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Apprenticeships Development for
Universal Lifelong Learning and Training (ADULT)

Unlocking apprenticeship potential in small and medium enterprises

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Foreword

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, re-skilling, 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.

This research paper titled "***Unlocking apprenticeship potential in small and medium enterprises***" explores the status of SMEs that offer apprenticeship opportunities in various countries, the reasons for the low participation of enterprises with especial reference to developing and developed countries and the various factors which affect the participation of enterprises in apprenticeship. It also highlights the experiences and lessons learned from the initiatives taken by various countries in encouraging employers to participate in the apprenticeships.

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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) and Majda Grine (ILO HQ) coordinated with consultants and reviewers and reviewed and provided comments on the paper.

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Executive Summary

An enterprise view to SMEs' commitment to apprenticeship

This thematic report is concerned with the policy goal of enhancing the participation of enterprises, particularly small and mediumsized enterprises (SMEs), in apprenticeship. Due to this focus, apprenticeships are deliberately interpreted from an entrepreneurship point of view. More specifically, the commitment of SMEs to apprenticeship is discussed as a potential target for policies that aim at supporting the development and improving the performance of SMEs. Such types of policy measures are referred to as 'enterprise policies' and 'entrepreneurship policies', depending on the level they target.

Viewing apprenticeships from the angle of entrepreneurship policies is appropriate because without the commitment of enterprises apprenticeships cannot work. The enhancement of enterprises' participation in apprenticeship can be interpreted as an aspect of promoting 'productive entrepreneurship', i.e. economic activity that contributes to economic growth for the society rather than generating value only for those directly involved. In that sense society as a whole can benefit, including learners, the state, employers and employees.

Three categories of policies can be distinguished, which roughly correspond to more general levels of analysis (macro, meso and micro level) according to their distance from or proximity to the individual enterprise. These categories are as follows and have been taken from an OECD analysis:

- Policies for institutional conditions, i.e. measures that are implemented at the societal level and aim to promote the development of enterprise activities and culture at large;
- Policies for enterprises and entrepreneurial ecosystems, i.e. measures related to the supportive networks and resources in the immediate (e.g. local) environment of entrepreneurs and enterprises;
- Programmes targeted directly at entrepreneurs and business owners, i.e. measures that aim to facilitate the establishment and improve the capacity and performance of single enterprises, e.g. by means of advice and counselling, education and training for entrepreneurs, or direct financial support.

▶ SMEs are key players for a successful system of apprenticeship

Why is it that the involvement of SMEs in apprenticeship merits special attention as a target for enterprise policies?

The answer is simple: SMEs are key players when it comes to the provision of apprenticeship opportunities. The importance of these enterprises for generating and sustaining employment in general is well known. For instance, according to current ILO data the employment share of SMEs varies between 52% in developing countries, 34% in emerging economies and 41% in developed counties. This leads to the expectation that SMEs can also play an important part as employers of apprentices, and the available evidence suggests that this is actually the case. In countries that have a strong apprenticeship based vocational education and training system, SMEs provide the biggest share of apprenticeship places, according to the size classes used in these countries. In Australia, for one, over 64% of all apprentices are trained in enterprises with up to 99 employees. However, the definition of SMEs in the present report builds on a different categorisation, namely the EU definition in Recommendation 2003/361/EC, according to which enterprises with up to 49 employees are "small" and those with up to 249 employees are "mediumsized". The advantage of this definition is that the threshold of 49 employees is also used in ILO statistics, which facilitates comparability of data.

Still, the involvement of SMEs remains a challenge even in such cases as shown, for example, by the declining participation of micro enterprises (i.e. enterprises with less than 10 employees, according to the EU definition in Recommendation 2003/361/EC). SMEs and particularly micro enterprises face challenges when it comes to putting their commitment to apprenticeship into reality, and their potential as providers of apprenticeship opportunities is partly left unused. Policy interventions are needed to stimulate enterprise participation.

▶ Factors that are relevant for the participation of enterprises

Research identifies factors that influence the training decisions of enterprises as well as the challenges they face. They can be grouped in four areas, which may each be addressed by specific interventions from the repertory of different levels of entrepreneurship policies. The categories are grouped by their increasing distance to the single enterprise and its economic activity, setting out from the costs and benefits and proceeding to widen the perspective by successively including further core aspects of the business process. The four categories are as follows:

- Costs, benefits and entrepreneurial commitment to apprenticeship;
- Skill needs and recruitment;
- Human resource development strategies as a subject of labour policy, industrial relations and social dialogue;
- Public policy and apprenticeship infrastructure.

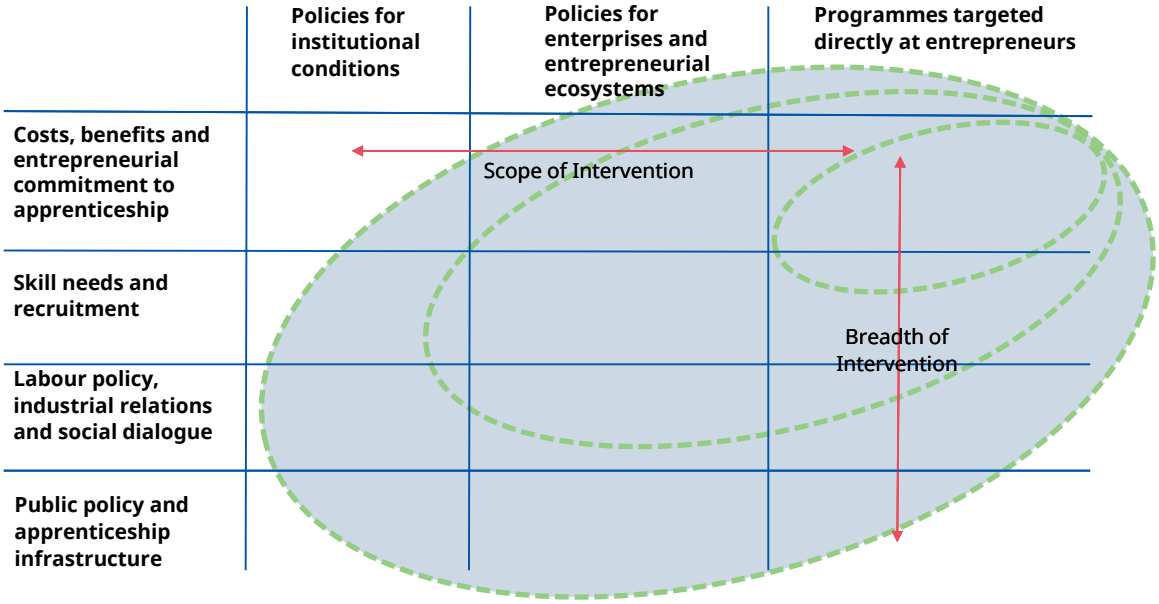
As with any enterprise activity, different issues surrounding apprenticeship need to be looked at in terms of their economic consequences. Setting up training places and hiring apprentices is associated with costs (e.g. for the remuneration of apprentices) and potentially with economic benefits such as the productive contribution of the apprentice. Accordingly, all the factors can be related to the basic economic concepts of costs and benefits, albeit there might be additional valuable theoretical concepts, such as e.g. the concept of a "high-road" work organisation , that in in turn has implications for the enterprise itself. The identified factors can be seen as enabling or limiting conditions for apprenticeships.

Policy interventions to enhance SMEs' participation

The greatest challenge for policy makers is the correct economic evaluation of the above mentioned factors and their interaction. This is probably true for the individual entrepreneur as well as for the correct economic evaluation of different interventions on the policy level. Given the numerous problems of making correct and precise economic assessments, this report first seeks to help classify various challenges or policy interventions against the background of current knowledge.

For the classification of challenges and interventions, this report provides a matrix that allows to assign them with regard to the respective policy level and to allocate them in terms of content to one of the four different factors. The matrix can be used to map the breadth and scope of interventions in terms of the factors addressed and the policy areas covered. The classificatory principle for the breadth as well as the scope of interventions is the proximity to (or distance from) the single enterprise and its operations. The following image shows how the matrix is derived from the OECD's categories of enterprise and entrepreneurship policies.

Enhancing SMEs participation in apprenticeships: A matrix for locating challenges and interventions



Source: Authors.

1 In the high road labour model, there is a relatively flexible work organisation within the company and this goes hand in hand with higher employment security and high wages. This creates incentives for qualification and competence development, and allows time for long term staff investments.

The level of the enterprise and entrepreneurial ecosystems is of particular importance here. Simplified, it can be said that it is the meso level, but one result of the report is that these systems can be tied together by very different brackets. Obviously, the regional level comes to mind. However, quite different criteria are conceivable for drawing the boundaries of such an ecosystem, e.g., an industry or even an occupation across different industries. According to the matrix some of the interventions to stimulate SMEs apprenticeships might be focussing on the ecosystem level in terms of scope but should cover the breadth of challenges.

With regard to small and mediumsized enterprises, such an ecosystem is characterized by the fact that, on the one hand, there are common competence requirements between individual companies. On the other hand, the responsibilities for promoting these competences among learners are distributed among the actors (enterprises, intermediaries, schools and colleges, public administration) in such a way that everyone can best contribute according to his or her abilities.

▶ Strengthening SMEs participation in apprenticeships: key messages

As an outcome of this report there are some messages for the international level and the particular case for SMEs:

- SMEs are the major providers for apprenticeships in many countries. They are the backbone of functioning apprenticeship systems.
- There are specific factors for a sustainable involvement of SMEs that need to be looked at. These factors include costs and benefits of apprenticeship, skill needs and recruitment, industrial relations, and public policy and apprenticeship infrastructure.
- On the international level there is still considerable lack of information and data on apprenticeships. Simple statistical concepts such as an apprenticeship rate or a rate of companies providing apprenticeships are not agreed. Despite the progress that has been made at the international level in establishing common terminology and concepts, there is still a lot of work to be done in the area of data collection and further research.

Such research could support decisions of policy makers how to best support the availability of apprenticeship to SMEs and their employees.

The scarcity of knowledge about apprenticeships in ILO member states constitutes a big challenge to any attempt to make valid suggestions for apprenticeship policies on the international level. In particular, this also concerns the question of the development of training relationships in the informal sector and their evolution into more formalized arrangements, which relate, for example, to the ILO's Building Block on apprenticeships. Research on the participation and engagement of SMEs in apprenticeship is largely based on Australia, Germany, US and UK and Switzerland and more recently some additional European Countries. For many ILO countries the validity might be limited. Therefore, in the future

- Emphasis needs to be given to the application and development of concepts of apprenticeships in light of important neighbouring policy domains, such as employment, enterprise and entrepreneurship policies. They constitute the context in which apprenticeships might develop or not develop. Given the specific conditions in many lowincome countries a developmental model for the transformation of informal to formal apprenticeships might be required on national and international levels.

The analysis of existing research in this report identifies some points (policy pointers) that can be used to clarify and further develop the current agenda at international level with regard to increasing the participation of SMEs in apprenticeship training. Messages are presented in relation to ILO's six building blocks for apprenticeship in the last section. The following list represents a small sample of important findings.

- The learning content of apprenticeships needs to be representative to work across the boundaries of individual companies but flexible enough to cater to the needs of individual companies. Only through this balance can apprenticeships contribute to stable and transparent labour markets as part of enterprise and entrepreneurial ecosystems.
- Often the best level for interventions might be such entrepreneurial ecosystems. E.g. an important lever to stimulate apprenticeships might be tailored wages or apprenticeship remuneration acknowledging the respective regional and sectoral markets and the respective occupation.
- Policy interventions could look at the match between the development of apprenticeship structures and practices and the support to "high road" employment strategies of companies. As a rule, this requires cooperative management practices, broad job profiles and a corresponding work organization. A "low road" strategy of low labour costs, low investments in training and high turnover of employees would not be compatible with apprenticeship.
- In order to make apprenticeships in SMEs attractive apprenticeships need to cover broad occupational profiles as opposed to company specific "jobs". If this aspect is not considered, it will not be possible to make training in small and mediumsized enterprises attractive and thus contribute to attracting a diverse population of apprentices.
- In addition to financial support, policies for apprenticeships in SMEs can involve regulatory as well as institutional measures. Their economic importance is often overlooked and underrated.
- Longer term investments into apprenticeship infrastructures are necessary in order to build a supportive framework for apprenticeships in SMEs. This infrastructure should also cover the support to businesses in core functions of training.
- This support can concern the preparation and recruitment, the content and pedagogical supervision, and also the testing of apprentices.
- Such services may also include the networking between different companies and rotation of apprentices or processes of organisational consultancy.

1 Introduction

Introduction

The present thematic report is concerned with the policy goal of enhancing the participation of enterprises, particularly small and mediumsized enterprises (SMEs), in apprenticeship. Due to this focus apprenticeships will be deliberately interpreted in the perspective of policies that aim at supporting the development and improving the performance of SMEs. Other functions and aspects of apprenticeship (youth transitions, learning etc.) are covered by other thematic reports.

In the course of the report, important points of content become illustrated and underpinned by various forms of presentation. Accordingly, the text contains 5 tables and 3 figures, as well as 5 text boxes, 7 "snapshots," and references to 3 case studies found in the report's appendix. "Snapshots" in this context are somewhat more detailed accounts of practices or research projects that support key issues in the report. They will be introduced with a short paragraph indicating the major messages and follow the different levels of enterprise policies.

1.1 Apprenticeships, enterprise and entrepreneurship policies – concepts used in the report

The concepts of 'entrepreneurship policies' (cf. OECD 2020b) and enterprise policies can be used in order to classify policy measures targeted at enterprises and their development.

Enterprise and entrepreneurship policies

Viewing apprenticeships from the angle of entrepreneurship policies is appropriate because without the commitment of decision makers in enterprises apprenticeships cannot work.

Box 1: Entrepreneurship policies according to OECD's international compendium

In the context of entrepreneurship policies, three categories of policy intervention can be distinguished, which will also be used in this report for the characterisation of measures to enhancing the involvement of enterprises in apprenticeship:

- policies for institutional conditions, i.e. measures at the societal level to facilitate the development of enterprise culture, e.g. an appropriate regulatory framework, taxation policy, competition policy, but also awareness raising campaigns (cf. OECD 2020b, pp. 26-28);
- policies for enterprise at meso level, i.e. policy measures related to the supportive networks and resources in the local environment of enterprises (cf. OECD 2020b, p. 34-35);
- programmes targeted directly at entrepreneurs, e.g. advice and counselling, financial support, encouraging internationalisation, and support for technological innovation (cf. OECD 2020b, pp. 28-34).

The enhancement of enterprises' participation in apprenticeship can be interpreted as an aspect of promoting 'productive entrepreneurship', i.e. economic activity that contributes to economic growth rather than generating value only for those directly involved (cf. OECD 2020b, p. 16). In that sense society as a whole can benefit, including learners, the state, employers and employees. Whilst the category "entrepreneurship" particularly targets the persons in their broader context we also introduce the category of enterprise policies in this section in order to cover all important aspects.

Box 2: Enterprise policies

The ILO's approach to enterprise development policies

The ILO promotes enterprise development policies aimed at achieving full and productive employment, decent work, sustainable growth, structural transformation, and income generation. This approach recognizes the need to strengthen the institutions and governance systems that nurture enterprises. It is based on the understanding that strong and efficient markets also need strong and effective institutions. The aim is to ensure that human, financial and natural resources are combined equitably and efficiently in order to achieve innovation, enhanced productivity, and sustainability. This calls for new forms of cooperation between government, business, labour, and society at large in promoting enterprise development policies.

Recognizing this strategic context, the ILO promotes a range of actions and policy approaches in relation to key themes such as micro, small and mediumsized enterprises; the financial inclusion of MSMEs and young entrepreneurs; the contribution of MNEs and other enterprises to economic and social development; the social and solidarity economy; and green jobs and sustainable enterprises in the context of the ecological transition.

The ILO's approach also recognizes that there is no one-size-fits-all solution to the design and implementation of policies to promote sustainable enterprises. Policies need to take into account the diversity of country situations, resources, and institutional capacity without undermining the importance of labour and environmental standards. A range of differentiated policy interventions to support the design of programmes that target challenges and opportunities in these thematic areas are thus considered in a flexible and adaptable manner. Interventions are driven by taking also into account crosscutting goals such as enhancing the recovery from the COVID-19 crisis, firm resilience, gender equality, and promoting responsible business practices which respect workers' rights.

While the special circumstances and disadvantages of MSMEs are recognized and targeted, interventions are aimed at creating conditions that provide for all enterprises equal opportunity in regards to access to credit and inputs; fair taxation; non-discriminatory application of labour legislation; technical and managerial skills; adequate access to markets and information; firm productivity and access to new technologies; provision of adequate infrastructure; enabling business environments; and supporting the transition of informal economy operators to the formal economy, among other issues. Appropriate consideration is also given to other policies in areas such as fiscal and monetary measures, trade and industry, social protection, occupational safety and health. Capacity building through education and training, and the link between quality apprenticeship schemes and vocational and entrepreneurship training as discussed in this paper constitute a field of overlap between enterprise development policies in general and entrepreneurship policies.

Social equity, decent work, environmental sustainability, innovation, and productivity are essential elements of the current emphasis in the ILO's approach to enterprise development policies. This requires an appropriate understanding and coordination within the ecosystem of policies that promote enterprise development. In this context, the policies to enhance firm productivity are aimed at strengthening the relationship between inclusive growth, productive employment, and labour income by targeting interventions that support the fair distribution of productivity gains, including through social dialogue and collective bargaining. Apprenticeships can potentially contribute to reaching these aims.

Sources: ILO documents concerning the 2019 Centenary Declaration; the 2021 Global call to action for a human centred recovery; the 2015 Resolution concerning small and medium sized enterprises and decent and productive employment creation; the 2007 Conclusions

Obviously, these categories correspond to analytical levels that are distinguished by the distance from or proximity to the individual enterprise. They may be referred to, from top to bottom, as macro, meso and micro levels. We will return to this classification especially in section 3. In the second section, based on the analysis of existing research literature, we will identify the factors that determine the engagement of enterprises and identify problem areas and challenges. Before we turn to these questions in detail, we present some basic characteristics of apprenticeships and figures in an international perspective.

Apprenticeships

In international comparative research and policy, characteristics of apprenticeship have been identified, which can be regarded as commonly accepted. These include a strong work based learning component taking place at employers' premises, complementary instruction in a VET school or another educational institution, a contractual relationship between the learner and the employer (in some cases the educational institution may also be a party to the agreement), and a remuneration or other financial compensation for the learner (see e.g. Mann and Ranieri 2021, pp. 12-13). These characteristics are reflected in international guidelines and recommendations such as the ILO's concept of Quality Apprenticeships (ILO 2017) or the European framework for quality and effective apprenticeships (EFQEA) (Council of the European Union 2018), which serves as a common point of reference for the development and implementation of apprenticeship schemes in Europe.

The Quality Apprenticeships concept of the ILO builds on the early definition in the 1962 Vocational Training Recommendation, according to which apprenticeship involves 'systematic long-term training for a recognised occupation taking place substantially within an undertaking or under an independent craftsman' and 'should be governed by a written contract of apprenticeship and be subject to established standards' (ILO 2017, p. 3). Even though the recommendation itself has been replaced by other ILO resolutions in the meantime, the definition continues to be relevant for the further elaboration of policy frameworks. In the current Quality Apprenticeships concept, the characteristics in are used for the description of apprenticeship programmes.

Box 3: Quality Apprenticeships concept according to the ILO

- Apprenticeships **combine on the job training and off the job learning** and
- enable learners to acquire the **knowledge, skills and competences required to carry out a specific occupation**;
- They are **regulated and financed by laws, collective agreements and policy decisions arising from social dialogue**;
- They require a **written contract** outlining the roles and responsibilities of the apprentice and the employer;
- They involve a **remuneration** as well as **standard social protection coverage** for the apprentice.
- They are following a **clearly defined and structured period of training** and the successful completion of **formal assessment**, apprentices obtain a **recognised qualification**.

(ILO 2017, pp. 3-4)

Quality apprenticeships in this sense depend on appropriate environmental conditions and support structures, which is why the ILO identifies six 'building blocks' that are considered essential for the sustainable establishment of apprenticeship systems. These building blocks, which will be used as point of reference for the policy conclusions in the final chapter of this report, are as follows (cf. ILO 2017, pp. 21-22):

Box 4: ILO Six 'building blocks' of apprenticeship systems

- **Meaningful social dialogue:** apprenticeship programmes should be based on cooperation and exchange of information between employers and trade unions as these partners have first hand knowledge of the skill needs in the industry.
- **Robust regulatory framework:** regulations are needed to define the conditions for the design and implementation of apprenticeship systems, and to secure the social protection of learners.
- **Clear roles and responsibilities:** apprenticeships depend on the support and commitment of numerous stakeholders with a clear understanding of their roles and responsibilities as well as a shared understanding of the mission of apprenticeship.
- **Equitable funding arrangements:** apprenticeships generate costs and benefits for employers, apprentices and the society at large. Costs need to be shared by all stakeholders on an equitable basis.
- **Strong labour market relevance:** apprenticeship aims to equip the learners with occupational skills that are needed in the labour market. Employers and apprentices need to know which skills are in demand and how they can be recognised.
- **Inclusiveness:** apprenticeships are supposed to offer opportunities for all and not just for one specific social group. Appropriate measures to accommodate the diversity of learners should be in place.

(ILO 2017, pp. 21-22)

The EFQEA takes this concept further and sets out 14 criteria that define appropriate learning and working conditions within apprenticeship schemes as well as framework conditions that should be fulfilled to support the successful implementation of apprenticeship (see also Cedefop 2021a). The following figure presents the EFQEA criteria in terms of quality requirements for enterprises when they create and run apprenticeships.

