or to a Bachelor degree alone. Hence, these programmes follow the logic of traditional apprenticeships, but they entail the class-based component of the programme taking place at a university. The Dual Study Programmes are therefore an example of higher VET characterised by close cooperation between employers and higher education institutions in course design, and delivery with a strong work-based learning component. Unlike traditional apprenticeships, however, the cooperation is much less based on sectoral arrangements underpinned by employers' associations, but instead it is organised at the company-level, namely between individual companies and individual higher education institutions. Some dual study programmes also serve a lifelong learning function.

The majority of these dual study programmes are in the STEM subjects (engineering in particular), and business administration, and they are seen as important means to reduce skill shortages in STEM occupations by companies. The programmes have achieved significant success in terms of the employment outlooks of the graduates and they have therefore gained prominence among high-achieving upper-secondary school leavers.

The downside of the programmes is that their development is likely to be structurally constrained (i) because of their cyclical nature (i.e. given the substantive investment that companies are required to do to run these programmes, they are expected to develop significantly at times of economic expansions), and (ii) the high demands and expectations which companies put on participants in these programmes make a relatively limited number of secondary school-leavers suited to them. The Dual Study Programmes provide evidence of how business' entrepreneurial attitude towards the VET system might result in policy innovations and policy developments that keep VET attractive at times where VET is challenged by the popularity of academic education.

2. Background

Dual Study Programmes were set up in 1972 when a number of large firms located in Baden-Württemberg together with an educational institution (the Württemberg Academy of Administration and Business) and the chambers of commerce from the region created the first vocational academy (Graf 2017). Back then, the main motive was for large firms to recruit academically gifted young people and tie them to vocational

programmes, instead of 'losing them' to academic education. In particular, the expansion of university education in the late 1960s made businesses acutely aware of the potential threat posed by academic drifting, and Dual Study Programmes were a response to this threat. To this end, in the region of Baden-Württemberg, a specialised institution was created, namely a vocational academy, which was converted in 2009 into the Baden-Württemberg Cooperative State University (Duale Hochschule Baden-Württemberg). This institution focuses specifically on these dual study programmes and is still home to a sizeable number of Dual Study Programmes taking place in Germany today. However, from a niche initiative limited in geographical scope and size, the Dual Study Programmes became a prominent feature of the German skill formation system from the late 1990s, and even more so, from the mid-2000s. Indeed, between 2005 and 2011, the number of students increased by 70%, and the Programmes became available across all 16 Lander. The number of participating firms grew substantially to the point that, for instance, all XDAX-listed firms offer today such programmes. According to recent figures from the Bundesinstitut für Berufsbildung (BiBB), around 95,000 students were enrolled in 2014, registering a steep increase compared to 2004 when there were only 40,000 students enrolled in these programmes.⁸¹ Students are now enrolled across the country in over 1,500 dual study programmes – again registering a steep increase from the just 500 programmes available in 2004 ([BIBB, 2014, p. 10](#)). Furthermore, Dual Study Programmes have moved 'outside' of the vocational academies to involve a significant number of universities of applied sciences and a limited number of traditional universities.

Similar to the early development of Dual Study Programmes in the 1970s, today's expansion has been justified on two main grounds: first, as a recruitment strategy that allows companies to select and tie to the company bright candidates early on, and secondly, as a way for (large) companies to 'escape' some aspects of the regular dual apprenticeship system that were considered too rigid and therefore to 'customise' the training programmes to their needs.

3. Objectives

Dual Study Programmes developed as a bottom-up initiative, almost entirely out of the entrepreneurial behaviour of large companies which set up and expanded these programmes. As such, these programmes as a whole do not arise with 'official objectives' but are instead expected to meet a diverse set of needs according to the firm that sets them up. However, according to qualitative information collected through interviews and documents published by employers' associations (e.g. BDA & Stifterverband, 2011), it appears that companies chiefly pursue the following objectives through Dual Study Programmes:

- To fill 'hard-to-recruit' positions.
- To tie high-achieving secondary school leavers to the company early on through the offer of a training programme combining academic and practical education.
- To have a steady stream of prospective employees that are already 'socialised' into the company and therefore require minimal initial training.

In the absence of 'official objectives' which the initiative should achieve, there are no explicit evaluation mechanisms in place either. However, proxy indicators for the success of the measure include the extent to which student enrolment increases, an increasing number of firms offering programmes, firms' satisfaction with graduates skills, and graduate employment rates upon completion of these programmes.

The main target group is represented by upper-secondary school leavers that have an interest in pursuing an education that combines academic and vocational parts.

4. Approach

⁸¹ ([BIBB, 2014, p. 12](#)).

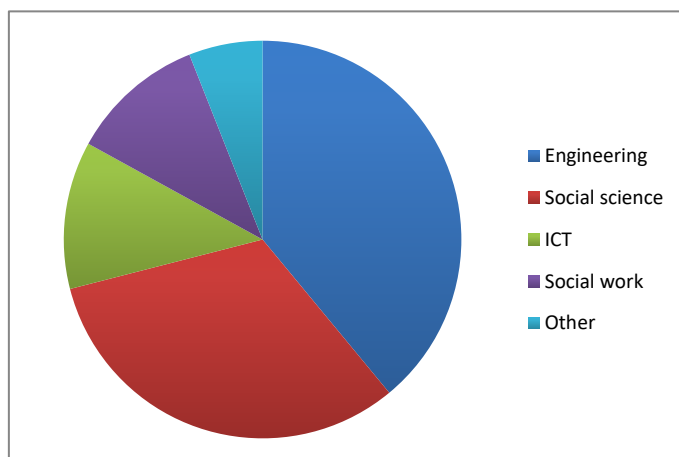
Dual Study Programmes build on a tripartite relationship between the firm that sponsors the programme and offers the work-based part of the educational experience; the educational institution which offers the class-based part of the programme and awards the degree (almost always at Bachelor level, very occasionally at Master level); and the student / apprentice who takes part in the programme and who is contractually tied to the firm sponsoring the programme (who provides a stipend to the student / apprentice). As will be made clear in section 5, some dual study programmes also lead to a vocational qualification and in these cases a fourth actor is also involved, namely the chamber of commerce - responsible for the exams and certification of the vocational qualification. The involvement of businesses in these programmes primarily takes the form of cooperation in course design and delivery. On the higher education side, the large majority of programmes are offered at universities of applied sciences, but other institutions take part as well (in particular, a number of vocational academies, and a limited number of traditional universities).

5. Implementation

Dual Study Programmes fall within three broad categories. The first category blends together a full apprenticeship programme (sometimes also involving a local vocational school) and a higher education degree. These programmes, which go by the name of *ausbildungsintegrierende duale Studiengänge*, therefore lead to a double certification and they represent the 'original' type of dual study programmes. A second group of programmes feature significant periods of in-company practical training, though they only lead to a bachelor degree. These programmes go by the name of *praxisintegrierende duale Studiengänge*. Both types of programme fall within the scope of initial VET, as they target secondary school leavers. A third set of programmes, known as *berufsbegleitende duale Studiengänge*, allow part-time workers to attend a university course. This third type falls within the scope of CVET and LLL and represents an opportunity to boost career opportunities for people that are already in employment (Graf 2014). Clearly, work-based learning is the core feature of these programmes. However dual study programmes also perform a supply and demand matching function to the extent that the initiative to launch a dual study programme originates entirely at the enterprise side, which usually finance these training programmes out of direct demand for personnel with specific skillsets.

The following figure provides a breakdown of dual study programmes in 2014 according to macro disciplines. As can be seen, the majority of the programmes fall within the engineering field. In particular, the growth of dual study programmes in this field has been interpreted as a response by firms to growing fears of shortages in highly skilled STEM specialists (BIBB, 2011), thus highlighting the role of these programmes in matching skills demand and supply.

Figure 1 Distribution of Dual Study Programmes by macro disciplines

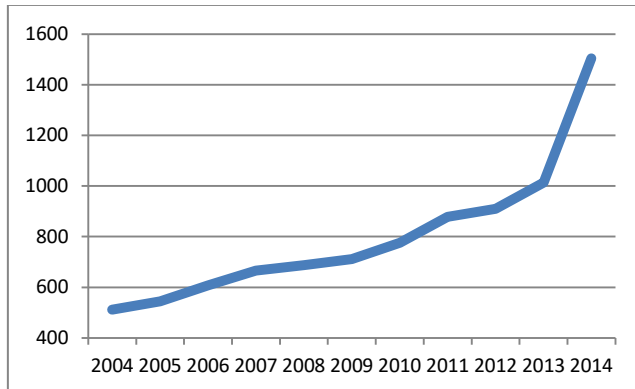


Source: BIBB (2014, p. 9)

6. Results

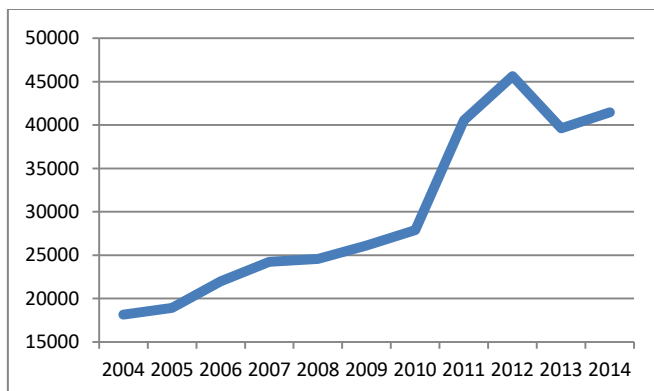
Despite the lack of official evaluations, a set of data helps in understanding the results achieved by this initiative. Starting from some macro-level headline data, we can claim that (i) the offer of Dual Study programmes has increased significantly between 2004 and 2014; (ii) that the number of new contracts that companies offered has grown over the same period; and (iii) that the total number enrolled in these programmes has increased as well. These three pieces of information, captured in Figures 2, 3, and 4, show how the popularity of dual study programmes has increased significantly in recent years.

Figure 2 number of Dual Study Programmes offered in the country



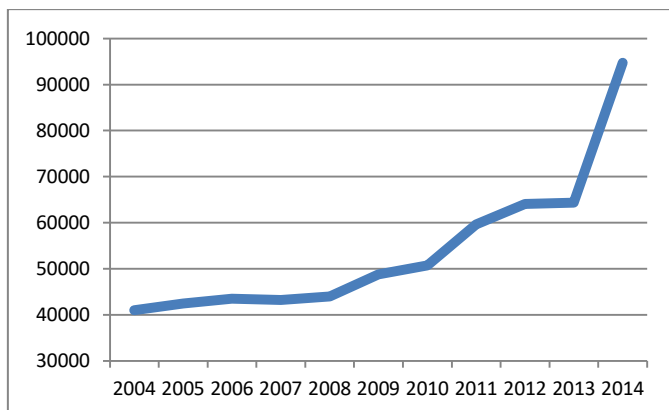
Source: own elaboration based on BIBB (2014, p. 12)

Figure 3 number of new contracts signed between firms, universities and students/ apprentices



Source: own elaboration based on BIBB (2014, p. 12)

Figure 4 total number of students / apprentices enrolled in Dual Study Programmes



Source: own elaboration based on BIBB (2014, p. 12)

Beyond these headline figures, a survey amongst companies that offer these programmes shows that there are three main factors that contribute to Dual Study Programmes showing positive results. First, an overwhelming majority of companies identify a 'skill advantage' among dual study programmes graduates, compared to graduates of regular degrees. According to 93% of the respondents, 'graduates of dual courses of study had a more pronounced practical knowledge of their occupations than graduates of 'classical' courses of study' (Kupfer, 2013). Secondly, dual study programmes perform well in terms of (low) drop-out rates, which are below 7%, and (high) employment rates upon graduation, at an average of 89% (Kupfer, 2013). Thirdly, Dual Study Programmes are very attractive to high achieving secondary school leavers (Kupfer, 2013).

7. Challenges and success factors

A review of success factors and fundamental characteristics in the development of Dual Study Programmes suggest that many of their key features are something of a double-edged sword. These key features make the programmes successful on the one hand, whilst hampering their wider development and applicability on the other. Two crucial elements stand out in this respect: first, it has been noted in the previous section that a key element that makes these programmes successful is their ability to attract highly qualified school leavers. This point, while being an obvious indicator of success, has however, also been interpreted as a potential limiting factor to the further quantitative expansion of dual study programmes. In particular, it has been suggested that since companies exclusively target the best candidates for these programmes, the selection pool is rather limited and therefore constrains further expansion (Kupfer, 2013). Secondly, Dual Study Programmes are of cyclical nature: because firms have significant costs to face, it is expected that the development of these programmes is contingent on the economic cycle. In connection with this point, the nature of firms that offer the programmes also plays a role. Due to the costs, medium and large firms are particularly active in funding these programmes, while smaller firms might find it difficult to finance them (Graf, 2013), hence the development of such programmes might not be feasible in large numbers for those countries where micro or small enterprises are more prevalent in the private sector.

8. Conclusions and recommendations

Dual Study Programmes provide an example of a highly successful model of bottom-up cooperation between business and higher education institutions. Led by large and medium firms, the development of Dual Study Programmes have been extremely significant over the last two decades and have become an important component of the German skill formation system. In particular, as academic studies become more and more popular among young people and their families, the availability of dual study programmes appears as an important strategy on the side of firms to maintain an attractive vocational system for high-achieving secondary school leavers.

Case study annex 1: Literature list

- Graf, Lukas (2013). The hybridization of vocational training and higher education in Austria, Germany, and Switzerland. Budrich UniPress.
- Graf, L. (2014). Growing in a Niche: Dual Study Programs Contribute to Change in Germany's Higher Education. WZB Report 2014, pp.33-36.
- Graf, L. (2017). Combined modes of gradual change: the case of academic upgrading and declining collectivism in German skill formation. Socio-Economic Review, p.mww044.
- Kupfer, F. (2013). Dual courses of study from the perspective of the enterprises-a practical model of success through selection of the best, BIBB, available at: <https://www.bibb.de/en/22749.php>
- BIBB (2011). Dual courses of study gaining favour, available at: https://www.bibb.de/en/pressemitteilung_536.php
- BIBB (2014). Duales Studium in Zahlen *Trends und Analysen*. Bonn: Bundesinstitut für Berufsbildung.

- BDA & Stifterverband. (2011). Erfolgsmodell Duales Studium. Berlin: Bundesvereinigung der Deutschen Arbeitgeberverbände und Stifterverband für die Deutsche Wissenschaft.

