



International  
Labour  
Organization



Flanders  
State of the Art

The Future of Work and Lifelong Learning

## ► Strengthening work-based learning in VET institutions



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First published 2022

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ISBN: PRINT 9789220375150/ PDF 9789220375143

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Printed in Switzerland

The Future of Work and Lifelong Learning

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- ▶ **Strengthening work-based learning in VET institutions**



## ► Foreword

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New technologies, demographic shifts, climate change, globalization and more recently the crisis such as global health pandemic are causing major disruptions to the world of work. Against this backdrop, it becomes ever more important to build an agile workforce capable of navigating the fast-changing labour market through appropriate and timely skilling, reskilling and upskilling. The use of apprenticeship models or dual training systems can be an effective solution in the context of the future of work, as it bridges the gap between education and training system and the world of work.

Although apprenticeship is a centuries-old system which enable young persons to acquire skills related to specific occupations, questions are increasingly being raised about its relevance for reskilling and upskilling in the context of the future of work and lifelong learning.

The ILO has therefore launched a research project – *Apprenticeship Development for Universal Lifelong Learning and Training (ADULT)*– which aims to generate new ideas and policy options to modernise apprenticeship systems. The project is funded by the Government of Flanders. The research aims to explore how apprenticeship systems are being modernised and transformed to promote and enable lifelong learning and decent work for youth, adults, and older workers (both employed and unemployed). The research also covers other forms of work-based learning options for students in VET institutes.

The research paper titled “*Strengthening work-based learning in VET institutions*” has been produced by the ILO as part of the ADULT project. It explores the initiatives undertaken by countries across the world to strengthen WBL in school-based VET, the role of local industry and social partners. It also discusses the various innovative policy options which can be introduced for supporting WBL in school-based VET.

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## ► Acknowledgements

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The research paper titled “Strengthening work-based learning in VET institutions” has been produced by the International Labour Organization (ILO) as part of the Apprenticeships Development for Universal Lifelong Learning and Training (ADULT) project funded by the Government of Flanders. Some elements of this research paper have been utilized in the main report developed by the ADULT project both in the relevant chapter and also generally throughout the report.

Ashwani Aggarwal (ILO) managed the research project, led the design and development of this thematic paper and also reviewed, edited and finalized this publication. Anita Sharma (ILO) coordinated with consultants and reviewers and also reviewed and provided comments on the paper. Sincere thanks to Professor Dr Erwin Seyfried (Hochschule für Wirtschaft und Recht, Berlin School of Economics and LawJörg, Germany) who authored the paper.

This project was also supported by a global advisory committee comprising experts from governments, employers’ and workers’ organizations, the private sector, academia, and the ILO and other development agencies. Thanks are due to the following experts who reviewed various drafts of this paper and provided extremely useful feedback, including Mieke Valcke and Pinxton Wouter (Government of Flanders), Gerda Magnus and Aruna Singh (Department of Higher Education and Training, South Africa), Alberto Echavarría and María Camila Agudelo Salazar (Asociación Nacional de Empresarios de Colombia [National Business Association of Colombia, ANDI], Colombia), Hans Ulrich Nordhaus (Deutscher Gewerkschaftsbund [the German Trade Union Confederation, DGB], Germany), Florus Prinsloo (South Africa), Marieke Vandeweyer (OECD), Hiromichi Katayama, Benjamin Richard, Zhu Ying and Katerina Ananisdou (UNESCO), Margo Hoftijzer (World Bank), Andrew Hall (British Council), Stefan Thomas (European Training Foundation), Yasser Ali (the United Nations Relief and Works Agency for Palestine Refugees in the Near East), and Gurwak Sethi and Ashok Kumar (India).

Other experts who provided comments and reviewed the draft of the paper are Jörg Markowitsch (3s Unternehmensberatung GmbH, Austria), Anita Srivastava (Ministry of Skill Development and Entrepreneurship, Government of India), Shivender Doeger, Neeta Pradhan Das and Nidhi Gautam (India), Heta Rintala (Finland), Bartelijne Van den Boogert (VET Toolbox), Claire La Hovary (The Bureau for Workers’ Activities, [ACTRAV]) and Cheryl Chan (ILO). Nidhi Gautam, Majda Grine, Jenni Jostock and Axelle de Miller coordinated the editing, design and layout of the publication.

Special thanks are due to David Maenaut and Eva Haeveryans for their excellent support and coordination on behalf of the Government of Flanders, in providing technical advice to the preparation, review and finalisation of this paper.

Sangheon Lee, Director, Employment Policy Department, ILO, and Srinivas B. Reddy, Chief, Skills and Employability Branch, ILO, provided guidance and advice in the production of this publication.





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## ► List of acronyms

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CBT	Competency-based training
CCE	Consejo Coordinador Empresarial [Business Coordinating Council]
CECyTE	Centro de Estudios Científicos y Tecnológicos [Colleges of Scientific and Technological Studies]
Cedefop	European Centre for the Development of Vocational Training
CONALEP	Colegio de Educación Profesional Técnica de Estado de México [National College of Technical Professional Education]
COPARMEX	Confederación Patronal de la República Mexicana [Confederation of Employers of the Mexican Republic]
CTS	Craftsmen Training Scheme
DST	Dual System of Training
ETF	European Training Foundation
ITI	Industrial Training Institute
MOU	Memorandum of understanding
NIMI	National Instructional Media Institute
NSQF	National Skills and Qualification Framework
NTC	National Trade Certificate
OECD	Organisation for Economic Co-operation and Development
SED	Sistema de Educación Dual [Dual Education System]
SELFIE	Self-Reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies
SEMS	Subsecretaría de Educación Media Superior [Undersecretary of Upper Secondary Education]
SEP	Secretaría de Educación Pública [Ministry for Education]
SMEs	Small and medium-sized enterprises
SMK	Sekolah Menengah Kejuruan [Secondary Vocational School]
TVET	Technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOE	UNESCO-UIS/OECD/EUROSTAT
VET	Vocational education and training
VR	Virtual reality
WBL	Work-based learning



# Executive Summary

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This study aims to identify innovative approaches and crucial components for building strategies to introduce or strengthen work-based learning (WBL) in school-based vocational education and training (VET) and to open up a perspective of duality in the field. WBL includes all forms of learning that take place in a real work environment. The study is about the various forms of WBL that are linked to school-based VET, allowing learners to acquire knowledge, skills and competences in schools and at workplaces, and thus to increase their chances of finding employment.

The benefits of incorporating WBL periods into school-based VET are manifold for all parties involved, namely, for learners, VET schools, participating companies and society at large. For learners, an important benefit of WBL stems from the strong role of the workplace as a learning environment. An effective implementation of WBL will support individual VET students in starting successful professional careers and will strengthen the reputations of involved VET schools and companies as well as the VET system in general. International studies suggest that learners who graduate from a school-based VET programme that includes WBL are less likely to be unemployed than those who do not receive WBL or who work independently in a job unrelated to their training programme.

This study is guided by empirical research into three analytical areas: (i) policy and governance frameworks for VET; (ii) cooperation and networking between the VET system and industry; and (iii) approaches to modernize learning in VET schools and guide them towards duality. In all areas, innovative practices, examples, and case studies from different countries are presented and analysed, with the aim of encouraging and strengthening WBL in school-based VET. Finally, conclusions are drawn from the empirical research into the mentioned areas, and policy options for strengthening WBL in school-based VET are discussed.

## ► Empirical findings

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A clearly articulated policy and governance framework is essential to overcome constraints in establishing an effective WBL approach for school-based VET. Government, either at the national or the regional level, has an important role to play here. The innovative examples presented are demonstrations of how changes in policy and governance frameworks have removed administrative barriers to the introduction of WBL by giving more freedom of choice and curricular leeway to VET schools.

Flexibility and modularization, individualization, and adaptation of VET to the needs of companies and learners are together identified as the key to modernizing school-based VET in a dual perspective. However, flexibility alone is not the universal solution for strengthening WBL in school-based VET; rather, it is a matter of maintaining a balance between standardization and flexibility. There must be a framework of educational standards, although this should be redesigned, altered and adjusted from time to time, as changing circumstances may demand.

It is important to develop solutions for WBL that are adapted to the context. Creating appropriate prerequisites to involve small and micro-size companies in WBL is often a challenge, particularly in low- and medium-income countries.

Often there is a lack of clear regulations around the status of VET students during WBL periods. Their social and financial security during these periods, as well as their health, accident risks and social security issues need to be more clearly regulated.

The experiences of many countries developing WBL in school-based VET systems demonstrate that basically strong, regional and/or sector-based employer associations and worker associations are needed to create a functioning system for WBL. A number of countries are trying to overcome structurally weak partnerships between the VET system and industry through the creation of tripartite sector councils, organized by type of economic activity, and by extending the responsibilities of the private sector for WBL in VET. A stronger role is given to sector councils in developing curricula, modules and standards for assessment of WBL, including independent sectoral certification of graduates.

Striking examples demonstrate how a school-based VET system can be expanded and supplemented by a dual branch, created inside and next to the school system, offering the option for students to enrol in either the fully school-based branch or the dual branch. Establishing an effective dual branch in school-based VET is associated with the establishment of multiple communication channels and platforms of cooperation, bringing together the main players from education and industry at all levels.

Structural networks at the governance level may convene representatives of employers and employees, educational institutions, employment agencies, and ministerial departments. These partnerships at the governance level address the strategic and further development of duality, aiming to strengthen the engagement of sectors, the quality of learning in companies, and the development of synchronized curricula for dual learning. Towards policy, they may provide legal and governance advice; towards stakeholders, they may support quality assurance, curricula development, recognition of companies and transition of graduates from education to employment.

Another key issue for introducing and strengthening WBL in school-based VET is the fruitful cooperation of schools with local companies, including partnerships between schools and (small and medium-sized) enterprises. As demonstrated by several examples, initiating and sustaining communication on this level ensures that training and education in WBL periods really fit into school-based learning. It is through such cooperation that work-based and school-based components can be smoothly synchronized with each other.

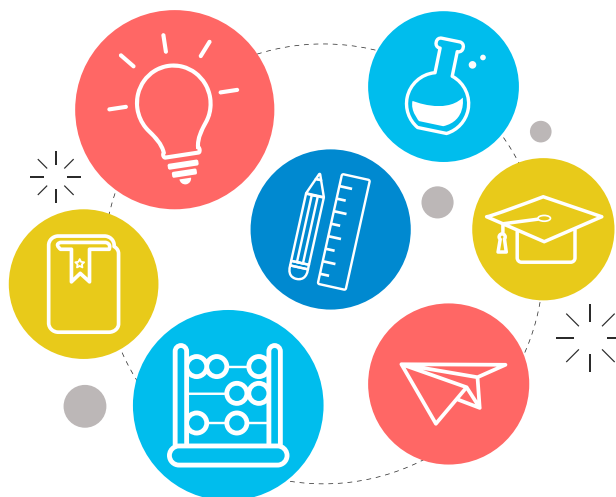
VET schools themselves have several opportunities to strengthen WBL by modernizing their approach to teaching and learning in a dual perspective. To make this happen, VET schools must embark on a new way of thinking, one that involves implementing VET delivery in cooperation with industry and promoting a corresponding reorganization of their education and training.

An essential step in this direction is competency-based training (CBT), a structured training and assessment system that allows individuals to acquire skills and knowledge to perform work activities to a specified standard, as expected in a real-life workplace environment. CBT could also serve as a good approach to ensure the relevance of training to the labour market in the absence of robust WBL opportunities. Empirical data suggests that the readiness of local companies to enable WBL increases if VET students demonstrate relevant professional skills and appropriate work virtues. The less effort and costs companies need to incur for participation in WBL, the more they regard their involvement as an investment with significant returns over time.

Another approach to modernizing WBL within school-based VET, which has recently received a strong push due to the coronavirus disease (COVID-19) pandemic, is the use of digital learning and the application of virtual reality environments. At the European level in particular, tools have been developed to support innovation and digitalization in educational institutions. Virtual learning cannot fully replace workplace-related experiences, but certain professional competences might be acquired

through virtual simulations. It is difficult to implement this approach, particularly in low- and medium-income countries. However, it may open up a new, innovative field for international donor initiatives and development cooperation.

In several countries, WBL is provided within VET schools by creating a real-life working environment within the school. As a result, VET campuses include restaurants, bakeries, shops, spas and other authentic working environments that are open to the public. In accordance with real-life work procedures and by following prevailing standards in industry, students are involved in the main stages of a production process. Provision of WBL in such “teaching factories” can certainly not replace learning in a company but may serve as a reference for allowing WBL in VET schools for students with no opportunity to complete WBL in industry.



## ► Conclusions

The overarching policy to strengthen duality is to make school-based VET systems more demand-driven by considering the interests of companies and promoting cooperation between the education system and industry, particularly at the local level, between VET institutes and small and medium enterprises (SMEs). For VET schools, the most important requirement for implementing a demand-driven approach is to put the concepts and contents of teaching and learning into this perspective. The OECD encourages mandating school-mediated WBL in all vocational programmes, so that partnership with employers becomes essential rather than an optional extra.

### *Basic legal standards for WBL*

During periods of WBL, students should receive entitlements, including a written traineeship agreement covering appropriate remuneration, limits of working hours, holidays, respect of health and safety regulations, coverage of illness, and work-related injuries or accidents.

Provision of financial and non-financial incentives is a necessary element to implement WBL in a school-based VET system and ensure the quality of the system. In many countries, VET schools need help with managerial and administrative tasks, teachers and trainers need incentives to adapt curricula and interlink learning processes at the workplace and at school, and students and employers need subsidies to cover expenses.

### *Modularization, individualization and flexibilization of VET programmes*

Innovative policy and governance frameworks supporting WBL in school-based VET systems enable various forms of WBL. Several examples demonstrate how to design qualifications, programmes, pathways and types of learning with as much flexibility as possible (while balancing the flexibility with standardization), and how to align them with the needs of the learner and the demand in the labour market. VET schools are allowed to adapt qualifications according to employer-specific, regional, and



personal requirements. The mode and duration of WBL periods can also be designed flexibly, aligning with requirements at the workplace and in agreement between the involved companies and the VET school.

#### *Networks for interaction between public authorities, VET schools, employers and social partner organizations*

An important component for strengthening WBL is cooperation of the VET system with social partner associations and companies and the establishment of mechanisms for interaction between public authorities, VET schools, employers and social partner organizations. Structural networks at the governance level may support strategic development towards further dual components in school-based VET and strengthen the engagement of sectors, the quality of learning in companies, and the development of synchronized curricula for dual learning.

In addition, there is a need for close cooperation between VET schools and local companies and partnerships between schools and SMEs, to ensure that work-based and school-based learning are smoothly synchronized with each other.

#### *Appropriate preparation of students for WBL*

VET schools by themselves can implement WBL and foster duality only to a limited extent and in exceptional cases (see the teaching factory model). They therefore have to prepare their students carefully for WBL periods in companies. One option is to apply comprehensive CBT. In any case, students should be accepted for WBL in companies depending on their learning performance in school.

#### *VET schools mediating between employer needs and skills development*

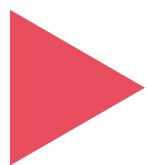
VET schools have an important mission in keeping the balance between extended flexibility of WBL and educational quality standards. They mediate between specific employer needs and the development of transferable skills that will be beneficial to individuals throughout their working lives. To allow both flexible and quality-oriented VET provision, VET schools must ensure synchronization of work-based and school-based learning by relating their students' abilities to the requirements at the workplace.

#### *Supervising students in WBL periods and supporting in-company trainers*

Staff in VET schools must fulfil their monitoring and coordinating function professionally. VET school staff, teachers and trainers must understand workplace requirements and support in-company staff in organizing appropriate learning processes. A service role for the companies must be in the foreground, as it is primarily a matter of implementing WBL in cooperation and mutual understanding between the school and the company.

VET schools must be reliable collaborators to the companies and social partners they work with. The best they can do is to continuously improve the quality of their education and training, and adapt it to new developments in the world of work. They should systematically build trust in the quality of their education and the attitudes and skills of their students. They need to develop effective and sustainable communication channels at all organizational levels to make cooperation as smooth as possible.





1

# Introduction

# Introduction

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The workplace is a powerful learning environment that enables the acquisition of numerous skills that are indispensable for successful participation in working life. Work-based learning (WBL) is therefore receiving growing attention, and it can be assumed that this form of practical learning has considerable potential for modernizing and improving school-based vocational education and training (VET).

Numerous studies across different countries provide empirical evidence of the benefits of WBL for learners. The European Training Foundation (ETF) published an exhaustive literature review in 2013, in which the benefits of WBL and the obstacles for its implementation were compiled and analysed from the perspective of the stakeholders involved, that is, students, companies, VET providers and society at large.