Table 1: European framework for quality and effective apprenticeships

Criteria for learning and working conditions	Criteria for framework conditions
Written agreement	Regulatory framework
Learning outcomes	Involvement of social partners
Pedagogical support	Support for companies
Workplace component	Flexible pathways and mobility
Pay and/or compensation	Career guidance and awareness raising
Social protection	Transparency
Work, health and safety conditions	Quality assurance and tracking of apprentices
Source: Council of the European Union 2018	

While some of the criteria are relevant predominantly for attracting and supporting learners, others relate directly to the involvement and the role of enterprises. All of the criteria in the 'learning and working conditions' column depend on the commitment of employers, who not only need to comply with formal requirements such as the conclusion of a written agreement and the payment of wages and social security contributions, but who are also indispensable for the provision of a work environment that is conducive to learning. The criteria of framework conditions also have an impact on the individual company, in most cases. For example, a legal framework will usually also affect the practice of training in the individual company, and require corresponding measures on its side.

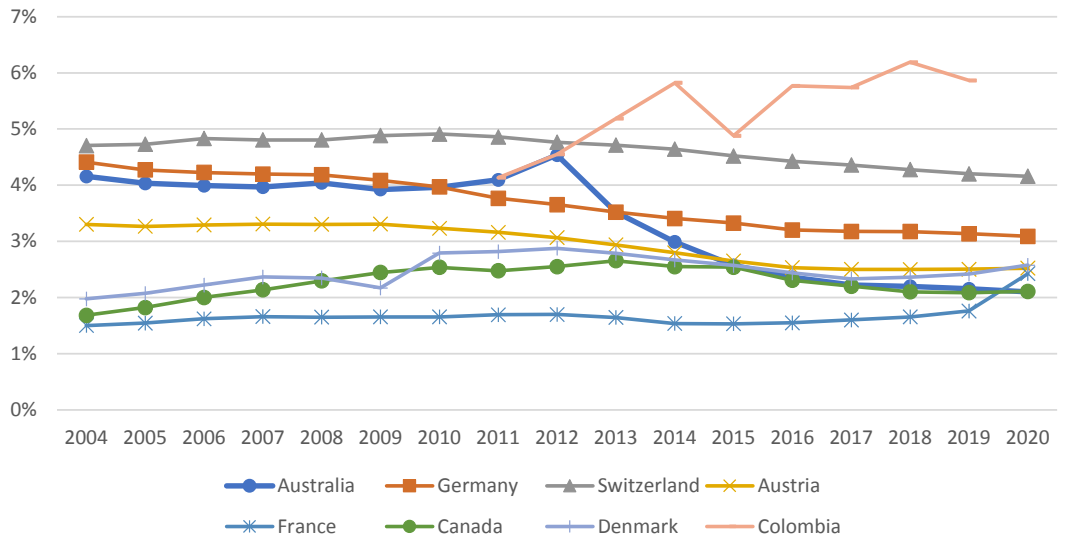
▶ 1.2 Data on apprenticeships on an international scale

As the above mentioned definitions and concepts show, apprenticeships do not function without enterprises as providers of workplaces with appropriate learning and working conditions. Accordingly, a high commitment of enterprises to participation in apprenticeship schemes is desirable.

Data on the proportion of enterprises offering apprenticeship places in various countries provides evidence on the commitment of enterprises to apprenticeship training. The following compilation of data in Figure 1 is restricted to a sample of developed countries because of the limited availability and accessibility of data on apprenticeships. It is based on analyses that are carried out on a regular basis for the international chapter of the annual German BIBB Data Report (Grollmann, Ulbrich, & Hugo, 2022). An expansion to further ILO countries would be desirable in order to get a better picture of the state of apprenticeships on a worldwide level. In some cases of international datasets it is possible to identify apprentices (e.g. PIAAC) or apprenticeship firms (e.g. CVTS). However, due to the small number of cases and a variety of concepts in place, the data are not very meaningful and it is not even possible to perform meaningful bivariate analyses of variables.

It can be shown that the overall commitment to apprenticeship training has decreased over recent years. The following figure illustrates this point.

Figure 1: Training ratio – share of apprentices among all employees in a country in international comparison (in %)



Source: BIBB 2021 (adapted)

The country comparison of the apprenticeship training rates of selected countries shows that the training rate in Germany (3.1%) has remained more or less unchanged at the same level since 2016, having fallen in the previous years (figure 1). Similar observations can be made for Switzerland, where the training rate has changed only slightly (2020:4.2% vs. 2018: 4.3%). France continues to have the lowest training rate until 2019, however due to subsidies and legislative changes the number has significantly risen (2.4%), recently, and has overtaken Canada and Australia. Denmark, Australia, Austria and Canada have a continuous convergent development of the training rate in recent years. The trend continued for Canada (2.1%) and Australia (2.1 %), while Austria (2.5%) and Denmark (2.3%) continued to maintain the 2016 level. The case of Colombia is explained in detail in a case study within the annex. The most important factor explaining the general rise after 2015 is a mandatory apprenticeship training quota from companies in conjunction with legislative changes since 2012.

With regard to the interpretation of the training rate, it should be noted that the absolute and relative number of apprenticeship training contracts must always be differentiated. The data on the labour force shows that the number of people in employment in the reviewed countries has risen since 2004. This means that an increase in the number apprenticeship contracts does not automatically translate into a higher training ratio. This can be seen in Switzerland, which has had since an overall increase in the (absolute) number of apprenticeship training contracts, but a slightly declining training rate in recent years. A similar trend can also be observed for France. The training ratio is an established measure in assessing the training intensity of companies in many countries. In some cases, this plays a role in the political discussion and targets are set; at the same time, there are also countries in which there are legal regulations on how high the proportion of apprentices should be in individual companies.

Even the construction of relatively simple indicators, such as the apprenticeship training ratio, in order to assess the intensity of in company training encounters major challenges in terms of data availability and

comparability. This is also true for highly developed industrialized countries. When it comes to widening the perspective so as to include medium or low income countries, the incidence of apprenticeship can be measured only in terms of more fundamental characteristics. A relatively reliable figure that is suitable for the description of apprenticeship on an international scale is the number of enrolments in apprenticeship. This indicator is considered to be the most accurate one since these enrolments are usually registered by public authorities or by other bodies on their behalf. In their forthcoming publication 'Apprenticeship at a Glance' (cf. ILO forthcoming), the ILO presents key data on apprenticeships in several low, medium and high income countries for the period from 2016 to 2020. These data allow for some preliminary conclusions on the development of apprenticeship in different countries. The following table presents data on apprenticeship starts in a number of selected countries. Unfortunately, no figures are available from low income countries. The table also shows the participation of women in apprenticeship as percentage of female learners in all enrolments. Although the percentage varies, apprenticeships are still male dominated.

Table 2: Apprenticeship enrolments in selected countries

Income level	Country	Apprenticeship Starts 2016-2020					
		2016	2017	2018	2019	2020	Female % (2019)
Lower middle income	Cambodia	21,296	23,331	27,700	25,835	18,406	75%
Lower middle income	India	111,091	161,034	199,784	251,343	290,592	49%
Upper middle income	Lebanon	1,350	1,011	938	1,054		3%
Upper middle income	South Africa	30,817	32,330	29,982	16,218		30%
High income	Australia	169,000	162,600	160,300	155,600	133,500	35%
High income	Denmark	54,128	52,115	52,361	51,628	49,877	47%
High income	United States	206,020	191,563	238,549	252,271	222,243	9%

Source: ILO (forthcoming)

The figures suggest that apprenticeship is relatively stable in high income countries and continues to attract substantial numbers of learners, albeit with a slightly decreasing tendency. Comparison of figures shows that in countries at the lower or upper middle income level, apprenticeship is often weakly developed as the enrolments remain at a low level. A notable exception is India where the number of entrants has more than doubled in the period from 2016 to 2020. On the other hand, South Africa experienced a significant decline of enrolments well before the COVID-19 crisis. Given the key role of enterprises for a viable apprenticeship system, this picture reinforces the observation that the involvement of enterprises needs to be intensified.

1.3 SMEs as key players in apprenticeship

The 2016 World Employment and Social Outlook of the International Labour Organization has featured the role of small and medium enterprises (SMEs) for generating and sustaining employment. The employment share of SMEs varies between 52% in developing countries, 34% in emerging economies and 41% in developed countries (International Labour Office 2016, p. 16). The 2016 World Employment and Social Outlook was followed by a report, „Small Matters", which showed that small economic units with up to 49 employees account for approximately 70 per cent of global employment (ILO 2019). This, however, includes employment in formally registered enterprises as well selfemployed persons and the in formal sector. Selfemployment and work in the informal sector are particularly relevant for Low income countries (LIC) and Lower middle income countries (LMIC).

Given this important role of SMEs as employers, it can be expected that SMEs also play an important part when it comes to the provision of apprenticeship opportunities. In this the matic report we focus on formal apprenticeships, informal apprenticeships will be dealt with by a designated thematic report.

In countries that have a strong apprenticeship based vocational education and training systems, SMEs provide the biggest share of apprenticeship places, according to the size classes in use in these countries.

But even when using a lower threshold e.g. the one of the ILO of up to 49 employees the share remains still high. For example, in Germany 70 % of apprenticeships are provided in small and medium enterprises (BIBB 2021) and 77% in France according to the European definition of SMEs. When applying the 49 employees threshold it still remains a share of 40% in Germany and 66% in France (see also Table 3).

In Denmark there is evidence that the apprenticeship rates in micro (up to 10 employees) and small (10 to 50) with almost 6 % is higher than in medium (50 up to 250) and large enterprises (more than 250) with 2- 3%.[2] But also in France, where apprenticeships are distributed across different educational levels in a context of a more school based vocational education and training system, apprenticeship contracts are largely concluded by SMEs. A similar role of SMEs can also be observed in other countries as shown in the following table. It should be observed that the exact definition of SMEs varies between the countries, but the key message remains the same: the majority of apprenticeship places is provided by smaller enterprises.

2 https://www.ae.dk/sites/www.ae.dk/files/dokumenter/analyse/ae_de-store-virksomheder-kryber-uden-om-ansvaret-for-laerlinge.pdf, retrieved 14.02.22.

Table 3: Apprentices by size of training enterprises in selected countries

Size class	Distribution of apprentices (in %)				
	Austria (2020)	Germany (2019)	France (2021)	Australia (Q2/2021)	
1-9 employees	15.5%	15.1%	66%	Size not known	3.0%
10-49 employees	26.8%	22.8%		1-99 employees	64.3%
50-249 employees	19.3%	27.9%	11%	100-499 employees	16.0%
SMEs in total (1-249 employees)	**61.6%**	**69.8%**	**77%**	**SMEs in total (1-499 employees)**	**80.3%**
250 and more employees	38.4%	30.2%	23%	500 and more employees	16.6%

Sources: BIBB 2021; Dornmayr 2021; Ministère du Travail, de l'Emploi et de l'Insertion 2022; NCVER 2022

Still, the involvement of SMEs in apprenticeship is a challenge even in this case as shown by the declining participation of micro enterprises in the German setting, i.e. enterprises with up to 9 employees. Between 2005 and 2019, the share of micro enterprises among all training enterprises in Germany dropped from 58.3% to 43.7% while the participation of larger SMEs increased or remained stable (cf. Pahnke et al. 2020). On the other hand, the commitment of micro enterprises to offer apprenticeships continues to be strong: data from the BIBB establishment panel on qualification and competence development show that the share of micro enterprises offering apprenticeship places increased from 6.6% in 2011 to 12% in 2017. Not all of these training places, however, could ultimately be filled with suitable applicants (cf. Pahnke et al. 2020). This means that SMEs and particularly micro enterprises face challenges when it comes to putting their commitment to apprenticeship training into reality. The potential of SMEs as providers of apprenticeship is partly left unused. This is regret table since the available evidence suggests that small businesses offer the same opportunities for learners in terms of training quality as larger enterprises. Between 2011 and 2017, the graduation rate (i.e. the proportion of apprentices who successfully completed their training programme) of apprentices from enterprises with up to 9 employees in Germany was well above 90% and thus approximately the same as in the other size classes. Likewise, the employment prospects upon completion of the apprenticeship are nearly as good in small enterprises as they are in larger ones. In 2017, the proportion of graduates who were offered an employment period for an unspecified period by their training enterprise was 45.1% within the size class of up to 9 employees. This rate is second only to the one in enterprises with 500 employees and more (51%) (cf. Pahnke et al. 2020, pp. 28-29).

The following example from Greece presents (see Box 3) some examples of obstacles that may prevent SMEs from realising their full potential as key providers of apprenticeship opportunities. Similar challenges are reported from many other countries and can be regarded as representative for the involvement of smaller businesses into apprenticeships.

In the coming sections, this first look at the international state of knowledge and the special challenges for SMEs will be expanded and systematized. Building on this, the third chapter will then identify various options for political intervention.

Box 5: SMEs in apprenticeship: the Greek case

Traditionally the VET system was underdeveloped, with only some dual education offers led by the Manpower Employment Organization. Almost 100% of Greek enterprises are SMEs, and the majority of SMEs are micro enterprises or self employed entrepreneurs; 85.2% of the workforce is employed by SMEs (OECD 2020a). The 2010s crisis led to a decrease in the number of apprenticeship positions offered, especially in the private sector, a significant 'brain drain' as well as an extremely high youth unemployment rate. Against the background that VET graduates were doing comparatively well in accessing the labour market and that VET stakeholders are basically convinced of the positive effect of apprenticeship on employ ability of the graduates, the academic and policy interest in apprenticeships has started to increase (Lalioti 2019). Interestingly the Small Enterprises' Institute of Hellenic Confederation of Professionals, Craftsmen and Merchants (IME GSEVEE) underlined that SMEs should be considered as an innovative provider for apprenticeship due to the large range of processes and services they deal with, rendering them in a position to transmit transversal, problem solving skills. IME GSEVEE (2020) lists five obstacles to the buy in of SMEs in apprenticeship system:

1. Lack of information and awareness of enterprises regarding the work based learning participation opportunities
2. Lack of significant, internal and external, financial and other incentives, especially for small businesses
3. Lack of connections and channels of communication between work based learning and formal education (mobility to higher levels of education, validation and recognition of knowledge acquired in non educational settings) makes apprenticeships unattractive
4. Lack of a simple, coherent and comprehensive regulatory framework in order to avoid malfunctions, disincentives and abusive practices
5. Absence of organized networks, intermediaries and support to small businesses for their participation in various forms of work (IME GSEVEE 2020, pp. 30-32).

2 Factors that influence the participation of enterprises

Factors that influence the participation of enterprises

Enterprises are at the centre of the organization and realization of apprenticeships. The relevant literature identifies various factors that influence the training decision and challenges that enterprises face. Following the relevant socio economic research literature, we can distinguish the following areas that become relevant for a company's decision to enter into apprenticeship training arrangements:

- Costs, benefits and entrepreneurial commitment to apprenticeship (2.1);
- Skill needs and recruitment (2.2);
- Labour policy, industrial relations and social dialogue (2.3); and
- Public policy and apprenticeship infrastructure (2.4).

These factors may each be addressed by specific interventions from the repertory of entrepreneurship policies, that is policies for institutional conditions, policies for entrepreneurial ecosystems and programmes targeted directly at enterprises. Some examples from a variety of countries will be given throughout the discussions in subsections 2.1 through 2.4.

In order to understand the participation of firms, it is inevitable to look at economic and financial aspects of companies' decisions on apprenticeship. Apprenticeship, i.e. setting up training places and hiring apprentices is associated with costs (e.g. paying the apprentices, maintaining the infrastructure etc.) and economic benefits (e.g. the productive contribution of the apprentice during and after the apprenticeship).

Accordingly, in concordance with economic theory, models such as the influential human capital theory (HCT) have been formulated to explain and predict under what circumstances enterprises are likely to undertake such investments. In this theoretical view, training becomes effective as human capital (HC) for the individual trainee as well as for the company. The HCT provides an important lens through which the behaviour of enterprises can be analysed. Therefore, we very shortly introduce it and make reference throughout section 2 where appropriate.

▸ 2.1 Costs, benefits and entrepreneurial commitment to apprenticeship

The human capital theory differentiates company specific investments in human capital from investments in general education and in vocational training (Becker, 1993). Whilst investments into firm specific HC only pay off to the firm, investments into vocational or general education might pay off to the firm, but also bear the risk to the enterprise that the investments leave the firm through employees changing jobs to other firms. Hence, a commitment to apprenticeship training not only provides a benefit to the firm, but also supports the development of competences that can be utilised beyond the company by the individual

learners. This holds especially when the training leads to recognised qualifications, as it is usually the case for apprenticeships. As usual, costs can be measured not only as direct expenditures but also as foregone revenues. A key example for apprenticeship training is the wage foregone by apprentices compared to the respective unskilled wage, which is often higher than the training wage. This can be seen as the decision to make a long-term investment in one's human capital.

Motives for commitment and barriers to apprenticeship training

Based on this model the economic literature has classified various motives for participating in apprenticeships. These chief motives are summarised below.

- Production motive: trainees are employed because of their productive contribution to the business processes of the company (Lindley 1975);
- Investment motive: Training is seen as a contribution to building up the human capital stock of the enterprise (Stevens 1994a);
- Screening/recruitment motive: Training enables the company to get to know and select potential skilled workers (Stevens 1994b).

In addition, the literature cites motives that go beyond the boundaries of the company and a narrower business argumentation, such as employee loyalty, tradition/corporate culture, enhancing the company's reputation, contributing to the establishment of skilled labour markets or documenting the assumption of social responsibility.

In contrast to the motives that might be the reason why a company decides to engage in apprenticeship training there are also two major barriers that companies might see in an economic perspective:

- The costs of being involved in apprenticeships can be too high for a range of reasons and
- Tthere might be the risk that well trained employees leave the firm because they are offered more attractive jobs in other enterprises (so called "poaching").

Some empirical results and further developments are now presented.

Findings on costs and benefits of apprenticeships

First of all, it is the result of empirical studies, that the cost benefit ratios between different occupations vary considerably. Apprenticeship training in different occupations and sectors corresponds to different company cost benefit calculations. Schönfeld, Jansen, Wenzelmann & Pfeifer (2016) present the cost benefit calculations for apprenticeships in the 50 most frequent apprenticeship occupations in Germany. The costs of training are particularly high in industrial occupations. An investment oriented in company training motivation prevails. In contrast, a more production oriented training motivation tends to prevail in the case of vocational training in craft trades and small enterprises. However, in Germany, the benefits of apprenticeship are in most cases long-term, i.e. after the course of apprenticeship for smaller and larger enterprises, so that the overall orientation for German enterprises is investment oriented. An important factor that could explain the commitment of enterprises to provide training is, for example, the increased risk involved in hiring someone from the external labour market as opposed to taking on someone who has been trained in the company ("screening"). Lower transaction costs in hiring and lower costs of induction and further training are to be expected (Beicht & Walden 2004). If one enters international terrain, it is interesting to see whether there are differences in the training motivation of companies across national contexts. These differences may be due to the different national labor market and vocational training contexts and provide information on policy options and their possible effects.[3]

Small variations can make a big difference - contexts and policy fields

By contrast to Germany, in Switzerland, the majority of Swiss firms provide apprenticeships based on the production motive. The (relative) level of remuneration is lower and apprentices are exposed to productive work assignments to a larger extent in Switzerland (Dionisius et al. 2009). A reason for this is also seen in the higher mobility of apprentices in Switzer land: Swiss companies need to train more cost effectively above all because the flexibility on the Swiss labour market means that many trainees leave the training company after the training and thus the costs incurred cannot be compensated (Mühlemann et al. 2010).

This underlines that despite relatively small institutional differences and organisational practices (as between Germany and Switzerland; cf. Graf 2015) considerable differences in the motivation to engage in apprenticeships may exist.

The example showed that the higher mobility on the Swiss labour market goes hand in hand with a stronger production orientation in apprenticeship. Mobility of workers on the labour market is a matter of qualifications but also many other contextual conditions. Theory and empirical research have therefore repeatedly investigated the relationship between labour market characteristics (e.g. the degree of regulation) and the commitment to apprenticeship training. An addition to the abovementioned relationship, that if the labour market mobility is high, there is a tendency of enterprises to use apprenticeship with a production motivation, there is also the assumption that under rather regulated labour market conditions with less individual mobility, there is a stronger motivation for "screening" in the phase of recruitment and then long-term investments in apprenticeship training (Franz & Soskice 1994). Long term investments are also explained by the assumption that in a less flexible labour market environment there might be incentives for the company to retain well trained employees in the long term, since hiring new employees, for example, in the event of a surge in demand, would be too costly in view of the regulations (e.g. Backes-Gellner).

Another economic hypothesis is that collective agreements on wages and salaries do not reflect the productivity of the workforce, but are based on the lowest productivity of a skilled worker. This creates scope for the company to invest these savings in staff training and or apprenticeship (Acemoglu & Pischke 1999a, 1999b). The increased productivity of employees does not automatically have to be passed on to the employees again in the form of wage increases, so that an incentive arises to offer training places.

3 At this point, it must be pointed out that comprehensive data on the costs and benefits of apprenticeship training are only available for two countries, Germany and Switzerland.

Lessons for policies – a short interim summary

The application of Human Capital Theory has brought forward a number of findings that are of relevance to policy making. It shows that not only the direct financial contributions that employers, employees or apprentices or the public make (such as remuneration, costs of training, subsidies) are important in order to understand engagement in apprenticeships. Costs and benefits are at the core of enterprise and entrepreneurial activity and decision making: as soon as the costs exceed the benefits of apprenticeship, enterprises will withdraw from it. Of course, this decision depends on many factors on the side of the individual company, which are difficult to assess. For example, short term or long-term strategic orientation can make a difference. But in the long term, training that mainly generates costs to the enterprise will not be sustainable. This is especially true for SMEs, which are so important for apprenticeships, and which are usually particularly hit by these costs. For example, in organizing apprenticeship training, they are not able to produce such high economies of scale as large companies.

