



The future of vocational education and training in Europe

Volume 2

Delivering IVET: institutional diversification
and/or expansion?

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Foreword

This report was prepared as part of the Cedefop project [The future of vocational education and training in Europe](#). Building on the findings of the previous Cedefop project (2015-18) on [The changing nature and role of vocational education and training in Europe](#), the purpose of the research is to gain an in-depth understanding of vocational education and training in the 27 Member States of the EU as well as in Iceland, Norway and the United Kingdom. The project analysed how VET has changed since the mid-1990s and how this influences future opportunities and challenges. The research is divided into five separate but interlinked themes:

- (a) the changing content and profile of VET; epistemological challenges and opportunities;
- (b) delivering IVET; institutional diversification and/or expansion?
- (c) facilitating vocational learning; the influence of assessments;
- (d) delivering lifelong learning; the changing relationship between IVET and CVET;
- (e) European VET; synthesis and trend.

This report responds to the second theme listed above and discusses how changing skills demands influence the way these are delivered at national, regional and local levels. The report demonstrates that most countries operate with distinct and separate IVET institutions. While pointing to cases where the borderline between IVET and general education is blurring (institutional hybridisation), the IVET sector has overall retained a clear identity and a stable overall position (in terms of student enrolment) over the past two decades.

While confirming the overall visible and stable position of IVET in the European education and training landscape, the report illustrates how a combination of incremental change and radical reform has transformed the sector: The role of work-based learning has increased; local and regional autonomy has become more important; individual tailoring of programmes is more commonplace; and IVET is no longer a dead-end alternative but is generally opening up to education, training and learning at higher levels.

Building on a Europe-wide survey and in-depth national case studies, the report gives an updated insight into a continuously changing VET landscape.

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Executive summary

The study on *The changing nature and role of vocational education and training in Europe* summarised the manifold changes which have influenced the provision of vocational education and training (VET) over the last three decades or so across Europe. It focused on how various external factors impinged on initial VET (IVET) systems across Europe. The current study, *The future of vocational education and training in Europe*, builds on these findings but looks more closely at the specific changes IVET systems have introduced in responding to a variety of challenges identified in the earlier study. The key questions this study addresses are:

- (a) to what extent is the dividing line between VET and general upper secondary education and training blurring and what kind of institutional solutions can be associated with this?
- (b) to what extent can the existence of combined schools and programmes, delivering both VET and general education be observed?
- (c) to what extent can 'hybrid' institutions and programmes, seeking to combine vocational and general subjects, be observed?

Method

To address these questions, a multifaceted research design was developed which drew upon information provided from a range of sources. This included:

- (a) a review of key literature and statistics;
- (b) production of a series of country reports undertaken by Cedefop's ReferNet network;
- (c) a series of detailed national case studies (in Czechia, Germany, Finland, Italy, Lithuania, the Netherlands, Norway and UK-England);
- (d) a survey of VET providers (an online survey of training providers across Europe).

Key findings

Over the past quarter of a century there have been a swathe of changes which have affected the demand for VET. In summary, the digital and green transitions have simultaneously created a demand for new skills, made some old ones obsolescent and led policy-makers increasingly to look to VET systems to remedy emerging skill imbalances that are common to almost all countries across Europe.

At the same time there have been shocks which have had major implications for VET, including the financial crisis and the COVID-19 pandemic. Policy-makers have increasingly looked to VET as a means of effectively meeting Europe's skills needs and remedying skill imbalances.

There have been initiatives which have sought to combine general and vocational paths, whereby students can pick and choose from each pathway as part of strategies to tailor teaching and learning to individual needs. In some countries this has been a long-standing feature of VET systems, in others this is a more recent development. The increasing role played by general content in curricula, including both general subjects (like mathematics and languages) and transversal skills and competences (problem solving, team work, communication), play a part in these efforts. Increasing the general orientation of vocational education and training avoids too early specialisation and the creation of dead-ends. Concerns have been expressed that increasing the general component at upper secondary level might be off-putting to those who may have struggled with the very same subjects in lower secondary school.

While these changes are significant, VET retains a strong distinct identity through upper secondary education and, to a lesser extent, at higher levels. Despite the manifold changes which have affected the demand for skills and the increased demand for general, transferable skills to facilitate labour market mobility across occupations and sectors, vocational and general pathways are still distinguishable from one another. There may be some blurring at the edges but boundaries still exist. The distinct identity of VET is directly linked to and dependent on the important role played by occupationally oriented apprenticeship schemes and programmes with substantial work experience.

Relying upon the VET system to remedy emerging skill mismatches and better meet skill needs in the future is dependent upon ensuring that it is able to meet labour market needs, notably by making sure that its curriculum is up to date and that teaching and learning facilitate the transformation from intended to actually achieved learning outcomes. Critical also is the ability to attract a sufficiently large proportion of those entering upper secondary education.

To make VET more attractive to students, many countries have looked to strengthen the links to higher levels of education. Sometimes this is through providing access to universities offering general studies or to universities of applied science where the focus is sometimes more upon higher vocational studies. This has resulted in some reconfiguration of VET curricula at upper secondary level where it provides, sometimes through the availability of additional modules or extra years of study, the opportunity to meet the entry requirements of higher education institutions. There is also the danger of bringing about a two-tier system of VET at

upper secondary level, where some studies lead potentially to higher education while others do so much less readily.

A further feature of making VET more attractive to would-be learners, and potentially employers, is the provision of workplace-based learning, especially in the guise of apprenticeships or providing more work experience to VET learners. While most countries have given priority to the strengthening of these forms of learning, the ease and effect of reforms in this direction depends on previous experiences and existing traditions. Several countries, for example, point to challenges in providing sufficiently large number of apprenticeship places to students.

Finally, it is apparent that while national stakeholders (including social partners) have a relatively large amount of influence over curriculum content, the vocational schools have a degree of autonomy with respect to how those skills are delivered. Schools and training companies (and the teachers and instructors involved) enjoy a space for individual and local adjustment and innovation. This space varies between countries, but allows vocational providers the opportunity to tailor their provision to local labour market needs.

Final comment

The evidence points to countries across Europe responding in different ways to the challenges of making VET relevant to the needs of society and economy. This evidence largely points to IVET curricula becoming broader, in the sense that the general and vocational content encompasses a wider range of general (subject and transversal) content than hitherto. This broadening has not weakened the distinctiveness of VET programmes; their occupational and labour market orientation is still strong, and to some extent strengthened through the increased priority given to apprenticeships and practice-based learning. These tendencies are accompanied by efforts to attribute more autonomy at local and regional level, facilitating the targeting of VET to individual and employer needs.

CHAPTER 1.

Introduction

1.1. The changing nature of VET

The study on the changing nature of VET summarised the manifold changes which have influenced the provision of vocational education and training (VET) over the last three decades or so (Cedefop, 2018a; 2020). Technological change, the economic cycle, globalisation, ageing societies, and migration all created sometimes daunting demands on national VET systems over the period. These are the megatrends to which all countries have been subject (OECD, 2019). How VET systems responded varied across Europe – despite the nature of the challenges being typically the same across countries – depending upon the make-up of the existing education and training structures and the extent to which industries were affected by the various megatrends. Results from the changing nature and role of VET study indicated that there was a high degree of path dependency which shaped how VET systems responded to various external pressures (Cedefop, 2018a).

In the post-1995 period, most countries experienced longish periods of stability during which incremental changes were made to VET provision, interspersed with more radical changes to:

- (a) modes of skill delivery:
 - (i) programme design (the shift in balance between workplace training and classroom teaching and instruction);
 - (ii) curriculum design and review (focus towards learning outcome or competence-oriented curricula);
 - (iii) pedagogy (adjusting to work-based learning and more diverse student-groups);
 - (iv) assessment procedures (operating in the tension between summative and formative approaches);
- (b) institutional changes:
 - (i) the relationship between IVET and CVET (emphasising the need for better interaction focusing on lifelong and life-wide learning);
 - (ii) restructuring of qualification systems (the influence of qualification frameworks on transparency, transferability and permeability);
 - (iii) the expansion of VET provision into higher levels;
 - (iv) governance structures (the consolidation of national VET systems);

- (v) the types of vocational schools/VET providers (diversification and expansion).

As well as responding to the technological, economic, and demographic factors largely outside the control of VET actors, there have been other developments to which VET has had to respond. The past 30 years or so have seen substantial change in the provision of general education, especially that related to the massive increase in higher (general) education participation rates. In 1995, 20.4% of people aged 25 to 34 in the EU-15 were qualified at ISCED levels 5 and over. By 2019, this had risen to 41.9%, amounting to an increase of 21.5 percentage points over 30 years. The increase in higher education participation rates was driven by the relatively high wage and employment returns from completing higher education when compared with that at lower levels. More recently, the extent of skills mismatch associated with overqualification – especially that associated with tertiary education – seems to have refocused the debate on the role that vocational education, as opposed to general, might play in ensuring skill demands are met.

If the vocational pathway is to deliver skills better matched to the labour market, then there will be a need to persuade young people of the merits of entering this form of education. As the Cedefop opinion poll revealed, many people in Europe hold vocational education in high esteem, but not as high as general education (Cedefop, 2017a). The preference of young people to enter higher education has necessitated many changes designed to provide upper secondary VET students with the credentials to access higher education. As will be seen in later chapters it has also influenced the scope and orientation of VET provision overall, notably by its expansion beyond the upper secondary level. The expansion of post-secondary VET (EQF level 5) in several countries, as well as the emphasis on vocational and professional education and training at the highest levels (EQF 6-8), signals a change in the perception of VET.

VET has also had to deal with several shocks over the past 30 years. The 2008 financial crash had an immediate impact on employment levels which adversely affected the capacity of firms to take on trainees and apprentices. This aspect of the financial crash was short-lived. Overall, the impact of the 2008 crisis on public finances was prolonged, especially so in those countries which faced sovereign debt problems. This effectively reduced the level of financial resources available from the State to fund VET (and education in general). The crisis, however, also illustrated that VET can play a key role in facilitating the integration of young people into the labour market. Countries with strong (work-based) VET systems experienced lower youth unemployment rates than countries with a weak VET sector that had given priority to an expansion of general, higher education.

The 2008 crisis emphasised the need to balance better the vocational and general parts of national education and training systems.

Even though the impact of COVID-19 might initially have been that of dampening employer demand for trainees and apprentices (much the same as in the case of the financial crisis 12 years earlier), the longer-term impact may yet be on the capacity of the State to fund various parts of the VET system in the future to same extent as before, given historically high levels of public debt needing to be driven down by governments. Again, the impact may be the same as that following the financial crash in 2008. Whether education, and particularly VET, is considered a special case such that it is spared reductions to its funding in the future, remains to be seen.

In thinking about the future of VET, the past is the only guide available. By understanding the way in which VET systems have responded to various drivers of change, an indication is obtained about how VET might change in the future, and how certain trajectories may need to be modified if VET is to deliver the goals or ambitions governments have established for it. As the list presented above indicates, the range of changes to consider is vast. Here the focus is upon institutional change. By institutions is meant the arrangements and structures in place to deliver VET. Included are:

- (a) the governance structures in place to determine what VET constitutes in a country (with respect to its target groups, qualification structures, the number of VET courses, delivery modes, level of provision, and the links between IVET and CVET);
- (b) who gets to make the decisions (which stakeholders are included within governance structures especially with reference to the design and content of VET);
- (c) the structures in place to deliver VET (the types of school, employer-school partnerships).

How these have changed over the past 30 years or so, and why, are addressed in the remainder of the report.

1.2. Research questions

One of the findings of the changing nature and role of VET study was the various external pressures on education and training systems between 1995 and 2015 and how they affected VET delivery (Cedefop, 2018a). These were, for the most part, a common set of pressures which the OECD now refers to as megatrends shaping the future demand for skills (OECD, 2019):

- (a) digitalisation (how automation will affect the demand for skills);
- (b) globalisation (where low-skilled, routine jobs are transferred to countries with lower labour costs);
- (c) demographic trends (the ageing population, increased longevity, and the possibility that people will stay in the labour market for longer);
- (d) migration (the potential it provides for providing skilled workers and offsetting some of the effects of an ageing Europe).

Having identified the overall direction(s) of change in the previous study it is possible to look in much more detail at the nature of the policy discourse over recent decades and to examine specific outcomes with respect to:

- (a) the changing purpose of VET (e.g. with reference to how its conceptualisation in national policy discussions has changed);
- (b) its regulation and institutional infrastructure (governance structures, new types of VET school/college);
- (c) content (e.g. with reference to curriculum design, assessment);
- (d) target areas (e.g. the expansion of VET to higher levels).

It is important not to see VET in isolation. Its purpose and structure will be influenced by developments in other parts of a country's education and training (ET) system and vice versa (as noted above). Whereas the previous study concentrated on the external factors affecting the provision of IVET, the current one provides the opportunity to look more closely at the internal factors which have ultimately shaped the content of IVET. It looks at IVET development – and the various twists and turns that policy takes – and its determinants. This makes it possible to understand what has shaped IVET, the way in which it has been implemented, and the resulting practice on the ground.

More specifically the key questions the study will address are:

- (a) to what extent is the dividing line between VET and general upper secondary education and training blurring and what kind of institutional solutions can be associated with this?
- (b) to what extent can the existence of combined schools and programmes, delivering both VET and general education be observed?
- (c) to what extent can 'hybrid' institutions and programmes, seeking to combine vocational and general subjects be observed?

In order to address these questions a multifaceted research design was developed which draws upon information provided from a range of sources. This is addressed next.

1.3. Method

1.3.1. Conceptual framework

To understand and categorise the institutional changes which have taken place across countries in Europe, there is a need to understand the wider socio-political system in which VET policy takes place, the specific national conceptions of VET (Cedefop, 2018a), and what might be referred to more broadly as the 'VET culture' within a country. This involves the established sets of norms, rules and values that essentially govern the delivery of IVET and how this has changed over time ⁽¹⁾. From here it is then possible to look at the factors which have shaped the structure of IVET provision and brought about institutional change and, where relevant, how competing views about how the IVET system should develop have played out. It is important to capture how change is introduced, recognising that there may be a range of unintended consequences which arise for a variety of reasons.

While there may have been a common set of pressures affecting EU Member States, it is evident that countries across Europe have responded to them in different ways. In part this has resulted from the differing configurations of VET in place in 1995 (especially so in the former Soviet bloc countries), but it is also evident that VET systems have evolved in different ways, dictated, at least in part, by national specificities and differing views about what constitutes vocational education. For instance, there has been a discernible trend towards using learning outcomes in curricula over the past 20 to 30 years in order to strengthen the link between VET and the labour market and thereby ensure that it has a central role in addressing the megatrends to which Member States are subject (Cedefop, 2020a). But how has that been implemented, affected curricula design, and structured the provision of VET appears to vary, at least in part, by what might be referred to as the prevailing VET culture in a given country. For example, it has been demonstrated that countries such as Germany and the Netherlands, with their emphasis on theoretical and general knowledge, with a key role for the social partners in curriculum development, have a different conceptualisation of learning outcomes to that found in UK-England (Brockmann et al, 2010). In the latter, learning outcomes are largely determined by employers, in the absence of social partnership, with a focus on filling a narrower set of skill needs focused on satisfying employers' short-term needs. This demonstrates how it is possible to identify a common trend, such as the shift towards learning outcomes, but find that

(1) The idea derives from political science where there is the concept of the civic culture which reflects the distinct political values of a country (see Almond and Verba, 1963).

implementation is so different in practice that the differences remain substantial, with limited evidence of convergence.

The above cannot be completely disentangled from the nature of the wider socio-political system in which VET policy, and behaviour within the VET system, exists (Thelen, 2004). This then raises the 'varieties of capitalism' debate and the way in which some systems are coordinated in the sense that financial systems, collective bargaining, and the provision of skills training are all complementary and mutually reinforcing (as in Germany), versus more market-oriented systems which tend to result in underinvestment in skills that policy-makers then struggle to counter. It has been observed that coordinated systems have been better able to produce the skills that their labour markets need over the long term. In contrast, the more market-based systems that seek to produce skills for which there is demonstrable need have a tendency to underinvest in skills (Streeck, 2001, 2011). At the same time, systems that are coordinated are not necessarily static. It has been observed over time that they are subject to a process of political intervention, active maintenance and resetting (Streeck, 2001, 2011), but have been able to retain certain, almost immutable, characteristics. This all points to the importance of considering the wider economic context in understanding why things are configured as they are, why they prove resistant to some forms of change and prove to be susceptible to others.

This emphasises the importance of understanding the underlying culture, normative values, and socioeconomic systems that are likely to frame the process of change affecting the way VET is delivered. VET can be regarded as a key institution within the wider education and learning system which, in turn, is part of the wider system of governance. In trying to understand why the provision of VET is configured in a given way and then develops along a certain trajectory or trajectories, it is necessary to address the process of institutional change.

1.3.2. Levels of policy discourse

There is a need to identify the various dimensions of the policy discourse which are of interest. Policy debate is acted out at several levels. At a broad level of abstraction, Table 1 sets out the factors which are germane to each level. At the macro-level the debate is very much shaped by global factors or megatrends on the demand for skills of different kinds, and how IVET systems need to respond. At the meso level, national policy discourse is shaped by the rules which govern policy-making, such as the status and authority of regional or local decision-making bodies which might sit within States assisted by a federal structure, compared with those with more centralised structures. The nature of the social contract or political consensus also affects this level. At the micro level, the issues will most likely

pertain to those which affect implementation and, where relevant, operation of new practices.

Table 1. **Levels of IVET decision-making**

Macro level
External factors affecting the demand for IVET such as technological change, globalisation, etc. This was the focus of the previous study. Global shifts in economic and educational thinking which might shape global debate about IVET's purpose and delivery: these may include the implications of globalisation and the new economic orthodoxy which has established itself in some countries, such as the neo-liberalism which came dominate the political economy from the 1980s onwards in some countries.
Meso level
National political structures which affect decision-making about IVET (and the education and training system more generally). The prevailing political culture and nature of social partnerships which is likely to determine both the direction of change and who is involved in its design and implementation. National/local policy-making affecting the scale, funding, structure, and content of IVET.
Micro level
The implementation of policy in practice (what actually happens) at the level of the school, sector, etc.

Ultimately, the crucial questions become those of identifying the variety of factors which influence the delivery of IVET in schools or workplaces, the extent of their influence, and how this has changed over time. It may cover how institutions at national, regional, and local levels, representing different interests, interact – both formally and informally – over time and how this explains the observed changes in the content, structure, and delivery of IVET. There is, perhaps, even a pan-EU dimension to consider as well.

The process of change and the determination of what is actually delivered in such a multi-level system will be dependent upon the interrelationship between actors, understanding of the change process, and the degree of consensus to be achieved. Models of institutional change tend to focus on (Kingston and Caballero, 2009):

- (a) a centralised system where institutional change occurs from a central organisation (e.g. Ministry of Education), or by groups, where there is a competitive political process to implement changes which are considered beneficial (either to all or a particular group). Typically, this is a rule-based system of change (through legislation, policy directives);

- (b) an evolutionary, decentralised process, where new institutions arise and compete with existing ones where, ultimately, those which are more successful weed out the less efficient ones, potentially to achieve a new institutional equilibrium. In this sense it is less about establishing a set of rules than observing how behaviour plays out.

These models of institutional change – which are not mutually exclusive in the sense that a single system could be subject to both kinds over time – provide a framework for thinking about the way in which VET as an institution changes in differing socioeconomic and political contexts. Path dependency is important with respect to the types of change which might be introduced, especially so with regard to the evolutionary conceptualisation of institutional change. From VET perspectives a distinction is possible between a rules-based approach (essentially top-down in implementation) which seeks to determine the configuration of the VET system, and a more decentralised process where new types of VET providers emerge and compete with the existing order.

1.3.3. Historical perspective

Comparative historical methodology is a theoretically robust approach which can reveal much about how systems and institutions change over time. It is, like all methodological approaches, dependent upon having clearly defined hypotheses which can be reasonably tested. A central feature of the approach presented is that of clearly identifying the issues of interest, developing a conceptual or analytical framework (see above) which can be used to frame the specific research questions (hypotheses) germane to those issue of interest, and then testing them using data collected from a series of national and thematic case studies. It implicitly embodies a process which proceeds from the general to the specific such that through the exploration of key issues in the case studies it is possible to drill down to the specificities of the situation.

The use of the case study approach – which will necessitate the collection and analysis of much qualitative data – allows issues to be identified and returned to. If a national or thematic case study yields a particularly apposite finding, it is possible to revisit that finding and investigate in finer detail its determinants (as necessary). The case studies also yield questions which can be explored further using an online survey which is able to obtain information from a wide range of VET providers.

While the selected methodology and method have many strengths, it is also necessary to recognise their limits. It is dependent upon there being sufficient corporate memory in place to address the issues of interest. More prosaically, it requires readily available policy papers, studies, and individuals who can offer

insights into the period under review. It also requires access to corporate memory that is truly representative of the period under review. These are not so much weaknesses but a reminder of the need dispassionately to collect and analyse representative and robust data relevant to the issues under consideration.

The historical approach is important because a trajectory a country has adopted can act as a powerful constraint on its capacity to change, or at least change in a way that is not consistent with that trajectory. This is a form of path dependency; it develops where existing processes receive positive feedback such that actors or institutions have strong incentives to adapt their behaviour and strategies to reinforce the logic of the system (Pierson, 2000). There may well be disincentives to critiquing existing arrangements. Whether IVET systems receive positive feedback which reinforces existing structures is moot. Nevertheless, it points to the inherent difficulties in being able to bring about change other than that which is incremental in well-established systems. Trampusch (2010), for example, has drawn attention to the way in which SMEs (defenders of the status quo) and large employers (looking for transformative change to their advantage) have been in conflict in the IVET system in Switzerland.

Path dependency can, of course, be affected by unforeseen events. This can have the impact of reinforcing existing trajectories. For example, in the period following financial crisis in UK-England the need for further cuts in public expenditure arguably accelerated the transition to a more demand-led system where employers and training providers were expected to bear an increased share of the overall cost of IVET (Hogarth and Gambin, 2021). But this is not always the case. Windows of opportunity can lead to innovative changes which are out of tune with the prevailing IVET consensus and potentially have the capacity to disrupt the status quo. This has been explained with reference to the emergence of technical colleges in Sweden (Persson and Hermelin, 2018). With the establishment of these colleges, previously marginalised actors in the IVET system were able to bring about change without radically changing the rules of the game as a consequence of other changes taking place in the IVET system (i.e. the marketisation of the education sector). Industry was able bring about change in a system that has been traditionally characterised as being heavily State-regulated and controlled. The role of disrupters can be influential in certain circumstances.

1.3.4. Selection of countries

The study draws on research from across 30 countries in Europe. Evidence has been provided from country reports compiled specifically for this study by Cedefop's ReferNet network of VET experts. Evidence is presented from these studies in the chapters that follow. There is, however, a specific focus on a smaller

number of studies where national experts provided more detailed evidence on the changes taking place in the provision of VET in their countries. These national case studies are more heavily drawn upon in addressing the study's research questions. The countries for which detailed case studies were prepared are:

- (a) Market-oriented:
 - (i) UK-England;
- (b) coordinated systems:
 - (i) Norway;
 - (ii) Finland;
 - (iii) Germany;
 - (iv) Netherlands;
- (c) systems with strong regional components:
 - (i) Italy;
- (d) former Soviet bloc countries:
 - (i) Czechia;
 - (ii) Lithuania.

UK-England represents a system which is typically dependent on training providers responding to labour market needs to maintain their funding/income. In contrast, Finland, Germany, the Netherlands and Norway have systems where the person entering IVET is less dependent on the labour market, indicating that there is a current demand for particular skills. Italy provides an example of a country where there are strong distinctions between regional and national VET provision, offering an opportunity to look at how a VET system responds to more local labour market needs than in the case of more centralised systems. Czechia and Lithuania present examples of former Soviet bloc countries which needed to reinvent – and sometimes reinvent again – their VET systems in the period since 1989.

1.3.5. Data collection

Data collection has been undertaken through:

- (a) a review of pertinent literature and statistics;
- (b) production of a series of country reports undertaken by Cedefop's ReferNet network;
- (c) a series of national case studies;
- (d) a survey of VET providers: an online survey of training providers across Europe to gauge the views of the heads of VET provider organisations of how the IVET and CVET they deliver has changed over the past 10 years.

The evidence above has been synthesised in the chapters which follow.

1.4. Structure of the report

Chapter 2 provides the context for the study, indicating the types of change which have affected the demand for VET over the period since 1995 (the timeframe for the study). Chapter 3 considers how the balance between general and vocational education within VET curricula has changed over time and the extent to which the boundary between vocational and general education has changed as well. Chapter 4 goes on to look at how VET institutions have been reorganised over time in responding to changing economic and societal needs. Chapter 5 assesses the relationship between VET at upper secondary and higher levels, and Chapter 6 provides a summary and conclusion.

CHAPTER 2.

