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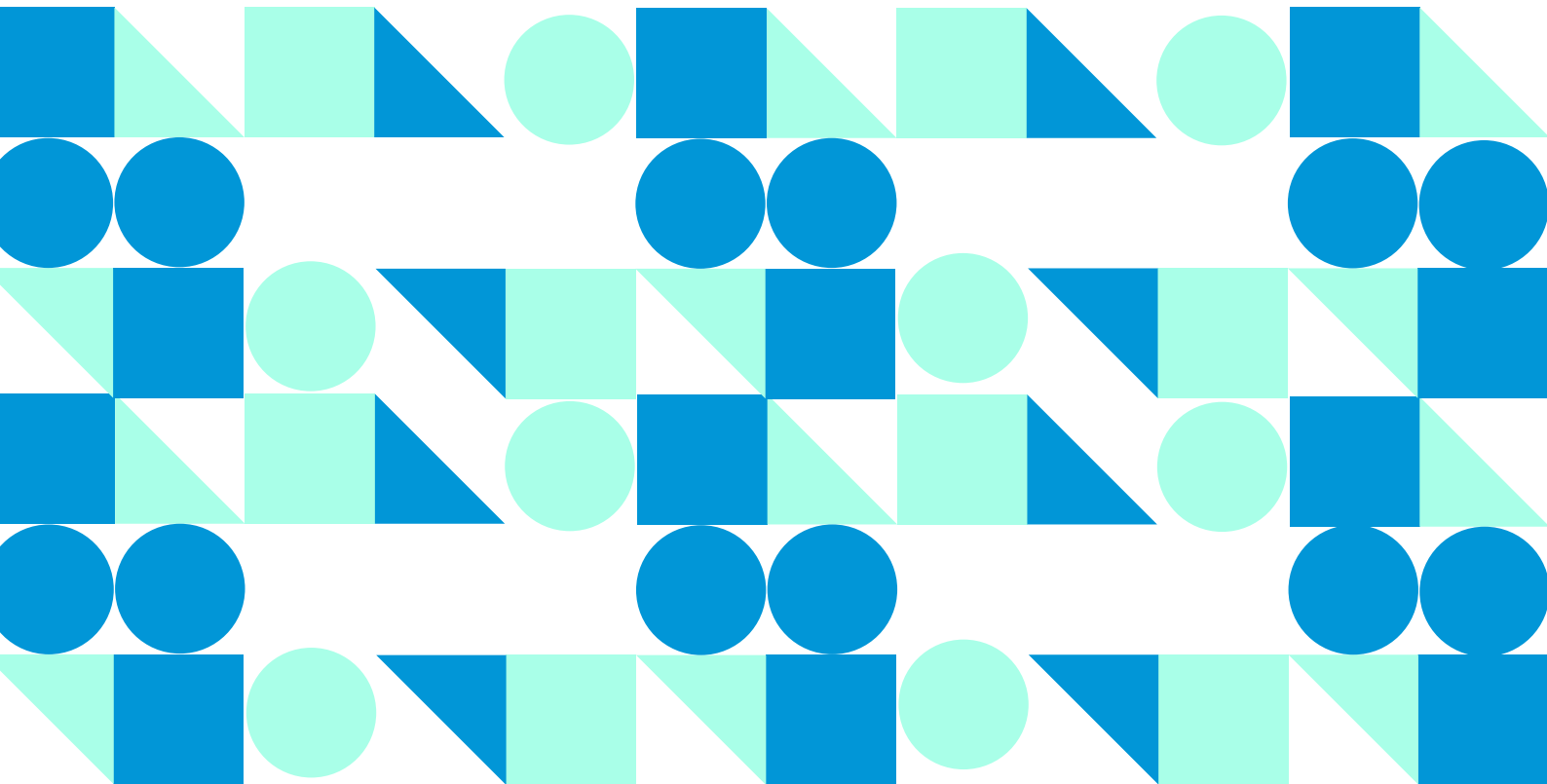
Continuing vocational training in EU enterprises

Developments and challenges ahead



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The **European Centre for the Development of Vocational Training** (Cedefop) is the European Union's reference centre for vocational education and training, skills and qualifications. We provide information, research, analyses and evidence on vocational education and training, skills and qualifications for policy-making in the EU Member States. Cedefop was originally established in 1975 by Council Regulation (EEC) No 337/75. This decision was repealed in 2019 by Regulation (EU) 2019/128 establishing Cedefop as a Union Agency with a renewed mandate.

Europe 123, 'SERVICE POST', 57001 Thermi, GREECE
PO Box 22427, 551 02 Thessaloniki, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

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

Foreword

Lifelong skills development benefits workers, employers and society. It is indispensable for generating and adopting innovation successfully and meeting new and fast-evolving skills requirements, particularly in a time of accelerating technological change. It can help fill skills gaps, help individuals stay and progress in employment, boost motivation and improve performance and productivity. Stepping up skills development for adults is, therefore, central to the European Commission's 2016 Skills agenda and the European Union's (EU) strategy for smart, sustainable and inclusive growth. This is underpinned by the Council recommendation to ensure upskilling opportunities for the low-qualified and the European social rights pillar, which stipulates that everyone has the right to education, training and lifelong learning (LLL) to manage labour market transitions. The European social partners underline a need for high-quality and effective employee training that is equally relevant for workers and employers.

As a main pillar of LLL, continuing vocational education and training (CVET) is in the limelight. Within European cooperation on VET, in 2010 ministers set themselves the objective to increase CVET's contribution towards higher adult participation in learning, reduce access inequalities and make LLL a reality (Bruges communiqué). They committed to devising a combination of incentives, rights and obligations to encourage companies to continue to invest in CVET. These objectives were to be reached by 2020. The need for more, effective and high-quality CVET is reiterated in the vision for post-2020 VET agreed by the Commission's Advisory Committee on Vocational Training. It considers CVET, which contributes to successful enterprises and appropriately skilled workforce, as a shared interest and responsibility of public authorities, employers and employees.

Nevertheless, firms remain decisive gatekeepers of adult learning, since participation across the EU is often non-formal, typically job-related and mostly employer sponsored, with costs directly covered or indirectly supported by enterprises. Monitoring developments of company CVET activities is essential to understanding developments in LLL and adult skills, particularly those that are labour-market-relevant. Internationally comparable statistics and indicators are a necessary resource, as they make it possible to quantify and analyse key patterns and progress within and across countries. The continuing vocational training survey (CVTS), serves exactly this purpose: due to its regularity, content, scale and quality standards, it is acknowledged as the reference data source in this domain at European level. The most recent survey was carried out in 2016,

providing information for 2015 (CVTS 5) and for all EU Member States, Norway and North Macedonia.

As in previous years, Cedefop analysed its results to offer a comparative statistical overview of skills development through CVET in enterprises. Comparing the results with those of the previous survey wave (CVTS 4, 2010), the report provides key data on progress. It devotes particular attention to the training efforts of small and medium-sized enterprises (SMEs) as progress is also related to the ability to increase their level of training activity.

This report originates from Cedefop's commitment and continued effort to help increase availability, analyses and dissemination of data on VET and skills to aid evidence-based policy-making. CVET's crucial role in addressing multiple challenges – an ageing workforce, globalisation, innovation, technological change and a fast-evolving and ever more challenging labour market – requires a clear view on progress and obstacles. Policy-makers and stakeholders call for reliable, comparable, comprehensive, and yet clear and easily understandable data. With this publication, which presents statistical information in a reader-friendly way, we hope to support reflections and consequent decisions to promote employee skills development in enterprises.

Mara Brugia
Acting Executive Director

Alena Zukersteinova
Acting Head of department for skills and labour market

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Executive summary

Aim, content and methods of the report

This report provides a comparative statistical analysis of skills development through continuing vocational training in EU enterprises (CVT). Data originate from the continuing vocational training survey (CVTS) and are subject to its methodology. The report focuses on information from the latest round of the survey (CVTS 5, 2015) across EU-Member States, Norway and the Republic of North Macedonia and compares its results with those from the previous survey wave (CVTS 4, 2010). The report provides information on the developments of employer-sponsored CVT in Europe and on its progresses and contributions to key policy objectives: promoting CVET, enhancing its contribution to expanding adult learning, raising participation, reducing access inequalities and barriers, stimulating financial contributions by all stakeholders, encouraging companies to continue investing in training, and providing the right skills for the labour market.

The study uses key CVTS data to investigate several factors: whether employer-sponsored CVT provision in the EU has increased, and if so, to what extent and along which dimensions; the reasons why provision did not expand further; whether inequalities based on firm size have been reduced; which skills have been trained and which skills employers deem important for the future (main skills needs).

The report uses CVTS as a unique privileged source of statistical information on the subject. Due to its regularity, content, methods, scale and quality standards, CVTS is acknowledged as the reference statistical source in this domain at European level. The survey is coordinated by Eurostat. It covers enterprises with 10 or more persons employed operating across the majority of the private business economy. Activities of public administration are excluded as well as enterprises operating in the sectors of agriculture forestry, fishing, education, health and social work. The analysis uses aggregated data published in Eurostat's online database, retrieved in the period between February and April 2018.

Methods and limitations

To investigate developments in employer-sponsored CVT provision, the report considers four main dimensions of analysis: enterprise CVT provision (incidence), staff participation, time for training (intensity) and enterprise training

expenditure. Data on main indicators are analysed and then summarised by means of a composite summary index. Results are further complemented with findings concerning the reasons indicated by enterprises for not providing (further) training, main skills needs (main skills considered important for the development of enterprises in the next few years) and main skills targeted by employer-sponsored CVT courses. The report devotes particular attention to the training efforts of small and medium-sized enterprises (SMEs) as progress towards the stated policy goals is also related to the ability to increase the level of training activity.

To report on the four key dimensions of analysis, the following performance indicators have been privileged for comparative purposes:

(a) incidence: enterprises providing any type of CVT as % of all enterprises surveyed;
(b) participation: participants in CVT courses as % of employed persons in all enterprises surveyed;
(c) intensity: number of hours spent in CVT courses per 1 000 hours worked by persons employed in all enterprises surveyed;
(d) expenditure: enterprises' total monetary expenditure on CVT courses (direct costs plus contributions minus receipts) as % of total labour costs of all enterprises surveyed.

For each indicator, the report considers both developments over time and inequalities based on enterprise size class; the latter been analysed by means of absolute and relative differences of the indicator values (gaps) between large and small enterprises. Large enterprises are defined as those with 250 or more persons employed; small enterprises are defined as those with 10 to 49 persons employed.

The four indicators mentioned above have also been brought together to derive a composite index SMOP, which stands for surface measure of overall performance. The composite index is a quantitative summary measure of employer-sponsored CVT provision at system level. It condenses in one metric the different dimensions of incidence, participation, intensity and expenditure. It has been calculated at EU and country levels for 2010 and 2015. It can be considered as a synthetic measure of the overall performance of a system in the provision of employer-sponsored CVT, according to the underlying dimensions considered. It has been mainly used to assess changes in performance over time.

Background data quality assessment has shown CVTS data to be of good quality. In most instances, key performance CVT indicators on incidence, participation, intensity and expenditure could be reliably compared over time and

across countries. Methodological changes affected the variables on main skills needs and their comparability over time. Comparisons over time have been carried to the best possible extent, based on patterns emerging from the data rather than on actual comparisons of values. An appropriate sectoral analysis has not been possible. To comply with statistical reliability and confidentiality thresholds, results by economic sector of activity had to be produced with a high level of aggregation, largely insufficient for analytical purposes. Sectoral analysis is given less prominence in the report though available sectoral breakdowns are displayed.

Has employer-sponsored CVT provision increased in the EU and to what extent?

Based on the dynamics of the composite index (SMOP), it has been possible to assess synthetically whether employer-sponsored CVT provision has increased in the EU, and to what extent, considering multiple dimension of analysis (incidence, participation, intensity and expenditure). The dynamics of the composite index indicate moderate but favourable increases. An increase in overall performance in employer-sponsored CVT provision by more than 10% is observed for 15 countries and as the EU average: Bulgaria, Croatia, Denmark, Estonia, Greece, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Slovenia, Spain and the UK. Positive progresses concerned most of the countries which had particularly low scores in 2010 (Bulgaria, Greece, Croatia, Latvia, Lithuania and Poland), even though their rankings on the composite index are still comparatively low. For six countries the composite index did not change more than 10% between 2010 and 2015, so that their CVT provision can be considered remaining fairly stable either at high levels (Belgium and France) or at medium levels (Germany, Malta, Austria and Slovakia). Only in four countries did overall performance fall by more than 10% between 2010 and 2015: Hungary, Portugal and Finland (with falls of 11% to 13%) and Cyprus (21%).

In which areas has employer-sponsored CVT provision increased in the EU and how much?

All four key performance indicators considered show signs of moderate but favourable progress. For the EU-28, training incidence (the share of enterprises providing training) reached 73% in 2015, showing a positive increase of seven percentage points or 10.5% over the 2010 baseline. Training participation and

training intensity (hours spent in training) grew less quickly, respectively by 3.2 percentage points (or 8.5% of the 2010 baseline value) and 0.4 hours per 1 000 hours worked (or 7% compared to 2010). In 2015, 40.8% of those employed participated in CVT courses and an average of 6.2 hours was dedicated to course training out of 1 000 hours worked. Total monetary expenditure for CVT courses was fairly stable (at 0.9% of total labour cost in 2015) and the relative increase by 12.5% is largely due to a small base effect. The progress for the EU a whole reflects different patterns at country level. However, for most countries and dimensions of analysis, changes were favourable (with indicators rising more than 10% compared to the 2010 baselines) or relatively stable (with positive or negative changes no larger than 10%).

Have inequalities based on firm size been reduced?

The report shows that the training gap between large and small enterprises narrowed over 2010-15. For the EU-28 average this occurred on all four indicators, both in terms of absolute and relative performance gaps. As measured by the relative performance gap between large and small enterprises, inequities in training incidence fell from 50% in 2010 to 38% in 2015; inequities in training participation fell from 84% to 59%; inequities in training intensity fell from 100% to 68%; and inequities in training expenditure fell from 43% to 25%. Training gaps by enterprise size class also reduced in most countries. In relative terms, inequalities in training incidence between large and small and enterprises fell in 21 countries; inequalities in participation rates fell in 16 countries; and inequalities in training intensity and total monetary expenditure fell in 14 countries. Considerable differences across enterprise size persist, with large enterprises typically outperforming those of medium size and even more those of small size: in 2015 in the EU, almost all large enterprises (95.3%) provided training to their staff but only 69.3% of small enterprises did so. In large enterprises, staff participation in CVT courses (47.7%) continued to be considerably higher than in small enterprises (30%) as well as the corresponding time devoted to training (7.4 hours per 1 000 hours worked as opposed to 4.4). There are smaller differences in total monetary expenditure on CVT courses, at 1.0% of total labour cost in large enterprise as opposed to 0.8% in small ones.

What factors have hampered further expansion of employer-sponsored CVT?

The report also analyses the reasons indicated by EU enterprises for not providing (further) training in 2015. CVTS 5 asked enterprises which did not provide training to their staff in the reference year (2015) to indicate one or more of the underlying reasons. A large majority of enterprises who did not provide training to their staff (82%) indicated no need for it (in the sense that they perceived available skills as matching their current needs). Even among large enterprises a clear majority (69%) stated that available qualifications, skills and competences match current needs: this emerged as the main reason for not providing training. Another frequent motivation indicated by employers for not providing training was the adoption of a different skills development strategy: 55% of non-training enterprises in the EU privileged the recruitment of new staff with the required skills to fulfil company needs rather than training their current workforce. Larger non-training enterprises more often adopted this strategy (71%) compared to medium (62%) and small enterprises (54%). One out of four non-training enterprises stressed the importance of IVT as an alternative to CVT, with no or small variation by size class (and corresponding values being much higher in Denmark, Germany and Poland). Reasons which can be more properly considered as obstacles to training were less frequently indicated, but they still played an important role. One third of non-training enterprises pointed to a high workload and a lack of time for staff to participate; a slightly smaller share (28%) pointed to high costs of CVT courses. Obstacles such as the lack of suitable offer or difficulties in assessing skills needs appear less important, being indicated by only 13% and 16% of non-training enterprises. Other reasons, including major training efforts in previous years, accounted for relatively smaller percentages. A similar pattern emerges from the analysis of the reasons not to provide further training. In CVTS 5 enterprises which provided training to their staff in the reference year (2015) were asked to indicate one or more than one of the reasons which hampered further provision to their workforce. In the EU, 52% of them indicated no need for further training, in the sense that they considered the level of trained provided as appropriate. This was more often the case for small enterprises (53%) than for medium (47%) and large enterprises (43%) Preference for a skills development strategy different from training was also frequently indicated: 50% of training enterprises in the EU indicated that they preferred to recruit new staff with the required skills rather than providing more training to their workforce. Specific obstacles such as time and cost also limited further expansion of training, respectively in 44% and 34% of training enterprises in the EU, with small variations by size. Other obstacles and other factors were

indicated in smaller proportions. EU average patterns as described here largely hold at country level. Overall, 2015 data indicate that EU enterprises, when asked about the reasons for not providing (further) training, most frequently report that they do not see a need for it (in the sense that they perceive available skills matching their current needs) or that they use different skills development strategies (different from training) to cope with skills needs. To a smaller, still considerable, extent, they include the presence of obstacles to training, Time and/or costs remain the major ones, being indicated by at least a third of EU enterprises as factors preventing or limiting training provision. 2015 findings confirm aspects which have been repeatedly established in previous CVTS-surveys for 2005 and 2010.

Which skills have been taught and which do employers deem most important for the future?

In 2015, enterprises were asked to indicate the main three skills which they considered important for their development in the near future. In the EU as a whole, technical, practical or job-specific skills ranked first, being indicated as important by 46% of all surveyed enterprises. Customer handling and team working skills also emerged, both being considered important by 41% of enterprises in the EU. These three skill bundles (technical, practical or job-specific skills, customer handling skills, and team working skills) clearly emerged as the most frequently indicated ones also in almost all countries. Other skills bundles were indicated in considerable, yet smaller, proportions by enterprises: problem-solving skills (26% in the EU as a whole), management skills (25%) and general IT skills (21%). Management skills in Finland, North Macedonia and Spain, and problem-solving skills in Hungary emerged as particularly important for enterprise development (as they counted among the three most frequently indicated skills bundles in these countries). Skills bundles such as foreign languages, office administration and professional IT scored values between 11% and 14% in the EU. Numeracy/literacy skills and oral/written communication skills were least frequently indicated as being of primary importance for enterprise development (respectively by 6% and 8% of surveyed enterprises in the EU). The importance of technical, practical or job-specific skills for enterprise development is quite often combined with priority provision of related training courses. When training enterprises were asked to indicate the three main skills bundles which they targeted in their CVT course provision (based on hours of training), they most frequently indicated technical practical and job-specific skills (65% of training enterprises on average). This skills bundle was the most frequently

indicated in every single country (although with varying shares). After technical, practical or job-specific skills, customer handling skills were generally prioritised as a subject of employer-sponsored CVT courses (26% of training enterprises in the EU); in almost all countries, they appear as one of the three most frequently indicated skills bundles. Management skills emerge in the top three skill bundles targeted by employer-sponsored CVT courses in 11 countries, with team working skills in five countries. Very small shares of enterprises in the EU prioritised the provision of CVT courses targeting skills in oral/written communication (3%) and numeracy/literacy skills (1%). Although to different degrees, this also holds at country level. Main skill needs did not differ considerably across enterprise size classes for the EU-28. Only for management skills large do differences between size classes exist, and the importance of management skills for future enterprise development rises with enterprise size. This also holds for skills primarily targeted by CVT courses. All these data cannot be properly compared to those of the previous 2010 survey wave, due to methodological changes: employers were asked to indicate all the skills bundles they deemed important for enterprise development and all the skills bundles targeted in their CVT course provision, not just the three main ones. However, comparisons could be possible based on main data patterns as identified by the rank order of skills bundles. In the EU as a whole, the rank order of skills deemed important and the rank order of skills targeted by enterprises' CVT courses was quite similar in 2015 and 2010. Based on the CVTS methodological framework, technical practical and job related skills are confirmed as the top priority for employers both for provision of CVT to their staff and for enterprise development. Oral/written communication skills and literacy and/or numeracy skills are part of their lowest priorities.

Policy implications

Despite progress achieved, data show that training gaps persist among EU enterprises in the provision of employer-sponsored CVT; these gaps are across countries and enterprise size classes, with training levels comparatively lower in small and medium firms. Results also indicate that EU enterprises, when asked about the reasons for not providing (further) training, most frequently indicate that they do not see a current need for it in the sense that they consider available skills matching their needs or the level of training provided appropriate. To a smaller, but still considerable, extent, they include the presence of obstacles to training. Based on the data, the most important obstacles continue to be time and/or costs, which play, as in the past, an important role in limiting further expansion of training.

This suggests the need for EU countries to continue and further develop the course of actions provided for and already undertaken within the EU policy context. This should include:

(a) actively encouraging individuals to participate, and VET-providers to increase their involvement in CVET;
(b) establishing an appropriate framework with the right mixes of incentives, rights and obligations aimed at encouraging companies to continue to invest in human resources development and in CVET;
(c) encouraging flexible training arrangements (such as e-learning, evening courses, training during working hours) and all types of learning; this should also include in-company training and work-based learning, in order to promote access to training in different life situations and to adapt to different needs;
(d) encouraging training institutions and employers to collaborate, particularly to encourage the creation of 'knowledge partnerships', between enterprises, VET providers, design centres, the cultural sector and higher education institutions; there should be an aim to promote the virtuous circle of innovation and training, helping enterprises, particularly small and medium ones, to gain valuable insight into new developments and competence needs and to develop professional excellence and innovation;
(e) encouraging further cooperation between VET policy and other relevant policy areas, such as employment, economic affairs, research and innovation.

There is still scope for policies to act in the following directions:

(a) raising enterprises' awareness of the importance of updating or enlarging their skills and competences (particularly explaining and demonstrating the ways in which training is beneficial for employers and employees);
(b) removing obstacles and barriers to training (particularly those related to time and cost for training) and raising awareness of existing available policy instruments dedicated to this end.

It is crucial to change the perceptions of decision-makers within enterprises and turn enterprises into more active or more training-supportive organisations, which is in turn crucial to expanding provision and the take-up of adult education and training towards higher levels. In reinforcing such efforts, particular attention should be paid to further developing training in small and medium enterprises. Training should be promoted not only as one of the possible adequate reactions to short-term skills needs but also as a proactive choice for continuous skills development, as an investment in a broader and longer-term perspective for the employability of individuals and the competitiveness of companies and countries.

Competitiveness and innovation go hand-in-hand and innovation does not necessarily occur at the frontier of technological development: it is possible and desirable in many different senses and in many different contexts, particularly in small and medium-sized enterprises operating in more traditional sectors. This can take the form of marketing and sales innovation, customer care, quality improvements and/or an enhanced specialisation/customisation/diversification of goods and services. The virtuous circle of training and innovation to be ideally promoted is one where training does not only support and follow changes and innovation; it also precedes and stimulates them, including, and particularly, in small and medium-sized enterprises. Raising awareness of these aspects will help in seeing training increasingly as an active choice and a long-term investment to be pursued more continuously. Increased availability of flexible training arrangements, establishment and fine-tuning of frameworks with the right mixture of incentives, rights and obligations, as well as an increased knowledge and promotion of them, will help remove obstacles related to cost and time.

Data confirm the great importance attributed by employers to technical, practical and job-specific skills for the development of their enterprises in the near future and for choosing the subject of the training they provide. They confirm the importance of continuing vocational training as an important component of adult learning, essential for upgrading and updating the professional skills of the EU work force, in a way which complements and goes beyond skills development through initial education and training. However, in line with previous survey waves, data confirm that employers do not consider oral and written communication skills and numeracy and literacy skills as a top priority: neither for enterprise development in the short term nor for choosing the subject of training they provide to their staff. This does not necessarily mean that they are not interested in those skills: it simply confirms that priority development of adult skills in these domains should be supported by means of public policies and that the Upskilling Pathways Commission initiative is well-grounded. It also suggests that, when it comes to the basic literacy, numeracy or communication skills of staff, the implementation of such policies should carefully consider the importance of engaging, supporting stimulating and complementing employers' efforts in this direction. Employers are decisive gatekeepers of training who may not necessarily assume these skills as one of their top priorities.

CHAPTER 1.

Introduction

1.1. The role of CVET in the EU context

Continuing vocational education and training (CVET) can be considered as education and training after initial education and training (or after entry into working life). It is undertaken for job-related purposes, to obtain knowledge and/or learn new skills for a current or future job, increase earnings, improve job and/or career opportunities in a current or another field and generally improve opportunities for advancement and promotion. CVET is therefore distinguished from continuing education and training which is undertaken for personal, social, recreational, community or domestic purposes. In this sense CVET can be considered the part of adult education and training which is more directly relevant for the labour market. It can be financed, in various combinations, by enterprises, public authorities and learners.

In the context of the Europe 2020 strategy (Council of the EU, 2009; European Commission, 2012b and 2014a), CVET is a central component of lifelong learning (LLL) and employment policies in the EU. The *Agenda for new skills and jobs* flagship initiative (European Commission, 2010a) aims to provide people with the right skills for employment throughout their working lives: LLL and CVET are key elements of this. The 2010 Bruges communiqué (European Commission, 2011) and a range of major EU policy documents – including the 2011 *Council resolution on a renewed European agenda for adult learning* (Council of the EU, 2011) and the 2012 communication *Rethinking education* from the Commission (European Commission, 2012a) – have acknowledged CVET's potential to raise participation in adult education and training and to meet the challenges posed by intensifying globalised competition, technological change, an ageing and shrinking workforce. The Bruges communiqué invites Member States to maximise the contribution of CVET to raising participation in adult education and training towards the 15% target, as defined in the Europe 2020 Education and training strategy (Council of the EU, 2009).

CVET is also key in the EU employment policy context, as it is highlighted in the Employment guidelines (Council of the European Union, 2018) and particularly in guideline 6 on enhancing labour supply and improving access to employment, skills and competences. Member States are called on to increase adult participation in continuing education and training, to ensure that labour market relevant skills are provided throughout people's careers and to upgrade

and increase the supply and take-up of flexible CVET, working together with the social partners, education and training providers, enterprises and other stakeholders. CVET is identified as a way to improve participation of adults in LLL, reinforce their employability and increase employment in Europe.

Improving CVET and adult learning is crucial for an economy based on knowledge and innovation. More specifically, enterprises' investment in continuing vocational training (CVT) of their staff, designed to promote human capital resources, is a key driver of economic performance, competitiveness and productivity in Europe; it reflects the role of enterprises in resolving labour market imperfections and employment imbalances. As such, CVT facilitates the adaptation of workforces to changing patterns of production and work organisation and it also stimulates further innovation in workplaces.

Enterprises are decisive gatekeepers to LLL and previous research (Cedefop, 2015) has confirmed that, across Europe, adult education and training is mostly non-formal, mostly job-related and mostly employer sponsored (directly or indirectly financially supported by the employer), showing that CVT can be considered as the main component of adult education and training.

Monitoring developments of CVT in enterprises has become essential for many reasons and this is why EU Member States are invited to participate in, and implement key messages from, the CVTS (Council of the EU, 2011).

1.2. Aim, scope and structure of this study

In a context of persistent strong policy demand for comparable data on the topic, this report provides a statistical overview of skills development through continuing vocational training in enterprises across the EU Member States as well as North Macedonia and Norway, based on the fifth round of the CVTS (CVTS 5, 2015). It also considers previous waves of the CVTS survey, particularly CVTS 4, to analyse developments over time and to report on progress towards key policy objectives.