Cost benefit analysis also points at the importance of the context of the enterprise. Examples of this are labour market legislation as well as the characteristics of potential employees, which can be influenced, for example, by education policy. Therefore, it is useful to extend the view to other aspects that may be of relevance for the cost and benefit ratio of enterprises and that have been addressed by research as we will do in the following sections. Nonetheless, we will come back to interpretations and findings from the costs benefits research strand and HCT throughout the text.

A recent study that is based on simulations of the different costs and benefits factors of apprenticeship training across three different countries (Italy, Spain, England) summarises the lessons from cost benefit research for policy making. Mühlemann and Wolter (2019) draw the following conclusions (Box 4).

Box 6: Seven lessons learned from cost benefit surveys and simulations by Wolter and Mühlemann

1) Ratio of costs and benefits influences firms' willingness of providing apprenticeship training
2) Similar apprenticeship training systems do not necessarily produce similar outcomes
3) Returns on apprenticeships after training are maybe more important than during
4) Flexible but coherent training parameters are key for a functioning apprenticeship training system
5) Variable apprentices' salaries prevent distortions in the apprenticeship market
6) Apprentices' benefits are a relevant factor that must also be considered for a functioning apprenticeship system
7) Training quality and scope may reduce net costs and increase the returns on education"

(Mühlemann & Wolter 2019, p. 6)

▶ 2.2 Skill needs and recruitment of enterprises

As we have shown in section 2.1. the costs and benefits of individual enterprises in apprenticeship will be crucial for the decision on whether to engage in apprenticeship. Costs and benefits can therefore be an important lens in order to understand companies' practices. However, accurate data is not always available on the cost benefit dimension of companies' practices and decisions that might make an impact. There are further research findings that are worthwhile to look at in order to understand the relation between company characteristics, work organisation, job profiles, the associated skill demands, recruitment and human resource practices. In section 1.3 we have already given a "preview" on such findings, which particularly informs about apprenticeships in SMEs.

Empirical findings on apprenticeship training practices of enterprises

Looking at case studies[4] on in company vocational training from Australia, Germany and the United Kingdom (Grollmann & Smith 2007) great differences in the implementation conditions for in company vocational training emerge. Differences in the length of training periods, the respective qualifications to be attained, the rules on employment and remuneration and the distribution of roles between individual companies and external training providers lead to considerable differences in how apprentices are engaged and how their learning occurs.

From an international perspective, very different conditions of regulation and standardization of training exist alongside very different corporate realities, which is why generalizations are difficult. In any case, it is still worthwhile to take a look at the genuine individual firm factors that influence a company's commitment to training.

Based on the analysis of data from the 2014 wave of the BIBB establishment panel on qualification and competence development, the Federal Institute for Vocational Education and Training identified a number of reasons that directly relate to the training practices prompted to reduce their training activities and hire fewer apprentices than in earlier years, or even to discontinue training altogether (cf. Mohr, Troltsch & Gerhards 2015). One group of explanatory factors relates directly to the organisation of training and its compatibility with the work process. These are the following:

- Insufficient opportunities to have apprentices involved in productive work;
- Insufficient capacity to take care of apprentices properly;
- Impossibility to cover all parts of the curriculum.

All these factors concern the possible mismatch between the needs of the training process and the business processes of the employer. Partly, such mismatches can be overcome by the respective enterprise, but there might also be the possibility to target such problems by policies. Increased flexibility in regulatory mechanisms might support a better matching of training and business practices and result in a stronger commitment to apprenticeship on the part of enterprises. The following Snapshot 1 provides information on research findings on this relationship.

4 The case studies were carried out by different members of INAP in 2004 and 2005; www.inap.uni-bremen.de

Snapshot 1: Effects of flexible training regulations on enterprises' training behaviour

This snapshot aims to show how a "policy for institutional conditions" can have an effect at the level of individual companies: qualitative changes in company training regulations can bring about an increase in the commitment of companies to vocational training. They can also help to make training more attractive to trainees. These effects were documented in an econometric analysis.[5] However, such policies can also affect the "entrepreneurial ecosystem".

Elective options in the German dual training system

The German vocational training system is based on the strong involvement of companies in dual vocational training. Trainees spend up to approx. 60 % of their time in the company. Vocational training lasts two to three and a half years. Training takes place in 326 training occupations. Within these occupations, there are differences in the degrees of freedom that companies and trainees have in conducting in company training. There are uniform training regulations for each of the 326 training occupations throughout Germany, but their structure varies.

The training regulations are regularly updated. In the modernisation of training regulations, it is possible to take account of company specialisations by introducing options in terms of content. These can range from individual modules to specialised training courses.[6] This is also intended to help win over companies that do not participate in training because they do not consider the content of the training regulations to be suitable for their own company. The proportion of these options in the overall curriculum also varies in terms of time, from a few months to half a year to a complete training year within three and a half years of apprenticeship.

Greater Program Choice can increase the supply and attractiveness of apprenticeships

An econometric study was conducted to examine the extent to which the modernisation of training regulations has increased company participation in training over a period of just under ten years (2005-2014). It was possible to examine the extent to which the introduction of options has led to changes in the supply of training places by companies and in the demand by trainees for 85 occupations. The results show that both demand and supply have increased based on these changes.

Potential effect on the enterprise ecosystem

However, the authors also point out that training can also become unattractive for trainees if it is too specialised if only company specific knowledge is taught and the skills acquired can no longer be traded on a supra-company skilled labour market. On the other hand, there could also be negative consequences for companies because recruitment and induction costs could increase considerably after training has become too company specific.

The importance of flexible regulations is also highlighted by the example of 'optional trades' within apprenticeship in India (see the snapshot in section 2.4).

5 (Jansen 2016, pp. 69-91)

6 (Bretschneider & Schwarz 2015)

Empirical findings on the significance of general enterprise characteristics

Another group of factors relates to more fundamental characteristics of the enterprise and the status of training within the company's policy in general. Apart from the general management decision to reduce training, the following reasons were identified in the above mentioned survey: a restructuring of the enterprise and a prioritisation of continuing VET instead of initial VET. In addition, the authors also classify the general economic situation of the company as an explanatory factor. As to international differences Ryan et al. carried out a study in the retail and in the engineering sector (2011). They found out that somehow, the British and the German engineering companies have integrated apprenticeship with their long term recruitment and human resource development (HRD) strategies using it to fill middle management positions. The same pattern could be identified for retail in Germany. In Britain in this sector, according to the authors the strict separation between operative selling and middle management level positions renders the apprenticeships rather low quality in terms of content, since it addresses profiles that are on the lower end of the vertical differentiation of job roles and there are no promotion prospects. Connected to this, apprenticeship does not attract high achieving candidates and labour turnover in retail apprenticeships and jobs is very high. All this, appears to lead to a vicious circle that does prevent building apprenticeship a solid block in HRD of the British retail companies. It is also interesting what the study found out about apprentices' wages. Not surprising there is an effect of unions and degree of organisation in firms on the level of apprenticeship pay. However, it could be shown that the willingness of British firms in the engineering sector to employ apprentices does not suffer from the significantly higher wages in Britain as compared to Germany. Possible explanations might lay in the fact that it is quite difficult to attract quality candidates for apprenticeships in competition with other jobs and educational options and that there might be certain necessity for work based learning given the skill requirements of the sector, A third interesting finding on general company characteristics is that in general firms that are in private or mixed ownership structures have a higher tendency to participate in training than publicly listed firms. That again supports the significance of SMEs for apprenticeships. The SME perspective was taken in a recent comparative project and is described in the following snapshot.

Snapshot 2: Skill needs of SMEs in Germany, Australia and the United States

This snapshot aims to show how the differences in skill needs are closely related to the respective occupation. Occupations are a relevant point of orientation for apprenticeship policies on different levels. A view that differentiates between different occupations might come closer to incorporating individual firms' skill requirements than more general regulations. Occupations in that regard are substantive units in entrepreneurial ecosystems. In addition, the project has contributed to a better understanding of the challenges for SMEs and the potential advantages of apprenticeship based recruitment as opposed to recruiting "ready made" employees.

Skill needs in hospitality and automotive technology

In a comparative qualitative study involving a literature review and interviews with managers, Zenner-Höffkes et al. (2021) explored the expectations of SMEs towards young people to be recruited for apprenticeship or employment as well as the experiences of SMEs in the recruitment of suitable candidates. The study focused on three countries with different VET traditions, namely Australia, Germany and the United States. The occupational profiles covered by the study were selected according to two criteria: the profiles should be dissimilar so as to allow for the coverage of a wide range of explanatory factors, and at the same time they should be relevant and understandable for employers in all three countries. For these reasons the job roles of automotive technicians and hospitality front desk staff were selected.

When asked about the skills they were looking for when recruiting young people, SMEs in the hospitality sector gave priority to interpersonal and personal skills. A service oriented attitude was also valued very highly. Computer skills were considered important as far as they were relevant for handling IT based check in systems and cashier desks. Basic skills such as literacy and numeracy were less important or simply taken for granted. In the automotive sector, these basic skills, along with fundamental physics, play a greater role. Communication skills, by contrast, is important but by no means decisive from the employers' point of view. The authors point out that the expectations of SMEs are determined predominantly by the occupational profile or job role rather than the national context. The desired skill profiles show dissimilarities between job roles but similarities across countries.

Recruitment problems, i.e. difficulties in finding applicants with the desired sets of skills, were reported by SMEs in all three countries. The problems are less severe for SMEs in Germany, which was attributed by the authors to the fact that German enterprises hire young people immediately after finishing school rather than after a period of college education. This recruitment pattern gives employers more time to address possible gaps or short comings in the young people's prior education. According to the authors, German SMEs adopt training oriented approach to recruitment while a 'ready to work' perspective dominates in Australia and the United States. In general, SMEs are particularly challenged by the trend towards academisation, i.e. the preference of young people for higher education. Unlike larger enterprises, SMEs are often not attractive enough for talented young people. Two more explanatory factors were identified in all three countries, namely insufficient basic skills on the part of many of the applicants, and problems with their motivation and work ethic. While these challenges are not specific to SMEs, it can be assumed that SMEs have fewer resources to address them through remedial training.

Lessons for policies – a short interim summary

The analysis of research on skill needs and recruitment practices of companies has brought about different results for understanding apprenticeship commitment. On the one hand policies and standards in particular need to be designed in a way that allows for as much as possible leeway for the matching of individual apprentices' interests and capacities and the business processes and skill needs of the individual companies (e.g. through options for specialisation). Support policies and practices targeted to SMEs could help to overcome impediments such as narrow business processes that do not cover the breadth of the standard or supporting companies in making sure that they can deploy apprentices in learning intensive productive work processes.

On the other hand, comparative research also suggests, that particularly SMEs share challenges across different national contexts. Ownership structures play a role: especially private enterprises are specifically likely to make use of apprenticeship as a recruitment channel, but might also need more support. Standards and regulations need also to look at the respective occupations. Occupations might differ in relation to the best share of work based and classroom based learning, potentials for promotion schemes and similar aspects of regulating apprenticeships. This needs to be considered by higher level legislation, such as national apprenticeship laws or regulations.

▶ 2.3 Firms' HRD-strategies as a subject of labour policy, industrial relations and social dialogue

The recruitment process and training decisions reflect not only the immediate skill needs of the enterprise. Whether or not companies decide to hire apprentices and deliver training to them is also influenced by the organisational structures of the enterprise and the established employer employee relationships.

The structural determinants of companies' training policy have been extensively addressed by international comparative research under the heading of production types and labour models (Mason & Wagner 2005; Springer 1999). In very simplified terms, a distinction can be made between a highly hierarchical and Taylorist organization of structures on the one hand and broad requirement profiles with increased scope for discretion on the other. These types also correspond to different forms of organization and representation of employee and employer interests. These, in turn, are not only effective for "hard" factors such as wages and working hours, but also influence questions of tasks and job design.

Both aspects work organisation and employer employee relations usually have consequences for company recruitment and personnel development. Different production concepts and labour models can therefore be assumed as an important framing factor for the more economic and skills related factors relevant to firms' commitment to training.

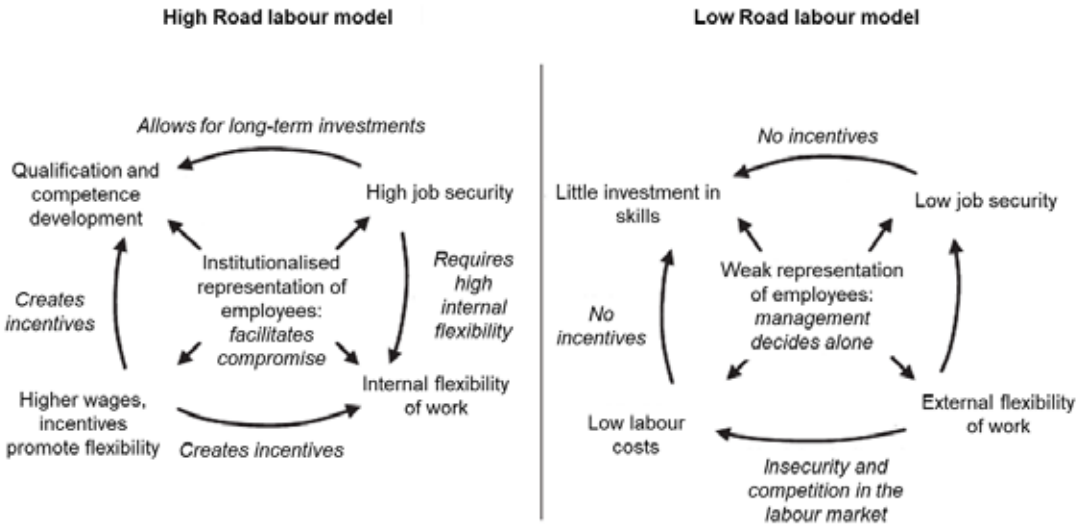
High road vs. low road strategies and apprenticeships

Comparative Research on production shows that global concepts (such as total quality management but equally dual apprenticeships) usually follow the logic of local adaptation, and that at best derivatives of such a global concept are implemented in practice. Research on multinational companies has looked at this question in detail (Jürgens & Krzywdzinski 2009; Jürgens, Krzywdzinski & Burgess 2016). The earlier of the aforementioned studies deals with the development of work models in automotive production in Central and Eastern European countries in the context of costinduced production relocations: In company training and human resources development play an important role as a decisive factor within a socalled "high road" labour model (cf. Figure 2). This type is characterized by the interplay of various aspects: an internal flexibility of work and a corresponding organization of work go hand in hand with higher employment security and high wages. In this model, incentives are based on qualification and competence development, while at the same time long term investments in personnel are supported.

This training intensive work model (cf. Loire, Paris, Ward & Weiss 2008) contrasts with a so called 'low-road work model' in which the incentive structures for investment in learning, knowledge and skills are rather low. It assumes high employee turnover and low wage and labour costs. This model corresponds conceptually with weak representation of interests in the company.

A high commitment to training as part of a cooperative relationship between management and staff does not necessarily result in a decision to employ apprentices. When it results in a preference to employ labour market entrants it might also be turned into other strategies of recruitment, screening, onboarding and induction into work assignments. If it will take place in the form of apprenticeships will be due to many other additional factors, especially the respective institutional settings. However, a commitment to training and a broader HRD strategy can of course cover apprenticeships as an integral part (Grollmann & Geiben 2016).

Figure 2: High road and low road labour models



Source: Jürgens & Krzywdzinski 2009, p. 38, translated from German into English by the authors.

Although these interrelations have essentially been researched for larger companies and enterprises, some of them are likely to be transferable to SMEs. Moreover, small and medium sized enterprises can benefit from the "high road" strategies of their neighbouring large companies, for example if they make their training infrastructure available within the framework of networks or supplier relationships as could be observed e.g. in Slovakia or Spain (Jansen & Pineda Herrero 2019; Grollmann et al. 2016). Economic research has also pointed out the necessity for apprenticeships in the informal sector in sub Saharan Africa (see thematic report 7) to stronger formalise and become part of employment in the formal economy in order to be self sustaining and an attractive option for learners, which in turn might beneficial to enterprises. This might constitute somehow the equivalent to "high road strategies" in low income economies (Teal 2016).

Employee representation and apprenticeships

Evidence from companies in Germany (cf. Berger, Eberhardt et al. 2019) suggests that works councils, which are assigned several consultative and supervisory functions with regard to the delivery of training, can fulfil a stabilising function for commitment to apprenticeship. With regard to apprenticeships, the role of works councils consists in campaigning for the continuous availability of training places in the enterprise and in safeguarding compliance with the company's training standards. The works councils typically restrain themselves to corrective measures and seek no active involvement in the company's training regime. Instead, they may intervene in situations where an individual learner is at the risk of dropping out or when the company's engagement in training is about to be reduced altogether. In such cases, works councils can provide advice and counselling to the relevant actors in the enterprise and act as mediators between management, training staff and apprentices. Thanks to this moderating role, works councils can have a positive effect on the output quality of training in terms of fewer terminations of apprenticeship training contracts and higher graduation rates (cf. Berger, Eberhardt et al. 2019, p. 52).

According to the aforementioned research, labour unions at the firm level contribute to safeguarding the quality of training not only in terms of skills acquisition but also as a process of socialisation. This means that they support the integration of learners into the social environment of the enterprise (cf. Berger, Eberhardt et al. 2019, pp. 52-53). By doing so, they contribute to the development of a broad professional competence that encompasses both technical skills and social compatibility. This, in turn, contributes to fulfilling the skill needs of the enterprise at a particularly high level of quality. The positive effects associated with the consultative and moderating role of works councils in relation to training can help to sustain or even increase the attractiveness of apprenticeships for employers.

A strongly institutionalized representation of employees' interests in the company (such as the works councils discussed above) is assumed to be a decisive factor for the realization of this model. The positive effects of works councils on enterprises' training behaviour have also been shown empirically, but only for the sector of continuing training (cf. Stegmaier 2012).

At this point, however, two caveats must be made: firstly, the roles of works councils and trade unions in different labour market traditions might vary and, secondly, the fact that, particularly in smaller SMEs and depending on the national context, codetermination bodies are not particularly well developed or widespread. E.g. there is some evidence for the construction sector in the US that cooperative programmes ("joint programmes") between employers and employees result in better apprenticeship quality (Bilginsoy 2003), however especially for the U.S. context it was repeatedly pointed out that in many cases of strong firm based unions, apprenticeships were used as an element of a "closed shop" recruitment policy in order to strengthen unions' position, which is of course another function than contributing to general vocational standards (Streeck 2011).

The particular situation for SMEs, the roles of employers, employees and the state

As pointed out several times, SMEs face specific hurdles in apprenticeship training. In a recent comparative research project on manufacturing SMEs and apprenticeship the following difficulties in training for SMEs on the British labour market are addressed: a major obstacle are the high costs and the required personal resources that are needed for training. In addition, the complexity of the training system constitutes a main challenge. These reasons are rated of bigger importance (Benassi et al. 2021, p. 4) than the potential poaching of training graduates that is often addressed by the cost benefit research. In their conclusions the researchers identify a number of factors and institutions that are supportive to SMEs' commitment to recruiting VET graduates and apprenticeship. It is important to stress at this occasion that all the institutions and factors that the authors mention are based on cooperative agreements and practices between employers' and employees' representations or systematically include them. This prerequisite was pointed out by several researchers from comparative political economy before (e.g. Hall & Soskice 2001) and the contribution here is to point out some specific findings relevant to SMEs.

First of all, though the analyses of the case of Italian manufacturing SMEs the authors highlight the significance of common vocational standards. They identify the Italian as well as the German state led way of standardising vocational qualifications as superior to the manner in which vocational qualifications are organised and developed in the UK. So called vague "outputbased" qualifications standards are regarded as less appropriate than the more detailed "input based" standards that set out the details of vocational programmes in Germany and Italy. In terms of financing training provision, the allocation of funds directly through different levels of the public government is also identified as an advantage in contrast to the quasi market funding

in the British Further Education sector. This does not lead to a geographically adequately distributed and high standard training supply for SMEs. In conjunction with Germany the research project also highlighted the contributions that are made by business associations through the possibility of aggregating skills demands and getting public financial support for the establishment of intercompany training centres in order to overcome barriers on the level of the individual firms, such as high training costs or limited business processes that do represent the overall occupational profile. In addition, the training and coordination inputs by local chambers are pointed out as an advantage of particular benefit to SMEs.

Lessons for policies – a short interim summary

Self responsible participation of employees in broadband work processes and their representation in company decision making structures require long term personnel planning. The cost benefit research referred to in 2.1 shows that the costs of training are often amortized in the long term. Accordingly, there is obviously a connection between modern apprenticeship training and so called “high road strategies”. Promoting these strategies could therefore be a task for policymakers. However, how these “high road strategies” can be implemented by small and medium sized enterprises presents a particular challenge.

In order to address the limitations of the training capacity of smaller employers and to mitigate the burden of training for economically challenged enterprises, several types of support are possible. These supporting factors may relate to the internal organisation of a company or to external actors, which can be single organisations or multilateral networks. Accordingly, a distinction can be drawn between internal, external and interorganisational support structures, part of which are the abovementioned intercompany training centres. External and further inter organisational support structures are presented in the section 2.4. They usually require an active involvement of the state and other public actors and could be referred to as relevant apprenticeship infrastructures.