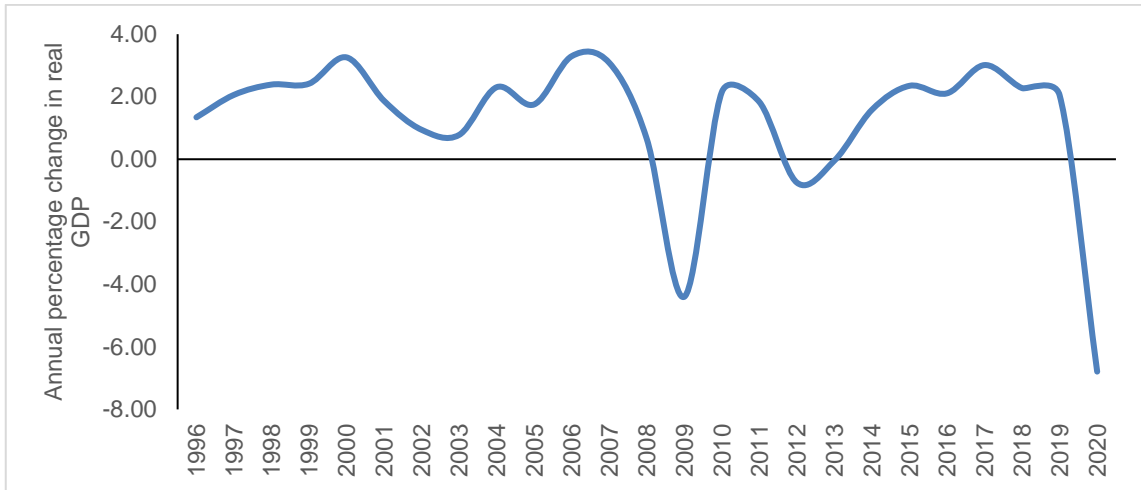
External factors affecting the provision of VET in Europe

2.1. Economic and employment trends affecting VET demand

Since the beginning of the 1990s, European society and its economy have experienced a series of momentous changes. At the beginning of the 1990s, the collapse of the Soviet Union followed by that of the Russian economy pushed many European economies into deep recession. At the same time, globalisation accelerated the transition from a production- to service-based European economy which, at least over the short term, exacerbated the challenges facing many labour markets. In the former Soviet bloc countries all of this took place at the same time as the switch from centrally planned to market-based economies. If the period from the mid-1990s to the mid-2000s was one of relative economic calm, events in the post-2007 period have proved to be more challenging (Figures 1 and 2). The financial crisis, which brought about a deep recession across Europe in 2008, was followed by a period of economic austerity as governments sought to reduce their levels of indebtedness, in turn shackling investment and growth over a prolonged period. Recovery from the financial crisis came to an abrupt halt as a result of the COVID-19 pandemic in 2020. The impact of the pandemic was not structural in the sense that macroeconomic policy did not need to adjust to various market failures, as it did following the economic crisis, because there was every expectation that growth would bounce back once the pandemic was under control. And there has been a strong economic bounce back during 2021, but uncertainties remain about some of the longer-term consequences of the pandemic's economic impact. International supply chains, for example, proved particularly sensitive during the pandemic and have struggled to recover, prompting some discussion about countries' reliance on imports from a distance. The emergence of a new variant of the COVID-19 pathogen in December 2021 once again unsteadied markets and raised concerns about the pace of the economic recovery. Alongside COVID-19, the twin digital and green transitions pose a number of challenges and opportunities for European economies and labour markets. And long-term demographic shifts and the ageing of Europe's population has placed pressures on skill demand. The war in Ukraine has also affected the global economy but took

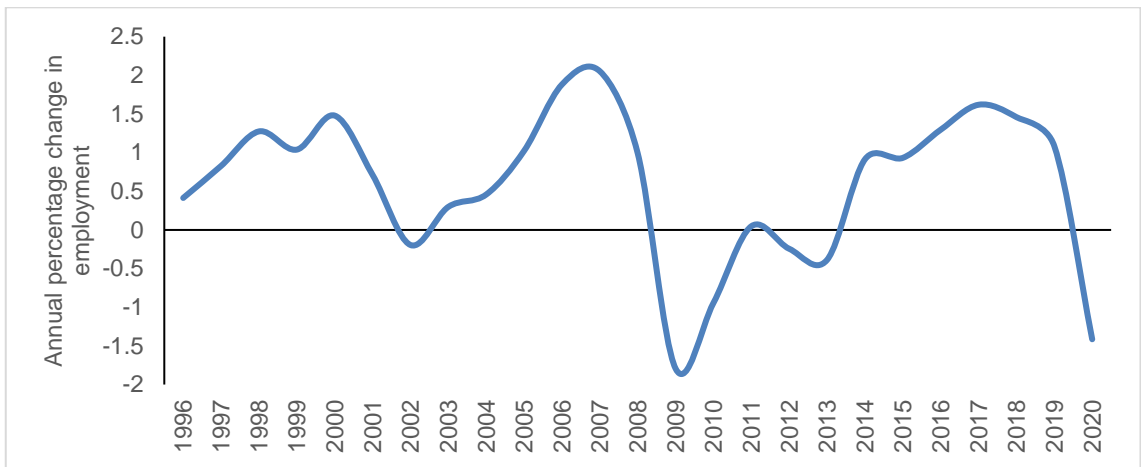
place after this research was undertaken. All of the above is described in detail in this chapter, along with implications for the provision of VET.

Figure 1. **Annual percentage change in real GDP growth, 1995-2020**



Source: Eurostat GDP and main components [NAMA_10_GDP].

Figure 2. **Annual percentage change in employment growth, 1995-2020**



Source: Eurostat National Accounts – Employment [NAMA_10_A10_E].

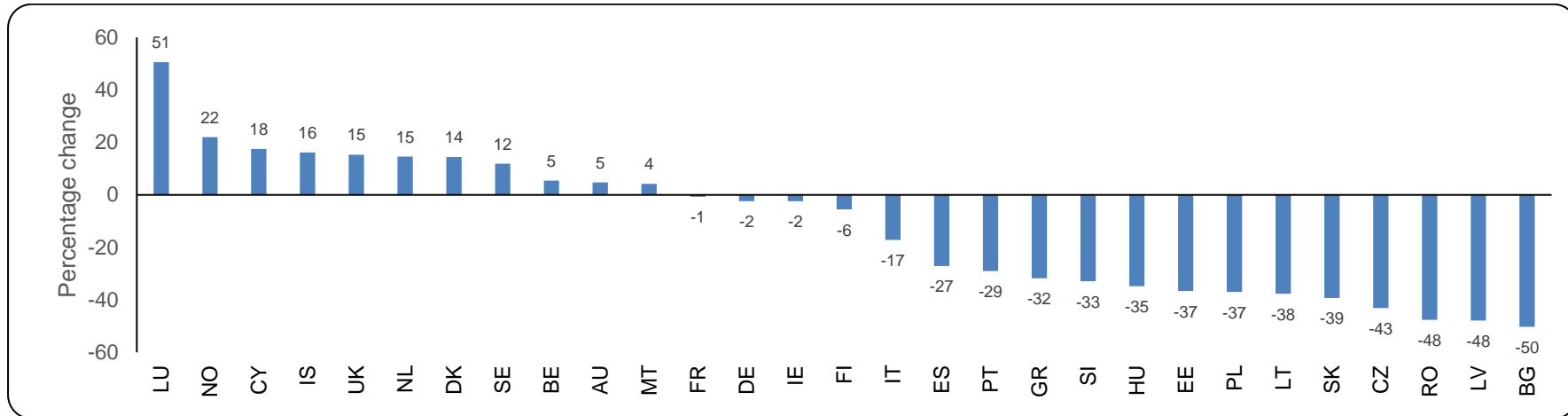
2.2. Demographic change

Explanations of the relationship between demographic structures and the demand for skills has tended to concentrate on ageing populations and the associated increase in demand for skills linked to caring for older people (Cedefop, 2018). More pertinent to the subject of institutional change is the changing size of the population from which vocational schools are likely to obtain their IVET students.

Ultimately this is likely to affect the financial viability of some vocational schools and potentially necessitate the merging, or closure of some institutions, where there has been a fall in the relevant population. Over time, the scale and direction of population change has differed widely across countries in Europe as shown in Figure 3: this shows the percentage change in the number aged 18 to 24 between 2000 and 2020 in various countries. This age range was selected because it is one from which many vocational schools will draw their students. As the figure shows, some countries, typically northern ones, have experienced population growth. Migration, more than the natural rate of increase, has played a significant role in the population growth observed in these countries (Eurostat, 2021). The scale of change has been substantial in many countries. More recently, the population decline in many countries where the number of IVET students has fallen has been due to natural causes. Figure 4 goes on to show that there are also significant differences in the size of the population aged 18 to 24 projected over the period to 2030, indicating that the future population trajectory for some countries will be different from the past. Several countries which experienced population growth among this age group over the 2000 to 2020 period are projected to experience a decline in the period to 2030, including Denmark, Cyprus, and the Netherlands.

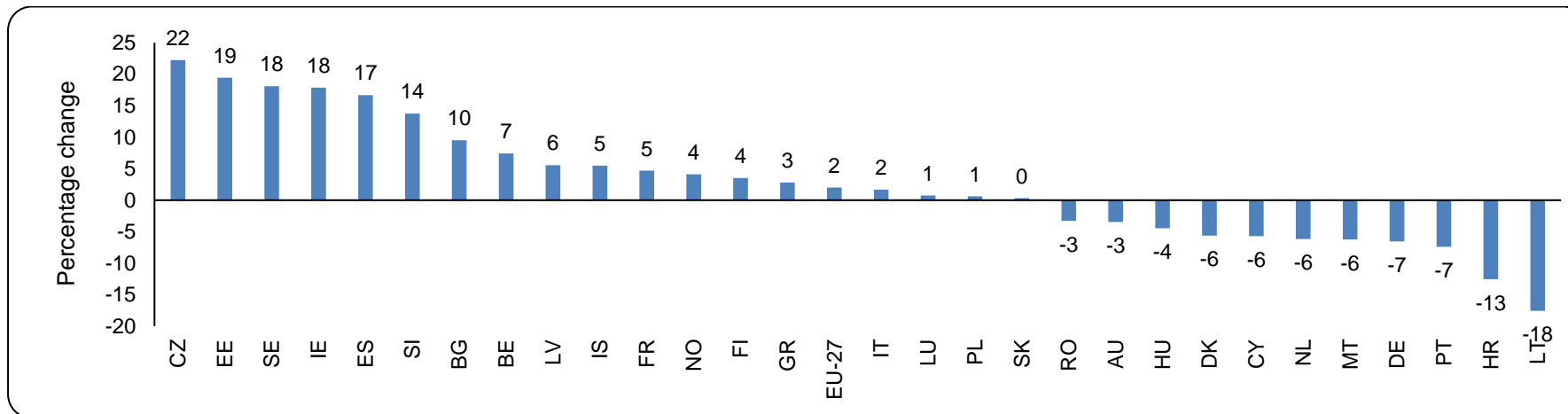
Comparing the growth rates in the number of those aged 18 to 24 and the share of upper secondary students in vocational education, respectively, over time, gives an indication of the ability of vocational education to sustain its position as a source of skills supply. In the lower left quadrant of Figure 5 are those countries where there has been a decline in the number of 18 to 24 year-olds and a fall in the share of upper secondary students in vocational education. This may suggest that IVET occupies a weakening position in the education and skills systems of these countries.

Figure 3. **Percentage change in the number of those aged 18-24, 2000-20**



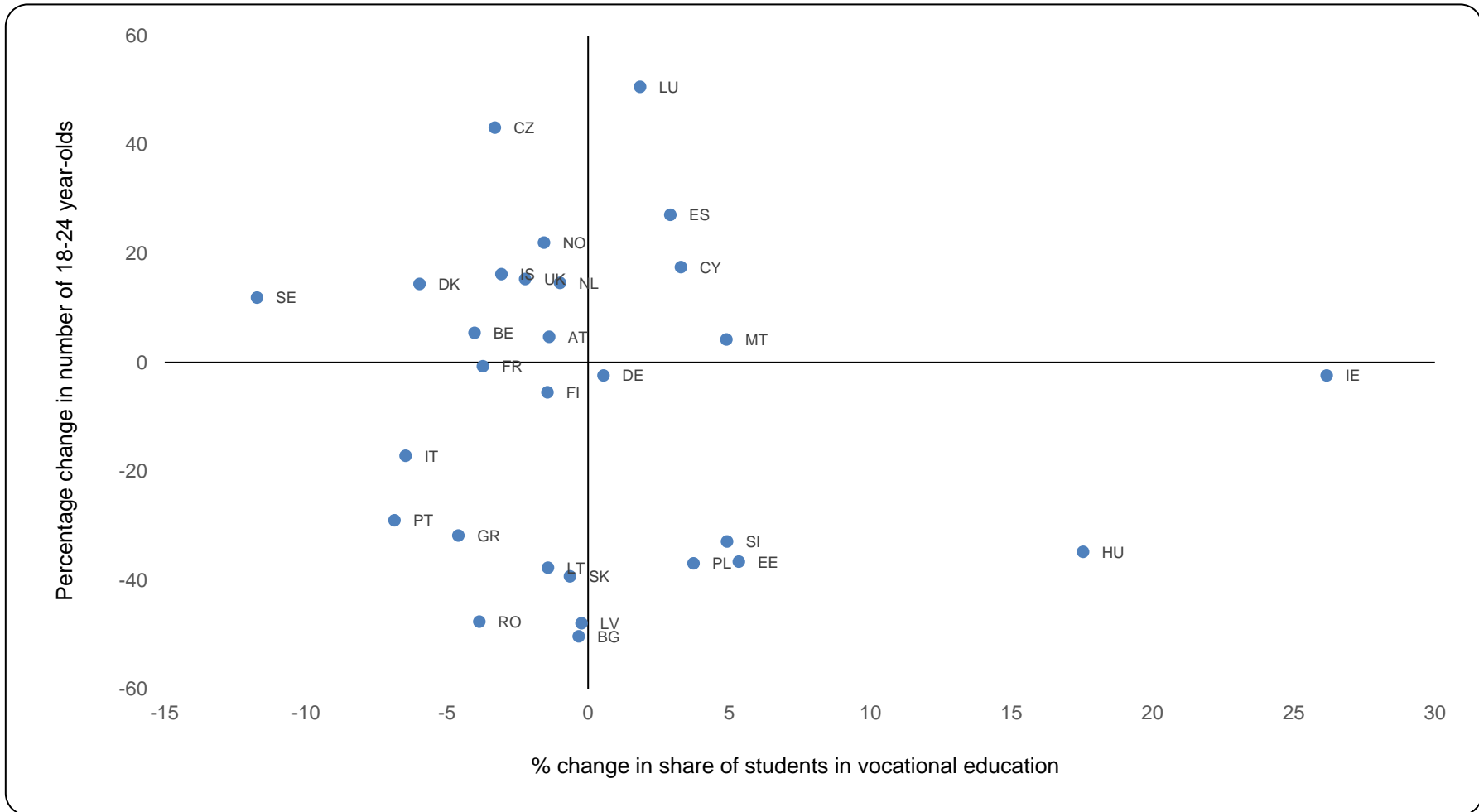
Source: Population on 1 January by age and sex [DEMO_PJAN].

Figure 4. **Projected percentage change in the number of those aged 18-24, 2020-30**



Source: Eurostat Population on 1st January projection [PROJ_19NP].

Figure 5. **Changes in the share of upper secondary education accounted for by vocational orientation and changes in the number of those aged 18-24**

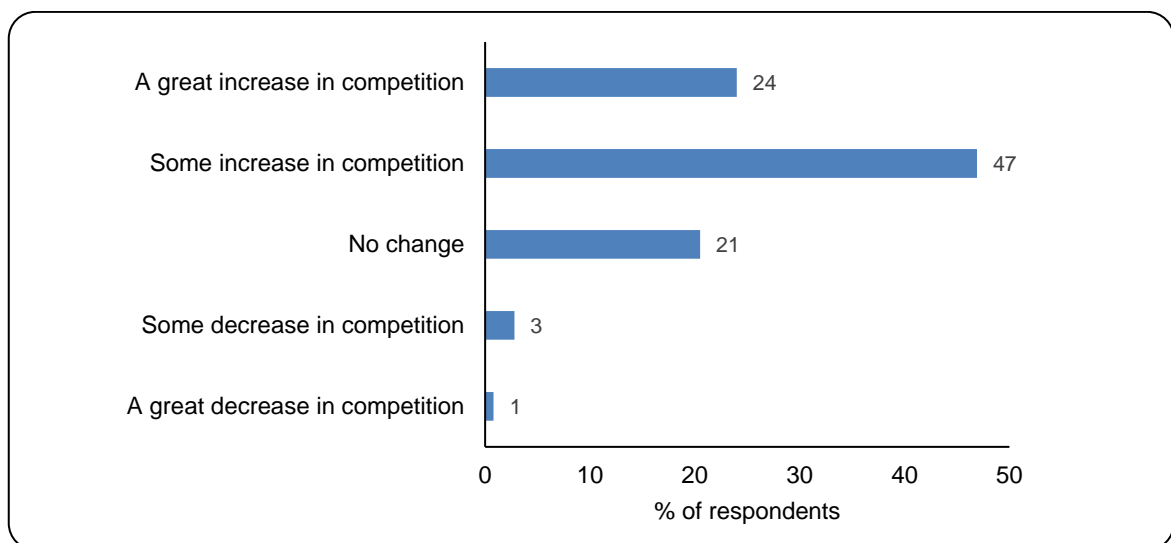


Source: Pupils enrolled in upper secondary education by programme orientation [EDUC_UOE_ENRS04] and Population on 1 January by age and sex [DEMO_PJAN].

The upper left quadrant in Figure 5 shows those countries where there has been an increase in the number aged 18 to 24 but the share in vocational education has been falling, which suggests that the position of VET may also be weak, albeit in a differing demographic context. In the lower right quadrant are countries where the share of upper secondary students has been increasing but the number aged 18 to 24 has been falling, which may well suggest a strengthening IVET system in a potentially unfavourable demographic context. And in the upper right quadrant are those countries where both the share of vocational students and the number aged 18 to 24 has been increasing again, indicating that VET is in a strengthening position in a favourable demographic context.

Changes in demographic structures have implications for the viability of vocational schools (and all schools for that matter). The evidence shows that vocational schools have experienced more competition for their services over the recent past (Figure 6). Overall, 71% of providers said that they had experienced more competition from other providers over the past 10 years. This will not simply be a product of changes in the demographic structure. It will, for example, reflect changes in the overall number of providers, sometimes in a deliberate attempt to bring more competition into the market to deliver VET. But it is likely to be the case that where there have been falls in the number of people in the vocational schools' target populations, perhaps coupled with changes which, other things being equal, affect the propensity of students to choose the VET pathway through upper secondary education, there are likely to be changes in the number and size of vocational schools.

Figure 6. **Changes in the degree of competition experienced by vocational schools over the past 10 years**



Source: *Future of VET*, VET provider survey.

Increases in the provision of VET to adults has helped offset the pressure of reduced population from which many IVET students will be drawn. The VET provider survey reported that 37%% of providers had experienced an increase in the number of adult learners over the past 10 years simply in recognition that there is a large demand for this type of training. Another factor which has affected the demand for VET is the inflow of refugees into the European Union; this reached a peak in 2015 and 2016 when around 2.5 million asylum seekers were registered in the EU (Cedefop, 2017b). The flow of migrants into the EU continues today, albeit at lower levels. From a VET and demographic change perspective, it creates a demand on VET institutions to validate quickly the existing skills and qualifications of refugees and/or reskill them to meet the needs of the labour market in Europe. The Cedefop/OECD survey of how countries responded to the refugee crisis in 2016 points to a range of fast-track programmes introduced in various countries such as Germany and Italy, which sought to validate asylum seeker/migrant skills and equip them with new ones where needed, often through the use of the ESF (Cedefop, 2017b) ⁽²⁾.

2.3. Technological change and the demand for skills

Analysis of occupational change over the latter half of the last century revealed a decline in the number of blue-collar, manual jobs and an increase in the number of low paid, non-manual ones; explanations related to technological change were suggested (Autor et al., 2003). New technologies in the form of ICTs were able to codify tasks that needed to be repeated. These tasks might be complicated, but the fact that they needed to be repeated meant that it was possible to programme computers to undertake them. The evidence pointed to most of these types of job being located in the middle of the skill structure (see also the hollowing-out of the labour market hypothesis). In contrast, those service jobs nearer the bottom of the skills hierarchy were much less amenable to substitution by machines because they often required the application of non-cognitive skills of a type not readily mimicked by a computer (Goos and Manning, 2007; Goos et al., 2009). More recently, with the advent of artificial intelligence and increasingly sophisticated robotics, the types of task which may potentially be undertaken by machines has increased (Brynjolfsson and McAfee, 2014). This has led to estimates suggesting that as much as half of all jobs may be subject to automation over the medium-

⁽²⁾ As part of the Skills Agenda for Europe, a skills profiling tool was developed to carry out an early assessment of the skill needs of refugees and migrants from third countries staying in the EU.

term (Frey and Osborne, 2017). More restrained assumptions suggest that the impact of automation on jobs is nowhere near as great as this suggests. Evidence derived from the European skills and jobs survey and PIAAC estimates that between 8% and 14% of jobs are at a high risk of automation. Even at 8%, this equated, in 2019, with around 16 million people being at risk of automation in the EU economy (Nedelkoska and Quintini, 2018; Pouliakas, 2018). As automation has an impact on occupational employment in the future it will affect the demand for VET. Figure 7 compares the risk of automation with expected future employment growth. It shows that there are occupations where employment growth was expected to be above average but where the risk of automation is high (e.g. construction workers) while there will be a range of higher-skilled jobs, which have historically fallen outside the scope of VET provision, which are subject to a low risk of automation and are expected to show quite strong growth in employment to 2030.

The impact of technological change can be summarised as being:

- (a) a demand for new skills (which may be complements to existing skills);
- (b) a demand for people to work in new jobs defined with reference to new combinations of tasks to be undertaken, sometimes in relation to new areas of economic activity;
- (c) the obsolescence of skills within existing jobs (perhaps leaving space for the acquisition of new skills);
- (d) the obsolescence of jobs typically through technological change automating processes or the jobs being related to economic activities which are no longer necessary (or at least to same degree as in the past).

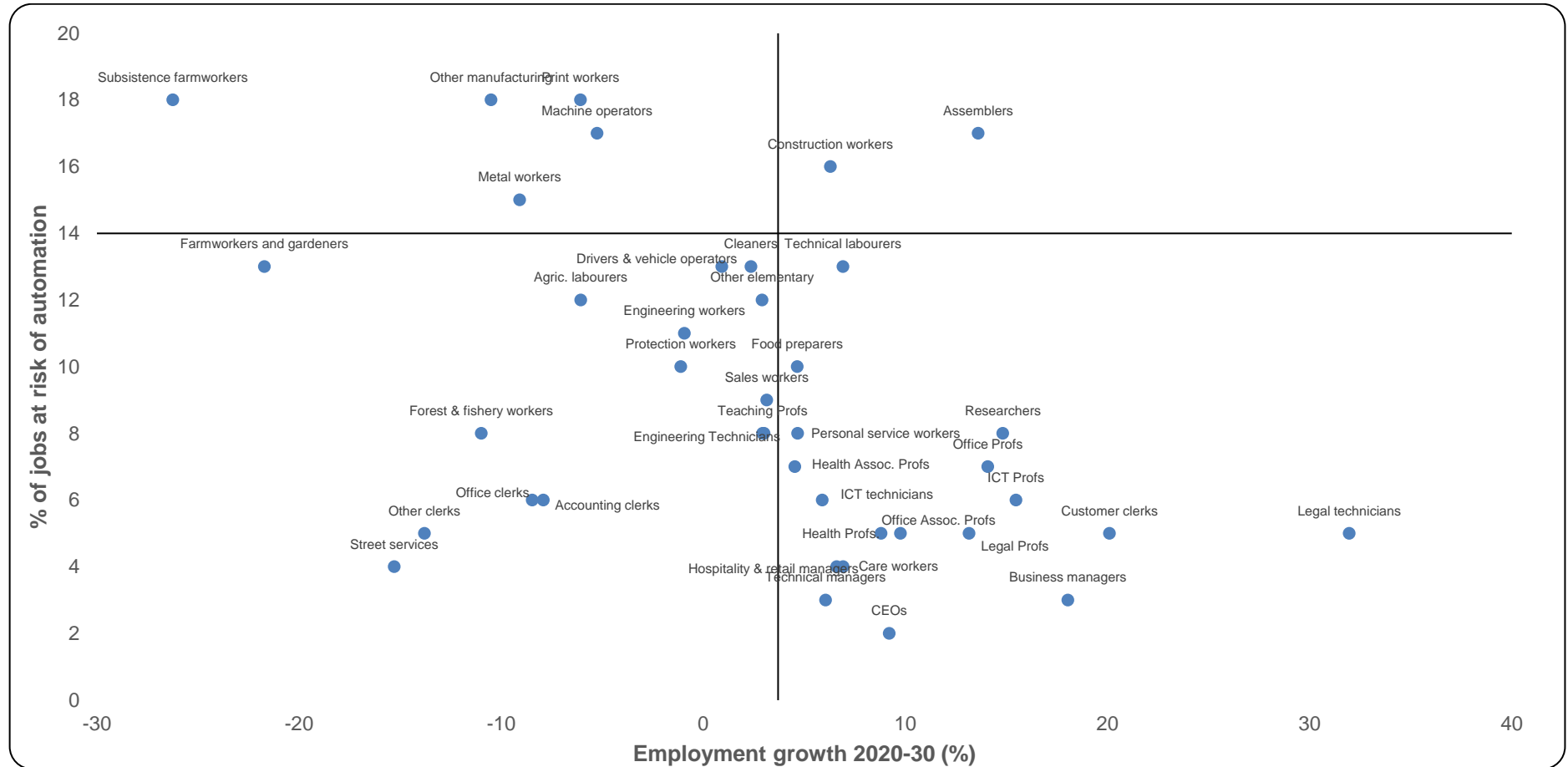
The challenges these pose to the VET system have been well documented and include being able to:

- (a) anticipate changing skill needs;
- (b) develop VET curricula so that individuals' skills provide the capacity to move between jobs and sectors and give a basis for developing new skills;
- (c) encourage participation in lifelong learning and persuading employers and individuals to invest in continuing skills development;
- (d) equip VET institutions with the wherewithal to respond effectively to change, especially so where some of their key constituencies are in steep decline (such as when skills obsolescence results in job losses that prove to be geographically concentrated in selected local or regional labour markets).

Just as demographic change affects the volume of demand for skills, technological change has the same potential to do so where new jobs/skills are created or lost in the labour markets VET institutions serve. At the same time, it

affects what VET institutions have to deliver: the pressure on VET systems and VET institutions is potentially doubly challenging.

Figure 7. The risk of automation and future employment growth by occupation



Source: Cedefop European jobs and skills survey, Cedefop Skills Panorama, and Cedefop skills forecasts.

2.4. The green transition

Alongside the impact of technological change, especially that of digitalisation, there has been that resulting from the policies countries have introduced to mitigate the impact of climate change. All countries in Europe are committed to reducing their carbon footprint through a wide variety of measures, which then demand measures to develop the skills necessary to bring about a green transition (Cedefop, 2019b). Trying to understand the impact of the green transition on employment and skills and, ultimately, the demand for VET, requires an understanding of how green policies – especially those related to the EU’s European Green Deal (EGD) – will affect the labour market.

From a sectoral perspective, the impact on employment tends to be concentrated in those sectors which greatly need to reduce their carbon footprint (where the impact tends to be negative) and those which facilitate the introduction of mitigation measures (such as producing renewable energies and retrofitting old buildings). Hence much of the attention has focused on those manufacturing sectors which are intensive users of energy: the energy sector (especially the shift towards renewable forms); waste management (especially recycling and circular economy); transportation (such as the shift to electric vehicles); and construction (including retrofitting buildings). Cedefop’s skills forecast, based on its green skills scenario, indicates the shifts in employment which are likely to result from the measures associated with the EGD being introduced (Cedefop, 2021). Its green scenario suggests that the EGD will exacerbate the employment decline under the business-as-usual scenario for coal mining and manufactured fuels. The projected decline in employment of 10% is on top of those of 30% for coal and 4% for fuels. In contrast, employment in waste management will benefit from the EGD turning employment decline into employment growth, projected to increase by 52% between 2018 and 2030.