Students participating in WBL are enabled to acquire relevant technical skills as well as soft skills, transferable skills, communication skills, problem-solving skills and learning skills. Most available empirical data suggests that participation in WBL facilitates entry into the labour market and improves employment prospects when compared with purely school-based VET (for an overview, see Musset 2019).

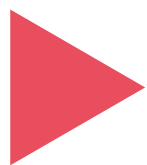
This study is intended to highlight the potentials of WBL in school-based VET and facilitate its implementation, because in many countries a large number of young people leave school after completing secondary education and enter into decent jobs without having any knowledge or skills for gainful employment.

The success of any kind of WBL is essentially based on fruitful collaboration between VET providers and companies at the local level and targeted coordination between the education system and the economic sector at the national, regional and sectoral levels. Shaping this relationship at different levels is a crucial task in modern VET governance, aiming to introduce or strengthen WBL components in school-based technical and vocational education and training (TVET) and to open up a perspective of duality, meant as a principle to structure professional learning by synchronizing (practical) training at the workplace and (theoretical) education in a VET school.

This study aims to identify innovative approaches and crucial components that allow the building of a coherent strategy for introducing or strengthening WBL in school-based VET.<sup>1</sup> Particular attention is paid to low- and medium-income countries. Due to a lack of resources and experience, introducing and strengthening WBL in school-based VET faces much greater challenges in these countries than in high-income countries with sometimes long-standing traditions of dual VET. Seen in a global perspective, there are very different forms of VET provision and many variants of WBL in school-based VET. Developing innovative strategies for WBL in a dual perspective is challenged by this diversity of approaches. Challenges vary depending on processes.

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<sup>1</sup>The term VET is used in this paper to cover all kinds of vocational education and training. In this respect, this general term also includes approaches that are referred to as TVET, especially in low- and medium-income countries. The term TVET will be used whenever reference is made to particularities in these countries.



## 2

## Setting the scene: WBL in school-based VET

# Setting the scene: WBL in school-based VET

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## ► 2.1. Terminology

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WBL has become a key issue in the international debate on workforce development, and the term has gained increasing attention in recent years, presumably because acquisition of practical work experience has often become a prerequisite for access to employment and an essential part of upskilling and reskilling.

As is usual in scientific debates, there is a range of definitions and understandings of WBL, depending on the perspective taken on this issue. Largely, WBL is used as an umbrella term encompassing all kinds of learning that take place in practical work processes. This broad understanding of WBL is reflected in the following definition: “Work-based learning refers to all forms of learning that take place in a real work environment. It provides individuals with the skills needed to successfully obtain and keep jobs and progress in their professional development. Apprenticeships, internships/traineeships and on-the-job training are the most common types of work-based learning. These types usually – but not always – combine elements of learning in the workplace with classroom-based learning.” (IAG TVET 2016)

The following definition of the ETF also provides useful clarifications and delimitations, which contribute to sharpening the term and deepening the understanding of WBL: “It is learning that takes place in a real working environment through participation in the work process (producing real goods or real services), irrespective of whether the learners are young people, students, unemployed or employees, or whether they are paid or unpaid.” (ETF 2017a)

However, there are many different perspectives on WBL, depending on the context in which WBL is located. It makes a difference to one’s understanding the concept whether WBL is seen as on-the-job learning without reference to school-based VET or as an integral part of formal qualification in the context of a school-based VET system.

## ► 2.2. Focus of the study

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The focus of this thematic study is on WBL in school-based VET. It covers various forms of WBL, starting from school-based VET and including characteristic components of WBL that are initiated, organized and monitored from there. The study aims to identify new and innovative approaches for strengthening WBL in school-based VET, allowing learners to acquire knowledge, skills and competences in schools and at workplaces, and thus to increase their chances of finding employment.

The subjects of this thematic study are neither classic apprenticeships nor forms of WBL that are unrelated to school-based VET programmes, like on-the-job learning, internships and work placements without any instructions, mediation and guidance from VET schools. Primarily, the study looks at





formally organized WBL or WBL in school-based VET and the inherent benefits for the learners, participating companies, VET schools and other stakeholders.

Large enterprises may have their own training classrooms or workshops, where employees can take time away from work to attend training sessions. For the purposes of this study, this is not considered as WBL. Following ETF (2017a), it is seen as classroom-based learning that happens to take place in an enterprise rather than in an educational institution.

The classic apprenticeships or alternance schemes, which are typically known as “dual systems”, also are not the subject of this study, as they are covered in other reports of this project. A quantitative dimension is often used to differentiate between apprenticeships and WBL in school-based programmes, although the percentage of learning in a school setting should not be seen as the only difference between apprenticeships and WBL in school-based VET. According to the concepts and definitions of the UNESCO-UIS/OECD/EUROSTAT (UOE) manual on formal education, “programmes should be classified as school-based if at least 75 per cent of the curriculum is presented in the school environment (covering the whole educational programme) or through distance education. Programmes are classified as combined school- and work-based if less than 75 per cent of the curriculum is presented in the school environment or through distance education” (UOE 2016, p. 18).

The quoted manual recommends that the 75 per cent cut-off point should be regarded as a general guideline that may need to be operationalized differently across countries. According to a recent study (Kis 2020) published by the Organisation for Economic Co-operation and Development (OECD), the work-based component in school-based VET programmes accounts for less than 50 per cent of the curriculum, whereas in apprenticeships the work-based component accounts for 50 per cent or more. The 50 per cent threshold as applied in the OECD study is consistent with the typology used by the European Centre for the Development of Vocational Training (Cedefop) (2014), which distinguishes between “school-based VET with on-the-job training periods” (maximum 50 per cent of duration in the workplace) and “alternance schemes or apprenticeships”.

The core of this study is WBL in school-based VET, which includes on-the-job learning periods in real working processes, primarily in companies, and exceptionally also in other organizations, in municipalities, NGOs, or even VET schools themselves, if they establish a real working process internally.

WBL periods in school-based VET typically cover internships, work placements, traineeships or periods of practical project work that are incorporated as a compulsory or optional element in the curricula or a specific module of a school-based VET programme leading to formal qualifications. “In some countries or programmes, they are a prerequisite to be able to successfully complete a VET programme” (European Commission 2013, p. 6). Such WBL periods can be of varying durations.

Practical project periods may last from one to several weeks; in Indian dual programmes, almost two thirds of the time might be devoted to WBL. Based on European experiences, the European Commission (2013) determines the following timeframes for WBL in school-based VET: “typically ... less than 50 per cent of the training programme duration (often around 25–30 per cent or less)” (European Commission 2013, p. 6).

A further core element of this study is WBL that is integrated into a school-based VET programme by creating learning environments and real work situations in a holistic manner. The responsibility for this model lies with the VET schools. There might also exist partnerships with companies in the region, with which coordinated projects or commissioned work are carried out. In these models, the management and the teachers at the VET school develop ideas and concepts to cooperate with the companies. In order to create such a “real-life” work environment, a VET school must be equipped with appropriate workshops, labs, kitchens and restaurants or must cooperate with business and industry to use their facilities. Although the share of learning in such working environments may vary depending on the type of VET, WBL will become a mandatory part of the curricula. “Such borderline cases are useful proxy to WBL.” (ETF 2017a, p. 16) They are not a substitute for the real thing, as they cannot create all the features of a real workplace, but they can be useful when alternatives are difficult to access.

Many countries combine in their VET systems all types of WBL, as mentioned above. In this case, the crucial question is how WBL is regulated and organized. This question is of central importance, and the answers to it determine whether VET students systematically participate in guided and monitored WBL periods, allowing them to develop useful skills and connect to employers, or WBL remains just an optional add-on (Kis 2020).

## ► 2.3. Benefits of WBL in school-based VET

The benefits of incorporating WBL periods in school-based VET are manifold for all parties involved, namely, the learner, the VET school, the participating companies, and society at large. The following table provides an overview.

**Table 1: Benefits of WBL in school-based VET**

Stakeholders	Benefits
<b>Learner</b>	Gaining competences required at workplaces/in companies Acquisition of transferable skills Increased motivation Relationship with employer (better chance to get a job)
<b>Company</b>	Simplified staff recruitment Lower turnover of labour force Innovative impulses and knowledge from VET school and learners
<b>VET school</b>	Better matching of VET delivery with industry needs Better reputation of VET school Motivated students Increased demand from learners
<b>Society/national economy</b>	Increased reputation of the VET system Better qualified workforce Coordination of labour market and education system – less unemployment

Source: Compiled by the author.

There is evidence that WBL can be a promising pathway towards better employment prospects, especially for young people, by enabling smoother transitions into the labour market (Quintini et. al. 2007). An effective implementation of WBL will support individual VET students in starting successful professional careers and will strengthen the reputation of the involved VET-schools and companies, as well as the VET system in general.

Data from Eurostat (2016), from the European Labour Force Survey, suggests that learners who graduated from a school-based VET programme that included WBL are less likely to be unemployed than those who did not receive WBL or who worked independently in a job unrelated to their training programme. Musset (2019, p. 23) presents the results of studies on the employment effects of WBL from a range of countries: “Arum and Way (2004) found that in the United States (using longitudinal data from more than 1,200 students) students who had undertaken a work placement while in secondary school had better labour market outcomes than those who had not – especially women. Neumark and Rothstein (2005), analysing longitudinal data, found that school-mediated internships boosted employment and decreased inactivity in adulthood, especially for women in the United States. In Denmark, population data taken from the national employment service shows that 55 per cent of the former clients had found employment through contacts first made during an internship (Paparella and Savino 2008).”

For the learners, an important benefit of WBL stems from the strong role of the workplace as a learning environment. There is evidence that WBL makes learning more attractive for students in school-based VET programmes. A range of literature on the practice for young adults highlights the impact of work exposure providing a particularly effective environment to acquire soft transferable skills (see, for example: Symonds and O’Sullivan 2017) and allowing learners to build up competences step by step (Sweet 2013). The literature also emphasizes the value of learning through demanding, difficult, actual work, and how this can engage and empower the learner in ways that cannot be replicated by off-the-job training.

Musset (2019, p. 25) also cites a study evaluating the benefits for companies, demonstrating that “WBL in school-based VET programmes (20–40 weeks in total) facilitates future recruitment and lowers its costs, while increasing the skills and motivation of company staff, especially those employees who supervise students. Employers reported that all students do some productive work, but students who carry out their traineeship in the third (final) year of the programme are more skilled and therefore more productive than those in earlier parts of their programme (Karlson and Persson 2014).”

## ► 2.4. Objectives and structure of this report

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This report is part of a broader study by the International Labour Organization (ILO), a research project that aims to develop innovative strategies for modernizing apprenticeships with the perspective of lifelong learning and skills for the future of work. The study is based on the observation that traditional school-based VET systems are often not well-equipped to respond to the fast-changing skills needs in the labour market. It is assumed that the use of apprenticeship models or dual training systems involving enterprises and allowing WBL can be an effective solution for the future of work.

A large majority of VET students acquire their knowledge and skills through institutional training in VET schools or TVET centres. The training provided by these institutes is widely considered to be of low relevance for the local (and wider) economy. Employers in several countries complain about the work-readiness of graduates from such institutes. In order to improve the relevance of training,

this study aims at presenting new perspectives on how to strengthen WBL in school-based VET or, in other words, how to strengthen “duality” by synchronizing practical training at the workplace and education in a VET school.

The study aims to identify the various components of WBL for introducing or gradually strengthening duality in school-based VET. As shown in the previous section, introducing even short periods of WBL in school-based VET brings considerable benefits to all stakeholders involved.

In the following section (3.1), existing regulatory barriers preventing the introduction of WBL in school-based VET are identified; in contrast, practical examples and case studies are presented, demonstrating how innovative policy and governance frameworks for school-based VET may encourage and strengthen WBL.

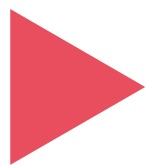
In section 3.2, further examples and case studies are presented and analysed, providing interesting insights and ideas into how employers and social partners can be included in the development and organization of WBL and how cooperation between VET schools and local employers can be intensified.

Finally, section 3.3 presents tasks and challenges for VET schools and TVET centres that go hand-in-hand with introducing and strengthening WBL. As in the other sections, practical examples are used to examine which activities VET institutes can undertake to adequately prepare their students for WBL and how they can coordinate learning at work and at school in cooperation with local employers.

In the final chapter (section 4), conclusions are drawn from the research into the main areas of the study, and key issues and potentials of the innovative approaches for strengthening WBL in school-based VET are discussed.







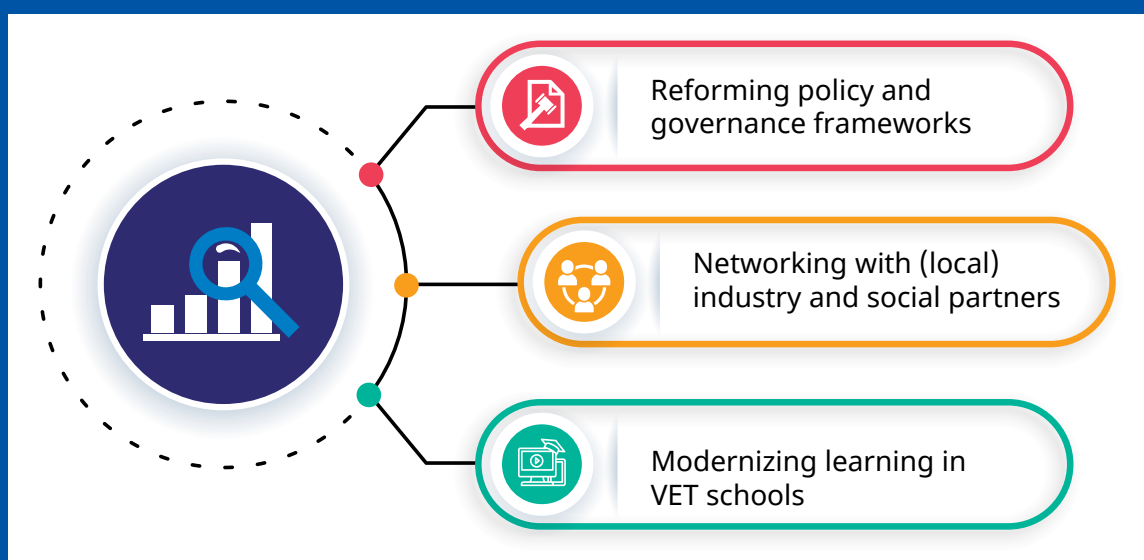
# 3

**Overview of  
initiatives to  
introduce and  
strengthen  
WBL in school-  
based VET**

# Overview of initiatives to introduce and strengthen WBL in school-based VET

The following presentation of policies and initiatives to introduce and/or strengthen WBL in school-based VET distinguishes between three analytical areas (see figure 1), which in practice are mostly intertwined and connected with one another. This applies in particular to activities aimed at strengthening cooperation with industry, which are always related to activities in the other areas, although the goal of cooperation is pursued from different starting points and with different strategies. The networking area must be considered from the perspectives both of the policy and governance frameworks and of VET schools: The policy and governance frameworks must define the role of the social partners and promote WBL for VET students in companies; VET schools must modernize their approach to learning and cooperate with companies to enable WBL for their students. In both respects, networking and cooperation with social partners and (local) industry have a key function and are therefore addressed as an independent research point.

**Figure 1. Main analytical areas and their linkages**



*Source: Authors' analysis.*



### ► 3.1. Reforming policy and governance frameworks

New technologies and constant changes in global production and value chains make continuous responsive adaptations of VET systems to requirements in labour markets a permanent task. Enhancing the flexibility and governance of the VET system is seen as an important drive to adapt institutions and programmes to the needs of employers, individuals, and the local labour market (OECD et al. 2016). In the following sections, innovative approaches from different countries are presented and discussed, demonstrating how changes in policy and governance frameworks have removed administrative barriers to the introduction of WBL by giving more financial, administrative and curricular leeway to VET schools.

#### General conditions and promotion of WBL

In countries with poorly developed school-based VET systems that do not have traditions of social partnership and WBL, system-related responsiveness to new challenges is usually not widespread. Organic reform efforts that build on each other are rarely seen, whereas changing political objectives and reform approaches are more frequent. Changes in VET policies result from structural changes in the education and training system and/or overall political and social factors, notably youth unemployment, demographic developments and regional turmoil.

To an extent, such political ambiguities exist because TVET is managed under varied and changing government departments, with the result being that the TVET sector is stagnating and disparities in training standards are growing (Whaba 2012). Due to changing or unclear responsibilities, there may be many separate draft strategies led by many different authorities and stakeholders, without a coherent TVET law that incorporates apprenticeship or WBL. Fragmented and sometimes even contradictory legislation may leave WBL schemes as isolated islands (El-Ashmawi 2018).