▶ 2.4 The state and public actors – initiative, interventions and apprenticeship infrastructures

The capacity and commitment of enterprises to provide apprenticeship opportunities is influenced not only by their own organisational features but also by their external environment. This includes support or cooperation they might benefit from or they might initiate themselves. The above mentioned research project has shown that beyond individual SMEs skill needs and HRD strategies, the cost benefit balance can be influenced through a stable infrastructure that allows for a good share of work between different actors and provides services targeted to SMEs needs. On the other hand, there can be more short-term interventions by the state and other public actors directed directly to the different levels of realising apprenticeships. In the aftermath of the recent worldwide pandemic crisis, or other economic shocks – think of the high youth unemployment rates of 2010 and following years those provisions gain additional relevance and are considered by policy makers as corrective or palliative measures to support the companies in further offering apprenticeship placements (Allais & Marock 2020).

Beyond the division of labour between schools or colleges and enterprises, the division of public tasks, their content, and the way they are delivered can involve very different actors besides schools and businesses. Important forms, which are also discussed in the literature, are networks and intermediary organizations.

VET and Apprenticeships in multilateral networks

At the inter organisational level, organisational support to VET can take the shape of multi-lateral networks in which training is organised on the basis of cooperation between several firms and other types of actors. One example is group training or cooperative training, i.e. arrangements in which several enterprises, none of which would be capable covering the entire training curriculum alone, rotate their apprentices among each other in order to utilise their complementary training capacities.

Those multilateral networks often rely upon public private partnerships (PPP). In countries where there is no long-term tradition or infrastructure of apprenticeship, often cooperative vocational education and training practices take place at the regional or local level (cf. Remington 2018). These networks between employers and schools with the support of public authorities may be classified according to the breadth and depth of cooperation, i.e. the number of enterprises involved and the commitments undertaken by enterprises, educational institutions and government bodies involved. A ‘broad’ cooperation is characterised by a high degree of coordination across enterprises with regard to the contents of training programmes, and a ‘deep’ cooperation involves relatively high investments by the parties involved. Plotting these two dimensions against each other leads to a typology in the form of a two by two matrix:

Table 4: Types of public private partnerships for apprenticeship

		Breadth (degree of coordination across enterprises)	
		Low	High
Depth (commitment of the parties involved)	High	**Parental model:** cooperation between one dominant employer and local education and training providers **Examples:** P-TECH partnership between IBM and City University of New York, cooperation of Volkswagen plants in the United States or China with local VET colleges	**"Solidaristic"** model: involvement of many enterprises, strong coordination and standardization on the basis of collective bargaining **Examples:** dual VET systems in Germany and Austria
	Low	**Liberal model:** little cooperation between enterprises and schools, little coordination of training contents across employers, VET schools or community colleges as main providers of training **Examples:** China, Russia, United States	**"Consortial" model:** cooperation between VET institutions and local groups of employers, agreement on training standards, provision of internships **Examples:** Massachusetts Advanced Manufacturing Collaborative (United States), Greenville Technical College, South Carolina (United States)

Source: adapted from Remington 2018.

The 'solidaristic' type is evident in the approach of German speaking countries with their strong apprenticeship tradition. The other two types are interesting when it comes to stimulating the participation of enterprises in apprenticeships. While the consortium model features a larger number of employers undertaking relatively modest investments in training as higher investments are prevented by the risk of 'poaching', the 'parental' type is characterised by one large firm that dominates the local or regional labour market, finding itself in a position to determine the contents of training programmes in cooperation with local schools or colleges. None of these two types, of which several examples exist in the South of the United States (cf. Remington 2018), involves a 'social partnership' between employers and trade unions as commonly associated with apprenticeship. Instead, each of them is based on a consensus between the leaders from business and education. The table shows that a high degree of coordination might be achieved without social partnership but might then only apply to certain sectors or industries.

Intermediary organisations in VET and Apprenticeships

One of the most widespread support measures are intermediary organisations. Those organisations are encouraging enterprises to recruit apprentices as well as improving the retention and completion rates in apprenticeships ILO (2019). There is no single model of intermediary organisations and there is also a variety of institutional arrangements and functions. "Intermediary organisations can generally be understood as bodies that are located 'between' the main parties of an apprenticeship programme, i.e. learners and employers, and that act on behalf of or mediate between these main actors. Intermediaries typically fulfil one or more than one of the following key functions: (1) employing apprentices as a third party employer, (2) providing training to apprentices as part of arrangements with groups of employers and (3) providing other support activities for apprentices on behalf of employers" (ILO 2019, p. 2). Such organisations may have been set up specifically for the purpose in question, or may be organisations with a wider mission. Examples are the Group Training Organisations (GTOs) in Australia, the Group Training Associations (GTAs) and Apprenticeship Training Agencies (ATAs) in England or the Third Party Aggregators in India. In Snapshot 3 below we present an example from India. In many cases such arrangements supporting SMEs lead to better apprenticeship outcomes. E.g. the completion rates in Australian GTOs are higher than those of small and medium sized enterprises that employ apprentices directly (cf. O'Dwyer & Korbel 2019; AEN 2020).

The German inter company vocational training centres (cf. Bauer, Pfeiffer, Rothaug, & Wittig 2020) can also be regarded as intermediary organisations. The primary mission of these training centres, which are usually run by chambers of skilled crafts or other employer associations, is to provide supplementary training to apprentices in order to cover those parts of the curriculum which, for one reason or another, cannot be trained at the employer's premises. In some cases, intermediary organizations also assume administrative functions that are assigned to them by law. Germany and Austria can well illustrate this case with their "competent" bodies:

"In Germany and Austria, "competent bodies" such as the chambers of commerce and industry and the chambers of crafts carry out this function. They operate under a law (the Act on VET), and they are responsible for the organisation, registration, examination and certification of vocational education and training. They provide guidance and advice to enterprises and apprentices, monitor the provision of training, issue examination standards and review training facilities, instructors and agreements" (Poulsen/ Eberhardt 2016, p. 19).

Snapshot 3: Supporting Apprenticeships through financial measures in India

For this "snapshot", we focus on some financial measures that target different levels of the system and thus represent the range of possible financial interventions. A particular focus of the measures outlined is on attracting micro, small and medium sized enterprises with the aim of increasing the total number of apprentices in India from around 180,000 to 280,000. It will also be shown that such financial measures are not exclusively targeted to individuals or SMEs but also to intermediaries. In that sense they can also be seen as interventions that are aiming at the setup of an apprenticeship infrastructure.

Apprenticeship in India

Apprenticeship training in India dates back to the 1960s (Apprenticeship Training Act, 1961). Regulated apprenticeships can take place at different levels. However, the willingness and quality of companies to engage in apprenticeship training has declined over the decades.: Therefore, in 2014 there was a fundamental change in the apprenticeship legislation. This legislation includes a corridor of mandatory minimum and maximum training quotas. On the one hand, this is intended to contribute to the adequate supply of skilled workers, but on the other hand, it is also intended to prevent trainees from replacing skilled workers. Trainees receive a training allowance ("stipend"), which is partially subsidized by the central government. The amount is linked with educational and technical qualifications and category of apprentices and increases by 10% & 15% in 2nd and 3rd year respectively for apprenticeship training. Regulated apprenticeships exist for approximately 260 selected occupations. On the initiative of individual companies, training relationships ("optional trades") can also be concluded outside these "designated trades". These are subject to recognition guidelines that specify minimum length and minimal curricular elements depending on the targeted degree but are initiated by individual companies. This is to take account of technological dynamics and new fields of activity and training. The monitoring and control of apprenticeship training takes place within a framework of shared responsibility at state, federal, regional and sectoral levels.[7] Much of the implementation of government programmes to promote apprenticeship at the national level is carried out through the Directorate General of Training (DGT) and the National Skill Development Corporation (NSDC).

7 (Wessels & Pilz 2018)

Financial support on the level of the individual company

As part of the National Apprenticeship Promotion Scheme (NAPS) of the Ministry of Skill Development and Entrepreneurship, apprenticeship contracts have been supported at the company level since 2016 in that 25% of the apprenticeship remuneration is covered by the government. In addition, the costs of the mandatory basic training, which must be covered by the companies, are also supported.[8] These special incentives apply to all new contracts that exceed the respective highest number of trainees of the last three years.

Financial support on the level of entrepreneurial ecosystems

In October 2019, MSDE launched a pilot project[9] that provides financial support to so called "third party aggregators (TPAs)" to enhance the number of signed apprenticeship contracts through enterprises. TPAs are organisations take over many functions on the operative level in order to support companies in apprenticeships, e.g. they match apprentices with enterpises and support the identification of basic training providers. They also navigate companies through the system of registration and financial compensation. A pilot project providing financial incentives to TPAs and SSCs was launched in October 2019- March 2020, through which, TPAs and SSCs receives a financial contribution for every male candidate registered as apprentice and a 25% higher fee for every female apprentice. For males a target of 100,000 apprentices and for females a target of 40,000 was set.

Financial support on the level of institutional conditions

On the systemic level, there are Sector Skill Councils (SSC) that are responsible for functions such as the creation of occupational standards, the training of trainers, skill needs analyses and the setup of examination structures. Currently, there are 36 of such councils operational. SSCs charge assessment fees to Establishments for conducting theory assessment and certification.[10]

Effects of the pilot programme

According to an analysis shared by NSDC[11], both TPAs and SSC have played an important role in promoting apprenticeship training.

The described measure has led to an increase of "optional trade" apprenticeship training contracts over the pilot period of six months (October 2019 to March 2020). This was almost two-thirds of the year's total achievement in terms of contracts. Also, two thirds of the year's total active enterprises were registered during this period.

The graph below shows the achievement of new apprentices in optional trades enrolled in 2019-2020 as compared to other years over the last 5 year period.

The recommendation of incentivising the TPAs is also included in the evaluation report of NAPS. The proposal is under consideration by the Ministry of Skill Development and Entrepreneurship (MSDE).

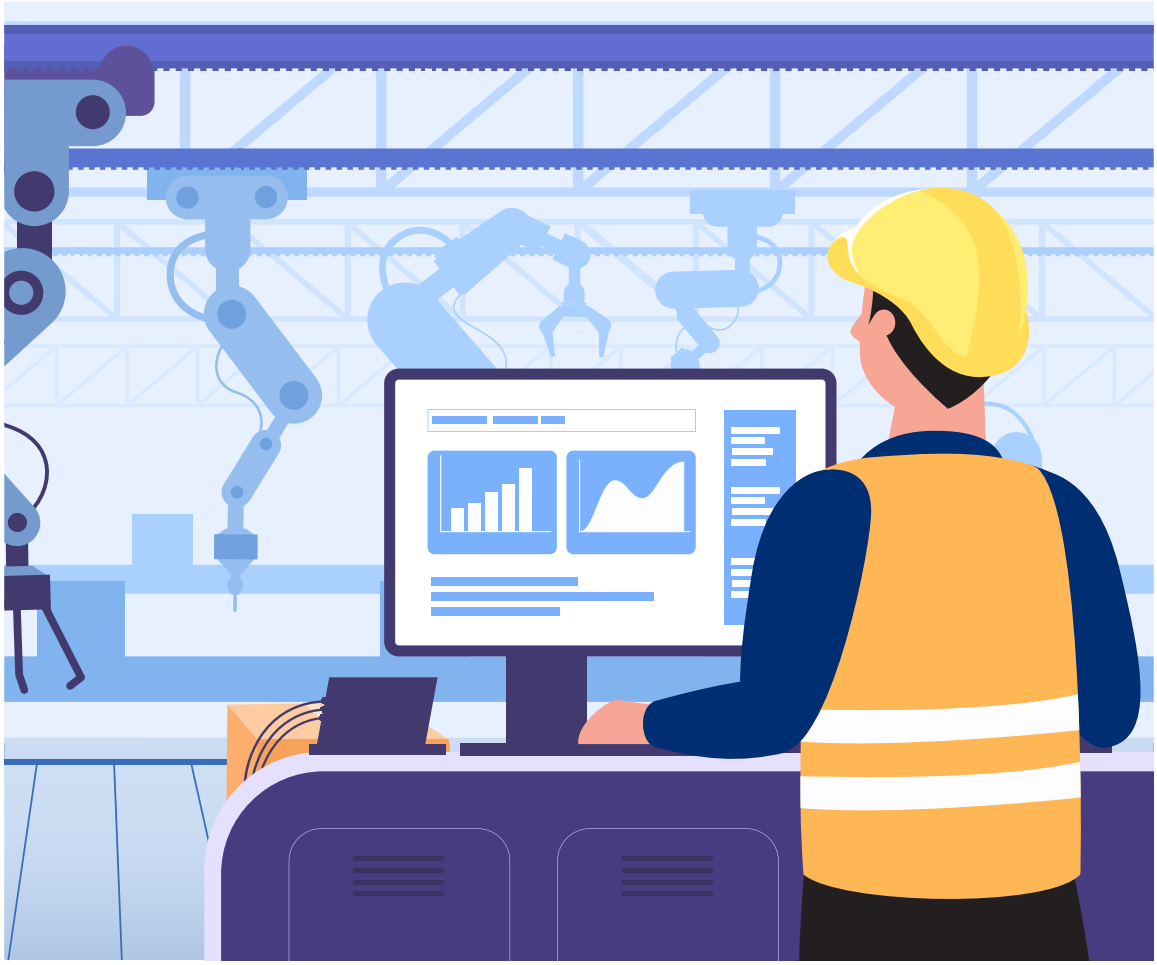
Though the target of 280 thousand could not be achieved, the results are seen as a success. The recommendation of incentivising the TPAs is also included in the evaluation report of the NAPS. Currently, the proposal is under consideration by the Ministry of Skill Development and Entrepreneurship (MSDE).

8 Apprenticeship-faqs.pdf (nsdcindia.org)

9 Refer MSDE-01/01/2018-AP(PMU) letter from Ministry of Skill Development & Entrepreneurship dated 3rd October, 2019.

10 https://msde.gov.in/en/organizations/ssc

11 Source: MSDE



Lessons for policies – a short interim summary

This section of the report has identified a wide range of possibilities on which the initiatives and strategies of companies can be based. The state has a special role to play here, ensuring that the various players in vocational education and training each take on the tasks they are best at. In principle, a distinction can be made here between models based on strong and less strong self commitment on the part of the actors and those based on more complex or simpler coordination. State control can be based on the provision of a service (e.g., vocational and general education in schools), financial contributions and incentives (cf. the Indian example), and legal regulations and the commissioning of further services to third parties based on programme funding. From the specific point of view of SMEs, it should be noted that all of these different forms can ultimately also influence the cost benefit balance of the companies. Moreover, the short and long-term nature of government support has become clear at various points.

3

Policy interventions to enhance enterprise participation

Policy interventions to enhance enterprise participation

We now turn to the question how to structure and systematise the various interventions that may be used to address the four factors discussed throughout the previous section. At the beginning of this thematic report, we introduced the concept of entrepreneurship policies as a framework for the description of policy measures that influence the participation of enterprises in apprenticeship.

Three levels of intervention were identified, which can now be examined in greater detail and referenced to the four categories of factors. An overview of the conceptual framework for potential policy interventions is given in the following table. The details are discussed in the sections below and challenges are pointed out according to this framework. Costs, Benefits and enterprises' commitment are key factors for the participation of (individual) SMEs. All the other factors and related challenges need be interpreted according to their potential of enhancing commitment of SMEs on the level of individual enterprises.

Table 5: Enhancing enterprise participation in apprenticeships–breadth and scope of measures

Factors to be addressed (breadth of intervention)	Possible interventions – determining the scope		
	Policies for institutional conditions	Policies for entrepreneurial ecosystems	Programmes targeted directly at entrepreneurs
Costs, benefits and entrepreneurial commitment to apprenticeship	Labour market legislation (wages, social security, employment protection); in many cases indirect effect Laws and regulations on taxation Training levy	Intermediary organizations that take over core functions of training (recruitment; administration) Public-private partnerships	Direct financial support, e.g. wage subsidies, apprenticeship quotas etc.
Skill needs and recruitment	Regulations on VET qualifications and curricula	Intermediary organizations; Training networks (e.g. organizing rotation of trainees between firms) Training of trainers	Flexible regulation with regard to individual companies' needs Counselling for employers on skills development and the organization of in-company VET
Labour policy, industrial relations and social dialogue	Legislation on the representation of employees' interests; involvement of employers' and employees' organizations on a high policy level	Setup of local/regional apprenticeship committees	Advice and counselling for organizational development ("High Road")
Public policy and apprenticeship infrastructure	Delegation of administrative functions to intermediary organizations Curricular or legal provisions for vocational preparation to improve learners' competences	Intermediary organizations Training networks Public-private partnerships Well trained teachers at vocational schools and colleges Networks for vocational preparation	Matching individual learners to enterprises (e.g. by teachers or guidance staff)

The grid can be used to map the breadth of content of interventions and their potential impacts, as well as the scope of levels they target. The classificatory principle behind each of the two dimensions[12] is the proximity to (or distance from) the single enterprise and its economic activity (the upper right cell of the matrix is therefore of specific significance for SMEs). The four categories of factors discussed in 2.1 to 2.4 set out from the costs and benefits, and proceed to widen the perspective by successively including further core aspects of the business process: human resources, organisational factors and finally the infrastructure that depends on external factors-they provide a substantial lens at policies and practices. Somehow similar, but more formalistic, the classification of possible interventions starts at the level of national institutions and the economy and closes in on the single firm as shown in the table below. In addition, the effects of interventions might be long or short-term. This cannot be depicted in the matrix.

In the annex, we present case studies from three different countries that describe some of these policy interventions in depth. The first case study describes how inter company training centres in Germany provide organisational support within the regional environment of enterprises. In the box we provide an example how the grid can be used in order to map and explore the example of inter company training centres that are located on the level of enterprise ecosystems.

Box 7: How to use the grid to determine breadth of content and scope of intervention: the example of inter company training centres in Germany

Inter company vocational training centres in Germany, which are usually run by chambers of skilled crafts or other employer associations, provide supplementary training to apprentices in order to cover those parts of the curriculum which, for one reason or another, cannot be trained at the employer's premises. By doing so they fulfil a supportive function for the enterprises. This intervention can be situated in our conceptual framework as follows.

12 The fact that the two „dimensions" are not fully mutually exclusive is – in our view – not a problem. They provide two lenses through which we can look at the reality of SMEs. VET and apprenticeship training on the one hand and SME policies at the other.

Scope:

Primarily, in terms of scope this is an intervention that addresses the policies for enterprise ecosystems but has its **prerequisites and effects** on the other two levels of intervention. It is based on a long-term share of **work between different actors** and a **clear designation of roles** within the German VET system due to the Federal legislation on VET (BBiG). Through the services provided it is intended to achieve an effect on the level of individual enterprises.

Breadth:

Hence it rests on an existing **apprenticeship infrastructure and social dialogue**. In terms of content the programme based structure allows for the flexible identification and targeting of new **skill needs** (e.g. greening, digitalisation) and the actors and the institutions involved on the ecosystem level can expand their services accordingly. It follows a logic that provides incentives to enterprises for the participation in the system by making additional services available instead of providing direct financial transfers. By this it aims it the **commitment of enterprises**.

The second case study on Colombia discusses the effects of the national VET and labour market legislation on the economic rationale of apprenticeship for enterprises in general. It therefore is particularly concerned with relationship between the macro (policies for institutional conditions) and the micro level (costs, benefits, commitment). The study, however, also provides of information on issues and effects related to the level of entrepreneurial ecosystems. Finally, the third case study describes the contribution of colleges to Vietnamese VET in the context of a pilot project. This case is another example of measures targeting entrepreneurial ecosystems. Key features of the case studies are presented as snapshots throughout this chapter.

▶ 3.1 The macro level: policies for institutional conditions

The first dimension of policy intervention concerns the macro level and is termed policies for institutional conditions. As mentioned before, this category is about setting the appropriate legal, administrative and fiscal conditions under which enterprises operate in general. Typically, this type of policy measures is implemented at a national scale, but it may also have a regional focus, e.g. in countries with a decentralised political system in which sub-national political entities such as provinces or autonomous regions have a substantial legislative and fiscal authority of their own (cf. OECD 2020b, p. 26). Policy areas in which interventions of this type may take place are taxation, competition and general SME policies, business regulations but also measures to enhance entrepreneurial culture, i.e. the cultivation of entrepreneurial

attitudes and values in the society. Also general education and innovation policies might have an effect on SMEs HRD decisions.

Policy initiatives on institutional conditions can address or have an effect on the four different factors that influence and shape enterprises' apprenticeship decisions. Obviously, regulations on the remuneration and social security of apprentices influence the enterprises' cost benefit ratio, because they might increase or reduce the labour costs.

However, as we have illustrated in chapter 2.1 general differences in the flexibility of labour might also contribute to the way how enterprises train and the number of apprentices that they employ. It has been argued that enterprises may be motivated to train apprentices by production, investment or screening motives. The strength of these motives as well as the balance between them can be influenced by the overall flexibility of the market. If the market is relatively flexible and the mobility of employees is high, the production motive tends to take precedence, i.e. enterprises will hire apprentices if they can employ them for productive work and train them at low costs. Accordingly, a flexible labour market would have to be accompanied by a relatively low remuneration of apprentices in order to give enterprises an incentive to train. Conversely, higher financial undertakings on the part of the enterprises in terms of higher wages for apprentices and higher expenses on training would have to be backed by a stronger market regulation that reduces the risk of 'poaching' and safeguards the long-term investments of employers.

In addition, costs and benefits of apprenticeship may be directly influenced by fiscal measures, most notably taxation. Corporate taxes obviously affect the overall costbenefit structure of the enterprise, which leads to the unsurprising conclusion that taxation in general should be modest in order to avoid excessive costs that may prevent enterprises from training. However, taxation can also be used as a more targeted intervention, namely by granting tax reliefs specifically to enterprises that train apprentices or by imposing additional taxes on enterprises that do not. A variant of this type of intervention is the training levy. In this model, the funds collected from enterprises that do not train are used as subsidies to support training enterprises. An example of such a redistribution scheme is presented in the case study on apprenticeships in Colombia (see Annex).