These kinds of sectoral effect clearly imply changes for vocational education systems. But there are wider changes to consider, too, which are likely to affect skills demand across a wide range of occupations, not just those concentrated in the sectors particularly sensitive to green policies of one kind or another. In looking at the impact of green policies across the economy, Dierdorff et al. (2009) made a distinction between different types of green job (Box 1).

Box 1. **O*NET classification of green jobs**

Green increased demand occupations. The impact of green economy activities and technologies is an increase in employment demand for an existing occupation. However, this impact does not entail significant changes in the work and worker requirements of the occupation. The work context may change, but the tasks themselves do not. An example is the increased demand for electrical power line installers and repairers related to energy efficiency and infrastructure upgrades.

Green enhanced skills occupations. The impact of green economy activities and technologies results in a significant change to the work and worker requirements of an existing occupation. This impact may or may not result in an increase in employment demand for the occupation. An example is the occupation architect, where greening has increased knowledge requirements pertaining to energy-efficient materials and construction, as well as skills associated with integrating green technology into the aesthetic design of buildings.

Source: Dierdorff et al. (2009, pp. 11-12).

The empirical evidence suggests that the major impact has been on green increased demand occupations (CE/GHK/IER, 2011; Cedefop, 2013) and, by implication, that the impact on skills demand was modest. From a VET perspective this suggests that there is likely to be a range of jobs which require, at least, some environmental awareness which, in turn, has implications for course curricula across many occupational areas. The early empirical evidence suggested that these skill needs may be modest, but, as the EGD gains traction across Europe, there will be a shift in demand, potentially, towards jobs becoming increasingly green-enhanced ones. Again, this has potentially major implications for VET systems as they respond the skill needs which will arise.

2.5. The impact of COVID-19 on skills and VET

The long-term impacts of COVID-19 on the demand for skills is, as yet, unknown. Economic analysis shows that there has been a sharp bounce back from the sharp decline in output which resulted from the lockdowns all European countries put in place to safeguard their populations. Initial estimates suggest that EU-27 output fell by around 6% during 2020. The employment impacts were more muted in part because many governments introduced furlough schemes to maintain employment levels until the anticipated upturn in demand. At the time the fieldwork and analysis for this study were completed, the outlook for the EU was relatively optimistic. The evidence pointed to a strong return to growth during 2021. The EU economy was forecast to grow by 5.0% during 2021, 4.3% in 2022, and 2.5% in 2023 (European Commission, 2021). If the economic impact of COVID-19 proves to be short-lived,

then the consequences for VET may be limited to being able to respond to a temporary, short-term dip in skill demand. At the time of writing in mid-2022, it is apparent that the European economy is facing a period of further considerable uncertainty. While economic growth was expected to bounce back as the pandemic situation improved, the war in Ukraine has disrupted supply-chains and increased commodity prices. The EU has also had to deal with the large inflow of those fleeing the war (European Commission, 2022). These are all likely to have implications for skill demand and VET systems. It also draws into focus the way in which VET has, and will need to, respond to external shocks of one kind or another.

Looking at impact of COVID-19 on skill demand and the provision of training, three impacts are discernible:

- (a) the overall impact on employment (particularly on employment in certain sectors and occupations, such as those in health and social care) and changes in the skill content of some jobs;
- (b) the emergence of new skill demands influencing education and training demand;
- (c) the way in which education and training are delivered (especially the shift to online provision).

Despite the introduction of various forms of job protection (such as short-time working, furloughs), employment levels have fallen. There is a high degree of consensus in the research evidence drawn from across the EU and further afield that COVID-19 has had a disproportionate impact on those people employed in low-skilled jobs, often linked to temporary or precarious employment contracts, and which typically require a degree of close proximity with other workers (Redmond and McGuinness, 2020; Beart et al., 2020; Fana et al., 2020; and ILO, 2020).

Cedefop developed an index – the COVID-19 social distancing risk index, COV19R – to measure the susceptibility of jobs to the pandemic (Pouliakas and Branka, 2020). It is based on whether jobs require close proximity with others and require low digital intensity (as a proxy measure of the extent to which tasks could be undertaken remotely through the use of various kinds of ICTs). Table 2 shows the key occupations and sectors which are at a very high risk of being disrupted by COVID-19. These account for around 23% of employment in the EU-27, around 45 million jobs. The authors, commenting on the socioeconomic characteristics of those who fill these jobs, said: ‘The empirical estimates reveal that the burden of the COVID-19 social distancing impact falls disproportionately on vulnerable workforce groups, such as women, older employees, non-natives and the lower-educated’ (Pouliakas and Branka, 2020, p. 30). Cedefop’s classification of vocational occupations – i.e. those where a high share of incumbents have a

vocational qualification – indicates that many of the high risk ones are vocational ones too.

Table 2. **Occupations and sectors most at risk of being disrupted by COVID-19**

Jobs at high risk	Sectors at high risk
Care workers	Accommodation and food services
Sales workers	Wholesale and retail trade, sales, shop work
Personal service workers	Social
Hospitality and retail managers	
Health professionals	
Food preparation helpers	
Health associate professionals	
Drivers and vehicle operators	
Cleaners and helpers	
Customer clerks	
Protection workers	
Street services workers	
Agricultural labourers	
Farm workers and gardeners	
Construction workers	
Business managers	
Teaching professionals	

NB: Occupations with a blue shading are the ones corresponding to the vocational occupation classification available on the Cedefop Skills Panorama.

Source: Pouliakas and Branka, (2020).

Where work is increasingly undertaken remotely, with people working from home or not attending external meetings in person but via a range of online conference platforms, then there is likely to be an increased demand for digital skills over and above those which might have arisen simply as a consequence of technological change. Alternatively, they may have accelerated the introduction of changes which would have happened in any case. A follow-up to the EU Company survey 2019 revealed that around 70% of companies had adopted teleworking arrangements in 2020, whereas this was a marginal phenomenon in 2019 (Van Loo et al., 2021). The same study demonstrates that company provision of training fell off a cliff as companies redirected their resources to staying afloat.

The fall in employers engaging in training has implications for CVET provision but also, critically, IVET where it involves workplace-based training (as with

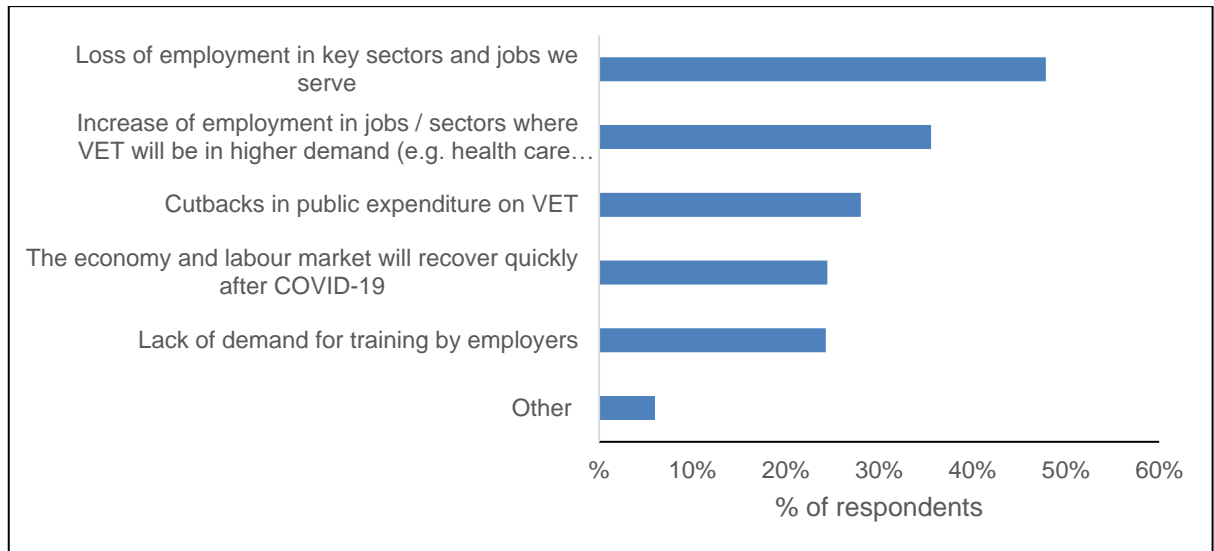
apprenticeships). Several features are apparent in the provision of IVET which reflect a degree of innovation to maintain the provision of education and training to young people so that their training is not suspended over overly delayed (Cedefop, 2020b). This has included:

- (a) distance learning provision (typically relying upon the digital know-how of teachers and learners alike);
- (b) employers providing some of the training which is typically school-based where schools are closed but employers remain open;
- (c) looking for means to carry out assessment which does necessitate extensive delays (e.g. introducing an online element);
- (d) use of various employment protections measures to ensure that apprentices are not laid-off.

Despite these measures, there are sectors of activity, including hospitality and tourism, where it has been all but impossible to maintain the training of apprentices and trainees.

It is, at present, too early to tell what the longer-lasting impacts of the pandemic on VET will be but to date, over a short space of time, significant changes to the demand for skills and the means to deliver them have been observed. An indication of how VET providers think COVID-19 will affect their activities can be gleaned from the survey of vocational schools/trainers conducted as part of this study. The study indicated that just under two thirds of providers (64%) thought that COVID-19 would have a long-term impact on their activities. When asked what these impacts might be, around half of providers said it was the loss of employment in sectors which they serve; to some extent this might be offset by increases in the demand for training in other sectors such as healthcare (Figure 8). Thinking about how these changes will affect providers' activities, the major impact of COVID-19 would appear to be that of how training is delivered (reported by 65% of respondents to the survey), reflecting the changes many providers had to make in switching provision to being increasingly online during various lockdown periods. The next most cited change was changes to the content of training, mentioned by 12% of respondents.

Figure 8. **VET providers' views on long-term impacts of COVID-19 on their activities**



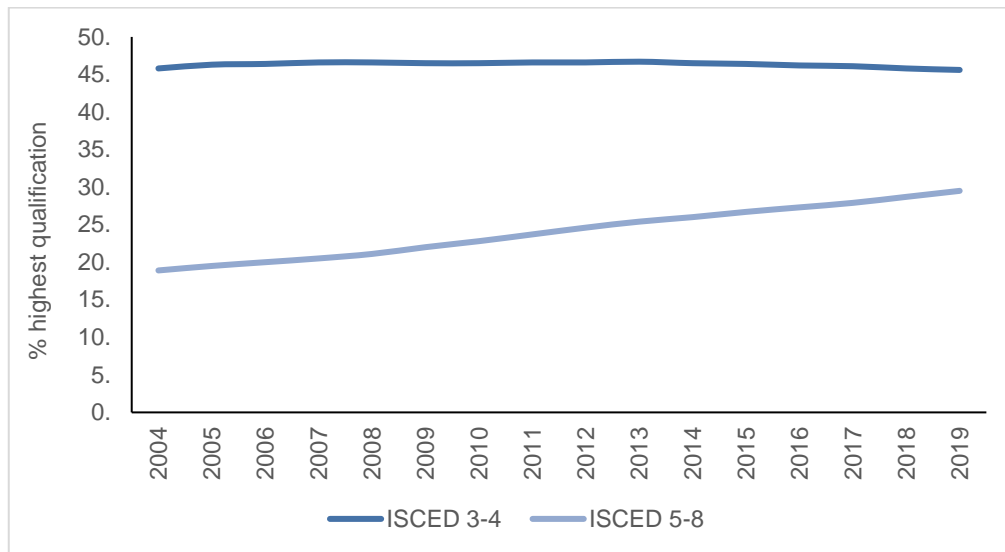
Source: *Future of VET*, VET provider survey.

2.6. How VET systems have responded

Parallel with the economic turmoil, changes have taken place in education and training systems. The most obvious shift has been the increase in the percentage of people entering tertiary education (Figure 9). This has largely been in response to technological change, which increased the demand for those with a university level education, as observed in the relatively high wage returns this has group accrued over the recent past. The same technological change was also able to automate tasks which were routine and replicable, most of which were undertaken by people working in jobs in the middle of the occupational structure (e.g. skilled trades, clerks). It was not the case that the tasks did not require a degree of skill to complete them, but that they were amenable to automation through the use of machine learning and artificial intelligence. This explains, at least in part, the hollowing out of occupational structures in some countries with an increased share of people working in managerial, professional, and associate professional jobs. In response to increasing wage returns for the highly skilled and qualified, many countries substantially increased the number of people entering higher education. More recently, however, the relationship between increasing levels of educational attainment and real wage growth appears to have weakened. Rather it appears to be specific skills, many of which are related to STEM (science, technology, engineering and mathematics), especially IT ones, which are in high demand. The relationship between real wage growth and technological change has become

increasingly dependent on the specificities of the tasks to be undertaken within a job and the particular types of skill/competence required to fulfil them. The upshot of this is, arguably, the degree of mismatch between skills supply and demand resulting from the increase in the number of tertiary education graduates; policy-makers have become increasingly focused on this.

Figure 9. **Changes in the highest level of qualification held by 15-64 year-olds, 2004-19**



Source: Eurostat, Population by educational attainment level (%) [EDAT_LFS_9903].

From a policy perspective, the response has been to place more emphasis on vocational education and training – especially, though not exclusively, apprenticeships – as a solution to better matching skills supply to labour market demand. Vocational education is seen to be particularly well placed to deliver skills with labour market value because of the close cooperation between employers and educators in the design and delivery of education and training. This is most keenly seen with regard to apprenticeships, where employer decisions to participate in this form of training are likely to be strongly influenced by its capacity to deliver the skills they need: otherwise, there is no reason to engage in a form of training where it is often the case that they accumulate a net cost at the end of the training period.

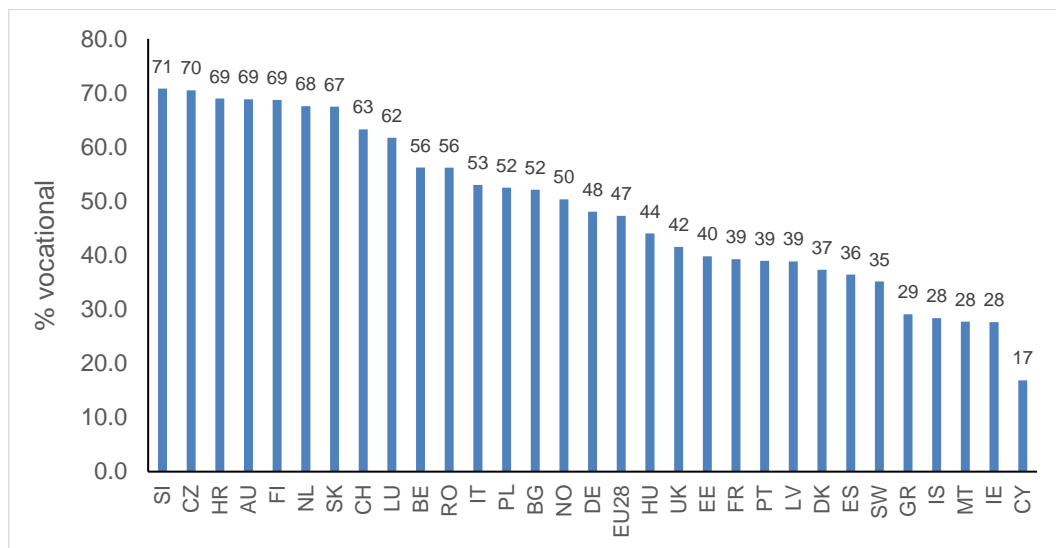
The percentage of upper secondary students taking the vocational pathway has remained more or less stable at around 48 to 47% over the 2013 to 2019 period. However, this masks wide variation between Member States from countries where a majority of those in upper secondary take the vocational pathway to situations where it is very much a minority pursuit (Figure 10). Change over the longer term, which is available for a selected number of countries, shows that the

direction of change and its magnitude differ: there is a group of countries where the share has grown (sometimes substantially) to those where it has contracted (again, sometimes substantially) as shown in Figure 11. So, there would appear to be no common trajectory across Europe.

2.7. The response of VET institutions

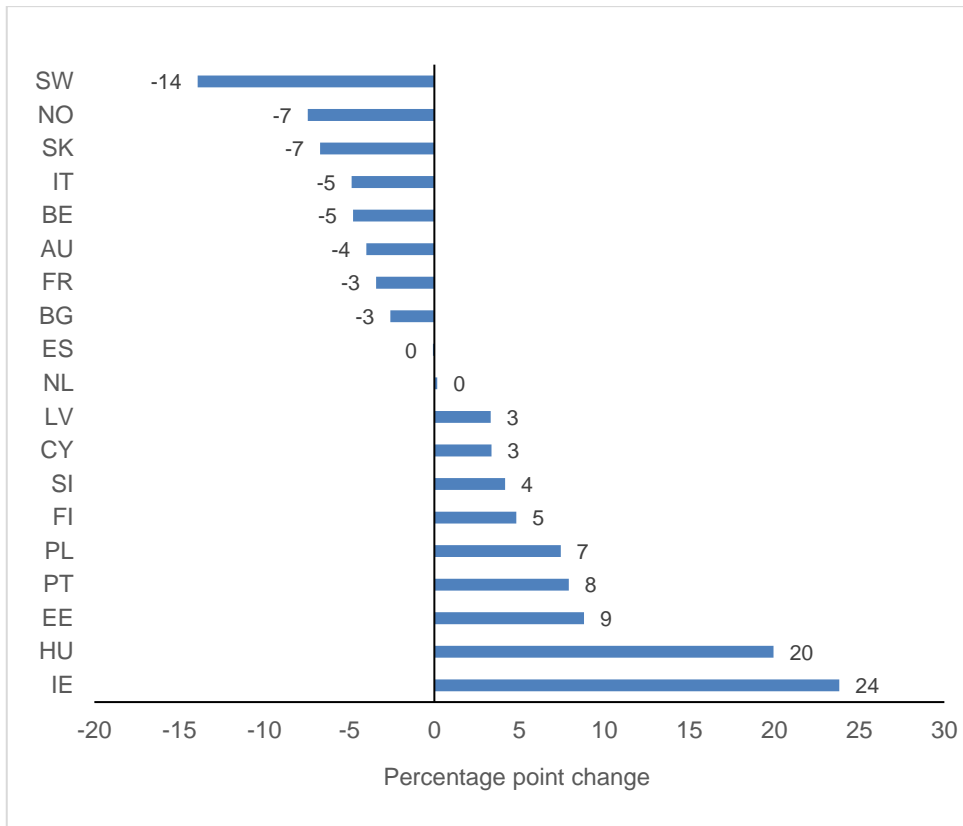
The VET provider survey provides some key insights into how vocational schools have responded to the variety of challenges outlined above: many reported increased competition from other providers over the past 10 years. But it is also apparent that vocational schools have been active in responding to a variety of external changes. As well as facing increased competition, there has been increased cooperation with a wide range of stakeholders, as indicated in Figure 12. The reasons behind the increased cooperation relate to the challenges described in the preceding sections: making sure that their provision is relevant to the labour market, making VET more attractive, and the requirements of delivering the national curriculum (Figure 13).

Figure 10. **Percentage of upper secondary school students in vocational education**



Source: Pupils enrolled in upper secondary education by programme orientation [EDUC_UOE_ENRS04].

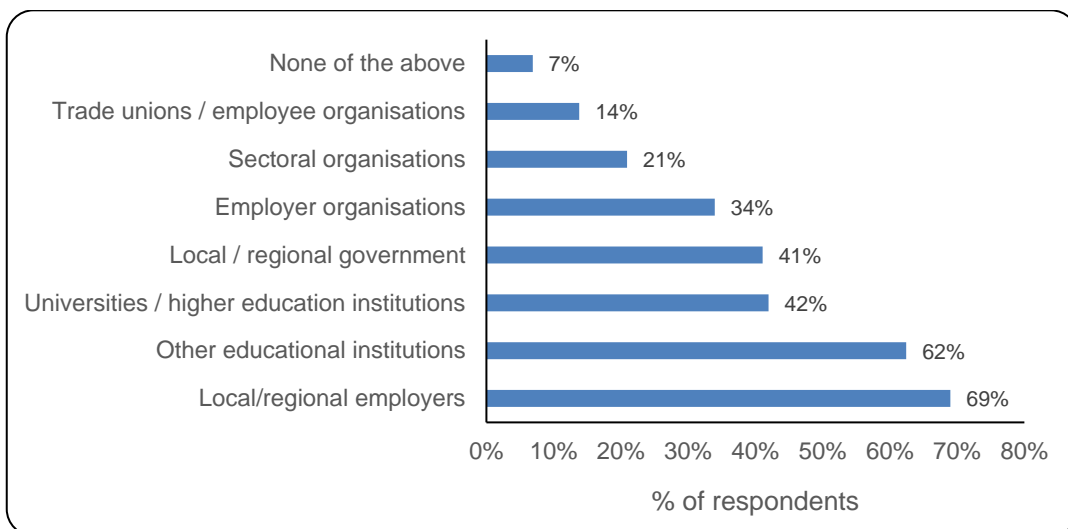
Figure 11. **Change in share percentage of upper secondary students in vocational education, 2005 and 2019**



NB: Only those countries where data are available for 2005 and 2019 have been included.

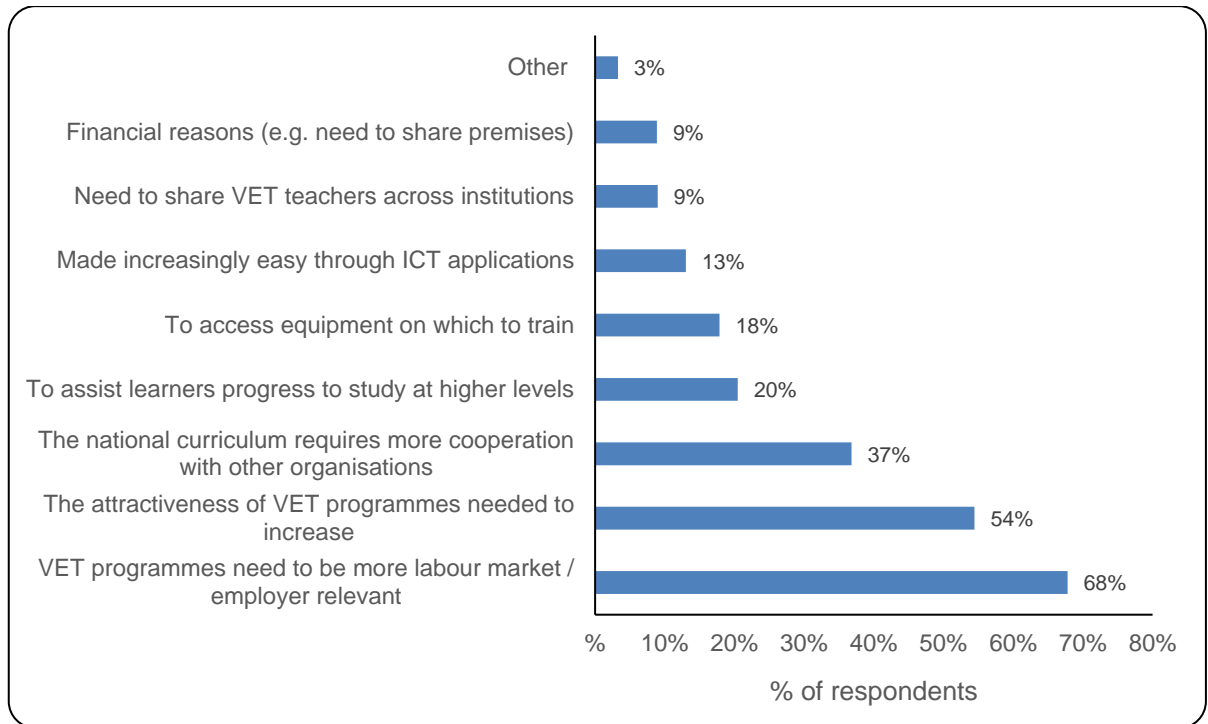
Source: Pupils enrolled in upper secondary education by programme orientation [EDUC_UOE_ENRS04].

Figure 12. **Cooperation between training providers and key stakeholders**



Source: *Future of VET*, VET provider survey.

Figure 13. **The reasons why training providers cooperate more with key stakeholders**



Source: *Future of VET*, VET provider survey.

Many providers have increased the extent to which they engage with employers in relation to a range of activities from monitoring student progress to increasing employer involvement in the governance of vocational schools. But it is the extent of liaison around student progress, and monitoring what takes place in the classroom and workplace respectively, where providers are most likely to report an increased level of engagement with employers (Table 3). And this is not just limited to engagement with employers: there is an increased level of demand for education and training at higher levels. VET providers are engaging more with higher education institutions in relation to research and development, delivering programmes jointly, and accrediting prior learning (Table 4).

Table 3. **Changes in engagement with employers, %**

	Increased	Stayed the same	Decreased	Don't know	Not applicable	Total
Coordination with employers to organise training opportunities, monitor learners' progress, etc. has...	49.2	35.4	5.8	5.1	4.5	100
Cooperation with employers to align what is learned at our institution and in the workplace has...	49.3	35.4	4.4	5.8	5.1	100
The influence of employers on the governance of our institution (e.g. representation on management boards) has...	17.6	43.8	4.8	10.4	23.3	100
Employers contributing equipment and materials to our institution has...	24.6	36.9	6.8	10	21.7	100

Source: *Future of VET*, VET provider survey.

Table 4. **VET providers cooperation with higher education institutions over the past 10 years, %**

	Increased	Stayed the same	Decreased	Don't know	Not ap/able	Total
Cooperation in research & development	24.9	39.6	4.4	10.1	21.0	100
Joint delivery of programmes and/or courses (e.g. bridging courses)	23.9	39.1	3.7	10.7	22.6	100
Cooperation in accrediting prior learning	16.4	42.2	3.7	13.7	24.0	100

Source: *Future of VET*, VET provider survey.

Difficult economic conditions over the past 10 years or so have persisted in many European countries, especially with reference to constraints on public sector expenditure. This is reflected in Table 5, which indicates that funding has become increasingly performance-related over the last 10 years and which may well have implications for the flexibility with which VET providers can respond to change.

Table 5. **Changes in the funding of training providers over the past 10 years, %**

	Applicable to a great extent	Applicable to some extent	Not at all applicable	Don't know	Total
We receive a fixed/lump sum amount for the delivery of VET	27.3	25.5	15.9	31.3	100
The amount of funding we receive is dependent on our performance	13.8	18.8	37.9	29.5	100
Over the past 10 years our funding has become increasingly performance-related	10	20.6	37.7	31.8	100

Source: *Future of VET*, VET provider survey.

2.8. Conclusions

While vocational education and training provides many opportunities to match skills supply better to demand it faces a number of challenges in doing so. Many of these have been well rehearsed over time and include:

- (a) perception among students and their parents that the general education pathway through secondary school is preferable to the vocational one (parity of esteem);
- (b) limited progression routes in practice from upper secondary VET into higher education, such that VET can be an educational dead-end;
- (c) limited mobility between vocational and general pathways such that a student is effectively locked into one or the other.