Case study annex 2: Respondents interviews

- Representative of the HRK, Hochschulrektorenkonferenz, the German association of university rectors
- Representative of the BDA, Bundesvereinigung der Deutschen Arbeitgeberverbände, the German employers' association
- Responsible for Dual Study Programmes at a Bavaria-based University of Applied Science based

Higher Technical Institutes - Italy

Title in national language: Istituti Tecnici Superiori

Year running: Since 2010 (legal basis had been laid down in 2008)

Funding: Mix of private and public funding (including ESF within public funding)

Key facts

The Higher Technical Institutes...

- are 93 public-private partnerships between the education sector, businesses and local government addressing skill needs in specific regions-sectors.
- provide technical and technological skills for strategic sectors of the knowledge economy.
- offer excellent programmes where they are embedded in strong local economic contexts and where supply and demand of skills reinforce each other.

1. Description of the initiative: introduction and short summary

The Higher Technical Institutes (HTIs, official Italian name: *Istituti Tecnici Superiori*) were established in 2010 by the government with the aim to provide technical and technological skills in areas deemed strategic for the country's economic development. The HTIs provide VET at the tertiary level, although the certifications are not higher education degrees. The actors involved in the HTIs are upper-secondary professional or technical schools, local governments, training providers accredited by the regional government, businesses, and university departments. At least one of each of the actors listed above is expected to be involved for the establishment of an HTI. The cooperation among actors focuses strongly on curriculum development and VET delivery, and therefore feature a strong component of work-based learning. This work-based learning component is geared towards innovation to the extent that the six streams identified for the operation of HTIs respond to the needs of an innovative, future-oriented economy. Indeed, the HTIs operate in six areas, according to a smart specialisation approach: (i) new technologies to promote made in Italy products; (ii) sustainable mobility; (iii) energy efficiency; (iv) technologies for cultural heritage preservation; (v) ICT; (vi) medical technologies.

The HTIs operate across the country, but the cooperation among actors is best characterised as a regional-level cooperation among individual actors operating in the same economic sector; training is organised at the regional level to reflect the regional skills needs in a specific sector of the economy. Currently, the initiative counts as many as 370 training programmes offered across 93 HTIs with a strong work-based learning component of at least 30% of the entire duration of the programme, where 50% of teachers and trainers are drawn from industry.

An evaluation of the initiative based on detailed data collected from a sample of 97 programmes offered by 57 HTIs found that 42 programmes have been high performers across a set of indicators. Within the high-performing group, 33 programmes have been given the 'premium' status, which mostly concerns the area 'New Technologies for Made in Italy' which have recorded extremely high employment rates upon graduation (sometimes at 90% or above).

The programmes offered by HTIs have been most successful where the presence of local-sectoral businesses is strong. Not only is a vibrant business community able to inform the supply-side (e.g. in terms of detailing the types of skills needed), but such a community is subsequently also in a better position to make these skills smooth the school-to-work transition amongst HTI graduates. Therefore, where HTIs have been set up in areas characterised by relatively weak demand from businesses, their performance in terms, for instance, of graduate employability has been rather problematic, while the opposite holds true for HTIs embedded within strong business networks. This case study therefore strongly points to the symbiotic relationship and mutual reinforcement

between the supply- and demand- of skills in that excellent training programmes are matched with and reinforced by a strong local economic context and its businesses.

2. Background

The HTIs were set up in 2010 to ensure that highly qualified technicians were available in areas of strategic importance to the national level. HTIs are not-for-profit, public-private partnerships made up of at least one of each of the following actors: upper-secondary professional or technical schools, local governments, training providers accredited by the regional government, businesses, and university departments. According to 2017 monitoring data (INDIRE, 2017, p. 3), there are 93 HTIs currently operating in Italy, delivering 370 training programmes and involving over 2,000 partners who cooperate in the development of the curricula. This includes 681 firms, 93 employers' associations, 404 upper secondary professional or technical schools, 295 training providers, 193 local government branches, 97 university department, 62 research centres and a variety of other actors such as chambers of commerce and trade unions. The HTIs have been set up to respond to employers' demands for new and higher technical and technological competences. Hence, the HTIs form higher level technicians in the following strategic areas to foster economic development and competitiveness: (i) new technologies to promote made in Italy products; (ii) sustainable mobility; (iii) energy efficiency; (iv) technologies for cultural heritage preservation; (v) ICT; (vi) medical technologies.

3. Objectives

According to the Law⁸², the 370 programmes implemented at over 90 HTIs should jointly respond to:

'the demand for higher technicians, at a different level, with specific cultural competences combined with in-depth and targeted technical and professional training, coming from the public and private employment, with specific reference to SMEs and to economic sectors characterise by technological innovation and market internationalisation' (cited in INDIRE, 2013, p. 4).

To assess whether the objectives have been met, the HTIs are subject to evaluation. This evaluation has been structured across 5 main indicators, with different sub-indicators and weights, as outlined in the following table.

Table 1 Main Indicators

Indicator	Summary description	Weight indicator
Attractiveness	This indicator looks at how many applicants courses have, entry rates, and graduation rates.	25
Employability	This indicator looks at the employment status of graduates 6 and 12 months after graduation	30
Professionalisation	This indicator looks at how many hours of in-firm internships / traineeships have been carried out as part of the programme	25
Active participation	This indicators focuses on the extent to which trainers and teachers come from the business sector and to what extent training takes place in laboratories developed by firms	15
Inter-regional networks	This indicator focuses on the extent to which trainers and teachers come from different regions or countries and to what extent classes take place in different regions or countries	5
Total		100

Source: own adaptation from table 4 of INDIRE (2013, p. 27)

⁸² DPCM 25/01/2008, art. 1, clause 2

The (implicit) main target group of the initiative is upper secondary-school leavers with a professional and technical background, namely those leaving an upper-secondary professional or technical school. However, this is not a strict and rigid target group, given that HTIs are also open to upper-secondary school leavers from the academic track (*licei*), as well as mature learners (e.g. those who have already received a university degree). In fact, the two latter groups have shown an increase in participation in training taking place at HTIs between 2015 and 2017, whilst professional school leavers have shown a relative decrease. Technical school leavers remain the larger share of participants in training across the 93 HTIs (INDIRE, 2016, p. 11).

4. Approach

The HTIs build on a public-private partnership approach and draw on the expertise of a variety of actors, drawn from the education sector (schools, universities) and the business sector. These actors join forces to design programmes and to deliver them. The partnership approach appears to be a key principle in ensuring that the skills taught in the HTI programmes are both up-to-date in terms of content, and readily applicable in terms of the practical approach to teaching and learning. The cooperation in curriculum development and delivery takes place at a local level, with the partnership of actors being organised regionally and around a specific economic activity. However, these local-sectoral partnerships are embedded in a country-wide policy framework and common (national) government regulation. In both the course design and delivery, the role of businesses is crucial; not only do they design the competences that the professional profiles should have, but they also provide a significant amount of trainers (up to 90% in some cases).

5. Implementation

The 370 training programmes offered across 93 HTIs are implemented following a common structure, with the following key features:

- Programmes last 4 semesters and amount to 1,800 / 2,000 hours of lessons. Some programmes may stretch up to 6 semesters.
- 30% of the programmes take place in firm to ensure that there is a strong link with the world of work.
- 50% of teachers and trainers come from industry.
- The certification issued at the end of the programme is 'Diploma of Higher Technician' (in Italian: *Diploma di Tecnico Superiore*), which also indicates the area in which the diploma has been attained.

Thus, the HTIs programmes place strong emphasis on the work-based learning components as testified by the 30% requirement of in-firm training. They also focus heavily on innovation given the six areas of SMART specialisation that have been selected for the HTI programmes, as listed in section 2. As of 2017, the spread of programmes across the areas is as follows:

Table 2 Spread of programmes

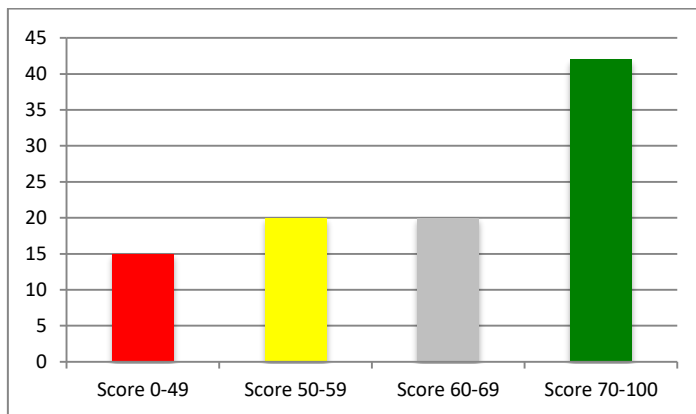
Area of specialisation	Number of available programmes in 2017
New technologies to promote made in Italy products	154
Sustainable mobility	73
Energy efficiency	41
Technologies for cultural heritage preservation	39
ICT	32
Medical technologies	32

Source: HTIs statistics, available at: http://ospitiweb2.indire.it/its/tabelle_its12/e_1.html

6. Results

The most recent results of the initiative have been released in 2017. An evaluation of the HTIs has been carried out through an in-depth examination of 97 programmes implemented by 57 HTI partnerships, and collected in INDIRE (2017). The programmes have been evaluated according to the criteria set out in section 3. The 97 programmes have been divided into 4 groups, according to the score they received across the evaluation criteria. The 'red group' consisted of the worst performing programmes and the 'green group' consisted of the best performing ones. The overall results seem rather satisfactory to the extent that the relative majority of programmes (42) fall within the high-scoring group (70 or more), as is displayed in the following figure, which shows the number of programmes in each group.

Figure 1 Number of programmes in each group



Source: INDIRE (2017, p. 5)

In particular, out of the 42 programmes in the green group, 33 have been given the 'premium' status, that has been granted to those programmes that not only reach the 70-point threshold, but also meet a given threshold across each of the criteria. These 33 programmes, which mostly concern the area 'New Technologies for Made in Italy' have performed exceptionally well, recording high employment rates (sometimes at 90% or above) and low dropout rates. Programmes that reach 'premium' status are entitled to additional financial resources.

7. Challenges and success factors

All interviewees have indicated that the key success factor for HTIs lies in the presence of strong businesses to engage with; not only is a vibrant business community able to inform the supply-side (e.g. in terms of detailing the types of skills needed), but it is also in the position to, subsequently, 'demand' these skills and therefore smooth the school-to-work transition of HTI graduates. Thus, where HTIs have been set up in areas characterised by relatively weak demand from businesses, their performance in terms, for instance, of graduate employability has been rather problematic, while the opposite holds true for HTIs embedded within strong business networks. Furthermore, where demand from the business sector is strong, the attractiveness of HTIs is high, making them structural components of the educational offer in a given region. The opposite therefore constitutes a key challenge: where demand is weak, training programmes alone, no matter how well-designed, struggle to smooth the school-to-work transition of graduates. Furthermore, one interviewee suggested a second challenge, namely that the government-driven nature of the programmes has sometimes resulted in being too prescriptive for the members of the partnership, which would, in their view, have benefitted from more flexibility.

8. Conclusions and recommendations

The HTIs case study provides an example of how a national initiative built on public-private partnership can help supplying the skills needed at the regional-sectoral level. However, the case study is particularly interesting because it displays a degree of internal variation in the success of the programmes. A key factor that differentiates the most successful programmes from the others is the symbiotic relationship and mutual reinforcement between the supply and demand sides; excellent training programmes are matched with and reinforced by a strong local economic context and its businesses.

Case study annex 1: Literature list

- INDIRE (2013). Istituti Tecnici Superiori. Rapporto sull'innovazione negli Istituti Tecnici Superiori. Available at:
http://www.indire.it/lucabas/lkmw_file/ITS///Sintesi_rapporto_ITS_az_05_12_13.pdf
- INDIRE (2017). Istituti Tecnici Superiori. Monitoraggio Nazionale 2017. Quadro di sintesi. Available at:
http://www.istruzione.it/allegati/2017/Monitoraggio_ITS_2017.pdf
- Various other information has been elicited through the website:
<http://www.indire.it/its/>

Case study annex 2: Respondents interviews

- Aldo Frigeri, director of programmes at TAB, Tuscany-based HTI in the field of technologies for cultural heritage preservation
- Antonella Vitiello, director general at MITA, Tuscany-based HTI in the field of technologies to promote made in Italy products (MITA is specifically involved in the fashion industry)
- Antonella Zuccaro, responsible for HTIs at INDIRE, the research agency providing monitoring and evaluation of education policy

Educate for Business – Latvia and Lithuania

Year running: From 2012 until 2014

Funding: Mix of national and EU-funding

Key facts

Educate for Business ...

- Is a cross-border cooperation between seven VET institutions and two governmental bodies across Lithuania and Latvia in the Euro region Country of Lakes
- Focuses on improving employability among VET students through cooperation across VET schools and companies on a range of dimensions.
- Gives VET students and teachers the opportunity to attend apprenticeships in their home country as well as in the neighbouring country.
- Focuses on improving the equipment and machinery used at the VET schools in accordance with local company needs.
- Is updating VET programmes and curricula in close cooperation with companies and across VET schools.

1. Description of the initiative: introduction and short summary

The Educate for Business project was established in 2012 and ran until the beginning of 2014. The project was supported by the 'Latvia – Lithuania Cross Border Cooperation Programme' which was co-financed by the European Regional Development Fund. The total budget of the Educate for Business project was 790.000 EUR.

The overall aim was to increase the competitiveness and productivity of the new generation within the labour force of the Latvian-Lithuanian border region. In doing so the project contributes to sustainable and cohesive socio-economic development of the Euro region 'Country of lakes', and increased employment and entrepreneurship among graduates from vocational schools. The project also focused on improving VET quality and aligning VET with labour market needs. As part of the project there was also a strong focus on improving VET infrastructure i.e. equipment and study materials. Furthermore, the project supported cooperation between the schools involved, and underpinned the development of relevant study programmes in accordance with labour market needs. To reduce skills mismatches between VET graduates and labour market needs, the project emphasized close cooperation and the involvement of local companies in updating the existing VET programmes.

The project resulted in an update of existing VET programmes, the purchase of new equipment, improved possibilities for work-based learning, and competence development for VET students and teachers. A challenge to the project was that, it was very difficult to involve students in the entrepreneurial activities. The project clearly shows how the involvement of companies plays a crucial role in improving the relevance, quality, and attractiveness of VET.