The study selects and analyses CVTS data to report on progress made towards EU policy goals in CVET, which include promoting CVET, increasing the contribution of CVET to expanding adult learning participation, reducing access inequalities and barriers, stimulating financial contributions by stakeholders, encouraging companies to continue investing in training and providing the right skills for the labour market.

Key data from CVTS are examined: whether employer-sponsored CVT provision of enterprises in the EU have increased, and, if so, to what extent and along which dimensions; reasons why they did not expand further; whether

inequalities based on firm size have been reduced; which skills have been trained and which skills employers deem important for the future. Readers will find relevant and comparable statistical evidence at EU and country level, which could stimulate further research, policy learning and policy action.

CVTS offers a wealth of integrated and internationally comparable data on continuing vocational training in enterprises from the employers' perspective. The data complement the benchmark indicator on participation in adult education and training derived from the EU labour force survey (LFS) (Cedefop, 2015), specifically focusing on the job-related and employer-sponsored component and enriching the availability of relevant statistical information with many other elements beyond simple participation rates. These elements include enterprises' provision of training, their expenditure on training, the time devoted to it, barriers to training, and information on skills, offering a more comprehensive picture of CVT and its developments over time.

Chapter 2 discusses the data source, the definitions and the methods used in this report. The chapter describes the CVTS methodological framework and defines its key concepts, variables and indicators. The chapter also presents key results of a background data quality assessment to help reading and interpreting the data presented in the report, with a particular view to their comparability across countries and over time. Annex 1 provides more detailed information on CVTS data quality.

Chapter 3 analyses selected indicators on important dimensions of CVT: enterprises' training provision (incidence), staff participation, paid working time devoted to it (intensity) and enterprises' training expenditure. The analysis of them is complemented with the derivation of a composite index, calculated to derive summary and synthetic indications on enterprises training performance across these dimensions. Results are presented at country level and over time. Annex 2 provides additional complementary tables, figures and analysis.

Chapter 4 analyses skills needs from the employer perspective, focusing on the main skills enterprises consider important for their development in the near future and the main skills targeted in enterprise training activities.

Chapter 5 focuses on the reasons that enterprises report for not providing (further) training to their staff.

Chapter 6 summarises key findings of the analysis.

CHAPTER 2.

Data, definitions and methods

2.1. Introduction

The data used in this report originate from the fifth (and previous) round(s) of the CVTS and are subject to its methodology.

CVTS is the reference source for statistical information on continuing vocational training in enterprises in EU countries. It provides internationally comparable data and it is the only integrated source for collecting data on CVT costs and hours of training, as well as on staff participation and related enterprise strategies.

CVTS is a large enterprise survey. It is implemented in all EU countries by national statistical authorities under the coordination of Eurostat. European Commission implementing regulations specify data collection standards of single survey waves (European Commission, 2005, 2010b and 2014b). CVTS uses large samples stratified by enterprise size class and economic sector of activity; these are typically drawn at national level from official business registers/databases, which are considered the gold standard for business surveys. The CVTS covers enterprises 10 or more persons employed, operating in most, but not all, economic sectors of activity as classified in the statistical classification of economic activities in the European Community (NACE). The following NACE sectors are excluded: agriculture, forestry and fishing (A), public administration (O), education (P), health and social work (Q), activities of households (T) and extra-territorial organisations and bodies (U).

The reference period of CVTS is the calendar year. This means that data refer to training activities occurred in a given calendar year (2015 for CVTS 5, 2010 for CVTS 4). Participating countries use the same reference period but the fieldwork period may differ across countries. Data for the analysis carried out in this report were extracted between February and April 2018 from the Eurostat database. These are estimates based on CVTS national samples and should be interpreted as such.

The next sections provide key background methodological information on the survey and its results. Additional information is made available by Eurostat ([1]).

2.2. Defining key concepts and indicators

2.2.1. Key concepts and variables

This section presents definitions of key CVTS concepts and variables used to derive the indicators in this report.

The concept of CVT is defined in the implementation manual of CVTS 5 (Eurostat, 2016), as the set of training measures or activities which have, as their primary objectives, the acquisition of new competences or the development and improvement of existing ones, and which must be sponsored at least partly by the enterprises for their persons employed. Finance can be direct or indirect. Indirect financing could include the use of paid work-time for the training activity as well as the financing of training equipment. The training measures or activities must be planned in advance and must be organised or supported with the special goal of learning. Random learning and initial vocational training (IVT) are explicitly excluded.

In CVTS, persons employed are those who work for the enterprise surveyed; this includes those who either have a working contract with it or who benefit directly from their work for the enterprise, such as unpaid family workers and casual workers. Persons employed do not include those working at the enterprise but with a salary paid by another company. Those holding an apprenticeship or a training contract are not considered as persons employed and are not considered as receiving CVT: the definition of persons employed in CVTS deviates from the one used for structural business statistics in its treatment of persons employed holding an apprenticeship or training contract (Eurostat, 2016).

According to CVTS methodology, the following forms of CVT are covered:

(a) CVT courses;

(b) other forms of training.

([1]) This includes:
(a) reference online metadata:
https://ec.europa.eu/eurostat/cache/metadata/en/trng_cvt_esms.htm
(b) implementation manuals and their annexes (Eurostat 2012 and 2016), national quality reports documenting the implementation of the survey and the data quality at national level), as well as Eurostat's own quality assessment of CVTS 4 (Eurostat, 2015): https://ec.europa.eu/eurostat/web/education-and-training/quality

'CVT courses are typically clearly separated from the active workplace (learning takes place in locations specially assigned for learning, like a classroom or a training centre). They show a high degree of organisation (in time, space and content) by a trainer or a training institution. The content is designed for a group of learners (e.g. a curriculum exists)'. They can be managed by the enterprise itself, if internal, or by third-party organisations, if external (Eurostat, 2016, p. 25).

'Other forms of CVT are typically connected to the active work and the active workplace, but they can also include participation (instruction) in conferences, trade fairs etc. for the purpose of learning. These other forms of CVT are often characterised by a degree of self-organisation (time, space and content) by the individual learner or by a group of learners. The content is often tailored according to the learners' individual needs in the workplace' (Eurostat, 2016, p. 25). The following types of other forms of CVT are identified:

(a) planned training through guided on-the-job training: 'it is characterised by planned periods of training, instruction or practical experience in the workplace using the normal tools of work, either at the immediate place of work or in the work situation' (Eurostat, 2016, p. 27);
(b) planned training through job rotation, exchanges, secondments or study visits: 'job rotation within the enterprise and exchanges with other enterprises are *other* forms of CVT only if these measures are planned in advance with the primary intention of developing the skills of the workers involved. Transfers of workers from one job to another which are not part of a planned developmental programme should be excluded' (Eurostat, 2016, p. 27);
(c) planned training through participation (instruction received) in conferences, workshops, trade fairs and lectures: 'participation (instruction received) in conferences, workshops, trade fairs and lectures are considered as training actions, only when they are planned in advance and if the primary intention of a person employed for participating is training/learning' (Eurostat, 2016, p. 27);
(d) planned training through participation in learning or quality circles: 'learning circles are groups of persons employed who come together on a regular basis with the primary aim of learning more about the requirements of the work organisation, work procedures and workplaces. Quality circles are working groups, having the objective of solving production and workplace-based problems, through discussion. They are counted as *other* forms of CVT only if the primary aim of the persons employed who participate is learning' (Eurostat, 2016, p. 27);

(e) planned training by self-directed learning (e.g. self-directed e-learning): self-directed learning occurs 'when an individual engages in a planned learning initiative where he or she manages the settings of the learning initiative/activity in terms of time schedule and location. Self-directed learning means planned individual learning activities using one or more learning media. Learning can take place in private, public or job-related settings. Self-directed learning might be arranged using open and distance learning methods, video/audio tapes, correspondence, computer based methods (including internet, e-learning) or by means of a learning resources centre. It has to be part of a planned initiative. Simply surfing the internet in an unstructured way should be excluded. Self-directed learning in connection with CVT courses should not be included here' (Eurostat, 2016, p. 27).

According to CVTS methodology, training enterprises are defined as enterprises that provided CVT courses or other forms of CVT for their persons employed during the reference year.

A participant in CVT courses 'is a person who has taken part in one or more CVT courses during the reference year. Each person should be counted only once, irrespective of the number of CVT courses he or she has participated in. For example, if a person employed has participated in two externally managed courses and one internally managed course, he or she should be counted as one participant' (Eurostat, 2016, p. 28).

The costs of CVT courses for enterprises cover direct costs, participants' labour costs and the balance of contributions to and receipts from training funds (net contribution). Direct courses costs include:

(a) fees and payments for CVT courses;
(b) travel and subsistence payments related to CVT courses;
(c) the labour costs of internal trainers for CVT courses (direct and indirect costs);
(d) the costs for training centres, training rooms and teaching materials.

Participants' labour costs (personal absence costs) refer to the labour costs of participants for CVT courses that take place during paid working time (Eurostat, 2016).

The net contribution to training funds is made up of the cost of contributions made by the enterprise to collective funding arrangements through government and intermediary organisations minus receipts from collective funding arrangements, subsidies and financial assistance from government and other sources. These net contributions are not always shown in the online tables (Eurostat, 2016, p. 29).

The total monetary expenditure comprises direct costs and the net balance of contributions to, and receipts from, training funds, representing a more refined measure of investment in CVT courses by enterprises.

Time spent on CVT courses refers to paid working time (in hours) spent on the courses, i.e. the time that all participants have spent in total during the reference year. This 'should only cover the actual training time, and only the time spent during the paid working time' (Eurostat, 2016, p. 28).

CVTS contains some variables on IVT, which are not dealt with in this report and which are not included in the concept of CVT as defined for the survey. The concept of IVT within enterprises is defined as formal education programmes (or a component of them) where working time alternates between periods of practical training (workplace) and general/theoretical education (educational institution/training centre). The definition of IVT differs between CVTS waves. 'In CVTS 5, initial vocational training (IVT) is restricted to apprenticeships at International standard classification of education (ISCED) 2011 level 2 to 5. The following criteria need to apply:

(a) the apprenticeship must be a formal education programme (or a component of it). Within the programme learning time alternates between periods of practical training (workplace) and general/theoretical education (educational institution/training centre);
(b) the completion of the apprenticeship is mandatory to obtain a qualification or certification for this programme;
(c) the duration of the apprenticeship is from six months to six years. The duration refers to the programme and not only to the work-based component;
(d) the apprentices receive remuneration (wage or allowance, in cash or in kind)'. (Eurostat, 2016, p. 24).

Therefore, the concepts of CVT and IVT, as well as the workers who can potentially benefit from them, are differentiated in CVTS.

2.2.2. Key indicators

This report analyses countries performance on four key dimensions: CVT provision by enterprises (incidence), staff participation, time for training (intensity) and enterprise expenditure on training. As these dimensions are not necessarily dependent, they need to be considered both separately and jointly to derive a clear and comprehensive picture of CVT in firms. For instance, a situation of a comparatively high participation in training may not necessarily combine with high levels of training time (if participation occurs mainly in very short, daily, courses).

The following indicators are considered in the report:

(a) training incidence: enterprises providing any type of CVT as % of all enterprises surveyed;
(b) training participation: participants in CVT courses as % of persons employed in all enterprises surveyed;
(c) training Intensity: number of hours of CVT courses per 1 000 hours worked by employed persons in all enterprises surveyed;
(d) training expenditure: direct monetary expenditure on CVT courses as % of total labour costs of all enterprises surveyed, and total monetary expenditure on CVT courses as % of total labour costs of all enterprises surveyed.

The indicators on incidence, participation, intensity and expenditure are analysed using a separated granular approach. They are also brought together to derive a composite summary index. In the derivation of the index, the dimension of training expenditure is addressed by considering only the total monetary expenditure on CVT courses.

The selection of the indicators, including those used for the calculation of the composite index (SMOP), is driven by previous methodological work (Behringer et al., 2008), still considered relevant and valuable.

The indicator on incidence refers to CVTS courses and other forms of training. The indicators targeting participation, intensity and expenditure only refer to training in the form of CVT courses, since CVTS does not collect more complete data along these dimensions. Although far from ideal, this is not considered a major limitation and it can even increase the accuracy of the data as reported by employers; CVT courses remain the most frequent form of training in enterprises with greatest participation. For employers, quantification of training participants, training time and training expenditure is often seen as easier and more accurate if limited to CVT courses only.

The indicators on incidence, participation, intensity, and expenditure are calculated considering all enterprises surveyed in the denominator (training and non-training enterprises).

2.2.3. Other important statistics and indicators

CVTS information on enterprise training behaviour is complemented with the reasons enterprises report for not providing any training (as declared by non-training enterprises) and reasons for not providing more training (as declared by training enterprises). Lists of non-mutually exclusive reasons were provided to the respondents. CVTS also offers important data on skills needs from the employers' perspective. Variables cover the main skills considered important by enterprises for their development in the near future (as indicated by all surveyed enterprises) and main skills targeted in CVT courses (as indicated by training

enterprises with CVT courses). A common list of skills bundles was provided to the respondents. In the report, the following statistics are considered:

(a) reasons for non-provision of (further) training:
    (i) reasons for not providing training, (% of non-training enterprises indicating a specific option within a list of items);
    (ii) reasons for not providing more training, (% of training enterprises indicating a specific option within a list of item);
(b) main skill needs:
    (i) main skill considered important by enterprises for their development in the near future (% of all enterprises indicating a specific option within a list of items);
    (ii) main skills targeted in employer-sponsored CVT courses (% of training enterprises indicating a specific option within a list of a items).

Enterprises were asked to indicate the three most important skills bundles for their development in the near future from a closed list of items. Therefore, % values are percentages of enterprises quoting each option as one of the three most important skills bundles. Similarly, training enterprises were asked to indicate the three most important skills bundles targeted in their CVT courses (based on hours of training sponsored) from a closed list of items. Therefore, % values are percentages of enterprises quoting each option as one of the three most important skills bundles.

2.2.4. Size and sectoral breakdowns

This report uses two key breakdowns for analysis of the results: the enterprises' economic sector of activity, based on the *Nomenclature statistique des activités économiques dans la Communauté européenne* (NACE) and their size class (in number of persons employed). Analytical breakdowns reflect the survey coverage and comply with the Eurostat recommended approach to safeguard the principles of reliability, comparability and confidentiality of the estimates presented. Table 1 and Table 2 present the key breakdowns used in the report.

It is acknowledged that the breakdown by economic sector of activity provides aggregated results for categories which are too few in number and present a high level of internal heterogeneity. With such a small level of detail, the breakdown remains largely insufficient for analytical purposes, so it is given less prominence in the report. Sectoral categories (i.e. clusters) used in this report are detailed in Table 2 (their very short description is used in the text of the report for ease of writing). More detailed information on the NACE divisions considered in the survey coverage and in the breakdowns of its results is provided in Annex 1 (Table A 2).

Table 1. **CVTS, grouping of enterprise sizes for statistical reporting**

Enterprises size class (label)	Enterprise size class (description)
Small	From 10 to 49 persons employed
Medium	From 50 to 249 persons employed
Large	250 persons employed and more

Source: Eurostat database.

Table 2. **CVTS, grouping of economic sectors of activity in five clusters for statistical reporting**

NACE cluster (label)	NACE cluster (short description)	NACE cluster (very short description)
B-E	industry (except construction)	industry
F	construction	construction
G-I	wholesale and retail trade, accommodation and food activities, transport and storage	trade, accommodation/food and transport/storage
J-K	information and communication, financial and insurance activities	information, communication and finance/insurance
L-N_R-S	real estate activities, professional, scientific and technical activities, administrative and support service activities, arts, entertainment and recreation, other service activities	other technical and recreational services

Source: Eurostat database; Cedefop.

2.2.5. Comparing countries' performance over time

To compare country performance over time, the report analyses data from CVTS 4 and CVTS 5, considering key indicators. 2010 data from CVTS 4 are used as baseline values under the current EU policy cycle. Absolute differences between CVTS 5 and CVTS 4 indicators values are considered as a measure of change. They are expressed in the specific unit of measure of the indicator considered. They are often combined with the analysis of relative changes, which instead consider the absolute difference as a starting point and further express it as a percentage of the 2010 baseline value. For instance, for the EU-28 average, training incidence was at 65.7% in 2010 and has reached 72.6% in 2015, showing an increase of 6.9 percentage points (absolute difference) or of 10.5% (relative difference) over the 2010 baseline. Relative differences are often used in the charts to cluster countries' progresses on the four key dimensions of interest: countries with a relative difference of plus or minus 10% are labelled as having relatively stable results over time. Increases or decreases by more than 10% are also highlighted.

2.2.6. Comparing performance by enterprise size and sector of activity

A key issue for this report is how performance differences by company size can be compared across countries and over time. To answer this question, the report focuses on the performance gap between small and large enterprises and uses

two measures: the absolute and relative difference. The absolute difference is defined as the difference (expressed in the corresponding unit of measure) between the indicator values for large and small enterprises. The relative difference is defined as the percentage ratio between the absolute difference and the indicator value for small enterprises. The latter shows, in percentage terms, how much higher is the value for large enterprises compared to that of small enterprises. The larger these differences, the wider the absolute or relative training gap between small and large enterprises.

Table 3 illustrates, by means of an example, how absolute and relative difference are used to report changes in performance gap between small and large enterprises in CVTS 5 compared to CVTS 4. The table shows the comparison between two countries in 2015 and 2010. In 2015 the absolute difference is 10 in both countries; as the indicator value for small enterprises in country 2 is half of the minimum value in country 1, the relative difference in country 2 doubles the relative difference in country 1. This indicates that the relative performance gap between small and large enterprises is larger in country 2. In practical terms, in country 1 the training performance of small enterprises is relatively worse than for large enterprises by 16.67%; the relative gap in country 2 is wider at 33.33%.

Table 3. **Changes in performance gap between small and large enterprises in CVTS 5 compared to CVTS 4 (example)**

		2015		2010	
		Country 1	Country 2	Country 1	Country 2
Small	10-49 persons employed	60	30	50	45
Medium	50-249 persons employed	65	35	55	52
Large	250 persons employed and more	70	40	60	60
Absolute difference	Large-small	10	10	10	15
Relative difference (%)	Difference/small	16.67%	33.33%	20%	33,33%

Source: Own calculations, based on fictitious data.

In comparisons over time, all enterprise size classes show an absolute improvement of 10 in country 1. In contrast to the absolute difference, the relative difference drops from 20% to 16,67% between 2010 and 2015, indicating that the performance gap between small and large enterprises has decreased in country 1.

In country 2, all enterprise size classes show a decline in performance; among small enterprises this decline (-15) is smaller than among large

enterprises (-20). While the absolute difference falls from 15 to 10, the relative difference remains the same at 33%, indicating that the performance gap between small and large enterprises has decreased in absolute value, while the relative distance between the performance of small and large enterprises has remained the same. The results of this type of analysis are reported in the text of Chapter 3. Supporting tables are presented in Annex 2.3.

To assess the inequities across economic sectors, a slightly different approach is followed to analyse patterns of sectoral inequalities across countries. These are more fragmented than those by enterprise size class. In each country the difference between the indicator value for the best performing sector (the maximum value across sectors) minus the indicator value for the worst performing sector (the minimum value across sectors) is calculated (range). Then the range is expressed relative to the minimum value. The results of this type of analysis are reported in the text of Chapter 3. Supporting tables are presented in Annex 2.4. The approach is reflected in the formula: Range = max – min: Relative range (%) = range / min.

2.3. Data issues

This section provides important information to help reading and interpreting the data presented in this report, with a particular view to their comparability across countries and over time. It presents key results of a quality assessment of CVTS 5. Other minor deviations with minor or negligible impact on comparability are reported in Annex 1. The assessment is based on an analysis of its methodological developments over time, implementation at national level of commonly agreed survey standards, and the impact of possible changes and deviations on the comparability of the statistical results across countries and over time. It is largely based the survey implementation manuals and the national quality reports.

2.3.1. Effective sample size and response rates

In CVTS, the net sample size (the actual number of responding enterprises) varies across countries but it is quite large in all of them, representing a good precondition to have survey results of good quality. In CVTS 5, Italy and Poland have the largest net sample size with respectively 18 130 and 14 380 enterprises. Luxembourg and Malta have the smallest net sample size with 876 and 972 enterprises (Table 4).

In CVTS 5, unit non-response rates ranges from 1.1% in Lithuania to 75.8% in Germany. Figure 1 shows these non-response rates are influenced by the

mandatory/voluntary nature of enterprise participation. In countries with voluntary participation, the unit non-response rates are generally higher, though there are exceptions. Norway has a low non-response rate of 28%, even though participation in the survey was voluntary. Ireland has a remarkably high non-response rate (60%), even where participation was mandatory.

CVTS 5 data for Germany, Ireland and the UK should be interpreted with extreme caution due to the comparatively high non-response rates (around or above 60%).

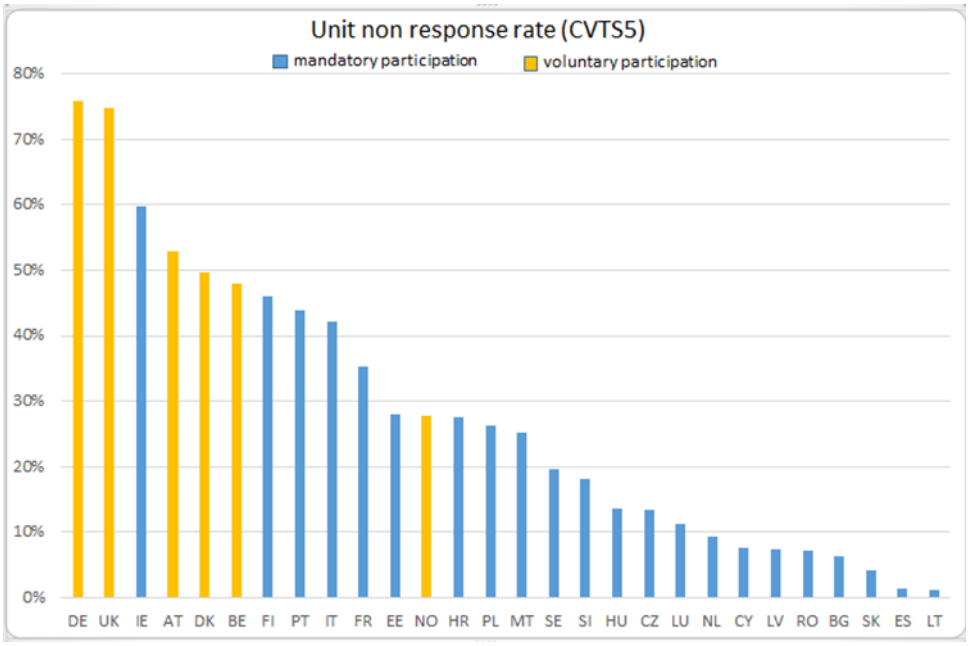
Table 4. **Net sample size and target population of the CVTS 5 survey**

Country	Target population	Eligible sample	Net sample	Unit non-response	Net sample size as % of target population (%)	Unit non-response rate (%)
	(a)	(b)	(c)	(d)	(e)=(c)/(a)	(f)=(d)/(b)
AT	39 487	4 022	1 894	2 128	4.8%	52.9%
BE	27 774	8 671	4 509	4 162	16.2%	48.0%
BG	27 340	4 216	3 949	267	14.4%	6.3%
CY	3 438	1 469	1 356	113	39.4%	7.7%
CZ	44 357	9 224	8 001	1 223	18.0%	13.4%
DE	288 080	11 783	2 846	8 937	1.0%	75.8%
DK	18 431	3 001	1 511	1 490	8.2%	49.7%
EE	7 036	2 856	2 057	799	29.2%	28.0%
EL	NA	NA	NA	NA	NA	NA
ES	137 464	8 102	7 982	120	5.8%	1.5%
FI	17 359	2 924	1 579	1 345	9.1%	46.0%
FR	187 023	7 186	4 644	2 542	2.5%	35.4%
HR	12 003	3 934	2 853	1 081	23.8%	27.5%
HU	29 615	6 746	5 830	916	19.7%	13.6%
IE	19 821	5 516	2 222	3 294	11.2%	59.7%
IT	184 273	31 360	18 130	13 230	9.8%	42.2%
LT	15 056	3 773	3 732	41	24.8%	1.1%
LU	4 716	988	876	112	18.6%	11.3%
LV	10 003	2 940	2 721	219	27.2%	7.4%
MK	NA	NA	NA	NA	NA	NA
MT	1 926	1 301	972	329	50.5%	25.3%
NL	52 015	5 319	4 818	501	9.3%	9.4%
NO	26 281	3 229	2 332	897	8.9%	27.8%
PL	101 775	19 518	14 380	5 138	14.1%	26.3%
PT	36 788	6 210	3 481	2 729	9.5%	43.9%
RO	50 926	8 784	8 148	636	16.0%	7.2%
SE	39 268	5 717	4 599	1 118	11.7%	19.6%

Country	Target population	Eligible sample	Net sample	Unit non-response	Net sample size as % of target population (%)	Unit non-response rate (%)
	(a)	(b)	(c)	(d)	(e)=(c)/(a)	(f)=(d)/(b)
SI	7 433	2 069	1 692	377	22.8%	18.2%
SK	14 068	2 274	2 179	95	15.5%	4.2%
UK	219 150	13 085	3 315	9 770	1.5%	74.7%

Source: Own calculations based on CVTS 5 national quality reports.

Figure 1. **Unit non-response rates in CVTS 5 (%)**



NB: Enterprise participation in the survey was mandatory in Czechia and Malta, with exceptions possible. In Sweden, participation was mandatory for 49 variables and voluntary for others.

Source: Own calculations based on CVTS 5 national quality reports.

2.3.2. Comparability across countries and over time

This section gives special attention to changes between the two latest survey waves (CVTS 5 and CVTS 4) and across countries. As the EU framework of CVTS had matured already in course of the earlier waves, changes in methods (including the questionnaire) between CVTS 4 and CVTS 5 have been few. Modifications have been made with a view to improving the overall quality of CVTS and are not considered to have a serious impact on the comparability of CVTS 5 and CVTS 4.

Table 5 provides a detailed overview of changes at EU level. Commission Regulation (EU) No 1153/2014 (European Commission 2014b) adapted the data to be collected, the sampling, precision and quality requirements for CVTS 5. Compared to CVTS 4, the following changes were implemented:

(a) reduction in variables: some CVTS 4 variables were removed from the questionnaire in continuous efforts to lower the burden on CVTS respondents;
(b) simplification of the list of variables: other CVTS variables were simplified.

Table 5. **Main changes in 2015 compared to 2010**

Variables simplified in CVTS 5	CVTS 4 variables removed in CVTS 5
A12 (skills considered important in the coming years) - rather than asking to tick all relevant items from the 12-fold skills bundles list and then indicate the most important one, respondents are asked to tick the 'three most important' items.	A3 (total number of persons employed in the previous year)
C5 (skills targeted by CVTS courses) - rather than asking to tick all relevant items from the 12-fold skills bundles list and then indicate the most important one, respondents are asked to tick the 'three most important' items based on hours of training sponsored.	A6 (introduction of new products / services)
C6 (training providers) – rather than asking to tick all relevant items from the list of providers categories, and then indicate the most important one, respondents are asked to tick the 'three most important' items.	A7 (own/shared training centre)
B2a-B2e (other forms of CVT) – rather than asking the exact number of participants in each of the other forms of CVT (other than CVT courses), respondents are asked to indicate if participants were: less than 10% of persons employed, between 10% and less than 50% of them or more than 50%.	A11a, A11b (review of skill/training needs of staff)
F1 (IVT participants) – the quantification of the exact number IVT participants is dropped from the standard questionnaire. The question on whether enterprises employ IVT participants is kept.	A17 (sources of information about CVT)
	D1 (aspects to ensure quality of CVT)

Source: Eurostat (2016).