It is also the case that the direction of occupation change and the impact of automation has adversely affected those occupation groups which traditionally have been most reliant on VET. Figure 7 shows that automation disproportionately affects jobs which have been target groups for VET in the past, whereas the growth areas with a low risk of substitution by automation are ones which are not always in scope of VET provision, though this has changed over the years.

At national and pan-European levels there have been a variety of policy reforms which have sought to address the types of challenges outlined above to make VET a more attractive option for both would-be learners and employers. Many of these were addressed in the previous Cedefop study *The changing nature and role of VET*. There is a further challenge to consider which is particularly pertinent to the future of VET; this relates to maintaining the degree of partnership between employers and education and training system which is a particular strength of many national VET systems. If technological change results in more fluidity in the labour market, with people moving between employers more than they have in the past, then the cost-benefit rationale which governs employer

investment in VET is likely to be altered. Depending upon how the economics work out, this may reduce the propensity of employers to engage in VET. In a more fluid labour market, there may well be an increased emphasis on the acquisition of transferable, general skills, typically the type employers are reluctant to invest in. In practice, this is less a daunting a barrier than economic theory may suggest. Evidence shows that employers are able to obtain a return on investing in general skills, in part because of information asymmetries (Barrett and O'Connell, 2001), and because of institutional characteristics of some VET systems, which reduces the free-rider problem. The combination of collective agreements and wage compression results in non-training employers being less able to recruit the trained workers of training employers. Nevertheless, changing labour market structures clearly have implications for ensuring that VET remains a key means of meeting Europe's skill needs.

The above is an economic or labour market analysis derived view of the challenges facing the VET system. It also needs to be borne in mind that there are other considerations. VET, especially that related to IVET, is part of the formal education system; as such, it looks to meet needs beyond those directly linked to the world of work. Important here are considerations about the skills or competences people need to acquire to play an active role in society. Related to this are considerations about what VET ought to be and what knowledge should it deliver to individuals.

CHAPTER 3.

Blurring of boundaries between general and vocational education

3.1 Introduction

The preceding chapter covered various external factors to which VET systems have had to respond over recent decades. VET systems have also responded to changes in their external environments as policy-makers have sought to make this form of training attractive to employers and learners alike in meeting the needs of the labour market and society. Long-term trends affect VET, such as technological change, the green transition, and population ageing, as do shorter-term trends to which VET has had to find the means to respond rapidly, such as various economic shocks and the COVID-19 pandemic. Many of the changes described in the preceding chapter relate to transition and uncertainty. Transition refers to the further shifts in employment and skills demand taking place in post-industrial Europe as a result of digitalisation and greening. While there may be a degree of consensus on the direction in which these forces are driving the labour market, there remains uncertainty on the scale of change which might result, given the potential pace of technological change and the skills demands to which it might ultimately give rise. Uncertainty is further exacerbated by unpredictable events such as the 2008 financial crisis, the repercussions of which are still being felt in some countries, the COVID-19 pandemic and the war in Ukraine. One means of responding to uncertainty from a skills perspective is to reduce the specificity of skills supply. Making skills supply more general and less job- or sector-specific; however that might be defined, has the potential to reduce the risk faced by individuals in an uncertain labour market. It provides individuals with a wider range of skills which can be applied across a wider variety of jobs. But what does making vocational education more general look like in practice? There are potentially differing permutations here, including increasing the share of the VET curriculum accounted for by:

- (a) courses which are typically associated with the general education pathway (e.g. mathematics, science, language);
- (b) transversal skills and competences relevant to many and/or all jobs: the range of skills and competences which are now considered to have value in the labour market (and beyond) because they potentially provide individuals with the capability to better respond to uncertainty in the workplace as well as

- serving a range of other needs (OECD, 2021, 2015; Cedefop and European Commission 2021);
- (c) transferable skills which are common across occupational specialisms: broadening the provision of skills training so that individuals can readily move from one job to another within a certain domain such as electrical engineering, healthcare technician) ⁽³⁾.

There are other associated changes to consider which may also have implications for the way in which the content of IVET is redesigned to meet changing labour market and societal needs:

- (a) lowering (or removing) the barriers between the general and vocational pathways (allowing students to pursue programmes from both pathways in upper secondary education);
- (b) providing learners with a degree of choice with respect to the content of the courses or programmes they pursue (such as providing learners with the opportunity to select certain options or modules so that provision is, to some degree, tailored to their individual requirements);
- (c) the mode of delivery with reference to the share of IVET training accounted for by classroom and workplace-based IVET; and within workplace-based training, the amount of time spent in the classroom;
- (d) the extent to which upper secondary programmes and courses provide access to higher levels of learning insofar as the latter sometimes have entry requirements which require learners to have well-developed general knowledge.

The purpose of this chapter is to explore how countries have redefined the content of initial VET provision in response to the various external forces which have buffeted it over the past few decades. While the external forces bearing down on each country are broadly the same – with some exceptions such as demographic change – the response to them is influenced by the national policy environment. This chapter considers strategic developments in VET provision at the national policy level, the way in which initial VET is delivered, and how the content of courses and programmes has changed.

⁽³⁾ This is similar to the classification of knowledge, skills and competence used in research theme 1, designed to show shifts in the balance between transversal and occupation specific skills across countries.

3.2 Changing policy environments

Research theme 1 provides a detailed examination of curricula and qualification changes over the 1995-2000 period, alongside an analysis of shifts in the relative balance between general and vocational education within VET over the same period. Here, by way of context for the analysis which follows in the rest of the report, is a summary of the key policy shifts designed to improve the provision of VET so that it better meets the needs of individuals, employers, and the economy. Countries have been classified according to the relative stability of policy-making and the extent to which the outcome has been a broadening of VET provision (according to the definition of broadening set out above). Table 6 classifies countries according to this schema.

There are countries where the direction of change has been towards broadening the content of VET (sometimes allied to a reduction in the number of qualifications, but not always). Some countries have achieved this within a relatively stable policy environment such that change has been, to some extent, organic rather than being driven top-down. Germany represents this category, notably as the introduction of learning areas (*Lernfelder*) at the beginning of the 1990s established a status quo which continues to this day. There are also countries where change over the period of interest – 1995 to 2020 – has involved more radical changes. Included here, for example, are the former Soviet bloc countries which have experienced successive reorientations of their VET systems over time, and Italy where the regional provision of VET has gained increasing prominence in the formal education system over time. There is also the case of UK-England which, with reference to its apprenticeship system, has increasingly sought to fashion something which is finely attuned to current labour market needs against a policy background of ongoing change in the design of the VET system.

It will be demonstrated that, even where countries have a settled policy environment, the outcomes for the content of VET, and the boundaries between general and vocational provision, can be different depending upon policy objectives.

Table 6. **Classification of countries according to the VET policy environment and changes in the content of VET provision**

		Policy environment	
		Dynamic policy environment	Relative stability
Direction of change	Broadening	CZ, LT, FI, IT, EN (classroom-based)	DE, NO, NL
	Narrowing	EN (workplace-based)	

Source: Cedefop.

3.3 Relative policy stability

Germany provides an example of a stable system. The main characteristics of the IVET system in Germany, in terms of its formal structures and regulation, have remained stable between 1995 and 2020. While the content of IVET courses has changed, in the sense that the specific learning objectives for the various occupations have been updated regularly to keep up with technological developments, the key principles underlying the design of occupational curricula have not changed. Similarly, there has been no fundamental change in the institutional arrangements for the provision of VET. The latter observation is all the more striking in the light of the fact that the Vocational Training Act (*Berufsbildungsgesetz*) – the primary legal basis for the dual system – was substantially revised twice during the period covered by this study (in 2005 and again in 2020). Accordingly, the IVET system in Germany is characterised by continuity and incremental change, though the numerous incremental changes can bring about substantial change over time (as will be seen in the development of core occupational profiles which span several contiguous occupations).

Over the period from 1995 to 2020 the principles of curriculum design in IVET at the upper secondary level have remained stable. At the beginning of this period, the concept of ‘learning areas’ (*Lernfelder*) – areas of typical work tasks or activities as opposed to traditional school subjects – was introduced as the guiding principle for structuring the syllabi for the school-based part of dual VET programmes and has been applied ever since. The substitution of learning fields for school subjects marked an important development and indicates ‘vocational drift’ in the school-based part of the dual system. Given that the learning fields are based on work processes and emphasise the concept of work process knowledge, their introduction may be interpreted as a reaffirmation of the essentially vocational nature of IVET curricula.

Accordingly, the relationship between general or academic and vocational content within IVET at upper secondary level has not changed fundamentally over the past 25 years. What can be observed, though, is a growing emphasis on skills and competences such as teamwork or working within flat hierarchies, as well as language and communication skills. This may be regarded as a shift towards or growing awareness of ‘transversal’ skills and competences as defined for the purposes of the study. Another trend is that occupational profiles and curricula within the same occupational sector increasingly include content they have in common. This means that, even though occupations remain formally separate, they become broader and more generic in the sense that they share essential content, effectively constituting a ‘core occupation’ of sorts (Rauner, 2004). The total number of recognised training occupations in the dual system has not changed significantly during the period of investigation. According to the BIBB data report that accompanies the federal government’s annual VET report, the number of training occupations only moderately declined from 348 in 2010 to 324 in 2019 (BIBB, 2020). Similar figures can be reported for the years prior to 2010.

To illustrate how the changes described above have worked out in practice, an example is provided of curriculum development related to the electrical engineering occupation (Box 2).

Box 2. Reform of the electrical engineering occupation curriculum in Germany

The 1987 ordinance defined four occupational profiles: electrical systems fitter (*Elektromaschinenmonteur/in*), energy electronics technician (*Energieelektroniker/in*), industrial electronics technician (*Industrieelektroniker/in*) and electronics technician for communication systems (*Kommunikationselektroniker/in*). A key feature of the 1987 reform was the abolition of the two-cycle training model (*Stufenausbildung*), according to which apprentices in the electrical engineering sector acquired a fundamental IVET qualification after 24 months of training and a second, more specialised qualification after another 12 or 18 months. Realising that the semi-skilled 24-month qualifications were already inadequate by the technological standards of the 1970s (cf. Rauner, 2004), a training period of 3.5 years was set as the norm for all occupations in electrical engineering by the 1987 ordinance. Apart from that, the ordinance updated the training contents in accordance with the technology of the time.

In 2003 the first revision of the training curricula for the electrical engineering sector entered into force. The revision sought the establishment of holistic and flexible occupations that would enable graduates to work in a variety of enterprises. In addition, the new curricula were designed to respond to technological and societal changes such as the increasing use of information technology, the development of lean organisation structures, and the emphasis on teamwork and business process

orientation (Borch and Weißmann, 2003, p. 9). The 2003 training ordinance defined a total of six occupational profiles.

1. Electronics technician for building and infrastructure systems (*Elektroniker/in für Gebäude und Infrastruktursysteme*)
2. Electronics technician for industrial engineering (*Elektroniker/in für Betriebstechnik*)
3. Electronics technician for automation systems (*Elektroniker/in für Automatisierungstechnik*)
4. Electronics technician for devices and systems (*Elektroniker/in für Geräte und Systeme*)
5. Systems informatics technician (*Systeminformatiker/in*)
6. Electronics technician for aviation systems (*Elektroniker/in für Luftfahrttechnische Systeme*).

The most fundamental change was the abolition of the traditional distinction of basic and specialist training within the timeframe of the training programmes. All of the six new curricula were structured according to an integrated learning model, according to which so-called fundamental or core qualifications (i.e. units of learning outcomes) on the one hand and specialised qualifications on the other were to be imparted side-by-side. The balance between the two categories would gradually shift from core contents to specialised contents over the training period of 42 months. The core contents were the same for all six curricula (Borch and Weißmann, 2003, p. 10).

Rauner (2004) observed that the 2003 occupations also shared a great deal of the more specialised contents. His estimate was that the training curricula were about two-thirds identical, which led him to the conclusion that the occupational structure in the sector of electrical engineering as established by the 2003 ordinance effectively represented the concept of a modern core occupation (Rauner, 2004, pp. 4-5). This overlap between training curricula within one occupational sector can be interpreted as a step towards a *de facto* concentration and reduction of the number of occupational profiles, even if the number of formally distinct training programmes does not change. The IVET landscape is characterised by fewer and more comprehensive profiles, as virtually identical contents are delivered under different occupational 'labels'.

Source: Case study for Germany.

The tendency towards core occupations in the electrical engineering sector has since been confirmed with regard to the practice of training as determined by the training policy of enterprises. Data on newly concluded training contracts from 2004 to 2012 suggest that enterprises take the various training occupations to be interchangeable and select one of them in accordance with their individual preferences to meet all of their training needs, ignoring and effectively undermining the diversity of training programmes (Zinke et al., 2014, pp. 6-9). The training model that is in place in the electrical engineering sector since 2003 can also be regarded as an effective approach for imparting transversal skills. The reason is that all parts of the training curriculum – core qualifications and specialised

contents alike – are always related to the work context. Planning skills, for instance, cannot be acquired in isolation from professional activities and their settings. Therefore, all units refer to areas of professional activity in which the transversal skills are situated.

Stability is not confined to Germany and there are other examples of stable systems which have also been able to accommodate incremental change, including Norway and the Netherlands. In Norway there was a major overhaul of the VET system at the beginning of the 1990s – Reform 94 – which essentially established the fundamental principles of the VET system in place today (see panel). While there have been various changes to VET systems since Reform 94, they have been readily accommodated within the overall framework established in the early 1990s. Much of the policy debate over the post-1995 period has concerned the point at which decisions about the specialism to be pursued should be selected; this has shifted over time from delaying the decision to bringing the decision forward, which potentially has implications for the structure and content of VET.

Box 3. Reform 94 in Norway

The main elements of the current structure of the VET system in Norway, and the content of the training delivered, were established by Reform 94. Reform 94 was developed against a backdrop of high relative youth unemployment following the economic downturn of the 1980s. The main thrust of the reform was to give all young people a statutory right to 3 years in upper secondary education, either in a vocational or general programme. The overall aim was to ease the transition from upper secondary education in to the labour market or to higher education by reforming both the structure and the content of upper secondary education (Nyen and Tønder, 2020).

With Reform 94, apprenticeship training was integrated into the institutional framework of upper secondary education: 2 years of school-based education followed by 2 years of apprenticeship training in a company became the standard model. This model, often referred to as the 2+2 model, is still the main one in operation today. The revision at the time was considered ambitious because it presupposed the development of new vocational trades and apprenticeships in industries and sectors without a tradition of apprenticeship training, such as public and private services. The aim was for about one third of the youth cohort to enter an apprenticeship contract in the latter part of their vocational training, meaning that the number of apprenticeship contracts would double (Høst et al., 2015). If students were not able to find an apprenticeship, they were entitled to a practical school-based alternative, leading to the same formal vocational qualification as an apprenticeship.

A second system safeguard provided an opportunity to transfer from a vocational programme to general studies through a third supplementary year in order to qualify for higher education. Both of these schemes are controversial because of their inherent potential to undermine the apprenticeship scheme within the main model.

Source: Case study for Norway.

Norway has seen changes since the introduction of Reform 94 which have affected the provision of training but without necessitating major reforms. In 2006, the Knowledge Promotion reform sought to provide work experience at an earlier stage so that students were better prepared to choose their specialisation and complete their VET programme. The 2006 reforms also resulted in fewer and broader VET programmes. In 2020, a further set of reforms sought to introduce specialisation earlier, partly reversing the earlier reforms designed to delay the decision about which specialism to choose. Whether the shift towards choosing a specialism earlier constitutes vocational drift is a moot point.

A further example of relative stability is provided by the Netherlands. Given the amount of autonomy granted to vocational schools over deciding the content of VET, this provides a more uncertain picture regarding the evolution of content. At the start of the 1990s there were two major reforms affecting the organisation and the content of VET in the Netherlands. First, in 1990 the *Sectorvorming en Vernieuwing Middelbaar beroepsonderwijs* (Development of sectors and renewal in VET) reduced the number of VET schools from 350 in 1986 to 143 in 1991 (Bronneman-Helmers, 2001; Honingh, 2008). The reforms gave vocational schools more autonomy over the content of training, brought about more intensive cooperation between companies and vocational schools, and combined school-based education with in-company training to improve the connection between education and work (Honingh, 2008, p. 11). Second, the Vocational Education Act (*Wet educatie en beroepsonderwijs: WEB*) introduced in 1996 stipulated that publicly funded secondary vocational education training (*Middelbaar beroepsonderwijs, MBO*) would be mainly delivered by the regional training centres (ROCs) and in doing so strengthened their role in determining the content of VET, arguably at the cost of the engagement of labour market institutions (Klarus, 2020, p. 267). Further, the WEB affected the content and delivery of VET because it:

- (a) introduced one national qualification structure for all vocational education courses. This was intended to increase labour market support for vocational education and the willingness of businesses to invest in promoting vocational education;
- (b) provided vocational schools with a high level of autonomy in organising VET programmes so long as the curricula led to competences with value in the labour market;
- (c) integrated the two VET pathways: the school-based training (*Beroepsopleidende Leerweg, BOL*) and work-based training (*Beroepsbegeleidende Leerweg, BBL*) which was previously known as the Dutch apprenticeship system (*leerlingwezen*). Both led to the same qualification at four separate levels;

- (d) introduced the qualification files (*kwalificatiedossiers*), describing for each qualification – in the same structure and terminology – the learning outcomes (work processes and core tasks).

While the period 2000-20 saw some important reforms, the direction defined in the early and mid-1990s is still largely in evidence today. Because vocational schools have a relatively high degree of autonomy over the content of education and training, it is difficult to measure the extent to which the balance between vocational and more general education has changed over time.

In all three examples, the evidence points to a settlement being reached in the early 1990s such that changes in the structure and content of VET since then have taken place in an almost organic manner, especially so in the example of changes in the content of the electrical engineering apprenticeship in Germany. The outcomes differ, including the extent to which vocational schools have autonomy over the curriculum and the balance between school-based and classroom-based learning, but the major issues about the purpose and structure of VET appear to have been largely resolved such that change can effectively and efficiently take place within the existing policy and VET architecture. As the case of Germany illustrates, this does not preclude substantial changes in the content of VET being realised.

3.4. Dynamic policy environments

The examples provided above indicate the way in which major changes at the beginning of the 1990s provided a basis for accommodating changes in the period since then but without substantially affecting what the earlier reforms had established. In essence the changes introduced post-1995 were incremental and designed to deal with meeting the needs of technological change or modifying existing arrangements to deal with certain elements of the system which required improvement. There is another group of countries where change in the post-1995 period has been more substantial. These can be divided between former Soviet bloc countries, where there is evidence of the orientation of the VET system going through a series of reforms, and those in Finland and Italy, where existing systems have been through a series of substantive changes affecting the way in which VET is delivered and its content.

In the former Soviet bloc countries, the evidence points to a number of policy twists and turns as the countries have tried to establish a VET system that meets the needs of their economy and society in the post-communism period. In Czechia, the first half of the 1990s was a period of free curriculum development. A liberalised

curriculum policy made it possible to adapt quickly to new emerging needs in the labour market and led to a huge expansion of IVET programmes and qualifications. During this period, the number of vocational fields rose from 543 to 838. This development was, however, largely suppressed in the second half of the 1990s as the country sought to impose more structure on its VET system so that it better met the needs of the labour market.

The reforms introduced in Czechia were designed to increase the attractiveness of VET to young people: in 1989 around 15% of those entering upper secondary education chose the vocational pathway and this had increased to 25% in 2019. One of the first major reforms was the introduction of the School Act (2004) which entered into force in 2005. It created two levels of curriculum specification. At the national level, framework educational programmes (FEPs) were developed by the Ministry of Education Youth and Sports which set out the fields of study and established rules for vocational schools to develop school educational programmes (SEPs). This indicates increased school autonomy in the design and delivery of VET but there is pressure to increase the general content of VET. Over recent decades, VET has had to respond to the increased demand for students to enter higher education. There are two VET programmes: 3-year ones which do not provide the *maturita* examination and 4-year ones which do so and more readily grant access to higher education. In the 4-year vocational programmes with *maturita* examination, the general educational component has increased from less than 40% in the first half of the 1990s to more than 50% after the reforms introduced in 2004. And for both 3- and 4-year programmes there has been an increase in the number of lessons in a foreign language, ICT, and business studies. In ISCED 3A programmes, the number of Czech and maths lessons were further reinforced due to the new requirements of the *maturita* examination in 2017. In the national case study report this was cited as an example of academic drift in the curricula.

If the reforms introduced in Czechia have resulted in an increase in the general content within the VET curriculum, Lithuania presents an example of where the opposite has occurred. Lithuania has undertaken a large number of reforms in the post-1995 period. In Soviet times, vocational education was a destination for those who performed poorly in lower secondary education. There have been a number of correctives since then, designed to ensure that the VET system produces economically valuable skills which has had implications for the balance between general and vocational education within upper secondary VET. The key changes have been:

- (a) the establishment of the school-based VET system by transforming the Soviet 'dual' VET model in 1990. This stage involved removing Soviet ideological

- content from VET curricula, delegating autonomy for curriculum design to VET schools and teaching staff, increasing cooperation and partnership between the VET schools, local employers and regional authorities (Laužackas, 2005; ETF, 2002; Tūtlys and Kaminskienė, 2008);
- (b) implementation of the competence-based VET standards during 1997-2008;
 - (c) development of the national system of qualifications (2007-08);
 - (d) the introduction of competence-based occupational standards and modularised VET curricula during 2013-18, where the modules have a distinct vocational focus.

In the post-communism period there have been forces pushing for the inclusion of more general education in IVET because, in policy circles, it has been considered an important element in making IVET attractive to young people and in tackling social exclusion. But there have also been forces pushing the IVET system towards vocational drift because:

- (a) it lies at the heart of the competence-based VET curriculum reforms over recent decades (and the implementation of the national modular VET curricula since 2013);
- (b) of the efforts to strengthen workplace-based training and apprenticeships as an alternative to school-based VET (including the establishment of sectoral training centres which existed between 2015 and 2018 and were designed to improve the acquisition of vocational skills);
- (c) the need to ensure that VET graduates have the capabilities employers require.

An important part of the shift towards increasing the vocational content of VET curricula has been criticisms that VET graduates have not been sufficiently skilled for the jobs available in the labour market.

A further feature of the VET system in Lithuania relates to the degree of separation between the vocational and general pathways through upper secondary education. From September 2020, gymnasium students in general schools will be able to study VET modules at a vocational school. Students, together with their general education and VET school, will draw up an individual learning plan so that the maximum weekly number of 35 lessons is not exceeded. Both schools will work together to coordinate a student-friendly lesson schedule.

It is not just in the former Soviet-bloc countries that the policy environment has been dynamic in ushering in a range of changes designed to make VET more suited to the vagaries of the labour market. In Finland and Italy there have been manifold changes in the way VET is delivered. In the former this has resulted in a range of policy changes related to apprenticeships; in the latter it has concerned the development of a regional dimension to VET.

In Finland, a series of reforms was designed to improve what was considered to be a well-established VET system. These reforms are intended to increase equality between VET and general education in upper secondary education, and provide VET students with eligibility to enter higher education. The key VET reforms introduced since the 1990s have included:

- (a) a shift from a 3-year qualification (adopted in 2001) towards a more flexible period of study, with more emphasis on individualised study times;
- (b) improving the competence-based approach to VET;
- (c) providing more varied combinations of learning environments (training agreements, apprenticeships);
- (d) more varied assessment through competence demonstrations;
- (e) a greater role for work-based learning;
- (f) alignment of qualification structure for young and adults with abolition of separate laws for young people's VET and adult education.

In the youth education experiments (conducted between 1992 and 2001) the aim was to increase equality and freedom of choice between different upper secondary education routes. Students were allowed to choose studies across institutional boundaries between general and vocational schools. This enabled vocational students to achieve eligibility to enter higher education by choosing selected courses from the general pathway; for those in the general pathway, it gave them a VET qualification alongside their general one. (Numminen, 1997; Virolainen, 2000, 2001).

There were also changes to the core curricula in VET. In the curriculum reforms undertaken between 1993-94: subject-based curricula were replaced with the broader approach based on occupational core activities and competence-based aims. The competence-based approach was enhanced in the consecutive curriculum reforms and renewal of assessment in VET (Kärki, 2014). In 1995, the central governance and regulation of VET was reduced, and more authority was given to local education providers. While the National Board of Education provided the national basis for curriculum (core curriculum), individual providers were to plan the education within these national frameworks (Väärälä, 1995; Stenström, 1997; Seinäjoen koulutuskuntayhtymä Koulutuskeskus SEDU, 2016). Competences include vocational ones (compulsory and optional) and common units (communication, maths, science, citizenship and skills for working life). Each student entering VET in upper secondary schools receives a personal competence development plan which identifies skills already acquired and those which need to be obtained in differing learning environments. This was introduced as part of the 2018 reforms of the VET system.

The organisation of apprenticeship training has been transformed to be the right and responsibility of vocational education providers. Accordingly, the approval of apprentice contracts, preparing personal development plans for students, and organising the provision of general studies as well as providing the more theory-oriented studies needed in a vocation was the responsibility of the education providers.

In the reforms introduced over the 1999-2001 period, VET curricula were further reformed and all initial VET qualifications were extended to last 3 years (equal to 120 study weeks) by the decision of the Ministry of Education (Numminen, 2000). In each study programme a minimum period of 20 weeks of on-the-job learning was mandated (Lahtinen et al., 2006). The lengthening of studies meant increasing on-the-job learning as part of the qualification.

The introduction of skills demonstrations in initial VET put increased emphasis on the vocational skills and work-based learning in vocational upper secondary qualifications (Räisänen and Rökköläinen, 2014). The demonstrations were introduced as a new form of assessment in upper secondary qualifications by the decision of the Ministry of Education and Culture; they were made part of each module of the vocational qualification. In initial VET curriculum design, the shift from national core curricula toward national vocational qualification requirements was realised in the 2000s, when the competence-based approach was enhanced and skills demonstrations introduced as part of the initial VET qualifications (Kärki, 2014).

In 2017-18, when the latest reform of VET was adopted, one central goal was to reduce the number of qualifications and to simplify the qualification structure in order to reduce administrative costs related to maintaining the system (Government Proposal for Legislation on VET and Some Related Acts, 2017). The number of vocational qualifications fell by 351 different qualifications at initial, further and specialist levels to 164 qualifications in total.

In Italy, after 20 years of substantial stability since 1997, a process started aimed at redefining regional IVET boundaries with the formal inclusion of regional IVET into the upper secondary national education and training system. Over time there is evidence of:

- (a) the introduction of learning outcomes;
- (b) increasing the length of upper secondary provision from 3 or 4 years (previously it was 2);
- (c) increasing the amount of learning time given over to general and transversal skills;
- (d) the accreditation of regional IVET providers;
- (e) attempts to develop IVET at higher levels.