2. Background

The Council of the Euro region the 'Country of Lakes', decided to launch the Educate for Business project in response to changing labour market demands in the region. The changing demands started becoming apparent after the Baltic States joined the EU. This implied a demand for more profound vocational skills, together with a general improvement in the quality in VET training programmes so that they would ensure the employability of VET graduates in an internal market with increasing competition.

In other words, the background of the project was a situation where **VET graduates in the region did not have the skills that local companies demanded**. The lacking skills were both at a general vocational level but also regarding more specialised vocational skills within the certain sectors. Many of the mismatch problems between labour market needs and VET graduates' skills were related to a lack of possibilities for VET students to participate in work-based learning or apprenticeships in companies, and

because of insufficient communication and collaboration between VET schools and businesses on which competencies were required on the labour market. Finally, the students lacked the entrepreneurial spirit or skills to start a business themselves. One of the reasons for this was that the VET-systems were not supportive to start-up processes and lacking in information on how students could start up their own businesses.

The project was part of the 'Latvia – Lithuania Cross Border Cooperation Programme' which ran from 2007 to the end of 2013⁸³. The programme was partially funded by the European Regional Development Fund. Educate for Business ran from 2012 until 2014.

3. Objectives

The overall objective of the project was to increase employability and develop competencies among skilled workers in the Latvian-Lithuanian labour force within transport, mechanics, service and tourism, and wood processing and carpentry. The aim was to increase competitiveness and productivity among companies in the Latvian-Lithuanian border region in the fields described above in order to contribute to sustainable and cohesive socio-economic development in the region. The main objective was thus to increase the overall VET quality, and to minimise skills mismatch between labour market needs and VET graduates. At a subsidiary level the project aims at **increasing employment among VET graduates**, to develop **future entrepreneurs**, and to ensure that the **VET-system produces highly qualified and internationally competitive specialists** among the VET graduates.

As the project was supported by the Latvia – Lithuania Cross Border Programme there was also a focus on improving cohesion in the Euro region 'Country of Lakes' through the support international mobility among VET students and teachers in the region.

The **target groups** of the Educate for Business project were primarily the students of the participating VET schools in both countries, businesses located in the region and VET-teachers.

4. Approach

The projected focused on improving VET quality and programmes in the following sectors:

- Transport
- Mechanics
- Service and tourism (waiters, barmen, chefs)
- Wood processing and carpentry.

Five main approaches were used in the project.

- a. Updating the **curricula of VET programmes** in alignment with labour market needs.
- b. **Improving the equipment and technology** used at the VET schools.
- c. Providing **perspectives and experiences to VET students through work based learning** in their home country as well as the neighbouring country.
- d. Developing **teacher's competencies** through company stationing.
- e. Fostering **entrepreneurial skills** and facilitate entrepreneurial activity.

The first three approaches all took place in close collaboration with local companies to ensure that VET programmes would be relevant to current and future labour market needs. This implied that curricula and the new study materials were developed in collaboration with local companies and across the participating VET schools. The same occurred with regards to the purchase of new equipment and technology. In this case, the VET schools involved local companies with knowledge of new trends and labour

⁸³ According to the Ilze Stabulniece, Manager of Latvian office, Euroregion 'Country of lakes' the 'Latvia – Lithuania Cross Border Cooperation Programme' continued until 2014 even though it officially ended in 2013.

market needs in order to ensure that the new machinery and equipment were in fact used by the local companies. Over 50 % of the total project budget was used to buy new, updated equipment for the VET schools, as this was seen as an essential step towards providing students with the necessary and right vocational and digital skills.

As part of the aim to improve employability and to reduce skills mismatch among VET graduates, the project also focused on improving possibilities for students to attend work-based learning activities. The rationale behind this was that by attending and working in real companies, students would obtain competencies needed by the companies and get an understanding of what skills are needed in the labour market. As the project was supported by the 'Latvia – Lithuania Cross Border Cooperation Programme' the project also had a focus on improving cooperation across national borders. This resulted in the possibility for students to attend work based learning in companies in the neighbouring country.

The Educate for Business also focused on developing teachers' competencies through closer cooperation with local companies. The project used a work based learning approach through short company stationing for teachers and closer VET-school cooperation as means for teachers to get an insight in new labour market developments and competence needs, as well as to improve their own skills. As with the VET students, the teachers also had the possibility to attend work based competence development in companies in the neighbouring country.

Finally, the project aimed at improving entrepreneurial skills and spirit among VET graduates within selected vocational fields (the mechanics field and tourism). The approach was that as part of the VET programme students had to develop new business ideas and create business plans. In the end they had to present the business plans to managers from local businesses, who also functioned as mentors for the VET students during the project. Furthermore, the idea was also that by attending work based learning in local companies VET students could improve their entrepreneurial skills and understanding of how a company works.

5. Implementation

The Educate for Business project was implemented at the meso level between VET schools and between VET schools and companies. Furthermore, the project is also a regional and trans-national project as it is implemented across Latvia and Lithuania in the Euroregion 'Country of Lakes'. This entails cooperation between VET schools in both countries but also the possibility for VET students to attend work-based learning in the neighbouring country. Finally, the initiatives trying to match skills supply and demand were also implemented at a regional and transnational level.

As for the vertical axis of the 'three dimensions of successful cooperation', the project engaged in work-based learning, fostering entrepreneurial skills, matching labour market supply and demand, international mobility, as well as raising the profile of VET.

The main partners in the project were the Latvian office of the Euro region, the 'Country of lakes' (Lead), Utena, the district municipality administration (Lithuania), the Kraslava Municipality (Latvia), the Alanta school of technology and business (Lithuania), the Middle Latgale vocational secondary school (Latvia), and the Austrum Latgale vocational secondary school (Latvia). The main actors were thus VET institutions and governmental organisations. Furthermore, four other VET schools were involved in the project resulting in a total of seven VET schools (5 Latvian and 2 Lithuanian) participating in the project. Additionally, various businesses were contacted and involved in the project in order to improve quality and ensure employability among VET students by providing opportunities for work-based learning, and through the involvement of companies in the development of VET programmes.

As far as can be concluded from available sources, the implementation had not been adjusted during the runtime of the project.

6. Results

No evaluation of the Educate for Business project has taken place during the run time or after it ended. The whole Latvia-Lithuania cross-border cooperation programme 2007-2013 has been subject to an ex-ante, ex-post and ex-ante evaluations. In these evaluations, this particular project is not mentioned however.

According to the available sources and input from the interviewees, the project had achieved the following results at the end the project period:

- Updated study programmes and curricula with closer connection to labour market needs in 5 Latvian and 2 Lithuanian vocational schools within the vocational fields within transport, mechanics, service and tourism and wood processing and carpentry.
- Improved study infrastructure in the form of equipment and study materials for 5 VET schools in Latvia and 2 VET schools in Lithuania in accordance with needs from local companies.
- Better opportunities for apprenticeships for students in companies in the region. This resulted in 78 students participating in international work based learning activities.
- Better opportunities for company exchanges for teachers in the region. During the project 20 teachers participated in these type of training activities aiming at improving their competencies (8 teachers within the transport and mechanic field, 6 teachers within service and tourism, and 6 teachers within wood processing and carpentry).
- The creation of a VET-network between participating schools.

Based on input from the interviewees, the project contributed to a higher awareness of labour market needs and to more relevant skills among both students and teachers within the selected vocational fields due to the improved possibilities for work-based learning and company visits. Furthermore skills mismatch was reduced because of the updated programme curricula, and as consequence of the newly purchased equipment and machinery in accordance with local company needs. The new equipment also improved possibilities for VET students to acquire the right digital skills demanded by the labour market. All these aspects also contributed to a higher general quality in VET and raised attractiveness of VET.

Regarding the aim of improving entrepreneurial skills among students, all students were offered the option but only few of them attended the activities focusing on the creation of business plans. According to one of the interviewees, 14 students participated in the mentoring programme with local business managers.

The Educate for Business project ended in 2014 when the updating of the VET programmes, the purchase of new equipment, the improved possibilities for work-based learning, and competence development for VET students and teachers had been implemented; as consequence of the termination of the 'Latvian – Lithuanian Cross Border Programme' which supported the projects' activities.

7. Challenges and success factors

The main challenge in the project was to involve the students in the activities focusing on entrepreneurship. On the positive side the project succeeded in involving companies in the development of the VET programme and the new study infrastructure, as well as in the aim of offering better apprenticeship opportunities. According to the available data sources this played a crucial role in the project achievements.

8. Conclusions and recommendations

The Educate for Business project is a good example of how a higher degree of cooperation between VET schools and companies can improve the relevance, quality and attractiveness of VET. The cooperation within the project between VET schools and companies on the development and updating of study programmes, curricula, new

equipment, and improved possibilities for work-based learning and company exchanges for teachers altogether contributed to higher quality and employability among VET graduates in the region. The project also shows that cooperation among VET schools and companies can be realised across national borders and systems. A positive effect of the international mobility is that this it also supports language and intercultural competencies among VET graduates. Another positive side-effect of the transnational initiative is a larger potential labour market for VET graduates in the region.

Case study annex 1: Literature list

The information has been elicited through the following websites:

- Keep EU (n.d.). Project – Development of co-operation platform for Latvian and Lithuanian vocational schools and entrepreneurs. Available at: <https://www.keep.eu/keep/project/24388>
- Latvia Lithuania cross-border cooperation Programme 2007-2013 (n.d.). Educate for Business. Available at: http://2007-2013.latlit.eu/eng/supported_projects/lliv325_educate_for_business
- Keep EU (n.d.)). Project – Development of co-operation platform for Latvian and Lithuanian vocational schools and entrepreneurs. Available at: <https://www.keep.eu/keep/project-ext/24388/EDUCATE+FOR+BUSINESS?ss=cdb1e6fd70c85ddecd75b0983c005a8&espon>
- Latvia Lithuania cross-border cooperation Programme 2007-2013 (Latlit 2014). Achieved results of Latvia Lithuania cross-border cooperation Programme 2007-2013. Available at: http://2007-2013.latlit.eu/uploaded_files/Events/2014/Zanda%20Mangule%20Achieved%20results%202007-2013.pdf

Case study annex 2: Respondents interviews

- Vita Rivare, Middle Latgale Vocational secondary school (formerly).
- Ilze Stabulniece, Manager of Latvian office, Euroregion 'Country of lakes'.

Techwise Twente - the Netherlands

Years Running: Since 2013

Funding: Public (regional and local government)

Key facts

Techwise Twente...

- is a cooperative organisation that partners VET institutes, businesses, business organisations in the High Tech Systems and Materials (HTSM) sector, and governmental bodies.
- reacts to rapid (technological) changes in the HTSM sector that have caused changed in the skills demanded from VET graduates.
- trains students and workers (IVET, CVET and LLL) in innovative technologies at VET institutes where those technologies are available exclusively for training purposes.
- trains students and workers (IVET, CVET and LLL) in innovative technologies through apprenticeships at companies with state-of-the-art capabilities.
- raises the attractiveness of VET because it offers training in brand new technology.

1. Description of the initiative: introduction and short summary

Techwise Twente is a cooperation between VET schools and business organisations that was started in 2013. The overall aim of the project is 'to facilitate the cooperation between education providers and business organisations to organise (higher) VET-training which respond to the needs of the manufacturing industry'. As such, the primary focus is to provide added value to the companies involved by ensuring VET in the sector is up to par.

The partnership incorporates educational partners (secondary education, vocational secondary education, and business trainings), business associations, and business organisations from the manufacturing industry. Within Techwise Twente partners work together to provide answers on the following questions:

- How can we bring the knowledge and skills of the workforce in the manufacturing industry to a higher level?
- How do we train employees from other industries?
- How do we develop and determine the training offer with all stakeholders involved?
- How to recruit, bind, and keep our employees up to date through joint pooling?

The cooperation is mainly focussed on updating curricula, connecting supply and demand of skills with new and currently qualified workers, raising the profile of VET through education in innovative technologies, and mobility of VET students in the region. Because Techwise has a wide scope of member organisations, the cooperation takes place on both a regional, firm, and sectoral level

Because the partnership does not release its internal targets, it is difficult to evaluate whether the partnership's goals have been met. Moreover, the evaluations of this project which were carried, do not mention the amount of students Techwise has educated, or provided with an apprenticeship. Respondents from the organisation itself, however, attest to the fact that targets have been met consistently throughout the initiative's runtime.

A success factor of the initiative is that Techwise is able to efficiently play the role of broker between company, student, and VET institute due to a low overhead costs, as Techwise officials are employees of VET institutes and companies in the region. This also facilitates the close ties and knowledge sharing which the organisations within the cooperation want to achieve.

Challenges that have been largely overcome include the fact that different partners have had opposing interests in the past. VET institutes in the region competed for students in the past, but now they have specialised in specific occupations and technologies. Furthermore, whereas Techwise struggled with a lack of brand awareness in the region in the past, due to its runtime of 7 years and good results, the project has become more renowned. A challenge that has to be overcome is the fact that the project is still dependent on government subsidies, the sustainability of which is questionable. The question remains whether partners in the cooperation will continue to cooperate if, and when subsidies run out.

The main lesson that can be taken from the Techwise case study is that sectoral cooperation whose primary goal is to provide added value to private companies, can also have a big impact on the quality of VET.

2. Background

Techwise Twente is a cooperative association, active in the Twente region of the Netherlands, which was founded in October of 2013 by all the current partners in the association. Partners in the association include a VET institute, a higher education institute, three educational institutes which provide both VET and business training, three technical business organisations, nine companies, (which are primarily in the steel and manufacturing industry), regional public government organisations, and the national Ministry of Education. Key partners of the association are the regional and firm-level VET institutions, and the partnered individual companies, while the business organisation bodies take an advisory role.

The founding partners of Techwise Twente recognised a growing demand in the High Tech Systems and Materials (HTSM) sector for workers with high-tech and practical knowledge and skills which was not being met. The mismatch between the skills that were demanded by the market and those supplied by VET was caused by rapid technological changes in the HTSM sector.

Employment in the HTSM sector suffered from image problems and needed a boost in attractiveness. As a consequence, Techwise Twente acts as a broker between industry and education, listening to the industry in order to develop new, top-of-the-bill courses that can be taught by the associated VET institutes. The idea behind the association's activities is to improve current curricula in order to simultaneously boost student skills and enrolment numbers, as well as the attractiveness of the HTSM sector. Techwise's overall aim is to provide added value to the sector, by ensuring a supply of qualified workers with the up-to-date- skills needed by employers.

The initiative is partly funded by regional and municipal governments through subsidies. Because of this the cooperation is monitored and audited by government employees to secure the quality of the project.