With regard to skill needs and recruitment, interventions are possible by means of regulations on VET curricula and the training process. One important conclusion of the discussion in section 2.2 was that enterprises may be prevented from training by mismatches between their own business processes and the requirements of the training process. On a more general level, the legislation needs to ensure that the qualifications available through apprenticeship are actually relevant for employers and meet their skill needs. In fact, in order to establish something like an "occupational entrepreneurial ecosystem", VET curricula need to be open in order to accommodate individual firms' need but they also need to contribute to the maintenance of an occupational labour market. This can finally reduce the transaction costs when recruiting from the external labour market.

The discussion on skill needs and recruitment also showed that enterprises face challenges in terms of young people's readiness for apprenticeship. SMEs do not have the capacity to make up for shortcomings in applicants' prior education and face difficulties in finding suitable candidates for their apprenticeship places (cf. section 2.2). Accordingly, the public provision of vocational preparation schemes to improve the trainability of young people is another macro level intervention related to skill needs. In the following, two examples of vocational preparation schemes are presented.

Snapshot 4: Vocational preparation to improve readiness for learning in apprenticeships

Example 1: Generic Trade Preparation Programme (South Africa)

One example of an intervention at the national scale to improve the readiness for learning of young people in apprenticeship and create greater incentives for enterprises to hire them as apprentices is the Generic Trade Preparation Programme (GTTP) in South Africa (cf. Mabusela, Buthelezi and Prinsloo 2021, p. 20). The programme was set up by the Department of Higher Education and Training in 2013 in cooperation with several industry associations in response to the concerns, expressed in the automotive retail sector, about inadequate basic skills of young people who wished to enter training. The GTTP measures focus on fundamental skills such as English and mathematics as well as work readiness. This preparation facilitates the acceptance of learners into apprenticeship or training on the job.

Example 2: Subsidised pre-labour market training (Uganda)

Similar experiences are reported with regard to the effectiveness of pre-labour market vocational training in Uganda (cf. Alfonsi et al. 2020). While not directly related to enterprises' involvement in training, the research in question is interesting due to its comparative assessment of two types of intervention that have a potential effect on the motivation of enterprises to provide opportunities for young people. The two types concern the provision of subsidies either to vocational training institutes (VTI) preparing young people for employment, or to firms hiring young people for training. The first of these corresponds to the supply side and the second to the demand side of the process of labour market entry. In a field experiment involving about 1,700 individuals and 1,500 SMEs, the researchers either randomly assigned participants to a six month period of subsidised training in a VTI, matched them with SMEs for immediate employment or subsidised in company training, or assigned them to a control group receiving no treatment at all. Likewise, enterprises were either matched with VTI-trained workers, untrained workers for immediate employment, untrained workers for in company training, or they were assigned to a control group. The results show that both types of subsidised training have a positive effect on the employment and earnings of young people. As regards the comparison between the two types of intervention, the effects of subsidised school based training are stronger than those of subsidised in company training. The explanation given by the authors is that VTI-trained learners benefit from the certifiability of their skills, and firm based training is an advantage mostly for higher ability learners while learners in general benefit from the systematic learning and the certification of their skills at VTI.

While responding primarily to the skill needs of employers, vocational preparation is actually an intervention that is wide in terms of breadth and scope according to our matrix, encompassing more than one factor and more than one level. In terms of breadth, vocational preparation schemes must also be regarded as a part of the external infrastructure that supports apprenticeship. In order to be organised effectively, vocational preparation needs to be an integral part of the education system and covered by the relevant national legislation. In terms of scope, vocational preparation belongs to the category of policies for institutional conditions in the sense that it should part of the national education and training policy, but it also has effects at the level of entrepreneurial ecosystems. The reason is that specialised regional networks of training providers, enterprises and public bodies such as employment agencies can be set up for the implementation of vocational preparation schemes.

When it comes to labour policy, industrial relations and social dialogue, macro level interventions are possible with regard to the institutional representation of employees' interests. The 'high road' model of work organisation described in section 2.3 suggests that strong labour unions within the enterprise can contribute to an equilibrium between the management and the employees that supports job security

and quality, high wages and investments in skill development. Accordingly, the national legislation should enable and safeguard the establishment of labour unions at the enterprise level.

Finally, the infrastructure of apprenticeship can be addressed by policy interventions that strengthen the role of intermediary organisations. As described in section 2.4, administrative functions such as the registration of apprenticeship contracts and the organisation of examinations can be delegated by law to competent bodies like chambers of commerce and industry. The definition of the role of these intermediary organisations in the German Vocational Training Act (cf. Poulsen & Eberhardt 2016) is an example of such a delegation. Intermediary organisations that have been assigned the role of competent bodies can also provide advice and counselling to enterprises in matters of recruitment and training. Appropriate legislation on the role of intermediary organisations therefore contributes to a supportive infrastructure for enterprises and can be of particular importance to SMEs, who might specifically benefit from such offers.

3.2 The meso level: policies for enterprises and entrepreneurial ecosystems

The second dimension consists of policies for enterprises and entrepreneurial ecosystems and relates to the meso level in the sense of the resources and supportive networks available in the local environment of the enterprise. Entrepreneurial ecosystems can be defined as 'set[s] of interconnected entrepreneurial actors, organisations, institutions and entrepreneurial processes, which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial environment' (Shwetzer, Maritz and Nguyen 2019, p. 79). It must be pointed out that the key term 'entrepreneurial' (or 'entrepreneurship') lacks a commonly accepted definition and is interpreted in different ways throughout the relevant literature. While some authors adopt a narrow definition according to which entrepreneurial activity consists in the creation of new ventures, others use the term so as to include the activities of established organisations such as banks, firms and venture capitalists as well (cf. Fredin and Lidén 2020, p. 88). In any case, an entrepreneurial ecosystem can be regarded as the total of the socio economic factors that are present in a geographical area and relevant for the performance and competitiveness of the enterprises located therein. It has also been suggested that entrepreneurial ecosystems should be interpreted in terms of the 'complex adaptive systems' (CAS) approach in order to capture the inherently dynamic nature and constant evolution of these ecosystems. According to the CAS approach, an entrepreneurial ecosystem can be viewed as an emergent phenomenon whose behaviour is determined by the activities of and interaction between the various actors within the system. Entrepreneurial ecosystems are self organising networks, which means that policy interventions are still possible but are only one factor among others that may influence their evolution (cf. Fredin and Lidén 2020, pp. 90-92).

In the context of apprenticeship policies for entrepreneurial ecosystems concern the cooperation of stakeholders in the delivery of training, in particular with regard to the fulfilment of certain criteria related to learning and working conditions. Examplesof these conditions are the provision of a substantial workplace component that is conducive to learning, or the organisation of adequate pedagogical support. Policies for entrepreneurial ecosystems are relevant predominantly because they address the need for a supportive interorganisational environment (cf. section 2.4), but also for the improvement of industrial relations and social dialogue (cf. section 2.3). External support from intermediary organisations, the fostering of organisational networks such as cooperative apprenticeship, training networks and local apprenticeship committees can all be regarded as policies for ecosystems in this sense. One example for the assistance provided by intermediary organisations is the work of inter company vocational training

centres in Germany, whose supplementary training activities, apart from contributing to the overall quality of training, also help to compensate the short comings in the training capacity of small enterprises (see Box 7 and Snapshot 5).

The costs and benefits of apprenticeship may be influenced, albeit indirectly, through policies for enterprises and entrepreneurial ecosystems as well. A possible intervention is financial support by the government for intermediary organisations. One example is the financial contribution received by Third Party Aggregators in India, whose activities reduce the recruitment costs for enterprises (cf. section 2.4). Another example, which is the topic of one of the case studies, is the funding programme for the above mentioned inter company training centres in Germany. These centres cover certain parts of the vocational curriculum that cannot be trained at the enterprise, which means that they not only contribute to the effectiveness and quality of training, but also reduce the training costs of enterprises: without the opportunity to delegate parts of the training to inter company training centres, the enterprises' financial undertakings for developing their own training capacity would need to be higher. The key findings of the case study are presented in the following snapshot. The parentheses in bold indicate which of the categories of our conceptual framework are represented by the features in question.

Snapshot 5: Supporting inter company training centres: key findings of the case study

Inter company vocational training centres (ICTs) are recognised as the third learning venue in the German apprenticeship system; their roles and missions have been consolidated through the Federal VET Act (apprenticeship infrastructure). Increased specialisation of SMEs and innovation rates in service and industry made it necessary to provide additional training offers at educational centres, which allow for a full coverage of all elements of VET and enabling SMEs to safeguard the skilled labour supply (skill needs). The financial support from the federal government is regulated by a joint regulation by the Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Affairs and Energy[13] (BMWi, apprenticeship infrastructure). Activities with a focus on initial vocational education and training are administered by the Federal Institute for Vocational Education

13 The ministry has since been renamed 'Federal Ministry for Economic Affairs and Climate Action' (BMWK). For the sake of conformity with the sources cited, we continue to use the old name throughout this report.

and Training (BIBB, apprenticeship infrastructure) on behalf of the BMBF while activities with a focus on continuing vocational education and training are administered by the Federal Office for Economic Affairs and Export Control (BAFA) on behalf of the BMWi. The objectives of the funding programme are the following:

- safeguarding a nationwide supply of supplementary training services;
- promoting the upgrading of ICTs to multifunctional training centres for an adequate skills supply;
- quality assurance in training;
- promoting the upgrading of ICTs to centres of excellence;
- supporting the training capacity of enterprises, in particular SMEs;
- improving the career opportunities for learners;
- improving the market entry and competitiveness of SMEs;
- strengthening the potential for growth of SMEs.

Particularly the last two bullet points show that ICTs are not just providers of training services but are also expected to support enterprises, especially SMEs, at a more general level by improving their competitiveness and capacity for innovation. This makes ICTs an interesting example of a supportive actor within the entrepreneurial ecosystem.

According to a recent evaluation of the federal funding programme against the above mentioned key objectives, the greatest benefit of the work of subsidised ICTs lies in the support of companies' training capabilities (skill needs) and securing skilled labour (labour policy, industrial relations and social dialogue). According to the assessment of the companies surveyed, the teaching of knowledge and skills relevant to training and the provision of adequately qualified skilled workers are significantly facilitated by the contribution of the funded ICTs. Accordingly, the trainees also assess the contribution of the ITC to their prospects of vocational success very positively. Less clear, on the other hand, is the benefit with regard to the economic development and innovative capacity of the companies. The cooperation with the ICTs and the high quality of training that this makes possible can increase the attractiveness of the company and the motivation of the employees; beyond this, the companies do not see any effects (costs, benefits, entrepreneurial commitment). Likewise, a positive effect on the company's ability to innovate, which could contribute to an improvement in market access opportunities, is only seen to a limited extent (cf. Bauer/Pfeiffer/Rothaug/Wittig, 2020 p. 101).

Against the backdrop of the conceptual framework of this thematic chapter, inter company vocational training centres can be regarded as intermediaries that fulfil supportive functions in the local or regional environment of training enterprises. Their funding can therefore be regarded as a specific policy for enterprises and entrepreneurial ecosystems. The above mentioned findings suggest that inter company training centres play an important part in sustaining the participation of SMEs. One of the reasons why enterprises, in particular smaller ones, decide against hiring apprentices is their inability to cover all mandatory parts of the VET curriculum (see section 2.2). The supplementary training units that are offered at the ICTs address this challenge up to a point. It can be assumed that many of the SMEs that currently train apprentices would (or could) not do so without the opportunity to delegate parts of the practical training to ICTs.

As regards skill needs and recruitment, Centres of Vocational Excellence (CoVEs) have been identified as a type of training institution that merits special attention (see e.g. ETF 2020). There is no single, universally accepted definition of the term, but by approximation, CoVEs are upgraded schools or training centres that aim to make the provision of skills more responsive to the needs of the industry, to improve the overall performance of the VET system and to support innovation. By delivering excellence in training, CoVEs are expected to improve the reputation of VET and to make it more attractive for learners and employers alike, but they are also in a position to provide specific additional services to other organisations. This potential could be exploited to address the capacity problems that especially SMEs face when it comes to the organisation of training processes.

Public private partnerships are an intervention that address the infrastructure of apprenticeship. The 'consortial' and 'parental' models of public private partnerships can be of use especially in a context where the representation of employees' interests is weak and a social dialogue between employers and labour unions is absent (cf. section 2.4). One example of a parental partnership between one large employer and several public training providers is presented in the following snapshot.

Snapshot 6: 'Parental' public private partnership in South Africa

The example concerns the collaboration between one large employer and the TVET colleges in South Africa (see Mabusela, Buthelezi & Prinsloo 2021, p. 21). The collaboration concerns college based training programmes, which are supposed to include 18 to 24 months of work based learning on top of the 18 months of theoretical instruction at the college. Over the years, the supply of work based learning opportunities has decreased, which effectively left the programmes without their practical component. In 2019 a partnership was initiated between Clicks Group and the South African TVET colleges with the aim to provide structured 18 month work placements for students. The learning opportunities are customised so as to enable students to fulfil the diploma requirements for their respective programmes. More than 900 students have entered the programme by 2021, and about 50% of these already completed their training. The collaboration can be regarded as an example of a public-private partnership that served to revive the principle of dual or alternating training within existing TVET programmes.

▶ 3.3 The micro level: programmes targeted directly at entrepreneurs

The third dimension of the model is the micro level of the single enterprise, at which level the policies or programmes targeted directly at entrepreneurs come into play. As mentioned above, these measures aim at improving the capacity and performance of enterprises by a variety of instruments such as advice and counselling, education and training for entrepreneurs, or direct financial support. With regard to apprenticeship, this concerns the single enterprise's capacity to meet the criteria for learning and working conditions as descried in the ILO and EFQEA frameworks, e.g. the ability to provide a substantial workplace component and adequate pedagogical support, the ability to pay adequate remuneration and provide social security coverage for the learners, and the ability to guarantee appropriate work, health and safety conditions. Policy interventions of this category may accordingly be employed to influence the factors that operate at the company level, i.e. the cost benefit ratio (section 2.1), the recruitment strategy (section 2.2) and other organisational features of the enterprise (section 2.3). For instance, a company's cost structure may be altered by direct financial support, improving the ability to hire apprentices. In particular, wage

subsidies for apprentices may be used to this end. These subsidies may be funded by general taxation, but there is also the possibility to raise funds by means of a training levy (see section 3.1).

Skill needs and recruitment may also be addressed by interventions targeted directly at sin gle enterprises. It was pointed out in section 2.2 that some enterprises, particularly SMEs, are challenged by a mismatch between their business processes and the requirements of training. More specifically, these enterprises find themselves unable to involve apprentices sufficiently in productive work, to take care of apprentices properly, or to cover all parts of the curriculum. A possible response to these vocational pedagogical challenges is the provision of counselling and support to employers through experts such as VET teachers or apprenticeship advisors. These experts may be employed by intermediary organisations such as chambers of commerce and industry or inter company vocational training centres and provide their services directly to single employers. Their activities include training needs analyses or the facilitation of access to training networks. In terms of breadth, this type of intervention not only relates to the aspect of skill needs and recruitment but also exemplifies the effect of a supportive apprenticeship infrastructure (cf. section 2.4) on the single enterprise.

As regards labour policy, industrial relations and social dialogue, advice and counselling with a view to structural modernisation and the establishment of a 'High Road' labour model could stimulate a company's commitment to apprenticeship. The 'High Road' model also points to an additional aspect that might also be regarded as another dimension in its own right, namely, the perspective of the employee. While the focus of this paper is on policy measures to support enterprises, there is also a need to consider the consequences of the different measures for employees. As pointed out by the emphasis on social partnership in the ILO's concept of apprenticeship, any measure to promote the participation of enterprises in apprenticeship needs to be accompanied by an adequate representation of employees' interests. The perspective of the workforce can thus be regarded as a fourth, cross cutting dimension of the model.

A summative example of an intervention that operates and targets direct and immediate consequences on the level of individual enterprises – through mandatory quotas and fees is given by the case study on the revision of the legislation on apprenticeships in Colombia (see Annex). The provisions of the 2002 Law No 789 on labour, employment and social protection can be interpreted as interventions that address costs and benefits, skill needs and recruitment. In terms of scope it can be located on level of a policy that addresses the larger institutional setting, while at the same time also including the level of the individual enterprise. The snapshot below presents some key features of this case.

Snapshot 7: Apprenticeships in Colombia: Key findings of the case study

Regulated apprenticeships in Colombia date back to 1959. However, apprenticeship obligations were often not fulfilled at all or were fulfilled by companies sending their employees to evening classes without any significant workplace component. In 2003, the situation for apprenticeship training in Colombia changed significantly due to new legislation (Law 789 of 2002). The new law, in particular article 30 "Nature and Characteristics of the apprenticeship relation" as well as Art. 31 to 41, changed some parameters of the apprenticeship legislation.

- The legal status of apprentices was removed from regular labour legislation.
- The maximum duration of a training course was set at two years.
- Financial compensation must be provided by the employer: this is based on the newly introduced legal minimum wage for apprentices: 50% during school instruction, 75% during on the job learning. In the case of university students, 100% of the legal minimum wage must be paid during regular working hours.
- The training is divided into two phases: a classroom phase, in which the trainee receives vocational instruction, and a practical phase in the respective company. In the first phase, the trainee receives a monthly support payment.
- In addition, mandatory thresholds are set for company training quotas, which are intended to prevent the use of trainees for purely productive purposes on the one hand and under training by companies on the other. These quotas are to be adapted to the size of the enterprise, for example to take account of SMEs.
- In case that companies do not comply with the respective training quota, they have to pay a fee that equals the minimum wage of the apprentices not hired. This option is called monetization of the apprenticeship fee.[14]
- 100% of the legal minimum wage must be paid in the practical phase, when the national unemployment rate is less than 10% (Law 789, Article 30).
- All private companies (except construction sector), with a number of workers of not less than 15 are obliged to have apprentices (Law 789, 32).

The particularity of this case lies in two elements: it documents the economic effects of a strong institutional regulation of the concept of apprenticeship through a mix of mandatory quotas, minimum legal wages and other financial instruments as well as mechanisms to administer and support the take-up of apprenticeships through companies. Hence it also represents a policy with a focus on the level of individual companies. The use of apprenticeship has risen very strongly due to the reform, but research has also provided hints as to where policies can be improved. Many of them fall into the category of enterprise policies and entrepreneurial ecosystems.

14 Monetization of the apprenticeship fee: companies obliged to take-up apprentices may pay a fee to SENA resulting from multiplying 5% of the total numbers of workers (excluding independent or temporary workers) with a minimum legal wage. In case the monetization is partial, it will be proportional to the number of apprentices, which the company would have taken-up by law.

The focus on the individual enterprise places this reform in the top right cell of the matrix of political interventions in Table 5. The annex documents that the institutional reforms and their effect are particularly well researched on the level of individual companies, and their commitment to apprenticeship. However, research has also produced some insights that are particularly relevant in regard to skill needs and apprenticeship infrastructures. Part of this might need to be realised on the level of entrepreneurial ecosystems. E.g. there is a clear difference between “high skill” (paper and editorial, machinery and equipment, metallic products, chemical products, and other manufacturing) and “low skill” (wood products, textiles, food and beverage, and mineral non-metallic products) sectors in terms of engaging in apprenticeships. Setting the right wages, that correspond to the productivity and investment motives, as proposed by the research is a task that needs adequate forms of labour policy, industrial relations and social dialogue, indicating a field where further intervention might be useful, most of them on the level of entrepreneurial ecosystems.

4

Measures and policy options for enhancing enterprises' participation in apprenticeships – Key messages

Measures and policy options for enhancing enterprises' participation in apprenticeships – Key messages

The preceding section has summarised findings of this report and the case studies in light of two perspectives: one that looks at the level of possible interventions through policies targeted at SMEs in general and one that looks at apprenticeships as dependent on a number of factors that research has addressed and explored. This procedure aimed at supporting the mapping of different practices and policies in a coherent conceptual framework that is open for wide array of national and conceptual differences; a challenge when it comes to apprenticeships on an international scale.

In this last section of the thematic report, we summarise the main findings in light of the developments on the supranational level and the related documents of the ILO, especially the six building blocks of apprenticeship systems (see Box 2).

We aim at the identification of the points ("policy pointers") that need to be considered in the development of measures to enhance SMEs' participation in apprenticeship in particular. These policy pointers are derived from the factors discussed in chapter 2, i.e. from the challenges that need to be addressed by appropriate interventions. They will also be related to the question of adequate levels of intervention of policies targeted to SMEs.

Before addressing the six building blocks we take stock of developments on the international level and the specific role of SMEs and also provide some suggestions for further work.

A converging understanding of apprenticeship on the international level lack of information on national practices

The introductory section 1.1 shows that in recent years, much has been achieved on a global scale with regard to the concept of apprenticeship training, its position in vocational education and in national employment systems. Various recent and ongoing initiatives contribute to a greater convergence in the understanding of the concepts of apprenticeship and in company training.

Policy pointer

Even though there is a converging understanding of apprenticeship on the global level, the analysis showed, that there is still considerable lack of information on its position in the labour market, the role of firms and the interplay with contextual conditions.

The work by international organisations that we refer to is promoting information and a number of principles that should be adapted when realising apprenticeships. The principles can well be related to our levels of analysis ("scope") and the content of interventions ("breadth").

What is still missing, however, is more detailed information on the different causes and effects (long and short-term) of apprenticeship practices and their conditions. Our analysis has shown that research is still somewhat patchy across the breadth of the four factors that we have identified. It is also difficult to assess in how far the findings from one national apprenticeship context can be transferred to another. Here further evidence will be required. The scarcity of knowledge on the international level about apprenticeships in ILO member states constitutes a big challenge to any attempt to make valid suggestions for apprenticeship policies. In particular, this also concerns the question of the development of training relationships in the informal sector and their evolution into more formalized arrangements, which relate, for example, to the ILO's Building Block on apprenticeships.