Besides the strategies led by donor-funded projects, there might be numerous initiatives undertaken on an ad hoc basis by different actors, but in the medium and long terms, their sustainability is doubtful if corresponding regulations and governance arrangements do not lead to coordination and consolidation (OECD 2017a).

It is against this background that the OECD, the ILO and the World Bank in their 2016 report titled “Enhancing employability” for the G20 Employment Working Group have highlighted the “importance of policy coherence through a whole-of-government approach with full stakeholder engagement, including the private sector, and strengthened interactions between the world of work and the

world of education and training” (p. 4). Using the concept of governance indicates that traditional hierarchical control is replaced or at least complemented by an authority that coordinates the VET system by adopting instruments such as dialogue, negotiations and de-centralized self-coordination, derived from mechanisms applied in the market system. Dialogue and negotiations can take place at different levels, in different forms and in variable combinations of relevant stakeholders, in specially created institutions and professional networks, sector skills councils, national and regional VET platforms, assessment commissions and boards of VET schools.

### Decentralization of VET governance

Ukraine has set itself the ambitious goal of increasing VET enrolment by school graduates to 45 per cent, and has adopted a corresponding law including provisions for WBL. Decentralization of VET governance and funding is the most important requirement for achieving this goal. A transfer of power and responsibilities from the state level to the lower levels of governance has been initiated. At the same time, the autonomy of VET institutions has been increased to better adapt vocational qualifications, curricula and acquisition of skills to the needs of the regions and the local economy (ETF 2019).

Many countries have plans to develop their school-based VET systems in the direction of increased promotion of WBL through stronger cooperation with the private sector; according to Whaba (2012), the current governmental plans in Egypt, Tanzania, Liberia, Botswana, Zambia, South Africa, Kenya and Jordan (for more details about Jordan, see section 3.2) emphasize the development and promotion of WBL in the TVET sector.

### Promotion of WBL in school-based VET

**Armenia:** For the curricula of selected qualifications, specific modules have been elaborated, which the VET schools have to conduct together with companies (ETF 2019).

**Azerbaijan:** The country recently designed and adopted a national legal framework as well as standards for the promotion of WBL and cooperation of VET schools with employers, including the approval of a standardized contract form for completion of WBL (ETF 2019).

In **Moldova**, internships, which are normally unpaid, are an integral part of all upper secondary VET programmes. All students must complete at least one internship, and internships normally last for two to three months. Contracts between specific vocational schools and specific employers make it easier for students to find placements. Students are monitored by teachers from their schools during their placements (ETF 2018, p. 11).

A clearly articulated policy and governance framework is essential to overcome the constraints on establishing an effective WBL approach for school-based VET. Thus, government, either at the national or the regional level, has an important role to play in the development of WBL in a school-based VET system. On the one hand, this refers to the legislative, institutional and financial frameworks for promoting WBL in the VET system; on the other hand, this term subsumes the means and methods by which this framework is coordinated, monitored and controlled.

As part of its role, the government needs to be a facilitator, bringing together the social partners and responsible actors from the education sector (for example, by ensuring their involvement in the design of occupational profiles and curricula) and by defining mechanisms for their coordination and interaction at different levels (for national variations across the governance systems in a number of European countries, see for example Cedefop 2013).

In classic apprenticeships, social partners, VET schools and participating companies have a say both in the design of VET programmes and in their implementation, ideally with an “equal power-sharing between actors from the two systems” (Rageth/Renold 2017).

### Flexibility, modularization and individualization

To enhance WBL in school-based VET systems, regulatory and governance frameworks must allow and promote the necessary leeway for networking and cooperation between the public education system and the private sector by taking into consideration and modernizing national traditions. In a number of countries, rigid curriculum requirements for TVET courses and programmes still frequently limit the ability of VET providers to strengthen WBL, foster cooperation with employers and adapt the design and delivery of programmes to the needs of local industry (Whaba 2012).

In contrast, flexibilization, modularization, individualization, and adaptation of VET to the needs of companies and learners can be seen as the key to modernizing school-based VET in a dual perspective, as demonstrated by the following snapshot example.

#### Finland: Fostering WBL through increasing flexibility

With its latest reforms in 2018, the Finnish VET system may serve as a master example of flexibilization of pathways and curricula. The reforms aimed to systematically strengthen the role of WBL in a school-based VET system, by making qualifications, programmes, pathways and types of learning as flexible as possible, and to align them with the needs of the learner and the demand in the labour market. The system applies to both young learners and adults. VET providers are encouraged to strengthen cooperation with employers through a performance-based funding system. Delivery of VET is characterized by a flexible blend of school-, work- and online-based learning.

#### Flexible WBL components

The 2018 reforms decreased the number of qualifications provided, and qualification content was broadened to support individualized learning pathways and enable more rapid responses to the changing competence needs in working life. The governance framework allows VET providers to adapt qualifications according to employer-specific, regional and personal requirements. Previous learning is recognized, and students acquire only the missing skills. A personal competence development plan is drawn up for each student. WBL may be provided during the whole programme duration and may cover the whole qualification, a module/unit or a smaller part of the programme. The most suitable method for a learner is agreed upon in the personal competence development plan. Legislation does not stipulate a maximum or minimum amount of WBL.

#### Apprenticeships and training agreements

Any qualification can be acquired through apprenticeship training or a training agreement, and a learner may flexibly transfer from a training agreement to apprenticeship training. In addition, training via a training agreement may be used as a pre-apprenticeship that may lower the threshold for an employer to recruit an apprentice.



Apprenticeship is a work-based form of VET with a written fixed-term employment contract between an employer and an apprentice. The student is a full-time worker and receives payment. Since the VET reforms of 2018, there has been no indication in the legislation of where the theoretical part of training should be acquired. The term “theory” is no longer used; instead, “learning in the working place” and “learning in other environments” applies. If the company is able to cover all training needs, there is no need for the learner to attend a school venue at all (Cedefop 2019, p. 36).

Under a training agreement, learners are not in an employment relationship with the company. They do not receive any payment and the employer does not receive any compensation. The agreement is drawn up between a VET provider and a company. No minimum or maximum number of hours is set for competences to be acquired in connection with practical work tasks. Instead, education and training at the workplace are planned as part of the personal competence development plan, taking into account the competence needs of the workplace and the individual learner.

According to a recent study on the experiences of stakeholders since the latest reforms, the flexible study paths are not yet fully realized. The number of transfers from training via a training agreement to apprenticeship training seems to still be modest, and the practice should be further encouraged (Rintala 2021).

*Note: For further information on WBL in the Finish school-based VET system, see the attached case study in the annex.*

In Finland, such a high degree of flexibility is possible without the risk of disregarding educational standards because for many years there have been coded quality standards for VET that are widely recognized and accepted by all stakeholders involved. In addition, there are solid, trust-based cooperation relationships between VET schools and employers. Nevertheless, there are indications that the extensive autonomy of VET providers and companies could lead to unequal practices. “As there is less regulation and standards, the certification process may become less comparable and transparent.” (Rintala 2021, p. 23) The National Audit Office (2021) has emphasized the need for some degree of harmonization in operating methods.

It is not a silver bullet to leave the organization of WBL to companies and VET schools. Rather, it is a matter of maintaining a balance between standardization and flexibility, defining clear responsibilities for both partners and checking compliance with agreed standards. Flexibility alone is not the universal solution for strengthening WBL in school-based VET. There must be a framework of standards, although this should be redesigned, altered and adjusted from time to time, as changing circumstances may demand.

Flexibility requires not only autonomy for local VET providers but also the necessary (financial) resources to train and prepare their staff for cooperation with companies and supervision of WBL periods. Although WBL with companies has been promoted in Finland, VET schools are expected to shoulder the main responsibility for active collaboration. VET providers have emphasized the lack of interaction between workplaces and schools, as well as the difficulties faced in aligning work-based and school-based learning in a meaningful way (Rintala 2021).

In every respect, it is important to develop solutions for WBL that are adapted to their context and to create prerequisites that involve a large number of small and medium-sized companies in WBL. This is what India’s Dual System of Training (DST) is aiming for.

### The Dual System of Training in India

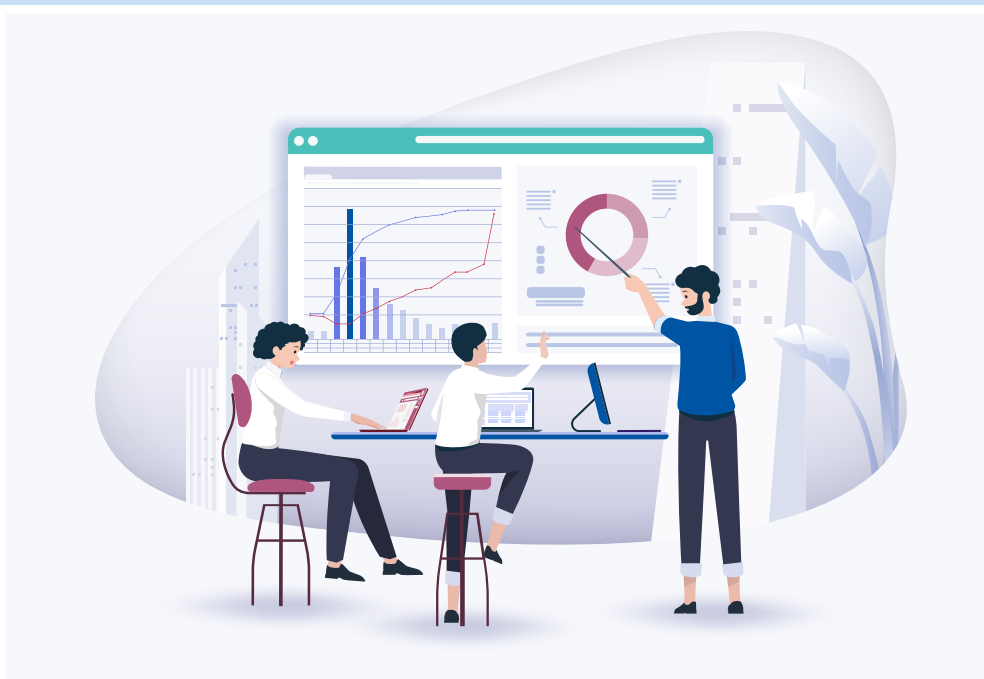
The DST scheme is a programme that was introduced to supplement the traditional Craftsmen Training Scheme (CTS), providing access to real-life work situations for students, thereby enhancing their employability and reducing existing skills gaps in industry. DST encourages Industrial Training Institutes (ITIs) and industry partners to participate in the scheme within the regular training duration of a specific trade and within the ITI ecosystem, which strengthens the connections of ITIs and trainees with industry and imparts quality WBL to trainees.

The scheme consists of a mixture of theoretical school-based learning imparted by VET schools and practical WBL taught by industry. To increase and promote the participation of industry and especially of small and medium-sized companies in the scheme, it was revised in 2019. Under the revised version, participation is open to all trades, and the minimum number of employees and annual minimum turnover for eligibility have been lowered considerably. In addition, the duration of WBL has been made more flexible; VET schools together with partners from industry have the freedom to choose their training patterns, as per mutual understanding and suitability.

#### *Available information on programme performance*

- Opening up the scheme to all trades, in particular to trades in the services sector, enabled extended participation of female trainees in VET.
- Micro industry has begun to get more involved in the implementation of DST after the minimum size for eligibility of enterprises (in terms of number of employees and turnover) was reduced.
- The flexible partnerships between VET schools and industry allow adaptation of curricula as well as flexible agreements on the duration and mode of WBL periods.
- As a side effect of increased contact with companies, ITI instructors are introduced to the latest technology and are trained in machinery used in industry.
- With the extension of WBL, ITIs are recognized as reliable partners for industry.
- Employment prospects for DST graduates are positive because the otherwise-needed introduction training for new employees can be omitted.

*Note: For further information on the DST scheme in India, see the attached case study in the annex.*



According to information provided in an interview with the principal of an ITI, the far-reaching flexibility of companies and VET schools in organizing WBL periods under the DST scheme has created deeper contacts and more trusting relationships between the partners. The company-based training can be smoothly counterbalanced by accompanying monitoring, for which the VET schools are responsible. The schools prepare a weekly schedule for the WBL periods, in line with the trade curricula, as well as the agreed-upon block mode/multiple block mode/mixed mode, and they monitor the students' progress during WBL in industry by making visits at regular intervals.

### Financing of WBL

Sparse public funding and additional costs for the implementation of WBL components often are a general barrier to WBL. A common reason for failures in the implementation of WBL in cooperation with VET schools and industry is a lack of resources. Particularly in low- and medium-income countries, many VET institutions struggle to secure funds for their normal operations, and are unable to build up cooperation with small and micro enterprises. Provision of financial and non-financial incentives is a necessary element to promote WBL in a school-based VET system and ensure the quality of the system.

Policy and governance frameworks should ensure that public funds are available to help VET schools with managerial and administrative tasks and to provide incentives for teachers and trainers to adapt curricula and learning processes and synchronize learning at school and at work. Subsidies are needed for both students and employers, to cover expenses that are required but not covered otherwise – for example, costs for social security and accident insurance of the learners, if these are not borne by the company. Financing mechanisms should also promote affirmative action and appropriate support for learners from vulnerable groups.

For companies, the costs of participation in WBL and their expenditure on mentors, trainers and supervisors for the learners, as well as on machinery and training equipment, may be subsidized directly by public means, or compensated through tax reductions or preferential treatment in the awarding of public contracts.

### Status of students in WBL

There is often a lack of clear regulations on the status of VET students during WBL periods. Their social and financial security during these periods needs to be clearly regulated, along with their health, accident and social security issues.

The ILO is in the process of developing a new International Standard on Apprenticeships, in which a brief section is also proposed for internships/traineeships. This will enable companies to give certain entitlements to trainees, without providing them with worker status. According to this standard, it should be ensured that trainees:

- have a written traineeship agreement with the host enterprise or public administration, as the case may be;
- receive appropriate remuneration;
- are not required to work hours that exceed specified limits;
- are entitled to holidays with pay, depending on the nature and duration of the traineeship;
- are entitled to paid leave for absence due to illness or accident, as appropriate;





- ▶ are afforded the same protection and receive the same training as others in the workplace in respect of occupational safety and health and in respect of discrimination, violence and harassment; and
- ▶ are entitled to compensation for work-related injuries.

There is evidence that, in some countries, particularly those with mature TVET systems and governance and administrative arrangements, there has been a significant increase in the number of TVET students engaging in WBL as part of their occupational preparation. All of this suggests the importance of stability in government and key social institutions, and the need for concerted efforts to identify and realize long-term goals (UNESCO 2020).

### ▶ 3.2. Networking with (local) industry and social partners

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In most countries with poor traditions of cooperation between the education system and the employment system, WBL components are weak in formal VET programmes and cooperation between VET schools and companies rarely exists.

In quite a few countries, this might be due to the public image of the TVET system as the “last choice” for those who have “failed” in society. In other countries, the informal sector plays a strong role in the provision of practical workplace-based training. In many African countries for example, both systems co-exist, and the informal sector is often found to overwhelm formal VET provision because families are traditionally familiar with education in the informal sector whilst formal VET is often not clearly regulated or is opaque (OECD 2017a).<sup>2</sup>

In addition, there is a structural weakness in the umbrella organizations of social partners, both employer organizations and trade unions, which is due to low membership of companies and workers in these organizations. A detailed analysis of strategies to increase participation of companies in apprenticeship and WBL is undertaken in another thematic report of the ILO’s Apprenticeships Development for Universal Lifelong Learning and Training (ADULT) study on “Unlocking apprenticeship potential in enterprises”.

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<sup>2</sup>Informal apprenticeships are common in many low- and middle-income countries. They account for the majority of skill development in African countries such as Ghana, Benin and Senegal. They are also very common in countries such as Pakistan, Morocco and Algeria, where they are important in industries like agriculture, construction, fishing and traditional crafts (ETF 2014, p. 20).

### Strengthening the role of the private sector

A number of Eastern European and Near Eastern countries are trying to counteract structurally weak partnerships between the VET system and the private sector through the creation of sector councils, organized by type of economic activity, and through strengthening the role of the private sector in WBL:

- **Georgia** supports the implementation of sectoral skills organizations, and has strengthened the responsibilities of the private sector for WBL and institutionalized the final examination of graduating VET students via the private sector.
- In **Belarus**, the mechanisms for interaction between public authorities, VET schools and employers have been redefined and a stronger role has been given to tripartite sector councils in developing curricula and standards for assessment of WBL.
- In **Kazakhstan**, national policy regulations on WBL in VET have been designed and implemented to include the establishment of a system of independent sectoral certification.

*Source: ETF 2019*

Across countries, there are a variety of conceptions, formulations and implementations of social partnerships, and many different levels of engagement in the governance and implementation of TVET. However, the quantity and quality of engagement by employers is central to providing WBL everywhere. The best examples are where the social partnerships operate at the national, regional and local levels, and where they extend to working relationships between individual workplaces and TVET institutions (UNESCO 2020).