3. Objectives

The objectives for Techwise Twente are, sometimes formulated in a way that could be more in line with the SMART method. In a general sense, the objectives as stated by Techwise are the following:

- With Life Long Learning: Fit for the Future, Techwise aims to reduce shortages in supply of qualified workers by (re-)educating unemployed or job-seeking persons or youth that enters VET in the HTSM sector from a different VET track.
- Education of current workers in the sector to confront the changing skill needs in the labour market due to digitisation and robotisation. Included is initiation of a VET+ programme, in which custom post-VET tracks including masterclasses, internships and obtainable associate degrees improve workers labour market perspectives and profitability for employers.
- Techwise wishes to increase the influx of technical VET educated workers in the labour market by introducing new state of the art courses and curricula in its VET institutes. The goal is to increase enrolment in technical VET tracks in its

institutes by 30%. The association strives to find other solutions with partners in the HTSM sector as the intended increase will not be sufficient to cover the number of projected vacancies.

- Educating quality teachers, by recruiting current workers in the HTSM sectors with the relevant skills to become teachers at VET institutes.
- Creating and coordinating innovation projects commissioned by HTSM companies in which students and employees are educated and involved in state-of-the-art technologies.
- Creating added value for the companies which Techwise works with, by inquiring about the (technological) skills they need for their workforce, and cooperating with schools to develop and update curricula to accommodate businesses' needs.
- Starting Field Labs at companies and education institutes, in which students can practice working with machines and new technologies in a 'real' environment, while mistakes are still allowed.
- Creating new curricula by first consulting companies about their skills needs and cooperating with VET institutes to get those skills into the classroom.

Measurable and relevant indicators have been set by the organisation for these objectives. For example, targets have been set for numbers of educated teachers, curricula created, students that graduate, and apprenticeship places. The values of these targets are confidential however, consequently they are only used internally.

Target groups for Techwise are (prospective) VET students, current HTSM sector workers and job seekers that can be attracted to the sector. Techwise designs apprenticeships and degrees for current students, and works towards creating a stable flow of entrants to apprenticeships and degree programmes by targeting prospective students, current workers, and job seekers.

4. Approach

The approach chosen by Techwise is one in which the business organisations and individual businesses in the association have a guiding role. This means that the business organisations provide most of the input and have ownership of the initiative.

Techwise Twente is one of ten public-private partnerships in the Netherlands that have been marked as a 'Centre for Innovative Craftsmanship'. A special aspect of these centres, and therefore of Techwise Twente, is that they are autonomous; they are not part of a specific VET institute. As such, these centres operate independently from education institutes, although they maintain extensive contact with both VET institutes and businesses. Techwise, as one of these CIV's, acts as a broker between VET and business, and as a platform on which curricula and business cases can be developed.

An atypical aspect of the Techwise's approach in the Dutch context, is that its primary focus is providing innovative services and added value for companies by operating independently between VET institutes and business organisations. Similar organisations in the Netherlands usually focus on renewing and improving iVET, while CVET and Life Long Learning are also important for Techwise, as the majority of educational partners provide education for current workers. Techwise focuses on CVET mostly through ensuring that currently employed workers work with innovative technologies either in so-called 'field labs', which are located at VET institutes, or through apprenticeships at companies which work with these technologies.

Techwise is active in a regional setting, as regional businesses, business organisations, and VET institutes are members of the association. Some national business organisations are also part of the association, mostly because they represent the sectors in which the firms reside which benefit from the added value Techwise provides. Firstly, the cooperation is focused on delivering and developing curricula by offering in-company learning opportunities for students in the form of apprenticeships. The apprenticeships that are offered often involve working with new technologies which cannot be learned in the classroom.

Thirdly, the partnership engages in curriculum delivery as partner companies provide work places for VET teachers that enable them to obtain up-to-date knowledge and stay relevant in their field of expertise. Another way in which Techwise has helped regional VET institutes is by bringing curricula up to date in the structure and methods used, and by creating a new track for mechatronics.

With regard to mobility, Techwise promotes visits by VET students in the HTSM sector in the region to multiple companies and institutes during their education, in order to learn to work with the newest technologies and methods in the sector. Additionally, the students performing best with certain techniques (welding, milling) can compete in international competitions that involve activities abroad.

Furthermore, the initiative has made it more clear for students exactly which institutions provide which educational tracks, as the VET institutes partnered in Techwise have agreed to specialise in certain fields because of their cooperation. In other words, the four educational partners each offer training in a specific field, while they all provided training in two or more fields in the past. This provides prospective students with a clear choice and more specialised and expert training, as knowledge for each field is concentrated in each institute.

5. Implementation

Looking more closely at the implementation of Techwise Twente's activities, a distinction can be made between efforts to engage in i) work-based learning and ii) raising VET attractiveness, and iii) digitalisation.

Three different thematic areas of cooperation are characteristic for the approach taken. First, the partnership reaches its goals through work-based learning; students and workers alike are educated by working with private players on innovative projects at companies which work with newly developed technologies.

Second, there is a focus on promoting VET attractiveness in the eyes of (prospective) students and employees by organising roadshows and other events and meetings with VET institutes, companies, and public bodies. The intended goal of this promotion is increasing the influx of both students and current employees into existing and new HTSM VET tracks. Furthermore, the partnership actively strives to connect demand and supply of quality workers on the labour market by consulting with VET institutes and companies in the HTSM sector. In order to do so, they investigate current (technological) trends and forecast their impact on the labour market of the future.

Third, several of the VET institutes have launched tracks or initiatives that incorporate training in digital, automatisisation, and ICT skills needed for employment in the industry. Examples include a smart welding module that teaches students to operate welding robots and other welding-related ICT applications, as well as a module that teaches how to operate mechatronic appliances in the fabrication industries. These modules can be applied to different VET institutes when teachers receive additional training in these applications during joint training sessions at companies who use these technologies.

The implementation of the partnership's approach has not significantly changed since the kick-off in 2013, although some external stakeholders have been added to consultation procedures, and some companies in the HTSM sector have joined the efforts.

6. Results

Evaluations of the centres for innovative craftsmanship were carried out in 2014 and 2015, and Techwise Twente is mentioned in its reports⁸⁴. The role Techwise plays as a centre means the cooperation is categorised as an incubator, which is to say that it is seen as operating autonomously from VET institutions and offering learning opportunities for innovative technologies.

Because the partnership does not release its internal targets, it is hard to say whether the partnership's goals have been met through these evaluations. Moreover, the evaluations do not mention the amount of students Techwise has educated or provided with an apprenticeship. Respondents from the organisation itself however, attest to the fact that targets have been met consistently through the initiative's runtime.

Since its beginning, four additional private enterprises have joined the cooperation, indicating that the partnership is attractive to other parties and open to expansion. Furthermore, the cooperation has set up courses and apprenticeships in innovative technologies, in order to teach students how to effectively make use of them. Moreover, the programmes Techwise helps to develop students and professionals that are nationally and internationally at the top in their field, as evidenced by stellar performance in (inter)national competitions in skills such as welding.

As mentioned, due to partial reliance on government subsidies, sustainability of the cooperation is not secured. Although several partners have been outspoken about the cooperation's benefits and have expressed desires to proceed even if subsidies would no longer be provided. All in all, there is some doubt whether the cooperation will still be viable if government money is not provided.

Considering the external factors that have influenced the project, it can be said that conditions have been very helpful. A tightening of the labour market in the Netherlands has incentivised the participating companies to invest in both future and present employees' skills. Furthermore, the introduction of the concept of 'smart industry' in the Netherlands has convinced both companies and educational institutes that large future shifts in Dutch industry and consequently of large shifts in skills industry workers will be needed. Additionally, the aging workforce leads companies to be more heavily invested in the education of young people.

If policy makers would attempt to replicate the project in a different region or in a different sector, they should make sure the representatives of stakeholders in the cooperation have the power to act quickly and have decision-making power within their organisations to avoid principal-agent problems between the organisation and its partners.

⁸⁴Centra voor Innovatief Vakmanschap (2015). Auditrapportage 2015. Available at: <https://www.publiekprivaatsamenwerken.nl/media/files/7191-PBT%20Auditrapport'15%20Voortgang%20Civ%20-%20v4.pdf> and Centra voor Innovatief Vakmanschap (2014). Auditrapportage 2014. Available at: <https://techwisetwente.nl/wp-content/uploads/2015/05/Auditrapport-Dynamiek-Onderweg.pdf>

7. Challenges and success factors

Success factors for the cooperation include:

- Using the small size and corresponding low overhead costs of the organisation to efficiently play the role of broker between the company and student.
- Facilitating cooperation between VET institutes, companies and business organisations.
- Facilitating sharing of knowledge and resources between the different partners.
- Making use of the large network of the organisations within Techwise Twente in order to connect supply and demand of skills in workers.

Risk factors for the cooperation are the following:

- Because the educational institutes involved have historically had opposing interests on occasion, the cooperation could encounter periods of relative discord.
- While the region of Twente has been well acquainted with the different partners within Techwise, the cooperation itself lacks brand awareness, which inhibits the impact of the initiative.
- Because the initiative is partially funded by government subsidies provided by regional and municipal governments, the question is what will happen if, and when the subsidies run out. It is still unclear whether partners will continue working together, or will go their own way when the subsidies are exhausted.
- Failing to provide added value to companies through apprenticeships.
- Delivering updates on curricula that are of insufficient quality, thereby leaving a skill gap between students and companies.
- Failing to develop clarity in objectives and expectations within the partnership.
- Because the cooperation has low overhead costs, they also lack manpower. Most of the cooperation's affiliates also work at a partnered company or VET institute.

8. Conclusions and recommendations

The Techwise case study provides an example of how a regional initiative built on public-private partnership can help in supplying the skills needed by enterprises at the regional-sectoral level. However, the case study is particularly interesting because it focusses primarily on providing added value to the participating companies. A key factor that has contributed to the success of the initiative has been its ability to bring the skill needs of companies into VET schools, within a strong economy with a tight labour market, and a national focus on 'Smart Industry'.

Case study annex 1: Literature list

- Centra voor innovatief Vakmanschap (2014). Midterm review Centres of expertise & Centra voor innovatief vakmanschap. Available at: <https://techwisetwente.nl/wp-content/uploads/2015/05/Auditrapport-Dynamiek-Onderweg.pdf>
- Centra voor Innovatief Vakmanschap (2015). Auditrapportage 2015. Available at: <https://www.publiekprivaatsamenwerken.nl/media/files/7191-PBT%20Auditrapport%2715%20Voortgang%20CiV%20-%20v4.pdf>
Centra voor Innovatief Vakmanschap (2015). Addendum bij Eerste evaluatie. Available at: <https://techwisetwente.nl/wp-content/uploads/2015/05/Addendum-Eerste-evaluatie.pdf>
- Van den Toren & Blom (2017). Industriële dynamiek, arbeidsmarkt en beroepsonderwijs. Available at: <http://www.beteronderwijsnederland.nl/vakwerk/wp-content/uploads/2017/03/Van-den-Toren-Blom-Industriële-dynamiek-arbeidsmarkt-en-beroepsonderwijs.pdf>

- Various other information has been elicited through the following URL-addresses:
 - <https://techwisetwente.nl/over-techwise/propositie/>
 - <https://techwisetwente.nl/over-techwise/>
- https://over.rocvantwente.nl/site/home/overige-paginas/techwise_twente.html
- <http://www.techyourfuture.nl/a-801/terugblik-expertmeeting-circulaire-carri%C3%A8res-28-november-2016>

Case study annex 2: Respondents interviews

- Jeroen Rouwhof, Director of STODT, partner of Techwise.
- Rob Swennenhuis, Director of SMEOD, partner of Techwise.

Cooperative education – Serbia and Germany

Year running: April 2013 - December 2017

Funding: Federal Ministry for Economic Cooperation and Development, Germany (BMZ)

Key facts

- The Cooperative Education Project has aimed to introduce elements of the company-based German dual education system in secondary vocational schools in Serbia
- The new approach is school-based rather than company-based
- Curricula in three vocational profiles of three years each, have been modernised in cooperation with participating companies: locksmith-welder, electrician and industrial mechanic
- 16 schools and 25 companies have participated in the project so far;
- The first batch of secondary vocational school graduates have all found jobs in their training companies
- More and more schools and companies have expressed an interest in joining the project, which has the full support of the Serbian government and the Serbian Chamber of Commerce
- Challenges to be addressed include raising the motivation of students from disadvantaged backgrounds, and increasing the participation of young Roma and girls in vocational education

1. Description of the initiative: introduction and short summary

Unemployment is very high in Serbia (14% in 2016). A disproportionate share of unemployed people have secondary vocational education. Yet at the same time, employers report a shortage of skilled workers with appropriate skills for the modern workplace, due the out-dated and ineffective system of secondary vocational education in Serbia. Vocational schools have inadequate resources, obsolete equipment, and out-dated curricula.

The project 'Reform of Vocational Education and Training in Serbia', managed by GIZ, aims to improve this situation by introducing elements of the German dual education system in Serbia. The level of cooperation is national in that the project has a national scope, though at the same time it has a local level of cooperation in that cooperation takes place between a school and local companies. Rather than adopting a company-based approach as in traditional dual education systems, the VET process that has been adopted can be characterised as a school-based 'cooperative education'. This is a school-based approach that has been adapted to the Serbian legal and economic environment. The project has succeeded in engaging 16 secondary vocational schools in partnership with 25 companies, and a further 25 companies are set to join the project. It has modernised several 3-year vocational profiles with the assistance of participating companies.⁸⁵

The topic of the cooperation has been matching supply and demand of skills through the introduction of work-based learning. Secondary vocational students are given a day release to participating companies where they receive work-based learning, supervised by trained mentors. The early indications suggest that the project has been successful in meeting its aims of improving the employability of secondary vocational school graduates. The participating companies have employed the entire first batch of graduated secondary vocational students that participated in the project. More schools and companies have expressed an interest in joining the project, and public esteem for vocational education is on the rise. The government supports the project and is

⁸⁵ Secondary vocational schools in Serbia offer both 3-year and 4-year study programmes. The latter offer a route to higher education and tend to be more theoretical than practical in content. The former offer a direct entry to the labour market and tend to have a higher practical content.

preparing a new law on dual education in Serbia. Reasons for the success of the project are the involvement of all relevant stakeholders in the design of the new VET process, and the way in which the experience of German dual education has been adapted to the local circumstances, institutions, level of development, and legal environment in Serbia. This has resulted in the adoption of a school-based approach more suited to Serbian conditions. Challenges remain, including increasing the motivation of students from disadvantaged family backgrounds, and raising the participation of young Roma and girls.