Such methodological changes at European level do not affect:

(a) key indicators on enterprises training incidence, staff participation in CVT courses, hours spent in CVT courses and related firms' expenditure.
(b) reasons reported by enterprises not to provide (further) training than CVT courses.

However, changes prevent the calculation of participation rates in forms of training other than CVT courses, which was previously possible. This is perceived as a major loss. Although the accuracy of participation rates in forms of training different from CVT courses has been sometimes questioned, also with a

view to the respondent burden they imply, there is no doubt that they represent important indicators, particularly at a time where the policy context stresses the importance of increasing the flexibility of training arrangements to raise participation in CVET and LLL. Changes also affected the variables on skills needs: their informative power has been diminished and their comparability over time has been hampered.

As far as implementation at national level is concerned, data points for two countries have been identified and assessed as affected by comparability issues and are consequently flagged in this report. These are Czechia and Sweden.

In Sweden, employer provision of information covering many variables, including key quantitative ones, was made mandatory in CVTS 5. This implied a strong push for employers to provide relevant information, particularly considering that in previous survey waves all questions were answered on a voluntary basis. As a result, the overall response rate increased from 34% in CVTS 4 to 80% in CVTS 5. Large enterprises have responded to the survey to a much greater extent than for CVTS 4 (85% in CVTS 5 compared to 24% in CVTS 4). The non-response bias in the survey has, therefore, decreased to a considerable extent. While this is a major improvement, comparability over time between CVTS 5 and CVTS 4 is judged to be low for Sweden.

Some changes were made in Czechia in implementing CVTS 5 to improve the quality of the national questionnaire, including the understanding of its concepts and definitions. The order of questions was changed in the 2015 questionnaire and some concepts/questions were split into multiple questions. Full comparability over time of key data on incidence, participation, intensity and expenditure is hampered by the new way companies were asked about providing CVT courses. Geographic comparability is also limited as regards to CVT costs: in CVTS 5, Czech companies were asked to report on the total amount of money spent on any training (of any kind, not only courses). As a consequence, 2015 CVTS data for Czechia on enterprise expenditure in CVT are not comparable with those for other countries and are not comparable with those from previous CVTS rounds.

Data for Portugal on the dimensions of training participation and training time are of a peculiar kind. Starting from CVTS 4, Portugal has been obtaining the information on participants in CVT courses and on paid working hours devoted to training from a newly established national register, where enterprises are obliged to record information on their training activities. This approach is allowed by CVTS methodological framework and it is likely to be even more accurate than that of asking relevant information directly from employers at the moment of the survey, in that it minimises non-response biases. However, without necessarily

undermining comparability, this is a considerable difference from other countries and should be considered when interpreting geographic comparisons which involve data for Portugal on training participation and training time. This reflects authors' own assessment, considering the relationships between modes of data collection, level and pattern of non-responses and final estimates.

CHAPTER 3.

CVET in enterprises: key indicators, breakdowns and trends

3.1. Incidence (enterprise provision of training)

This section discusses the level of training incidence in EU enterprises. The indicator considered is the number of enterprises providing any type of CVT as a percentage of all enterprises surveyed.

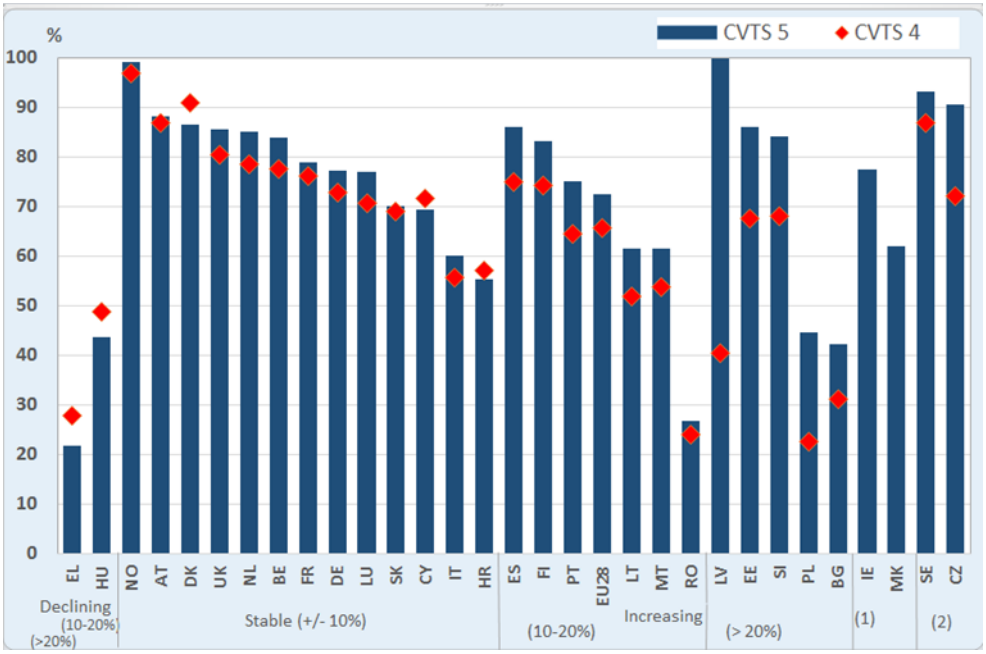
For the EU-28, training incidence reached 73% in 2015, showing a moderate increase of seven percentage points or 10.5% over the 2010 baseline. Training incidence in 2015 varies between 22% in Greece and 99% in Latvia. Figure 2 illustrates the cross country differences, plotting the incidence rates of both CVTS 5 (2015) and CVTS 4 (2010). Countries are ordered according to the evolution of training incidence between 2010 and 2015. We characterise the evolution as stable if the change in training incidence is less than 10% of the 2010 baseline value. Moderate increases or falls are indicated by changes between 10% and 20%. Strong increases or falls are indicated when training incidence shares change by more than 20%.

For 13 countries the incidence of training did not change more than 10% between 2010 and 2015. For six countries (Spain, Lithuania, Malta, Portugal, Romania and Finland), as well as the EU average, an increase in training incidence between 10% and 20% is reported. For five other countries (Bulgaria, Estonia, Latvia, Poland and Slovenia), training incidence rose more than 20%. In Greece and Hungary training incidence between 2010 and 2015 fell by respectively 22% and 10%. North Macedonia and Ireland could not report any development over time as they did not participate in CVTS 4.

Given the magnitude of the increase, the evolution of training incidence in Latvia (40.4% in 2010 to 99.9% in 2015) is remarkable. According to the Latvian country report the increase is genuine and due to the fact that practically all enterprises report having sponsored guided-on-the-job training in 2015. Table 6 provides a comparison between 2005 (CVTS 3), 2010 (CVTS 4) and 2015 (CVTS 5).

The strong increase in training activity in Portugal between 2005 and 2010 reflects the introduction of a 35-hour training obligation for employers in 2009 (Naumann et al., 2009).

Figure 2. **Training incidence, % of enterprises providing any type of CVT training (courses or other forms), 2015 and 2010**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

The evolution of training incidence between CVTS 3 and CVTS 4 in Italy (+73%), Spain (+59%), Romania (-40%) and Poland (-35%) was large as the magnitude of change largely exceeded the general trend. In Italy and Spain strong favourable increases in training incidence as compared to CVTS 3 are further confirmed by CVTS 5 findings. They combine with changes to the respective institutional framework:

(a) for Spain, the introduction of a new generous cofunding schemes for employer provided training in 2009 (Arasanz Diaz, 2009);
(b) for Italy, the continuing expansion of State-funded and collectively funded sectoral training funds after 2005 (Giaccone, 2009).

In Romania, training incidence as reported for CVTS 5 is much lower than it was in CVTS 3 but better than in CVTS 4. The context is a step-by-step implementation of (legally enforced) sectoral agreements on company-provided training (Chivu, 2009).

In the case of Poland, the evolution of training incidence between CVTS 3 and CVTS 5 is quite volatile: in 2005 was it was 34.8%, then dropped to 22.5% in 2010, to rise again to 44.7% in 2015.

Table 6. **Training incidence, % of enterprises providing any type of CVT training (courses or other forms), CVTS 3, CVTS 4 and CVTS 5**

	Training incidence %			Difference (% points)		Relative difference (%)	
	2005	2010	2015	2015-10	2015-05	2015-10	2015-05
EU-28	59.7	65.7	72.6	6.9	12.9	10.5%	21.6%
AT	81.1	86.9	88.1	1.2	7.0	1.4%	8.6%
BE	62.5	77.6	83.9	6.3	21.4	8.1%	34.2%
BG	28.7	31.2	42.2	11.0	13.5	35.3%	47.0%
CY	50.7	71.6	69.5	-2.1	18.8	-2.9%	37.1%
CZ (2)	72.0	72.2	90.6	18.4	18.6	25.5%	25.8%
DE	69.5	72.8	77.3	4.5	7.8	6.2%	11.2%
DK	85.3	90.9	86.6	-4.3	1.3	-4.7%	1.5%
EE	66.6	67.7	86.1	18.4	19.5	27.2%	29.3%
EL	21.0	27.8	21.7	-6.1	0.7	-21.9%	3.3%
ES	47.1	74.9	86.0	11.1	38.9	14.8%	82.6%
FI	76.7	74.4	83.1	8.7	6.4	11.7%	8.3%
FR	73.8	76.1	78.9	2.8	5.1	3.7%	6.9%
HR	NA	57.1	55.4	-1.7	NA	-3.0%	NA
HU	49.1	48.7	43.8	-4.9	-5.3	-10.1%	-10.8%
IE	66.9	NA	77.4	NA	10.5	NA	15.7%
IT	32.2	55.6	60.2	4.6	28.0	8.3%	86.9%
LT	46.4	51.9	61.6	9.7	15.2	18.7%	32.8%
LU	71.8	70.8	77.1	6.3	5.3	8.9%	7.4%
LV	36.4	40.4	99.9	59.5	63.5	147.3%	174.5%
MK	NA	NA	61.9	NA	NA	NA	NA
MT	45.6	53.9	61.6	7.7	16	14.3%	35.1%
NL	74.7	78.6	85.0	6.4	10.3	8.1%	13.8%
NO	86.0	96.8	99.1	2.3	13.1	2.4%	15.2%
PL	34.8	22.5	44.7	22.2	9.9	98.7%	28.5%
PT	44.1	64.6	75.0	10.4	30.9	16.1%	70.1%
RO	40.3	24.1	26.7	2.6	-13.6	10.8%	-33.8%
SE (2)	78.4	87.0	93.1	6.1	14.7	7.0%	18.8%
SI	72.9	68.0	84.1	16.1	11.2	23.7%	15.4%
SK	60.4	69.0	70.0	1.0	9.6	1.5%	15.9%
UK (1)	90.4	80.4	85.7	5.3	-4.7	6.6%	-5.2%

(1) Break in time series between CVTS 4 and CVTS 5.

(2) Data for CVTS 3 not comparable.

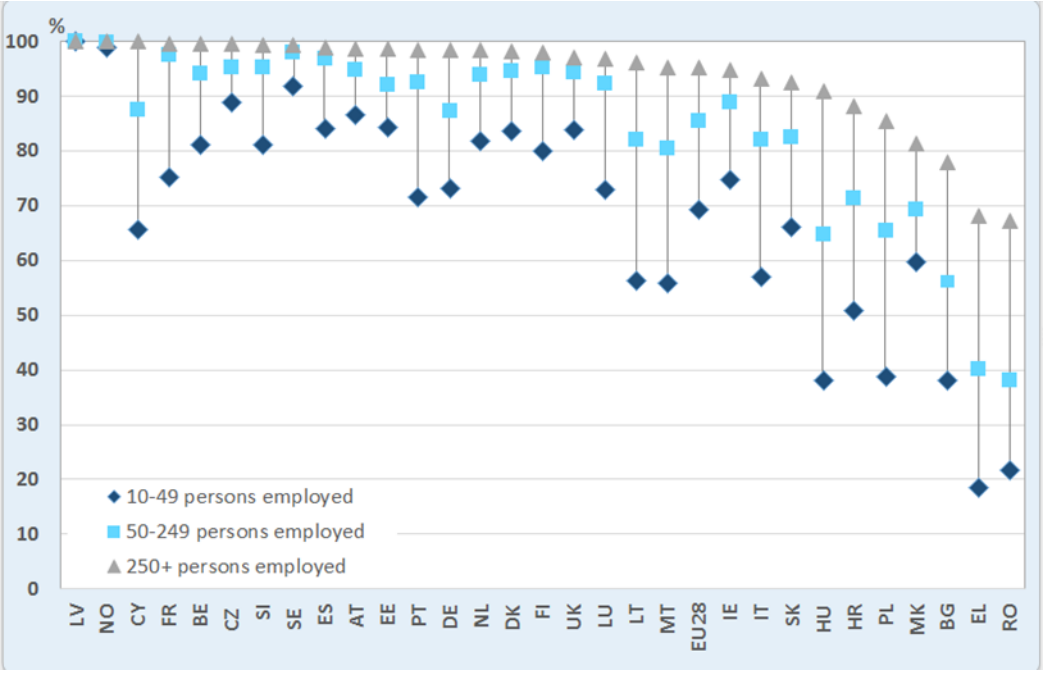
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Enterprise size is strongly related to training provision, with smaller firms typically reporting lower levels of training incidence and having substantial influence on overall averages (as large enterprises represent only a fraction of the total).

CVTS 5 confirms the persistence of different levels of training incidence across enterprise size classes. Differences are still remarkable.

The EU average training incidence in 2015 is 69.3% for small enterprises, 85.6% for medium-sized enterprises and 95.3% for large enterprises. In every country, large enterprises are more frequently training enterprises than SMEs (Figure 3).

Figure 3. **Training incidence, % of enterprises providing any type of CVT training (courses or other forms) by size class, 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

Training incidence is very high in large enterprises (250 persons employed or more) with limited cross country variations. In eight countries, all large enterprises in the CVTS survey provide CVT training for their staff. In 13 countries, and on average in the EU, coverage is quasi complete, with incidence rates between 95% and 99%. In only seven countries the incidence rate for large enterprises is below 90%, and only in two it is below 75% (Greece 68% and Romania 67%).

In small enterprises training incidence is generally lower and with larger cross country variations, ranging between 19% in Greece and 100% in Latvia. In 18 countries, 70% or more of the small enterprises provide CVT training to their staff.

In medium-sized enterprises, the incidence of training tends to be higher than in small enterprises but lower than in large enterprises. In most countries, at least 70% of medium-sized enterprises provide CVT training; six countries

(Bulgaria, North Macedonia, Greece, Hungary, Poland and Romania) are exceptions. Variation across countries is lower than among small enterprises, with incidence rates stretching from 38% (Romania) to 100% (Latvia and Norway).

The size of the enterprise matters in all countries but to a varying extent. There are countries where gaps across enterprise size classes are considerably smaller than others; it is possible to analyse this important aspect by focusing on the performance gap between small and large enterprises. We define two measures to this end: the absolute and the relative gap. The absolute gap is defined as the absolute difference between the indicator values for large and small enterprises. The relative gap is the percentage ratio between the absolute difference and the indicator value for small enterprises, which shows as a percentage how much higher the value for large enterprises is compared to that of small ones.

Cross country variations of the incidence performance gaps in 2015 and in 2010, both in absolute and relative terms, have been calculated for analysis (Annex 2, Table A 11).

In 2015, in Latvia, Norway and Sweden the relative difference in incidence rates between large and small enterprises is less than 10% and can be considered comparatively small. The incidence of training for large enterprises exceeds the incidence in small enterprises by 10 to 40% in 16 countries (Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Ireland, Luxembourg, the Netherlands, North Macedonia, Portugal, Slovakia, Spain and the UK). In Bulgaria, Greece, Hungary, Poland and Romania the incidence for large enterprises is more than double that for small enterprises and can be considered comparatively large.

A key question for EU policies is whether or not differences in incidence rates between small and large enterprises have decreased over time.

For most countries (n=20), as well the EU-28 average, both absolute and relative performance gaps between small and large enterprises have decreased over time. For the EU-28 average, the absolute gap decreased from 31 to 26 percentage points between 2010 and 2015, while the relative gap decreased from 50% in 2010 to 38% in 2015. The opposite pattern is observed in Denmark, Croatia, Cyprus, Hungary and Slovakia, where both absolute and relative gaps grew over time. In two countries, Greece and Romania, mixed patterns were observed.

In Greece, a declining absolute performance gap between large and small enterprises is observed (from 59 percentage points in 2010 to 50 percentage points in 2015). Nonetheless, the relative performance gap increased, indicating

that large firm incidence rates are now further away from the incidence rates of small enterprises (3.67 times larger in 2015 compared to 3.42 times larger in 2010).

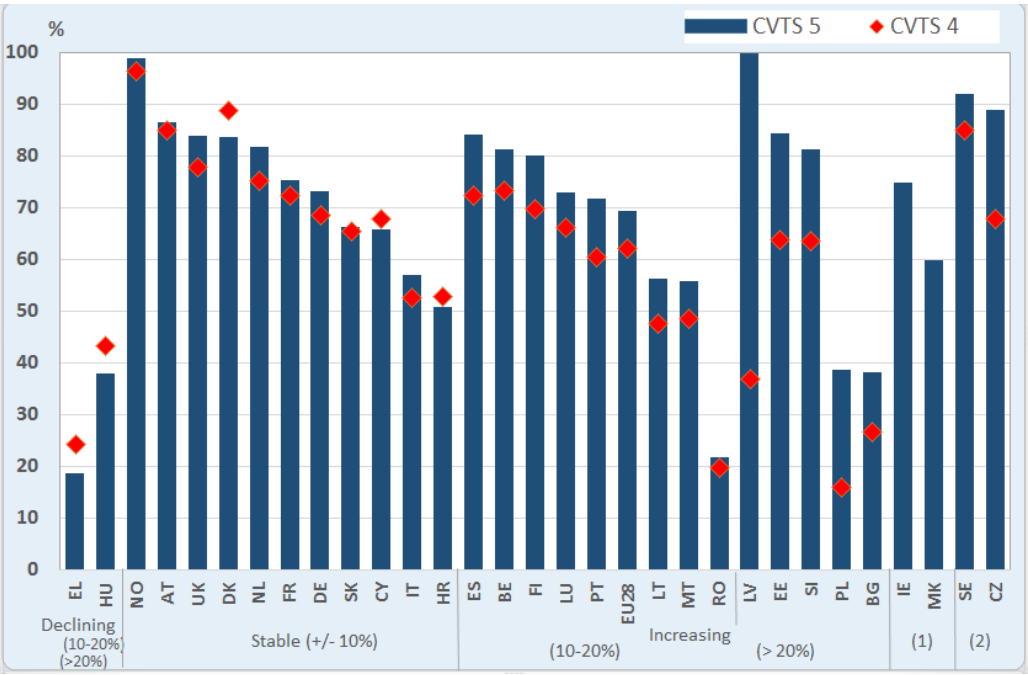
In Romania, a rising absolute performance gap between large and small enterprises was observed (up from 44 percentage points in 2010 to 46 percentage points in 2015). Nonetheless, the relative performance gap decreased, indicating that large firm incidence rates are now relatively closer to the incidence rates of small enterprises (3.05 times larger in 2015 compared to 3.23 larger in 2010).

Figures 4 to 6 show the evolution in training incidence between 2010 and 2015 by enterprise size class. The evolution is mainly positive, especially for small enterprises (Figure 4). In eight countries (Belgium, Spain, Lithuania, Luxembourg Malta, Portugal, Romania and Finland) the training incidence in small enterprises increased by 10 to 20%. In five countries (Bulgaria, Estonia, Latvia, Poland and Slovenia) the training incidence in small enterprises increased by more than 20%. Only two countries (Greece and Hungary), which already had low rates in 2010, saw incidence rates in small enterprises further declining, respectively by 23% and 12%.

For medium-sized and large enterprises, changes are less pronounced, as many countries already had high incidence rates in 2010 (base effect). In most countries, the development indicates stability. For medium-sized enterprises (Figure 5), four countries (Bulgaria, Estonia, Malta, and Slovenia) indicate an increase of 10% to 20%, while three countries (Latvia, Lithuania and Poland) indicate an increase of more than 20%. Again, Greece and Hungary saw a substantial fall in training incidence by 12% and 13% respectively.

Only Latvia and Poland saw a considerable increase in training incidence among large enterprises (Figure 6), as in most countries training coverage was already quasi-universal in 2010. Only Greece experienced a decline (-18%).

Figure 4. **Training incidence: enterprises providing any type of CVT training (courses or other forms) by size class – 2015 and 2010 – 10 to 49 persons employed**

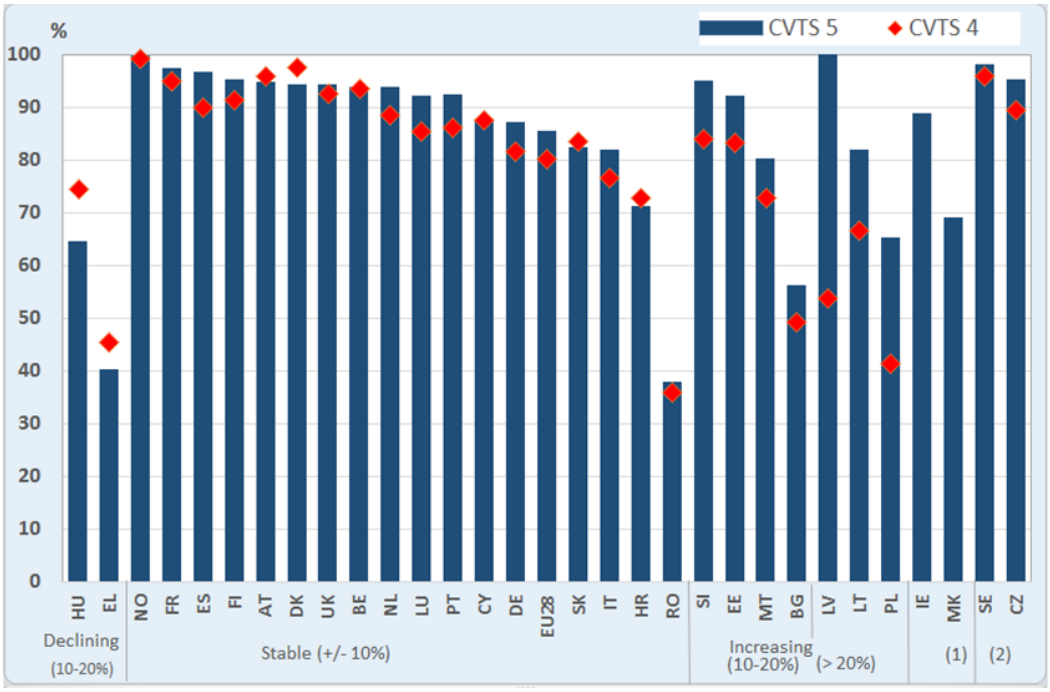


(1) No participation in CVTS 4.

(2) Break in time series between CVTS 4 and CVTS 5.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

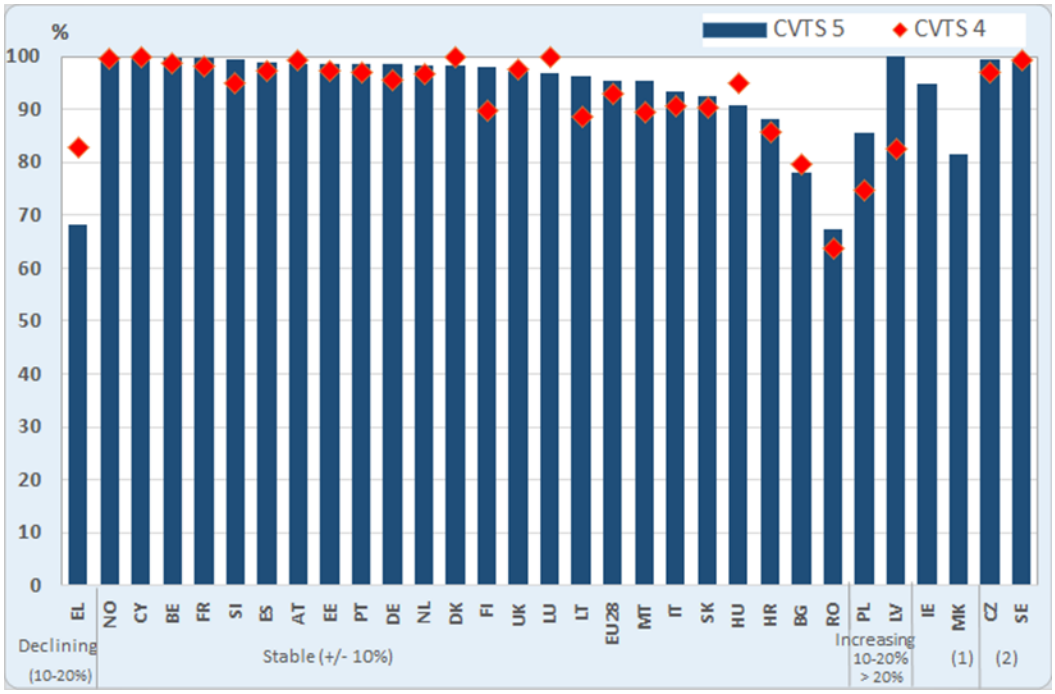
Figure 5. **Training incidence: enterprises providing any type of CVT training (courses or other forms) by size class – 2015 and 2010 – 50 to 249 persons employed**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

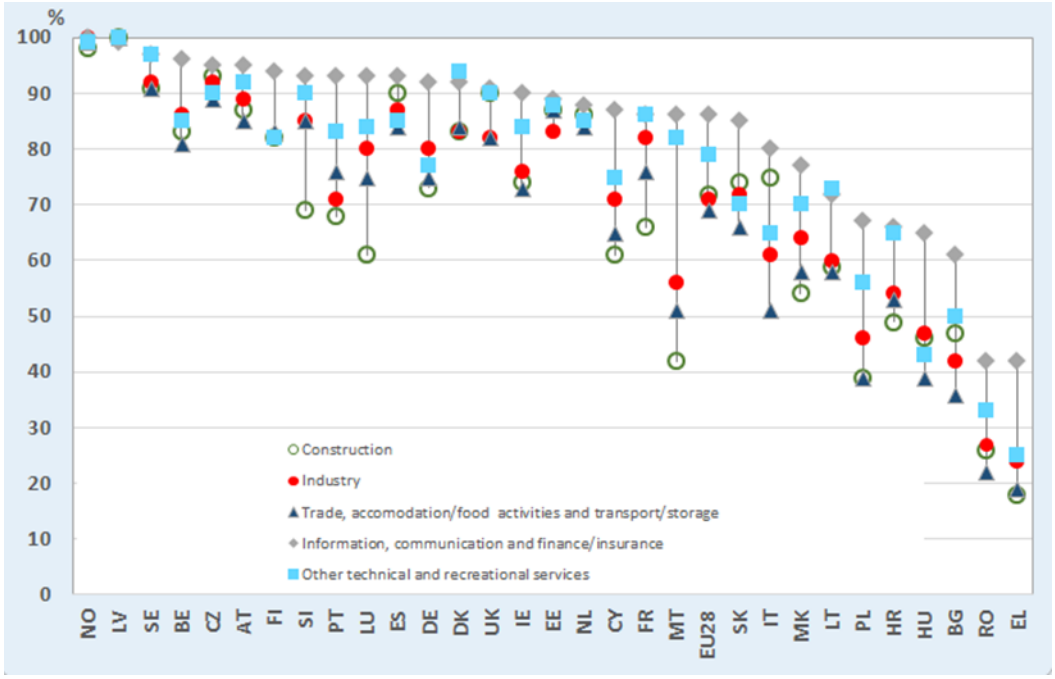
Training incidence rates are also influenced by enterprise economic sector of activity (Figure 7). For the EU-28 average, incidence is 85.5% in the information, communication and finance sector, 79.2% in other technical and recreational service activities, 71.5% in construction, 70.6% in industry and 68.6% in trade, accommodation/food and transport/storage activities. At country level (see also Annex 2, Table A 16), incidence of CVT in Latvia and Norway is quasi universal in the whole economy covered by CVTS. Inequalities across sectors are also small in Czechia, Estonia, the Netherlands and Sweden. In Greece and Romania, training incidence is both low and very unequal across economic sectors of activity. In Greece and Malta, training incidence in the best performing sectors more than doubles the lowest incidence rates in their economy.