The evidence, certainly from the former Soviet bloc countries, is that there have been a number of policy twists and turns which have taken place over the period since 1995. There have been substantive policy interventions which have sought to correct acknowledged failings or weaknesses in the system. These changes would appear to be marked in the case of Czechia, Italy, and Lithuania, whereas Finland is perhaps characterised more by a desire to engage in a degree of policy experimentation with the content of VET in an effort to provide individuals with more choice.

3.5. Effects on broadening and narrowing of provision

UK-England provides an example where there have been numerous changes taking place in apprenticeships and school-based VET, with different outcomes for VET content. The policy environment has been dynamic over the past 30 years or so as various initiatives have been launched.

A recurrent critique of apprenticeships in UK-England has been that of weak general education content (Hogarth et al., 2014). Although apprenticeship frameworks (i.e. the document which specified the content of a particular apprenticeship) contained a requirement for individuals to have a mathematics and English qualification (typically at Level 2) there was relatively little specification of general education beyond this requirement. Reflecting on the Act of Parliament which revamped apprenticeship training in 2009, Brockmann et al. commented: 'The most striking omission in the draft Bill is an educational element. Apprenticeship represents a distinctive form of educational experience which, in order to command public confidence and provide a trusted bridge between childhood and adult life, has to engage with meaningful employment on the one hand and continuation of the education of the young person on the other' (Brockmann et al., 2010, p. 10). This echoes criticisms in the Wolf Review to the same effect, that apprenticeships in England contained much less in the way of a general education element than in other apprenticeship systems (Wolf, 2011).

Frameworks have now been supplanted by standards. Apprenticeship frameworks were criticised for being too rigid with little flexibility offered to match content to local conditions or employer requirements and containing insufficient general content compared with the situation in Europe (Wolf, 2011). They were developed by sector bodies (sector skills councils). There was a view that apprentices could complete the apprenticeship and attain the associated qualification but not have the skills required to do the job in which they had been trained (Richard, 2013; DfE, 2018). The inclusion of a qualification was seen as

being the end goal of the apprenticeship rather than achieving occupational competence.

Apprenticeship standards, which have increasingly replaced frameworks from 2017 onwards, are designed by employers (or groups of employers), are less specific with respect to what is to be learned (a framework document could be many pages long, a standard is about two to four pages long), do not need to contain a qualification, and require an end point completion (undertaken by an end point assessment organisation) to determine whether the apprentice has achieved the required level of competence. An apprenticeship framework specified the skills the apprentice needed to acquire to complete their training. The content of a framework, set by a sector body, was designed to lead to attaining an externally accredited qualification(s) (designed by one of the qualification organisations). Under frameworks, apprentices were assessed at various stages of their training with no overall assessment at the end. Standards, in contrast, are occupation- rather than qualification-focused and designed by groups of employers. An assessment is carried out at the end of the apprenticeship into whether the apprentice has acquired the necessary skills to practice in an occupation successfully. Award of a qualification is not necessary, though in practice many standards incorporate one.

A number of features are apparent in the switch to standards:

- (a) employers are more to the fore in the design of standards, though the employer voice was strong on the sector bodies which designed frameworks;
- (b) it is not clear whether there has been any change in general content of training, as the commitment to this seems to be the same as for frameworks – a qualification in mathematics and English;
- (c) it is not clear to what extent decoupling an apprenticeship from a qualification results in change in the general component (depending the content the qualification(s) used in the frameworks);
- (d) the extent to which apprenticeships are now more oriented on the future career of the apprentices rather than satisfying the current needs.

Standards are much less prescriptive than frameworks (simply as a consequence of the detail provided).

Table 7 summarises the content of a framework and a standard for electro-technical installation apprenticeship. There appears little difference between the respective frameworks and standards; if the opposite were true, this would imply a major policy failing with respect to the apprenticeship system under frameworks. An alternative interpretation is, perhaps, that the introduction of standards marks a further shift towards the content of apprenticeships becoming increasingly focused

on the specific competences required to undertake a particular job, but with less specificity about the detail of what is to be delivered or how it is to be delivered.

Table 7. **Electrical maintenance/electrical installation: framework and standard compared**

	Electro-technical industry (Level 3), at least 42 months, typically 48 months	
	Framework	Standard
Type of apprenticeship	Pathway 1: Electrical installation, Pathway 2: Electrical maintenance Issue date: 27.6.2012	Installation electrician and Maintenance electrician Approved since 10.9.2015
To be achieved	<ul style="list-style-type: none"> • Qualification: <ul style="list-style-type: none"> (a) Level 3 NVQ diploma in installing electro-technical systems and equipment (Buildings, Structures and the Environment), (b) Level 3 NVQ diploma in electro-technical services (electro-technical maintenance)¹ • Level 2 in English and maths (functional skills) • ICT • Other elements integrated into the apprenticeship/NVQ diploma • AM2 test, final exam, integrated into the NVQ diploma (16.5 hours) 	<ul style="list-style-type: none"> • Qualification: Level 3 Electro-technical qualification, (Installation) or (Maintenance) • Level 2 in English and maths
End-point assessment (EPA)		After all of the above have been achieved AM2S test (Electrotechnical assessment of occupational competence) (16.5 hours) ⁴

Source: [Apprenticeship frameworks: Electrotechnical \(England\) occupational standard installation electrician/maintenance electrician apprenticeship: assessment plan.](#)

Alongside apprenticeships there have been various attempts to establish school-based vocational education. In 1993, general national vocational qualifications were introduced. GNVQs were developed in response to industry concerns about the quality of NVQs. They were awarded at three levels:

(a) foundation (level 1);

- (b) intermediate (level 2 equivalent to a lower secondary qualification);
- (c) advanced (level 3 equivalent to an upper secondary qualification e.g. an A-level and granting access to higher education).

These were broad-based vocational qualifications relevant to a number of occupations. Despite being vocational qualifications, the specification of GNVQs suggested that there would be limited work experience. What might have been expected to be delivered through work experience was instead supplied through undertaking projects and assignments. The general element of education consisted of core skills: information technology, application of number, information technology, and a foreign language. Problem solving and personal skills were options. The notion of core skills was fiercely criticised (Payne, 2000). In comparison with the general education delivered to vocational students in countries such as France and Germany, core skills were: '... an impoverished form of general education which is neither adequately delivering the minimum basic skills normally associated with an effective general education, such as verbal articulacy, logical skills and mathematical literacy, nor even a foundation of scientific and humanist culture adequate to the demands of active citizenship in modern societies' (Green, 1998, p. 40). The awards were eventually phased out completely in 2007, mainly a consequence of government indifference to them. But the idea of creating a strong vocational pathway through upper secondary education other than through apprenticeships – and which reflected strong employer input into their content – remained.

A further attempt to provide a predominantly school-based pathway through upper secondary education was launched in the government's Post-16 skills plan (2016). Building on the recommendations from the Independent Panel on Technical Education, it announced: 'Our ambition is that every young person, after an excellent grounding in the core academic subjects and a broad and balanced curriculum to age 16, is presented with two choices: the academic or the technical option. The academic option is already well regarded, but the technical option must also be world-class. As with the reforms in higher education, we want to improve both the quality of education and student choice. There should be appropriate bridging courses to make movement between the two options easily accessible' (Post-16 skills plan, p. 7).

Parity of esteem between vocational and general education was to be achieved through the introduction of employer designed T-levels. Here, once again, is the recurring theme of parity and employer influence in the design of

qualifications. By the end of 2020 ⁽⁴⁾, T-levels will have been introduced. These are equivalent to three A-levels (the most common general qualification at upper secondary level). There are 2-year courses which have been developed in collaboration with employers to ensure that they meet the needs of industry. T-level panels comprising employers, professional bodies and training providers are responsible for designing the content of apprenticeships. T-level courses include the following compulsory elements:

- (a) a technical qualification, which will include:
 - (i) core theory, concepts and skills for an industry area;
 - (ii) specialist skills and knowledge for an occupation or career;
- (b) a minimum standard in maths and English;
- (c) an industrial placement. Every T-level will include an industry placement with an employer focused on developing the practical and technical skills required for the occupation. These will last a minimum of 315 hours (approximately 45 days) but can last longer. Employers can offer these as a block, day release or a mix of these.

If students are more likely to take a T-levels than apprenticeships (given that the latter are in short supply), there will be evidence of academic drift insofar as there is an emphasis on general education within T-levels (so that they have parity of esteem with A-levels). On the other hand, if T-levels succeed in persuading more students to select the vocational rather than general route through upper secondary education, then the overall impact of their introduction will be that of, in aggregate, vocational drift.

3.6. Commonalities in general and vocational education

The changes observed in the policy environment have required changes to VET systems in order to accommodate various demands:

- (a) making the vocational pathway more attractive to individuals and employers;
- (b) ensuring that upper secondary vocational provision grants access to higher education;
- (c) providing learners/students with more choices or options within programmes and courses;
- (d) increasing the workplace element of IVET;

⁽⁴⁾ The first three T-Levels launched in September 2020, with a further seven introduced in September 2021. In September 2022, an additional six T Levels will be launched, and the remaining seven from September 2023.

- (e) ensuring that VET meets wider societal needs;
- (f) bringing about a better match between the outputs of the VET system and the needs of the labour market.

The policy dimension has been relatively quiet in some countries. The examples of Germany, the Netherlands, and Norway represent countries where changes required to content and structure of VET have been accommodated within the pre-1995 policy framework. In other countries there have been various policy initiatives designed to address the types of change outlined above.

The direction of change has tended to be towards the provision of more general education and a broadening of provision. This is something which has been confirmed by the reports of training providers to the changes they observed in the delivery of IVET over the past 10 years or so. From Table 8 it is apparent that around a quarter of training providers reported that delivery of general education has increased a little (around 30% saying it has increased a little or a great deal), and around 60% of respondents report that real world problems are used more. Similarly, around 60% of respondents reported that taking account of companies' training needs has increased either a little or a great deal, suggesting that a focus on labour market demand has increased over the recent past.

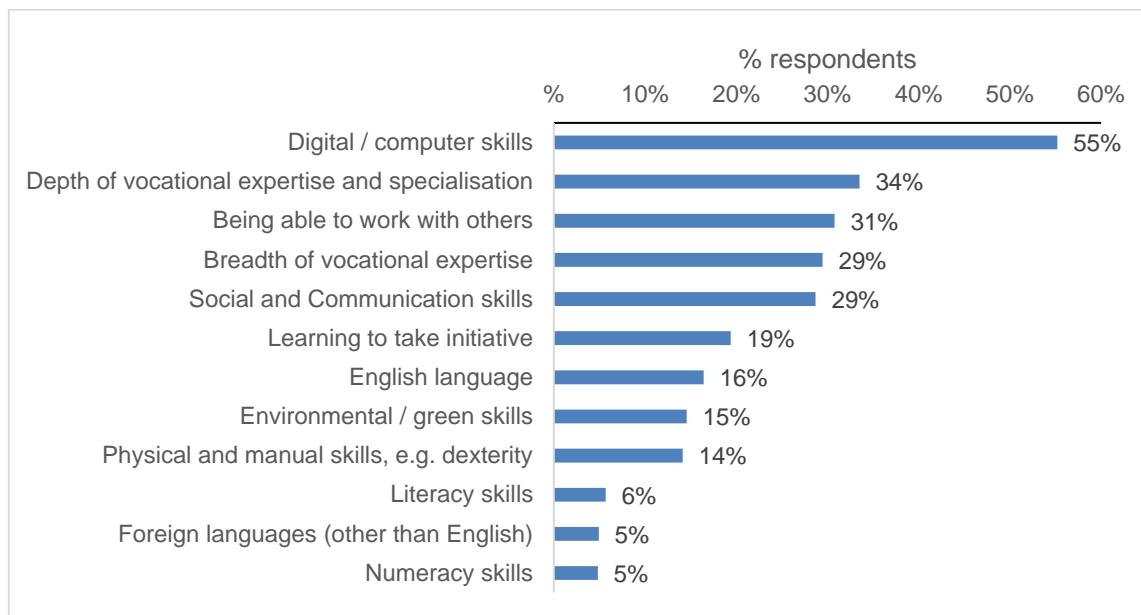
Table 8. **Changes over the past 10 years in the way training is delivered, %**

Changes in your institution over the past 10 years	Decreased a lot	Decreased a little	Stayed the same	Increased a little	Increased a lot	Don't know	Total
In our VET programmes general education (e.g. numeracy, literacy and languages) has...	3.1	10.4	49.6	24.1	7.4	5.4	100
In the VET programmes we deliver, the use of real-world problems and work processes to transfer knowledge has...	1.3	4.8	26.8	41.7	20.0	5.3	100
Taking into account the needs of individual companies in our VET programmes has...	2.2	3.8	27.8	37.9	21.2	7.0	100

Source: *Future of VET*, VET provider survey.

In thinking about the impact on training content, Figure 14 shows that there has been a need to focus on the delivery of certain kinds of skills. It is clear that digital transition has had an impact on the provision of skills, but it is also clear that a need for increasing the breadth and depth of vocational skills has been something which providers have focused on over the recent past.

Figure 14. **Increasing focus on particular skills as a result of changes over the past 10 years**



NB: N=913 (extracted: 3.11.2021).

Source: *Future of VET*, VET provider survey.

Table 9 provides information about the way in which training is delivered to learners. It reveals striking findings insofar as large shares of employers report that on-the-job training has increased (with the centrality of the classroom as a learning venue decreasing). Other key findings show that, in many cases, individual learners have more choices now, the role of self-directed learning has increased, as has the integration of general and practical/vocational training. It is also apparent that nearly three-quarters of respondents say that the use of open learning formats has increased. Self-directed learning has also increased, alongside more tailored, individualised training, such as providing learners with a training plan.

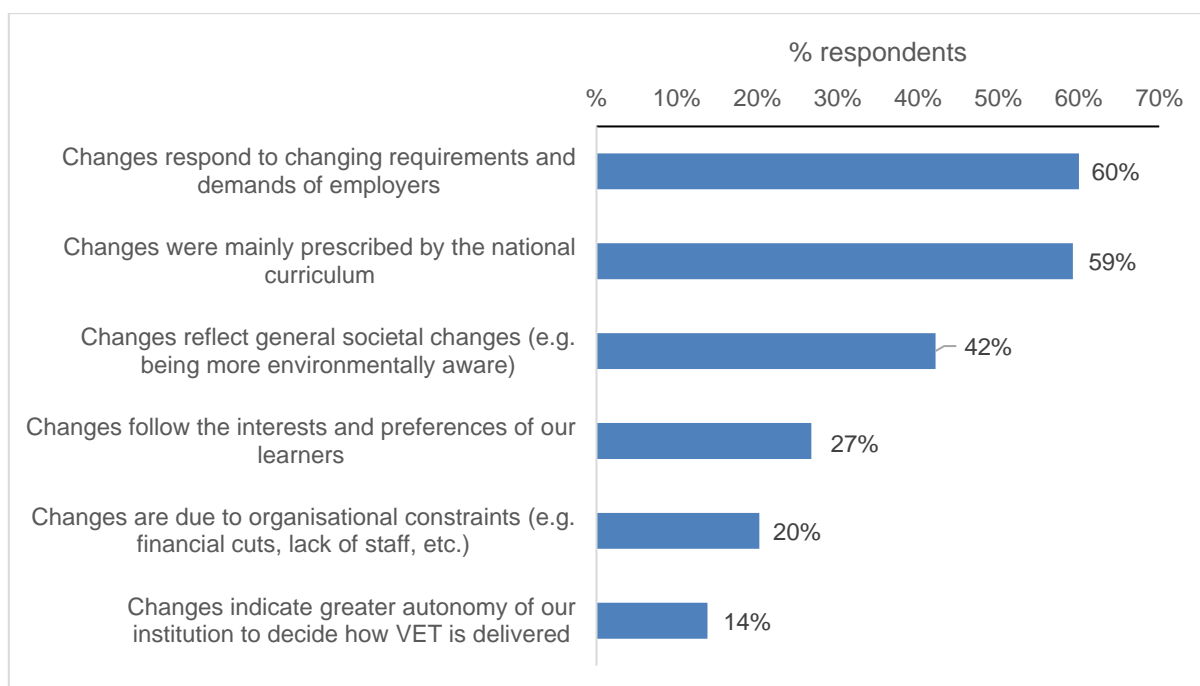
Table 9. **Changes in the way training is delivered over the past 10 years: companies and learners, %**

Changes in your institution over the past 10 years	Decreased a great deal	Decreased a little	Stayed the same	Increased a little	Increased a great deal	Don't know	Total
The extent of learning at work or on-the-job in our programmes has...	1.8	4.4	31.9	39.6	18.4	3.9	100
The position of the classroom as the central place of learning has...	4.5	21.1	45.0	18.0	8.4	3.0	100
Curriculum choices within our programmes for learners have...	1.2	3.6	41.7	37.5	10.6	5.4	100
Integrated learning and instruction of general subjects (e.g. mathematics, foreign languages) and vocational or practical training has...	2.4	6.6	42.9	32.6	9.7	5.7	100
The use of open learning formats has...	2.1	1.6	19.4	50.8	22.0	4.1	100
The need for self-directed student learning in our programmes has...	2.2	3.5	27.8	46.1	16.9	3.5	100
Individualised and tailored learning (e.g. through individual learning plans) has...	2.3	2.7	31.2	44.5	14.8	4.5	100

Source: *Future of VET*, VET provider survey.

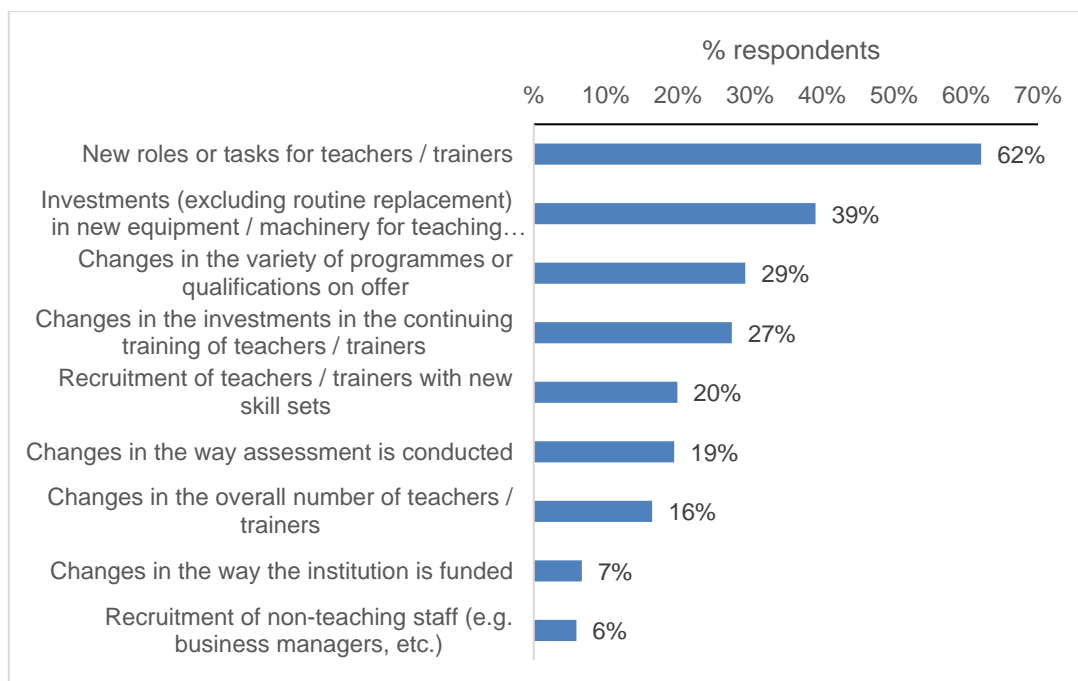
The changes which training providers have introduced over the past 10 years have been driven by the changing demand for skills from the labour market and changes in the national curriculum (Figure 15). The main impact of these skills has been on the tasks and roles teachers in vocational school have had to fulfil (Figure 16). To a lesser extent, it has necessitated investments in new technologies/equipment for teacher purposes.

Figure 15. **Main reasons for changes in VET content reported by training providers**



Source: *Future of VET*, VET provider survey.

Figure 16. **Results of changes over the past 10 years on training providers**



Source: *Future of VET*, VET provider survey.

Where change has taken place, most training providers thought that they had had some influence over the changes introduced into the content and delivery of VET (65% reported saying they had some influence with 25% saying they did not have any influence). In thinking about how their influence on these changes had changed over the past 10 years, 58% said that their influence had increased either a little or a great deal (43% said a little and 15% said a great deal), with 29% saying it had stayed the same.

3.7. Conclusion

The aim in this chapter has been to explore the drivers of curriculum change encapsulated in VET policies and how these have affected the balance of general and vocational education within VET courses and programmes. As well as technological change which affects the technical content of training, there have been a number of factors which has affected the content and structure of VET provision. These include:

- (a) the preference for a sizeable workplace training element in IVET, either in the form of apprenticeships or a sizeable element of work experience in more classroom-based VET;
- (b) the shift to competence-based systems;
- (c) providing VET schools with a degree of autonomy with respect to what to teach and how to teach it;
- (d) the individualisation of learning, with learners being able to select a range of selected modules or options (including those from the general pathway where they are in the vocational one and vice versa).

There is indicative evidence that, over time, there has been a broadening of the content of VET provision as evidenced in the emphasis placed on a range of general knowledge within VET programmes and broader occupational base covered by some programmes and courses. Some countries, such as Germany, the Netherlands and Norway, have been able to accommodate sometimes sizeable, incremental changes without the need to reconfigure policies or VET systems. The overall consensus on the content, governance, and structures of VET were settled in the early 1990s. In other instances, there is a continuous process of reinventing VET system (as observed in some of eastern bloc countries) or engaging in major revisions of the VET system (as observed in UK-England and to perhaps a lesser degree in Finland). And while the general direction of travel may be towards including more general content (generic and transversal skills) within training content, as in Lithuania, there have also been shifts to reinforce the

technical content of training to ensure that students possess the skills which employers need at the point of graduation. After a period of academic drift in VET, there has been a corrective shift in favour of vocational drift.

There is a range of drivers which affect the general content within vocational programmes:

- (a) recognition of a range of general competences which confer economic value on the individual in the labour market;
- (b) the importance attached to many general skills in promoting lifelong learning and promoting mobility in the labour market and accessing higher education;
- (c) improving the attractiveness of VET to would-be learners mainly by granting them access to higher education which, in some countries more than others, is dependent upon possessing a range of knowledge associated more with general education.

All of these are in evidence in the national case studies to differing degrees. It is also apparent that countries have taken differing approaches to including general education within their vocational education programmes.

In many countries the number of VET qualifications has fallen over time. Even where this is not so much the case the outcome can be the same, as some qualifications remain on official lists but are no longer taken by students. There might be a range of separate qualifications linked to a particular occupational area – such as the electrical engineering ones which forms the focus of this study – where the increasingly common ground across occupations is such that a core of learning becomes common across a range of occupations: some of these are general (such as language, mathematics, ICT, team working, communication) and some vocational (such as the common theoretical principles which underpin the vocational aspects). In addition to these are the range of specialist courses (modules) which prepare the learner to enter a particular occupation. These can be specified as separate qualifications or presented as a single qualification/programme where the learner has taken a number of modules or specialisms to enter a particular branch of the occupation.

The evidence points to significant changes taking place within VET courses and programmes, broadening the content of VET provision. This results in there being increased general, transferable content related to digital/ICT skills, language and communication, and business skills. Allied to this, the more technical elements of programmes and courses also results a broader occupational coverage of programmes and courses as indicated in the example of Germany. So, there is evidence that VET provision has become focused on providing learners with a wider range of knowledge over time. This has not, for the most part, resulted in the boundaries between VET and general education pathways being broken down.

There are examples where learners in one pathway can choose courses from the other pathway (as in the case of Finland), or establishing a much broader range of general education with vocational training (as with T-levels in England). Whether this matter depends upon the individual learner's goals. Changes have been made which increasingly allow for those in the vocational pathway to access higher education; an example is the chance to study for an extra period to gain qualifications recognised by higher education institutions in Czechia. And there are examples where those in the general pathway can take vocational courses such that they can demonstrate that they have skills which are labour market relevant (in Finland). The evidence is that VET has retained its identity (as has general education) but content has changed, which means that the learner is not necessarily as tied to one trajectory (obtaining the credentials to allow access to a specific occupation). The pattern of change appears to point to providing vocational students with the capabilities to pursue a wider range of options than might have been the case in the past.

CHAPTER 4.

Institutional change

4.1. Introduction

The previous chapter outlined how the content of initial vocational education and training (IVET) has changed in response to various influences. In delivering those changes several features were in evidence over the post-1995 period:

- (a) establishment of national qualification frameworks and the shift to outcome-based approaches in VET;
- (b) the increasing importance attached to workplace learning in the guise of apprenticeships and/or establishing work experience within VET programmes;
- (c) ensuring that IVET courses and programmes provide competence across a range of contiguous occupations;
- (d) providing, in some instances, more options within courses and programmes so that there is a degree of tailoring to meet learners' specific needs or interests;
- (e) giving vocational schools a degree of autonomy over curriculum content – and in relation to pedagogy – so that local labour market and local societal needs are met;
- (f) bringing adult education increasingly within scope of the formal VET system so that adults can gain what might have been previously considered to be an IVET qualification;
- (g) establishing close links and permeability between upper secondary and tertiary level VET;
- (h) reorganising the VET infrastructure to accommodate demographic trends and the need to meet local/regional demands for skills, in some instances to increase the efficiency of delivery.

These all have implications for the institutional arrangements which constitute national VET systems in practice. Not all changes mentioned above are in evidence across all countries; where they are, it is not necessarily to the same degree. This very much relates to the differing starting points from which VET systems commenced their trajectory towards delivering a higher degree of match between the outputs of the VET system and economic and societal needs of a country.

In this chapter the focus is upon:

- (a) the degree of separation between the general and vocational pathways through upper secondary education: the extent to which it is possible for individual learners to straddle both the general and the vocational pathway;
- (b) the extent to which hybrid schools have been created in which individuals can pursue a mix of general and vocational pathway courses;
- (c) the degree of separation between workplace-based and classroom-based VET;
- (d) the extent to which schools have autonomy with respect to the delivery of (I)VET.

The relationship between VET at upper secondary and tertiary levels is addressed more fully in the next chapter, and the relationship between IVET and CVET is the focus of research theme 4, so only passing reference is made here to the institutional changes that has brought about across Europe.