2. Background

The project is the result of an agreement between the Serbian and German governments. It was designed in the context of companies reporting a shortage of skilled workers on the labour market, despite the high level of unemployment in the country. In the former republic of Yugoslavia, vocational schools had strong links to the business sector. However, those old companies have collapsed, and basic vocational studies have fallen into decline. The 'cooperative education' project has sought to improve and modernise secondary vocational education in Serbia, drawing on lessons from the German dual education system.

3. Objectives

The **overall aim** of the project is to improve the quality of secondary vocational school graduates by introducing elements of dual education and training into the Serbian system of secondary vocational education.

Specific objectives are to:

- Create partnerships between vocational schools and the business sector
- Modernise the secondary vocational curricula in Serbia
- Increase the quality of secondary vocational school workshops
- Provide training to teachers and headmasters
- Provide training to mentors in participating companies
- Help students find a job when they complete their secondary vocational education.

A results matrix has been adopted which provides a set of outcome indicators through which the results of the project are monitored and assessed.

The target group of the project are all primary school leavers in Serbia. This is then narrowed down to specific schools, and their teachers, caretakers, headmasters. Other target groups include company mentors.

4. Approach

The level of cooperation is national in that the project has a national scope, and at the same time it is local in that cooperation takes place between a school and local companies. The topic of the cooperation has been matching supply and demand of skills through the introduction of work-based learning.

The project approach has been based on the experience of the dual education system in Germany, and has been adapted to the Serbian legal and institutional environment. In the German dual education system young people are employed by companies as apprentices on a full-time, paid basis, and are given a day-release to receive training in a local vocational school or college. This has not been possible in Serbia at its current stage of development and given the legal framework in place. Instead, the project has developed a VET process known as a 'cooperative education' approach, which is school-based rather than company-based. Under this approach, school students are given a day-release to go to a participating company for practical training. They do not receive a salary, and have the status of school students when they are in the company. They are provided with transport and meals by the company and receive work-based learning under the guidance of a company mentor.

The GIZ project has identified three critical skill gaps in the Serbian economy, namely, electricians, locksmith-welders, and industrial mechanics. Therefore, the project has focused on reforming and modernising vocational educational profiles in these three fields. The project has drafted new curricula jointly with the assistance of the companies involved in the project. Students enrolled in 3-year study programmes at participating secondary vocational schools receive practical training in the school workshop for 1 day per week in their first year of studies, and work within a participating company for 2 days per week in their second year, and for 3 days per week in their third year.

The GIZ project cooperates with two other donor-funded projects in Serbia. The Swiss donor, SDC, implements a similar project at the vocational secondary school in Užice with a focus on reforming the curriculum for wood technologies. The difference in their approach is that students go to several companies instead of just one as in the case of the GIZ project. Since last year the Austrian donor, ADA, and the Austrian Chamber of Commerce have developed two new VET profiles for (i) shop assistant and (ii) technician for logistics in transport with the cooperation of participating companies in the retail sector. In the future, it has planned to intensify cooperation between the three main donors, and to address companies together on joint issues, rather than separately as is the case at present.

Cooperation between the actors involved in the project is one key aspect of its success. In addition to coordination between the donors, the Serbian Government, and the Serbian Chamber of Commerce, HR managers in participating companies also cooperate among themselves, as do the project mentors in different participating companies. Furthermore, participating secondary vocational schools arrange for their students to visit other participating schools, as well as participating companies in other towns and cities, to see how learning and working takes place in different environments. At a regional level, this can help to promote future labour mobility. International exchanges have also taken place, such as, between the secondary vocational school in Vlasotnica and a school in Germany.

5. Implementation

The project is implemented by GIZ and supported by the Ministry of Education, Science and Technological Development (MoESTD), the Serbian Chamber of Commerce, and the Institute for the Improvement of Education. So far, 16 schools, 800 students, and 25 companies have taken part in project activities. For the next school year the number of participating schools will rise to 20, and the number of participating companies to 50. Several international companies such as Siemens in Subotica and Bosch in Pečinci cooperate within the project, as do several Serbian SMEs.

Experts from the Institute for the Improvement of Education and company have carried out the modernisation of the curricula. This has involved changes to the syllabi and the content of the courses to bring them up to date with modern technologies and practices.

The project offers career guidance to the students on how to approach a company and how to write a CV. Career advice is offered through participating schools and the project has trained the career guidance advisors within the schools.

6. Results

An evaluation of the project was carried out two years ago, and a lessons-learned document and brochure concerning the project have been published. The project has exceeded expectations in having 25 companies actively involved, and 25 more are expected to take part next year. At the beginning of the project 8 schools were involved and now 16 schools are involved, with 20 expected to be involved next year. The MoESTD has indicated that it would like to see the project expand even further.

The GIZ cooperative education model has been very successful as can be seen from the example of the secondary vocational school in Pečinci, where the first batch of VET graduates in 2016 were all immediately recruited by Bosch. This year, 120 students will

complete their education within the project and will be looking for a job. The project will use a tracer study to check the destinations of the graduated students after six months.

The attractiveness of the 3-year vocational profile in secondary vocational schools has increased as a result of the project. The profiles of industrial mechanic and locksmith-welder are becoming more popular. Enrolment is increasing in these profiles as young people see the opportunities they offer to obtain a job at a good company.

One positive side effect has been the observation of benefits for the quality of VET if a school cooperates with more than one company. This increases the challenge for teaching, since views on what should be taught differ between companies. However, the diversity in training environments can enrich the educational content of study programmes. A negative side effect of the project is that the dropout rate is high because the motivation of some students is low. The dropout rate of Roma students is especially high.

The success was revealed by the results of a satisfaction survey, which showed that both schools and companies have been very satisfied with the results of the project.

The issue of social inclusion is problematic. Some students are not very highly motivated. Low motivation leads to a high dropout rate from the GIZ project of about 15%. The project works with an NGO that specialises in Roma issues to advertise the new vocational profiles to Roma communities, using outreach activities within Roma settlements. The project is keen to attract Roma girls, since currently only 5% of the students who participate in the project are female.

7. Challenges and success factors

One reason for the success of the project has been the involvement of all relevant stakeholders in the design of the new VET process, especially from the relevant ministries of the government, the companies, and the school managements. In addition, the project has succeeded because of the way in which the experiences of the German dual education system have been adapted to the local circumstances, institutions, levels of development, and legal environment in Serbia. This resulted in the adoption of a school-based approach more suited to Serbian conditions, rather than unthinkingly 'copy-pasting' the German company-based approach to the different circumstances in Serbia.

Specific challenges have arisen in schools that do not have enough students to fill a whole class. The solution proposed has been to combine several different profiles into a single class in smaller communities.

Another worrying issue has been the gender imbalance in the VET projects. Only 5% of the students are girls. A proposed solution is to include those craft and technical educational profiles that are more attractive to girls in the process of modernising the curricula and in the cooperative education approach.

A further challenge has been providing sufficient information and training to mentors within companies about their roles and responsibilities towards the young trainees that come to their companies from the schools. There is also insufficient quality assurance to ensure that the work-based learning is truly effective. This implies that policy makers should introduce better regulation of the relationship between the schools and the companies. This is one aim of the new law on dual education that will be introduced later in 2017.

8. Conclusions and recommendations

The project has been very successful in creating partnerships between secondary vocational schools and the business sector in Serbia. The participating students are beginning to get the skills that are needed by the business sector for the first time since

the onset of the social and political transition in the early 1990s. Companies say that students integrate well over the two-year period of work-based learning. Students obtain experience in working in a modern working environment.

However, school workshops are obsolete and have not changed much since they were first designed and built in the 1960s and 1970s due to a lack of investment. In order to build on the success of the project and ensure its sustainability, a massive programme should be initiated to invest more resources into secondary vocational schools in order to improve and modernise the infrastructure and equipment within school workshops.

It is important to have an enabling legal framework, especially regarding insurance matters and rewards for work in the participating companies. Schools currently have to use their own resources to ensure the students one day release at participating companies. The proposed law on the dual education system should remedy this situation.

More and better career guidance is needed as a support service to the schools. It is also important to make more use of the Local Youth Offices, which have the potential to substantially reduce dropout from secondary vocational programmes. More resources are needed to support this important work.

More resources should also be devoted to increasing the motivation of the students involved in the project.

Better promotion of the new vocational profiles should be carried out to raise awareness of their value among primary school leavers. Currently the public perception of these profiles is rather negative.

Various new crafts and technical education profiles should be added to the set of profiles currently offered in the GIZ project to attract more female students into secondary vocational education, and raise the proportion of girls from 5% to at least 25%.

It is expected that the MoESTD will expand the GIZ project in the future into a national programme. It is planned that in the autumn of 2017 a new programme based on the GIZ project methodology will be extended to include 120 schools and 2,500 students. A new law on a dual education system in Serbia is under preparation. It will introduce certification for company mentors and enable the payment of students for their time spent in the companies. It is expected to be adopted in the autumn of 2017, and may come into force in 2019.

Case study annex 1: Literature list

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- Ann-Kathrin Hentschel, Project Manager, GIZ, Belgrade, 5 May 2017
- Bojana Perović, Assistant Minister, Ministry of Youth and Sports, Belgrade, 5 May 2017
- Jasminka Markovic, Director, Centre for Education Policy, Belgrade, 12/5/2017
- Milica Todorović, Official, Ministry of Education, Belgrade, 12/5/2017

Step Ahead - Slovakia, Czech Republic and United Kingdom

Year running: 2015-2017

Funding: Erasmus+

Key facts

The Erasmus+ project *Step Ahead*:

- is a transnational cooperation between VET schools, private companies and NGOs
- provides up-to-date materials and methodologies for the automotive sector
- provides teachers with up-to-date materials and methodologies through intensive trainings and conferences

1. Description of the initiative: introduction and short summary

The 'Step Ahead' project was initiated by the Erasmus+ programme (EU), and the project will run from September 2015 till August 2017. The purpose of the project is to foster cooperation for innovation and the exchange of good practices through strategic partnerships on vocational education and training. The project is built on real and concrete needs verified by 71 respondents in an online survey among 87 secondary IVET schools in Slovakia from the automotive professions. Besides providing three national conferences and an intensive training programme for Slovak VET teachers, the project provides new teaching materials for the participating schools, such as interactive learning screens (Erasmus, 2015). The partner group behind the project consists of SOŠA Bratislava (coordinator of the project), INAK oz (SK), NAPA Trucks (CZ), Institute of Motor Industry (UK), and Automotive Technician Training (UK). The project centres on ensuring that the supply of skilled car technicians matches the demand from the businesses in automotive industry. The goal is to ensure this by keeping VET teachers' skills updated, developing curricula, and providing digital teaching materials.

In Slovakia, car production companies and industrial parks created 200,000 work places, totalling 9% of the total employment rate in 2015. This requires qualified VET teachers, relevant training programmes, and innovative, high quality teaching materials reflecting the job market needs (Erasmus, 2015).

More information about the results, challenges and success factors would be required however, to make any substantial conclusions about the project potential.

2. Background

According to businesses in Slovakia, the job market lacks skilled mechanics and technicians, especially once the current generation of employees in their fifties retires. In the Ministry of Education this is seen as a major challenge. The general attitude in the Ministry of Education is that more pupils leaving primary school should be interested in vocational training. In a report from 2013, the ministry claimed that vocational schools can only be effective if they are able to respond to the changing needs of the labour market. According to the report, the three main challenges for vocational educations are:

1. Increasing the quality of education to ensure that school graduates can enter the job market directly
2. Fostering involvement of employers in practical education
3. Attracting more students (Spectator, 2013)

3. Objectives

The project provides intensive training programmes for Slovak VET teachers. More specifically, the project has two main objectives:

- To increase knowledge and improve the skills (communication in foreign languages, digital competencies, learning to learn competencies, altogether 3 out of 8 key competencies specified within the EU framework) of project participants (VET teachers).

- To provide vocational and language teachers and subsequently students of car related professions with innovative teaching materials (Erasmus, 2015).

In general, the purpose of the project is to help VET teachers from regular VET schools in developing up-to-date education programmes, and to provide schools with the materials needed for modern teaching for the automotive business. The core element is to update teachers on the newest technologies through new education materials and new methodologies, including online modules. The teaching modules are used in at least 11 schools in both Slovakia and the Czech Republic. According to the Slovakian NGO INAK (Inovatívne A Kreatívne), there is a close cooperation between the five partners and the schools using the materials and methodologies. Especially the lorry business has lacked updated teaching materials and equipment, which is why an important part of the materials are focused on new technologies for lorries.

4. Approach

The objectives will be fulfilled through a partnership of 5 institutions: SOŠA Bratislava (coordinator), INAK oz (SK), NAPA Trucks (CZ), Institute of Motor Industry (UK), and Automotive Technician Training (UK). The 3 international partners will provide basic teaching materials and expert supervision (Erasmus, 2015). In this regard, it reflects a rare international cooperation between schools, companies, and NGOs. The car industry is characterised by large companies who conduct many different activities, including production, across European borders. The project addresses these transnational activities by designing and delivering training for teachers across branches located in different countries. The cooperation also centres on curriculum development and VET delivery. By having a private company (NAPA Trucks) as one of the 5 partners, there is a connection to the industry and their development.

To provide teachers and subsequently students with innovative teaching materials, the following materials and equipment have been applied:

- Interactive learning screens - ICT & CLIL based teaching materials focused on new trends in Automotive industry
- Support for teaching methodologies - ICT & CLIL based innovative methods, enhancing digital learning

A key element here is to ensure that the supply of skilled car technicians matches the demand from the businesses. NAPA Trucks (CZ) represents the businesses as one of the 5 partners.

To increase the knowledge and improve the skills of teachers and students (communication in foreign languages, digital competence, learning to learn competence), the following methods have been used:

- 2 intensive training programmes focused on introducing innovations and new trends from car industry, while introducing ICT tools to be used for education.
- 3 national conferences for project outcomes` dissemination and implementation (Erasmus, 2015)

5. Implementation

With a focus on following the newest trends and innovations related to car and vehicle construction, the partners have chosen to focus the project on the teachers. The assumption here is that by developing teacher competences, students will learn the required skills and hence be better equipped for the job market in the automotive business.