Figure 6 **Training incidence: enterprises providing any type of CVT training (courses or other forms) by size class – 2015 and 2010 – 250+ persons employed**



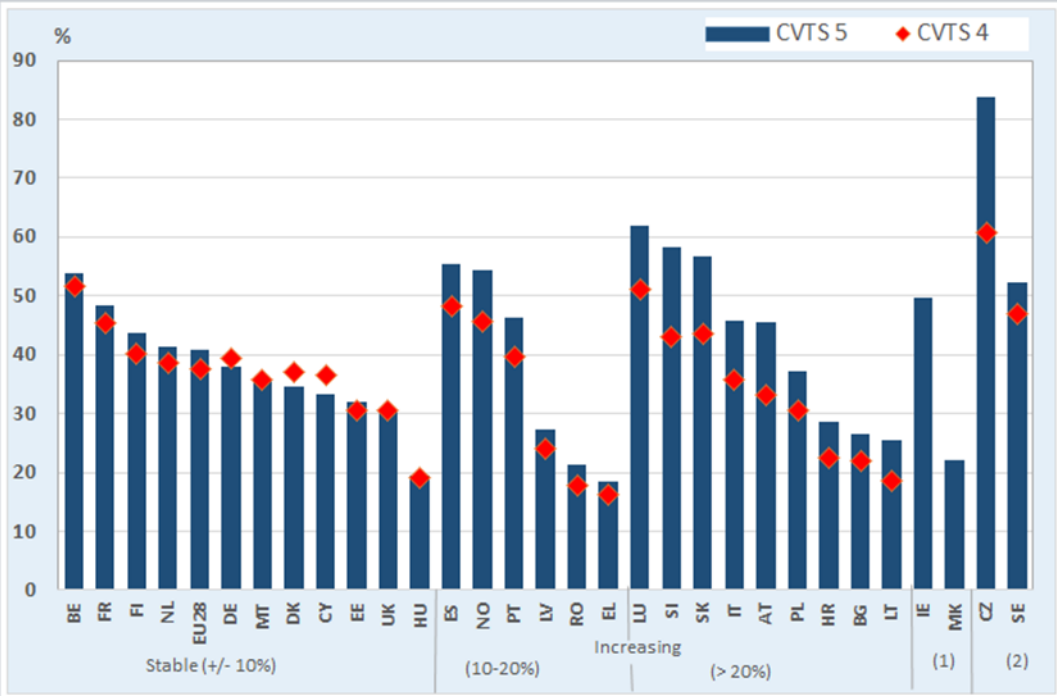
(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 7. **Training incidence, % of enterprises providing any type CVT training by economic sector of activity, 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

Figure 8. **Training participation rate, participants in CVT courses as % of persons employed (all enterprises), 2015 and 2010**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

3.2. Staff participation in training

This section analyses the level of staff participation in CVT courses. The indicator considered is the number of participants in CVT courses during the reference period as a percentage of the total number of persons employed in all enterprises surveyed (training and non-training enterprises).

On average, across the EU-28 Member States, 41% of persons employed participated in CVT courses in 2015 (Figure 8). The EU average level increased only slightly by three percentage points or 8% as compared to 2010. However, in a longer-term perspective the participation rate shows a more robust increase, from 33% in 2005 to 38% in 2010 and 41% in 2015.

Across countries, the 2015 participation rate still shows high variability. It varies considerably between 19% and 84%. Countries with low participation rates (below 30% of all persons employed in 2015) are mostly east European (Bulgaria, Croatia, Greece, Hungary, Latvia, Lithuania, North Macedonia and Romania). In eight countries (Belgium, Czechia, Luxembourg, Norway, Slovenia, Slovakia, Spain and Sweden) over half of all persons employed participate in CVT courses.

Compared to 2010, the participation rate increased by more than 10% in 15 countries. In six countries (Greece, Latvia, Norway, Portugal, Romania and Spain) the increase was 10% to 20%. In nine other countries the increase was more than 20% compared to the 2010 participation rate (Bulgaria, Croatia, Italy, Lithuania, Luxembourg, Slovenia, Slovakia, Austria and Poland).

In 11 countries (Belgium, Denmark, Germany, Estonia, France, Cyprus, Hungary, Malta, the Netherlands, Finland and the UK), the participation rate in 2015 was relatively stable compared to 2010. In most of these countries – except Hungary – the participation rate was relatively close to the EU average in 2010. No country reported a decline of more than 10%.

In four countries it was not possible to assess development over time properly; this was because they did not participate in the 2010 CVTS (North Macedonia and Ireland) or because methodological issues limit the possibility of comparisons across waves (Czechia and Sweden).

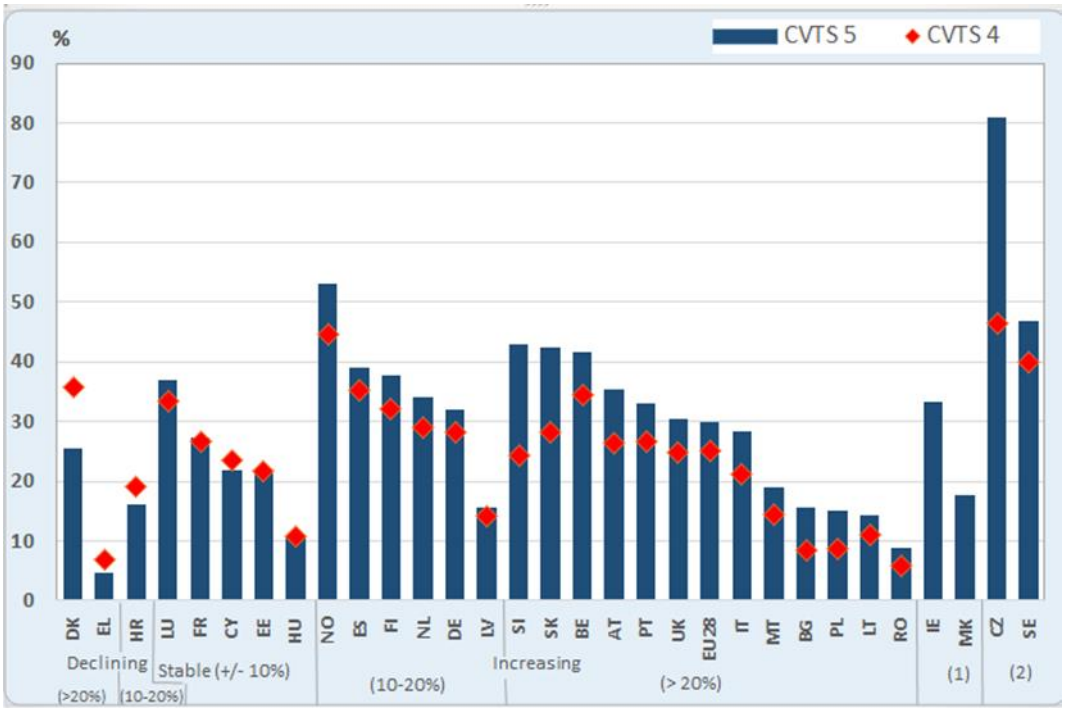
Based on CVTS 5 results, enterprise size continues to have an influence not only on training incidence but also on training participation. According to Eurostat estimates, the average participation rate for Member States is 30% for persons employed in small enterprises, 37% for those employed in medium-sized enterprises, and 48% for those working in large enterprises. In all countries except Norway and the UK, participation rates in large enterprises are higher than in other enterprise size classes, and in all but one country (North Macedonia) the rates in small enterprises are lower than in other enterprise size classes.

While the overall evolution in participation rates in CVT courses between 2010 and 2015 can be characterised as stable or positive (Figure 8), some conclusions differ when breaking up these participation rates by enterprise size class (Figures 9 to 11). The overall positive development in Greece and Croatia hides the fact that participation rates of persons employed in small enterprises declined between 2010 and 2015. In Denmark, an overall stable development between 2010 and 2015 conceals the fact that the participation of persons employed in both small and medium-sized enterprises declined, but was compensated to some extent by a rise in participation rates in large enterprises. In Malta, the overall stable development between 2010 and 2015 conceals the fact that the participation rate in large enterprises declined, but was compensated by a rise in the participation rate in small enterprises.

In Estonia, the overall stable development between 2010 and 2015 conceals the fact that participation among those employed in medium-sized enterprises declined, but was compensated by a rise in the participation rate in large enterprises.

Training participation in small enterprises rose by more than 20% on average in the EU and in 12 countries, with another six countries reporting favourable increases between 10% and 20% (Figure 9). In medium-sized enterprises training participation rose by more than 20% in 11 countries, with seven other countries and the EU average having favourable increases between 10% and 20% (Figure 10). In large enterprises training participation rose by more than 20% in four countries, with 12 other countries reporting favourable increases between 10% and 20% (Figure 11).

Figure 9. **Training participation rate, participants in CVT courses as % of persons employed by enterprise size class (all enterprises), 2015 and 2010 – 10 to 49 persons employed**

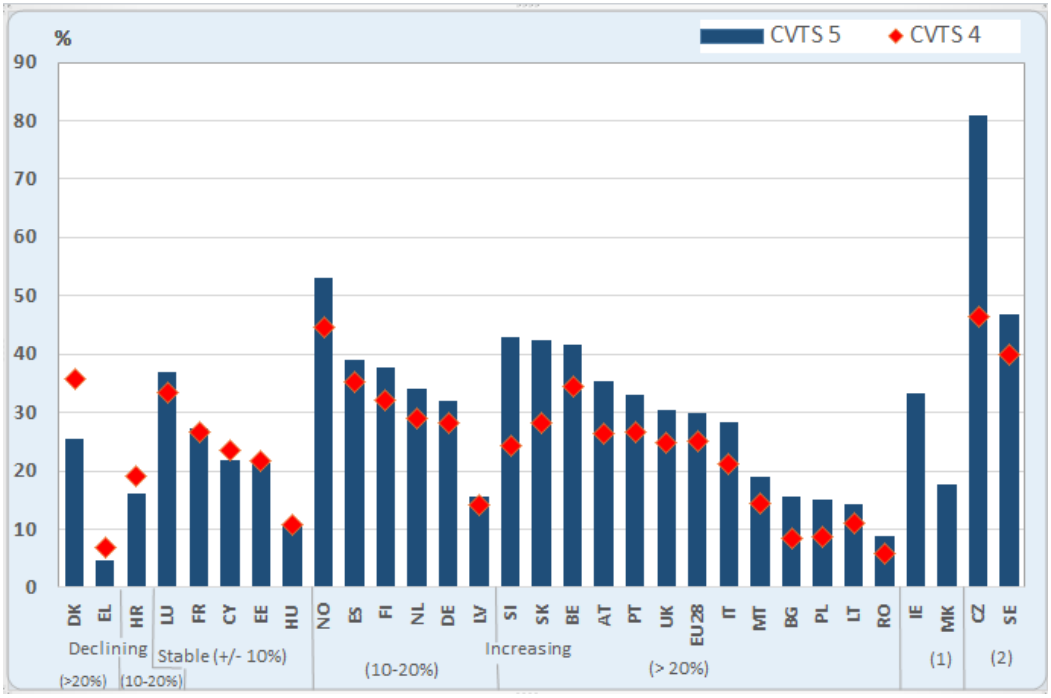


(1) No participation in CVTS 4.

(2) Break in time series between CVTS 4 and CVTS 5.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 10. **Training participation rate, participants in CVT courses as % of persons employed by enterprise size class (all enterprises), 2015 and 2010 – 50 to 249 persons employed**



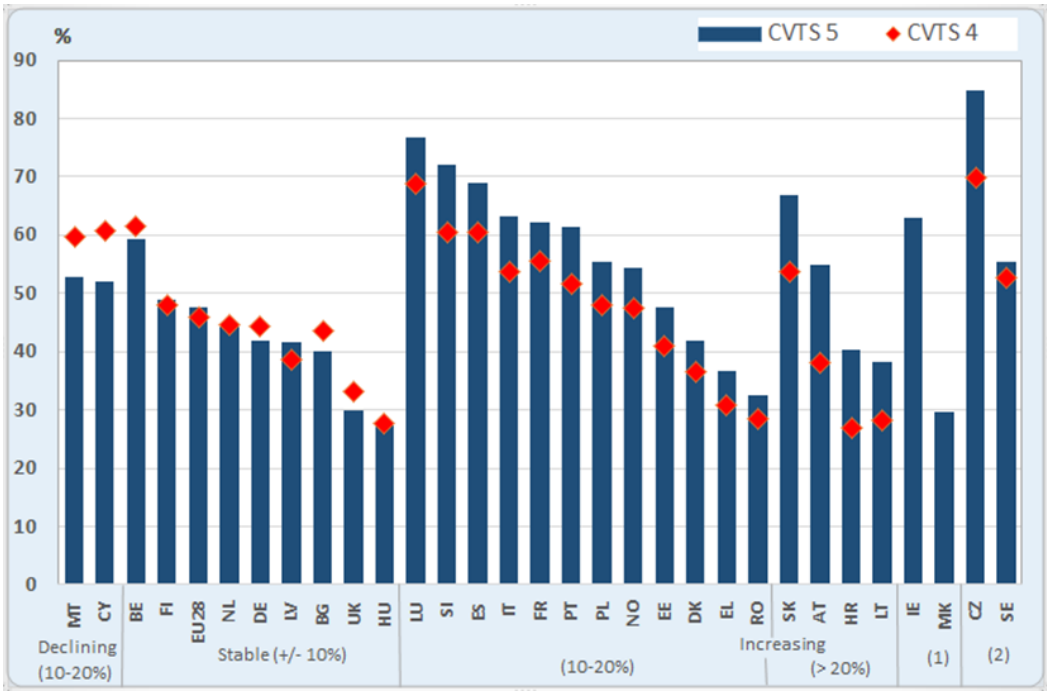
(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Based on 2015 CVTS 5 results, Figure 12displays how staff participation rates in CVT courses continue to be considerably unequal across enterprise size class, and that the magnitude of such inequalities is also subject to cross country variation.

In the discussion of Figure 12, we focus on the performance gap between small and large enterprises.

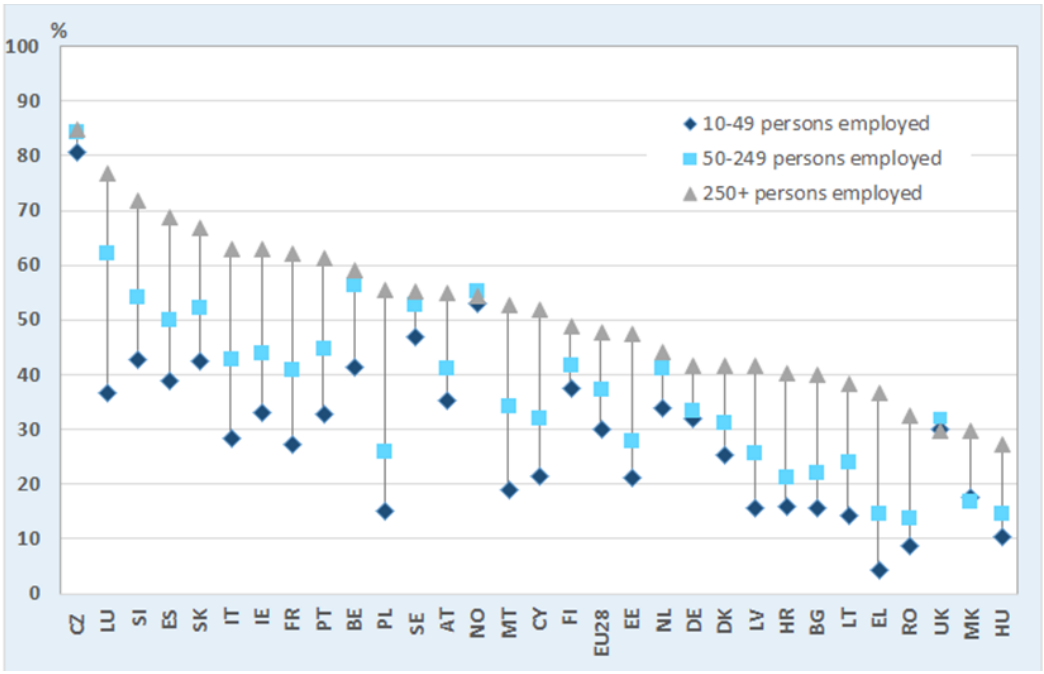
Cross country variations of participation performance gaps in 2015 and in 2010, both in absolute and relative terms have been calculated for analysis (Annex 2, Table A 12).

Figure 11. **Training participation rate, participants in CVT courses as % of persons employed by enterprise size class (all enterprises), 2015 and 2010 – 250 or more persons employed**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 12. **Training participation rate, participants in CVT courses as % of persons employed by enterprise size class (all enterprises), 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

In 2015, the differences in participation rates between large and small enterprises are small in Czechia, Norway, Sweden and the UK, with absolute differences less than 10 percentage points and relative differences less than 20%. Inequity in participation across enterprise size classes is also limited in Belgium, Germany, the Netherlands and Finland as the participation rates of staff of large enterprises exceeds the participation rates of staff of small enterprises by 20% to 50%. In Bulgaria, Croatia, Estonia, Greece, Italy, Cyprus, France, Luxembourg, Latvia, Lithuania, Hungary, Malta, Poland and Romania the participation rates of staff of large enterprises more than doubles the participation rates of staff of small enterprises, meaning the highest levels of inequality.

A key question is whether or not differences in participation rates between small and large enterprises have decreased over time.

While performance gaps between small and large enterprises in incidence rates generally fell between 2010 and 2015, this is less the case for participation rates.

For 11 countries, as well the EU-28 average, both absolute and relative performance gaps between small and large enterprises have decreased over time. For the EU-28 average, the absolute gap fell from 21 to 18 percentage points between 2010 and 2015, while the relative gap fell from 84% in 2010 to 59% in 2015.

This pattern is not observed in nine other countries (Denmark, Estonia, Greece, Spain, France, Croatia, Lithuania, Luxembourg and Austria), where both absolute and relative gaps in participation rates between large enterprises and small enterprises grew over time.

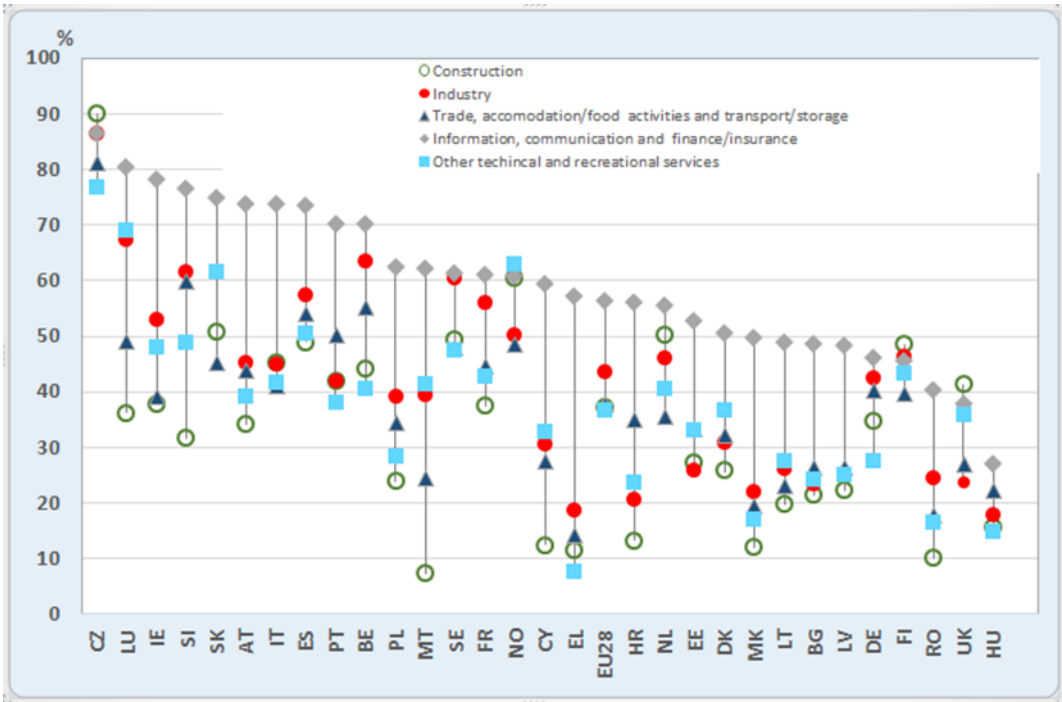
In Italy, Latvia, Poland, Portugal and Romania, the increasing absolute performance gap between large and small enterprises goes hand-in-hand with decreasing relative performance gaps, indicating that participation rates of staff of small firms are now relatively closer to participation rates in large enterprises. Overall this means that relative performance gaps have narrowed in 16 countries.

Figure 13 examines the inequities in 2015 CVT participation rates by enterprise economic sector of activity. For the EU-28 average, the participation rates were estimated at 56% in the information, communication and finance sector, 44% in industry, and 38% in trade, accommodation/food and transport/storage activities. Participation was lowest in the construction sector as well as in other technical and recreational service activities (both 37%).

At country level (see also Annex 2, Table A 17), training participation in Croatia, Cyprus, Greece, North Macedonia, Malta and Romania across economic sectors is very unequal. In Greece and Malta, training participation disparities are the largest: low rates of participation in the sector of Construction (7% in Malta)

and in the sector of other technical and recreational service activities (8% in Greece) are very different compared to the much higher participation rates in ICT and finance (57% in Greece and 62% in Malta). In contrast, in Czechia, Finland, Norway, and Sweden inequalities in training participation across economic sectors are comparatively small.

Figure 13. **Training participation rate, participants in CVT courses as % of persons employed by economic sector of activity (all enterprises), 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

3.3. Intensity (hours of training)

Another key indicator of investment in CVT is the paid working time devoted to training. This is because, given the broad variety of learning activities, their duration can vary from one-hour to several months and therefore high levels of participation in training do not necessarily combine with large amounts of time devoted to training at individual, enterprise and country level.

Although important, indicators on time spent on training should be seen as proxies affected by considerable measurement errors. For enterprises, estimates on working time devoted to training are ideally derived from time accounting systems. These, however, tend to be used more frequently in large or well-structured medium-sized enterprises. Estimates can also be assumed to be reasonably good in small enterprises where employed persons are fewer and

training events rarer. Estimates become more difficult in enterprises where accounting systems are not in place and whose size (or training activity) is not small enough to help respondent memory. Moreover, different approaches to reporting time on courses exist within and across countries. Changes in accounting practices (such as due to new regulations as in the case of Portugal in 2009) are also likely to impact on the numbers of training hours reported.

In the CVTS-survey, only paid working time devoted to CVT courses is reported, this includes both instruction time and time for preparation. It should exclude any periods of normal working between several training sessions and any time spent on travelling to the course. Time spent on other forms of CVT is not reported.

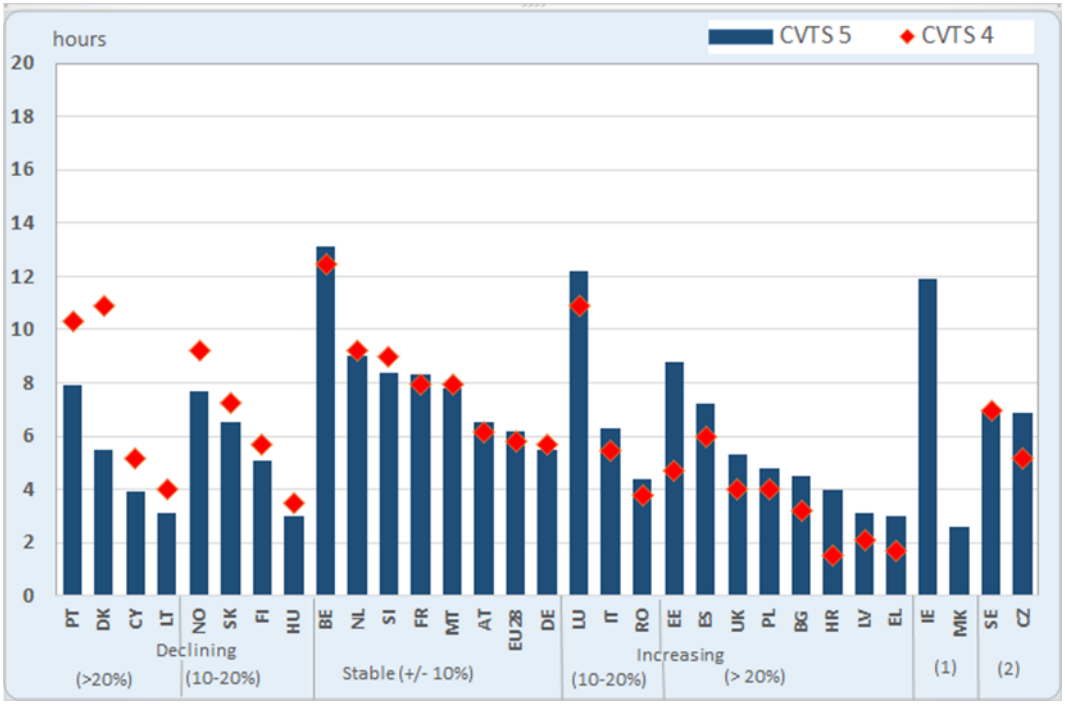
This section considers training intensity as measured by hours of training spent in CVT courses per 1 000 hours worked in all surveyed enterprises (training and non-training enterprises). The indicator measures the share of available time resources devoted to course activities during the calendar year by staff (10 hours per 1 000 hours equals 1% of the working time).

This indicator is privileged for cross period or cross country comparisons, as it avoids the drawback of relating hours of training accumulated in a given calendar year to the number of persons employed. The number of persons employed may vary considerably in the same reference period (for instance due to seasonal variation) and/or may correspond to different amounts of worked time (for instance due to different impacts of part-time work).

In 2015, the average time spent on CVT courses was 6.2 hours per 1 000 hours worked in the EU (Figure 14). Across countries, the indicator varies considerably, ranging between three hours in Greece and Hungary to 13.1 hours in Belgium. Countries with low training intensity (below 4.5 hours in 2015) are mostly east European (Bulgaria, Croatia, Cyprus, North Macedonia, Greece, Hungary, Latvia and Romania). In three countries (Belgium, Ireland and Luxembourg) training intensity exceeds 10 hours per 1 000 hours worked.

In the EU, the average time spent on CVT courses per 1 000 hours worked has only slightly increased between 2010 (5.8 hours) and 2015 (6.2 hours). This is comparable to the dynamics between 2005 and 2010 (from 5.3 to 5.8 hours).