In looking at institutional change there are a number of factors to consider. First, there are changes in the number of institutions at upper secondary level delivering IVET. Related to this are changes in the diversity of the vocational programmes they deliver and the extent to which there is scope to tailor the vocational training to meet the specific needs of the individual learner. In looking at the relationship between general and vocational pathways through upper secondary education there is also an interest in the extent to which hybrid offers are available (offering learners a mix of general and vocational courses, or the opportunity to experience a mix of workplace-based and classroom-based learning) and whether hybridisation results in the creation of new types of vocational schools. Finally, there is the issue of autonomy and the scope vocational schools have to vary their learning offer to meet, for instance, the needs of the local labour market.

4.2. The changing institutional space occupied by IVET

The institutional arrangements available for the delivery of IVET offer a mix of:

- (a) schools/trainers delivering, predominantly, education addressed to the vocational or general pathways respectively;
- (b) schools which offer a mix of courses to learners addressed to the general and vocational pathways;
- (c) workplace training such as apprenticeships where schools/training organisations deliver the general or theoretical element of the programme.

The evidence suggests that the number of schools providing vocational education (and sometime general education) has fallen over time; this is often,

though not exclusively, related to a decline in the number of learners resulting from demographic change (Table 10). Despite the general picture of the number of vocational schools declining, this often disguises the substantial changes taking place in what is actually delivered, such as the extent to which training can increasingly be tailored to individual learners' needs, and the shift towards more workplace training. Before looking at these in more detail, consideration is given to the scale of change in selected countries.

Table 10. **Changes in the number of vocational schools in the post-1995 period**

	Increasing	Stable	Decreasing
Czechia			√
Germany		√	
Finland			√
Italy			√
Netherlands		√	
Norway			√
UK			√

Source: National case study reports.

In Finland there has been a trend towards urbanisation and population change which has brought about a reduction in the number of vocational schools (Helminen et al., 2020). These changes led to a need to reorganise the network of education institutions, with the result that the number of institutions declined and the average number of learners in each institution increased. The number of vocational institutes fell from 221 to 82 during 2000-20 (Table 11); the number of students studying at vocational institutes increased from 136 400 to 208 700 over the same period. While the number of schools has declined, this disguises significant changes in content and delivery of VET within schools, such as the increased opportunity to tailor provision.

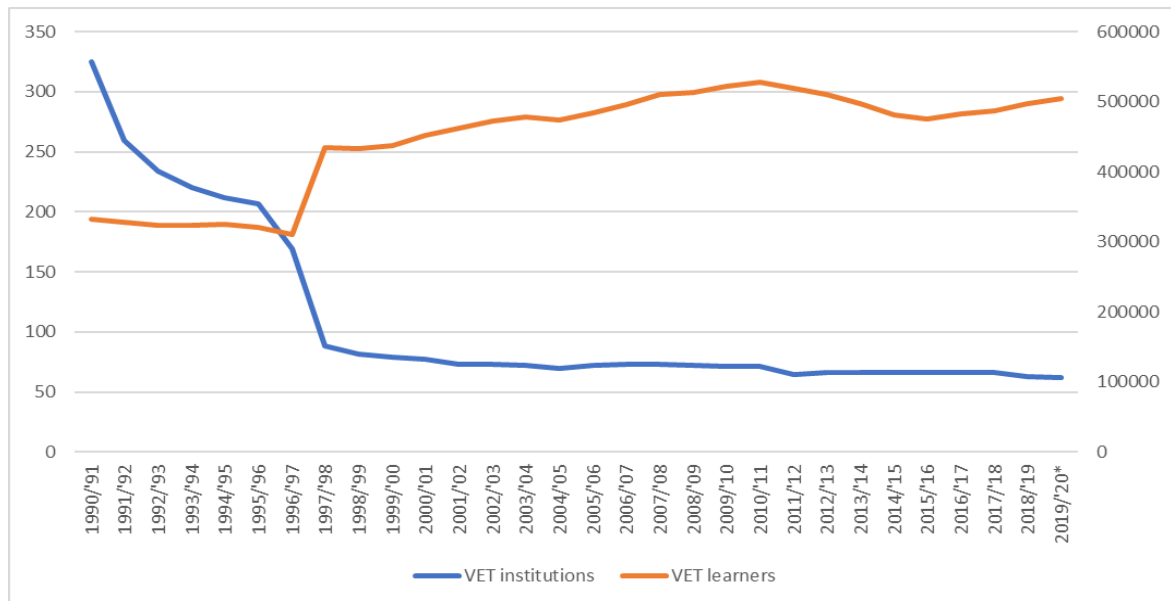
Table 11. **Numbers of vocational education institutions and numbers of students by type of educational institution, 2000 to 2020**

	Type of institution/Number of students per type							
	Vocational institutes		Special needs vocational institutes		Specialised vocational institutes		Vocational adult education centres	
	Institutes	Students	Institutes	Students	Institutes	Students	Centres	Students
2000	221	136 400	12	3 900	43	23 700	43	29 800
2010	132	182 800	6	5 300	34	22 900	25	43 100
2020	82	208 700	5	5 600	18	18 100	10	15 000

Source: adopted from Statistics Finland: Providers of education and educational institutions.

The trend observed in Finland can also be observed in other countries where it is apparent that it is not only demographic change which drives changes in the number of vocational schools. In the Netherlands, the Mammoth Law introduced in 1963 required separation between the provision of vocational and general education such that each was to be delivered by separate institutions. Since the 1990s, major changes have taken place in the Netherlands in the number of VET institutions. Several mergers have taken place, with the result that the size of vocational school has increased. This resulted from changes prompted by the WEB in 1996 which introduced sector-based qualifications and thereby increased the demands on vocational schools to develop more specialist provision relating to each sector. Figure 17 provides an overview of the number of VET schools and the total number of students between 1990 and 2020. The increase in students in 1996 is related to the inclusion of apprenticeships in the VET system. The figure shows that, in less than 10 years, the number of schools decreased from more than 300 to fewer than 100.

Figure 17. VET schools and students between 1990 and 2020



Source: CBS (2020).

Funding and quality assurance are also critical factors affecting the number of vocational schools, as the example of UK-England demonstrates. During the 1990s there was also a fall in the number of vocational schools in UK-England, mainly because of minimum performance requirements introduced over the 1990s after a period when there had been a rapid increase in the number of training providers. Minimum levels of performance measures financially penalised the training provider if course completion rates fell below a certain level; ultimately, this could lead to courses being withdrawn. From 2010 onwards, there were substantial reductions in public funding for vocational schools, which further contributed to the reduction in the number of vocational schools and the merger of several further education colleges.

Across a range of countries there is recognition of the need to ensure sufficient geographic or regional coverage. This would appear to have resulted in the merger of vocational schools at the regional level, potentially consolidating a wide range of vocational provision within one institution. This was observed across countries such as Finland and Lithuania. Following reforms introduced in Lithuania in 2000 there was shift towards the merger of smaller VET providers at the regional level, to provide more efficient and comprehensive coverage. A similar example is seen in Estonia. Since 1999, Estonia has been in the process of reorganising its State-owned VET institutions in order to optimise the school network and establish larger VET centres in every county. The reorganisation has had the aim ensuring regional

availability, quality and efficiency of VET, while taking into account the reduction in the youth cohort (and the increase of the number of adult learners). Something similar is also evidence in Hungary where vocational education and training centres have been established at the regional level with a view to satisfying local skills demand.

4.3. School autonomy

One of the trends observed is the creation of larger, sometimes regionally focused, vocational schools. The issue then becomes one of understanding the autonomy these schools possess to provide the skills required in the local or regional jobs market. Since people tend to look for jobs in their local labour market, there is a potentially important role for vocational schools to fulfil in ensuring that the skill needs of local areas are met. In thinking about school autonomy there are several different aspects to consider such as the extent to which schools:

- (a) have a degree of freedom regarding the way in which they teach;
- (b) can decide which programmes to deliver;
- (c) determine the content of training.

The evidence from the national case study reports suggests that, in nearly all instances, vocational schools have autonomy with respect to pedagogical matters. They also have a degree of choice over what courses to deliver, though this is sometimes made in conjunction with regional stakeholders (as in Finland). In some cases, such as in the Netherlands, vocational schools have a sectoral remit to deliver vocational education which determines the courses and programmes they deliver. In the UK- England, vocational schools have a free choice with respect to what courses and programmes they deliver. This is an important element of the demand-led approach to determining training supply, whereby vocational schools are funded according to the number of learners they can enrol rather than being core funded to deliver certain programmes. The issue of funding is returned to below.

Increasingly, vocational schools have an input into determining course content. This is generally within a framework where there are national regulations which stipulate a certain percentage of study hours to be given over to certain activities, with the schools able to determine the content of the remaining study time to satisfy local labour market needs. Czechia is typical of this approach, where a significant change in education policy occurred from 2000 onwards as national policy on the curriculum changed in preparation to join the European Union. The new School Act, approved in 2004, introduced two-level curricula policy. This new

curriculum approach is at State level, based on framework education programmes (FEPs) created by the Ministry of Education, Youth and Sports, and at school level on school educational programmes (SEPs) developed by each school. This was designed to increase the employability of IVET graduates. Something similar is also evident in Portugal where, following the implementation of a project designed to evaluate the benefits of granting schools more autonomy, it was decreed that schools be given responsibility for determining 25% of secondary education curriculum to support the employability of students upon graduation.

In Iceland and Norway school autonomy is linked to wider engagement with regional stakeholders to design provision relevant to the local labour market (Box 4).

Box 4. Iceland: vocational school autonomy

The Upper Secondary Act from 2008 called for VET programmes to respond better to labour market skill needs, with more autonomy and responsibility entrusted to upper secondary schools to develop VET study programmes. And with the establishment of occupational councils, there is a way for dialogue to take place between VET schools and labour market representatives. The councils include representatives of the social partners connected with specific vocations. The involvement of the occupational councils, it has been reported, ensures that the schools are able to respond more quickly to rapid changes in the labour market. The autonomy of vocational schools was further strengthened by the Icelandic National Curriculum Guide for Upper Secondary Schools (2011) which provided for a decentralised approach to designing study programmes and curricula. This was an extensive change in flexibility and autonomy in VET, leading to substantial variations in the content of courses across the country.

Source: ReferNet report for Iceland.

A similar example can be drawn from Norway where schools have a degree of autonomy to meet the skill needs determined at a regional level, involving a range of stakeholders (Box 5).

Box 5. Norway: County-level VET determination

With the Act relating to upper secondary education from 1974, Norwegian county authorities were assigned a statutory responsibility for all upper secondary education. County authorities were also assigned the authority to approve all apprenticeship enterprises and were recently assigned a duty to provide career guidance, in line with a general trend of placing more responsibility with the counties. The county authorities develop regional competence policy strategies in cooperation with the social partners, business-oriented policy instruments, education institutions and the municipalities. Each county must have a vocational training board. The duties of the board include to present the needs and views of working life to the county authorities,

give advice on the development of VET, and work to achieve the best possible dimensioning of upper secondary education and training.

Source: ReferNet report for Norway.

Evidence generally points towards schools increasing their autonomy with respect to the content of courses and programmes but this not universal. In Sweden, it was possible before the 2011 reform of the education system for schools to develop courses with local content. A national inquiry in 2008 recommended that the Government withdraw opportunities for local deviation from national programmes because it was bringing about uncertain outcomes at the local level. There was uncertainty about the variation in quality of the local content. The inquiry argued that the autonomy and flexibility had gone too far and were largely driven by competition between schools. The government consequently sought to limit the extent to which there could be local, school-based content included in the curriculum. Local deviations needed to be quality assured by the National Agency for Education in the first instance.

4.4. Individual, tailored approaches to IVET

There have been shifts designed to tailor the content of IVET provision to the needs of the individual and the local/regional labour market. Where this results in a form of hybrid provision, information is provided in the next section. Here the focus is on the extent to which optional modules are available to individuals. There are several countries where this has been introduced, so that an individual learning plan is developed for the VET learner. In the Netherlands, for example, VET students can study elective modules. These optional parts are designed to allow students to broaden or deepen skills to strengthen their labour market positions within a region, and/or enable learners to enter higher vocational education. Within the optional parts there is a clear link with 21st century skills such as innovative thinking, learning a language (besides compulsory languages Dutch and English) and entrepreneurship. Students can choose from different optional parts to complement their complete programme. In 2021 there are more than 1 000 elective modules available ⁽⁵⁾. Something similar is observable in Croatia where, since 2009, the share of elective subjects can be up to 15% of the overall course, increased to 30% from 2018. This offer of elective subjects has been designed to improve the responsiveness of VET providers to labour market dynamics. For

⁽⁵⁾ See the [relevant portal](#).

learners, elective modules allow more learning flexibility and opportunities for specialisation. Where individualised/tailored training offers are available, this places an emphasis on the role of careers guidance services to help people decide on their various options.

4.5. Hybrid provision

Hybrid provision can be considered from two perspectives:

- (a) the provision of courses that allow learners to mix or move between general and vocational pathways, and move between workplace-based and classroom-based learning;
- (b) the creation of hybrid schools designed to allow learners to take a mix of courses that might not otherwise be available.

4.5.1. Hybrid pathways

Provision of hybrid pathways offers an opportunity for learners to obtain, potentially, a more varied pathway through upper secondary education by being able to select courses from both general and vocational streams. In some countries it has been the norm for schools in upper secondary education to offer both vocational and general courses (e.g. Finland, Norway and UK-England). In other countries there has been, and continues to be, strict separation between general and vocational education (e.g. the Netherlands). For others, there has been a degree of policy development over recent years to increase the extent to which learners in one pathway can select options from the other. Lithuania is an example (Box 6).

Box 6. General-vocational hybrid provision in Lithuania

From September 2020, gymnasium students in general schools in Lithuania will also be able to study some courses provided in VET schools. After assessing their personal abilities and workload, they can enter one or more modules of the VET programme. By choosing one module at a VET school, a gymnasium student will be able to have three to six lessons a week, and such learning will last from 1 to 2 years. Such a pupil, together with his or her general education school and VET school, will draw up an individual learning plan so that the maximum weekly number of 35 lessons is not exceeded. Both schools will work together to coordinate a student-friendly lesson schedule.

Source: National case study for Lithuania.

There have also been initiatives designed to allow students to switch between classroom-based vocational training and workplace-based training. Sweden stands out here in that it allows students taking the classroom-based vocational track through upper secondary school to spend part of their education in an apprenticeship (Cedefop, 2018b).

In Czechia and Lithuania vocational courses have introduced a fourth year of study at the upper secondary level, allowing students to take a matriculation examination which grants them access to university. In this way, vocational courses potentially offer more parity with their general equivalents, albeit at the expense of extending the period of study. The evidence points to an increasing preference for students to take this fourth year in these countries. What is not clear is whether this is then used to gain access to general courses in higher education or more vocationally oriented ones. In many respects this depends on the purpose of the exercise:

- (a) provide students with more options at the end of their upper secondary education (enter the jobs market or enter higher education);
- (b) convert vocational students into general ones within the higher education system.

Something similar is available in Norway where the Vocational competence and general university admissions certificate (YSK) is defined as a 4-year course of education that combines vocational training with general university and college admissions certification (EQF4). The diploma awarded for YSK confers both qualifications. The background for establishing the YSK scheme was to make it more attractive for students who were typically successful learners in academic subjects to choose vocational subjects. The scheme was first offered in 1992, and a course of education that leads to a combined qualification is currently offered in many counties.

In the Netherlands, there is the possibility to study cross-over qualifications. Since 2017, VET schools can respond to labour market developments by offering qualifications that combine parts from existing qualifications from two or more different sectors. This is a pilot that started in August 2017 and runs until July 2025. Currently, there are 135 crossover qualifications.

There are also changes in how the outputs of the vocational track are designed to provide more equivalence with those of the general one, especially with reference to providing access to higher education. National qualification frameworks already provide the means of identifying equivalence but there may be a question of whether the qualification or competences obtained via the vocational pathway are recognised in society at large as having equivalence with those through the general one. The examples of T-levels in England illustrate this point.

In England, A-levels are generally considered as representing the gold standard in upper secondary education: these are a general qualification and their vocational equivalents in the Regulated qualifications framework have generally been considered as delivering something less academically rigorous. T-levels (mainly classroom-based, but with a substantial work experience element) have occupation- or sector-focused qualifications with a substantial general element, and are designed to offer, for want of a better expression, a vocationally oriented A-level. Industry is involved in the design of the qualifications so that they are geared towards meeting labour market demand. However, because it will not be possible to study more than one T-level in upper secondary school, there will be fewer opportunities to mix separate vocational and general qualifications at the secondary school level than in the past ⁽⁶⁾.

In the Netherlands education programmes are organised according to whether they are vocational or general. It is impossible for VET-schools to offer general education at upper secondary level, and vice-versa. Within the Dutch system the idea of changing the relationship between general education and VET at upper secondary level lies outside the bounds of the policy discourse in the post-1995 period. It has never been suggested in policy documents.

4.5.2. Hybrid schools

Many schools at upper secondary level deliver both general and vocational courses and allow students to mix them in some way. Hybrid schools are quite common in some countries. Where there is more interest is understanding changes, or experiments, to create new types of hybrid schools. UK-England has sought to develop new types of school where the balance of subjects taught is tipped in favour of vocational subjects.

There are examples from UK-England such as studio schools and university technical colleges, which tend to straddle lower and upper secondary education. These were designed to provide a more attractive learning environment for learners who are predisposed more towards vocational studies than general ones, and to increase the choice available to students (and their parents). The general idea is that, alongside a limited number of general courses, students can work towards a range of vocational qualifications which might otherwise be not be on offer in general schools or not taught in the same hands-on way. Overall, these innovations have been small scale, with several institutions not surviving for long. Studio schools and university technical colleges (UTCs) in England recruit students

⁽⁶⁾ There is uncertainly whether T-levels will replace the existing suite of B-Tech qualifications at upper secondary level over the near future. This was initially planned but, as of 2021, there seems some uncertainty as to whether this will actually happen.

at age 14, which is a break with the existing lower secondary/upper secondary divide in the education system where transitions are at ages 11 and 16. Studio schools are designed to provide students with practical skills and give them greater access to vocational programmes and qualifications. The schools have close links to local employers which are expected to play roles such as mentoring. UTCs are led by a university sponsor and have strong ties to local businesses. They have been promoted by the government as an important vehicle for providing more pupils with the technical skills needed to prepare them for entry into higher education and the labour market (Thornley, 2017). Studio schools deliver vocational education in addition to mathematics, English and science subjects to 14-19 year-olds, all designed to deliver national recognised qualifications. A new curriculum was developed specifically for Studio schools entitled CREATE (Communication, Relating to people, Enterprise, Applied skills, Thinking skills and Emotional intelligence). An initial assessment of studio schools indicated no particular problems with them, other than the number of pupils they had been able to attract being limited and many schools having spare places (NARIC, 2014). Since then, many have closed. The new types of institution have not generally fared well and remain fairly small in number: in 2020 there were 48 UTC and 24 studio schools. The invention of such institutions can be interpreted as a frustration with existing structures, but it seems to be the case that parents are wary of sending their children to new, untried institutions, especially where places are available in nearby existing secondary schools (7).

Other than the above example, there is little evidence of significant changes in the type of schools delivering mixes of vocational and general education.

4.6. Workplace-based learning

Many countries have increased emphasis on workplace-based training either by embedding work experience with vocational programmes and/or establishing apprenticeship programmes. Several countries over the past 25 years have sought to develop apprenticeship systems or expand upon existing small-scale programmes: examples include Czechia, Norway and UK-England. The evidence

(7) In some areas there is competition to obtain a place at secondary schools. Places are, for the most part, determined by the distance from home to school. Pupils, or their parents on their behalf, may prefer to send their children to a school other than the nearest one for various reasons, such as its position in the school examination league table or its latest Ofsted report. It is not unusual for pupils to be denied a place at their first-choice school. Alternative providers may prove attractive where nearby schools are deemed unsuitable by parents.

suggests that being able to offer a sufficient number of apprenticeship training places can prove difficult as seen in Norway and UK-England.

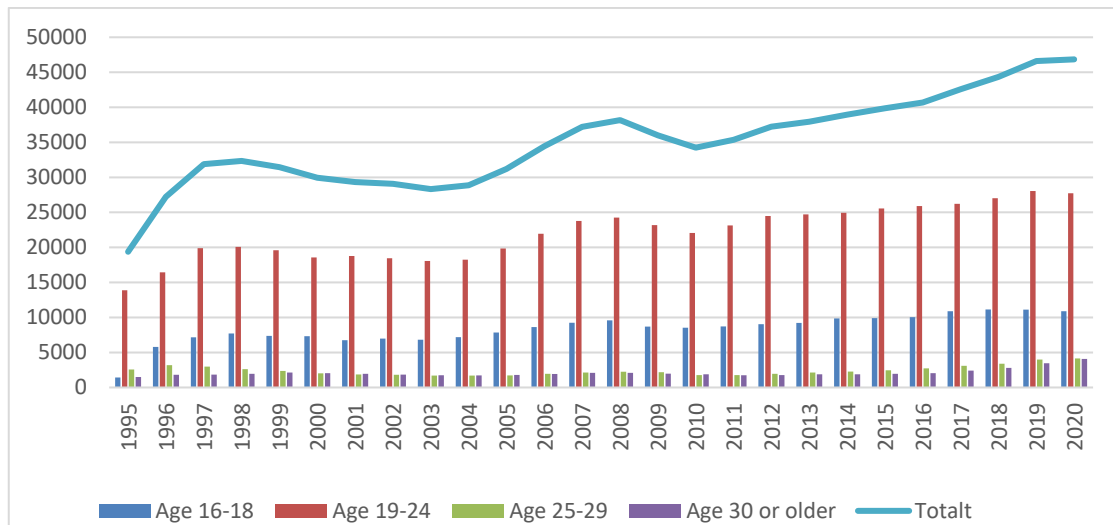
In Norway, Reform 94 was developed against a backdrop of high relative youth unemployment following the economic downturn of the 1980s. The main thrust of the reform was to give all young people a statutory right to 3 years in upper secondary education, either in a vocational or in a general academic programme (Nyen and Tønder, 2020). With Reform 94, apprenticeship training was integrated into the institutional framework of upper secondary education: 2 years of school-based education followed by 2 years of apprenticeship training in a company became the standard model in all vocational programmes. This, often referred to as the 2+2 model, is still the main model in the Norwegian IVET system. The aim was that about one third of the youth cohorts should follow the main model and sign an apprenticeship contract in the last part of their vocational training; this meant that the reformers aimed to double the scope of apprenticeship training (Høst et al., 2015). If learners were not able to find an apprenticeship they were entitled to a practical school-based alternative, leading to the same formal vocational qualification as apprenticeship. A second system safeguard provided an opportunity to transfer from a vocational programme to general education through a third supplementary year in order to qualify for higher education. Both of these schemes are controversial because of their inherent potential to undermine the apprenticeship scheme within the main model.

The lack of apprenticeship contracts has been an issue that has gained attention through decades; 3 out of 10 applicants do not succeed in obtaining an apprenticeship, and this has been more or less constant since 2011. The number of applicants is higher than the number of new contracts. Whether an apprenticeship contract should be a statutory right has been debated several times. Since 1994, the counties have been responsible for offering an alternative to students without apprenticeships. This training, often termed 'alternative Vg3' has been unpopular and the quality of training has varied. It is also apparent that apprenticeships have attracted a range of older candidates (aged over 24) as Figure 18 demonstrates, suggesting that apprenticeships integrate youth and adult education.

UK-England has faced a similar problem in prioritising apprenticeships but struggling to find a sufficient number of places for would-be apprentices. England introduced apprenticeships in 1994 in an attempt to replicate the types of vocational education and training found in the German-speaking parts of Europe which served their economies so well. Over time these have been subject to much reform. In their current formulation, employers have been given responsibility for their design and have been granted a degree of autonomy with respect to how the

various competences required to complete the apprenticeship are delivered (subject to a requirement that at least 20% of the apprentices' time be spent in off-the-job training). The essential problem apprenticeships have faced is finding a sufficiently large number of employers to offer them, despite employers being given more influence over their design. There are more would-be apprentices looking for an apprenticeship than openings available, hence the introduction of an apprenticeship levy in 2017. And where employers take on apprentices, the tendency, as in Norway, is to recruit those who are aged 24 years and over.

Figure 18. **Number of apprentices 1995-2020, by age, Norway**



NB: Age 18 and 19 are the most frequent. 16- and 17-year-olds make up 100-300 apprentices annually. Ages over 30 are not specified/in the register until 2006.

Source: Statistics Norway, [StatBank Norway](#), statistic year books 1997-2004.

4.7. The role of funding

The way in which vocational schools and vocational programmes are funded potentially affects provision. At its simplest level it has implications for the financial viability of vocational schools where overall levels of funding have fallen, mainly as a consequence of a decline in the number of young people. Vocational institutions have sought to offset this by engaging more in the provision of higher levels of VET (addressed in the next chapter) and through the provision of CVET (addressed in WA4). But there are examples of the way in which funding formulas have been redrafted in order to effect certain kinds of change in the provision of VET. These include using funding to:

- (a) tie provision more closely to labour market needs (exemplified by the case of UK-England);

- (b) bringing about efficiencies in the delivery of training and allowing resources to be more effectively allocated (as in Czechia);
- (c) incentives to promote one kind of training over another (as in Lithuania).

In UK-England, funding has been used as a means of ensuring that vocational schools meet demand from their local labour markets. Over many years, government funding for vocational schools has been increasingly skewed towards the number of learners enrolled on a registered course, and successful completion of the course by the learner. Increasingly making vocational schools dependent on being able to recruit learners is designed to make them more responsive to labour market signals. With the introduction of the apprenticeship levy in 2017, the burden of funding training has shifted increasingly towards the employer and the apprentice, with the result that the number of apprentices has declined (Dickinson and Hogarth, 2021).

If the more recent changes in funding in UK-England were borne out of austerity, changes in the funding of training in other countries have had a more nuanced impact on the type of training provided by vocational schools. This is the case in the examples of Czechia and Lithuania. In Czechia, the regional authorities are responsible for financing the salaries of teaching staff and direct costs of delivering education and training. The system of funding changed in 2020. Schools were no longer funded according to their number of students but on the volume of teaching delivered (number of lessons/hours taught) taking into account the employment costs of teachers/trainers. The change in the funding system makes it possible to finance classes in which learners from multiple fields of upper secondary VET are taught together in a general subject, while smaller classes are established for instruction in vocational subjects. This is designed to bring about efficiencies in the provision of training. In Lithuania, funding is biased towards apprenticeships, with the allocation of funding for an apprentice around 25% higher than for other learners.