The automotive industry is marked by a fast running development when it comes to digital solutions. Innovation and digitalisation are therefore central themes to the project, which correspond to the matching of the supply and demand of skills aspect of the three dimensions of successful cooperation.

The project addresses the following target groups:

- 11 teachers of STREDNÁ ODBORNÁ ŠKOLA AUTOMOBILOVÁ, Bratislava and subsequently 250 students.
- 15 teachers of vocational subjects and foreign language teachers from the automotive professions from 5 other Slovak schools.
- 25 teachers from the automotive professions from 8 Slovak schools, not directly involved in the project, who will be involved in testing of the materials with 400 students.
- 500 teachers from the automotive professions from total number of 87 schools, covering these professions in Slovakia, in the position of future users of teaching materials, with approximately 21 750 students in these professions.
- 120 participants of 3 conferences, organised by the project.
- 10 key staff members of partner institutions involved in the project.
- other potential beneficiaries in all project countries (Erasmus, 2015).

6. Results

The project runs until August 2017 and has not yet been evaluated. Since the project is still running, and is in its final stage, no additional assessment or evaluation has been carried out, besides internal project assessments related to quality management, and the evaluation of the two training events by participants (only available in Slovak). The feedback from teachers who participated in the trainings indicates that the teachers have started to actively use their new knowledge and skills concerning innovative teaching approaches and the topics of innovations in practice. Additionally, the new curriculum fills the gap in the Slovak and the Czech education markets, providing new teaching methods and learning resource materials that have been lacking (INAK, NGO).

By the end of the project, project participants will be asked to self-evaluate the progress of their skills achieved, which will be compared with the results of their assessment from the project beginning (only available in Slovak) (INAK, NGO). According to a representative from one of the partners, there has been very positive feedback from the 11 schools where the project has been tested.

According to the description of the project, the partners believe that the project has the potential to significantly contribute to improving VET quality. The partners expect increased skills, knowledge, and motivation, especially in the area of using innovative ICT based methods, approaches, and tools in VET teaching (Erasmus, 2015).

7. Challenges and success factors

Integrating knowledge concerning trucks has been a challenge, as trucks are currently not included in the Slovak and Czech VET systems. The discussion on how to integrate the new topic of trucks into the teaching has recently started among project partners. Additionally, the necessity to focus more on alternative fuels was discussed as an idea for a future project, as the partners consider this to be an important development to follow (INAK, NGO).

8. Conclusions and recommendations

The Step Ahead project represents an example of transnational cooperation between businesses, schools, and NGOs. Recommendations will follow when the relevant information is available. The few results currently available show that the participating teachers are motivated and that they have already started using their new knowledge and skills in practice. The new curriculum provides new teaching methods and materials which fill an important gap in the curriculum for automotive VETs, which creates a better match between supply and demand for well-educated labour in the automotive sector.

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Case study annex 2: Respondents interview

- Adriana Kovacova, INAK: Slovakian NGO (partner).
- Jana Sykorova, INAK: Slovakian NGO (partner)

Labour Foundation of the Construction sector, Spain

Title in national language: Fundación Laboral de la Construcción

Years running: Since 1992

Funding: Mix of Public and Private (Mix of funding through the Ministry of Social Affairs and levies on member companies of the social partners in the construction sector)

Key facts

The Fundación Laboral de la Construcción...

- is a partnership of the social partners (employer organisations and trade unions) of the construction sector in Spain, providing education in new skills, health and safety, and professional skills
- provides 400 different training tracks in 45 centres across Spain
- has educated tens of thousands construction workers and in doing so provided CVET for the construction sector
- thrives because of the sectoral approach to CVET and LLL and the recognition of FLC certificates throughout the sector
- is funded through levies of its member organisations and public money, without additional contributions from workers engaged in CVET.

1. Description of the initiative: introduction and short summary

The 'Fundación Laboral de la Construcción' (FLC) is a paritarian organisation that was established in 1992. The goals of the FLC are to enhance vocational training among workers of the construction sector, to encourage health and safety at the workplace, and to promote employment in the sector. The main actors involved in the Foundation are Spanish employer organisations and trade unions. Thus, the FLC aims at providing businesses and workers in the construction sector with the necessary skills and knowledge to develop a more professional, qualified and educated sector. The FLC is a national partnership which involves nation-wide actors and addresses target groups across Spain. The FLC provides over 400 different training tracks in 45 training centres with over 1500 teachers which are located throughout the country, and it has developed over a 100 study manuals on subjects relevant to the construction sector. Consequently, the FLC has welcomed hundreds of thousands of construction workers into its training centres, preparing them for new technologies, and improving knowledge of health and safety standards. The FLC promotes social inclusion and mobility of VET in the construction sector in Spain, by offering free qualification opportunities to unemployed persons. Educational efforts of the FLC mostly focus on the development of curricula by incorporating new practices from the field in VET training for the sector (feedback loop).

FLC is specialised in VET courses within the Vocational Training for Employment system in Spain, which includes continuous training for the employed (CVET), and occupational training for the unemployed. Besides this, it also offers Initial Vocational Training (IVET) programmes, mainly aimed at young people before entering the labour market. With regard to occupational sectors, the Foundation works exclusively in the construction sector, although it is interested in increasing its training offer for other related sectors (e.g. metal, renewable energies).

Most of the training offered is free of charge and ends in a qualification that is recognised throughout the country, which is a great success factor of the FLC's education. A challenge is that the FLC still relies heavily on levies raised from its member companies, the height of which is based on yearly company turnover. A reduction in turnover throughout the sector could therefore severely cut income for the FLC and threaten the sustainability of its activities.

All in all, the FLC case study shows that the involvement of sectoral social partners can be a very relevant factor in increasing quality and attractiveness of VET.

2. Background

The FLC was founded by several Spanish social partners as a bipartite organisation. The Foundation is a partnership between social partners in the construction sector and SMEs which provide VET for workers, as well as currently unemployed workers who wish to educate and train themselves (CVET and LLL). 50% of the FLC is owned by the CNC, (National Confederation of Construction), representing the employers' associations, and 50% is owned by the construction federations of the two main trade unions in Spain: UGT and CC.OO (CCOO: Construction and Services, trade union. UGT-FICA: Industry, Construction and Agro, trade union.)

Additional partners include construction companies in Spain. Every company in the industry pays a levy corresponding to 0.35% of its mass salary to contribute to the sustainability of the FLC; all SMEs of the construction industry are involved. Furthermore, as part of FLC's strategy, it has agreements with vocational education institutes, universities, professional colleges, and public administration departments (Education, Training, Labour, Health and Safety) about the training of construction workers.

The problem that the initiative attempts to solve is a gap in professional training in new technologies, workplace safety, and innovative sustainable building methods that current workers have enjoyed. In 1992 CNC, CCOO and UGT decided to create FLC in order to achieve a more professional, safe and skilled construction sector. Recent and fast changes in construction technologies like the increased use of 3-d Building Information Models (BIM), had rendered parts of the construction workforce in need of training.

Particularly, as long as many workers are hired under temporary contracts for a specific worksite at a time, it was critical to provide workers at the worksite with the most convenient technical and health & safety training, as well as developing a system to dignify their jobs. As a result, the construction industry in Spain is currently a sector that works in a more unified and connected manner, cooperating with other sectors to face upcoming challenges. Therefore, the FLC offers companies and construction workers training and resources in different scopes, such as hazards prevention, sustainability and innovation, and in promoting good practices.

3. Objectives

Specific educational objectives for the foundation include the improvement of knowledge about health and safety best practices, increasing the number and quality of apprenticeships, anticipating skills required for a future economy of green construction jobs, and delivering VET in cooperation with individual businesses.

Specifically, with regard to European Commission initiatives for green employment, clean energy and the energy performance of buildings, the Foundation participates in the Social Dialogue FIEC-EFBWW project for inclusive VET for low energy construction, and in the Erasmus+ project for Building up green skills for trainers from the construction industry. The objectives for these programmes are, respectively to improve the link between VET and low-energy construction and to design a European sectoral 'green skills' standard for construction trainers in South Europe.

The objectives which the Foundation wants to achieve because they are needed in the construction sector are to:

- Provide training for needed qualifications in construction
- Improve access to VET for all groups of workers in the sector
- Retain skilled workforce
- Improve working conditions
- Provide relevant construction sector training for unemployed persons
- Improve employment and health and safety in the construction sector

These objectives are measured and monitored using certain indicators, although goals

and targets have not necessarily been set in a SMART way per indicator. The indicators and the levels realised in 2012 are listed in table 1:

Table 1 Indicators

Category	Level in 2017
Professional cards issued	700 000
Yearly worksite advisory visits	10 000
Job offers at employment meeting point	200/month
International project participated in	38
Workers trained	1000 000+
Health and Safety practice centres	21
Amount of trainers	1700
Amount of training courses	400
Developed textbooks	140
Training centres	46
ISO norms obtained	9001:2008 and 14001:2004

The FLC issues 'professional cards' that attest to each construction worker's experience with health and safety training, experience in the sector, as well as their professional qualifications. These professional cards are awarded after completion of one or more courses, and thus reflect a workers continued education and training. Additionally, the FLC engages in worksite visits, in which advice is given to construction companies regarding health and safety practices. The FLC also provides an employment meeting point at which construction workers can find jobs in a virtual market place.

The Health and Safety practice centres mentioned in table 1 are 'real', unfinished buildings where workers can perform construction tasks under supervision in order to practice health and safety standards.

4. Approach

The FLC's approach stems from the National Collective Agreement, which states that the FLC mission is to foster Vocational training, occupational safety & health, and employment within the building industry by guaranteeing the provision of integrated services to workers and companies. The core elements of the approach are commitment to employment in the construction industry, innovation in the sector, and efficient use of resources.

The approach taken by the foundation allows the use of in-sector knowledge from the national bipartite member organisations to provide 400 training programmes given by over 1500 teachers throughout Spain in order to combat a lack of accredited crafts, and health and safety qualifications in the workforce. The approach of the FLC's education activities is shaped nationally, but implemented regionally through regional and local offices.

The development of curricula by the sector itself and providing accredited education for free through levies of member organisations was thought to increase provision and lower barriers to access VET for (prospective) workers. The rationale for the FLC was that, through a national approach in which the sector itself updated and developed curricula, shared resources (namely, staff, education space and materials) between companies and schools, and designed education tracks for every occupation within the sector, the FLC could develop what the workforce was lacking.

The strategic plan for 2016 – 2020 describes the FLC's vision as follows: 'FLC must be the impeller of an innovative and sustainable construction sector, leading its transformation in the fields of: employment, professional qualification, and health and safety'. Consequently, the approach the organisation takes for new initiatives is based on one of these pillars.

Furthermore, the FLC attempts to ensure that qualifications at the end of their education tracks are transferrable to other countries through cooperation in European networks of social partners in the construction sector. Consequently, the FLC aims to improve the mobility for workers in the Spanish construction sector through their education programmes. By offering training to unemployed people who aspire to work in the construction sector, the FLC aims to contribute to improving social inclusion in VET.

5. Implementation

The organisation and its projects are implemented in a bipartite way at most levels. The organisation's structure and activities are the outcome of the Spanish social dialogue in the construction sector. The FLC performance is monitored by a steering committee which meets every month. Additionally there are 17 bipartite regional councils that govern the institution at the regional level.

From the managerial perspective, there is a Managing Director that rules FLC. Professional structure is based in a matrix that includes managers at the national level (for training, health & safety, human resources, etc.), and 17 regional managers. Every national manager has several departments, and the same structure is developed at the regional level.

The main components of the implementation are work-based learning, as the learning programmes are mostly of a dual nature where current workers receive CVET or pupils receive IVET, combined with an apprenticeship. To a certain extent, the courses that are offered prepare learners for a new age in which ICT is more important than ever, even in construction. Specifically, the need for digital skills requires training construction workers in the use of virtual, 3D building models, and different sensors on-site, as well as the management of different digital documents and models in the execution of building plans.

Furthermore, the social partners used the foundation to match the supply for workers with certain skills and accreditation, with the demand of skills from companies in the sector. Certificates that are awarded at the end of FLC training tracks are recognised across the sector, and consequently the efforts of the FLC in matching supply and demand have succeeded. The project increased the number of CVET training centres for the sector during its runtime, as well as the number of accredited trainings available, decreasing travel time and increasing the value of obtaining qualifications. Thus, the project has increased the attractiveness of pursuing CVET for construction workers in Spain.

6. Results

Since the start of the FLC, the indicators set out under section 3 have been monitored by the organisation, although a thorough evaluation that includes an analysis of the implementation of the chosen approach seems to be missing. However, according to Spanish regulations, The Ministry of Education has established a Protectorate, so that FLC performance is under surveillance by public administration institutions. Additionally, the board of patrons meets annually in order to evaluate the results achieved by FLC. During this meeting, the managing director explains all the outputs and outcomes attained during the year. Customers, pupils and trainees evaluate the FLC's education when they complete a course, so there is constant feedback on the education and training efforts. According to the strategic plan for 2016-2020, the FLC has to carry out an evaluation to assess the actual impact of the organisation's activities.

As for the sustainability of the approach, since the FLC is celebrating its 25th anniversary this year, it can be said that it has proven itself to be a sustainable project. Transferability of the foundations approach with similar results in other countries or sectors depends on the strength of social partner organisations and social dialogue in the countries or sectors concerned. The approach which the organisation have taken seems to be easily transferable to other countries and sectors in which there is a sound system of social dialogue. In Europe there are some other institutions with similar characteristics such as the CCA-BTP (France) or FORMEDIL (Italy).

7. Challenges and success factors

An unintended positive side-effect of the cooperation within the Foundation has been that because of the significance of the partners involved, cooperation with the national Ministry of Education has been better than anticipated. As a consequence, a joint website on career counselling for young people has been established, and there has been a validation of qualifications that have been obtained at the FLC training centres within the national system. Additionally, through cooperation with the Ministry of Education a system of accreditation for competencies acquired through informal learning has been set up.

Internal challenges for FLC emanate from the partnership's size and possible disagreement between partners:

- Each action requires consensus between social partners which is sometimes hard to obtain
- The nationwide approach dictates some inflexibility towards local needs
- As the national budget for CVET in Spain is the result of collective bargaining in which partners of the Foundation are also engaged, the initiative is subject to the instability of collective bargaining outcomes.

External factors and conditions also pose challenges to the initiative:

- As the initiative is funded through levies of its member companies that are a percentage of their revenue, the FLC is at risk of having to cut funding if the economic situation causes the total revenue of the sector to drop.
- Public funding to provide permanent training in Spain has been reduced during the past decade, causing the FLC to rely increasingly on the levies from its member companies.