Figure 14. **Hours spent on CVT courses per 1 000 hours worked (all enterprises), 2015 and 2010**

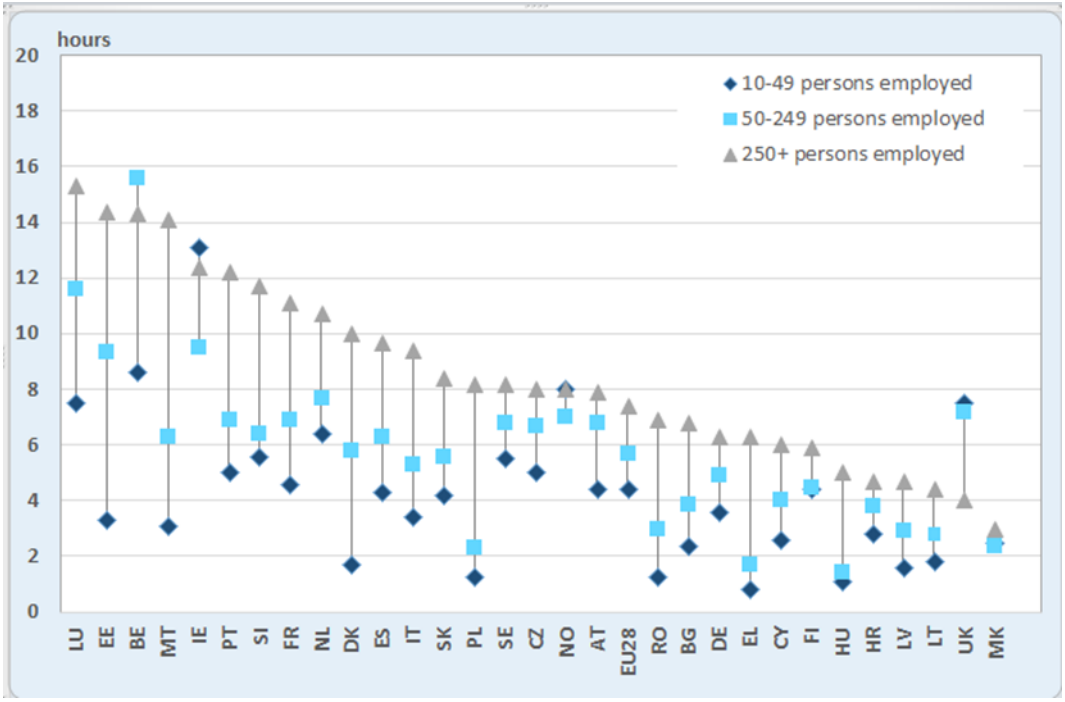


(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Across countries, declining time devoted to training activities between 2010 and 2015 is observed in eight countries. The largest falls (over 20% compared to the 2010 baseline) can be observed in Denmark, Cyprus, Lithuania and Portugal. In eight countries, the results are fairly stable over time. Increasing time devoted to CVT is noted in 11 countries. In absolute terms, CVTS 5 (2015) saw an increase of at least one training hour per 1 000 hours worked in eight countries compared to CVTS 4 (2010). Absolute increases in training hours per 1 000 hours worked are significant in Estonia (+4.1 hours) and Croatia (+2.5 hours).

CVTS 5 results confirm that training intensity continues to differ significantly based on enterprise size, and that small and medium-sized enterprises sponsor less training time than larger ones. In 2015, in the EU, the time devoted to CVT courses per 1 000 hours worked was 4.4 hours in small enterprises, 5.7 hours in medium-sized enterprises and 7.4 hours in large enterprises (Figure 15). On average, in 2015, in the EU-28 and per 1 000 hours worked, large enterprises sponsored 1.7 hours more in CVT training courses than medium-sized enterprises; these, in their turn, sponsored 1.3 hours more of CVT training courses than small enterprises.

Figure 15. **Hours spent in CVT courses per 1 000 hours worked by enterprise size class (all enterprises), 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

In all countries except Belgium, Ireland and the UK, the time devoted to training in large enterprises is higher than in small and medium enterprises, and in all but two countries (Ireland and the UK) the time devoted to training in small enterprises is lowest. So, contrary to the overall pattern, in Ireland and the UK small enterprises invest more time in training per 1000 hours worked than larger-sized enterprises.

Cross country variations of intensity performance gaps between large and small enterprises in 2015 and in 2010 have been calculated for analysis, both in absolute and relative terms (Annex 2, Table A 13).

In terms of training intensity, the gap between small and large enterprises in 2015 is comparatively small in Ireland, North Macedonia and Norway, as absolute differences are less than one hour (per 1 000 hours worked) and relative differences are less than 20%. Inequity in training intensity across enterprise size classes is also limited in Finland where the time devoted to training of staff in large enterprises exceeds that of staff in small enterprises by only 34%. In contrast, in most countries (Bulgaria, Denmark, Estonia, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary Malta, Poland, Portugal, Romania, Slovenia and Slovakia), the time devoted to training

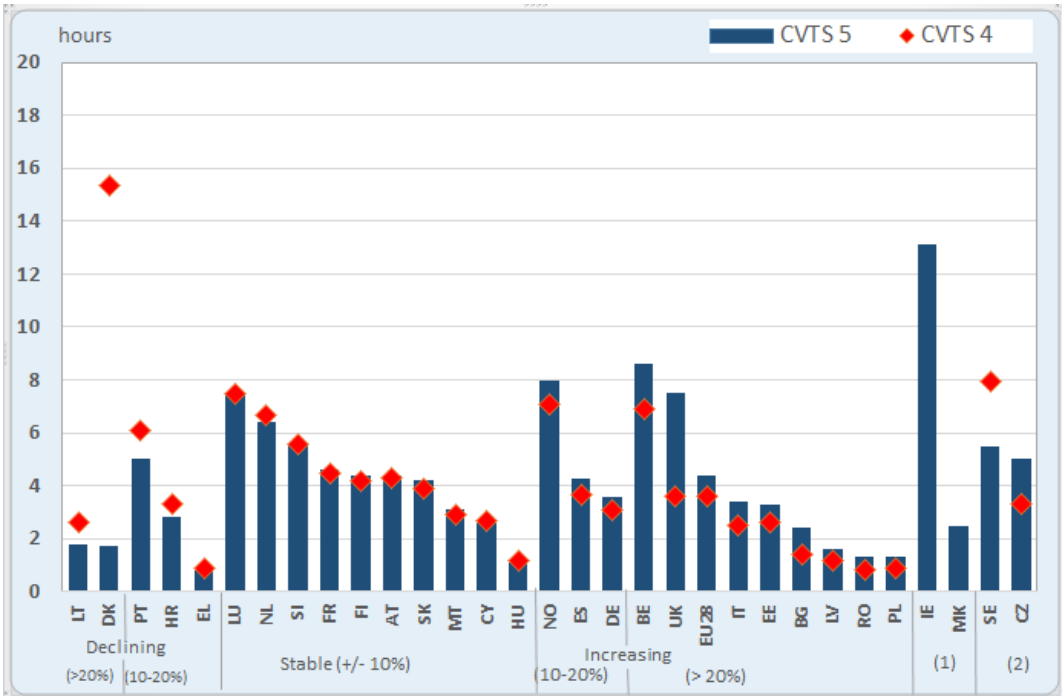
(per 1 000 hours worked) in large enterprises in 2015 is more than double the time devoted to training in small enterprises.

Figures 16 to 18 show the evolution between 2010 and 2015 in time devoted to CVT courses by enterprise size class. In small enterprises (Figure 16) time devoted to training remained stable between 2010 and 2015 in 10 countries; in 11 countries it increased by more than 10%. Time devoted to training in small enterprises rose most sharply in the UK (+108%), Bulgaria (+71%) and Romania (+63%). In five countries (Denmark, Greece, Croatia, Lithuania and Portugal), it fell by more than 10%. In Denmark the time devoted to training in small enterprises fell sharply from 15.4 hours per 1 000 hours worked in 2010 to 1.7 hours in 2015.

In medium-sized enterprises (Figure 17**Figure 17**), time devoted to training remained fairly stable between 2010 and 2015 in five countries; in 13 countries it increased by more than 10%. Time devoted to training in medium-sized enterprises rose most sharply in Estonia (+116%), Greece (+70%), Romania (+58%), Latvia (+53%) and the UK (+50%). In eight countries (Denmark, Cyprus, Hungary, Lithuania, Norway, Portugal, Slovenia and Slovakia), it fell by more than 10%; among these the reduction in time devoted to training in medium-sized enterprises is most pronounced in Denmark (-44%), Lithuania (-43%), Norway (-43%), Portugal (-38%), Portugal and Slovenia (-37%).

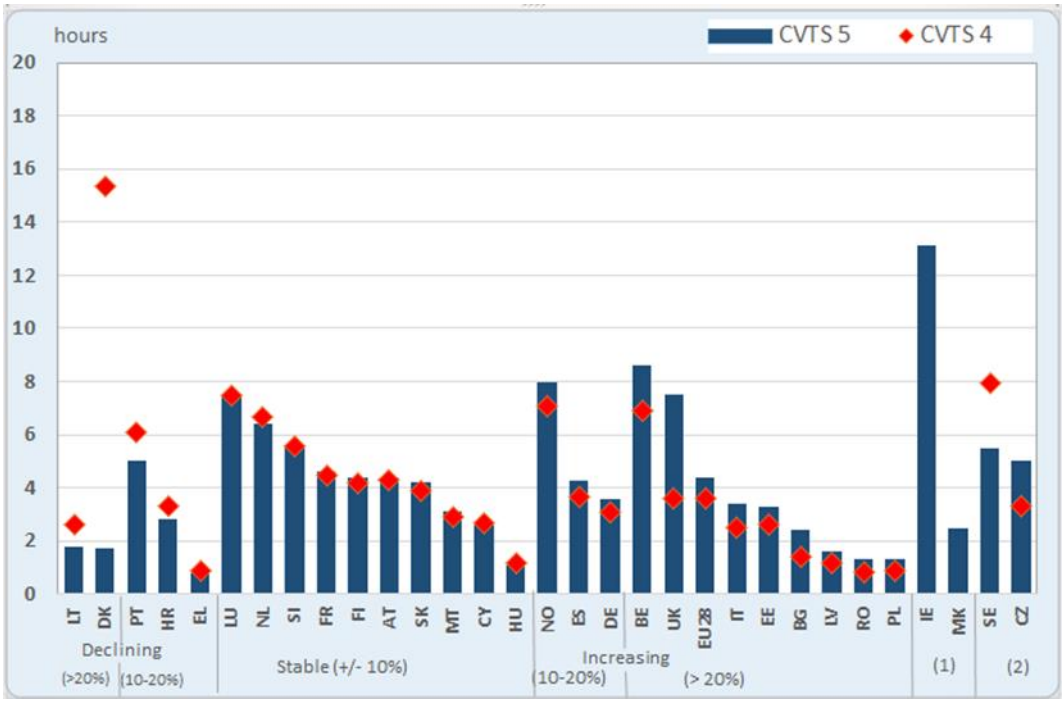
In large enterprises (Figure 18**Figure 18**), time devoted to training remained fairly stable between 2010 and 2015 in eight countries; in 10 countries it increased by more than 10%. Time devoted to training in large enterprises rose most sharply in Croatia (+370%), Greece (+97%) and Estonia (+82%). In eight countries (Belgium, Cyprus, Finland, Hungary, Malta, Norway, Portugal and Slovakia), it fell by more than 10%. The reduction in time devoted to training in large enterprises is most pronounced in Cyprus (-35%).

Figure 16. **Hours spent in CVT courses per 1 000 hours worked by enterprise size class (all enterprises), 2015 and 2010: small enterprises**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
NB: Declining (10-20%) compared to CVTS 4; increasing (10-20%) compared to CVTS 4.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 17. **Hours spent in CVT courses per 1 000 hours worked by enterprise size class (all enterprises), 2015 and 2010: medium-sized enterprises**



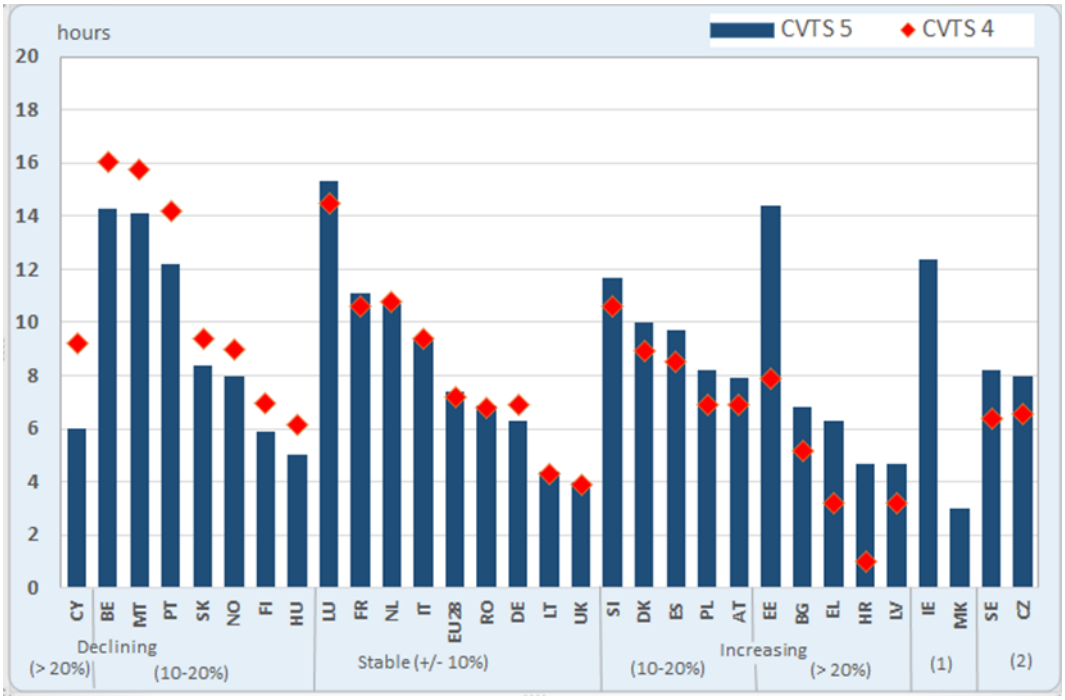
(1) No participation in CVTS 4.

(2) Break in time series between CVTS 4 and CVTS 5.

NB: Declining (10-20%) compared to CVTS 4; increasing (10-20%) compared to CVTS 4.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 18. **Hours spent in CVT courses per 1 000 hours worked by enterprise size class (all enterprises), 2015 and 2010: large enterprises**



(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
NB: Declining (10-20%) compared to CVTS 4; increasing (10-20%) compared to CVTS 4.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Differences in training intensity between small and large enterprises have changed over time, but the pattern of change is fragmented (Annex 2, Table A 13).

For 11 countries, as well the EU-28 average, both absolute and relative performance gaps in training intensity between small and large enterprises have decreased over time. For the EU-28 average, the absolute gap decreased from 3.6 to 3.0 hours between 2010 and 2015, while the relative gap decreased from 100% in 2010 to 68% in 2015.

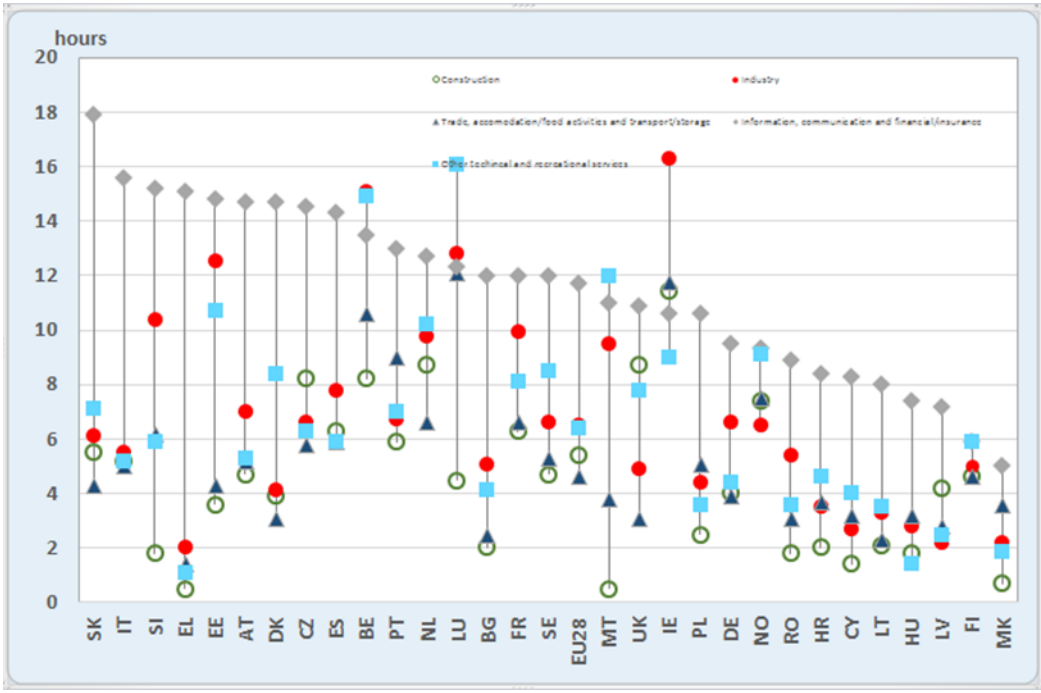
This pattern is not observed in 11 other countries (Denmark, Estonia, France, Greece, Croatia, Latvia, Lithuania, Luxembourg, the Netherlands, Austria and Slovenia), where both absolute and relative gaps in training intensity between large enterprises and small enterprises grew over time.

In Bulgaria, Spain and Poland, increasing absolute performance gaps between large and small enterprises go hand-in-hand with decreasing relative performance gaps, indicating that training hours in small firms are now relatively closer to the training hours in large enterprises (both expressed per 1 000 hours

worked). Overall this means that relative performance gaps have narrowed in 14 countries.

Figure 19 displays the sectoral breakdown of the time devoted to CVT training in 2015. The results confirm previous observations that the information, communication and finance/insurance sector is one of the most active in sponsoring hours of CVT training courses. The EU average for this sector and all its enterprises is 11.7 hours per 1 000 hours worked; in other sectors values range between 4.6 hours (trade, accommodation/food activities and transport/storage) and 6.5 hours (industry). Measured in relative terms, 2015 sectoral inequalities in training intensity at country level are highest in Bulgaria, Greece, Malta and Slovenia (Annex 2, Table A 18).

Figure 19. **Hours spent in CVT courses per 1 000 hours worked by economic sector of activity (all enterprises), 2015**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

3.4. Enterprise training expenditure

Together with information on staff participation and its time intensity, data on enterprise expenditure on CVT indicate the level of investments in training undertaken by companies. 'Beyond existing obligations for training (e.g. due to health and safety regulations) or relevant social partner agreements, training investments are within the discretion of the firms' (Cedefop, 2015, P. 171). CVTS

provides relevant information as it collects data on the level and the structure of enterprises expenditures for financing CVT courses in the calendar year to which the survey refers

Table 7 summarises the enterprises' expenditure structure for CVT courses as framed in the context of CVTS, as well as the two main aggregates which can be derived for analytical purposes: direct monetary expenditure and total monetary expenditure (TME) undertaken by enterprises to finance CVT courses (Cedefop, 2015).

Direct monetary expenditure is composed of 'the sum of fees and payments to external organisations, travel and subsistence payments, labour costs of internal trainers, training centres and teaching materials' (Cedefop, 2015, p. 185). 'Direct expenditure can be considered as variable costs: the more an enterprise trains, the more direct expenditure increases. This makes direct expenditure an indicator of enterprise training behaviour' (Cedefop, 2015, p. 171).

Contributions to collective or other funds are added to direct monetary expenditure and receipts from these funds to support training are deducted to derive the TME. 'Contributions to collective funding arrangements through government and intermediary organisations are (in countries such as France and Italy) not a decision of the enterprise as they are mandatory. They are not related to the incidence and amount of training, but are fixed costs. They are a real expenditure for the enterprise, and both training and non-training enterprises are concerned' (Cedefop, 2010, p. 90).

'Personnel absence costs (PAC) are an *ex post* estimate based on total labour costs of persons employed, the total number of hours worked by persons employed and the total paid working time spent on CVT courses' (Cedefop, 2010. P. 88). 'While the elements of costs are related to real monetary expenditure which might be recorded in the accounting system of enterprises, PAC is potentially biased. It might be that PAC is lower than calculated or even zero; this is the case if participants still have to accomplish their workload, or if colleagues of training participants have to work more during their absence, or if training takes place in a slack period' (Cedefop, 2010, p. 89). On the other hand, 'PAC may underestimate participants labour cost, if the costs of those undergoing CVT is higher than average labour costs' (Cedefop, 2010, p. 89). We therefore choose not to report on PAC.

Table 7. **Components of enterprise expenditure on CVT courses: elements reported within the CVTS framework**

<table>
<tr><th>Fees and payments</th><th>Travel and subsistence</th><th>Labour costs of internal trainers</th><th>Training centre, teaching materials</th><th>Contributions</th><th>Receipts</th><th>Personnel absence cost, (PAC)</th></tr>
<tr><td colspan="2">Variable costs</td><td colspan="2">Fixed costs (in the short term)</td><td>Fixed and mandatory costs. Only contributions which finance CVT must be included. Concerns all enterprises (training and non-training).</td><td>Conditional on training</td><td>Rough estimate, potentially biased, no real expenditure of the enterprise</td></tr>
<tr><td colspan="4">Direct monetary expenditure for CVT courses</td><td colspan="2">Mutualised costs of CVT</td><td></td></tr>
<tr><td colspan="7">Total monetary expenditure for CVT courses (TME)</td></tr>
<tr><td colspan="7">Total costs of CVT courses</td></tr>
</table>

Source: Cedefop (2015).

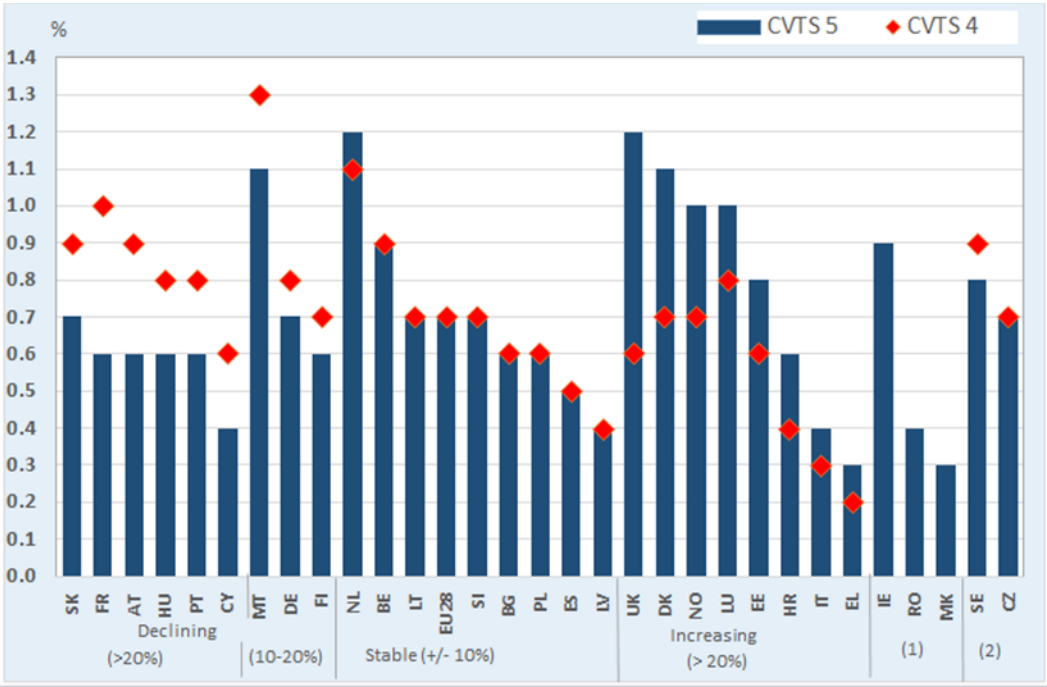
All expenditure indicators presented in this report are calculated with reference to all enterprises surveyed (training and non-training enterprises). Indicators on expenditure can be expressed as a percentage of total labour costs. Indicators can also target expenditure per person employed. This section considers only indicators expressing enterprise expenditure on training as a percentage of the total labour cost, which are privileged for methodological reasons. They are not sensitive to inflation, as the nominator and denominator are measured in purchasing power standards (PPS) and they control for price differences when comparing costs. They also take differences in wage levels into account and are not affected by fluctuations in employment levels over the reference period or by different impacts of part time work. They are considered the best available for comparisons across countries and over time.

Comparisons over time were not possible for some countries: Ireland and North Macedonia did not participate in CVTS 4; Czechia and Sweden reported a break in their time series; and 2010 expenditure data for Romania were missing. Also, expenditure data for Czechia have been assessed in a manner not comparable to those of other countries, as the definition of costs differs from that used in the model questionnaire.

3.4.1. Direct monetary expenditure

In Figure 20 enterprise direct monetary expenditure on CVT course is expressed as a share of the total labour costs for all enterprises. In the EU, on average, in 2015, direct expenditure accounted for 0.7% of total labour costs, remaining stable compared to 2010.

Figure 20. **Enterprise direct monetary expenditure on CVT courses as % of total labour cost (all enterprises), 2015 and 2010**



(1) No CVTS 4 data available for Ireland and North Macedonia (no participation) and Romania (missing).

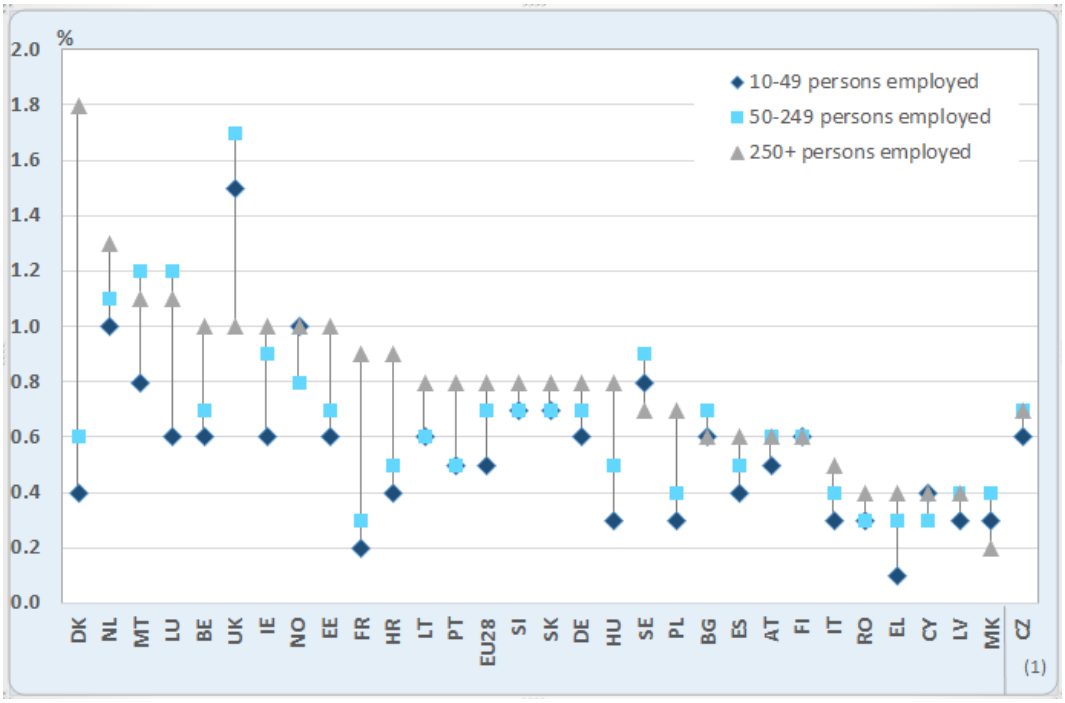
(2) Break in time series between CVTS 4 and CVTS 5 for Czechia and Sweden. CVTS 5 data for Czechia are not fully comparable to those of other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

As compared to 2010, direct monetary expenditure as a share of total labour costs remained stable in eight countries (Belgium, Bulgaria, Spain, Latvia, Lithuania, Netherlands, Poland and Slovenia). In another nine countries, 2015 levels fell by more than 10% compared to 2010; in six of these countries (France, Cyprus, Hungary, Austria, Portugal and Slovakia) they fell by more than 20%. While investments were above the EU-28 average in 2010, the fall in France, Hungary, Austria Portugal and Slovakia caused direct investments to fall below the EU-28 average in 2015.