4.8. Conclusion

Over the period since 1995 there have been many significant changes in the VET institutional landscape designed to ensure that VET at the upper secondary level meets the needs of the labour market, society, and the individual learner. In meeting these needs there is also an emphasis on making VET flexible, in the sense that it can respond in a timely manner to various changes taking place in the economy. This has been undertaken against a context of falling school rolls in many countries, which affects the financial viability of some vocational schools,

and economic austerity in some instances, which has resulted in budget constraints. Against this background the evidence provided in this chapter indicates that:

- (a) the provision of VET content has proved flexible as the commentary on hybridisation and tailored learning reveals;
- (b) school autonomy has, at worst, remained stable and in some cases has been reinforced. This is linked to a localism agenda in some instances;
- (c) the preference for workplace-based learning is difficult to achieve alongside a bias towards the provision of apprenticeship training in labour market contexts where this development is relatively new.

There are many examples of the way in VET systems have been able to mix and match courses from the general and vocational pathways and differing mixes of courses or modules wholly within the vocational pathway. This would appear to be designed to ensure that VET better meets the needs of learners, employers and the local economy. It allows a higher degree of specificity so that individual learners are better placed to pursue their selected career and there is flexibility to address the signals emerging from the local labour market. In several instances, school autonomy is linked to regional institutions and stakeholders with a responsibility for ensuring that local skill needs are met. This indicates that regional or local needs are now better catered for than previously. The localism agenda appears important, in that it emphasises that the jobs VET graduates will be looking for will be those available in the local labour market, so VET needs to pay attention to meeting those needs.

The evidence also points to a policy preference for workplace learning to be increasingly embedded in VET. In some instances, this takes the form of promoting apprenticeships. Where apprenticeship (or the dual system) has, historically, not been well established, it proves difficult to provide sufficient apprenticeship places, which suggests that finding other means of providing workplace-based training – such as work experience being built into other types of vocational programmes – may prove to be more expeditious in strengthening the link between the classroom and the workplace.

A final observation is that, in many countries, there is evidence of changes in the number of vocational schools, in many cases as a result of a shrinking youth cohort. The outcome has been the creation of larger, regional centres of VET that are able to provide a wide range of vocational provision and, as a result of their size, offer the specialisation increasingly required to enter many occupations. Their size also affords potential efficiency savings where it is possible to bring people together from various courses and programmes to study common elements,

offering the opportunity to individualise provision by allowing learners to select from a range of modules or options.

CHAPTER 5.

VET at higher levels

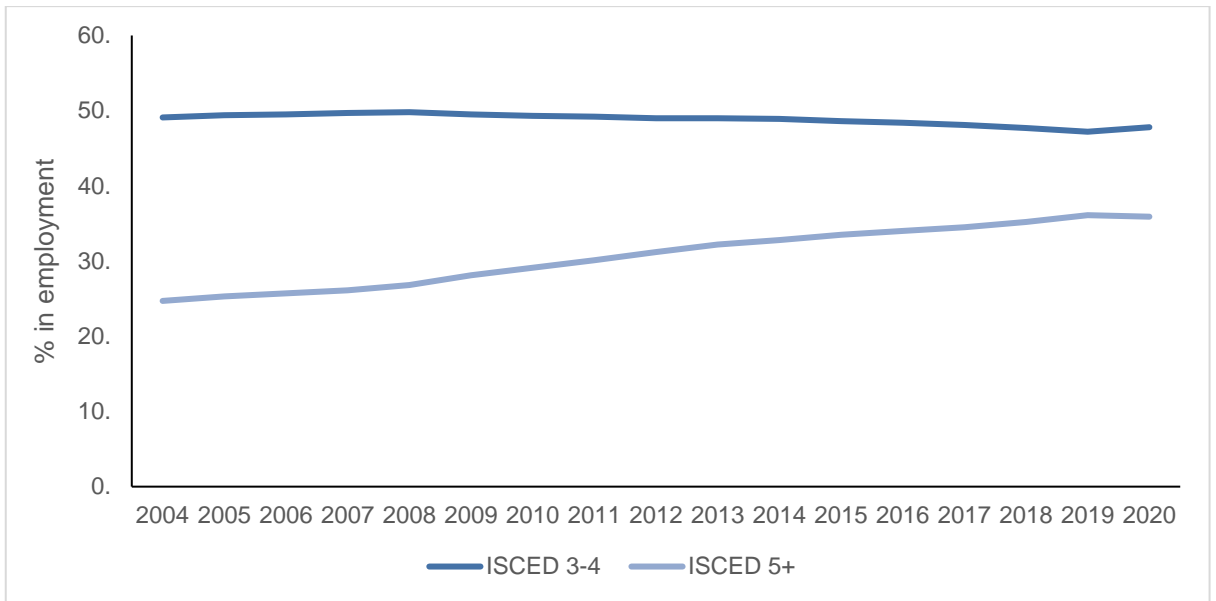
5.1. Introduction

As the previous chapters have indicated, over time there has been an increasing demand for people to work in jobs which require them to be qualified to tertiary level. Education systems have responded by substantially increasing education provision at these levels (cf. the massification of higher education). The role vocational education and training has played in supplying such skills is difficult to assess simply because statistical data on the extent to which higher education (post-secondary non-tertiary and tertiary education) can be classified as vocational or general are limited. Using a mix of statistical data, which derived from national case studies, and the survey of VET providers, this chapter provides information on the changing relationship between VET at ISCED level 3 (the traditional heartland of VET) and that at higher levels. In doing so it complements the analysis of VET at higher levels undertaken as part of the changing nature and role of VET study (Cedefop, 2019a). The chapter starts by outlining the role of VET in higher education, derived mainly from Eurostat/OECD/ILO and UOE data, and then goes on to explore how efforts have been made to support the transition from vocational education at ISCED level 3 to that at higher levels, whether that be in a university of applied sciences, a traditional university, or some institution at the higher level.

5.2. Changes on the demand side

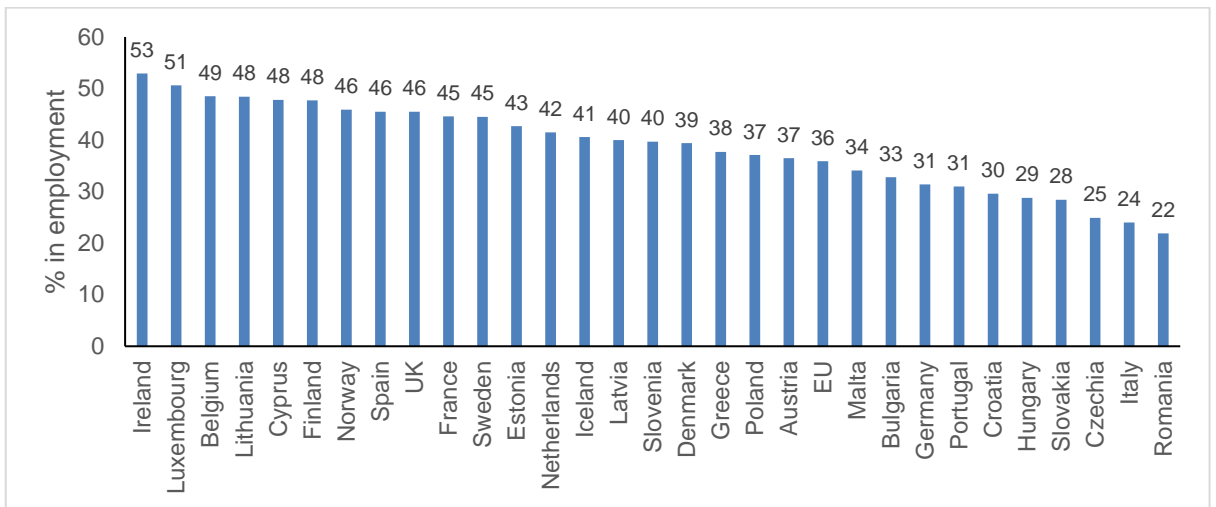
To obtain a sense of the changing demand for people with higher-level qualifications, Figure 19 shows the change in the percentage of those in employment who have tertiary level educational attainment, shows monotonical growth over the past 15 years, though it appears to have plateaued of late. While the level of educational attainment among those in employment has been increasing, there remains a high level of variation between Member States (Figure 20). In 2019, 53% of those in employment in Ireland had tertiary level attainment compared with less than half that percentage in Romania (22%). Comparing countries over time shows that there are clusters of countries which had relatively low levels of people qualified at tertiary level in employment in 2004 and in 2020, and there were countries where there were relatively high levels in both years (Figure 21).

Figure 19. **Share of those in employment with tertiary level education attainment in the EU-28 aged 15-64, 2004-20**



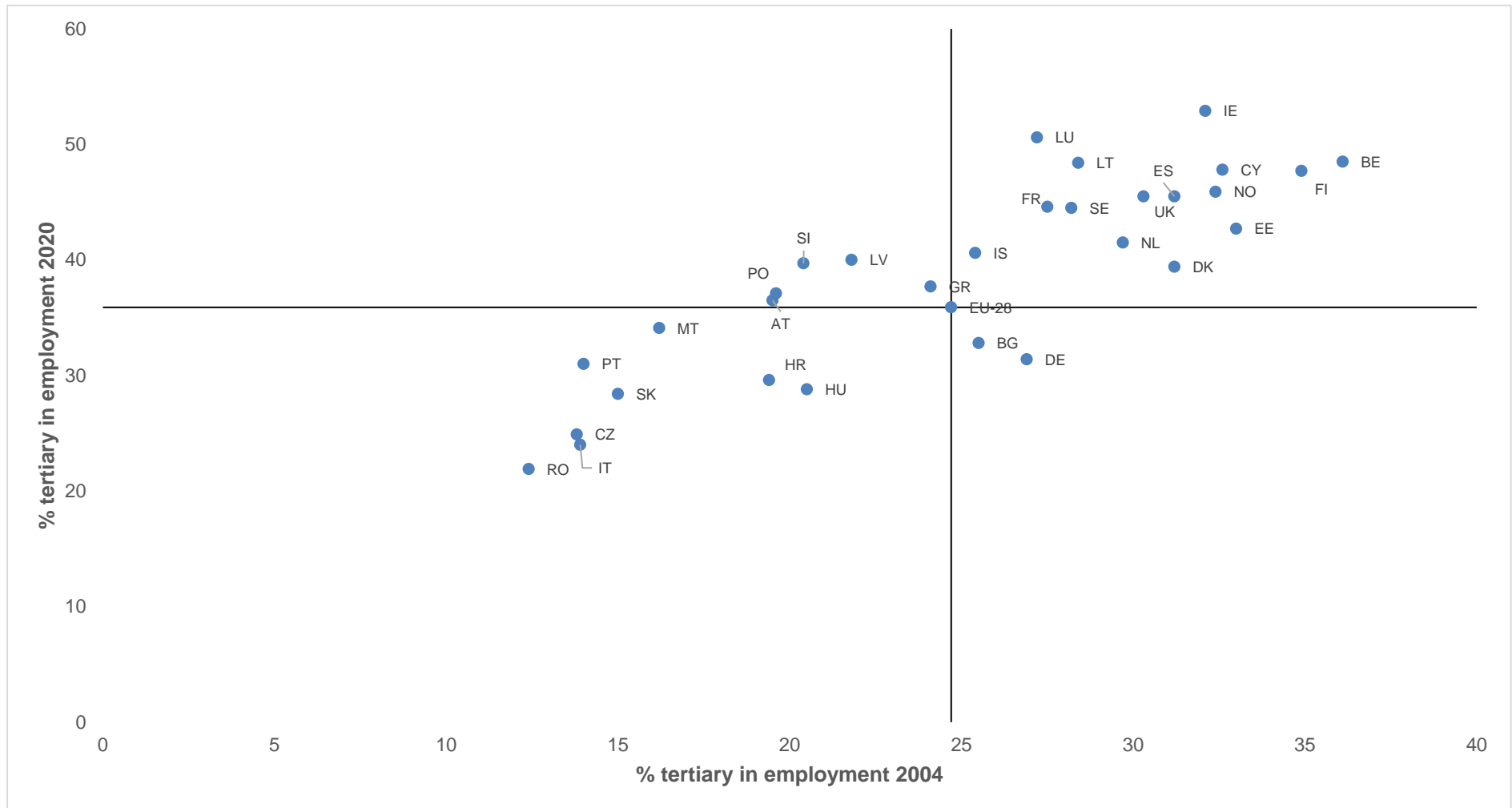
Source: Population by educational attainment level [EDAT_LFS_9904].

Figure 20. **Percentage of those in employment with tertiary level educational attainment in 2019 aged 15-64**



Source: Population by educational attainment level [EDAT_LFS_9904].

Figure 21. Percentage of those in employment with tertiary level education attainment, 2004 and 2014



Source: Population by educational attainment level [EDAT_LFS_9904].

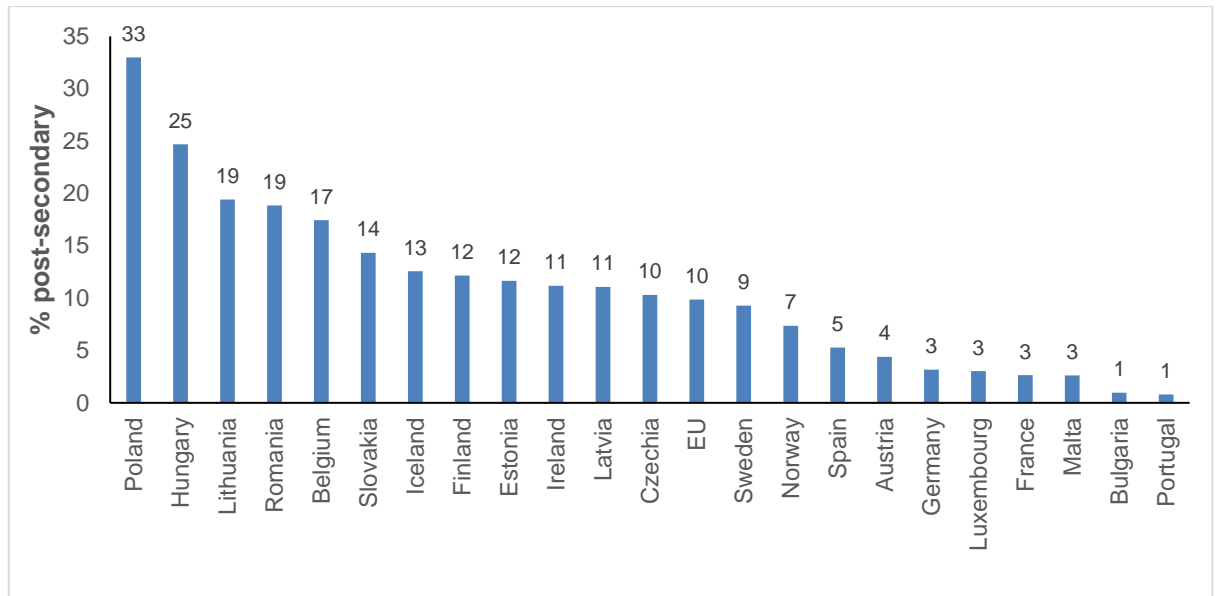
From a demand perspective, the increasing share of employment accounted for by those with tertiary level qualifications is a sign of the increasing demand for skills. At the same time, it has raised concerns about the extent of skills mismatch in the economy. Much of the evidence suggests that, rather than skill shortages being the principal form of mismatch, it is often shown to be overqualification (Cedefop, 2015). Much of the evidence suggests that automation is much more likely to affect those with low levels of skills and/or qualifications which suggests that being highly qualified affords a degree of employment protection (Pouliakas, 2018).

5.3. Changes in higher-level VET supply

Defining VET at higher levels is far from easy. In the study on the changing nature and role of VET, it was noted that ‘the distinction between vocational, general, academic or professional becomes increasingly fuzzy at these levels. This distinction is also rarely used by countries at present’ (Cedefop, 2019a, p. 11). Some information is available – not for all countries – which attempts to classify post-secondary non-tertiary education as either vocational or general, and attempts have been made to make a distinction between professional and academic courses at bachelor and master levels. Using these data, it is possible to provide indicative statistical evidence on the extent of vocational provision at ISCED levels 4 and above.

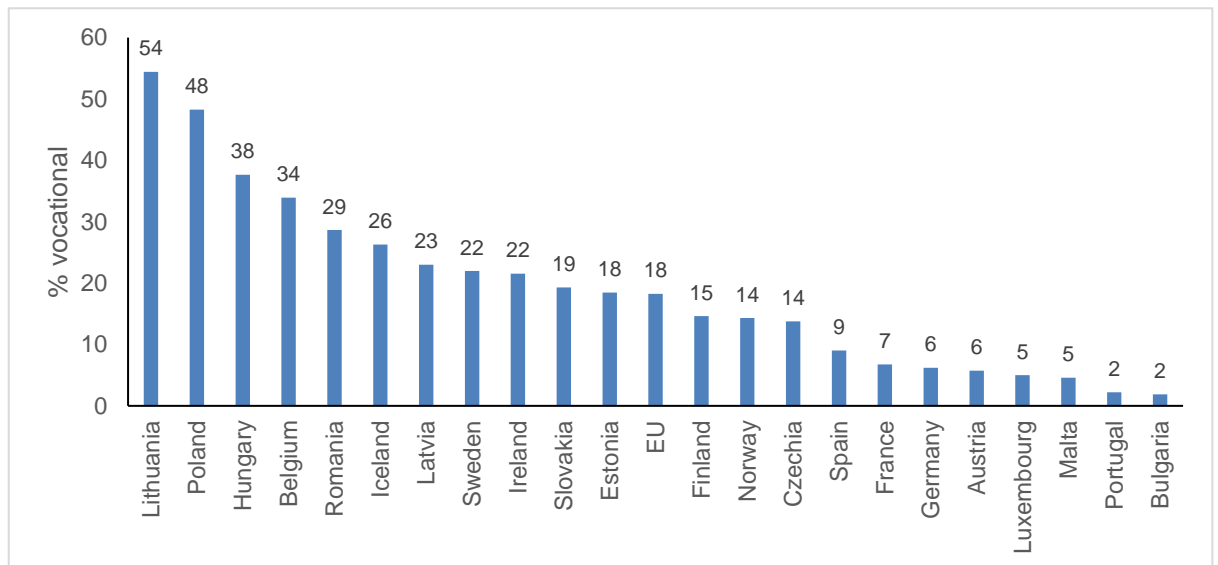
The evidence, where available, suggests that post-secondary, non-tertiary education tends to be overwhelmingly classified as vocational. The share of education at ISCED levels 3 and 4 that is accounted for by post-secondary in most countries is a small overall share of secondary/post-secondary non-tertiary in most countries (Figure 22 and 23). There are, however, some countries with a sizable share of education in the combined upper secondary/post-secondary non-tertiary group (Lithuania, Hungary, Poland, Romania). As a share of all vocational education at the upper secondary/post-secondary education, it is seen to occupy a more important position: in Poland, it accounts for more than half of vocational education at this level. Given the lack of time series data it is difficult to gauge the extent to which it has changed over time. But, as explained later, post-secondary, non-tertiary education would appear to serve an important role as a bridge to tertiary level education.

Figure 22. **Share of all secondary and post-secondary education accounted for by post-secondary education, 2019**



Source: Eurostat/UOE New entrants by education level and programme orientation [EDUC_UOE_ENT01].

Figure 23. **Share of vocational secondary and post-secondary education accounted for by post-secondary education, 2019**

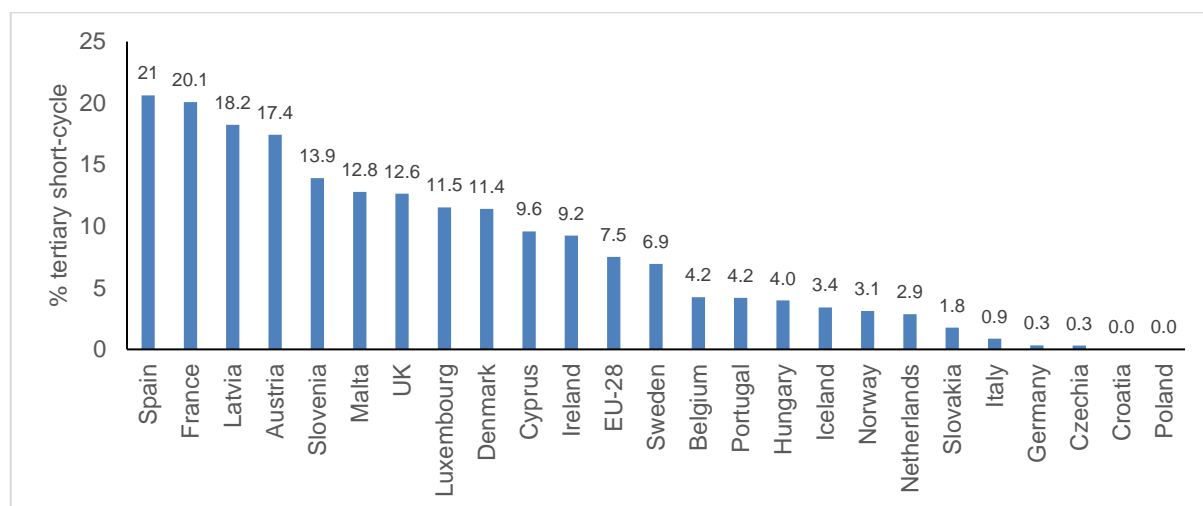


Source: Eurostat/UOE New entrants by education level and programme orientation [EDUC_UOE_ENT01].

As a share of upper secondary non-tertiary and tertiary education, it accounts for a small share of enrolments (Cedefop, 2019a). Given the lack of time series data it is difficult to gauge the extent to which it has changed over time.

Looking at tertiary level education, it is possible to identify two types of vocational provision: short-cycle, which is defined as programmes that are practically/occupationally based and designed to aid the transition into employment, and professional bachelor degrees which aim to do something similar to short-cycle courses but provide a bachelor degree. Figure 24 shows the percentage of all tertiary education accounted for by short-cycle programmes in 2019. It accounts for a small share of tertiary education in most countries but the evidence suggests that the percentage change in enrolments has increased faster than that for tertiary education in total over the 2013 to 2019 period (11% versus 2%).

Figure 24. **Share of tertiary level enrolments accounted for by short-cycle courses**



Source: Eurostat/UOE New entrants by education level and programme orientation [EDUC_UOE_ENT01].

Few countries report data on the extent to which bachelor degrees are professional or academic in orientation, but where data are reported, there is wide variation. In Belgium and Latvia in 2019, for instance, it accounted for 62% of tertiary enrolments, but only 5% in Bulgaria. This may well reflect country difference, but equally it may also reflect the inherent difficulties of classifying bachelor degrees as vocational or academic.

5.4. Institutional changes in higher-level VET provision

The demand for, and supply of, people with high levels of educational attainment has changed over the recent past. There has been an increase in short-cycle provision at ISCED level 5, a predominantly vocational kind of tertiary level education. Here the focus is more upon how the structures and organisation of

VET have changed to meet the increased demand for higher-level skills (typically associated with post-secondary and tertiary level education and training). Three key developments are apparent:

- (a) ensuring that VET at upper secondary levels permits or facilitates progression to education and training at higher levels (either vocational or general);
- (b) the establishment or further development of vocational institutions delivering post-secondary VET;
- (c) providing workplace-based progression routes (e.g. the development of post-secondary/bachelor level apprenticeships).

5.4.1. Progression routes

It is commonplace for those in the vocational stream in upper secondary education to have access to tertiary level education (Table 12), though In practice, they are sometimes less likely to enter higher education. This might well be related to the fact that courses at upper secondary level are designed – more than their general counterparts – to prepare people to enter the labour market. Therefore, there are likely to be stronger labour market pulls, other things being equal, on those studying towards vocational qualifications than general ones.

In order to improve the transition from upper secondary to higher levels, efforts have been made to ensure that upper secondary vocational qualifications have parity with their general counterparts. In some cases, this has been achieved through requiring additional study from vocational learners to obtain the *matura/maturita* qualification which further supports the transition of students looking to enter higher education. In Czechia and Lithuania, for example, there is the option of extending vocational education at upper secondary level to complete the *maturita* examination so that vocational students achieve parity of attainment with those in the general pathway.

Table 12. **Vocational qualifications at upper secondary level and progression to higher levels**

Country	Vocational qualifications provide entry	Vocational qualifications provide entry with some add-ons required	Comments
Czechia		√	<i>Maturita</i> exam
Germany	√		
Finland	√		
Italy	√		
Lithuania		√	<i>Matura</i> exam

Country	Vocational qualifications provide entry	Vocational qualifications provide entry with some add-ons required	Comments
Netherlands	√		
Norway	√		
UK-England	√		Non-academic qualifications can limit progression in some instances

Source: National case studies.

The transition of students from upper secondary to higher education is not just dependent on certain qualification requirements being met. First there is the issue of whether learners at ISCED level 3 are interested, or see value, in progressing their studies to higher levels. This can be an important determinant of progression but little information is available here. That said, the evidence from Czechia, which shows that an increasing share of learners choose to take the *maturita*, is perhaps evidence that demand is high. But there is also a question of whether, in practice, parity of achievement between vocational and general qualifications is observed. This lies behind the reform of vocational qualifications in England where the introduction of T-levels is deliberate attempt to introduce a qualification which will be recognised by learners and education institutions alike as being of equal value to the general stream equivalent A-levels (Box 7).

Box 7. The introduction of T-levels in England

Parity of esteem between vocational and general education is to be achieved through the introduction of employer designed T-levels. At the end of 2020 the first T-levels were introduced. These are equivalent to three A-levels (the most common general qualification at upper secondary level; three A-level passes is also a typical requirement to enter university). These are 2-year courses which have been developed in collaboration with employers to ensure that they meet the needs of industry. T-level panels comprising employers, professional bodies and training providers are responsible for designing the content of apprenticeships. T-level courses include the following compulsory elements:

- (a) a technical qualification, which will include:
 - (i) core theory, concepts and skills for an industry area;
 - (ii) specialist skills and knowledge for an occupation or career;
 - (iii) a minimum standard in maths and English;
- (b) an industrial placement. Every T-level will include an industry placement with an employer focused on developing the practical and technical skills required for the

occupation. These will last a minimum of 315 hours (approximately 45 days) but can last longer. Employers can offer these as a block, day release or a mix of these.

The initial plan was for T-levels to replace most vocational qualifications at upper secondary level, but this is now in doubt.

Source: National case study for England.

In Germany, in the post-1995 period, there has also been improved access of vocationally qualified learners to higher education. Depending on the type of vocational qualification, learners may have direct access to tertiary education in general, not just a vocational type, and may have their vocational learning outcomes accredited within higher education, covering as much as 50% of an undergraduate degree programme. The preparation of people to enter tertiary education may well have wider implications for the role of VET in general, which now serves the additional purpose of preparing students to study academic/general studies, even though this does not affect the content of the curricula.