### Jordan

A pilot project is currently being implemented in Jordan aimed at companies, TVET institutions and two universities with a technical focus in order to promote their cooperation in educating young people. Many, especially young people, work in the informal sector, which accounts for 44 per cent of employment in Jordan. At the same time, companies are looking for qualified professionals, but universities and education institutions in the TVET sector are considered to be theory-heavy and not in touch with demand. Involving companies and social partner organizations in the TVET and higher education system aims to promote both structural integration of theory and practice through extensive WBL periods and employment opportunities for the students (GIZ 2021a).

Another aspect of promoting social partnership that is underdeveloped across many countries is the role social partners might play in encouraging greater social inclusion. This includes the involvement of young women in TVET and the workforce, and assisting those who are disabled or otherwise marginalized, such as migrants and refugees (UNESCO 2020).

The experiences of many countries developing WBL in their VET systems demonstrate that strong, regional and/or sector-based employer associations and workers' associations are needed to create a functioning system. In the case of apprenticeships, this approach has been empirically tested and its effectiveness has been proven in many countries. Here, employers participate – through their business organizations – in the design of curricula, in the definition of contents, modes and durations

of work-based training, and in the organization of assessments of students. Trade unions also play a vital role designing curricula according to occupational standards, in making efforts to ensure that WBL students get adequate financial support, and in ensuring that they receive high-quality training in WBL periods with substantial elements of transferable skills and knowledge.

Apart from the structural role of social partners at a governance level, a key issue for introducing and strengthening WBL in school-based VET is fruitful cooperation of schools with local companies and partnerships between schools and SMEs. Initiating and sustaining communication on this level will ensure that training and education in WBL periods really fits into school-based learning. It is through cooperation at these levels that details for coherent VET programmes are created, and that work-based and school-based components are smoothly synchronized with each other.

### **Dual learning in the Flemish Region**

Since 2019, the region of Flanders in Belgium has operated a “dual learning” pathway, which is a school-based VET track including WBL to supply a skilled workforce and meet labour market needs. Competence training is balanced between a company workplace and a VET provider; it is compulsory to alternate training between the two learning venues, with WBL making up 50 per cent or more of the total scheme duration.

The training plan is based on a regionally developed curriculum (Flanders), but it can be personalized. The company and the VET provider are jointly responsible for the training and the achievement of the learning objectives. The provider retains overall responsibility for the learning pathway and the qualification. Teachers visit the workplace on a regular basis, while both teachers and in-company trainers closely monitor the development of competences.

The region has established Vlaams Partnerschap Duaal Leren (Flemish Partnership Dual Learning) as a structural network and centre of governance. The partnership is a council with representatives of employers and employees, educational institutions, training centres for entrepreneurial training, the regional public employment agency, the Department of Work, and the Department of Education. The Partnership is working in close cooperation with sectoral partnerships aiming to strengthen the engagement of sectors, the quality of learning in companies, and the development of synchronized curricula for dual learning. Responsibilities are as follows:

- towards policy: legislative and governance advice
- towards stakeholders: support in quality assurance, curricula development, recognition of companies and transition from education to work
- towards society: informing learners and companies

*Source: Cedefop 2019c; Haesarts 2021.*

The Mexican Sistema de Educación Dual (SED) is another ground-breaking example of establishing a dual WBL programme in a school-based VET system. It has a large number of partners working together on different levels by using a variety of communication channels.

### **Mexico: Sistema de Educación Dual**

The SED was introduced by the Ministry of Education (Secretaría de Educación Pública) as a variant in the second cycle of secondary education, which is divided into a general education variant (secundaria general) and a vocational variant (secundaria técnica). Students opting for the “dual modality” of secundaria técnica are trained in a company, with accompanying lessons in a VET school. They retain their status as school students and are the responsibility of the Ministry of Education. Once they graduate, the students obtain a double qualification, that is, the general university entrance qualification and a (school) qualification in their respective profession.

The introduction of the SED goes back to the development needs of the Mexican economy and is in particular a response to the skills needs in the automotive and export-oriented industry (Figueroa Saldaña 2021). The Mexican model of dual vocational training originally began in 1993, with cooperation between CONALEP and Mercedes-Benz (Wiemann 2020). It is a clearly demand-driven approach, which is implemented by a complex system of social partnership, and is continuously being further developed by this system.

#### **Social partnerships**

Cooperation between the public education system and the private sector is organized by a large number of partners who communicate with one another in various committees. In both sub-systems, the responsibilities on each hierarchical level – from the overall planning and coordination to the implementation of the learning processes for the students – are interlinked and mirror each other.

On the side of the private sector, dual VET is promoted mainly through the Business Coordinating Council (CCE) and its integrating business chambers. The structuring and further development of the dual VET system rests with a Strategic Technical Committee, which is represented by the Ministry of Education, the CCE, and further organizations from the private sector. These sector-specific business organizations, operating at the national, regional or local level, act as intermediaries between the national business association and the associations of educational institutions. Another committee works to pool the interests of the twelve participating private sector employer associations in dual VET and to provide representation vis-à-vis the Ministry (Wiemann 2020).

The results determined by programme monitoring show that the SED is clearly superior to purely school-based VET: 83 per cent of the companies and 84 per cent of the VET schools participating in the SED consider dual VET graduates to be better prepared for employment than graduates from the traditional TVET system (GIZ 2021). SED is a sustainable approach that is continuously developing further because there is intensive communication on many levels between the education system and the private sector, supplemented by vital networking within the two sub-systems themselves. In particular, this networking underlines the considerable interest in dual VET being shown by the private sector economy. \*

#### **VET schools and companies**

VET schools play an important role in making the model a success. They have to prepare the students carefully for the WBL periods in companies. Students regularly attend full-time school-based teaching in their first year. Only those students who have done well and are at least 16 years old may be nominated by their teachers for participation in the SED model; the final decision for admittance rests with the companies.

*Note: \* For further information on the SED in Mexico, see the case study in the annex.*

### The role of intermediary organizations

In a number of countries, intermediary bodies have been established in order to provide support to VET institutions in introducing or strengthening WBL components in their programmes. In addition, intermediary organizations might support SMEs in delivering the full range of training content by liaising with other employers and allowing joint implementation of WBL components (ETF 2017a).

In India, an intermediary structure has been set up to support the implementation of the apprenticeship system but not DST. This structure is intended to help SMEs in particular, with the paperwork and administrative burden associated with participation in the scheme.

A more detailed analysis of the role of intermediary organizations is undertaken in the thematic report of the ILO ADULT study on “Unlocking apprenticeship potential in enterprises”.

## ► 3.3. Modernizing education and training in VET schools

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A common reason for failure in the implementation of WBL in cooperation of VET schools with industry is the lack of resources in VET schools and their lack of skills and experience with the establishment of reliable cooperation with companies. The latter quickly lose interest in working together if they do not see any economic benefits but only an additional burden.

If employers are not willing to train VET students and/or employ TVET graduates and if they do not value their qualifications, this might be partly due to weak social partnerships and negative public attitudes towards VET in the country. However, there might to be a problem with the TVET institutions and the quality of their training provisions, too.

### Readiness of VET students for WBL

Quite a few VET students who go to internships lack relevant vocational skills and sometimes also basic professional habits such as reliability, discipline and punctuality, which are essential in working life. For a substantial proportion of young students, there is also sometimes a lack of good foundation skills in literacy and numeracy. In Zambia, employers have reported that TVET graduates required considerable upskilling before they could be usefully employed (OECD 2017a). VET schools must consistently align education and training with the requirements of real-life work processes to prepare their students adequately for WBL periods in companies.

Cooperation between VET schools and companies will succeed if it can build on the strengths of education and training in the school and on corresponding attitudes and professional competences of the students.

### Expansion of trades for WBL

The enrolment data of TVET institutions indicate a low percentage of women among those participating in vocational training opportunities (Whaba 2012). Traditionally, especially in many low- and medium-income countries, TVET was regarded as a provision for young men only, and women were neglected in national government development plans. Most TVET facilities across the world have been planned without considering training options for women. Under-representation of women is also due to the traditional focus in both formal and informal WBL on traditional occupations dominated

by men (OECD 2017a). There are positive examples wherein policy reforms to enable the expansion of trades for WBL have extended training opportunities for young women, especially in the service sector (see the DST in India, section 3.1), whereas in other countries, there is still only a narrow range of occupations available for the vocational education and training of women. For both formal and informal apprenticeships, there is only a slow shift of focus from blue-collar, manual occupations (OECD 2017a). Where strong data is available, participation of women is concentrated in just a few traditional “female courses” like dressmaking, hairdressing and cooking (Sennou 2017), but there is also a growing presence of women in car mechanics, electricity and woodwork.

### Competency-based education and training

Although they depend on the policy and governance frameworks that are applicable in their individual contexts, the VET schools themselves are also crucial actors. VET schools have extensive opportunities to strengthen WBL by modernizing their approach to teaching and learning in a dual perspective. To make this happen, VET schools must “change their mind-set” (Musset 2019), start to implement VET delivery in cooperation with industry and promote a corresponding reorganization of their education and training.

An essential step in this direction is practising competency-based training (CBT). CBT is a structured training and assessment system that allows individuals to acquire skills and knowledge in order to perform work activities to a specified standard as expected in a real-life workplace environment. The three main pillars of CBT are (i) performance of competences (skills/knowledge/attitudes) that are derived from labour market demand; (ii) criteria/standards that are defined by labour market requirements; and (iii) conditions that simulate or replicate real-life workplace environments. CBT entails mastery of each competence in the training programme before the certificate/qualification is granted.

Some countries, particularly in Africa, have adopted the CBT methodology as an alternative to a system of dual vocational education and training, due to the absence of enabling conditions for implementing the latter; students in formal TVET institutions spend a significant amount of time alternating between the classroom and working in labs, workshops or an industry environment in a partner company. This can help to make the links between CBT and WBL very clear, as the competences and the performance criteria are derived and defined by/with the labour market and performance is situated in real (or simulated) workplace environments. The ILO (2020) has published a manual for the development of CBT.

CBT is not the same as WBL, but it introduces students to the (professional) requirements that prevail at a corresponding workplace. The training method has many attributes and objectives similar to the approaches applied in dual VET systems. These include:

- clear competence standards that can be measured against industry-specified occupational standards;
- education and training linked to the skills needed at the workplace;
- an assured skills development system that is responsive to the expectations of all stakeholders, including learners, training providers and involved companies.

The main challenge in introducing or strengthening the CBT approach in low- and medium-income countries is building the enabling environment.





Many countries have had advanced steps in establishing occupational standards with industry and building curricula based on competences but have failed to integrate CBT into the VET system and schools. Implementation of a CBT approach requires changes in VET schools' way of management, as well as in instructor timetables and schedules, and other administration issues. If most work is related to curricula writing, the benefits that CBT could introduce by integrating classroom and workplace learning will not find their way into implementation (Afeti 2019).

Consistent implementation and an empirically proven approach to strengthen CBT are described in the following example. In countries with a strong apprenticeship culture, the competency-based approach is a widespread standard, while systematic implementation of this approach is a challenge in other countries.

#### **CBT in a VET school as a prerequisite for strengthening duality/ITEC Asyut in Egypt**

The VET school in Integral Technical Education Cluster (ITEC) Asyut pursues a consistent CBT approach, both in capacity building for its teachers and trainers and in the education and training of its VET students. Teachers are systematically familiarized with the methodological competences for planning and implementing CBT. Students are confronted with and prepared for the requirements at the workplace in companies. Teaching and learning are oriented towards developing competences as derived from the occupational standards of the various professions. They are implemented by means of carefully planned project work and case studies, which consistently apply a knowledge-based taxonomy. Accordingly, learning processes are organized along the instructional strategic steps of knowledge, comprehension, application, analysis, synthesis and evaluation.

Recognizing the results of these efforts, local and regional employers are increasingly interested in offering internships to VET students. Employers value the professional skills of the students, while in the past, when students were poorly prepared, they were rarely willing to offer internships. This snapshot example illustrates the importance of competence-based education and training in VET schools as a crucial prerequisite for the provision of successful internships in industry and, in the long run, for opening up a perspective of increased duality (Ahmed & Sayed 2021; Ahmed & Sayed 2020).

*Note: It should be emphasized that this initiative was financed as part of a debt swap program by the German KfW bank and was supported by German vocational training experts.*

Ahmed & Sayed (2020, 2021) report their experiences with implementation of CBT in ITEC Asyut in Egypt, and on the difficulties and challenges of implementing demanding, up-to-date VET training:

- The students are used to academic-style, up-front teaching in classrooms, which is why CBT turned out to be a challenge. Many also lack basic scientific and mathematical knowledge (literacy and numeracy).
- For the teacher, it is not easy to take on the role of a practically-oriented competence trainer, due to their academic background and lack of experience in industry.
- Labs and workshops are usually not appropriately equipped, and their machinery is outdated and not in working condition due to a lack of professional maintenance.

However, the readiness of local companies to enable WBL increases when VET students demonstrate relevant professional skills and appropriate work virtues. The lower the effort and cost of participating in WB are for companies, the more they regard their involvement as an investment with significant returns over time.

In Finland, CBT was promoted to better interlink school-based learning and WBL. The experience suggests that CBT has promoted customer-orientation by making studies more flexible and more individualized (Korpi et al. 2018). Nevertheless, monitoring and evaluating the results of the approach required further development from the VET providers (Rintala 2021).

The evaluation of the CBT methodology piloted in Ghana in some trade areas, notably Welding and Fabrication, and Mechanical Engineering Craft Practice, showed that most of the students on the CBT programme were offered employment packages by the collaborating or partner companies even before they graduated (Honorati & Johannsson de Silva 2016).

### Making use of digital learning and virtual reality environments

Another approach to modernize WBL within school-based VET, which has recently received a strong push due to the COVID-19 pandemic, is the use of digital learning and the application of virtual reality (VR) environments.<sup>3</sup> Virtual learning cannot fully replace workplace-related experiences, but certain professional competences can surely be acquired through virtual simulations. In promoting this approach, it is important to remember that investing in VR environments in VET schools is (still) quite expensive, which is why this approach is difficult to implement, especially in low- and medium-income countries. However, this may open up a new, innovative field for international donor initiatives and development cooperation.

At the European level, tools have been developed to support innovation and digitalization in educational institutions. The European Commission (2020) has developed a self-assessment tool, called Self-Reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies (known as the SELFIE tool), which can help educational institutions to further embed technology for teaching and learning by reflecting on their digital policies and practices and developing organization-wide strategies and improvement plans.

### Preparing, guiding and monitoring WBL periods

The following table contains an overview of crucial issues that have to be taken into account when carrying out WBL with cooperation between VET schools and companies, and how these issues should be addressed by adequate formal policy and governance frameworks for WBL in school-based VET.

These issues include the preparation of WBL periods, support and quality assurance of the implementation process, validation of students' achievements, and evaluation of WBL experiences for future cooperation between VET schools and companies.

<sup>3</sup> For further information on the potentials of digital learning in VET, see the thematic report of the ILO ADULT study on "Promoting apprenticeships to meet skills needs of the digital and knowledge economy".



**Table 2: Some initiatives and steps to strengthen WBL**

	Strengthening enterprises and developing practical tools for enterprises and students	Formal frameworks
<b>Input</b>	<ul style="list-style-type: none"> <li>• Screening of employers by schools before students take part in work shadowing or work experience</li> <li>• Selecting students carefully so that enterprises are not asked to train those who are not interested</li> <li>• Classes to prepare students for work placements</li> <li>• Skill list that show students what they need to learn</li> <li>• Skill lists that show enterprises what they need to teach</li> </ul>	<ul style="list-style-type: none"> <li>• Regulations that require enterprise trainers to have formal qualifications and experience</li> <li>• Requiring enterprises to be able to teach the full range of skills in the on-the-job curriculum before they take trainees</li> </ul>
<b>Processes</b>	<ul style="list-style-type: none"> <li>• Local steering committees for programmes that bring schools and enterprises together</li> <li>• Regular visits to enterprises by teachers, employers' chambers or similar organisation to help them with training problems</li> <li>• Involving employers in selecting students for work placements</li> </ul>	<ul style="list-style-type: none"> <li>• Requirements for all training occupations or apprenticeships to have a tripartite training committee</li> <li>• Regular inspection of apprentices' working conditions by government representatives</li> <li>• Regulation to accredit only programmes that have formal quality processes in place</li> </ul>
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>• Debriefing enterprises after placements to check whether there were any problems and discuss ways to address these problems</li> <li>• Debriefing students after their work placements to see what they have learned, and to check whether there have been any problems</li> </ul>	<ul style="list-style-type: none"> <li>• Regulations that require practical examinations at the end of an apprenticeship</li> </ul>

Source: ETF 2017a.