In contrast, significant increases (> 20%) in direct expenditure as a share of the total labour costs are observed in Croatia, Denmark, Estonia, Greece, Italy, Luxembourg, Norway and the UK. In five of these countries (Denmark, Estonia, Luxembourg, Norway and the UK), direct investments were above the EU-28 average in 2015.

Figure 21. **Enterprise direct monetary expenditure on CVT courses as % of total labour cost by size class (all enterprises), 2015**



(1) Not fully comparable to other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018).

In 2015, direct expenditure as a share of total labour costs varied across enterprise size classes, with large enterprises generally spending considerably more (Figure 21). Based on the EU-28 average data, small enterprises (10 to 49 persons employed) had direct expenditure for CVT courses at 0.5% of their total labour cost, medium-sized enterprises (50 to 249 persons employed) at 0.7% and large enterprises (250 or more persons employed) at 0.8%.

Looking at cross country differences in 2015, the pattern of increasing expenditure with increasing enterprise size holds in most countries; only in a few countries are exceptions are found. Medium-sized enterprises spend more than large enterprises in Bulgaria, Luxembourg and Malta. In North Macedonia, Sweden and the UK both medium- and small enterprises spend more than large enterprises. In Cyprus and Norway small enterprises spend more than medium-sized enterprises.

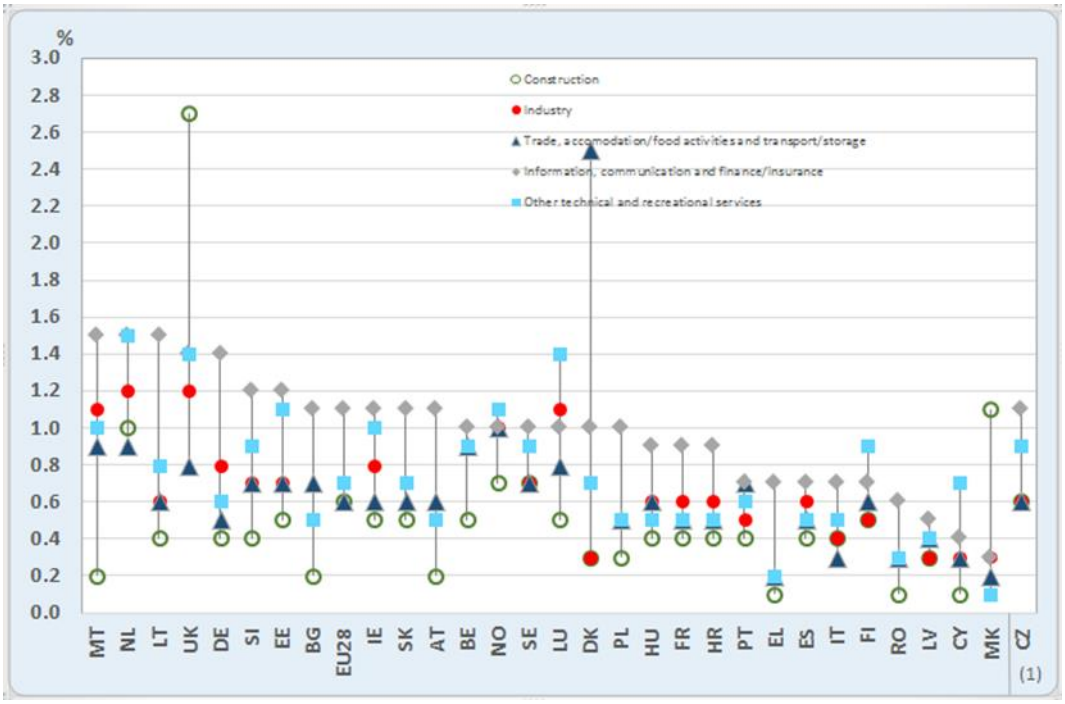
As a share of the total labour cost, the (direct monetary) expenditure gap between small and large enterprises, is highest in Denmark, Greece, France, Croatia, Hungary and Poland, where the indicator levels for large enterprises are (more than) double those of small enterprises. By contrast, in Austria, Bulgaria, Cyprus, Czechia, Finland, Norway, Slovakia and Slovenia, the absolute difference in direct monetary expenditure between large and small enterprises is

less than 0.1% of the labour costs and relative differences are less than 20% (Table A 14 in Annex 2).

The expenditure gap between small and large enterprises changed over time, but the pattern of change is fragmented (Table A 14 in Annex 2). For 12 countries, as well the EU-28 average, both absolute and relative performance gaps in direct monetary expenditure between small and large enterprises have decreased over time. For the EU-28 average, the absolute gap decreased from 0.4 to 0.3 percentage points between 2010 and 2015, while the relative gap decreased from 80% in 2010 to 60% in 2015. This pattern of declining absolute and relative performance gaps between small and large enterprises is not observed in nine other countries (Croatia, Denmark, Estonia, Italy, Lithuania, Luxembourg, Malta, Norway and Slovakia), where both absolute and relative gaps in direct monetary expenditure between large enterprises and small enterprises grew over time. In France, falling absolute gaps in direct expenditure between large and small enterprises go hand-in-hand with increasing relative gaps, indicating that direct monetary expenditure as a share of total labour costs in small firms is now relatively further apart from expenditure levels in large enterprises. In Portugal a stable absolute gap combined with an increasing relative gap.

In Figure 22, 2015 enterprises' direct monetary expenditure on CVT courses as a share of the total labour costs is broken down according to their economic sector of activity.

Figure 22. **Enterprise direct monetary expenditure on CVT courses as % of total labour cost by economic sector of activity (all enterprises), 2015**



(1) Not fully comparable to other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018).

Based on EU-28 average data for 2015, enterprises operating in the information, communication and finance/insurance sector had direct expenditure in CVT courses at 1.1% of their total labour costs, significantly above the levels achieved in other sectors (ranging from 0.6 to 0.7% of total labour costs).

In most countries, direct expenditure as share of total labour costs was highest in the information, communication and finance/insurance sector. In Cyprus, Finland, Luxembourg and Norway, expenditure was highest in other technical and recreational service activities. In Denmark expenditure was highest in trade, accommodation/food and transport/storage. The construction sector had lowest national values in all countries but Italy, the Netherlands, the UK and North Macedonia.

2015 National differences between economic sectors were highest in Austria, Bulgaria, Cyprus, Denmark, Malta, North Macedonia and Romania, where expenditure as a share of total labour costs in some sectors (more than) tripled the expenditure in other sectors. By contrast, in Finland, Norway and Sweden inequalities in spending across economic sectors are comparatively limited (see also Table A 19 in Annex 2).

3.4.2. Total monetary expenditure

Total monetary expenditure (TME) is composed of two types of training expenditure: direct expenditure (as reported in the previous section) and net contributions. The latter are made up of the cost of contributions made by the enterprise to collective funding arrangements through government and intermediary organisations minus receipts from collective funding arrangements, subsidies and financial assistance from government and other sources.

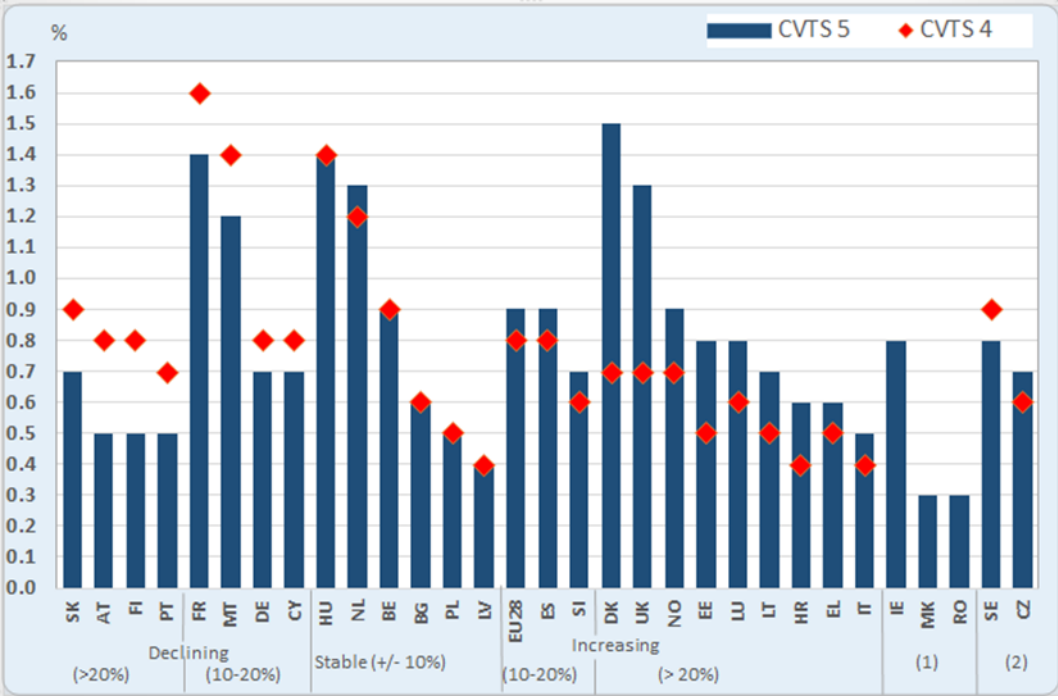
In some countries CVT efforts are also funded by collective funding schemes, also called mutualised funding arrangements. Mandatory training funds at national or sectoral level aim to distribute the costs of training between employers and/or between employers and staff. They follow different procedures: for example, they may collect funds from all firms and redistribute them to training firms or involve train-or-pay schemes, where firms providing training contribute less and non-training firms contribute more (for overviews see Cedefop, 2008; Johanson, 2009; Müller and Behringer, 2012). Contributions are fixed costs for enterprises as these costs are disconnected from whether or not training is provided.

'Where collective funding schemes exists, training enterprises receive financial support in some way from these sources. Beyond these receipts from funds, training enterprises may receive co-funding for their training activities typically from public sources, such as national or EU sources' (Cedefop, 2015, p. 170). This type of financial support is commonly referred to as 'receipts' for training in the CVTS framework.

Contributions and receipts are not relevant in all countries, but are substantial in others. 'At country level, the balance of contributions/receipts is not necessarily zero. It can be negative because returns on contributions may not only be receipts or administrative costs but also services (consultancy services, financing CVT structures used by enterprises, etc. which reduce direct expenditure). The balance may also be positive if receipts are financed not only by contributions but also by public subsidies (from the State, the European Social Funds, etc.)' (Cedefop, 2015, p. 171).

In discussing the results on total monetary expenditure on training, we consider again TME expressed as a share of the total labour costs for all enterprises (Figure 23).

Figure 23. **Enterprise total monetary expenditure on CVT courses as % of total labour cost (all enterprises), 2015 and 2010**



(1) No CVTS 4 data available for Ireland and North Macedonia (no participation) and Romania (missing).

(2) Break in time series between CVTS 4 and CVTS 5 for Czechia and Sweden. CVTS 5 data for Czechia are not fully comparable to those of other countries.

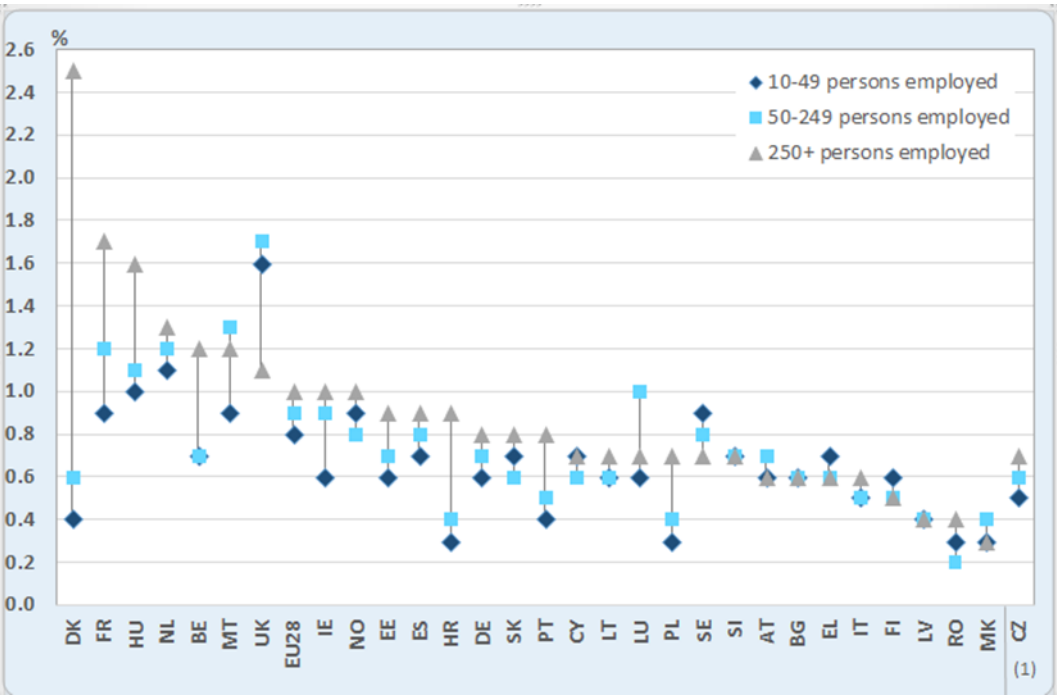
Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

In the EU on average in 2015, TME represented 0.9% of enterprises' labour costs, increasing by 0.1 percentage points (or 12.5%) compared to 2010. Looking at cross country differences and comparing to 2010, TME as a share of the total labour costs remained stable in six countries (Belgium, Bulgaria, Latvia, Hungary, the Netherlands and Poland). In other eight countries, 2015 TME as a share of total labour costs fell by more than 10% compared to 2010; in four of these countries (Finland, Portugal, Slovakia and Austria) it fell by more than 20% compared to 2010.

In contrast, significant increases (>20%) in TME as a share of total labour costs in 2015 are observed in Croatia, Denmark, Estonia, Greece, Italy, Lithuania, Luxembourg, Norway and the UK.

In 2015, TME varied across enterprise size classes, with large enterprises generally spending more (Figure 24). Based on EU-28 average data, TME was estimated at 0.8% of the total labour cost among small enterprises (10 to 49 persons employed), at 0.9% for medium-sized (50 to 249 persons employed) and at 1% for large enterprises (250 or more persons employed).

Figure 24. **Enterprise total monetary expenditure on CVT courses as % of total labour cost by size class (all enterprises), 2015**



(1) Not fully comparable to other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

Looking at 2015 cross country differences, only in a few countries does the break-down of TME by enterprise size class not conform to the pattern of increasing expenditure with increasing enterprise size. Exceptions, where medium-sized enterprises spend more than large enterprises, are observed in Austria, Luxembourg, Malta and North Macedonia. In Sweden and the UK both medium and small enterprises spend more than large enterprises. In Cyprus, Norway and Slovakia small enterprises spend more than medium-sized enterprises. In Finland and Greece small enterprises spend more than both medium-sized and large enterprises.

For TME as a share of total labour cost, cross country variations in performance gaps between large and small enterprises in 2015 and in 2010 have been calculated for analysis, both in absolute and relative terms Table A 15 in Annex 2).

In 2015, national differences between larger and smaller enterprises (Table A 15 in Annex 2) are highest in Denmark, where TME as a share of total labour costs of large sized enterprises is more than five times larger than the expenditure of small enterprises. Next to Denmark, inequities are also large in Croatia and Poland where large enterprises' TME is more than double that of small enterprises. However, in most countries spending inequities (expressed as

share of total labour costs) are limited. In Italy, Lithuania, Luxembourg, the Netherlands, Norway and Slovakia, the absolute difference in total monetary expenditure between large and small enterprises is less than 0.2% of labour costs and relative differences are less than 25%. In Bulgaria, Cyprus, Latvia, Austria and Slovenia small enterprise TME-spending as a share of total labour costs is at the level of large enterprises, while small enterprises outperform large enterprises in Greece, Sweden, Finland and the UK.

A final question is whether or not differences in total monetary expenditure between small and large enterprises have decreased over time (Table A 15 in Annex 2).

For 12 countries, as well the EU-28 average, both absolute and relative performance gaps between small and large enterprises have decreased between 2010 and 2015. For the EU-28 average, the absolute gap fell from 0.3 to 0.2 percentage points between 2010 and 2015, while the relative gap fell from 43% in 2010 to 25% in 2015. This pattern of declining absolute and relative performance gaps between small and large enterprises is not observed in eight other countries (Croatia, Denmark, Estonia, Luxembourg, Malta, Norway, Slovakia and Spain), where both absolute and relative gaps in total monetary expenditure as a share of total labour costs between large enterprises and small enterprises grew over time.

In Portugal, falling levels of TME combined with stable relative gaps.

In Italy and Lithuania, an overall increase in TME goes hand-in-hand with stable absolute gaps and falling relative gaps, indicating that total monetary expenditure as a share of total labour costs in small firms is now relatively closer to expenditure levels in large enterprises. Overall this means that relative expenditure gaps have narrowed in 14 countries.

In France, an overall reduction in TME accompanies increasing relative gaps, indicating that total monetary expenditure as a share of total labour costs in small firms is now relatively further apart from expenditure levels in large enterprises. Overall this means that relative expenditure gaps have increased in nine countries.

3.5. Summarising EU and national performances: radar charts and a composite index (SMOP)

Based on CVTS data, this chapter has considered four key dimensions of analysis to assess performances and progress in employer-sponsored CVT: incidence, participation, intensity and expenditure. In previous sections, relevant data were separately analysed. This section brings them together and introduces

a synthetic approach to analysis which is used to summarise the results along those dimensions. It does so in a comprehensive but more concise and reader-friendly way. Results are presented for the single countries and the EU as whole.

Four key indicators, one per dimension, are selected to describe synthetically enterprise performance on CVT. These are:

(a) incidence: enterprises providing any type of CVT as % of all enterprises;
(b) participation: participants in CVT courses as % of persons employed in all enterprises;
(c) intensity: number of hours of CVT courses per 1 000 hours worked by persons employed in all enterprises;
(d) expenditure: total monetary expenditure on CVT courses (direct costs plus contributions minus receipts) as % of total labour costs of all enterprises.

The choice of these indicators is driven by previous methodological work (Behringer et al., 2008).

Table 8 presents the data for these indicators in 2010 and 2015. The table is informative, but difficult to read and interpret. Its data have been standardised (Table 9**Table 9**) and used to produce the radar charts presented at the end of this chapter. The standardisation function transforms the 2010 and 2015 country values into index numbers, ranging from zero to one. It is also applied to the EU averages.

The standardisation function works as follows. For each indicator, the 2015 most favourable value across countries (the highest single country performance in 2015) is used as a reference for benchmarking. The value 1 is given to the best national result for the respective indicator in 2015 (marked in yellow in Table 8). For example, in 2015 Denmark has the highest TME (at 1.5% of its total labour costs). This is represented by the value 1 for expenditure in Table 9. Other countries' results for the expenditure dimension are measured relative to this 1.5 benchmark value: Austria, which had a TME value of 0.8 in 2010, corresponding to 53% of the 2015 Danish result, is, therefore, represented by the relative value 0.53 in Table 9. Similar calculations are made for every axis and country in the analysis. Czechia has the highest participation rate in 2015; Latvia performs best on incidence in 2015, while Belgium has the best intensity rate.

This benchmarking approach makes it possible to compare the CVTS results of different countries and at different times, by expressing country results along the same standardised metric.

Table 8. **Key CVT indicators, CVTS 5 (2015) versus CVTS 4 (2010)**

	incidence		participation		intensity		expenditure	
	2010	2015	2010	2015	2010	2015	2010	2015
EU-28	65.7	72.6	37.6	40.8	5.8	6.2	0.8	0.9
AT	86.9	88.1	33.2	45.4	6.2	6.5	0.8	0.5
BE	77.6	83.9	51.8	53.9	12.5	13.1	0.9	0.9
BG	31.2	42.2	22	26.5	3.2	4.5	0.6	0.6
CY	71.6	69.5	36.7	33.2	5.2	3.9	0.8	0.7
CZ (2)	72.2	90.6	60.8	83.7	5.2	6.9	0.6	0.7
DE	72.8	77.3	39.5	38.1	5.7	5.5	0.8	0.7
DK	90.9	86.6	37.1	34.6	10.9	5.5	0.7	1.5
EE	67.7	86.1	30.6	31.9	4.7	8.8	0.5	0.8
EL	27.8	21.7	16.3	18.5	1.7	3	0.5	0.6
ES	74.9	86	48.3	55.4	6	7.2	0.8	0.9
FI	74.4	83.1	40.2	43.8	5.7	5.1	0.8	0.5
FR	76.1	78.9	45.4	48.3	8	8.3	1.6	1.4
HR	57.1	55.4	22.5	28.7	1.5	4	0.4	0.6
HU	48.7	43.8	19	19.4	3.5	3	1.4	1.4
IE (1)		77.4		49.7		11.9		0.8
IT	55.6	60.2	36	45.9	5.5	6.3	0.4	0.5
LT	51.9	61.6	18.6	25.6	4	3.1	0.5	0.7
LU	70.8	77.1	51.1	61.8	10.9	12.2	0.6	0.8
LV	40.4	99.9	24.2	27.2	2.1	3.1	0.4	0.4
MK		61.9		22		2.6		0.3
MT	53.9	61.6	35.8	35.8	8	7.8	1.4	1.2
NL	78.6	85	38.6	41.4	9.2	9	1.2	1.3
NO	96.8	99.1	45.8	54.3	9.2	7.7	0.7	0.9
PL	22.5	44.7	30.5	37.1	4	4.8	0.5	0.5
PT	64.6	75	39.8	46.3	10.3	7.9	0.7	0.5
RO (1)	24.1	26.7	17.8	21.3	3.8	4.4		0.3
SE (2)	87	93.1	47.1	52.2	7	7	0.9	0.8
SI	68	84.1	43.1	58.3	9	8.4	0.6	0.7
SK	69	70	43.6	56.8	7.3	6.5	0.9	0.7
UK	80.4	85.7	30.6	30.4	4	5.3	0.7	1.3

(1) CVTS 4 data are not available for Ireland and North Macedonia (no participation in CVTS 4) and partly for Romania (missing expenditure data).

(2) CVTS 5 Data for Czechia and Sweden are not comparable over time (break in time series between CVTS 4 and CVTS 5). CVTS 5 data for Czechia on expenditure are not fully comparable to those for other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

Table 9. **Key CVT indicators, standardised results relative to the 2015 best performing countries, 2015 and 2010**

	incidence		participation		intensity		expenditure	
	2010	2015	2010	2015	2010	2015	2010	2015
EU-28	0.66	0.73	0.45	0.49	0.44	0.47	0.53	0.60
AT	0.87	0.88	0.40	0.54	0.47	0.50	0.53	0.33
BE	0.78	0.84	0.62	0.64	0.95	1.00	0.60	0.60
BG	0.31	0.42	0.26	0.32	0.24	0.34	0.40	0.40
CY	0.72	0.70	0.44	0.40	0.40	0.30	0.53	0.47
CZ (3)	0.72	0.91	0.73	1.00	0.40	0.53	0.40	0.47
DE	0.73	0.77	0.47	0.46	0.44	0.42	0.53	0.47
DK	0.91	0.87	0.44	0.41	0.83	0.42	0.47	1.00
EE	0.68	0.86	0.37	0.38	0.36	0.67	0.33	0.53
EL	0.28	0.22	0.19	0.22	0.13	0.23	0.33	0.40
ES	0.75	0.86	0.58	0.66	0.46	0.55	0.53	0.60
FI	0.74	0.83	0.48	0.52	0.44	0.39	0.53	0.33
FR	0.76	0.79	0.54	0.58	0.61	0.63	1.07	0.93
HR	0.57	0.55	0.27	0.34	0.11	0.31	0.27	0.40
HU	0.49	0.44	0.23	0.23	0.27	0.23	0.93	0.93
IE (1)		0.77		0.59		0.91		0.53
IT	0.56	0.60	0.43	0.55	0.42	0.48	0.27	0.33
LT	0.52	0.62	0.22	0.31	0.31	0.24	0.33	0.47
LU	0.71	0.77	0.61	0.74	0.83	0.93	0.40	0.53
LV	0.40	1.00	0.29	0.32	0.16	0.24	0.27	0.27
MK (1)		0.62		0.26		0.20		0.20
MT	0.54	0.62	0.43	0.43	0.61	0.60	0.93	0.80
NL	0.79	0.85	0.46	0.49	0.70	0.69	0.80	0.87
NO	0.97	0.99	0.55	0.65	0.70	0.59	0.47	0.60
PL	0.23	0.45	0.36	0.44	0.31	0.37	0.33	0.33
PT (2)	0.65	0.75	0.48	0.55	0.79	0.60	0.47	0.33
RO	0.24	0.27	0.21	0.25	0.29	0.34		0.20
SE (3)	0.87	0.93	0.56	0.62	0.53	0.53	0.60	0.53
SI	0.68	0.84	0.51	0.70	0.69	0.64	0.40	0.47
SK	0.69	0.70	0.52	0.68	0.56	0.50	0.60	0.47
UK	0.80	0.86	0.37	0.36	0.31	0.40	0.47	0.87

(1) CVTS 4 data are not available for Ireland and North Macedonia (no participation in CVTS 4) and partly for Romania (missing expenditure data).

(2) CVTS 5 Data for Czechia and Sweden are not comparable over time (break in time series between CVTS 4 and CVTS 5). CVTS 5 data for Czechia on expenditure are not fully comparable to those for other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

Standardised data in Table 9 have been used to produce the radar charts presented at the end of the chapter.

Radar charts can be used to identify specific patterns of statistical data as well as benchmarking tools for comparative analysis in two senses:

(a) radar charts provide an intuitive presentation of multiple performance indicators and related development over time;
(b) their surface area, formed by the axes, can be used as a composite and synthetic performance indicator, i.e. the SMOP.