Examples for major differences between selected countries are the quantitative significance of apprenticeship within the labour market and the educational system. Another important difference between countries is that apprenticeships may be found in small range of occupations (often crafts) or in a wider range of occupations including crafts, industrial and service jobs. In some countries a trend can be observed that apprenticeships expand the domain of traditional craft trades.

Policy pointer

Emphasis needs to be given to the application and development of concepts of apprenticeships in light of important neighbouring policy domains, such as employment, enterprise and entrepreneurship policies. A developmental model for the transformation of informal to formal apprenticeships might be required on national and international levels.

The need for more knowledge about the current situation of apprenticeship at the international level and about the links between apprenticeships and contexts requires, on the one hand, better data and on the other greater coordination of data collection and research on different aspects of apprenticeships.

Policy pointer

Stronger attempts could be made to harmonise statistical concepts of apprenticeships and countries should be encouraged and support to set up adequate data collection structures (minimum: apprenticeship rate and apprenticeship training provision rate)

Extending national activities, project based support could be useful in order to coordinate national research that is in place, anyway. Beside statistical information on the national level there is also information available on the level of practices in firms.

Policy pointer

Processes of benchmarking the participation of companies in apprenticeships would be helpful on the national as well as the international level, but require strong efforts in terms of data gathering the need to initiated.

A controlled and coordinated framework, which can be based on the model used in this report, would be required in order to compile and better exhaust the knowledge available that is continuously produced on national levels. Based on work already taking place at national levels, project based support for coordinating and bringing this work together could add great value. Examples of this are the collaboration of different actors between the firm and the entrepreneurial ecosystem level. Although we found some examples, there is a lack of detailed knowledge about which constellations auf actors and funding are particularly conducive to SME participation. This is just one example for research required and the further paragraphs identify additional topics that research could address.

Policy pointer

The deficiencies in information and evidence pointed out apply even more to information on the quality of apprenticeships (in SMEs) and their interrelation with external conditional factors (schools, intermediaries, different sector s and occupations). Accordingly, further emphasis needs to be laid upon understanding apprenticeship in different contexts indepth. Initiatives such as this series of thematic papers could be followed by further detailed comparative analysis of selected examples (based on the grid applied in this the matic report). This can lead to the production of related tools (e.g. checklists) that support decisions of policy makers on different levels. Particular emphasis should be given to SMEs given their importance in apprenticeships.

A key role for SMEs

According to ILO figures SMEs account for around 50% of employment – SMEs are also major providers of apprenticeship. In many of the countries where apprenticeship plays a bigger role for either system of vocational education or workforce development, SMEs are the major providers. For some European countries as well as in Australia SMEs make up more than 70% of all apprenticeships (see Table 3). The case study on Colombia also underlines the significance of SMEs to apprenticeship development.

Policy pointer

More attention needs to be targeted to SMEs since they are the major providers for apprenticeships in many countries! Any policy that intends to support the development of apprenticeships on a larger level needs to look at the specific conditions for SMEs in terms of recruitment, training and HRD.

Especially micro enterprises (i.e. those with less than 10 employees) might need attention, since there is evidence that are they are particularly sensitive to changes in terms of conditions for employing apprentices. Bigger SMEs do not seem to struggle with the same challenges. Smaller sized enterprises do not have the necessary economies of scale to provide certain (internal) services on a continuous basis and, they react particularly quickly to economic changes with regard to the recruitment of personnel.

Policy pointer

A declining rate of participation and provision of micro enterprises that is documented for some countries constitutes a key challenge that needs to be tackled. This is especially the case given high number of apprenticeships in classical craft trades in many countries.

In addition to their omnipresence, academic literature and the policy dialogue has pointed out several features of smaller businesses that make them particularly rich places of learning.

Policy pointer

SMEs can be particularly rich venues of learning, since they can provide exposure to the whole range and stages of the business process, from order, production and delivery to service. In addition to the mere quantitative significance this is an additional reason to look at SMEs and to make all attempts to include them in apprenticeship.

Overall, SMEs need special treatment by policy makers, which we will now illustrate according to the building blocks of the ILO (see Box 2).

Meaningful social dialogue

Our analysis of research findings has highlighted some points around which meaningful social dialogue can be conducted. It goes without saying that the topics of apprenticeship pay and working conditions are at the centre of the debate between employers and employee representatives. However, the objects of negotiations can also be defined broader.

There is evidence available that shows that engaging in apprenticeships can increase the productivity of the workforce (see case study Colombia). However, it could also be shown in the case study that this surplus is not necessarily redistributed evenly between employers and employees. For employees this might be acceptable as long as there is a long term benefit in being involved in apprenticeships. For example, an apprenticeship might increase the job perspectives in the company but also on the external skilled labour market segment relevant to the respective occupation.

In terms of social dialogue, this shows that there are additional topics extending wages and working conditions, which can subject of negotiation and cooperative practices. Within the boundaries of individual firms, this can be the joint supervision of quality standards in training or their development.

It has become visible that a joint long-term strategy ("high road") can be conducive and to the development of the firm and to employees. This includes rather broad job profiles with a high degree of responsibility and discretion.

The fact that there is some evidence that there is a higher tendency to train in firms that are in private or mixed ownership structures as opposed to publicly listed firms indicates that there might be a connection of apprenticeship and employees' commitment to the firms' objective. In this sense, the participation of all stakeholders in the training process can also promote identification with the company's goals.

It is also an interesting observation because the marginal costs of apprenticeship training for such enterprises might often be much higher than for the usually larger publicly listed enterprises.

Policy pointer

Policy interventions could look at the match between the development of apprenticeship structures and practices and the support to "high-road" employment strategies of companies. As a rule, this also includes cooperative management practices, broad job profiles and a corresponding operational organization. For policy interventions this means that they could address the immediate firm level, encouraging such practices in combination with apprenticeships.

However, just as apprenticeships such overarching concepts of HRD practices might need adaptation to different national or cultural contexts and will result in local derivatives.

Robust regulatory framework

From an overarching perspective, a distinction can be made between those models that are based more on the construction principles of active labour market and employment policy, continuing education and training, and the creation of a special status under labour law, and those that rely on professionalisation

and the development of professional job profiles within initial educational programmes. In some countries, there is a very broad understanding of in company training that corresponds to several of these specific models; in others, only one of these models can be identified.

In recent years, some countries have shown considerable dynamism in terms of apprenticeship contracts. This is mainly due to institutional reforms, such as the more rigorous enforcement of mandatory apprenticeships as they exist in some countries, policies directly targeting companies (e.g. funding and penalties) but also the support through intermediaries. We will further analyse these items under the following paragraphs always with a particular emphasis on SMEs. However, given the significance of SMEs themselves and of the immediate context, we can say at this point already that in terms of scope of intervention it might be useful to concentrate on enterprises and their ecosystems.

In terms of SMEs' participation there are several things to consider in the design of a robust framework that we want to point out at this occasion. The specification of trades and qualifications covered under apprenticeships as required by the ILO is a necessary condition for the development of a system. However, some further requirements should be thought of. Trades and qualifications have to balance certain design criteria in order to become a sustainable solution for individual career decisions as well as for employers' recruitment decisions.

Policy pointer

In order to make apprenticeships in SMEs attractive to apprentices, they need to fulfil certain criteria: they need to be competitive with alternative roles on the labour markets. This includes actual remuneration, quality of work and learning as well as future employment and income perspectives and progression routes. Therefore, apprenticeships need to cover broad occupational profiles and not mere "jobs". If this aspect is not taken into account, it will also not be possible to make work and training in small and medium sized enterprises attractive and thus contribute to attracting skilled workers.

Or analysis has also shown that pure "employerled" solutions which in some cases even promote only the interests of a single employer might be a means of increasing the number of apprenticeship places but might not positively influence the sustainability and long-term existence of apprenticeships on labour

markets. In some cases, they have become rather an instrument of securing and structuring internal labour markets, which are not particularly conducive to large scale employment in SMEs.

On the other hand, research has documented how qualitative changes in company training regulations can bring about an increase in the commitment of companies to vocational training and increasing the attractivity of apprenticeships to trainees. Different solutions (elective options for companies and individuals in the German setting, "optional trades" in the Indian context etc.) need to be assessed according to their contribution to the balance of different goals of apprenticeships.

Mechanisms for taking the interests of single enterprises into account and balancing this with overarching standards with wide scope across regions, sectors (different entrepreneurial ecosystems) or on a national basis are an important object of further research.

Policy pointer

In order to make apprenticeships attractive to employers as well as employees, regulations need to address content that is representative to occupational work across the boundaries of individual companies but flexible enough to cater for the needs of individual companies. Only through this balance, stable and transparent labour markets can be sustained that are crucial to SMEs success. In some cases the goal of flexibility seems to dominate choices.

Strong labour market relevance

Accordingly, the strong labour market relevance, which is part of the ILO building blocks, is a necessary criterion that might need certain qualifications in order to end up with sustainable and long lasting effects, especially in light of SMEs' participation.

International comparative research has shown that the kind of qualifications and skills that that enterprises demand are partly influenced through general labour market policies and the way how VET systems prestructure the supply of skills. For example, it is assumed that in less flexible labour markets there is a stronger incentive to engage in apprenticeship on the long run than in very flexible labour markets with high inter firm mobility.

Policy pointer

The finding that very similar apprenticeship systems might lead to very different results puts emphasis on the fact that the general labour market legislation as well as the market and the sector to which the respective companies belong. This reinforces the entrepreneurial ecosystem perspective on apprenticeship policies. E.g. apprenticeship policies should be open for a differentiation across sectors and occupations.

Evidence from selected sectors and occupations research especially on SMEs has shown that recruitment needs and tasks might be quite similar across occupations. However, job roles in the same occupations vary to a greater extent. In addition, the involvement and motivation of companies depends upon technological, organisational changes. Therefore, companies in some cases might have diverse needs that also need to be accommodated by occupational profiles.

In developed and emerging economies there are companies that follow a "high-road" strategy in the recruitment and development of their staff. This can be supported by providing a supportive framework to enterprises in terms of labour market and VET policies and by accommodating the needs of SMEs in curricula and regulations.

Policy pointer

Policy interventions can benefit from knowing as much as possible about the motivations and skills needs of companies in the targeted sectors and markets. This can be achieved by the collection of data as well as by opening up the design process from the very beginning to experts representing the respective sectors. It is also important to acknowledge that the context of the enterprises itself can guarantee und the right contextual conditions that learning is up to date with demand, since it takes place in the most authentic setting.

When "labour market relevance" is interpreted as a continuous necessity to look at the economic efficiency of apprenticeships for SMEs, the attention is also immediately directed at issues of costs, benefits and financing of apprenticeships. In the next paragraph we look at issues that are of direct financial relevance, but would like to emphasise already at this point that there are many aspects within the "entrepreneurial ecosystem" that are likely to have an influence on enterprises' cost benefit decisions that are usually not directly evaluated according to their financial effects. Examples are functions that are taken on by other surrounding organisations as a reaction to some of the reasons that can be found in the literature, why enterprises might not be involved in apprenticeship training. For instance, an in sufficient capacity to take care of apprentices properly or the impossibility to cover all parts of the curriculum are cases where interventions of external organisations might help a lot, as shown in the last paragraphs.

Equitable funding arrangements

The analysis has uncovered various motives that play a role in company decisions. In addition to the immediate productive use of apprentices' manpower, the interest in investing in the skilled workers of tomorrow also plays a role for many enterprises for companies that hire apprentices or conclude apprenticeship contracts with their employees.

Policy pointer

An important lever to stimulate apprenticeships might be tailored wages or apprenticeship remunerations acknowledging the respective regional and sectoral markets and the respective occupation. In conjunction with suitable ways of representing employees' interests (e.g. through collective agreements), they might be a viable alternative to more generalised solutions, such as minimum wage orientation.

Given the variety of skills needs in different occupations and sectors, the differences in terms of production and investment orientation and the significance of wage costs for the companies' cost benefit balance, there are clear economic reasons for an apprenticeship remuneration in accordance with the respective occupational or sectoral characteristics.

Policy pointer

Motivations beyond corporate production and investment considerations can be social corporate responsibility, employee retention and employer branding or marketing aspects. Such motivation should be taken into account by policies that support the take-up of apprenticeships. An example for this could be badges, quality seals and the like.

Apart from the basic motivation of productive or investment approach to apprenticeships, there is often a mixture of less comprehensive motives. This can be the use of the apprenticeship relation to get to know potential employees, a tradition of integration of new recruits through apprenticeships in the respective craft or industry, or aspects such as the demonstration of socially responsible behaviour, employee retention and employer branding or marketing aspects. These motivations could potentially play a role as the icing on the cake when it comes to convincing businesses or supporting them by public measures. We have also documented cases in which there was a clear effect of direct financial contributions to the take-up of apprenticeships. On the other hand, there are other cases, where the system is functioning without such direct financial interventions. In these circumstances the supportive environment seems to play a more important part.

Policy pointer

In some countries institutional reforms and policies directly targeting companies (e.g. funding) seem to have had considerable effects on the quantitative take up of apprenticeships through companies. Our analysis suggests that such effects in the best case need to be accompanied by longer-term investments into apprenticeship infrastructures. Hence, public contributions can also involve investments into institutions that might support the reduction of costs on the enterprise level.

Clear roles and responsibilities and inclusiveness

In some cases, there is documented evidence on the reasons why companies do not train apprentices. Typical reasons for not engaging in apprenticeship training are insufficient opportunities to have apprentices involved in productive work or that companies think that they have limited capacity to take care of apprentices properly. Sometimes the specialised business processes of companies do not match the scope of the curriculum. A clear designation of roles needs to take into consideration that cost benefits are at the heart of entrepreneurial activity and that apprenticeship is one means of reaching entrepreneurial goals. Accordingly, in company training always takes place in a field of tension with other company functions or must be reconciled with them.

Policy pointer

Policy interventions can address hindrances on the level of individual enterprises. There is evidence on different reasons available, such as organisational changes and capacities to accommodate apprentices as learners in productive work processes, the lack of suited candidates or just the matching with curriculum. Typically, such issues do not necessarily need to be addressed by the enterprises themselves but can be part of public services.

There are core functions of apprenticeships that can be taken on by public actors, so called intermediaries, in order to support SMEs in providing apprenticeships. By taking tasks off the hands of SMEs and offering them centrally for specific professions or an industry, public institutions can support the apprenticeship ecosystem. There is a number of existing models, which include the setup of designated institutions or the integration of such tasks into existing institutions (schools, colleges, chambers). Such services can also be a powerful means to increase the integrative scope of apprenticeships, because the providers of such services might be well aware of the special needs of diverse target groups.

Policy pointer

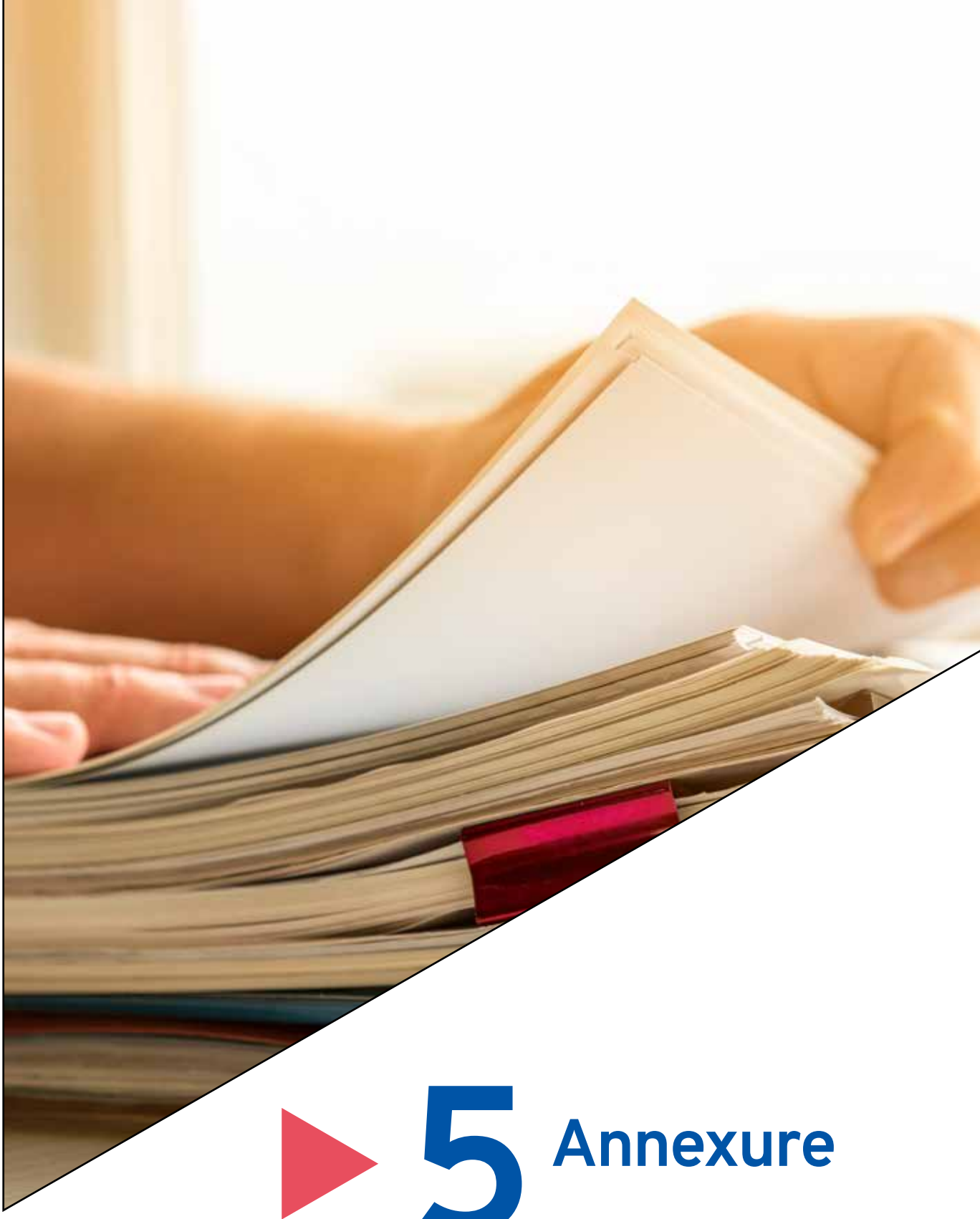
Given the economic shortages that typically apply to small and medium sized businesses, the state can assist in many cases by supporting businesses in core functions of training apprentices. This support can concern the preparation and recruitment, the content and pedagogical supervision, and also the testing of apprentices. Such services may also include the networking between different companies and rotation of apprentices or processes of organisational consultancy.

Obviously there is a particular role of the state, that sometimes only needs to bring cooperative efforts between enterprises to a higher level (see e.g. the sections about some of the SME networks in our analysis). In addition to the regulatory and financial functions the state can be providing services directly to enterprises or commission services to third parties. The short and long-term nature of government support has become clear at various points and needs to be reflected in apprenticeship policies.

There is increasing evidence that apprenticeship needs to be treated is a societal institution and not a mere policy programme. As such it is resting on long-term infrastructures instead of short-term spending of the state in quasi markets. This, however needs a thorough reflection where to locate certain functions and services taking into account their potential monetary value in any case. Research, however, that evaluates the economic contributions of infrastructures for apprenticeships in accurate economic terms is lacking.

Policy pointer

Support policies for apprenticeships in SMEs can involve regulatory and financial as well as institutional in kind mechanisms. Sometimes it may be more advisable for governments to provide services directly or through contracting out to third parties than to distribute money directly to businesses or individuals. When adequately allocated to actors, can generate high commitment with the different stakeholders and might sometimes have greater effects that financial transfers. Mechanisms and infrastructures which benefit the SMEs are often located on the level of enterprise policies and entrepreneurial ecosystems (regional levels, technological clusters etc.), a level that needs more attention in apprenticeship policies.



5 Annexure

Annexure

▶ 5.1 Frequent apprenticeship occupations across selected coun-tries

Table 6: Apprenticeship contracts by occupational areas 2018 in different countries

	Australia	
	Branch/economic sector	Relative share* (total: 269,720)
1	Craft trades (construction)	21%
2	Automotive and mechanical engineer-ing	16%
3	Electrical engineering and telecommu-nications	14%
4	Other technical and crafts	6%
5	Care and nursing	5%

	France	
	Branch/economic sector	Relative share* (total: 448,127)
1	Trade and management	22%
2	Manufacturing	18%
3	Mechanics, Electricity, Elec-tronics	17%
4	Personal services	14%
5	Construction, wood	12%

	Germany	
	Branch/economic sector	Relative share* (total: 1.330.764)
1	Management assistant for office Management	5,3%
2	Motor vehicle mechatronics technician	5,0%
3	Retail salesperson	4,2%
4	Industrial clerk	3,7%
5	Industrial mechanic	3,2%

	Canada	
	Branch/economic sector	Relative share* (total: 392,202)
1	Electrician	17%
2	Plumber, pipe and heating fitter	11%
3	Carpenter	11%
4	Automotive service	10%
5	Gastronomy	5%

	Denmark	
	Branch/economic sector	Relative share* (total: 66.876)
1	Public administration, education and health	26%
2	Trade and transport	26%
3	Building and construction	22%
4	Industry, raw material recovery and utilities	12%
5	Business services	4%

	Switzerland (2018/2019)	
	Branch/economic sector	Relative share* (total: 200.041)
1	Business and administration (EFZ)	15%
2	Wholesale and retail trade (EFZ, EBA)	12%
3	Building trade, construction and civil engineering (EFZ, EBA)	8%
4	Nursing and obstetrics (EFZ)	6%
5	Mechanical engineering and Metalworking**	6%

	Austria	
	Branch/economic sector	Relative share* (total: 107,915)
1	Trade and handicraft	42%
2	Industry	15%
3	Trade	14%
4	Tourism and leisure industry	8%
5	inter company apprenticeship training	8%

* Relative share of the total number of apprenticeship contracts as indicated in brackets in the respective country in %

** EFZ, EBA, vocational basic training not regulated by Federal VET act

EFZ = Federal certificate of proficiency; EBA = Swiss Federal Vocation-al Certificate

Source: adapted from Grollmann, P., Ulbrich, V., Hugo, F. (2021: 452)

This table illustrates the differences in occupations and their relative significance across different systems of apprenticeships based on national data. It also illustrates the challenges of data collection.