ETF (2021) has also designed a questionnaire for VET schools to self-assess their own role in supporting or facilitating WBL in companies. This self-assessment can assist schools in understanding their own strengths and opportunities and planning their own improvement strategies for WBL. The questionnaire has been designed for vocational schools and centres of vocational excellence that are members or associates of ETF's Network for Excellence.

## ► 3.4. WBL within VET schools

The initiatives to introduce or strengthen WBL in school-based VET presented so far are aiming to implement WBL between VET schools and companies or other organizations (municipalities, NGOs) and are thus dependent on fruitful cooperation with the latter. The following section will present initiatives of VET schools to establish WBL opportunities independent of other organizations.

In a number of countries, WBL is provided within VET schools by creating real-life working environments. In Finland, many VET providers have invested in developing versatile physical learning environments. As a result, VET campuses include restaurants, shops, spas and other authentic working environments that are open to the public. Thus, school-based learning is to a high degree a real-life working experience. In accordance with real work procedures and by following prevailing standards in industry, the students are involved in the main stages of a production process. These examples apply a dual approach within the school and may serve as a reference for allowing WBL in VET schools for students with no other opportunities to complete WBL in industry. It is crucial, for this kind of WBL in VET schools, that students learn competences with regard to their profession. They are thus prepared when they begin employment with a company, and this might be important for keeping employers interested in employing such students as well.

### Examples of WBL provided in VET schools

#### L'viv Professional College of Hotel, Tourism and Restaurant Service, Ukraine

The L'viv College trains students for the hospitality, tourism and restaurant business in authentic working environments. The college cooperates closely with well-known restaurants and hotels in Ukraine, it has a high reputation among employers, and its graduates are highly in demand in the labour market. Admission to the college is competitive.

The college operates as a business entity and runs educational restaurants, a hotel and a tourist office under real working conditions. Bakery and confectionery products are made for local businesses and resellers.

More information is available on the college's website: <https://lpcollege.com.ua/>

#### Teaching factories in Indonesia

In Indonesia, a number of "teaching factories" have been set up in accordance with real work procedures and by following the prevailing standards in industry. In these factories, VET students are fully involved in the main stages of a real production process. WBL is a crucial component of the didactic framework for developing students' employability skills.

The basic aim of the teaching factories is to integrate working experience into the school curriculum. VET teachers need to review and adapt existing curricula to facilitate direct involvement of students in the production process. Additionally, students may be involved in the procurement, management and quality control of raw materials for the production process.

This process follows the necessary stages to create the envisaged products, but with a focus on developing the students' skills by providing support and targeted instructions, which is why the scope of daily production is limited. In the examined examples of teaching factories in Indonesia, students also take on activities for the marketing, distribution, and sale of the products. This mostly happens directly in the school and local environments.

Students regularly prepare production reports to reflect on the activities carried out in the production process and to relate practical experiences to the theoretical knowledge they have acquired.

*For further information on the Teaching Factory model see the attached case study on Indonesia in the Annex.*

Provision of WBL within VET schools can certainly not replace learning in real work environments. Although the provision much more than a mere simulation of work processes, students will miss integration into the business processes and culture of a company. In addition, questions of competitiveness, quality, innovation, infrastructure, compromising educational objectives with business objectives, and other challenges are still valid here. Nevertheless, such models may serve as an alternative for WBL when there are no other options, such as in remote or rural areas.

## ► 3.5. Initiatives to cope with the COVID-19 pandemic

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While the challenges posed by COVID-19 were similar globally, individual countries have developed coping strategies that are adapted to their individual contexts. Early in the COVID-19 pandemic, VET institutions in many countries, along with other educational institutions, were closed and face-to-face learning was disrupted. VET schools and companies had to operate largely autonomously but had to jointly agree either to the students' return to the company with appropriate sanitary measures applied or to rely on remote work. Another common option was to end the WBL period and migrate the students back into the school-based system.

With some delay, a number of countries have tried to turn to distance education supported by electronic and traditional means. Particularly in low- and medium-income countries, the digital divide and the low level of connectivity in remote areas have translated into a real challenge for WBL and VET in general.

In Mexico, for example, according to data collected in 2018 by OECD, only 68 per cent of the population at the age of 15 or older has access to the internet, 57 per cent to a computer, and 28 per cent to educational software (Figueroa Saldaña 2021).

However, the challenges go beyond the digital divide and internet connectivity. They are about acquisition of practical skills and the suitability of remote and distance learning for many WBL and VET programmes. Although with COVID-19 countries were partially able to overcome digitalization problems, TVET still suffered in providing practical skills, and there are few initiatives in this regard. A more detailed analysis of the potentials of digital and virtual learning in VET is undertaken in another thematic report of the ILO ADULT study on "Promoting apprenticeships to meet skills needs of the digital and knowledge economy".

In the course of the COVID-19 pandemic, it became clear that certain components of WBL in school-based VET – like theoretical learning – are particularly resilient and that such components are suitable for generating successful strategies to cope with the pandemic. For example:

- In Albania, the pandemic led to the use of a Moodle-based online platform (Mesovet.al) in VET schools, as there was nothing similar in place before to support online learning for VET students (ILO 2021).
- In Jordan, the Ministry of Education launched a platform called DARSAK (meaning "your lesson").
- In Ecuador, a portal was created where students and teachers could access more than 840 digital teaching-learning resources. This is not a virtual classroom, but a source to reinforce knowledge. For students without internet access or without appropriate equipment, the same information was offered through television and radio channels.
- A similar portal in India, strongly promoted by the National Instructional Media Institute (NIMI) is Bharat Skills. Bharat Skills is an e-learning platform; a central repository for skills, which provides National Skills and Qualification Framework (NSQF) curriculum, course materials, videos, question banks, mock tests, and so on, all in digital form.
- Following a report of United Nations Educational, Scientific and Cultural Organization (UNESCO) (2021), the Finnish National Agency for Education supported VET providers with information and an advisory service on how to plan and implement distance learning, including information on national development networks, communities and open educational resources. Teachers were encouraged to share content through a newly published online library with open educational resources. In addition,

some TVET providers equipped students with computers and mobile learning devices when deemed necessary. Before the pandemic, distance learning had been a common practice but was not a significant part of Finnish VET. The successful implementation of distance learning however seems to have taken a toll on teachers. Additional time spent on planning, adopting new digital tools, increased amount of written individual feedback for each student, and continuous communication have all increased the teachers' workload (UNESCO 2021).

- The loss of WBL opportunities and workplaces becoming more remote might increase opportunities for e-internships in SMEs and even opportunities for workers in transition economies to work for companies in high-income countries (Jeske & Axtell 2016).

In any case, digitalization of WBL in school-based VET should therefore be further encouraged, for example by training educators on how to effectively apply digital technology in the teaching and learning process and by developing learning modules that allow digital learning and develop professional competences through virtual simulations.

Digital learning modules will provide a learning option for VET students when there are no places available for WBL in companies or in case companies are forced to close down again.





# **4** Innovative policy options to introduce and strengthen WBL in school-based VET

# Innovative policy options to introduce and strengthen WBL in school-based VET

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An analysis of innovative policy options to introduce or strengthen WBL in school-based VET has identified various components with the potential to promote, in certain contexts, significant steps towards dual modes of WBL in school-based VET. Given the experience that the implementation of prefabricated universal policy frameworks sometimes did not meet the expectations of countries with VET systems in need of fundamental reform, it seems to be more successful to adapt innovative initiatives to the local context and implement reforms on a pilot basis for gradual improvement to strengthen WBL and shape duality in the VET system. Lessons learned from such successful examples of gradual improvement could help decision makers for VET policies to build confidence in envisaged changes.

If there is one overarching policy option that can be highlighted as particularly promising, then it is the challenge to make school-based VET systems more demand-driven by giving greater consideration to the interests of companies and by promoting cooperation between the education system and industry, particularly at the local level, between VET institutes and SMEs. Unfortunately, there are too many examples of VET institutions concentrating on “curriculum mandates” and “training program writing” without sufficiently understanding and responding to the essentials of a demand-driven approach (Whaba 2012, p. 5).

The essentials of a demand-driven approach can be analytically assigned to the three main research areas of this study; details of research results are summarized in the following sections. Overall, it is crucial to think about WBL in terms of the workplace. WBL assumes that work in a real production process is the basis of learning. The most important essential for implementing a demand-driven approach in VET is putting the concepts and contents of teaching and learning in school into this perspective. It is not enough to orient VET programmes towards national qualifications frameworks and occupational profiles. In addition, the requirements at workplaces in companies in the local environment of VET schools must be considered more closely and must become a point of reference for action (for further details, see the following sections, 4.1–4.3).

It is exactly with the goal of achieving this change in attitude and orientation that the OECD encourages school-mediated WBL to be made mandatory in all vocational programmes. Mandatory WBL shifts the whole mindset of VET providers, “so that partnership with employers becomes essential rather than an optional extra”. Mandatory means that VET programmes can only run when VET institutions develop and maintain active partnerships with industry (Musset 2019, p. 42).



## ► 4.1. Recommendations for reforming policy and governance frameworks to promote WBL in school-based VET

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As demonstrated by several examples (Finland, India), innovative policy and governance frameworks supporting WBL in school-based VET systems enable various forms of WBL. Altogether, these examples demonstrate how to design qualifications, programmes, pathways, and types of learning as flexibly as possible (while balancing this with standardization), and how to align them with the needs of the learner and the demand in the labour market. VET schools are allowed to adapt qualifications according to employer-specific, regional and personal requirements. The mode and duration of WBL periods can also be designed flexibly, aligning with requirements at the workplace and with agreement between the involved companies and the VET school.

Policy and governance frameworks must provide a coherent regulatory framework for the implementation of WBL in school-based VET, and the actors on whom the implementation really depends (VET schools, companies, social partner organizations) need space for self-organization to fill this framework according to the conditions and possibilities in their specific contexts. But there are also indications that increased flexibility and autonomy may lead to unequal practices. Due to sparse regulation and standards, certification may become less comparable and transparent. In Finland, some VET providers are expecting more steering from the Ministry and some degree of harmonization in operating methods and nationwide models.

The basic elements of every policy and governance framework are the regulations around the financing of WBL and the status of VET students in WBL periods. Provision of financial and non-financial incentives is a necessary element to get WBL in a school-based VET system on its way and to ensure the quality of the system. VET schools need help with managerial and administrative tasks, teachers and trainers need incentives to adapt curricula and interlink learning processes at the workplace and at school, and students and employers may need subsidies to cover expenses.

For students in WBL periods in companies, the ILO is in the process of developing an International Standard on Apprenticeship, asking for entitlements that should be given by companies to students, including a written traineeship agreement, ensuring appropriate remuneration, limits of working hours, holidays, respect of health and safety regulations, and coverage of illness and work-related injuries and accidents.

This thematic study has shown that modularization, individualization and flexibilization of VET programmes and WBL periods are the key to modernizing school-based VET in the direction of promotion of WBL. At the same time, it should be emphasized that despite extensive freedom, compliance with formal content and pedagogical standards of learning must be ensured. Traditionally, this has been a field of action for school inspectorates, while in innovative governance frameworks VET schools take responsibility for compliance with education standards by coordinating learning at work and in school. It seems necessary to achieve an adequate balance between self-organization and commitment to common standards. Despite their autonomy, VET schools need orientation and common guidelines. With support and some steering from the Ministry of Education, common guidelines might be developed, adapted, and refined by mutual exchange of experiences between the schools and through communication with stakeholders. It would be interesting to observe such a process more closely. Further research could investigate the kinds of mechanisms that are used in different contexts to ensure a balance between flexibility and standardization, as well as how existing mechanisms are working in detail and how successful they are.





### Policy options

Some of the recommendations for reforming policy and governance frameworks to promote WBL in school-based VET include:

- provision of basic legal standards for WBL: status and working conditions of students in WBL periods
- incentives for VET schools and SMEs
- modularization, individualization and flexibilization of VET programmes and WBL periods while balancing these with standardization
- leeway for self-organization of VET schools and guidelines for implementation of WBL

## ► 4.2. Recommendations for strengthening partnerships between the VET system and industry

The most important component for strengthening a demand-driven approach is cooperation of the VET system with social partner associations and companies. For the VET schools, these are the SMEs in their local area. There can be no real WBL without these enterprises.

National policy and governance frameworks must be oriented towards defining mechanisms for interaction between public authorities, VET schools, employers and social partner organizations. This can be promoted, as in Ukraine, through systematic decentralization of decision-making structures

to give more opportunities to local actors from the education system and from industry sectors for more self-organized cooperation.

A number of countries (for example, Georgia and Kazakhstan) are trying to overcome structurally weak partnerships between the VET system and the private sector through the creation of tripartite sector councils by type of economic activity and by extending the responsibilities of the private sector for WBL in VET. In these countries, a stronger role has been given to sector councils in developing curricula, modules and standards for assessment of WBL, including independent sectoral certification of graduates via the private sector. The success of decentralization also depends on other factors, such as the size and structure of a country. The important factor is not the sharing of power by creating new institutions, but the proximity of the decisive actors to the labour market. The crucial issue with decentralization is to ensure that VET schools and (small and medium) companies have appropriate degrees of freedom and receive the support they need to implement WBL.

The region of Flanders in Belgium has established Vlaams Partnerschap Duaal Leren (Flemish Partnership Dual Learning), a structural network and centre of governance to oversee the dual learning approach. The partnership is an advisory board that includes public authorities along with partners from education and industry, and which is aiming to strengthen the engagement of sectors, the quality of learning in companies, and the development of synchronized curricula for dual learning.

Besides the Flemish dual learning initiative, the SED implemented in Mexico is another example that demonstrates how a school-based VET system can be expanded and supplemented by a dual branch; the DST scheme in India is yet another example. Under the DST scheme, instead of creating an independent dual system apart from the existing school-based VET system, an additional dual branch was created inside and next to the school system, offering the option for students to enrol in the fully school-based branch or in the dual branch. The SED is also interesting from the perspective of lifelong learning, because successful graduates can acquire both a professional qualification and a degree granting them access to higher education.

The introduction and graduate extension of this dual branch in the school-based VET system were made possible by establishing communication channels and platforms of cooperation that brought together the main players from the sector educativo and the sector productivo in different areas that are important for the implementation of WBL. In each area, the main players take on the implementation of SED with various tasks. The following players work together in cooperative structures:

- associations of social partners in the various economic sectors
- VET schools and companies participating in WBL
- teachers and trainers in VET schools and instructors in companies

The Mexican model also demonstrates that active participation of social partner associations is a decisive factor for introducing and strengthening WBL in school-based VET. However, in many countries, social partner associations are relatively weak and potential partners hardly have the capacities and resources to actively participate in the development of VET in general and WBL in particular. Further research could explore how in these countries the development of professional capacities among social partners could be promoted, thus allowing social partnership organizations to become promoters of dual VET.

### Policy options

Some of the recommendations for strengthening partnerships and cooperation between VET and industry include

- creating networks for interaction between public authorities, VET schools, employers and social partner organizations
- strengthening participation of the private sector in developing curricula, modules and standards for assessment of WBL
- strengthening the capacities of social partner organizations and companies in managing WBL

## ► 4.3. Recommendations for VET schools to strengthen WBL

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Students in VET schools should generally have the opportunity to participate in WBL, but access to WBL in companies should depend on certain requirements and should not be possible without any restrictions. As seen in various examples (such as Indonesia and Mexico), VET schools that pursue a consistent demand-driven approach accept only those applicants for WBL who have successfully passed a selection and testing process.

Given the multiple needs for more inclusiveness, these selective examples should not become a standard. They do make clear, however, that companies are even more willing to cooperate with VET schools and accept students for WBL periods if learners meet some basic requirements (punctuality, reliability) and have at their command a minimum of vocational skills that are necessary to participate successfully in the work process. The final decision to admit a student to a WBL period should be made by the company.

VET schools by themselves can implement WBL and foster duality to a limited extent only, and in exceptional cases (see the example of a teaching factory in section 3.4). VET schools therefore have to prepare their students carefully for WBL periods in companies. In Mexico, students must first participate in full-time VET at a school for one year before they can be accepted for the dual SED programme, depending on their performance. At the ITEC Asyut in Egypt, students are prepared for WBL periods in companies through comprehensive CBT; beforehand, the schoolteachers have already been enabled to consistently apply CBT in classrooms and labs. Also, CBT could serve as a good approach to ensure labour market relevance of training in the absence of robust WBL opportunities.