The SMOP (Mosley and Mayer, 1999) is calculated from the mathematical formula for the area of a polygon: in this case – with four indicators – the results can be regarded as four triangles with angles of 90 degrees. SMOP values typically range between a minimum of 0 and a maximum of 2. The SMOP for a given country at a given point in time is calculated as

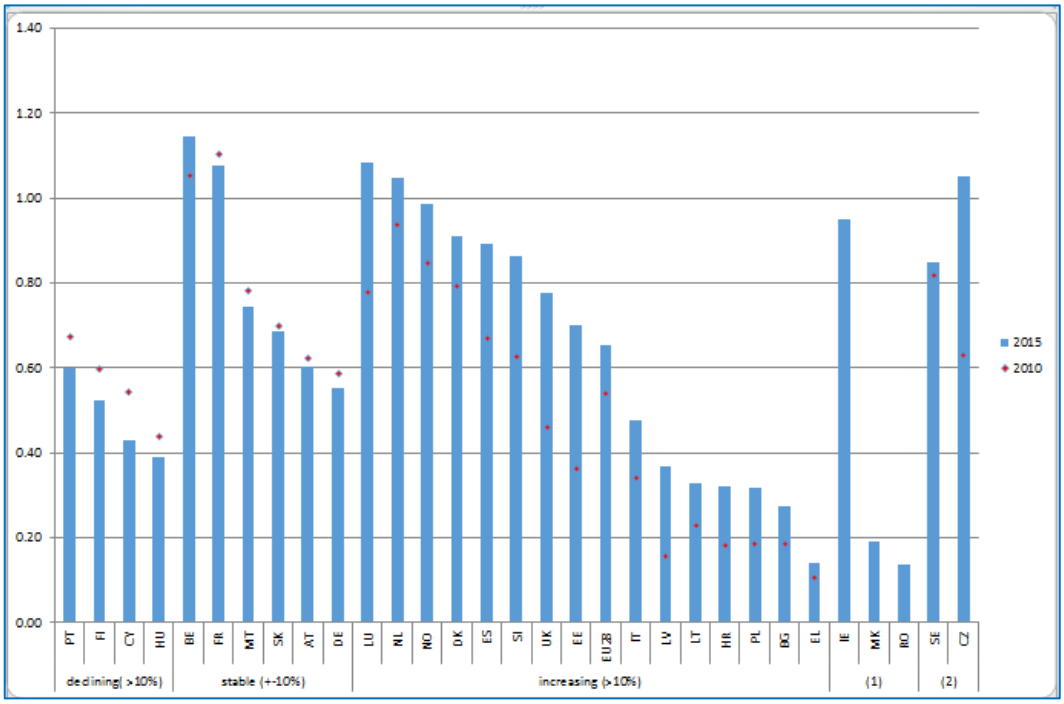
$$SMOP = ((P1*P2) + (P2*P3) +(P3*P4) + (P4*P1)) * \sin 90°/2$$

where P1, P2, P3 and P4 represent the standardised values of each selected indicator. The SMOP is a quantitative indicator of the overall CVT performance of companies in a given country. It is not an absolute measure as its values are relative to those for other countries. It should be considered as an indication, used mainly for descriptive and summary purposes, with the merits and limitations of any other composite index. Additional graphs or analysis should be used to complement the findings.

For the EU-28, the composite CVT performance indicator (surface measure of overall performance or SMOP) increased from 0.48 in 2010 to 0.58 in 2015, showing an increase of 10 percentage points or 21% over the 2010 baseline. Overall performance in 2015 varies between 0.12 in Greece and Romania and 1.02 in Belgium.

Figure 25 illustrates developments over time and cross country differences. Countries are ordered according to the evolution of the composite indicator between 2010 and 2015. The evolution is characterised as stable if the relative change in SMOP compared to 2010 is 10% or less. Positive or negative changes by more than 10% are indicated as increases or decreases.

Figure 25. **Overall performance on CVT, SMOP index, 2015 and 2010**



(1) CVTS 4 data are not available for Ireland and North Macedonia (no participation in CVTS 4) and partly for Romania (missing data on expenditure) preventing the calculations of SMOP for 2010.

(2) CVTS 5 Data for Czechia and Sweden are not comparable over time (break in time series between CVTS 4 and CVTS 5). CVTS 5 data for Czechia on expenditure are not fully comparable to those for other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

Belgium turns out to be the top performer in 2015, having the highest SMOP value. While the top five countries remained the same, Luxembourg jumps from fifth place in 2010 to second place in 2015. Luxembourg reports improvements in all four key indicators, most strongly in expenditure (+33%) and participation (+21%), while intensity rose by 12% and incidence by 9%.

For 15 countries (Bulgaria, Croatia, Denmark, Estonia, Greece, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Slovenia, Spain and the UK), as well as the EU average, an increase in overall performance of more than 10% is observed. Estonia and the UK improved their country rankings the most. Both countries combine strong increases in expenditure with strong increases in training intensity and relatively stable participation rates.

Positive progresses involved most of the countries which had particularly low scores in 2010 (Bulgaria, Greece, Croatia, Latvia, Lithuania and Poland). In Greece, however, the relative increase of the SMOP of above 10% must be interpreted with caution as it is due to a low base effect: measured in absolute terms the progress is small and unable to raise substantially the overall low performance of the country. The largest relative increase in SMOP (from 0.14 to 0.33, or +133%) is seen in Latvia, mainly due to a large increase in training

incidence through the provision of guided on-the-job training. In Croatia strong increases in enterprise CVT expenditure (+50%) are combined with strong increases in training intensity (+167%), increases in participation rates (+28%) and relatively stable incidence rates. In Poland the incidence rate doubled and participation and intensity rose by respectively 22% and 20%. Despite the progress, overall performance remains quite low in these countries compared to others.

For six countries the overall performance did not change more than 10% between 2010 and 2015, so their SMOP can be considered as fairly stable at high levels (Belgium and France) or medium levels (Germany, Malta, Slovakia and Austria). In Malta, Austria and Slovakia the overall stability of the SMOP hides strong declining expenditure levels compensated by increases in other dimensions. This is an indication that rising or declining spending levels are not per se an indication of rising or declining CVT performance but that effectiveness and efficiency have to be considered.

Overall performance fell by more than 10% between 2010 and 2015 in four countries: Hungary, Portugal, Finland (with falls between 11 and 13%), and Cyprus (at -21%). Nevertheless their 2015 SMOP levels still stand above 0.3. In 2010, Cyprus overall performance was in line with the EU-28 average. Since then expenditure levels have dropped by 21%, with remarkable reductions in incidence, participation and, more important, in training intensity (-25%). In Hungary expenditure levels and participation rates remained stable, but training provision dropped by 10% and training intensity fell 14%. In Portugal and Finland, the drop in SMOP values between 2010 and 2015 is due to reductions in training intensity and training expenditure.

Developments over time could not be assessed in a few countries: Ireland and North Macedonia (as they did not participate in CVTS 4), in Romania (no expenditure data were available in CVTS 4, preventing the calculation of the 2010 SMOP); Czechia and Sweden (a break in time series is reported in CVTS 5, so results cannot be fully compared across CVTS waves).

Table 10 ranks countries according to the value of the composite index in 2015. It provides an even finer distinction of its changes over time. It also supports an interpretation of those against the backdrop of the changes in the underlying indicators. The evolution in performance between 2010 and 2015 is marked by the following colour scheme.

	Strong decline	Moderate decline	Moderate increase	Strong increase
Indicator evolution	Declining by >20%	Declining by 10-20%	Increasing by 10-20%	Increasing by >20%

Composite indicator evolution	Declining by >10%	Declining by 5-10%	Increasing by 5-10%	Increasing by >10%

Table 10. **Incidence, participation, intensity, expenditure and overall performance (SMOP index) in 2015 and 2010**

	incidence		participation		intensity		expenditure		SMOP	
	2010	2015	2010	2015	2010	2015	2010	2015	2010	2015
BE	77.6	83.9	51.8	53.9	12.5	13.1	0.9	0.9	1.05	1.14
LU	70.8	77.1	51.1	61.8	10.9	12.2	0.6	0.8	0.78	1.08
FR	76.1	78.9	45.4	48.3	8	8.3	1.6	1.4	1.10	1.07
NL	78.6	85	38.6	41.4	9.2	9	1.2	1.3	0.94	1.05
CZ (2)		90.6		83.7		6.9		0.7		1.05
NO	96.8	99.1	45.8	54.3	9.2	7.7	0.7	0.9	0.85	0.99
IE (1)		77.4		49.7		11.9		0.8		0.95
DK	90.9	86.6	37.1	34.6	10.9	5.5	0.7	1.5	0.79	0.91
ES	74.9	86.0	48.3	55.4	6.0	7.2	0.8	0.9	0.67	0.89
SI	68.0	84.1	43.1	58.3	9	8.4	0.6	0.7	0.63	0.86
SE (2)		93.1		52.2		7		0.8		0.85
UK	80.4	85.7	30.6	30.4	4.0	5.3	0.7	1.3	0.46	0.78
MT	53.9	61.6	35.8	35.8	8	7.8	1.4	1.2	0.78	0.74
EE	67.7	86.1	30.6	31.9	4.7	8.8	0.5	0.8	0.36	0.70
SK	69	70	43.6	56.8	7.3	6.5	0.9	0.7	0.70	0.69
EU-28	65.7	72.6	37.6	40.8	5.8	6.2	0.8	0.9	0.54	0.65
AT	86.9	88.1	33.2	45.4	6.2	6.5	0.8	0.5	0.62	0.60
PT	64.6	75.0	39.8	46.3	10.3	7.9	0.7	0.5	0.68	0.60
DE	72.8	77.3	39.5	38.1	5.7	5.5	0.8	0.7	0.58	0.55
FI	74.4	83.1	40.2	43.8	5.7	5.1	0.8	0.5	0.60	0.52
IT	55.6	60.2	36.0	45.9	5.5	6.3	0.4	0.5	0.34	0.48
CY	71.6	69.5	36.7	33.2	5.2	3.9	0.8	0.7	0.54	0.43
HU	48.7	43.8	19	19.4	3.5	3.0	1.4	1.4	0.44	0.39
LV	40.4	99.9	24.2	27.2	2.1	3.1	0.4	0.4	0.16	0.37
LT	51.9	61.6	18.6	25.6	4.0	3.1	0.5	0.7	0.23	0.33
HR	57.1	55.4	22.5	28.7	1.5	4.0	0.4	0.6	0.18	0.32
PL	22.5	44.7	30.5	37.1	4.0	4.8	0.5	0.5	0.19	0.32
BG	31.2	42.2	22.0	26.5	3.2	4.5	0.6	0.6	0.18	0.27
MK (1)		61.9		22		2.6		0.3		0.19
EL	27.8	21.7	16.3	18.5	1.7	3.0	0.5	0.6	0.11	0.14
RO (1)	24.1	26.7	17.8	21.3	3.8	4.4		0.3		0.14

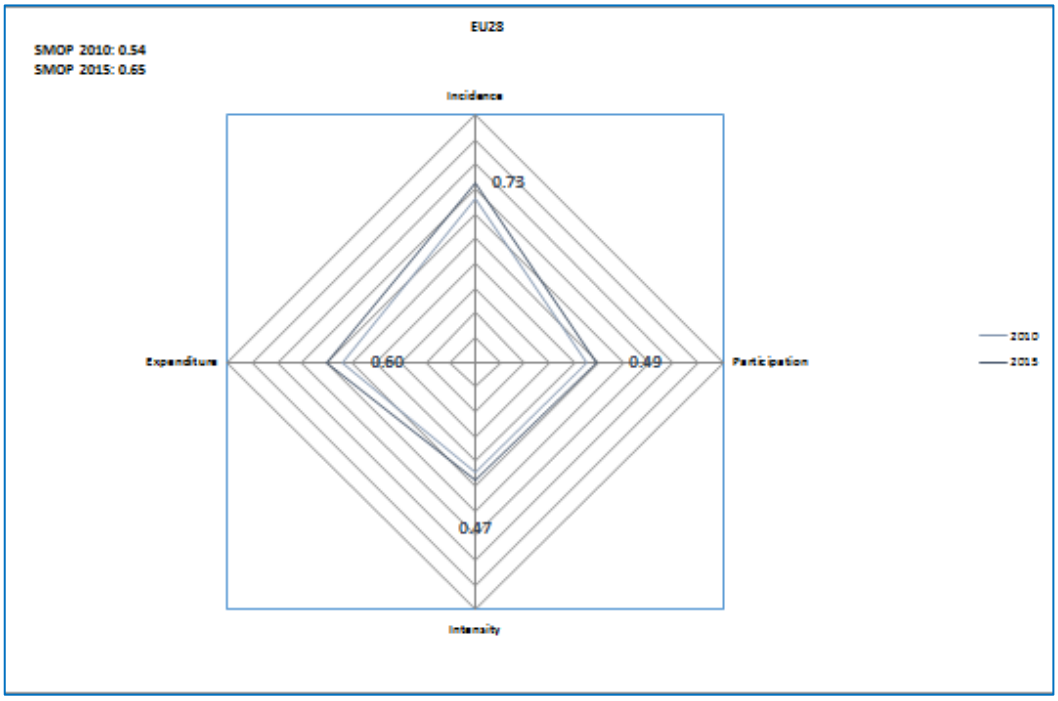
(1) CVTS 4 data are not available for Ireland and North Macedonia (no participation in CVTS 4) and partly for Romania (missing data on expenditure) preventing the calculations of SMOP for 2010.

(2) CVTS 5 Data for Czechia and Sweden are not comparable over time (break in time series between CVTS 4 and CVTS 5). CVTS 5 data for Czechia on expenditure are not fully comparable to those for other countries.

Source: Eurostat, CVTS, dissemination database (accessed 27.4.2018); own calculations.

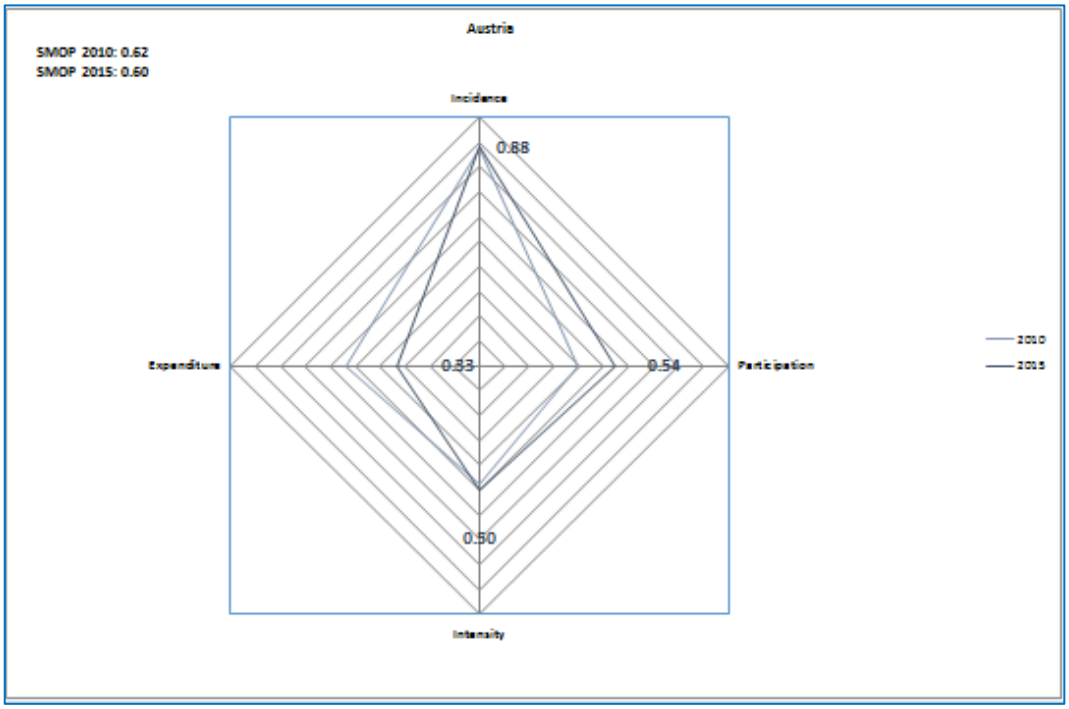
Figures 26 to 56 show the performance of key CVT indicators, CVTS 5 (2015) versus CVTS 4 (2010), standardised values (1=2015 maximum value in each indicator across EU countries).

Figure 26. **Performance of key CVT indicators, EU-28**



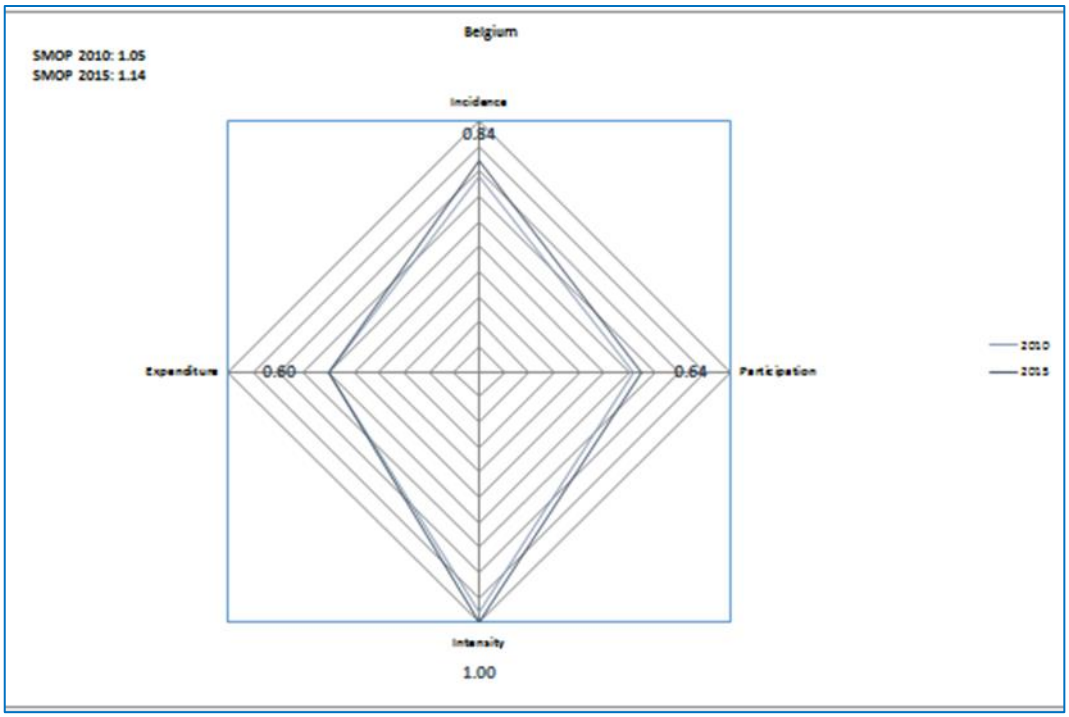
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 27. **Performance of key CVT indicators, Austria**



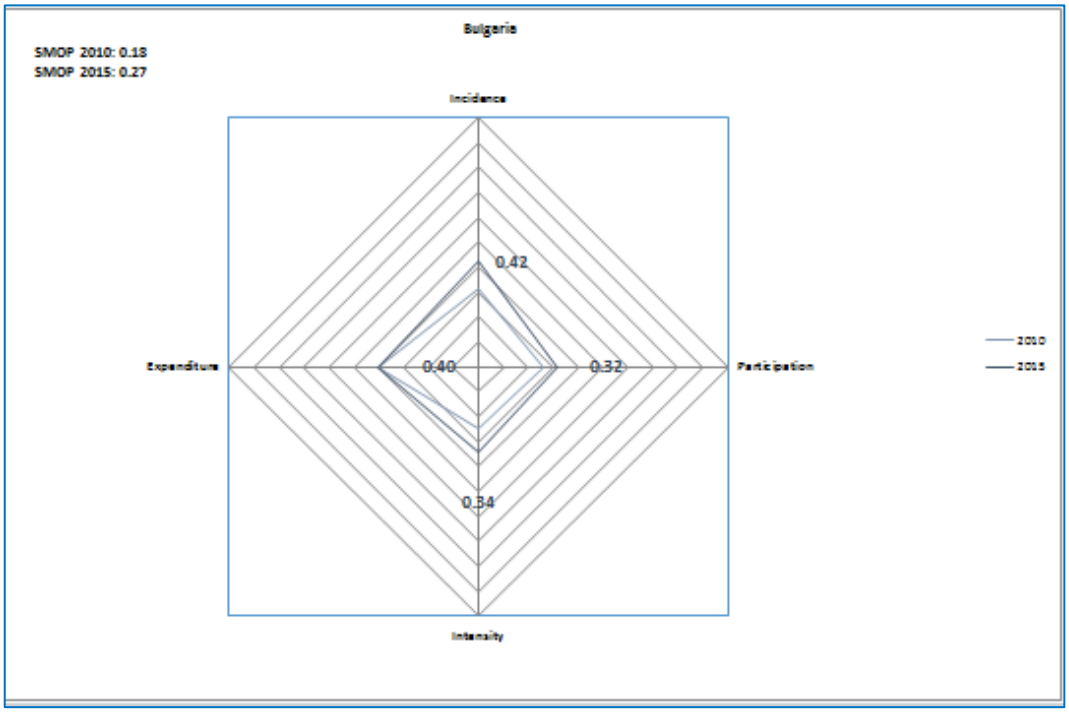
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 28. **Performance of key CVT indicators, Belgium**



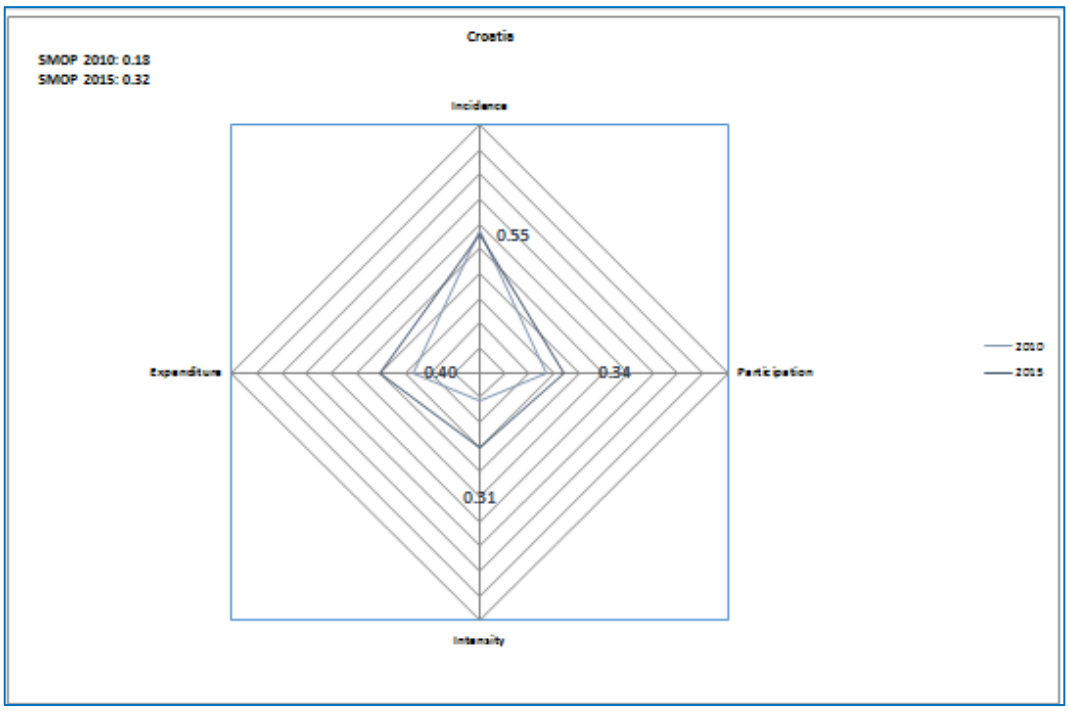
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 29. **Performance of key CVT indicators, Bulgaria**



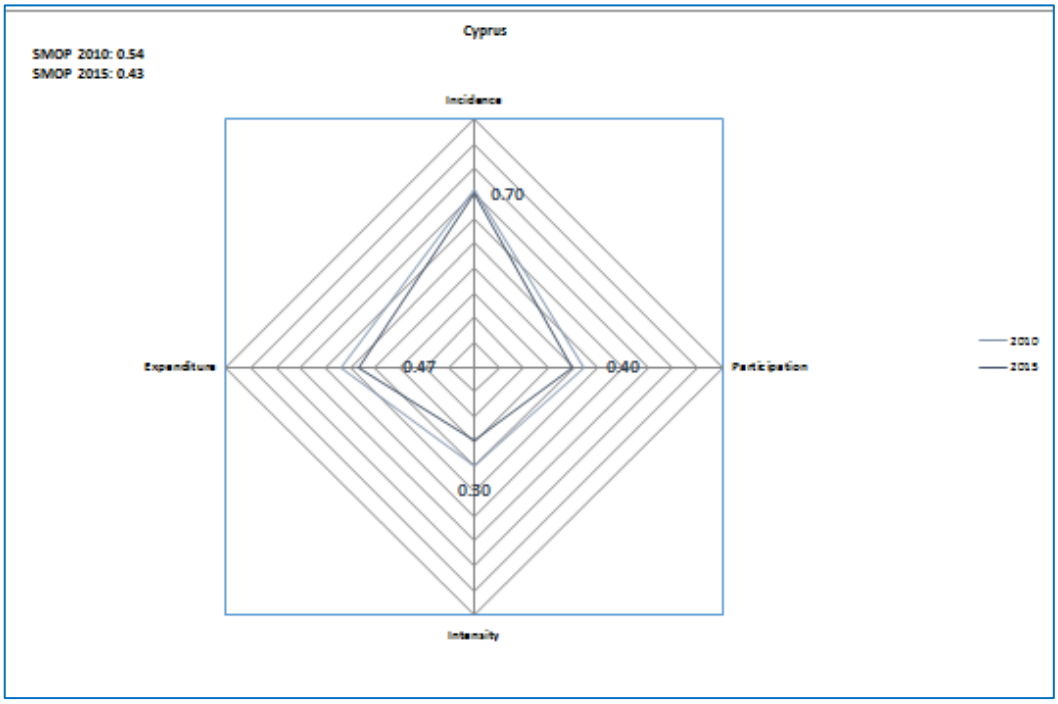
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 30. **Performance of key CVT indicators, Croatia**



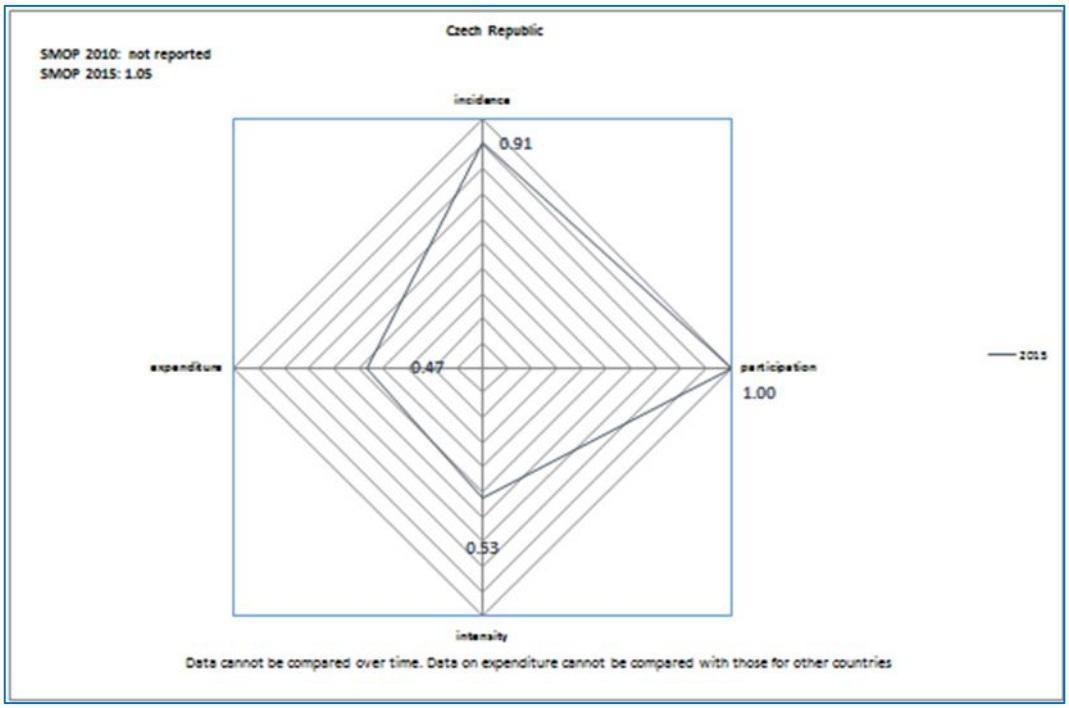
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 31. **Performance of key CVT indicators, Cyprus**



Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

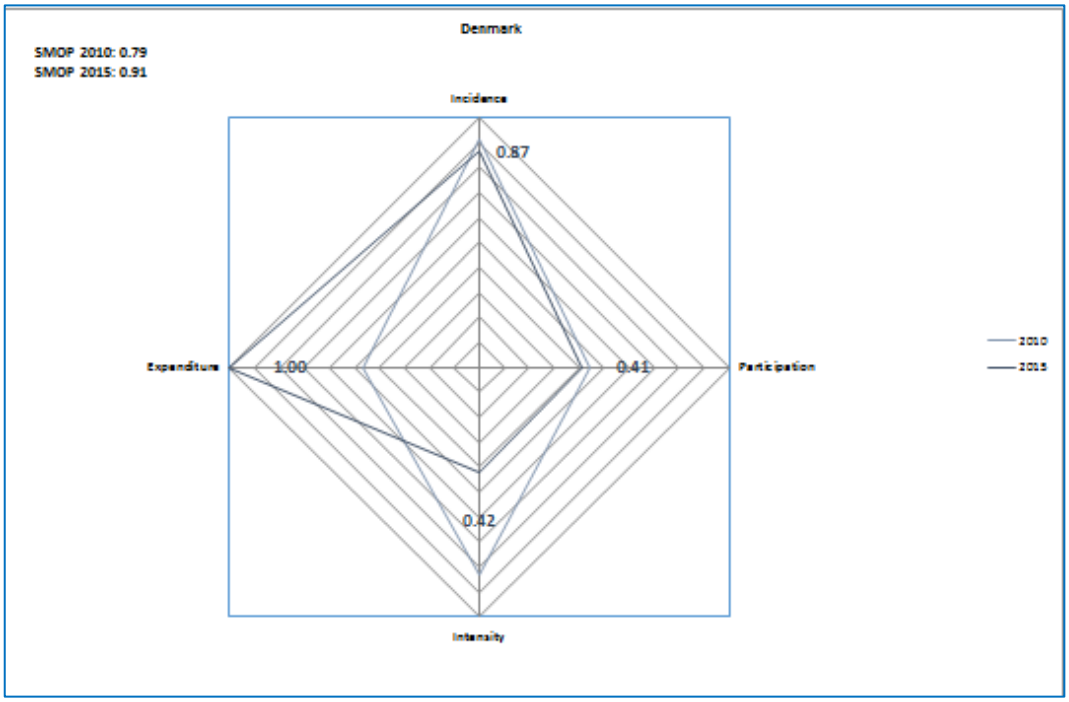
Figure 32. **Performance of key CVT indicators, Czechia**



NB: Data cannot be compared over time. 2015 data on expenditure and 2015 SMOP data cannot be compared with those for other countries.