Caution in interpretation is required because of the different national occupational classifications.

A general pattern that can be observed is that in some countries the larger apprenticeship occupations cover occupations in administrative and office occupations ("white collar") and trade and technical occupations, while in others there is a concentration on craft trades.

▶ 5.2 Case studies of apprenticeship interventions

In the following sections, some policy interventions are described in-depth by case studies. Criteria for selection were, that they should represent different areas in our matrix of ap-prenticeship interventions. In addition, we have aimed at broadest regional coverage and saturation through scientific evidence. Evidence in terms of case studies 1 and 2 can be rated high, while case study 3 is mainly based on reports and documents of international coop-eration projects.

The first case study describes how inter-company training centres in Germany provide or-ganisational support within the regional environment of enterprises. In terms of scope this can be regarded as an example of policies for entrepreneurial ecosystems. In terms of breadth it shows how interventions are embedded into a complex system of apprenticeship infrastructures on the one hand and that interventions that might benefit individual companies can also be based on "in-kind" contributions by public services instead of direct financial support. There is an evaluation that the case study can draw upon.

The second case study on Colombia discusses the effects of the national VET and labour market legislation on the economic rationale of apprenticeship for enterprises in general. It is based on the instruments of mandatory quotas and an apprenticeship quota. A feature of the case study its relatively strong evidence based on econometric analyses. It describes the effects and related implications along the full breadth of factors, from individual companies' commitment to issues of employer-employee relationships to infrastructures of apprenticeship.

Finally, the third case study describes the contribution of colleges to Vietnamese VET in the context of a pilot project. This case is another example of measures targeting entrepreneurial ecosystems and a

measure that might stimulate the development of apprenticeships as a result of a more school-based VET pattern including co-operative elements between schools and employers.

5.2.1 Case study: Inter-company training centres in Germany

Introduction to the case and context

Apprenticeship is provided in Germany for 323 recognised training occupations and in most cases apprenticeships last 36 months. Work-based training is conducted in companies and complemented by vocational education in part-time vocational schools one or two days a week. Accordingly, apprentices spend most of their training time in companies. Enterprises enter into a contract with apprentices, where they bear the costs of the in company training and pay the apprenticeship remuneration. This is regulated by collective agreements and increases with every year of training, averaging about a third of the starting pay for a trained skilled worker. In the German apprenticeship system, companies are offering apprenticeships (545,721 in 2020) and learners are applying to those (527,433 in 2020). Upon passing the final examination, apprentices receive a chamber certificate in order to document successful apprenticeship completion. This certification of qualification is fully recog-nised and highly trusted among employers (ReferNet 2019; BIBB 2021). In 2019, 425.781 companies are engaged in the apprenticeship system in Germany. Whereas most large companies are engaged in apprenticeship, there are still potentials for recruiting very small and middle-sized companies into the apprenticeship system (see Table 7).

Table 7: Distribution of companies offering apprenticeship by size (2019)

Size of company	2019	% of all companies offering ap-prenticeship in the size class
1 to 4 staff members	83.296	6,5 %
5 to 9 staff members	99.685	25,7 %
10 to 19 staff members	88.724	37,9 %
20 to 49 staff members	78.202	49,1 %
50 to 99 staff members	36.698	62,4 %
100 to 249 staff members	25.269	71,6 %
250 to 499 staff members	8.486	79,6 %
Above 500 staff members	13.907	85,7 %

Inter-company vocational training centres

Inter-company vocational training centres (ICTs) are meanwhile established as the third learning venue in the German apprenticeship system; their roles and missions have been consolidated through the Federal Act on VET. Increased specialisation of SMEs and innova-tion rates in service and industry made it necessary to provide additional training offers at educational centres, which allow for a full coverage of all elements of VET and enabling SMEs to safeguard the skilled labour supply. SMEs train more than 2/3 of the apprentices in Germany but are not always equipped to offer full training contents as prescribed in appren-ticeship regulations.

The ICTs build a nation-wide network of multi-functional VET centres. They support IVET and CVET training especially oriented to SMEs by running practice-oriented VET courses and of-fering suitable facilities

outside learning venues (VET schools and training companies). With this and a high degree of flexibility in the design of demand-oriented qualification offers, the ICTs have continuously developed. They fill in the training gap that emerges in the course of changes in training (digitalisation, sustainability) or in relation to the training companies' specialisation. In the specific VET training field, such as industry, the ICT take over the basic practical training for SMEs that large companies would offer within their in-doors appren-ticeship workshops (Pfeiffer 2018). ICTs have enlarged in the recent years their support offers to guidance and counselling, thus supporting additionally the transition from school to VET, as well as support for recruiting apprentices. The public federal funding support amounts to around 47.45 million euros in 2020 (BIBB 2021) and is mainly targeted at infra-structure (buildings, newest equipment to address technological and pedagogical require-ments) (Pfeiffer & Köhlmann-Eckel 2018; Le Mouillour 2015). Out of those 47 million euros, 1,67 million are dedicated to the competence centres among the ICT. The financial support from the federal government is regulated by a joint regulation by the Federal Ministry of Education and Research (BMBF) and the Federal Ministry for Economic Affairs an Energy (BMWi). Activities with a focus on initial vocational education and training are funded by the Federal Institute for Vocational Education and Training (BIBB) on behalf of the BMBF while activities with a focus on continuing vocational education and training are funded by the Federal Office for Economic Affairs and Export Control (BAFA) on behalf of the BMWi. The objectives of the funding programme are the following:

- safeguarding a nationwide supply of supplementary training services;
- promoting the upgrading of ICTs to multifunctional training centres for an adequate skills supply;
- quality assurance in training;
- promoting the upgrading of ICTs to centres of excellence;
- supporting the training capacity of enterprises, in particular SMEs;
- improving the career opportunities for learners;
- improving the market entry and competitiveness of SMEs;
- strengthening the potential for growth of SMEs.

Particularly the last two bullet points show that ICTs are not just providers of training services but are also expected to support enterprises, especially SMEs, at a more general level by improving their competitiveness and capacity for innovation. This makes ICTs an interest-ing example of a supportive actor within the entrepreneurial ecosystem.

Introduced in the 1970s the ICTs followed four main objectives: to deepen and complement the in-company training, above all through practical training content, to promote basic vocational training, to improve the regional supply of training places in terms of technical specialisation and regional equal opportunities. To achieve these goals, the promotion of ICTs started in 1973 with 44 ICTs with 2,590 training places in industry and 592 ICTs with 22,694 training places in skilled trades nationwide. A second wave of ICTs promotion came with the German reunification and the necessity to balance out the discrepancy between the demand for and supply of training places. Starting in 1998, the strategic political process included the further development of ICTs into centres of competence. In 2018, 55 ICTs reached the status of centres of competence as well as the need for ICTs to deal with demographic change and economic structural change. The decline of apprenticeship places following the 2008 crisis in Europe puts the issue of guidance at the forefront and the VET policy makers chose the ICTs as the place of implementation for vocational orientation, not least because they had train-ing workshops that made it possible to present the professions adequately. In 2013, the ICTs were given a further task to establish Germany as a leading provider in electromobility. This activity was broadened in 2016 with a specific programme "Digitalisation in ICTs and Com-petence Centres" in 2016, which intends to enable ICTs to support technological development processes for SMEs and prepare trainees for the work processes required for this (Pfeiffer 2018; Bauer, Pfeiffer, Rothaug & Wittig 2020). In summary, ICTs have three main functions: to complement in-company training in terms of breadth and depth; to systematise in-company training with a view to standardised vocational requirements and to support the transfer of innovations and technology into training and practice (Buschfeld & Heinsberg 2014, p. 3 in Bauer, Pfeiffer, Rothaug & Wittig 2020).

Inter-company VET centres are usually run by craft organisations - chambers, guilds, local craft associations, trade associations - as well as industrial and agricultural institutions or by medical associations. Mandated independent legal entities, such as non-profit associations, might lead ICTs. The content and duration of the offers is decided in a cooperative process together with the chambers on the basis of the apprenticeship regulations or on the basis of contractual agreements with the training companies. The duration of the offers in the skilled crafts sector is approx. of four weeks per year. Complementarily the ICTs also play a role in qualification of long-term unemployed and further training of unemployed professionals (BMBF 2020; Bauer, Pfeiffer, Rothaug & Wittig 2020). Pursuant to the Federal Law on Voca-tional Education and Training, the Federal Institute for Vocational Education and Training has the task of promoting the ICTs and supporting the planning, establishment and further development of these facilities (Pfeiffer 2018).

The impact survey (2017/2019) on the ICTs in Germany highlights some differences between the training sectors from the training company perspective. Whereas in skilled trade, ICTs are primarily needed to enable apprentices to gain broader learning experience (work with equipment from different manufacturers or brands) and to avoid disruptions to company processes; ICTs are considered in the industry and commerce sectors as means the lack of coverage of specific apprenticeship areas or the lack of necessary work equipment. The surveyed companies testified that the ICTs have a positive impact on the skills of their apprentices and future skilled workers (p. 79).

According to the evaluation of the above-mentioned federal funding programme, the work of ICTs has a positive effect on companies as well as learners. The benefit of enterprises cooperating with ICTs consists in an improvement of their own training capacity and hence improved opportunities for meeting their own skills needs. Learners benefit from the high level of training quality that is guaranteed by the cooperation of their employers with ICTs. The apprentices have the opportunity to become acquainted with the latest

technology and to acquire skills that enable them to keep up with the pace of innovation (cf. Bauer, Pfeiffer, Rothaug & Wittig 2020).

Lessons learnt

Policy-makers initiated ICTs to compensate regional disparities in apprenticeship offers. According to the survey this objective is partially met. For apprenticeship companies on the one side and more strongly the apprentices themselves, the ICTs support to SMEs in offering the full range of VET programmes or access to new innovative technologies is their main strength. The apprentices expect to improve their access to the labour market through the wider knowledge and skills portfolio they have acquired. It would be a mistake to consider them only as complementary to in-company training (Spöttl 2011): they are supportive to the learners in linking theoretical knowledge achieved at VET schools with practical skills achieved in the company. ICTs offering training with new and innovative technologies are a supplementary motivation for apprentices (Spöttl 2011, p. 79).

From an institutional organisational viewpoint the ICTs have a broad activity portfolio be-tween training in practical, professional skills, further training offers and guidance. They are operating as networking structure supporting the education and training activities on a local or regional basis. In the skilled trade sector, they contribute to increasing the commitment of firms to offer apprenticeship by relieving companies from teaching difficult and time-consuming training content.

The survey brought also to the shore potential lines of conflicts between training companies and ICTs:

- Companies offering apprenticeship do not receive direct state financial subsidies and some express their interest to receive funds currently allocated to ICT so as to train disadvantaged apprentices for instance (p. 79).
- A successful apprentice should be able to master new innovative technologies and business processes as well as specific well-established technics, which implies a good coordination between companies and ICTs, especially in the handcraft sector

According to the evaluation of the federal funding programme against the above-mentioned key objectives, the greatest benefit of the work of subsidised ICTs lies in the support of companies' training capabilities and securing skilled labour. According to the assessment of the companies surveyed, the teaching of knowledge and skills relevant to training and the provi-sion of adequately qualified skilled workers are significantly facilitated by the contribution of the funded ICTs. Accordingly, the trainees also assess the contribution of the ITC to their pro-spects of vocational success very positively. Less clear, on the other hand, is the benefit with regard to the economic development and innovative capacity of the companies. The cooper-ation with the ICTs and the high quality of training that this makes possible can increase the attractiveness of the company and the motivation of the employees; beyond this, the companies do not see any effects. Likewise, a positive effect on the company's ability to innovate, which could contribute to an improvement in market access opportunities, is only seen to a limited extent (cf. Bauer, Pfeiffer, Rothaug & Wittig 2020, p. 101).

5.2.2 Case study: Apprenticeships in Colombia – Mandatory ap-prenticeship quotas and their effects

Introduction to the case and context[15]

The increase in productivity of Colombian workers has not grown at the same rate as the measures of training. Therefore, in recent years, there has been a focus on the methods of placement, delivery and

15 Thanks are due to Ms. Diana Cáceres Reebs, co-author of this case study and to Ms. Ligia Yolima Carerro Mon-roy for additional very up-to-date information.

quality. Moreover, the high level of youth unemployment in Colom-bia has also contributed to thinking about how vocational education and training can also contribute to integrating youth into the labour market.

Colombia has a strong vocational training sector, with a long tradition dating back to the 1950s. It was developed in line with ILO international standards (Servicio Nacional de Aprendizaje (SENA), 2016, p. 11). The national apprenticeship Service SENA was established in 1957 as a joint initiative of organized workers, entrepreneurs and the Colombian Catholic church with the s 2021a). Also the share of private training providers has increased (González-Velosa & Rosas Shady 2016, p. 1).

The government has introduced a number of measures in recent years to strengthen the links between vocational training and the education system and to expand and improve ap-prenticeship training and conditions. An important change in this context is the legislation "Ley 789" on labour, employment and social protection from 2002. In recent years, various studies in Colombia were published on the effects and use of this amended legislation from 2002 on apprenticeship training through SMEs, which make it possible to assess the effects of the legislative adjustments on company training participation and on economic factors based on very robust evidence.

After the 2002 reform there are additional important changes and interesting developments related to work-based learning in Vocational Education and Training that are described in order to provide a coherent picture on further developments in Colombia. These are not the focus of this case study but they are nevertheless important and also interesting to an inter-national audience (Section: "More recent innovation").

Vocational Training and Education and apprenticeships in Colombia

In the following sections the Colombian vocational training and vocational education system are presented in order to provide information for the context of changes in the apprentice-ship system.

Labour market training

Vocational Education and Training in Colombia is characterised by a large amount of offers within the labour market oriented public training system. In 2020, a total of 8.149.320 courses were offered and 7.998.901 were taken up (Servicio Nacional de Aprendizaje (SENA) 2021a). The content is largely determined by the Ministry of Labour, but also by numerous other actors.

The system is financed by public funds that are mainly fuelled through an enterprise training levy and tax revenue as part of income tax.

In the respective legislation, this labour market training is called "Education for Work and Human Development" (ETDH). "Complementing, updating, supplementing knowledge and training in academic or labour aspects without being subject to the system of levels and grades" describes the connection with the education system and the wide range of tasks (González-Velosa & Rosas Shady 2016, p. 8).

A large proportion of apprenticeships is also assigned to the area characterized in this way. The following figure illustrates the small share of initial vocational training (in blue and or-ange) as opposed to measures of complementary training. In 2020 the absolute number of learners in such initial training measures was 1.3 million and the share the abovementioned complementary training rose to 84% (Servicio Nacional de Aprendizaje (SENA) 2021a).

Figure 3: Share of learners in initial and continuous vocational education and training measures in Colombia in 2014[16]

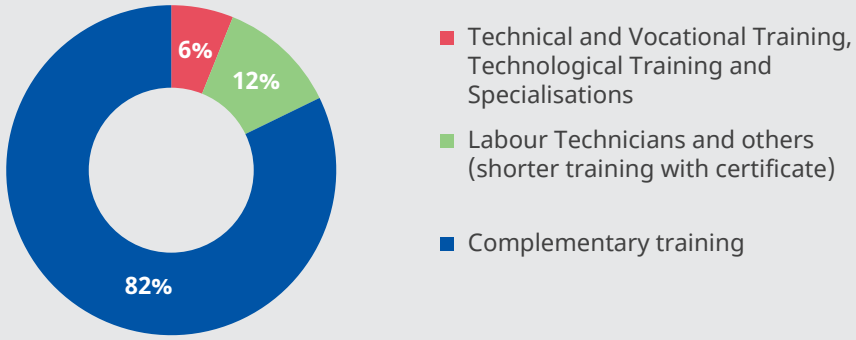
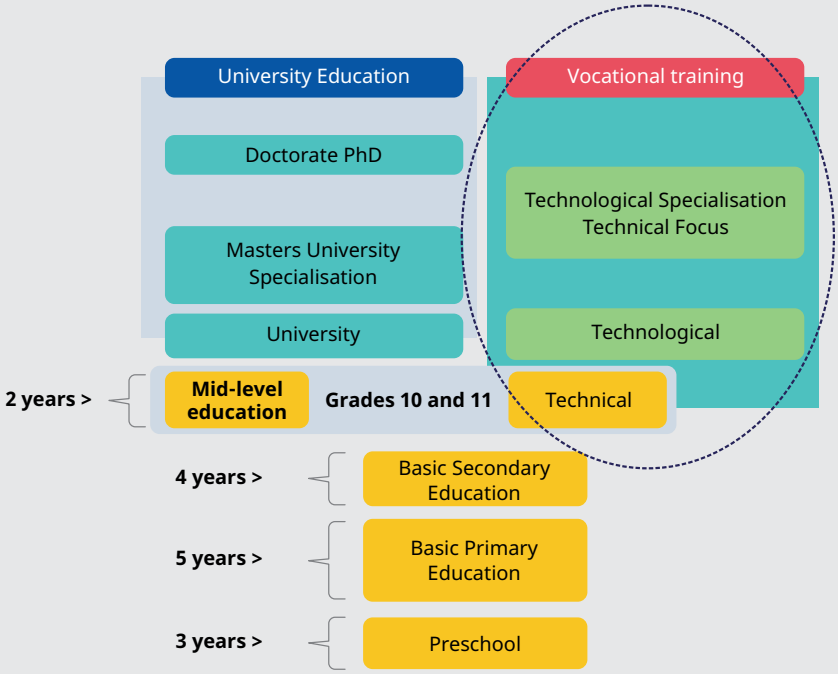


Figure 3 shows the relative status of initial vocational education in comparison to a large amount of diverse continuing training measures.

Vocational Education

In a nutshell, the Colombian education system witnessed the emergence of a designated VET sector (Figure 4) since the 1960s with the establishment of SENA. Most of this formal voca-tional education takes place in the institutions of the National Training Service (SENA). Approximately 60% is provided in SENA's vocational training centres, with the remainder dis-tributed among technical schools, universities and some private providers (Servicio Nacional de Aprendizaje (SENA), 2016, p. 10).

Figure 4: Vocational Training Sector in the Colombian Education and Training System (Servicio Nacional de Aprendizaje (SENA) 2016, p. 12)



Source: MEN, 2015, OLO modification

16 Based on the table in González-Velosa & Rosas Shady 2016, p. 14.

SENA offers training programs in all occupational areas with the certification level of auxil-iary/operator (7 months duration), labour technician (15 months) and technologist (27 months) and others. The largest proportion of learners within this system are in courses of the "labour technician" level (57%) with 744.448 students enrolled (Servicio Nacional de Aprendizaje (SENA) 2021a). The auxiliary and operator levels are also assigned to the education system and build on the graduation from the ninth school year; however, the other levels are relevant to progression within the educational system after compulsory schooling (see also the information on levels in the annex). For the "technological level" a higher edu-cation entrance qualification is required.

Apprenticeships in Colombia and the vocational education and training sys-tem

Regulated apprenticeship training has a tradition dating back to 1959[17]. However, regulated apprenticeship obligations were often not fulfilled at all or were fulfilled by companies sending their employees to evening classes without any significant workplace component.

In 2003, the situation for apprenticeship training in Colombia changed significantly due to new legislation (Law 789 of 2002).

As a result of the new legislation, the number of apprentices increased significantly from 2002 to 2003 and also in subsequent years (reported in Ospino 2018, pp. 4-5).

Figure 5: Number of apprenticeship contracts from 2011 to 202

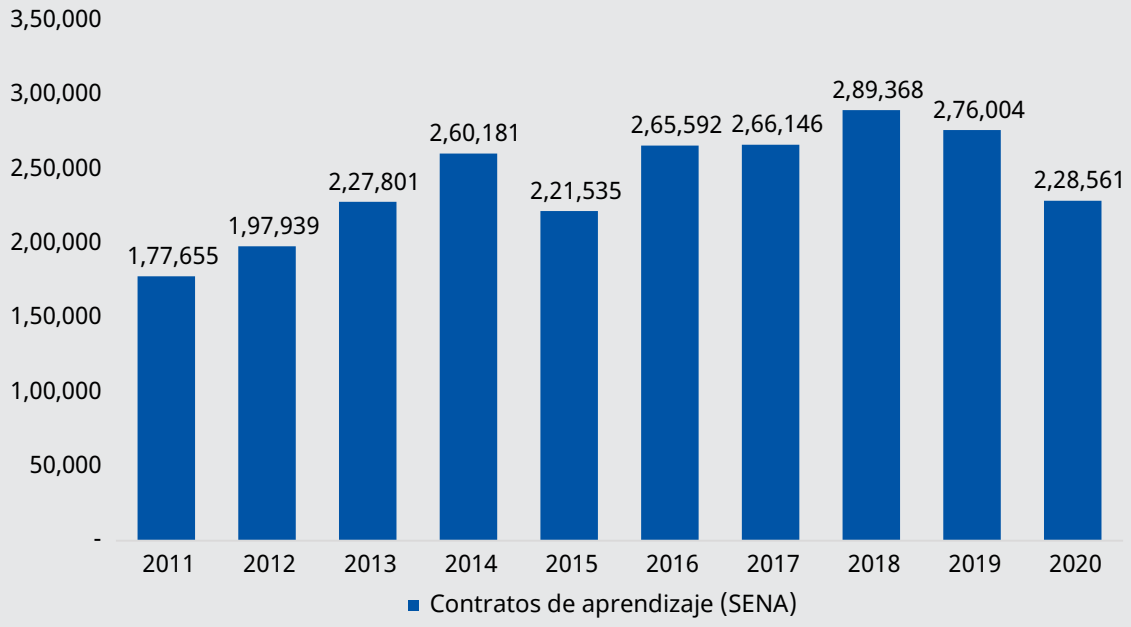


Figure 5 shows the development of the number of apprenticeship contracts over recent 10 years. On average there are around 240.000 apprenticeship contracts in the Colombian CVET system (Servicio Nacional de Aprendizaje (SENA) 2021b). Given the number of around 8 million course offers, this shows the relative minor role that apprenticeships play in the overall system. However, in comparison to the overall

17 Law 188 of 1959 established the nature of the apprenticeship contract as a labor contract (Ospino, 2018).

workforce, the relative number of apprentices is high in comparison to other countries with a strong apprenticeship tradition (see chapter 1 of the report) not least due to the obligation for many companies to take on board apprentices.