VET schools have an important dual mission: to maintain a balance between the extended flexibility of WBL and educational quality standards and to mediate between specific employer needs and the development of transferable skills that will be beneficial to individuals throughout their working lives. To facilitate both flexible and quality-oriented VET provision, VET schools must ensure synchronization of work-based and school-based learning by relating their students' abilities to the requirements at the workplace. As seen in the examples from India and Mexico, the quality of WBL is monitored by the school and students are supported by regular on-the-spot visits from schoolteachers. But as reported from Finland, teachers need time and resources for interacting with companies and sometimes find it difficult to align work-based and school-based learning professionally. Sometimes, this matching is difficult to achieve if there are multiple workplaces involved in the implementation of WBL and

each has its own daily tasks. This aspect should therefore involve designing training content around “critical” work processes that are expected in the workplaces of participating companies.

It is important that staff in VET schools fulfil this monitoring and coordinating function professionally and perform the various tasks appropriately. VET school staff, teachers and trainers must understand the requirements at the workplace and must be able to support in-company staff in organizing appropriate learning processes. Suitable training of VET school staff to effectively implement WBL is very important. Instead of control and instruction, a service role for the companies must be in the foreground, as foremost it is a matter of implementing WBL in cooperation and mutual understanding between the school and the company.

VET schools must prove that they can be reliable partners to the companies and social partners they work with. The ideal approach is for them to continuously improve the quality of their education and training and adapt it to new developments in the world of work. They should systematically build trust in the quality of their education and in the attitude and skills of their students. They need to develop effective and sustainable communication channels at all organizational levels to make communication as smooth as possible. Fostering continuous communication between VET schools and companies is an essential that is fundamental for the implementation of all WBL components.

Cooperation between VET schools and companies at the local level is a decisive factor for the development of WBL. As part of further research, it would certainly be worthwhile to investigate more deeply these relationships of direct communication and cooperation between VET schools and companies. It would be particularly interesting to consider in detail the ways in which partnerships can start and emerge at the local level, to see the establishment of effective communication, and to understand the various methods of aligning learning at school and at work. By considering different forms of organizing WBL in school-based VET, certain (successful) patterns of cooperation should be identified and integrated into a coherent strategy of cooperation between VET schools and companies to promote WBL at the local level.

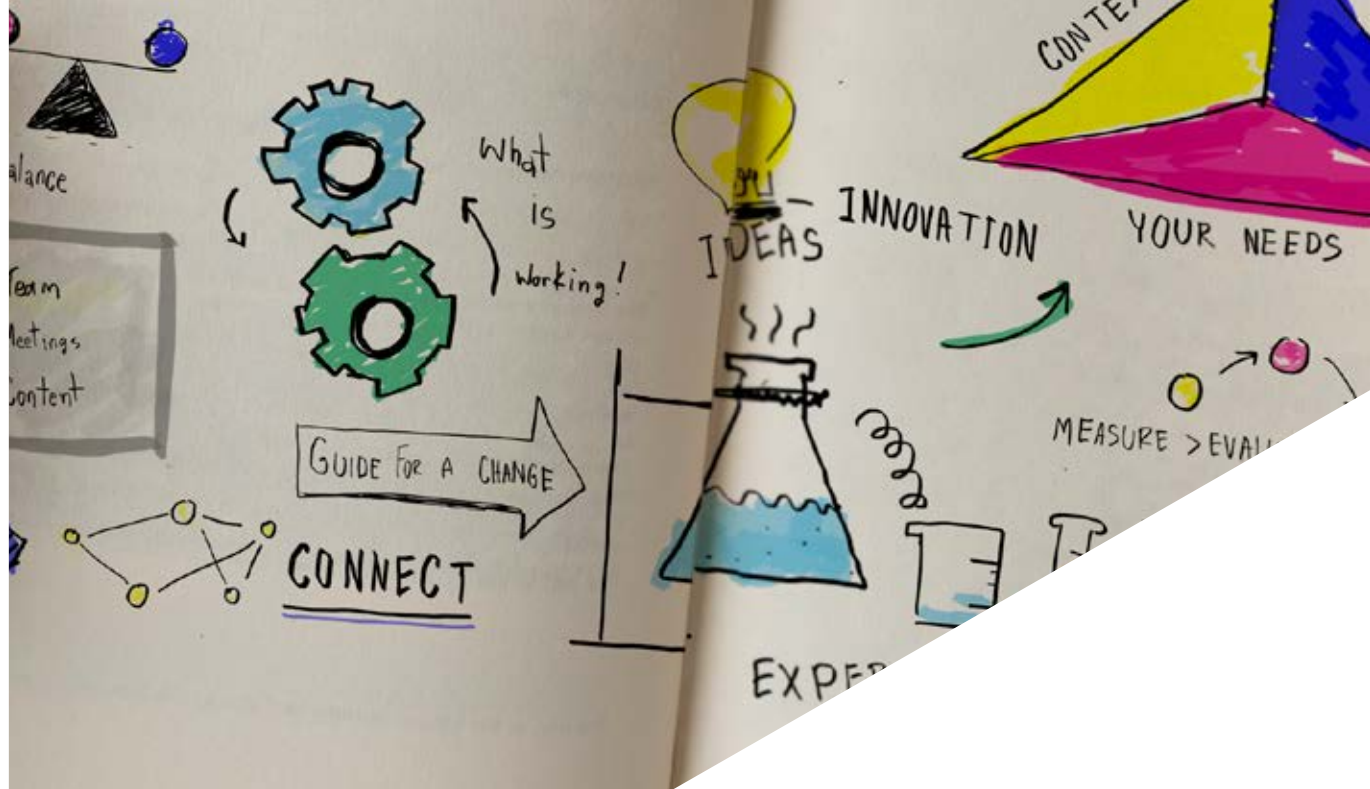
### Policy options

Some of the recommendations for VET schools to strengthen WBL include

- providing appropriate preparation of students for WBL
- ensuring synchronization of school-based and work-based learning
- supervising students in WBL periods and supporting in-company trainers
- mediating between employer needs and skills development



# Case Study



▶ **6 Case Study**

## ► Case Study 1

### FINLAND: A prime example of flexibility

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This case study is focussed on the Finnish policy and governance framework for VET. The latest reforms in Finland in 2018 aimed to systematically strengthen the role of WBL in a school-based system. The key goals were to make qualifications, pathways and types of learning as flexible as possible, in order to better align them with the needs of the learner and the demand in the labour market. In addition, attempts are being made to strengthen cooperation with employers through a performance-based funding system for VET providers. Delivery of VET is characterized by a flexible blend of school-, work- and online-based learning, which has likewise proven its worth under COVID-19.

#### Context

Finland has a strong tradition of school-based VET, and as an integral part of the education system, VET is an attractive choice: nearly 50 per cent of basic education graduates apply for VET studies, with the other half choosing general upper secondary education. Both pathways are equal in value and provide access to further studies. Adults who want to reskill or upskill have the same options, and there are no boundaries in the education of youngsters and adults.

VET is developed and delivered in cooperation with the stakeholders in the labour market, thus providing a guarantee of its quality and attractiveness. According to Eurostat, the placement rate in Finland directly after completing VET, either at the labour market or in further studies, is high in comparison with most EU countries.<sup>4</sup>

#### Provider landscape

VET providers in Finland are either owned by municipalities and foundations or are privately owned non-profit organizations. Public funding is provided whether the VET institution is public or private. VET providers and municipalities engage in joint anticipation activities to match programmes with the needs of the local ecosystem by taking into consideration regional growth prospects and employment opportunities. In 2018, the largest VET provider had over 13,000 enrolled students, and the average was 1,350 students per provider. All providers offer training to both youngsters and adults.

#### Funding based on outcomes, efficiency and effectiveness

The funding system rewards VET providers for the outcomes, efficiency and effectiveness of their activities. The focus of funding is on completed units and qualifications, employment or placement in further studies, as well as the feedback collected from students and working life. The amount of time spent on education is not relevant from the point of view of the funding structure.

Funding comprises core funding, performance-based funding and effectiveness-based funding, with the following shares:

- 50 per cent core funding, based on the number of learners
- 35 per cent performance funding, based on the number of completed qualifications and qualification units

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<sup>4</sup> For details, see Employment rates of recent graduates on the Eurostat website.



- 15 per cent effectiveness funding, based on learners' access to employment, pursuit of further education and feedback from both learners and the labour market
- a small amount of strategy funding (decided by parliament), which is also made available to support the implementation of education policies

### **A modular and flexible qualification system**

The policy framework offers three types of vocational qualifications: initial vocational qualifications, further vocational qualifications and specialist vocational qualifications. All qualifications have a modular structure and are composed of units of learning outcomes. Vocational qualifications consist of vocational units and common units. Further and specialist qualifications comprise only vocational units. Whether common units are needed is assessed when preparing the personal competence development plan, which is drawn up for each student.

With the latest reforms of the VET system in 2018, the number of qualifications was decreased, and qualification content was broadened to support individualized learning pathways and enable more rapid responses to the changing competence needs in working life. The governance framework allows VET providers to adapt programmes according to employer-specific, regional and personal requirements. Students can either finish entire qualifications, finish parts of them or smaller units, or combine parts of different qualifications based on their needs.

### **Recognition of prior learning and personal development plan**

Previous learning is recognized, and students need to acquire only the missing skills. A personal competence development plan is drawn up for each student. This is done by a teacher or a guidance counsellor together with the student and, when applicable, a representative of working life (such as an employer or a unionist). The plan recognizes and records the skills previously acquired by the student and outlines the kinds of competences the student needs and how they will be acquired in different learning environments. Students may have obtained relevant skills from working life, school education, studies abroad, work placement periods, family and leisure activities or through the media.

### **Flexible study pathways balancing educational standards, individual needs of the learner and demand in the labour market**

The main pathway for completing a vocational qualification with 180 competence points is school-based VET, including at least 30 competence points (about six months) of on-the-job learning. Vocational qualifications may be completed as apprenticeship training or in a model named training agreement (see below for details).

### **Apprenticeship training contract**

Any qualification can be acquired through apprenticeship training; this is a work-based form of VET with a written fixed-term employment contract (apprenticeship contract) between an employer and an apprentice or student, who must be at least 15 years old. The student is a full-time worker and receives payment. Working hours are at least 25 per week. Apprenticeships are mainly used in further and specialist vocational education. Since the last VET reforms, there has been no indication in the legislation of where the theoretical part of training should be acquired. In fact, the term "theory" is no longer used; instead, "learning in the working place" and "learning in other environments" are the current terms. If the company is able to cover all training needs, there is no need for the learner to attend a school venue at all. Learners themselves find workplaces for the training. The employer

has no obligation to keep the apprentice employed after the training period is completed (Cedefop 2019, p. 36).

In apprenticeship, most of the competences will be acquired at the workplace through practical tasks but will be reinforced in other learning environments if needed. The learner, VET provider and employer agree on the learning arrangements together.

### Training agreement

In a training agreement, learners are not in an employment relationship with a company. They do not receive any payment and employers do not receive any compensation. Instead, an agreement is drawn up between a VET provider and a company. The company is required to keep track of the development of the student, report to the VET provider, and take action if the competence is not achieved.

No minimum or maximum amount has been set for competences acquired in connection with practical work tasks. Instead, education and training at the workplace are planned as part of a personal competence development plan, taking into account the competence needs of the workplace and the individual learner. Students can find a workplace by themselves or ask the VET provider to help in finding a suitable workplace.

A learner may flexibly transfer from a training agreement to apprenticeship training when the prerequisites for concluding an apprenticeship training contract are met. Training via a training agreement may be used as a pre-apprenticeship that may lower the threshold for an employer to recruit employers.

**Table 3. Some characteristics of training based on a training agreement and apprenticeship training**

	Apprenticeship training	Training agreement
Status of VET student	Employee	Student
<b>Contract</b>	Fixed-term employment contract	Training agreement
<b>Training period/duration</b>	Entire qualification or qualification unit or smaller parts of the studies	Qualification unit or smaller parts of the studies
<b>Amount of WBL per week</b>	On average a minimum of 25 hours a week	Individually planned number of hours covering 1–5 days a week
<b>Compensation for the student</b>	<ul style="list-style-type: none"> <li>• Employer pays a wage in compliance with the applicable collective agreement (may vary based on the field and tasks)</li> <li>• Student receives social benefits if the employer does not pay any wages during the training offered by the vocational institution (e.g., daily allowance 15 €/day, family allowance 17 €/day, travel and accommodation allowance)</li> </ul>	<ul style="list-style-type: none"> <li>• Employer does not pay a wage or any other compensation</li> <li>• Student may be eligible for financial aid and social benefits</li> </ul>
<b>Compensation for the employer</b>	The VET provider may pay training compensation to the employer (VET providers have varying practices; it is estimated that most often around 100 to 200 € per month is paid in initial vocational qualifications)	No training compensation is paid to the employer

Source: Rintala (2021).

## Flexible WBL components

The Finnish VET approach is based on learning outcomes, with a strong focus on WBL, which may vary during the training. It is provided mainly in real work environments (companies), but if this is not possible, it can also be organized in VET school facilities. Many VET providers have invested in developing versatile physical learning environments. As a result, VET campuses include restaurants, shops, spas and other authentic working environments that are open to the public. As a result, school-based learning is to a high degree a real-life working experience.

The last VET reforms aimed to increase the share of WBL in VET by offering more flexibility in its organization. All learners take part in WBL, and any form of VET (whether through a training agreement or apprenticeship training) may be taken by learners in any programme. WBL may be provided during the whole programme duration and may cover the whole qualification, a module/unit or a smaller part of the programme. The most suitable method for a learner is agreed in the personal competence development plan. Legislation does not stipulate a maximum or minimum amount on WBL, but VET providers are strongly recommended to organize at least part of the learning at the workplace.

VET providers typically have framework agreements with local companies for WBL. VET teachers and representatives of the companies negotiate and agree upon what the student must learn during WBL periods, and how it should be assessed. During these periods, workplace trainers are central to students' development. They mentor and guide the students both in everyday work tasks and when it comes to understanding the principles, approaches and ethics of the specific vocational field. Meanwhile, VET providers are responsible for acquainting the workplace trainers with their tasks and for providing them with any necessary training. During WBL periods, VET teachers make regular visits to companies where the students are placed, but digital applications may support such communication as well.

Although WBL is strongly promoted in Finland and its aim is to combine training at schools and at the workplace, it is mainly the VET providers who bear responsibility for cooperation. Teachers consider collaboration and interaction with the workplace a challenge due to the limited time and resources they have available. In addition, it is seen as difficult to align work-based and school-based learning in a meaningful way.

## Responses to COVID-19 and key lessons learned

Early in the COVID-19 pandemic, VET institutions in Finland, along with other educational institutions, were closed; face-to-face learning was disrupted, and VET institutions transitioned into distance learning. Before this, distance learning had been a common practice but not a significant part of Finnish VET.

During this time, the Finnish National Agency for Education supported providers with information and an advisory service on how to plan and implement distance learning, including information on national development networks, communities and open educational resources. Teachers were encouraged to share content through a newly published online library with open educational resources. In addition, some TVET providers equipped students with computers and mobile learning devices when deemed necessary.

In the subsequent months, to support the transition to distance learning, VET providers have taken the following actions:

- setting up additional remote teaching and IT support services for teachers and staff
- providing training for staff and students in using digital communication and learning tools (such as Microsoft Teams)

- Efficient and constant communication about the crisis and new learning arrangements with staff and students

Distance learning has been challenging for many students, and special attention has been paid to students in need of special support, as well as those with limited language skills or dealing with other challenges. Learning has been more focused on theory when equipment and facilities for practical tasks were unavailable. The COVID-19 restrictions have necessitated amendments to the personal development plans by replacing modules or parts of modules that could not be completed. As many graduating students have been concerned about employment, VET providers have also supported them with job seeking and with applications to further studies.

However, the successful implementation of distance learning seems to have taken a toll on teachers. More time has been spent on planning, adopting new digital tools, writing an increased amount of individual feedback for each student, and maintaining continuous communication, all of which has increased the teachers' workload.

These are some of the key points that have helped the Finnish system to adapt to the challenges of COVID-19:

- (adapted) personal competence development plan for each student
- high degree of flexibility: delivery of VET in a mixture of school-based, work-based and online-based learning
- modular structure of studies for reskilling and upskilling, including modular VET qualifications
- competency-based approach and recognition of learning: acquired knowledge, skills and competences are important, not a credit per se

## Conclusions and lessons to learn

The Finnish VET system is highly regarded in the country. Although it is a school-based system, WBL components have traditionally played an important role, and most recently, these components were further strengthened.

The latest reforms in 2018 support individualized learning pathways and allow VET providers to adapt qualifications according to employer-specific, regional and personal requirements. Although the aim of the reforms was to give VET providers more freedom to organize education, it seems that the increased autonomy may lead to unequal practices (Rintala 2021). With less regulation and fewer standards, the certification process may become less comparable between VET providers and more transparent. In a report by the National Audit Office (2021), some degree of harmonization in operating methods and nationwide models has been emphasized, and more mutual information and communication, as well as increased collaboration between stakeholders has been recommended.