Success factors of the project are mostly a consequence of the specific approach which the partnership has taken and the nature of the bipartite organisation. They include:

- The use of social dialogue to develop the construction sector into a more professional and safe environment.
- Training provided by the 45 centres has adapted to the qualification requirements of the sector due to contact with companies and workers in the sector.
- Training programmes and obtainable qualifications are recognised across the sector because they have been developed centrally.
- Due to the central development of training the quality of training courses has improved.
- Resources management has been efficient due to economies of scale.

8. Conclusions and recommendations

The FLC is an interesting case study because of its national implementation, sectoral and bipartite nature, and its focus on CVET and LLL. Moreover, the social dialogue aspect of the FLC has contributed greatly to its success in educational outcomes, because the levies made VET free for the workers themselves. Furthermore, the social dialogue has unified the construction sector in promoting professionalism, health and safety, and employment opportunities.

Case study annex 1: Literature list

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Case study annex 2: Respondents interviews

- Mr. José A. Viejo Rodríguez, Chief training officer, FLC
- Mr. Javier González López, Head of international projects, FLC

Tech Partnership - United Kingdom

Years running: Since 2014

Funding: Mix of private and public funding

Key facts

The Tech Partnership...

- involves over 1,000 firms, primarily in the tech sectors, developing curricula for digital skill development and the post-secondary and tertiary level
- contributes to raising the profile of STEM subjects and careers in the digital sector through a network of ambassadors working with schools
- also addresses the issue of gender gap in pursuing STEM studies and digital careers
- thrives thanks to the commitment of senior management across participating businesses

1. Description of the initiative: introduction and short summary

The Tech Partnership was established in 2014. Its overall aim is 'to create the skills for growth in the global digital economy'. The Partnership covers two main types of VET: IVET at the post-secondary level (through apprenticeship programmes), as well as IVET at the tertiary level (through degree apprenticeships and regular university degrees).

The key actor in the initiative is a network of employers of different sizes working in the tech sector, which constituted the partnership as a non-for-profit organisation, then turned into a charity. A number of other actors are also involved, most importantly training providers and universities who take part in the delivery of the programmes developed by the Tech Partnership and the government who has provided co-funding for the establishment of the Partnership. The cooperation is focused primarily on course design and, indirectly, on course delivery. In particular, the tech partnership designs and certifies apprenticeship programmes as well as bachelor and master degrees. In addition, the Partnership is also active in raising the profile of VET for the development of digital skills through school visits delivered by a number of so-called TechFuture Ambassadors. The initiative features elements of work-based learning (apprenticeships at all levels designed by the Tech Partnership involve elements of work-based learning), with a focus on digital skills. It also has a strong element of raising the profile of VET. The initiative takes place on a national and sectoral level, i.e. across the entire UK tech sector.

The initiative achieved significant results: in particular, across several indicators the quality of programmes (be them apprenticeships or degrees) designed by the Tech Partnership fare better than comparable programmes. For example, Tech Partnership apprenticeships tend to be at a higher level than average apprenticeships and graduates in Tech Partnership degrees have better employment prospects than graduates from computing subjects. A key to the success of the Tech Partnership has been a strong commitment at senior levels from the management levels of the participating companies, which has ensured deep involvement of businesses in the initiative. Shortcomings also exist however, notably, a training fund that had elicited training efforts on the side of SMEs in particular had to be discontinued due to the decision of the government to not re-finance such initiatives, pointing to a broader problem of financial constraints and the division of 'efforts' between private and public actors when it comes to training. The case study, overall, provides strong evidence for recommending deep business involvement in course design if VET is to improve in its quality and attractiveness.

2. Background

The Tech Partnership has been initiated by a group of around 50 tech companies operating in the UK. As of now, the network of companies that make up the partnership reached over 1,000 members and it has stretched beyond the tech sector, owing to the fact that digital skills are required beyond the tech sectorspecifically. Companies vary

widely in size, ranging from small businesses to large multinational companies. While companies are at the heart of the initiative, the government also played a role in setting up the partnership through various funding streams that the Tech Partnership gained on a competitive basis. In particular, the government-funded Employment Ownership of Skills Pilot (EOSP), provided co-funding to the tech partnership of around GBP 18.94M, which has been matched by the employers with GBP 11.63M of case contributions, and GBP 23.87M of support in-kind. These funds have been received by the Tech Partnership through a competitive bidding process. A third set of partners are the educational and training institutions which contribute to the delivery of the various programmes designed by the Partnership, such as training providers and universities, delivering apprenticeships, degree apprenticeships, and degree programmes designed by the Tech Partnership respectively. The reason behind the establishment of the Tech Partnership is to provide the skills needed for the UK digital economy both in terms of quality and quantity in the following ways: (i) by designing training and education programmes in line with the needs of businesses; (ii) by leveraging 'investment in training that would not otherwise have taken place' (progress update p3) through overseeing a government training fund; and (iii) by raising the profile of tech careers among young people in secondary schools.

3. Objectives

The interim report assessing the activities carried out by the partnership in its first year highlights four main objectives to be achieved (Tech Partnership, 2015, p.2):

- Inspire new talent, e.g. by encouraging young people (in particular girls) towards a career in the digital economy
- Develop new skills, e.g. by creating training programmes in areas of critical interests such as big data and cyber security
- Create new jobs, e.g. by smoothing the transition from vocational training and university into work in the tech sector
- Raise quality, e.g. by setting industry standards that meet employers' skills needs

The following table outlines the indicators that were set to assess the extent to which the objectives listed above have been achieved. The indicators have been identified by the Tech Partnership strategic board.

Table 1 Indicators

Indicator	Target (by 2015 unless otherwise specified)
Number of companies joining the Tech Partnership	400
Employer investment	GBP 2.3M in cash / GBP 5.55M in kind
Number of trainees funded through Training Fund	240 apprentices / 1,000 tech specialists
Students more likely to pursue tech career (measured by survey)	40,000 (by 2017)
University students in Partnership accredited degrees	2,000 (by 2017)

Source: Tech Partnership (2015, pp. 8-9)

The target groups of the initiative are current and prospective students, i.e. the Tech Partnership designs apprenticeships and degrees for current students, but it also works towards creating a stable flow of entrants to their apprenticeship and degree programmes by targeting prospective students.

4. Approach

The key characteristic of the approach is the employer ownership of the initiative. The British VET system has long been criticised by employers for being unable to respond to their needs, and the partnership tries to address this issue by placing employers at the core of the initiative. This concern had been shared by the government as well, which

set-up policy initiatives to support employers' 'ownership' of skills, such as the EOSP, which partly funds the Tech Partnership.

A crucial element of this approach entails employers' taking full responsibility for the design of the curricula of the training programmes of apprenticeships, degree apprenticeships, graduate and post-graduate higher education programmes in the field of digital skills across the UK. Given that the programmes designed by the Partnership foresee strong elements of business involvement in the delivery of training, the Tech Partnership also contributes to course delivery, though mostly indirectly. The initiative emerged at the national and sectoral level. Interestingly however, the partnership has moved beyond the tech sector in recent years, when companies from other sectors started to join the Tech Partnership, suggesting that the availability of high-quality digital skills is a concern and that in today's knowledge economies digital skills go beyond the company working in the tech sector, but are of a wider - and keen - interest to many businesses.

5. Implementation

Looking more closely at the implementation of the initiative, we find the following key elements under the broad headlines of (i) curricula for digital skills; (ii) work-based learning and (iii) raising profile of VET.

In terms of curriculum design, the Tech Partnership has chiefly worked around the following areas:

- The establishment of a Tech Industry Gold Apprenticeship: apprenticeship programmes accredited by tech sector employers. These apprenticeships were delivered as of 2015 by 27 providers and they support the creation of skills in particularly needed areas, such as cyber security
- The establishment of a Tech Industry Gold Degree: these are degree programmes designed by the Partnership which take place in nearly 30 universities across the country. A key programme developed by the Partnership is the 'IT Management for Business' honours degree (ITMB)
- The establishment of a Degree Apprenticeship: this entails an honours degree delivered in partnership with employers with a blend of classroom- and work-based- learning.

In terms of work-based learning, the programmes accredited by the Partnership all have elements of work-based learning, hence students enrolled in those programmes are by default also engaged in work-based learning. However, to further stimulate work-based learning across the country and the sector, the Partnership has also managed a Training Fund which has been used to elicit training where it would not have taken place otherwise, e.g. in SMEs with relatively limited capacity for training. SMEs constituted 83% of the participating companies in the training fund, suggesting that SMEs are critically interested in training, and that their involvement can be incentivised, for instance through co-financing. The Training Fund has however, been discontinued by the government.

Finally, the Partnership also has the explicit aim of raising the profile of VET. To this end, the Partnership engaged with schools to raise the profile of training (and subsequent careers) in the tech sector. TechFuture Ambassadors have been visiting schools to talk to students about careers in the tech industry and the TechFuture Classrooms have delivered resources to students to carry out projects based on real life projects and problems set by industry partners. Part of these efforts, through the TechFuture Girls, have been specifically targeted at tackling the gender gap in the tech industry, and have provided challenges designed by industry representatives for girls aged 10-14. These include exercises in coding, data management, cyber security and other areas.

6. Results

The initiative has undergone an interim review assessing the first year of activity, which shows how all targets had been met. This is summarised in the following table:

Table 2 Targets met during first year

Indicator	Target (by 2015 unless otherwise specified)	Achievement (by March 2015)
Number of companies joining the Tech Partnership	400	550
Employer investment	GBP 2.3M in cash / GBP 5.55M in kind	GBP 2.3M in cash / GBP 5.65M in kind
Number of trainees funded through Training Fund	240 apprentices / 1,000 tech specialists	242 apprentices / 1,126 tech specialists
Students more likely to pursue tech career (measured by survey)	40,000 (by 2017)	35,000 according to propensity survey
University students in Partnership accredited degrees	2,000 (by 2017)	1,258

Source: Tech Partnership (2015, pp. 8-9)

Although there are no direct indicators assessing whether the attractiveness of VET has increased as a result of the initiative, it can be inferred that, as far as VET with a focus on digital skills is concerned, the Partnership seems to have contributed to increased attractiveness, given that the operational targets have either been met, or are on their way towards being met. Furthermore, separate data comparing recent headlines on VET in the tech sector vis-à-vis general VET in the country, shows that the tech sector performed above average. According to Tech Partnership (2016), for instance, between 2015 and 2016 there was an increase in 'digital apprenticeships' of 21% compared to 10% amongst all apprenticeships; furthermore apprenticeships in the tech sector attract younger applicants compared to the rest of apprenticeships (74% were below the age of 24, compared to 59% of all apprenticeships); and tech apprenticeships tend to be of higher level compared to other apprenticeships (71% were at level 3 or above, compared to 42% of all apprenticeships). The attractiveness of tech apprenticeships remains rather low among women: 20% of apprenticeship starters in the tech sector were women, compared to 52% across all apprenticeships. Furthermore, according to Tech Partnership (2015, p. 15), students and graduates of the ITMB enjoy better prospects than students in other degrees in the computing area. In particular, '75% of ITMB students have achieved 1sts or 2:1s (compared to 52% for computing overall), and there is no known unemployment (compared to computing overall having the highest rate of any subject)'.

As regards the sustainability of the initiative, this issue has been taken up by the partnership and it also constitutes a specific section of the progress reporting. The model of financial sustainability is built on charging users for the services of the tech partnership. For instance, companies or universities who seek to offer accredited apprenticeships or degrees have to pay a fee to access the accreditation and certification. Raising the profile of VET (e.g. the Ambassador programme) relies on donations from companies. A question regarding the sustainability of other activities has been raised with respect to the training fund, which has been currently suspended by the government for financial reasons, and that therefore might have an impact in the number of companies (specifically SMEs) delivering the accredited training.

7. Challenges and success factors

A main challenge that has to an extent prevented the Partnership from having an even greater impact has been the difficulty experienced in accessing stable funding sources. While the model allows for a degree of sustainability through charging service users, the uncertain context of public funding makes for a potential inhibiting factor, an example being the discontinuation by the government of the Training Fund.

Furthermore, we have seen in section 6 that participation in digital skills programmes still suffers from a gender bias – with women participating in digital skills apprenticeships to a smaller extent compared to apprenticeships in general. To the extent that the Partnership aims to ensure that there will be no shortage of digital skills in the future, the gendered division of the participation in digital skills programmes is a challenge that will have to be overcome.

On the other hand, the evidence provided throughout the case study points towards strong positive effects of business involvement in the design of VET programmes to enhance its quality and attractiveness. The key success factors that have been identified in this respect are a genuine ownership of employers of the policy initiative, which has led to design of programmes that critically address the skills needed by employers in the digital sector, and the high-level commitment across the senior management of the businesses involved in the partnership.

Both the success and inhibiting factors do not seem to be bound by any context-specific features, suggesting that the initiative can be certainly transferred across policy contexts.

8. Conclusions and recommendations

The Tech Partnership represents an example of successful cooperation primarily among employers of all sizes across a key sector of the British knowledge economy. The partnership has developed significantly since 2014, by including over 1,000 companies of all sizes. It has created cooperation with training providers at the (post-) secondary level across the private and public sectors, as well as with a number of universities. It has also contributed to raising awareness of STEM subjects and tech careers across the secondary school system, with a particular eye on contributing to closing the gender gap in STEM subjects. The employer-led nature of the partnership, with its high level commitment from senior managers across participating businesses have been identified as critical factors for the success of the initiative.

Case study annex 1: Literature list

- Tech Partnership (2015). Progress update. April 2014-2015. Available at: https://www.thetechpartnership.com/globalassets/pdfs/eoyr/progress_report_web.pdf
- Tech Partnership (2016). Factsheet: Digital apprentices in the UK. Available at: https://www.thetechpartnership.com/globalassets/pdfs/research-2016/factsheet_apprenticeships_2016.pdf
- Various other information has been elicited through the website: <https://www.thetechpartnership.com/>

Case study annex 2: Respondents interviews

- Julie Feest, Head of Strategic Partnerships, the Tech Partnership

Nestlé needs YOUTH - Global

Years running: Since 2014

Funding: Private

Key facts

Nestlé needs YOUTH...