As well as efforts to ensure that vocational qualifications at the upper secondary level are recognised for the purposes of entering higher education, there have been developments which help bridge the gap between ISCED level 3 and ISCED level 5 and above. This is where courses which tend to straddle ISCED levels 4 and 5 play a role. The associate degree, introduced in the Netherlands, is an example of this development (Box 8).

Box 8. Associate degrees in the Netherlands

The associate degree was piloted in 2006 and formally became part of the higher education system in 2013. The objective behind their introduction was to fill the qualification gap between ISCED levels 3 and bachelor degrees (ISCED level 5) and to facilitate the transition from VET to higher education by offering a 2-year programme instead of the 4-year bachelor one. The bachelor can be obtained within an additional 2 years of study. The associate degree is taken at a university of applied science. The level is between senior secondary vocational education on qualification level 4 (NLQF/EQF level 4) and a bachelor degree. To enter an associate degree programme, a secondary vocational education diploma at level 4 is required. As of 2021, there are 316 associate degree programmes offered by State-funded higher education institutions (full-time, part-time, and dual programmes); this increased from 21 in 2007 to 116 in 2008 and 203 in 2018 (DUO, 2021b). The student numbers increased from 6 786 in 2016 to 17 528 in 2020 (DUO, 2021a). Within the last decade, associate degrees have become more embedded within the education system, with an increasing number of students enrolled in the programme. There is continuous discussion of whether associate degrees should be offered by VET institutions to make them better linked to VET programmes and the labour

market, but opponents of this idea see more prestige being conferred on the degree if it is offered in an IAS.

Source: National case study for the Netherlands.

Provision of the shortened form of education may be a preference for some learners looking to continue their studies along with the opportunity for part-time study. This has been part of the explanation for the preference of learners in Czechia to take short-cycle studies (as reported in the national case study).

5.4.2. Alternative institutional arrangements

It is evident in several countries that institutions have been established to deliver vocational courses and programmes at post-secondary and tertiary levels. These have often been in existence for a long time (as with the universities of applied science), but there are examples of new institutions being created (see below). As noted in Finland, UAS have become an important means through which those with vocational qualifications can enter higher education. In 1995, 1 638 bachelor degrees were awarded by UAS and this had risen to 28 735 in 2020. It is also apparent that institutions offering courses at higher levels can be an important source of sectoral skills supply, as seen in Norway where a large element of provision is taken up with healthcare and maritime studies. The provision of healthcare skills at higher levels is mentioned quite often in relation to higher-level VET in several countries.

The example of Czechia shows the degree of cooperation between upper secondary vocational schools and university institutions, which has resulted from the creation of higher vocational schools (Box 9).

Box 9. Higher vocational schools in Czechia

There were no VET qualifications before 1989 at ISCED level 5. To cover the gap between secondary and tertiary education, and in an effort gradually to create a sector of higher vocational education, higher vocational schools were initially established as a pilot programme in 1992/3 before becoming part of the formal education system in 1995. The schools provide education at ISCED level 5B and are mostly established as part of upper secondary vocational schools, with only one quarter being independent (Cedefop, 2005). This study programme usually lasts 3 years and consists of theoretical and vocational training. Education at higher vocational schools ends with the award of the *absolutorium*⁽⁸⁾. The higher vocational schools started with around 4 000 students in 1995. In the school year 2003/04, there

⁽⁸⁾ *Absolutorium* is a vocational examination which consists of an exam in vocational subjects (at most in three), an exam in a foreign language, and the defence of a graduate thesis.

were 169 higher vocational schools with a total of 30 681 students. By 2009/10, the number of higher education institutions had increased to 184 schools, and subsequently began to decline over the next period. In 2019/20 there were 160 schools with 17 954 students. Even though the total number of students and schools has declined, the schools are seen as an important means of delivering education other than through full-time study. The most popular field of study is healthcare. More recently, higher vocational schools have sought to develop bachelor programmes in conjunction with universities.

Source: National case study for Czechia.

Setting up new institutions, however, is not without difficulties. In Italy, higher training institutes were established to support and develop Italian manufacturing as a whole. They were designed to deliver non-academic programmes at tertiary level (which they have largely succeeded in delivering) and to provide an alternative to university education (which they have struggled to achieve given the low number of enrolments). They appear to have succeeded only where there are strong industry links and where there is a demand for technician-level skills. Higher training institute qualifications are not necessarily recognised in all regions or by some universities, which is a potential disincentive to enrolling in these institutions.

There appears to be a degree of cooperation between upper secondary VET institutions and higher vocational schools.

The direction of travel is not always towards an increase in provision within UAS or specialist institutions. In UK-England, for example polytechnics provided technical/vocational education to ISCED levels 4 and 5 (effectively a UAS). Government policy in the 1980s brought about a massive increase in the number of students entering higher education. Much of this expansion was concentrated in the polytechnics – because their unit costs of teaching were lower than in the traditional universities – such that by 1992 they had become universities (rather than polytechnics) which offered a broad range of general and vocational studies and lost their UAS identity. In their place, further education colleges (which are principally upper secondary school establishments) delivered vocational tertiary courses under licence to universities (mainly ones that were formerly polytechnics). The volume of students was modest and much of it was a form of CVET.

5.4.3. Workplace-based training routes to higher levels

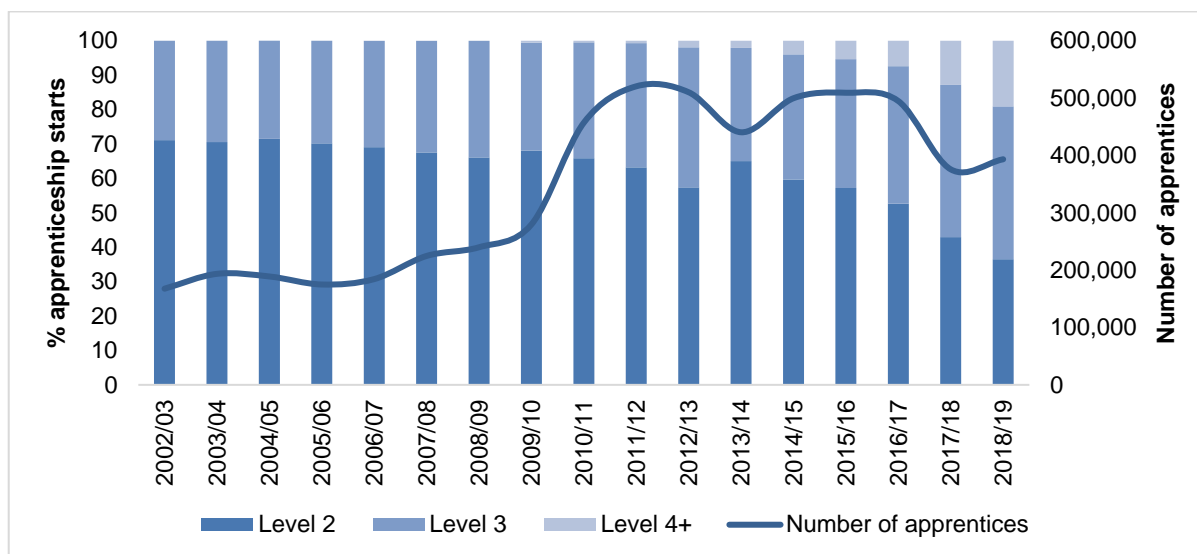
Apprenticeship type programmes in several countries have been extended to higher levels. In Germany, the most significant development with regard to IVET

at higher levels is the expansion and diversification of dual study programmes ⁽⁹⁾ from the 1990s onwards, and their complete integration into the system of higher education, promoted by the Bologna process. Dual study programmes may change the ratio of ‘academic’ and ‘vocational’ contents at tertiary level but, from an institutional point of view, they also lead to a higher degree of ‘vocationalism’ in higher education as employers are increasingly involved in curriculum design. Notwithstanding the rise of dual study courses, these degree programmes still play a marginal role within the system of higher education. There is no large-scale ‘vocationalisation’ of higher education. The future impact of dual study courses on the VET system will depend on effective quality assurance mechanisms in this segment of higher education. It is suggested that structural guidelines for the accreditation of study courses, which have been defined already for bachelor and master programmes in general (cf. KMK, 2010), will become necessary for dual study courses as well.

In other countries, there has been a significant increase in the provision of apprenticeships at higher levels (as with bachelor degree-level apprenticeships); this has been particularly the case in England. These were partially a response to previous difficulties in establishing higher-level vocational education courses such as foundation degrees (similar to associate degrees in the Netherlands). Degree level apprenticeships were first mentioned in policy documents from 2008 onwards. Degree apprenticeships are available at levels 6 and 7 (full bachelor and master) and came online in 2015. Figure 25 shows the take-up of higher-level apprenticeships over time to illustrate the extent to which they have contributed to the overall level of apprenticeship take-up.

⁽⁹⁾ The number of dual study courses increased from 512 in 2004, when the BIBB started monitoring these programmes, to 1 662 in 2019. The number of students rose from 40 982 to 108 202 over the same period. Dual study programmes are offered in a variety of formats. Lately, the concept of ‘study-integrating apprenticeship’ (*studienintegrierende Ausbildung*, see e.g. Euler and Severing, 2016) has been developed as a new format, which aims to integrate vocational academic and vocational learning completely and to present learners with the option to choose between three types of qualification: a vocational qualification, a bachelor degree or a combination of both (see Hofmann et al., 2020).

Figure 25. **Take of higher-level apprenticeships in England**



Source: Department for Education Apprenticeship Statistics.

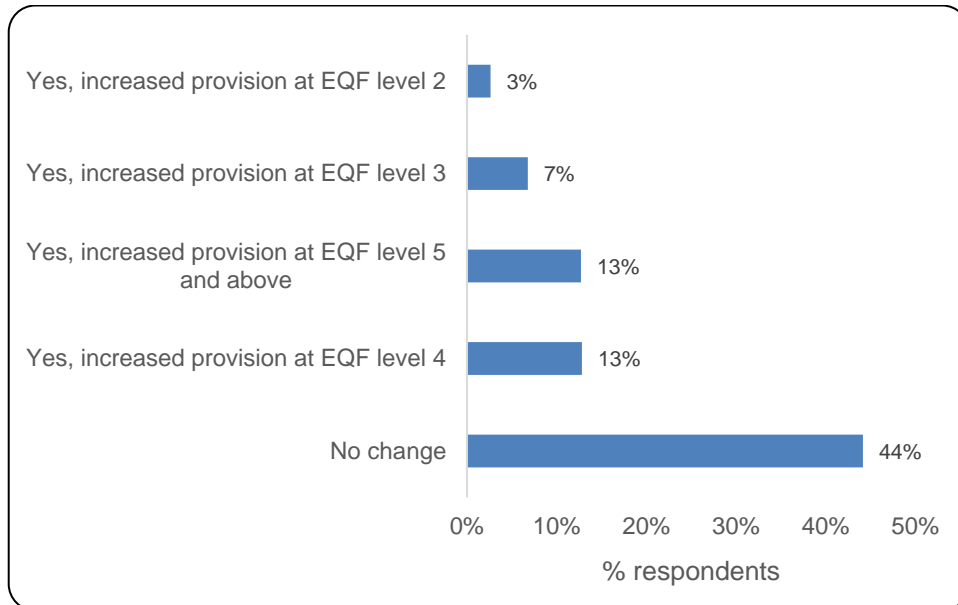
Higher-level apprenticeships potentially provide a track from level 2 to a post-graduate level of education, designed at every stage to meet employer demand. The impact of increasing provision at higher levels has some implications for the funding of the entire apprenticeship system. All apprenticeships are meant to be funded from levy revenues. Apprenticeships at higher levels generally receive more funding from government to cover the costs of training delivered by a training provider. For example, a level 6 engineering apprenticeship (electrical/electronic technical support engineer) will attract GBP 27 000 of government funding compared with GBP 18 000 at level 3 for an installation electrician/maintenance electrician. There is prima facie evidence that employers are investing more in higher-level apprenticeships, thereby reducing the amount of funding available at level 3 and below.

5.5. VET provider perspectives

The VET provider survey offers insights into how vocational schools had engaged in additional provision at higher levels. Approximately 35% of providers said that there had been changes in the levels at which they provided training over the past 10 years; this was generally at EQF levels 4 and 5 where additional provision had occurred (straddling the secondary/post-secondary, non-tertiary divide). 13% of all providers said that they had increased provision at levels 4 and 5 respectively. The reason why increased provision at EQF level 5 and above had taken place was unequivocal: 78% of those providers who had changed the level at which they

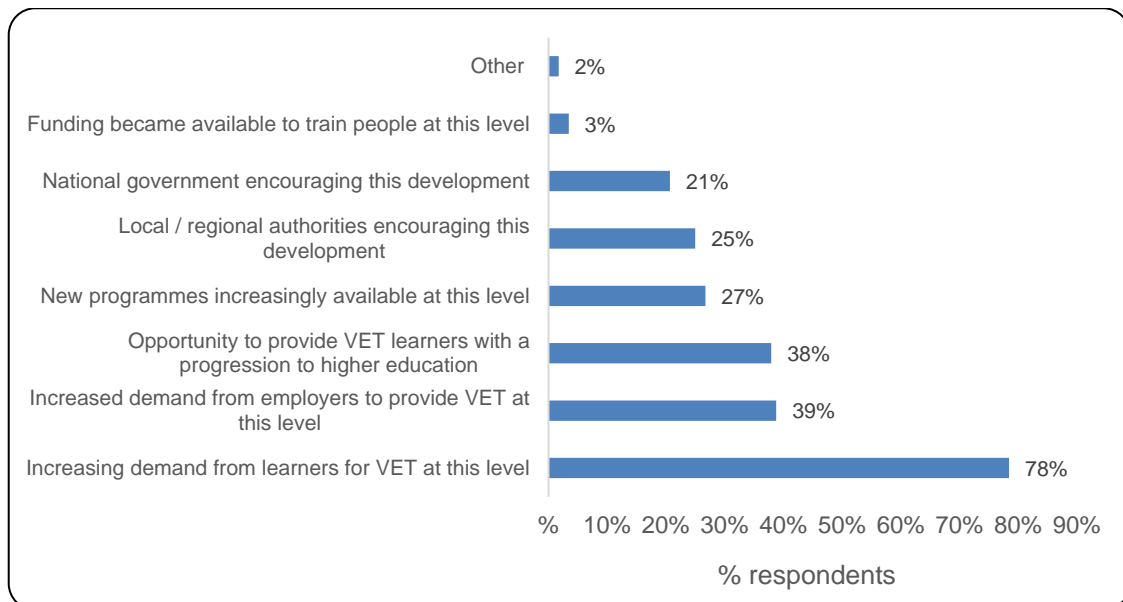
provided training said it was a response to demand (Figure 26). The other most common reasons cited were demands from employers and the requirement to provide young people with progression routes.

Figure 26. **Changes in the level of qualification over the past 10 years**



Source: *Future of VET*, VET provider survey.

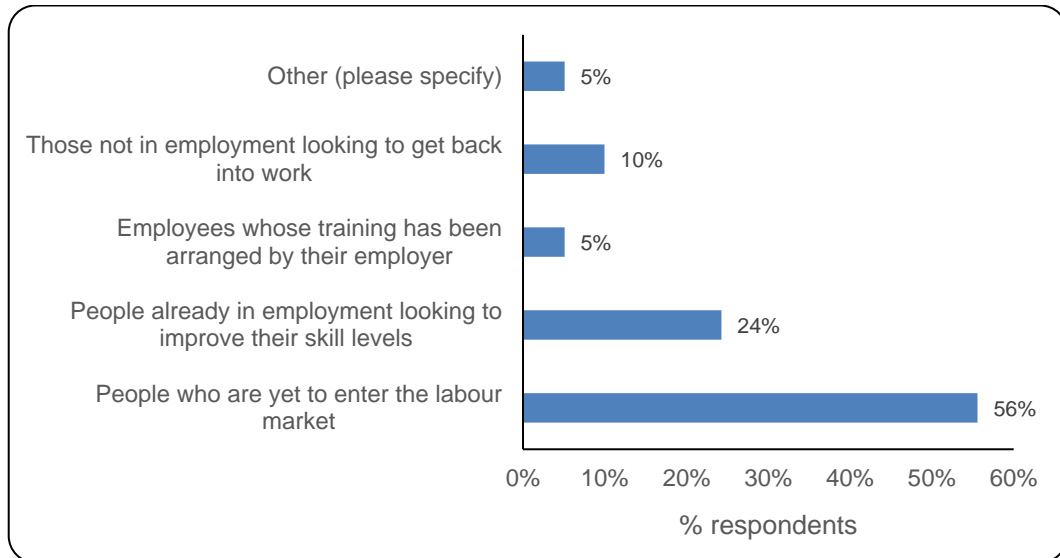
Figure 27. **Reasons for changing the level of provision**



Source: *Future of VET*, VET provider survey.

Where higher levels of training were being provided it was principally for those who had yet to enter the labour market (young people), though a sizable share said it was to those in employment looking to upskill or reskill (Figure 28).

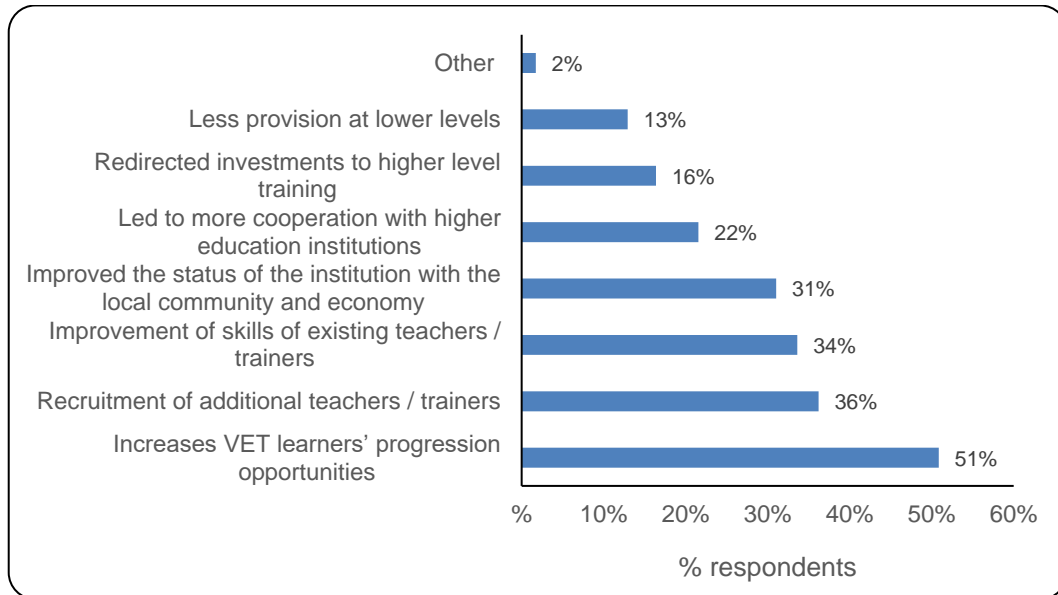
Figure 28. **Recipients of training at EQF level 5 and above**



Source: *Future of VET*, VET provider survey.

There are implications of changing the level at which education and training is provided. Figure 29 shows that it places pressures on teaching staff: new staff need to be recruited and the skills of existing teachers/trainers need to be improved. It was also reported that raising provision had aided the progression opportunities for learners. The impact on provision of training at lower levels is muted, with 13% of providers reporting that they had increased the level of provision saying that it had reduced provision at lower levels.

Figure 29. Implications of increasing provision at EQF level 5+



Source: *Future of VET*, VET provider survey.

5.6. Conclusion

It is apparent that students in upper secondary VET can increasingly access higher education through:

- (a) vocational programmes such as the dual system/apprenticeships which now offer progression to levels 5+;
- (b) gaining access to higher education through either UAS or the provision of higher levels of VET in upper secondary education;
- (c) progressing to general education in traditional universities.

From the evidence gathered in the national case studies, it is the first two which appear to be most likely destinations for vocational students. This may well improve the matching of higher levels of supply to the needs of the labour market, as it often involves courses which include a degree of work experience and/or courses which are partly designed with the involvement of employers (or their representatives). But this implies that vocational students have access to something different from their counterparts who have progressed through the general pathway to traditional (non-UAS) universities. With the respect to the attractiveness of VET to young people, this will not matter if vocational provision at higher levels has parity of esteem with general programmes.

VET at upper secondary level has had to change to ensure progression to higher levels, as in curriculum content or the way in which competence is assessed. As noted in Chapter 2, there is an increasing demand for the provision

of general components in VET simply to provide learners with the capabilities to transfer between jobs and employers; this, arguably, begins to chip away at the distinction between VET and general orientations. In responding to labour market demand for skill, VET at upper secondary level may well have made itself more amenable to entrance requirements typically associated with traditional higher education provision. Changes in the provision of higher education in some countries (outside the scope of this study) has tended to emphasise the acquisition of vocational skills (vocational drift in higher education) (Cedefop, 2019a). This may indicate that higher education itself is moving closer to the vocational model of competence acquisition, which potentially increases the likelihood of vocational students progressing to university.

CHAPTER 6.

Conclusions: harmonisation and diversity

By way of conclusion, some overarching messages are offered from the evidence in the preceding chapters. Over the past quarter of a century there has been a huge volume of changes which have affected the demand for VET. These were described in depth in Cedefop's study on the changing nature and role of VET. In summary, the digital and green transitions have simultaneously created a demand for new skills, made some old ones obsolescent and led policy-makers increasingly to look to VET systems to remedy emerging skill imbalances that are common to almost all countries across Europe. So how has VET been able to meet the changing demand for VET and provide skills which are matched to labour market need, both now and in the future? This is addressed below.

VET retains a strong distinct identity through upper secondary education and, to a lesser extent, at higher levels. This is the case even though in several countries IVET and general education are provided in the same institution. Despite the manifold changes which have affected the demand for skills and the increased demand for general, transferable skills to facilitate labour market mobility across occupations and sectors, there appears to be little evidence of the vocational and general pathways becoming indistinguishable from one another, though there may be some blurring of boundaries. There have been initiatives which have sought to combine general and vocational paths, allowing students to pick and choose from each pathway as part of the increased individualisation of learners' skills programmes, but they are generally of small scale or recent developments. In one of the case study countries – UK-England – where it has been possible to mix and match vocational and general pathways in upper secondary education, there is the possibility that this might be more constrained with the introduction of new vocational T-level qualifications in the near future. At the same time, T-levels are designed to improve the relative quality and esteem of vocational qualifications.

VET has been able to retain a separate identity partly because its structures tend to be separate from those of the general education system: VET students are sometimes engaged in apprenticeships (or programmes with a substantial work experience), have an occupational focus, and are sometimes delivered in vocational schools. This should not be overemphasised as, in many countries, there are schools where learners are studying towards general and vocational subjects. But it needs to be recognised that the focus of vocational studies tends to be on attaining occupational competence.

Relying upon the VET system to remedy emerging skill mismatches and better meet skill needs in the future is dependent upon ensuring that it is able to meet labour market needs (its curriculum and the means used to impart skills are up to date) and, at the same time, attract a sufficiently large proportion of those entering upper secondary education. This has been achieved by, respectively, making sure that curricula are periodically updated and that VET students have access to higher levels of learning. With respect to how curricula are updated, there is no common trend other than that curricula are often determined centrally, with vocational schools having a degree of leeway in how they deliver skills training. The influence of different stakeholders, especially employers, often appears to be rooted in longstanding institutional mechanisms which bring them together. There is no clear trend that employers, for instance, have gained more or less influence over VET curricula vis-à-vis other stakeholders. It very much depends upon the country being considered: in the Netherlands, employers would appear to have lost influence whereas in UK-England their role has increased.

In order to make VET more attractive to students, many countries have looked to strengthen the links to higher levels of education. Sometimes this is through providing access to universities providing general studies or to universities of applied science where the focus is sometimes more upon vocational studies. This has resulted in some reconfiguration of VET curricula at upper secondary level where it provides, sometimes through the availability of additional modules or extra years of study, the opportunity to meet university entry requirements. While this has the benefit of making VET potentially more attractive to many would-be learners, there is a danger that increasing the general element might make it less attractive to some would-be learners: increasing the general component at upper secondary level might be off-putting for those who may have struggled with the very same subjects in lower secondary school. There is also the danger of bringing about a two-tier system of VET at upper secondary level, where some studies may lead to higher education while others do so much less readily.

A further feature of making VET more attractive to would-be learners (and potentially employers) is the provision of workplace-based learning, especially in the guise of apprenticeships or providing more work experience. Where apprenticeship training or the dual system is not already well established, switching to this form of learning is a challenge. Examples have shown how Norway and England have struggled to provide a sufficiently large number of apprenticeship places to students; in Germany, where the dual system is rooted deeply in the social contract, this is not a problem. Apprenticeships, depending upon how they are configured, provide an opportunity for the learner to work and earn while studying; they provide employers with an extended probation period over which

they can shape apprentice skills and assess their fit with the organisation. These kinds of argument have been well rehearsed in the literature on apprenticeships, but it remains the case that switching to this kind of system is far from easy and may take several decades to successfully establish.

A further key feature is the number of VET qualifications on offer. There is evidence that regardless of the number of qualifications on offer – which has fallen in many countries – there is a shift towards an increasingly common element being delivered across courses and programmes in some countries. Evidence from electrical engineering and healthcare programmes illustrates common elements across contiguous occupations, regardless of whether there is a separate programme for each specific occupation title. This partly reflects a growing need to provide skills which will allow a degree of labour market mobility across related occupations.

It is apparent that while mainly national organisations have a large amount of influence over curriculum content, the vocational schools have a degree of autonomy with respect to how those skills are delivered (subject to ultimate performance) and often have responsibility for determining a certain share of curriculum development. Arguably, this allows vocational schools the opportunity to tailor their provision to local labour market needs.

Vocational schools have been subject to reform, falling in number (even though the number of VET learners is sometimes on the increase) as a result of demographic trends and the need to deliver vocational skills more efficiently (achieving better value for money for national exchequers). It is also clear, especially from the survey of training providers, that vocational schools have experienced much change as they have sought to respond to a variety of labour market challenges. The scale of and significance of these changes should not be underestimated. Vocational schools have, over the past 10 years, experienced changes both with respect to what they teach and how they teach it. They are meeting the need to need for more general skills, more depth and breadth, and more individualised learning the plans. This places demands on the teachers and trainers that deliver such types of change.

Some countries have been able to accommodate organic change within a stable policy environment (e.g. Germany), resulting in substantial alteration in the content and structure of VET. In other countries, the policy environment has been busier, so change has required more formal policy interventions (e.g. the former Soviet-bloc countries). This might simply reflect the differing degrees of maturity of the respective VET systems. The challenge is to find the blend of institutional autonomy and national or regional policy oversight to ensure that change takes place but does so in an efficient and flexible manner.

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