Qualifications in Finland may be acquired in an apprenticeship scheme (employer-based) or in a model called a training agreement (school-based), and if requirements are met, learners may flexibly transfer from one scheme to the other. It seems, however, that the flexible study paths are not yet fully realized. According to the Ministry of Education and Culture and the Ministry of Economic Affairs and Employment, transfers from training via a training agreement to apprenticeship training should be further encouraged and especially utilized in recruiting workers in fields that face a shortage of skilled and qualified workers (Rintala 2021).

In addition, attempts have been made to strengthen cooperation with employers through a performance-based funding system that rewards VET providers for the employment outcomes of their students.

The COVID-19 disruption accentuated the importance of flexibility within the education system to make it resilient. By creating hybrid solutions combining school-based, work-based and online-based learning environments, the VET system in Finland has remained responsive and functional.

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## ► Case Study 2

### INDIA: The Dual System of Training

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#### Promoting WBL in an institutional vocational training setting

This case study is focussed on a programme that supports extended WBL in traditional school-based vocational training at Industrial Training Institutes (ITIs) in India. The programme is called the Dual System of Training (DST), and it came into effect in 2016 and was revised in 2019. The programme relates to initiating dual learning in school-based VET (ITIs in the Indian context).

With the realization that school-based courses offered in ITIs were not effectively meeting the requirements for a skilled workforce in industry, the new DST scheme was introduced in August 2016, entailing a larger element of WBL in the courses under the Craftsman Training Scheme (CTS). Under the DST scheme, on-the-job training is conducted in an industry environment, while the theoretical component is covered by the ITI. The students appear for regular examinations under the CTS and are awarded an e-certificate like other ITI students. The DST is applicable in all affiliated ITIs and covers all existing trades offered under the CTS. After completing the training, the trainees who are awarded E-National Trade Certificate (E-NTC) under the scheme have an edge over regular ITI graduates in terms of employability and employment opportunities in industry.

To increase and promote the participation of industry and especially of small and medium-sized companies in the DST scheme, it was revised in 2019. Under the revised version, the minimum number of employees and annual minimum turnover for eligibility was lowered considerably. In addition, the duration of WBL was made more flexible; VET schools together with partners from industry now have the freedom to choose a training pattern, as per mutual understanding and suitability.

#### Provider landscape

India has over 15,000 ITIs, of which 85 per cent are run by the private sector and 15 per cent are government-funded. It is estimated that over the period 2013–2022 there has been an incremental demand of 100 million skilled workers, that is, an average of 10 million skilled workers every year. However, all the ITIs put together have just 2.5 million seats per annum. While capacity is a constraint, industries, which employ graduates from ITIs, find that the quality of the training delivered is not up to their standards. To bridge the disconnect between ITI trainees' learning outcomes and industry requirements, the Ministry of Skill Development & Entrepreneurship introduced the DST scheme in 2016 and subsequently, in 2019, revised and adapted it in light of real-world experience.

#### Objective of the Programme

The objective of the DST scheme is to enable companies to partner with government-owned and private ITIs for conducting training programmes that will generate graduates with high employability, so as to fulfil skilled manpower requirements in companies. The DST consists of a mixture of theoretical, school-based learning imparted by ITIs and practical WBL taught by industry.

To increase and promote the participation of industry and especially of small and medium-sized companies in the programme, the minimum number of employees has been reduced considerably. While at start of the programme in 2017, a company had to have at least 200 employees to be eligible, with the revised guidelines, only 40 employees are required in engineering trades and 6 employees in

non-engineering trades. Additionally, the minimum annual turnover of a participating company has been lowered significantly.

These adjustments aim to make the courses conducted under the DST scheme more suitable to the skilled workforce requirements of industry. With a vision of strengthening industry linkages and acquainting students in ITIs with the latest technologies, the scheme strongly encourages ITIs to participate in this programme.

### Courses and curriculum for DST

All courses in the DST scheme are aligned with the National Skills and Qualification Framework (NSQF). When it began in 2017, the DST was operational in 17 trades; since 2019, when the new guidelines were introduced, the scheme has expanded to all trades, including service sector trades and trades in new and emerging sectors. This opening up of the scheme has resulted in significantly more female students being able to participate in it.

Under the previous guidelines, the number of months of practical WBL in industry was fixed. However, since the time needed to acquire employability skills varies from trade to trade, the duration of WBL has been made more flexible under the 2019 guidelines. Accordingly, the revised guidelines define the ranges for “duration of industrial training” as indicated in the table below:

**Table 4. Duration of industrial training in relation to duration of courses**

Duration of course	Duration of industrial training
6 months	1–3 months
1 year	3–6 months
2 years	6–12 months

The ITI and the partners from industry have the freedom to choose a training pattern, that is, either a block mode, a multiple block mode (with a few months in the ITI, followed by a few months in industry) or a mixed mode (with a few days in a week shared between ITI and industry), as per mutual understanding and suitability of the ITI and the partners in industry.

The DST scheme has given ITIs and industry partners the flexibility to set the duration of the learning blocks over the entire course period within the ranges listed above. In case of two-year courses, each year may have at least one WBL block of reasonable duration.

### Flexible partnership agreements

An ITI may sign a memorandum of understanding (MOU) with multiple industry partners to fulfil the WBL needs of a batch of trainees for a particular trade. However, the ITI must ensure that in cases of DST candidates undergoing WBL in more than one company, the WBL blocks are synchronized with the learning of theoretical foundations taught in the ITI.

When signing an MOU with an ITI, the partner companies from industry should ensure the availability of trade-relevant tools, equipment and machinery for the WBL periods. They are also required to assign trainers who are responsible for guiding and training the students in WBL periods.

ITIs are encouraged to leverage their tie-ups with multiple partners from industry, associations, chambers and SMEs, enabling their trainees to have the greatest benefit from distinct connections with industry.



An industry partner may train the trainee at multiple locations and in multiple skills; for example, in the automotive sector, a trainee may be exposed to the production/assembly line, repair/service workshop, as well as to the sales function at a dealership.

### Memorandum of Understanding

An MOU drafted in line with the government guidelines for the DST must be signed by the partner in industry and the ITI. ITI principals can sign an MOU directly with companies, without the involvement of governmental bodies. The MOU may be signed for a minimum of three years in case of engineering trades and a minimum of two years for non-engineering trades, which can be extended as per mutual understanding of the parties. Any MOU should mention the mutually agreed-upon duration of WBL in industry (out of the total duration of the course as prescribed in the syllabus). Both the ITI and the partner from industry must ensure that the course curriculum is covered as per the syllabus, within the given duration of the course.

As on 1 January 2020, a total of 748 MOUs have been signed under the DST scheme, between industrial organizations and ITIs or National Skills Training Institutes (NSTIs). This is a huge jump from the 136 MOEs that had been signed in the three years before the revamp of the DST. Whereas in the years before, it was difficult for ITIs to sign MOUs with industry, SMEs are now approaching ITIs with suggestions for cooperation and for the introduction of WBL schemes, and ITIs are now recognized as reliable partners.

### Admission and enrolment

Aspiring candidates to the DST scheme must be informed about eligibility criteria. It must also be ensured that trainees opting for the DST are aware of the industry expectations in terms of eligibility, minimum age, physical fitness, discipline, timings, punctuality and necessity to fulfil such criteria as per industry requirements.

Before forming a DST batch according to industry criteria, an ITI must obtain acknowledgements in writing from all trainees to be enrolled under the DST, stating that they have understood the requirements of the DST and the industry partner.

### Training, monitoring and assessment

Training consists of trade-specific theoretical learning taught at the ITI, with WBL providing practical knowledge and competences imparted by industry.

In consultation with the involved industry partners, the ITI prepares a weekly schedule for the WBL periods in line with the trade curricula and the agreed block mode/multiple block mode/mixed mode. The ITI monitors the students' progress during WBL in industry by making site visits at regular intervals. This monitoring ensures that the students are undergoing practical WBL in relevant areas as per the trade syllabus.

In addition to their visits to the workplace, ITI instructors are acquainted with the latest technologies used in the companies and may also be trained on modern machinery.

Following the trade curriculum and the schedule for WBL prepared by the ITI, the industry partner allows WBL through on-the-job training in trade-relevant domain skills. Trainees are allocated and supervised on trade-relevant projects and tasks. The industry partner ensures that a "training process diary" is maintained, as per the requirements of the schedule. During the WBL period, the industry partner records attendance sheets of the trainees and submits them to the ITI.

Health and safety facilities are made available to the trainees as they are to other workers in the industry, and the industry partner ensures that the trainees are informed about these facilities.

Payments to students in practical training are not compulsory, but companies may voluntarily provide a stipend or free lunches.

### Examination and certification

The trade practical examination is conducted by the ITI itself, while formative assessments are conducted by both the ITI and the industry partner, with equal weighting in each year regardless of the duration of the WBL period in industry.

After successful completion of the course, a National Trade Certificate (NTC) under the DST is awarded to the trainee, providing them an edge in terms of employability and employment opportunities in industry.

### Employment prospects

Industry is highly interested in hiring DST graduates, as there is no need to impart a special introductory training to these candidates. In the examined local example of ITI Solan, more than half of the first batch of graduates got a job shortly after graduation.

### Conclusions and lessons to learn

The DST scheme was set up to supplement the traditional CTS due to complaints from industry about a mismatch between the competences of ITI graduates and the skills requirements at the workplace. The DST provides industry partners with a strong position to participate in skilling young people themselves and thus minimizing these gaps. In addition, more companies, especially SMEs, are encouraged to participate in this scheme by adjusting the eligibility criteria to the conditions of SMEs. The scheme aims to create and strengthen linkages between industry and ITIs.

The DST gives industry far-reaching opportunities to make sure that their interests are taken into consideration when shaping the curriculum for their trades in cooperation with ITIs. WBL periods in industry are of a relatively long duration, and the duration of training in companies can be agreed upon flexibly, depending on the needs of the industry. The scheme is opening up opportunities to strengthen existing linkages and to create new linkages between ITIs and industry.

Some companies might see the trainees as cheap labour, as industry is not obliged to pay the trainees; some might also get used to having trainees available through the year by tying up with more than one ITI in such a way that there is always a batch around on WBL.

Training in industry follows the curriculum agreed upon between ITIs and industry partners, and ITIs are responsible for monitoring the overall implementation, including the industrial part of it. This makes the DST a specific variant of strengthening WBL in school-based VET in a dual perspective.

However, questions remain as to how a balance can be maintained between the interests of industry and compliance with educational standards.

A comprehensive assessment of the DST cannot be carried out here, as nation-wide information on the course and performance of the programme is missing. The following assessment of the scheme is based on programmatic specifications and experiences at the local level. This local empirical data was provided during an interview with an ITI principal, conducted online on 27 August 2021.

**Table 5. Duration of industrial training in relation to duration of courses**

WBL component	Mode of implementation
New type of programme	<ul style="list-style-type: none"> <li>Extended and flexible WBL periods, supplement to traditional CTS, providing access to real-life work situations, thereby enhancing employability, and reducing skill gaps</li> <li>ITI and industry partners encouraged to adopt/participate within the regular training duration of a specific trade and within the ITI ecosystem, strengthening connections of ITI and trainees with industry and imparting quality WBL to trainees</li> </ul>
Relationship with industry	<ul style="list-style-type: none"> <li>Participation open to all trades; focus on SMEs; micro-industry now involved in implementation of DST</li> <li>Industry recognizing ITIs as reliable partners</li> <li>ITI instructors introduced to latest technology and trained on machinery used in industry</li> </ul>
Duality	<ul style="list-style-type: none"> <li>Flexible partnerships between ITIs and industry</li> <li>Development of curriculum in partnership between VET schools and companies; more specific to local industry</li> <li>Duration and mode of WBL periods flexibly agreed upon between VET schools and industry</li> <li>Synchronized delivery of work-based and school-based learning</li> <li>WBL periods monitored by VET schools (regular visits by ITI trainers at the workplace)</li> <li>Shared responsibility for formative assessments</li> </ul>
Equality and inclusiveness	<ul style="list-style-type: none"> <li>Opening up the scheme to all trades, in particular to trades in the services sector, enabling extended participation of female trainees</li> <li>Lower threshold for students' access may support inclusiveness</li> </ul>
Degree	Graduation leading to a recognized qualification (E-NTC)
Employability	No introductory training needed for DST graduates; in the examined local DST example, more than half of the graduates got a job shortly after graduation

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## ► Case Study 3

### MEXICO: Sistema de Educación Dual (SED)

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#### Social partnerships in the Mexican model of dual vocational training

The Sistema de Educación Dual (SED) was introduced by the Ministry of Education (Secretaría de Educación Pública) as a variant in the 2nd cycle of secondary education. Consequently, the latter has been divided into a general education variant (secundaria general) and a vocational variant (secundaria técnica). Students opting for the “dual” modality of secundaria técnica are trained in a company, with accompanying lessons in a VET school. They retain their status as school students and are the responsibility of the Ministry of Education. Once they graduate, the students obtain a double qualification – a general university entrance qualification and a (school) qualification in their respective profession. For the 2019–2020 school year, there were 7,231 students being trained in more than 800 companies.

The dual VET model is clearly a demand-driven programme. The need for a TVET system with a highly practical component came about as a result of the country's rise as an attractive investment destination with a focus on exports, especially in the industrial automotive sector. In this context, the lack of harmonization between the requirements of the labour market and the educational opportunities available was evident, with companies reporting talent shortages and problems finding the qualified personnel they needed (OECD 2017, p. 9).

A large number of partners from the public education system and from the private sector in Mexico are involved in the organization of the dual VET system.

#### Social partnerships

On the public side, the Undersecretary of Upper Secondary Education manages the dual VET system and ensures that the contents of the academic programmes are homologous, so that students obtain a high school certificate at the end of their training. Operationally, TVET is provided through four subsystems and their VET schools. The National College of Technical Professional Education (CONALEP) and the Colleges of Scientific and Technological Studies (CECyTE) are the ones with the largest number of enrolled students in dual VET.

On the side of the private sector, dual VET is promoted mainly through the Business Coordinating Council (CCE) and its integrating business chambers, although it is mostly operated by the Confederation of Employers of the Mexican Republic (COPARMEX).

The structuring and further development of the dual VET system rests with a strategic technical committee that includes representatives from the Ministry of Education, the CCE and other organizations from the private sector. These sector-specific business organizations, operating at the national, regional or local level, act as intermediaries between the national business association (CCE) and the associations of educational institutions. In the first phase of the dual system, participating companies could only apply through these business organizations, but it is now possible for interested companies to sign training agreements directly with VET schools (Figueroa Saldaña 2021).

In February 2017, an agreement to strengthen the dual VET model was signed between the Ministry and the CCE, underlining the considerable interest being shown by the private sector. Another committee was formed to pool the interests of the twelve participating private sector employer associations in dual VET and to provide representation vis-à-vis the Ministry (Wiemann 2020).

### Cooperation of VET schools and companies

Every company taking part in the dual system has at least one person trained by the business association who, depending on the size of the company, has full-time responsibility for the implementation of the dual system.

In the VET schools, a linkage manager is responsible for the connection to the business organizations and to local companies that are already participating in the programme or are to be recruited for participation.

VET schools organize the teaching and learning processes for the students, and the teachers in VET schools are also responsible, in coordination with the in-company trainers, for accompanying, monitoring and evaluating students' WBL periods.

In-company trainers are trained by the company to guide the WBL activities of the students at various training positions. The training plan is personalized and the learning progress assessed in coordination with the VET schoolteachers.

### Training agreement

The student is not a formal employee, but rather an apprentice. The legal base for the WBL period is called a "training agreement" that regulates the rights and obligations of the involved partners. Students can receive a monthly scholarship from the government, although some companies also provide support.

In comparison with other programmes such as internships, students enrolled in the SED programme follow a training plan that is agreed upon between the VET school and the company, and for which determined knowledge and skills must be developed within a specific period of time, depending on the programme.

The curricula are approved by the Undersecretary for Upper Secondary Education and adapted to the dual system. The VET schools remain involved in the teaching-learning process for the entire duration of the programme. The student is enrolled in the educational institution throughout the education process, although part of the training takes place directly in the company. The enrolled student is a trainee and not an employee. The planning of the dual training is the responsibility of the company and the school; the latter remains integrated into the teaching-learning process for the entire duration of the programme.

### Organization of the learning process

Students regularly attend full-time school-based teaching in the first year. They are not yet participants in the SED during this time. From the third semester onwards, students who have done well and are at least 16 years old may be nominated by their teachers for participation in the dual model with particular companies. Final decision-making authority on accepting the nominated students rests with the companies. The students spend the next two to four semesters in the company exclusively. During this time, the aim is that they should follow a rotation plan in order to be deployed in various pre-defined positions in the firm. This rotation plan is based on the training standards and is jointly agreed upon between the school, the company and a training advisor (Operador del centro empresarial), who is appointed by COPARMEX and trained by the Cámara Mexicano-Alemana de Comercio e Industria. Each participating company is required to provide at least one qualified trainer (see section 5.4.2). During the company-based training, a type of report book (reportes semanales) needs to be maintained in which learners record their respective activities each week (Wiemann 2020).