The new law, which was passed in December 2002, in particular article 30 “Nature and Characteristics of the apprenticeship relation” as well as Art. 31 to 41, changed some pa-rameters of the apprenticeship legislation.

- The legal status of apprentices was removed from regular labour legislation and changed into a designated legal status. Therefore it allows for specific contractual conditions, e.g. for a time limitation.
- There is paid leave for absence due to work-related injuries.
- The maximum duration of a training course was set at two years.
- Financial compensation must be provided by the employer: this is based on the newly introduced legal minimum wage for apprentices: 50% during school instruction, 75% during on the job learning. In the case of university students, 100% of the legal minimum wage must be paid during regular working hours.
- The training is divided into two phases: a classroom phase, in which the trainee receives vocational instruction, and a practical phase in the respective company. In the first phase, the trainee receives a monthly support payment.
- In case that companies do not comply with the respective training quota, they have to pay a fee that equals the minimum wage of the apprentices not hired. This option is called monetization of the apprenticeship fee.[18]

18 Monetization of the apprenticeship fee: companies obliged to take-up apprentices may pay a fee to SENA resulting from multiplying 5% of the total numbers of workers (excluding independent or temporary workers) with a minimum legal wage. In case the monetization is partial, it will be proportional to the number of apprentices, which the company would have taken-up by law.

Table 8: Changes in the Colombian VET System at a glance through the law of 2002[19]

	Situation before the reform	After the reform
Legal foundation	Law 188 of 1959, Decree 2838 of 1960,	Law 789 of 2002
Common practice	Modifying regular workers labour contracts and providing time for training through nocturnal programs without affecting regular daily shift in practice the apprenticeship quota was often calculated using only the number of non-production regular workers ("administrative staff")	
Status	employee	Designated apprenticeship status for the group of new hires (Art. 30) for a maximum of two years
Remuneration and staff costs	Not be lower than 50% of the minimum wage , increase with knowledge and skill until at least a full minimum wage	At least 50% of the regular minimum wage during instruction and 75% during the productive phase. 100% for university students
Other costs for the firm		Lower insurance costs than for normal employees
		Instead of employing apprentices, the firm can pay a fee to the government. The amount of the fee is 100% of the minimum wage per missing apprentice (5% of employees)
Number of apprentices	Fixed quota of 5% of employees should receive apprentice training for firms larger than 20 employees	Depending on the number of full-time employees firms with 15 to 29 full-time workers must have at least one apprentice, increasing by one more ap-prentice in intervals of 20 full-time workers **Example** Employees: 15-29, 30-49, 50-69, Etc. Apprentices: 1, 2, 3, Etc.

Sources: Caicedo, S., Espinosa, M., & Seibold, A. (2020). Unwilling to Train? Firm Responses to the Colombian Apprenticeship Regulation. In G. Barcelona (Ed.), GSE Working Paper (Vol. 1204). Barcelona.

Ospino, C. (2018). The effects of being subject to the Colombian apprenticeship contract on manufacturing firm perfor-mance: La Plata : Universidad Nacional de La Plata, Centro de Estudios Distributivos, Laborales y Sociales (CED-LAS).

- In addition, mandatory thresholds are set for company training quotas, which are intended to prevent the use of trainees for purely productive purposes on the one hand and under training by companies on the other. These quotas are to be adapted to the size of the enterprise, for example to take account of SMEs.
- 100% of the legal minimum wage must be paid in the practical phase, when the na-tional unemployment rate is less than 10% (Law 789, Article 30).
- All private companies (except construction sector), with a number of workers of not less than 15 are obliged to have apprentices.(Law 789, 32).

SENA's role is to monitor the quality of on the job training SENA. In addition, SENA sets the levy that companies pay if they do not participate in in-company training (Caicedo, Espinosa, & Seibold 2020, pp. 6-7). Table 3 summarises the most important changes through the law of 2002.

Recent "Dual Training Programmes"

SENA acts an innovator within the apprenticeship system. SENA has been implementing pilot projects since 2014 to establish modernised dual training structures integrated into the vo-cational education and training system.

Box 8: Insights into dual cooperative Apprenticeship training at the technical level

In 2014, in the SENA pilot project in automotive production, the Colombian company (950 employ-ees) offered three training courses on assembly of automotive components, assembly of motor vehicles and painting in the metal, mechanical and plastics sectors, each lasting 15 months (2,200 hours). Of the 15 months, trainees spend the first five months at SENA (theory and simulated prac-tice) and the remaining ten months at the plant (integrated into the production processes). Here the trainees obtain the title of "Técnico" (labour technician). The prerequisite for starting an ap-prenticeship on this level is the completion of the ninth grade of school. In the pilot, however, all trainees already had university access (completion of the eleventh grade and thus the Colombian high school). There are 22 trainees per training program offered. From the first cohort, all trainees were either taken on by the training company or referred to supplier companies. Trainers in the company are certified by SENA after an 80-hour course, the trainees have an apprenticeship train-ing contract with the company, a training remuneration is legally anchored (and amounts to 689,454 pesos = minimum wage = just over € 200), a rotation plan is drawn up between the training staff of the SENA training centre and the trainer in the company. Although the selection of the trainees is made jointly by the company and SENA, the final decision is left to the company. The reason for the company to participate in the dual training program was the increasing need for qualified special-ists, who cannot be found on the labour market. The dual education program is perceived as a strategy for recruiting qualified (suitable) personnel. In general, dual training in companies is very well accepted: The pilot project shows that it is precisely companies that previously refrained from taking on trainees on a mandatory basis and instead paid a monetary contribution to SENA that are now entering the dual training program. Other reasons are that the company becomes more competitive, produces more and saves costs and time in recruiting. Dual training also has positive side effects in terms of "image" in the company. Skilled workers: In terms of personnel recruitment, it is interesting to note that the company invests, for example, five million pesos (about €1,500) per employee for continuing education courses, or each employee has this amount available. Of these, only 30 percent of the workforce take advantage of this opportunity. Word-of-mouth advertising is important for the success of dual training, as the graduates (who generally remain in the company) recruit other interested parties (Grollmann, Blöchle, Jansen, & Baues 2018).

In Dual Training, SENA offers training just at the auxiliary/operator and labor technician levels (7 / 15 months of duration). Here, the share of learning venues is 50 % to 50 %, there are instructors from SENA within the school based part and there is a company tutor with peda-gogical and methodological training by SENA.

From 2014 to 2018 SENA had 3.399 students graduated from dual training programmes and 1.222 in 2019 (Ministerio de Trabajo 2020, p. 41). From 2014 to 2019, 52 companies and 2 business associations participated in this process (Servicio Nacional de Aprendizaje (SENA), 2021a, p. 46). In 2020 the largest

proportion of dual apprentices enrolled are in pro-grammes of the "Auxiliary" and "Operator" level with 757 students enrolled (58%) . An ex-ample for such a project is provided in Box 6.

More recent innovation

There are other more recent innovations in the Colombian context, that are not comprehen-sively following the criteria setup by international organisation (see chapter 1 of main re-port) in terms of apprenticeship. They constitute interesting and innovative practices of or-ganising and regulating work-based learning and education arrangements (paid internships) and have risen over the course of recent years in terms of participating learners and enter-prises.

In chronological order there is the Law 1780 of 2016, that introduces an alternative work-based learning status, the decree 1330 of 2019 that relates to academic education and the Law 1955 of 2019 that connects non-formal offers in the labour market training system and formal education.

Law 1780 of 2016

The Law 1780 of 2016 states another special form of hiring learners which does not consti-tute an employer-employee relationship, but a formative relationship ("vinculación fformativa"). The law does not limit the duration of the contract. During 2 years of the program, the student receives: (a) a monetary stipend that will be to a 100% of a minimum wage, paid during all the classroom training and on the job training phases (b) a paid leave for absence due to work-related injuries as in the case of apprenticeships. A major difference between the two regulatory frameworks is that the first is mandatory for the employers, meanwhile the second is voluntary. The law was further developed over the recent years by the ministry of labour.

Table 9: Companies and learners with formative linkage ("vinculación formativa") according to law 1780 of 2016

Year	Enterprises	Learners
2016	9.320	560.712
2017	11.280	667.301
2018	13.430	725.603
2019	15.337	747.518
2020	14.013	561.998

Source: Colombian Ministry of Labour

The comparison of Figure 5 and Table 9 shows that formative linkages, with a number of around 550.000 learners in 2020 are an important feature of work-based learning in Colom-bia.

Decree 1330 of 2019 article 194 of the Law 1955 of 2019.

The decree 1330 regulates the integration of work-based learning with academic education programmes and article 194 of the Law 1955 of 2019 creates the" Training for Work Subsystem". This Subsystem will have only Dual Training Programmes from the basic to the most advanced levels of qualifications (5 to 7). Training for work is a qualification pathway differ-ent from formal academic education. There are two alternatives for personal development and social insertion linked with the previous learning recognition. Both pathways are recog-nized and accepted in the Qualifications Framework. The rules of "Training for work" do not modify any laws on formal education. The only new thing for higher education institutions,

colleges and other providers such as SENA, is that they will be able to add training programs for work to their current offer, as long as they comply with the rules that are established for this.

Lessons learnt

The following tables provides an overview on the effects of legal changes made in 2002 and the findings of the quantitative studies that we have analysed for this case study. In addition it describes some newer developments in VET in Colombia. The particularity of this case study lies in two elements:

- it documents the economic effects (costs benefits and commitment) of a strong institutional regulation of the concept of apprenticeship through a mix of mandatory quotas, minimum wages and other financial instruments as well mechanisms to adminis-ter and support the take-up of apprenticeships through companies.
- In addition, the example illustrates an attempt to turn a labour market policy oriented apprenticeship training concept into a more comprehensive concept that can be well placed into the overall system of education and qualifications.

All in all, a tremendous effect of the reform can be seen in terms of quantities. The use of apprenticeship has risen very strongly due to the reform.

Table 5 summarises the results of the two econometric studies. The first row shows the database of the studies. In the following rows results can be read according to their level and in conjunction with the data analysed. The last two rows summarise the findings of a counterfactual analysis by Caicedo et al (2020). Policy recommendations are presented at the end of the table.

The new apprenticeship legislation affects the costs and benefits of training for the compa-nies. The evidence clearly shows that there are changes in regard to the wage bill of the companies a. Costs are reduced because of the lower remuneration during the learning time and the reduction of non-wage labour costs. On the other hand, the opportunity costs of not training are high because of the mandatory fee in such cases. There is an effect on the eco-nomic outcomes of companies which can be demonstrated using statistical measures of labour productivity and export activity (Ospino 2018, pp. 20-21). There was no possible substitution of skilled workers by unskilled workers. However, productivity gains, presumably re-sulting from reduced labour costs and an increase in skill, are not fully returned to the workforce by the companies.

Companies react very differently to the new legislation. However, there is clearly an effect on how they organise their production and investment including recruitment decisions.

Table 10: Effects of changes through the apprenticeship law 2002 in the Colombia at a glance

	Data Source	
	Annual Manufacturing Survey (Manufacturing firms who hire at least 10 employees, 9.809 in 2011)	Linked with administrative data set provided by SENA (observations from 14,586 firms by 2009)
Results		
Individual Worker level	positive effects on output per worker	
	productivity gains were not shared by firm workers through higher wages	
Firm level	negative effects on the direct labor average wage bill	
	increase in productivity measured by output per worker and total factor productivity	
	increase in sales exported	
	no substitution of unskilled labour	
Sectoral level	sizable effects on labour and capital inputs	
	"High Skill": paper and editorial, machinery and equipment, metallic products, chemical products, and other manufacturing	
	firm in high-skill sectors firms avoid expansion beyond threshold	
	tend to train the minimum number of apprentices required	
	58% of high-skill sector firms pay fees to the government as a buy-out from the apprentice quotas	
	"Low Skill": wood products, textiles, food and beverage, and mineral non-metallic products	
	firm in low-skill sectors increases its size by around 1.5 workers to be able to train more apprentices.	
	65% of firms choose the maximum number of apprentices	
Counterfactual analysis	Reducing apprentice minimum wage significantly increases number of trained apprentices Mandating a minimum quota ensures that many firms, including those in high-skill sectors, train at least some apprentices	
	Training subsidy performs similarly to the Colombian benchmark regulation on aggregate, but leads to stronger concentration of training in low-skill sectors	
	Policy implication	
	positive effect on productivity, however rigorous evaluation required in order to better assess the effects for apprentices and regular workers	highly successful in increasing the number of trained apprentices to more than fifteen times the pre-reform level consider sector specific minimum wages for apprentices. Specifically, reducing the mini-mum wage in high-skill sectors, where firms face higher training costs, but the future ben-efits of training are potentially large. This type of policy can yield the same number of trained apprentices as the benchmark regulation, while limiting reallocation of pro-duction towards low-skill sectors.

Sources: Caicedo, S., Espinosa, M., & Seibold, A. (2020). Unwilling to Train? Firm Responses to the Colombian Ap-prenticeship Regulation. In G. Barcelona (Ed.), GSE Working Paper (Vol. 1204). Barcelona.

Ospino, C. (2018). The effects of being subject to the Colombian apprenticeship contract on manufacturing firm performance: La Plata : Universidad Nacional de La Plata, Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS).

Because of the legislation that targets different size groups of companies this also affects SMEs to a large extent.

The decisive factor here is the sector in which they operate, as well as their size. This seems to be related to the "skills mix" that companies need in order to fulfil their tasks. The cur-rent legislation of 2002 seems to benefit especially companies with lower skill profiles more than companies with highly skilled job profiles. In some cases, the differentiation sometimes seems to incentivise for enterprises to keep their size below the thresholds defined in the training legislation. (Caicedo et al. 2020).

In regard to the quality of apprenticeship the presented case illustrates the efforts of the Colombian government to improve the teaching and learning dimension of apprenticeships.

Overall, the various studies evaluated agree that the current apprenticeship legislation can contribute to improving income and welfare. This will require further adjustments and modi-fications. Among others, minimum wages to be set at sectoral level instead of general regu-lations are proposed (Caicedo et al. 2020). However, there is also anecdotal evidence, that some of the companies are willing to pay the minimum wage throughout the overall learn-ing and working time to apprentices, which suggests that in such cases there is a strong hu-man capital investment motive for the companies.

The more recent initiatives of the Colombian government to promote work based learning, however, illustrate that there are other options to enhance work based learning in vocational education and training. These are also following formalised rules and regulations but more education and training driven than the classical employment driven mandatory ap-prenticeship regulations.

5.2.3 Case study: VET College as enabler for apprenticeship in Vietnamese VET

Introduction to the case and context

This case study focuses on the role of VET College as a motor and enabler for the development of apprenticeship schemes and of the ownership of enterprises in apprenticeship. More concretely, it focuses on Vocational College of Machinery and Irrigation (VCMI) as one of the colleges participating to the Vietnamese-German "Programme Reform of TVET in Viet Nam" in the field of green occupations (Electronics Technician for Energy and Building Technology; and Mechanics Technician for Sanitary, Heating and Climate Technology). Those occupations correspond to the specialities of VCMI and are at a macro-economic level corresponding to the need to develop renewable energies (Nguyen 2021).

Addressing economic competitiveness and the shortage of skilled labour force are important goals for vocational education and training (VET) in Vietnam. The Law on Vocational Educa-tion and Training (Law No. 74/2014/QH13) was passed in 2014. This law aimed at an overall quality improvement of the VET system by focusing on standardization, international inte-gration and permeability. VET in Vietnam remains strongly school-based and theoretical. One of the main challenges as identified by Schwarz et al. (2020) is the involvement of en-terprises in VET as well as institutionalized involvement of employer representatives and/or sectoral organizations in VET policy development and implementation. "In 2017, the per-centage of enterprises maintaining cooperation with VET institutes remains quite low with approximately 8 %. The main types of cooperation were internships and practice phases for VET students in about 26,000 enterprises" (Schwarz et al. 2020:12). To overcome the challenges , The 2014 VET law sets up a frame for the cooperation between VET institutes, enterprises and apprentices. It extends the rights and obligations of enterprises in vocational education and training. It addresses directly enterprises since "employers are encouraged to provide vocational training and skills development for both employees and other workers in the society (...) cooperate with VET institutes in provision of elementary, intermediate, col-lege and other vocational training programmes" (quoted after Schwarz et al. 2020:12). The 2019 Labour Code applies to apprentices and rules the relationship between employers and apprentices as well as supports the role of

employers' and workers' organisations (National Assembly of Socialist Republic of Vietnam 2019). It came into force in January 2021.

A further aspect for the involvement of enterprises in apprenticeship is the lack of interlink-age between the economy and the training system, which leads to a mismatch between sup-ply and demand (cf. Liebscher et al. 2021). The Vietnamese National Green Growth Strategy for the period 2011-2020 with a vision to 2050 endorses TVET with a specific role in support-ing the development of technical human resources for green job/ capacity building and insti-tutional development.

Capacity and cooperation building

The 2014 VET law, the national Vietnamese strategy as well as the 2019 Labour Code set the scene for the further development of cooperation between educational institutions and en-terprises with a clear objective of improving the quality of apprenticeship offers. The chal-lenge is to use this momentum to shape long-lasting cooperation between colleges and the business sector by offering cooperative training courses and establishing Industry Advisory Boards (cf. Liebscher et al. 2021). VCMI is one of the Colleges acting as an enabler and mo-tor for changes. Its project aims at developing and establishing VCMI as a competence cen-tre for Green TVET (development, pilot, dissemination of initial and further training pro-grammes) (GIZ, n.d.; GIZ 2021) that will also act as an initiator and mediator for the in-volvement of enterprises into VET.

The project foresees the introduction of vocational classes and new forms of teaching, but the college's activities go beyond the provision of vocational instruction. Beside delivery of initial and further training programmes, the project includes their development and piloting in co-operation with enterprises. An important instrument is the establishment of Industry Advisory Boards to ensure the ownership by the business sector of the qualifications and prompt a cooperative training model. Furthermore, their involvement ensurer the relevance of the qualifications to the labour market needs. Further objectives to develop and provide a train-the trainer courses, and to advise management staff of other TVET institutes.

In the meantime, Industry Advisory Boards for the two occupations with the participation of seven companies were established. These companies made a commitment to participate in the in-company training phase in the Cooperative training programmes with VCMI. These initial results proved that the two new "Green" occupations are in demand for both enter-prises and the future labour force (Nguyen 2021). Further enterprises joined the Industry Advisory Boards in December 2020 during its constituting meeting[20] . Part of the Board commitment is to participate in the in-company training phase in the Cooperative training programmes with VCMI.

Lessons learnt

This case study highlights the relevance of setting a regulatory framework, which relates to labour market as well as VET issues. The project includes in an integrated framework the various aspects of apprenticeship programmes, while keeping a focus on the role of enter-prises. This initiative takes into account the specificities of the national VET system; that is to say a high level of involvement of VET colleges as well as the need to foster apprenticeship in given occupational fields. The involvement of enterprises is envisaged at different levels since they are invited to engage in the development of qualification standards and to offer apprenticeship placements; this has a potential in terms of the ownership of enterprises over the apprenticeship schemes. A first evaluation by Schwarz et al. (2020) with a limited sample confirms that at VCMI, where occupational standards and training programmes have been developed in close cooperation between VET Institutes and the business sector, are widely known to more than two thirds

20 Industry Advisory Board meeting to implement in-company training for the two new occupations at VCMI - TVET (tvet-vietnam.org) <https://www.tvet-vietnam.org/archives/news/industry-advisory-board-meeting-to-implement-in-company-training-for-the-two-new-occupations-at-vcmi>

of the respondents. The evaluation also underlines that the initiative has potentially a role model for further developments in other economic fields as well as countries in the same geographical area. Yet TVET colleges are in different situa-tions, in terms of locations, facilities, capacity of teaching, training and management staff, organizational set-up, financial means and institutional guarantees, etc. Therefore, the mul-tiplication of the two new occupations in the future will have to be flexible and depending on the specific conditions of the particular college. Technical exchange workshops to share ex-perience in preparation and implementation processes, training & coaching activities to build management staff's and teachers' capacity are also on the list of priority when trans-ferring the training programmes (Nguyen, M.T. 2021). This project is part of the Vietnamese German Reform Programme of TVET (2015 – 2024). This programme aims at aligning the Vietnamese TVET to the changes in the world of work and at prompting the development of training programmes for sustainability; it runs on the basis of an external mixed German and Vietnamese financial support. The issue is for VCMI to develop a business model and in the longer term, VCMI to develop and pilot further training offers for workers based on the demand of enterprises of a green economy and develop into a future regional hub for Green TVET for Cambodia - Laos - Myanmar - Vietnam (CLMV) countries (Nguyen, M.T. 2021).

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