- ...engages over 200 companies that have committed to providing young people in Europe with 20 000 labour market opportunities.
- ...has 120 ambassadors who provide advice and guidance to 60 000 SME's that want to provide work-based learning through apprenticeships
- ...builds on readiness for work by offering career oriented events like employability workshops
- ...has been prolonged and expanded in the Youth Employment initiative, which aims to provide young people in Europe, the Middle-East and North-Africa with 35,000 job opportunities by 2020.
- ...raises awareness of the importance of the private sector in VET
- ...thrives due to its centralised execution and tracking of the initiatives that start under the Nestlé umbrella.

1. Description of the initiative: introduction and short summary

The Nestlé needs YOUTH initiative is led by the multinational company Nestle. The initiative fits squarely in the curriculum development and design mechanisms, with the company stepping up its work-based learning programme by creating 20,000 jobs, apprenticeships and traineeships across Europe between 2014 and 2016. Nestlé needs YOUTH's overall aim is to reduce youth unemployment in the European Union and better prepare Europeans under 30 for their professional lives. It mostly focusses on IVET, as it provides opportunities for those who are still pursuing their education and are new to the labour market. Partners in the project are mostly in the private sector and government bodies, while educational institutes are targeted by the project. Large private partners include multinationals like DHL, Twitter, Google, Facebook, Ernst & Young which are active in the initiative across the EU, while smaller companies cooperate with national Nestlé offices. As such partners are located in Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

The second part of the initiative represents a case of a feedback loop for raising awareness of VET as Nestle also provided 120 ambassadors who give advice and guidance to smaller companies that wish to start or strengthen apprenticeship schemes, reaching out to up to 60,000 small businesses. These companies have been contacted by Nestlé, either because they had been clients in the past, or because they are a part of Nestlé's production chain. As such, these businesses are in several sectors, but mostly in the hotel, restaurant, logistics, transport, finance, food and drinks, manufacturing, administration, human resources, sales, marketing, finance, engineering, and R&D sectors.

The project can be categorised as promoting work-based learning and raising the profile of VET education, as well as improving mobility. Nestlé needs YOUTH is a transnational initiative that is mostly executed at the firm level. Nestlé has expanded the initiative to the Youth Employment initiative, which aims to provide 35 000 young people in Europe, the Middle-East, and North-Africa with labour market opportunities by 2020. Nestlé cooperates with schools and universities by recruiting from those institutions directly and organising career events, thereby meeting students and providing them with CV clinics, interview preparation, and advice on how to enter the job market.

Nestlé Needs YOUTH has seen good results, overachieving on most of its initially set targets, and being expanded beyond the initial European region. The company has been able to hire 20,000 young persons under 30, twice as many as the target set initially.

The hiring of young persons is special in this project because Nestlé makes an effort to provide young people with the professional and employability skills to increase their chance of finding a job.

A success factor for the project is the coherence of the approach and alignment of the project with the Nestlé values, including awareness of the importance of the private sector for the quality of VET. Major risk factors for the project are Nestlé's financial results and the management's belief that the project is aligned with Nestlé's goals. A decrease in profits or turnover, and/or a change of heart in management could cause Nestlé to decide that fewer people and funds should be allocated to Nestlé needs YOUTH.

All in all, the lesson to be taken from the Nestlé needs YOUTH initiative is the positive effect that companies which are aware of their corporate social responsibility regarding the education and employment of youth can have on the attractiveness of VET and work-based learning.

2. Background

The Nestlé needs YOUTH initiative was started by Nestlé in 2014 to provide young people under 30 with job and training opportunities, and was intended to run until 2016. Although Nestlé needs YOUTH is not partnered with specific educational institutes or companies, it is part of a pan-European partnership between 200 companies which operates under the name Alliance4YOUTH. Alliance4YOUTH is a business-driven movement that works to better prepare young people to enter the professional world. The alliance has provided training and jobs for 115,000 young Europeans since 2014. The Nestlé-lead initiative was launched to tackle the high youth unemployment rate throughout Europe, (which rose to 25% in 2014), by offering jobs, apprenticeships and traineeships specifically tailored to them. Nestlé has encouraged over 200 companies to join their project, and works together with national and sub-national governments in the implementation of the Nestlé needs YOUTH initiative.

Nestlé works together with companies in the Alliance4YOUTH to consult VET institutes and universities on updating curricula, in order to bring them in line with demands of the private sector. This can also include communicating about apprenticeships which are available, setting up dual-learning tracks together with VET institutes, updating teaching methods using multi and social media, advising on competencies that students need, and giving employability trainings at educational institutes. Although the sector in which education programmes are reformed varies per country, the sector is always at least tangentially related to Nestlé's client base or production chain. The apprenticeships which are offered can both be an integral part of a VET track or separate from it. The activities in the Nestlé needs YOUTH initiative thus happen both outside of Nestlé but are connected to it through training and updating curricula and methods, and inside the company through apprenticeships, traineeships, and dual-learning programmes.

3. Objectives

Various sources, such as Nestlé's annual 'Nestlé in society' reports, attest to the objectives set by Nestlé needs YOUTH for the period 2014-2016. They include the following priorities:

- Direct recruitment by Nestlé and partner companies, of young people below the age of 30. Available positions include positions in manufacturing, administration, human resources, sales, marketing, finance, engineering and R&D. After the initial three-year period, the project has expanded beyond Europe, starting the Youth employment initiative, with the intention to offer 35,000 labour market opportunities to young people in Europe, the Middle-East and North-Africa. Direct recruitment of youths under 30 is primarily facilitated by the other activities of Nestlé needs YOUTH, as they enhance young people's employability in different sectors.

- Increasing Apprenticeships and traineeships offered by Nestlé to improve the skill level of people under 30 by disseminating best practices across various countries.
- Deploying readiness for work activities for Nestlé employees in order to mobilise them to help young people be better prepared for entering the professional life and easing the school-work transition. This is primarily done by offering career oriented events like employability workshops.
- Encourage business partners to join the initiative by offering a job, or learning opportunity to people under 30. Specifically targeting businesses in Nestlé's value chain.

Table 1 **Indicator – Target**

Indicator	Target (by 2016 unless otherwise specified)
Amount of people <30 hired	10,000
Amount of apprenticeships/	10,000
Readiness for work activities deployed	n.a.
Engaging suppliers and partners in the project	n.a.

The first group that is targeted by 'Nestlé needs YOUTH' are (prospective) employees under 30 years of age. Nestlé offers young job seekers labour market perspectives by offering jobs, apprenticeships or traineeships. Secondly, Nestlé offers employability workshops to young people who are already employed by the company. The second group consists of companies that are related to Nestlé either by being in the same value chain or just by being active in the EU region. Nestlé can ask these companies to join their effort to fight youth unemployment.

4. Approach

The key characteristic of the approach is that it is business-driven. Nestlé emphasises that while government can help to solve Europe's youth unemployment, businesses should lead the way and take responsibility because high unemployment today leads to a lost generation of future leaders.

The chosen approach addresses the problem of European Youth Unemployment by reserving job opportunities for young people and facilitating the use of apprentices and trainees in the company, Nestlé aims to offer young Europeans labour market perspectives, by providing them with apprenticeships and traineeships and dual learning opportunities. Moreover, the training of their staff in employability guidance and the incorporation of other firms from the value chain represents a comprehensive approach to the problem of youth unemployment.

Furthermore, Nestlé needs YOUTH also provides a case study of a feedback loop for raising awareness of VET as Nestlé provided 120 ambassadors for the Alliance4YOUTH project, who provide advice and guidance to smaller companies that wish to start or strengthen apprenticeship schemes. The goal is that these ambassadors reach out to 60,000 SME's. Awareness and the profile of VET is raised, particularly in Eastern European countries, (where work-based learning had been largely abolished since the fall of communism), by developing dual learning opportunities and creating curricula together with VET schools.

Moreover, Nestlé works together with VET institutes to update teaching methods so that multimedia and online tools are integrated into classrooms, in order to engage students with different styles of learning.

In addition, Nestlé need YOUTH promotes the mobility of VET students that take part in the initiative, due to its ability to offer transnational mobility in the placement of students in apprenticeships. As several multinational companies are involved in the project, it is easier for students to apply for internships abroad through the project.

Nestlé needs YOUTH thus helps VET institutes to offer students international training opportunities within their curricula.

5. Implementation

The implementation approach of 'Nestlé's needs YOUTH' can be divided into i) promoting work-based learning, ii) raising VET attractiveness, III) digitalisation and iv) innovation.

The initiative promotes work-based learning by working with companies that provide apprenticeships and traineeships, and by increasing the amount of places that they provide. These apprenticeships are either a formal part of the curricula of vocational education and training, or constitute opportunities alongside either VET or university-level curricula. Consequently, it raises the profile of VET in Europe through the facilitation of work-learning opportunities for students in that sector of education. These curricula increasingly incorporate both apprenticeships and traineeships and dual-learning, as well as the use of innovative and digital technologies, to teach VET graduates how to use cutting-edge technologies.

As mentioned in the background section, the sectors these programmes operate in vary per country, but are always either part of Nestlé's client base, or their production chain. As a consequence, it is possible that while Nestlé Spain for instance, mostly cooperates with DHL when it comes to apprenticeships and updating curricula in the logistics sector, due to strong ties between these companies in the country, Nestlé Portugal has another sectoral focus.

Certification that is available to students after completion of tracks which Nestlé has helped develop, vary per sector and per country. When an apprenticeship or traineeship track is part of a track at a VET institute, rather than an additional complement to it, only a certificate from the VET institute may be available. Additionally, Nestlé does not offer its own certification after completion of dual learning tracks, as these certificates are also doled out by VET institutes in the given national VET system.

In 2015, the 'Nestlé needs YOUTH' initiative was transformed into the Alliance4YOUTH and Global YOUTH employment initiative. This transformation entailed extending the initiative's scope to countries outside of the EU region it was contained in during 2014-2016, as well as increasing the amount of companies that took part in the initiative. By broadening its scope, the initiative also increased its goals for the future, for instance goal for 2017-2020 being 230,000 new work opportunities. The YOUTH employment initiative has set the specific goal of 21,000 opportunities for young people in Europe, the Middle-East, North Africa, Turkey and Israel by 2020.

6. Results

Nestlé develops annual reports on its position in society. The 'Nestlé needs YOUTH' and the subsequent Nestlé Global Youth Initiative, have been evaluated in these reports from 2014 till 2016. In these reports the project is only assessed by looking at the targets formulated at the beginning of the project in 2014, not by assessing the impact on youth employment in the EU or additional targets set in later years.

Table 2 Results

Indicator	Target (by 2016 unless otherwise specified)	Result
Amount of people <30 hired	10,000	20517
Amount of apprenticeships offered	10,000	12385
Readiness for work activities deployed	n.a.	1,667
Engaging suppliers and partners in the project	n.a.	200 business partners

The targets for the amount of jobs and apprenticeships offered to young people by Nestlé have been achieved. The question remains, however, whether the quality of the jobs offered is sufficient, and whether the apprenticeships offered represented quality learning opportunities and a solid preparation for a career in that particular field. Moreover, it is unclear how 'Nestlé needs YOUTH' impacted youth unemployment in the various member states. Regarding the 'readiness for work activities', the amount of workshops is not necessarily indicative of the mobilisation of employees to help young people acquire job seeking skills needed for their professional lives. Additionally, the amount of business partners that have pledged to participate in the project is not necessarily indicative for any progress if the pledge is not coupled with any obligations on the partner's part.

As for the attractiveness of VET, there are no direct indicators that measure the impact of Nestlé needs YOUTH on VET attractiveness. However, it can be inferred that the project contributed to the attractiveness of all forms of post-secondary and tertiary education that profited from new apprenticeships. In cases in which apprenticeships through Nestlé needs YOUTH were incorporated in VET curricula, the attractiveness of these curricula to (prospective) students has increased due to the learning and work opportunities associated with them.

Regarding transferability of the project to other organisations, it can be said that this is difficult because of the scope of the objectives and the organisational power needed for execution of the plan. The size of Nestlé as a company is one of the reasons it has been able to achieve the targets it set. Smaller organisations might not be able to set up a programmes of this size because of the costs that have to be incurred.

Nonetheless, Nestlé needs YOUTH has expanded to more countries and companies during its runtime, precisely because of coordination and promotion by the company, as well as their cooperation with governments and schools. As such the approach has been transferred to other companies and regions, confirming at least a certain measure of transferability.

If other companies would want to take Nestlé's approach to youth unemployment, one major aspect they ought to keep in mind is that these projects on social entrepreneurship cost time and money if they are to be successful. A substantial commitment in these terms is therefore needed if goals are to be reached.

7. Challenges and success factors

Critical success factors for the project include the coherence of the approach and alignment of the project with the Nestlé values, including awareness of the importance of the private sector for the quality of VET. Furthermore, a centralised execution and tracking of initiatives is important for the quality control of this initiative. Engagement with policymakers at the national and sub-national level, as well as with school administrators is also of importance in order to tailor opportunities to VET needs and to promote the initiative in different countries and regions. Another success factor is Nestlé's ability to engage other companies within its project; Nestlé cannot solve the problem of youth unemployment alone, so the involvement of other companies is paramount to its success.

Furthermore, a major risk factor for the project are Nestlé's financial results, and management's belief that the project is aligned with Nestlé's goals. A decrease in profits or turnover and/or a change of heart in management could cause Nestlé to decide that fewer people and funds should be allocated to Nestlé needs YOUTH, effectively downscaling the project. All in all, the company's commitment to the initiative is strong, but can be subject to change when economic circumstances diminish. Main challenges for the project include a lack of clarity in objectives and expectations in communication and execution throughout the Nestlé organisation and a lack of local administrative capacity and support in the company, governments and VET institutes. Last but not least, a lack of uniform certification across countries and sectors may decrease the attractiveness of the VET tracks Nestlé helped to develop, as no standard is set for the competences gained after completion.

8. Conclusions and recommendations

Nestlé needs YOUTH has been a successful project, overachieving on its objectives, which were set in a measureable and time-constrained manner. Moreover, the project has been expanded in both objectives and geographical scope for 2020. The initiative provides an interesting case study as a VET-business cooperation that is approached on a pan-European scope, but implemented nationally and on the firm-level. Moreover, the case study is interesting due to its unusually large scope and its overachievement on initially set targets.

Case study annex 1: Literature list

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<http://www.nestle.com/media/newsandfeatures/youth-employment-initiative>
<http://reports.weforum.org/disrupting-unemployment/nestle-needs-youth/>

Case study annex 2: Respondents interviews

- Frédérique Naulette, Lead for Nestlé needs YOUTH initiative in Europe, Middle East and North Africa.
Maria Castello, National lead for Nestlé needs YOUTH in Spain.

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