Company-based training time cannot not exceed 40 hours per week. Students also complete tasks via a software-based learning platform, and this replaces school-based teaching during the training time spent in the company. The company is expected to make the necessary time available. Some schools also offer regular face-to-face teaching and support from a tutor (Wiemann 2020).

## Results and future challenges

According to a survey undertaken in 2020–2021 as part of programme monitoring and evaluation, the acceptance of the dual VET system has been quite remarkable (GIZ 2021):

- 81 per cent of the companies say that the apprentices meet their requirements.
- 83 per cent of the companies and 84 per cent of the VET schools consider dual VET graduates to be better prepared than graduates from the traditional TVET system.
- 92 per cent of dual VET graduates and 94 per cent of dual students would recommend dual VET to a young person.

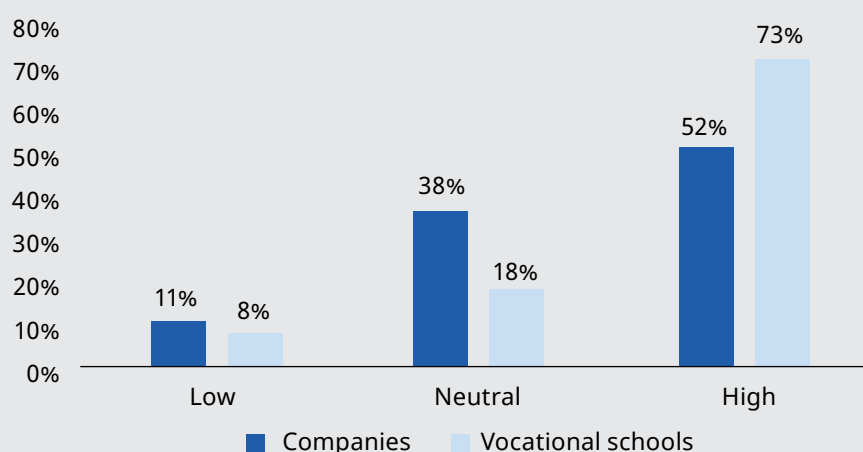
The survey also shows that the most important areas for improvement of dual VET are: simplification of administrative processes, financing of the system, effective school–company communication, digitalization, and monitoring of students during their training.

Another challenge for the dual system is to increase the number of participating students and training companies. So far, of the 1.9 million students enrolled in TVET, less than 1 per cent take part in SED.

## Impacts of COVID-19 on dual VET in Mexico

Thanks to a publication from Figueroa Saldaña (2021) there is empirical data available on the impacts of COVID-19 on dual VET in Mexico. This is based on a survey amongst VET schools and companies, conducted between 3–2 February 2021 via a digital platform. 301 schools and 365 companies participating in the SED were surveyed (GIZ 2021b). As illustrated in the following graph, 52 per cent of the companies and 73 per cent of the VET schools considered COVID-19 to have had a high impact on the implementation of dual VET. Compared to companies, VET schools considered a higher negative impact of COVID-19, which may be due to the additional workload caused by distance education. Migration of students to school-based learning (instead of WBL) also added to the workload of teachers in schools.

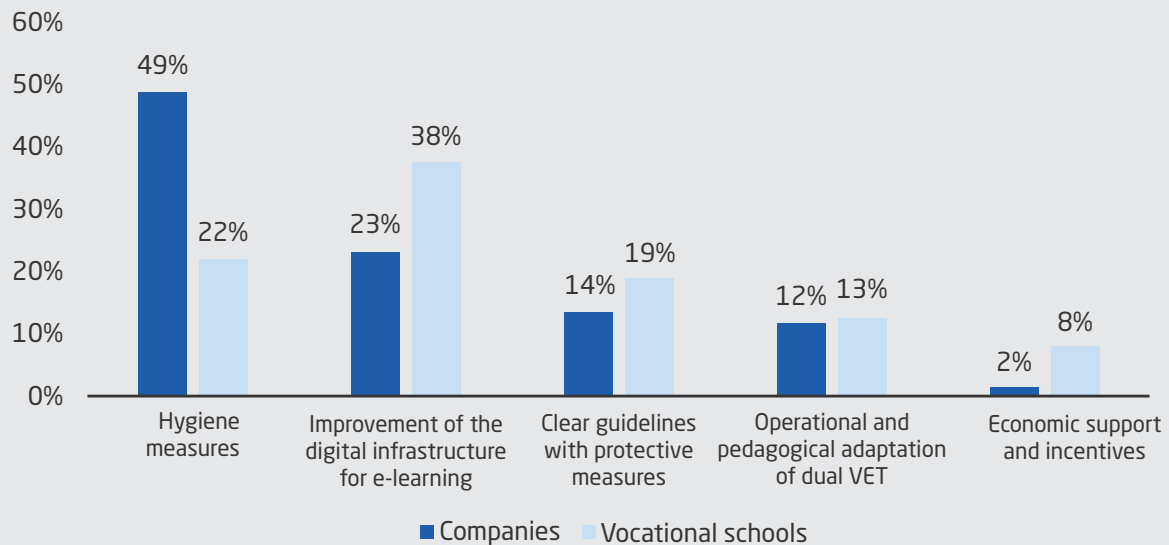
**Figure 2. Impact of COVID-19 on VET schools and companies in Mexico**



Source: Figueroa Saldaña (2021)

The empirical study cited by Figueroa Saldaña (2021) also asked for suggestions to reduce the effects of COVID-19. As shown figure 2, companies tend to prioritise hygiene measures, while VET schools advocate an improvement in the digital infrastructure for distance learning.

**Figure 3. Suggestions from VET schools and companies to reduce the effects of COVID-19**



Source: Figueroa Saldaña (2021).

Ultimately, the experience with COVID-19 makes it clear that VET schools have a great need for improvements to their digital infrastructure. At the same time, they have discovered the possibilities and the great potential that comes with the digitization of learning, especially for school-based learning.

### Summary and key lessons to learn

The introduction of the Mexican SED goes back to the development needs of the Mexican economy and is in particular a response to the skills needs in the export-oriented industry. It is a clearly a demand-driven approach. The results of the programme monitoring show that the dual system is clearly superior to purely school-based VET.

The dual programme is implemented through a complex system of social partnership that is difficult to understand from the outside and is continuously being further developed. Cooperation between the public education system and the private sector is managed by a large number of partners, who communicate with one another through various committees. In both sub-systems, the responsibilities on each hierarchical level – from the overall planning and coordination to the implementation of the learning processes for the students – are interlinked in a mirror-image manner (see the following overview by Ministry).

The VET schools prepare the students carefully for WBL periods in companies. In their first year, students regularly attend full-time school-based teaching. Only those students who have done well and are at least 16 years old may be nominated by their teachers for participation in the dual training model; the final decision for admittance is taken by the companies.



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## ► Case Study 4

### INDONESIA: Contrasting a demand-driven and supply-driven approach to WBL

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Like many other countries, Indonesia has undertaken several efforts to increase the quality and effectiveness of vocational education at the secondary level. Reforms are primarily aimed at better aligning education in VET schools with industry, which strongly needs qualified workers. At same time, the number of VET students looking for internship opportunities far exceeds the places available in industry. This case study addresses two examples of attempts to bridge this gap. One example involves coordinated collaboration between VET schools and industry, while the other example involves bringing a real production process into the school.

#### Context

In 2017, a revitalization programme for Vocational High Schools (SMKs) was launched in Indonesia in order to better align the education and training in SMKs with the requirements in industry. Graduates are expected to acquire competences and skills that are in accordance with labour force demand and gain corresponding certificates of expertise from industry.

The revitalization should include various components, like improvement of equipment in SMKs, school management, alignment of curricula, strengthening of digital literacy, qualification of VET teachers and, last but not the least, enhancing cooperation of VET schools with industry.

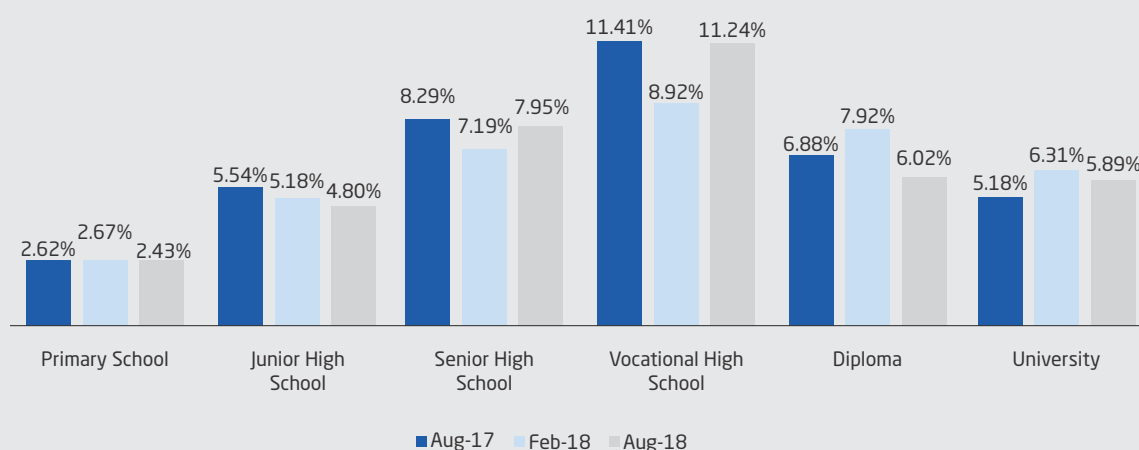
Yet, implementation of the revitalization programme for SMKs is not an easy task. The number of SMKs is steadily growing as a result of the increasing number of people in Indonesia attaining working age. In 2015/2016, the number of public and private vocational high schools was 13,131, with a total of 4.4 million students (SED-TVET 2016).

In addition, the implementation of the programme is made difficult by the fragmentation of political responsibilities, as happens in many developing countries. The implementation involves 10 ministries, 2 institutions, and the local governments of 37 provinces in Indonesia.

The Ministry of Industry has set a goal of promoting 1,775 SMKs by 2019, who, in cooperation with industrial companies, will train 84,500 certified graduates in order to improve the employment opportunities of VET graduates.

#### Need for internships and WBL

There is an alarming mismatch between the number of trainees in VET institutions and the available internships in Indonesia's industry. Vocational students encounter massive difficulties in finding internship opportunities; graduates might leave VET institutions without possessing skills that are in demand in the labour market. Data on unemployment emphasizes this problem: The unemployment rate of VET school graduates in Indonesia is striking compared to graduates from general education pathways, and this is essentially attributed to the lack of practice-orientation and to the poor public image of the VET system (BPS 2018).

**Figure 4. Unemployment rate according to the highest education level completed**

Source: BPS (2018).

### Alignment of VET schools with industry

According to Osman et al. (2015), the discrepancy between the competences of graduates and industry demand is due to the inability of educational institutions to simultaneously transform with the labour market. Nevertheless, there are promising examples of alignment of VET schools with industry.

#### Bekasi SMK at MM2100 Industrial Estate in Jakarta

MM2100 Industrial Town is one of the most economically successful industrial estates in Indonesia, with around 190 manufacturing and supporting companies. “The companies were finding it hard to get qualified and well-motivated employees, the need was primarily for ‘blue-collar’ workers. There is a mismatch between this demand and graduates from training institutions. Bekasi SMK was set up to service the whole industrial estate, because other local SMKS didn’t provide enough knowledge and employability skills (‘attitude’). Applicants must take tests and have an interview. Students attend for three years and go out for work experience in their second and third year, adding up to one year by the end of school. Following, the majority go to companies on the business park. Companies are ‘queuing up’ to take graduates. The SMK has become a hub for companies’ recruitment” (Smith 2017).

The example of Bekasi school demonstrates how to implement a consistent demand-driven approach in VET, fostering WBL opportunities in industry and opening up gainful employment for graduates. Of course, this is a selective model, and context conditions are more favourable for a school located in an industrial park with more than 300 companies than for a school located in a rural environment where SMEs predominate. Nevertheless, this example shows that companies are willing to engage in dual VET schemes if their interests are served. Companies align their activities according to cost-benefit standards; if they get qualified workers, their subsidies for the VET school and allowances for the students pay off.

### The teaching factory model

The teaching factory model is another attempt to keep pace with developments in industry. It is a WBL model in a school environment, where students acquire skills that are in demand in the labour market. The basic idea of the teaching factory is “factory to classroom”, aiming to transfer the working

conditions in industry as much as possible to the learning venue, and thus to align learning in VET schools with skills needs in companies (Chryssolouris et al. 2016).<sup>5</sup>

The teaching factory model works as an interface between VET and industry by increasing the competitiveness of graduates. There are organizational mechanisms to keep such factories up-to-date with rapid developments in industry, and WBL in a real production process is core to the applied educational approach, allowing students to acquire competences that are highly valued.

Sri Subekti et al. (2019) examined three VET schools that operate baking factories. Their approaches were compared with each other and the crucial issues of this model were identified:

- The basic effort of the teaching factory is to integrate working experience into the curriculum of the school. VET teachers reviewed and adapted the existing curricula to facilitate direct involvement of students in the production process.
- A real production process is needed to allow integration of WBL in real-life working processes into the curriculum.
- Before implementation, the school management undertakes careful and detailed planning of the production process, by considering all relevant professional standards and economic implications.
- Involvement of students in the production process starts with an introduction to industrial health and safety standards, which includes the mandatory use of personal protective equipment in the workplace.
- Furthermore, students are involved in the procurement, management and quality control of raw materials for the production process.
- The production process follows the necessary stages to create the envisaged products, but it is focused on developing the students' skills by providing support and targeted instructions. Therefore, the scope of daily production is limited; the examined teaching bakeries produced between 3–25 kg of sweet bread and 5–10 kg of white bread per day.
- Another important component of WBL in a teaching factory is assessment of the quality of the created products; students learn to analyse quality deficiencies and their causes, and develop strategies for improvement.
- In the examined examples of teaching factories, students also took on activities for the marketing, distribution and sale of the bread produced. This mostly happened in the school and local environment.
- Finally, the students regularly compiled production reports to reflect on the activities carried out in the production process and to relate their practical experiences to the theoretical knowledge they had acquired.

Thus, the teaching factory model is implemented in accordance with real work procedures and by following the prevailing standards in industry. The VET students are fully involved in the main stages of the production process. WBL is a crucial component of the underlying didactic concepts, aiming to develop students' employability skills.

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<sup>5</sup> It should be noted that "the concept of the teaching factory has its origins in the medical sciences discipline and specifically in the paradigm of the teaching hospitals, namely the medical schools operating in parallel with hospitals. It aims to incorporate the learning and working environment from which realistic and relevant learning experiences arise" (Chryssolouris et al. 2016, 45).

The teaching factories provide a real-life working environment for VET students to develop their skills and comprehend the challenges of everyday industrial practice. The model applies a dual approach within the school and may serve as a reference for allowing WBL in VET schools for students with no other opportunity to complete an internship in industry.

### Conclusions and lessons to learn

The examples analysed in this case study, the teaching factory and Bekasi SMK, are based on different approaches to develop WBL opportunities and employment prospects for VET graduates. The demand-driven model of the Bekasi school is rather selective but is characterized by close cooperation with industry. The model applies a synchronized dual approach to WBL and facilitates excellent job prospects in cooperating companies. No information is available how educational standards and pedagogical requirements are maintained during work-place periods.

The following table contains a comparison of the different components of WBL and how they are implemented by the two examples:

**Table 6. Alignment of TVET with requirements in industry and WBL in teaching factories**

Component of WBL	Bekasi SMK	Teaching factory
Duality	Duality implemented together with industry	Duality implemented within VET school
Synchronization of WBL and classroom learning	Synchronization in consultation with industry	Synchronization according to educational standards/pedagogical requirements
Inclusiveness	Selective access	Potential for inclusion of vulnerable students
Skills profile	Specific skills profile	Full skills profile
Degree	Recognized qualification	Recognized qualification
Employment prospects	Excellent job prospects in cooperating industry	No data on job prospects
General approach	Demand-driven	Supply-driven

The teaching factory model can certainly not replace learning in real work environments. Although the model is much more than a mere simulation of work processes, students in teaching factories lack integration into the business culture and processes of a company. However, the model can be an alternative for WBL when there are no other options, for example, in remote or rural areas. The model starts on the supply side and can strengthen the quality of VET in particular here: the dual approach with WBL is organized inside the school and thus can better take into account educational standards and pedagogical requirements, provide individual support and serve the needs of students with disabilities and other disadvantaged groups. Data on job prospects is not available.

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