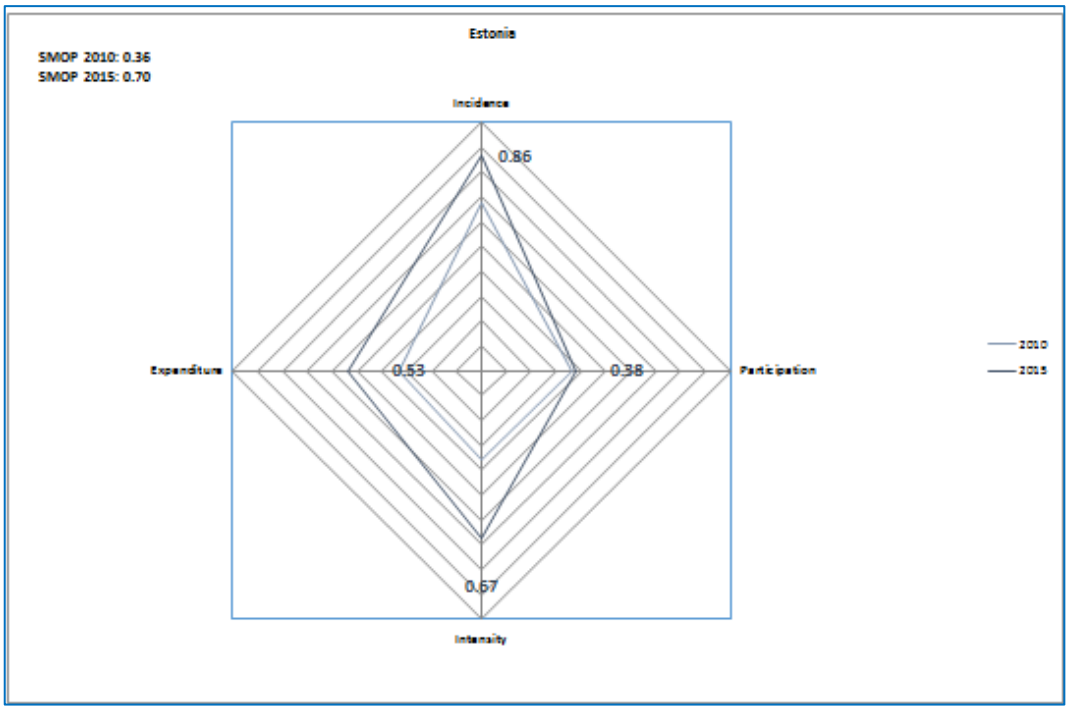
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 33. **Performance of key CVT indicators, Denmark**



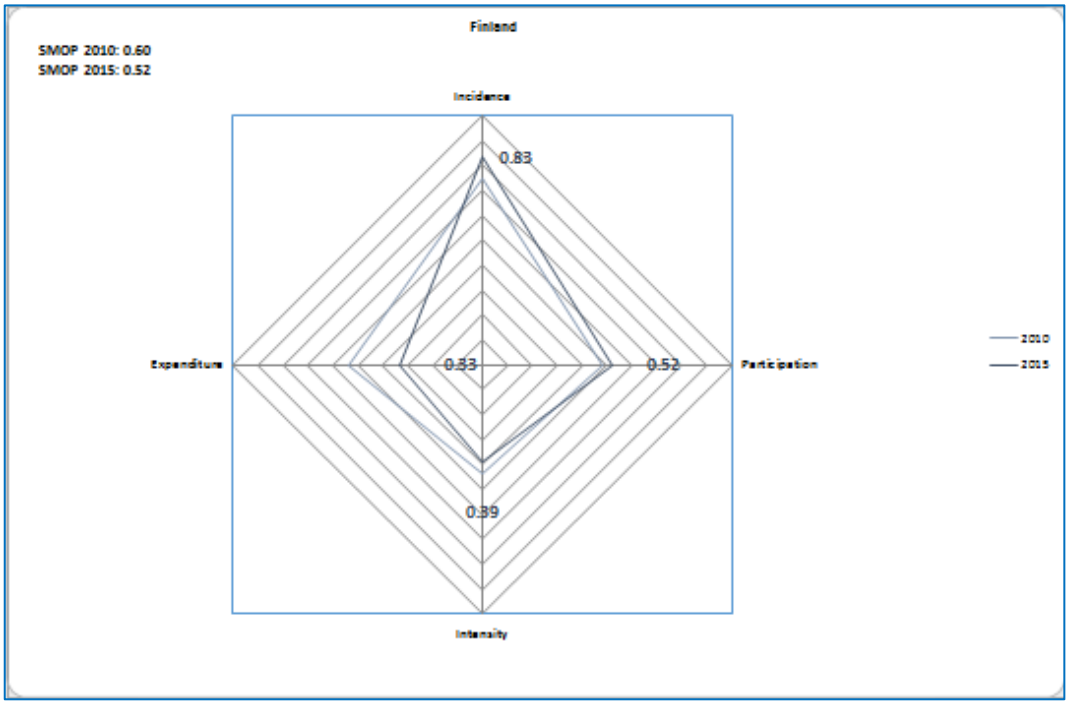
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 34. **Performance of key CVT indicators, Estonia**



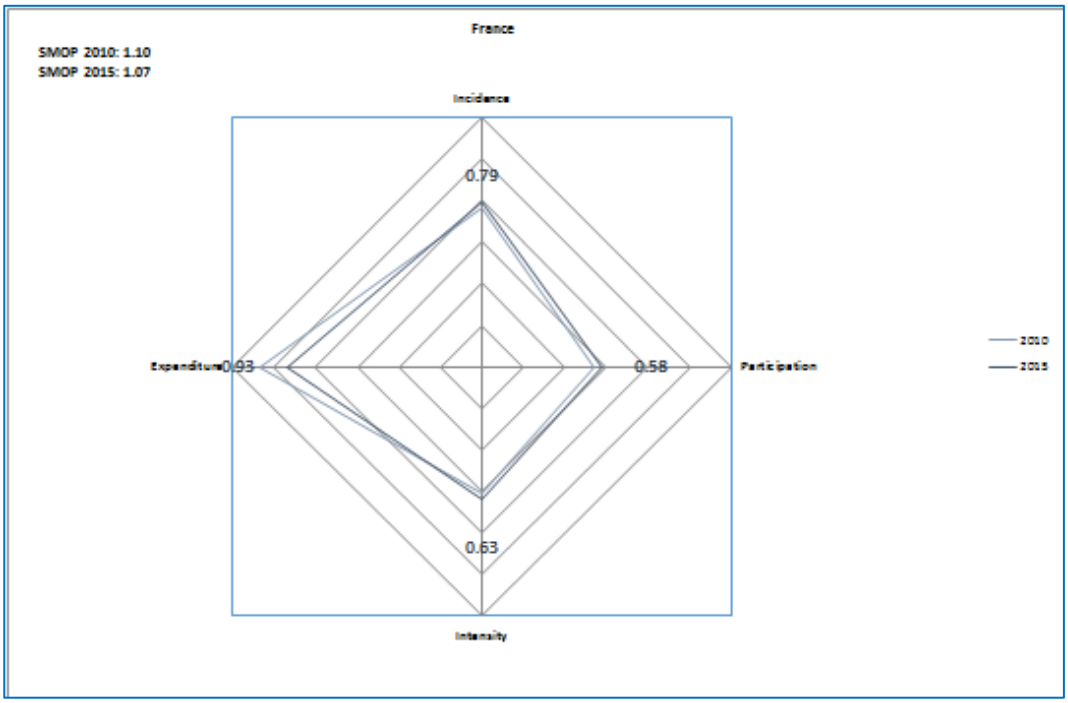
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 35. **Performance of key CVT indicators, Finland**



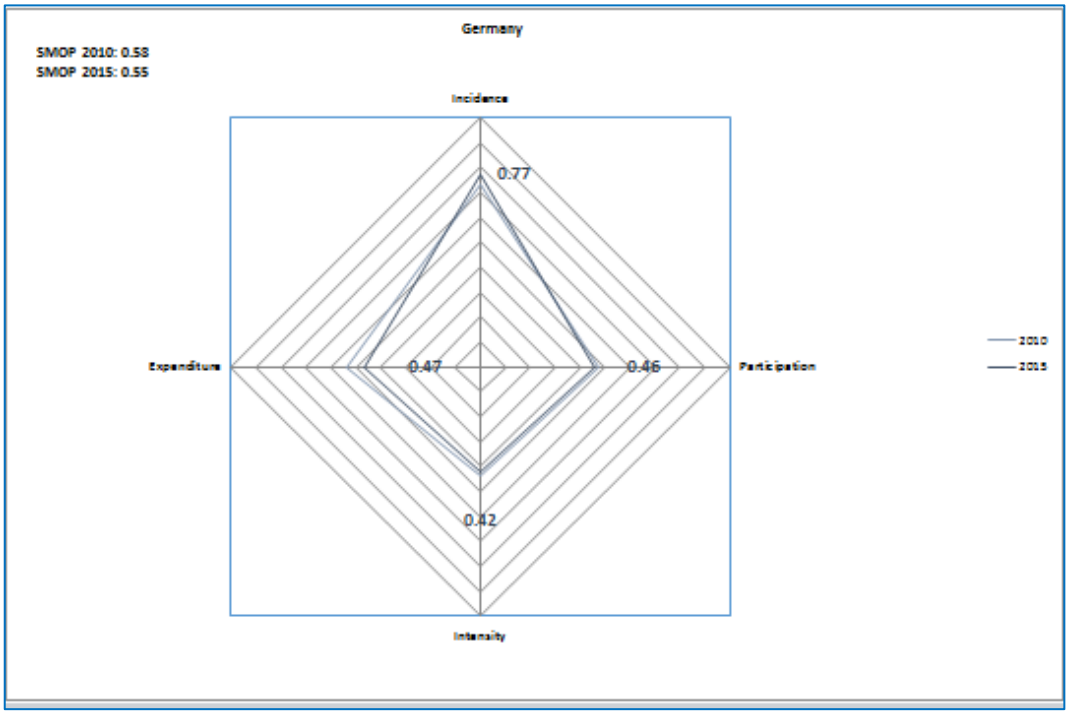
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 36. **Performance of key CVT indicators, France**



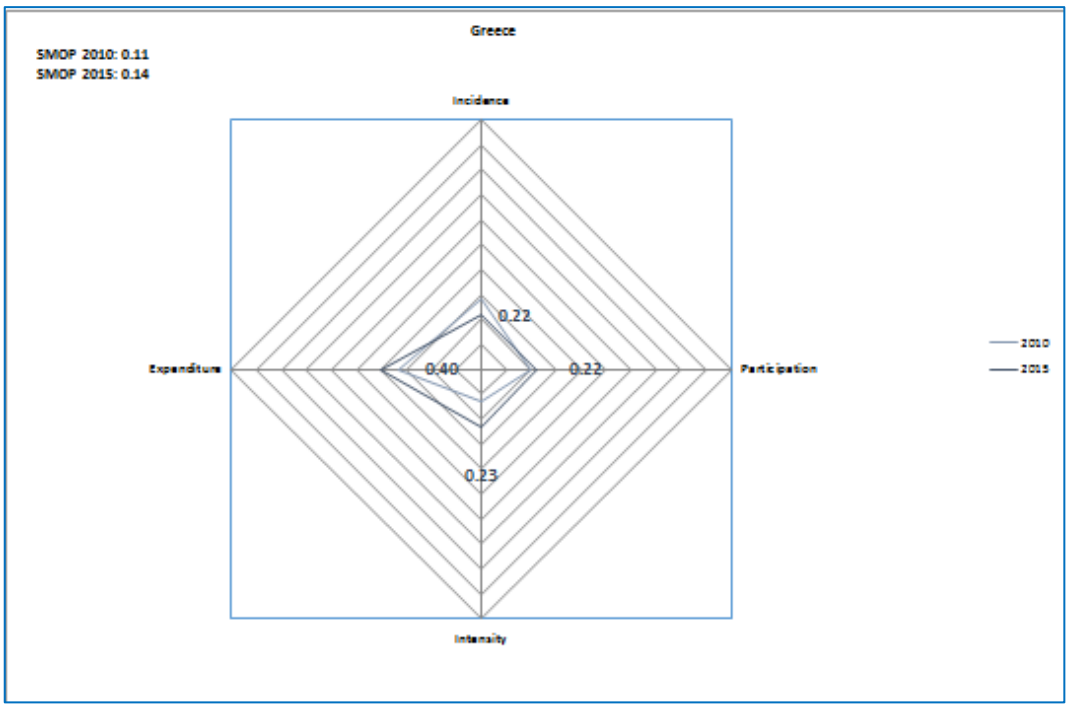
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 37. **Performance of key CVT indicators, Germany**



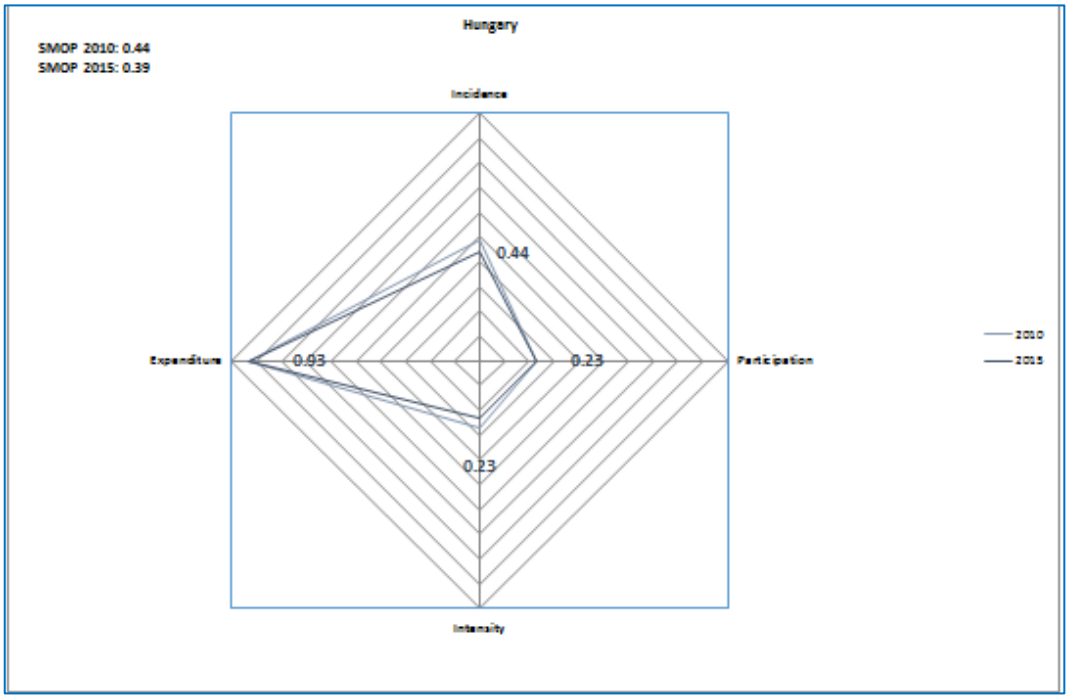
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 38. **Performance of key CVT indicators, Greece**



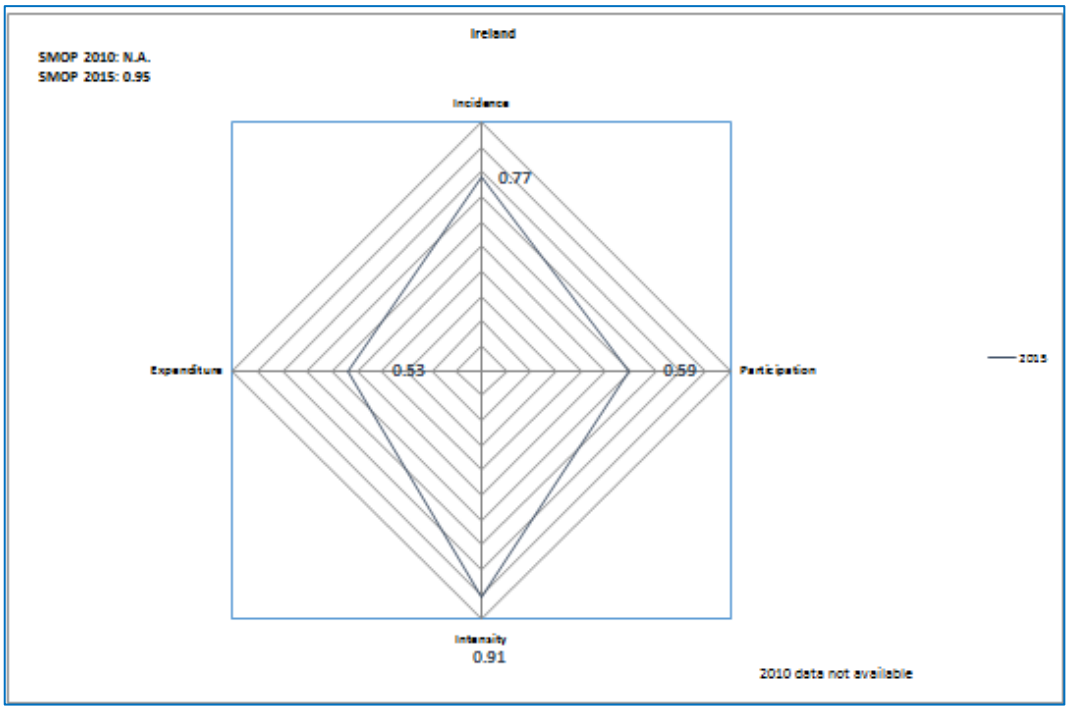
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 39. **Performance of key CVT indicators, Hungary**



Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

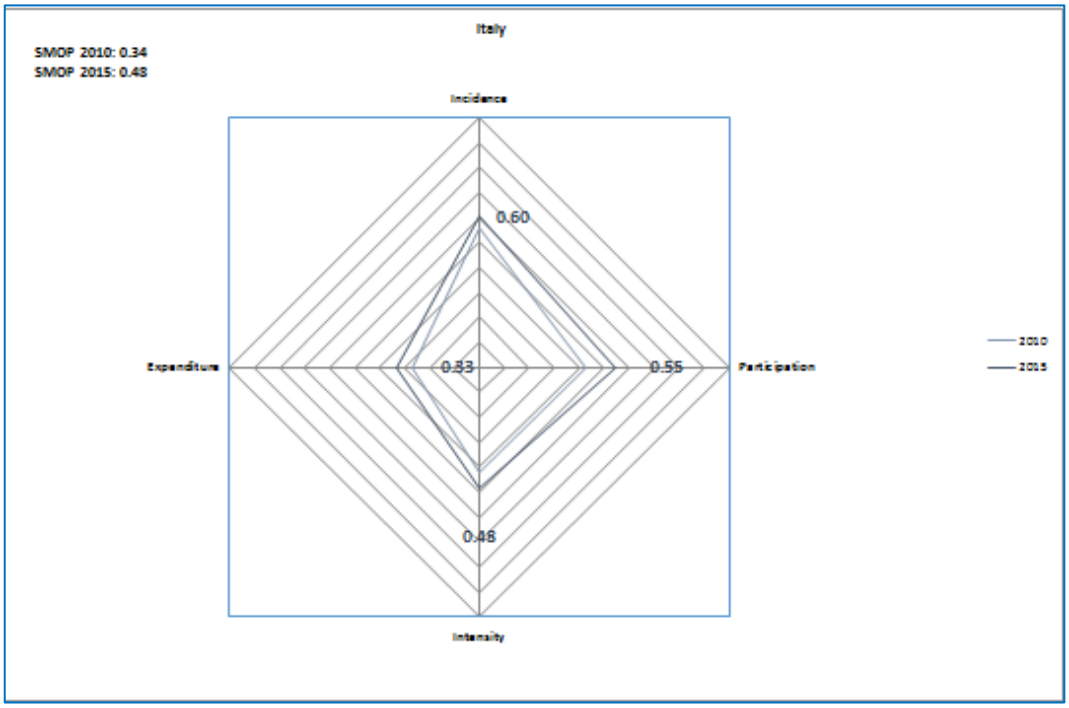
Figure 40. **Performance of key CVT indicators, Ireland**



NB: 2010 data not available.

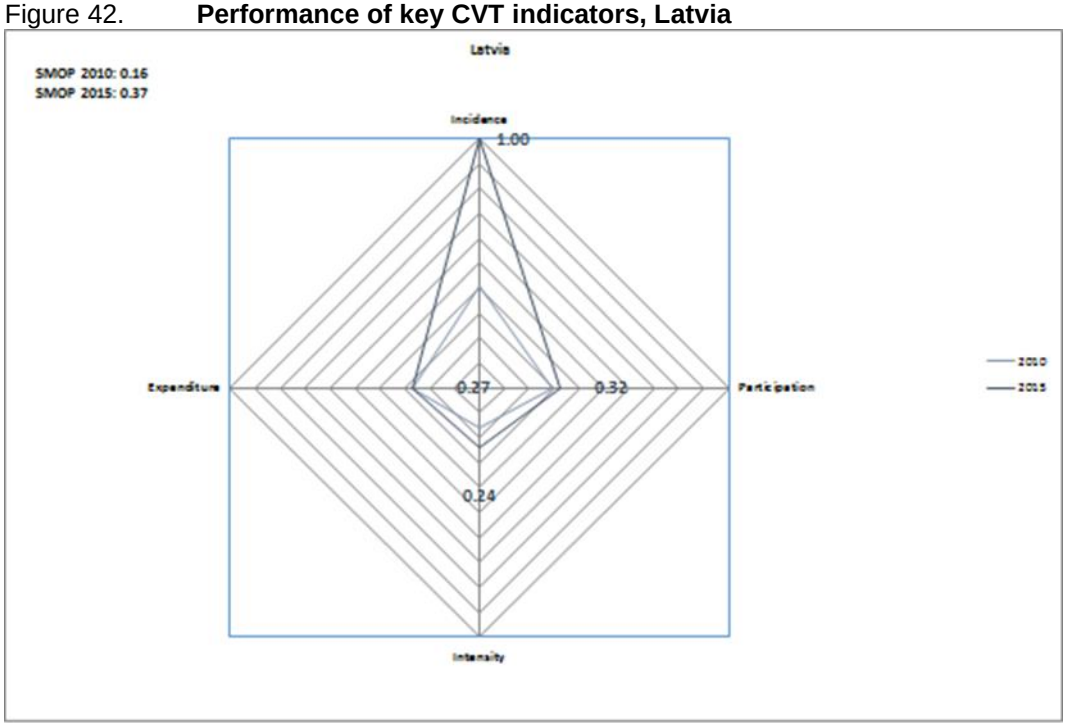
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 41. **Performance of key CVT indicators, Italy**



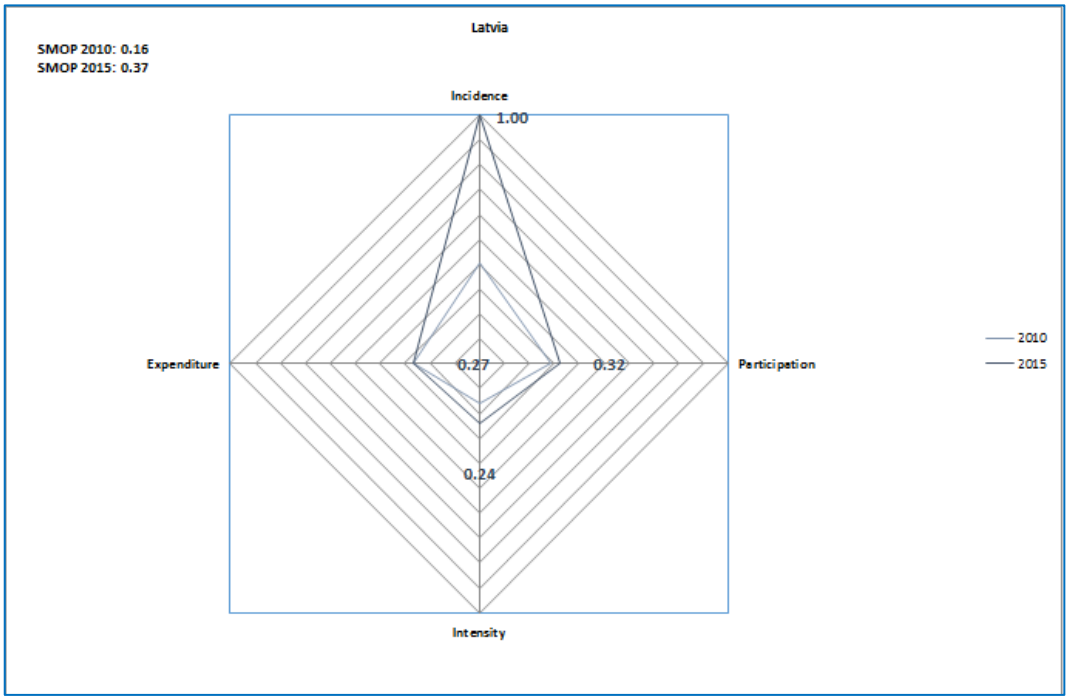
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 42. **Performance of key CVT indicators, Latvia**



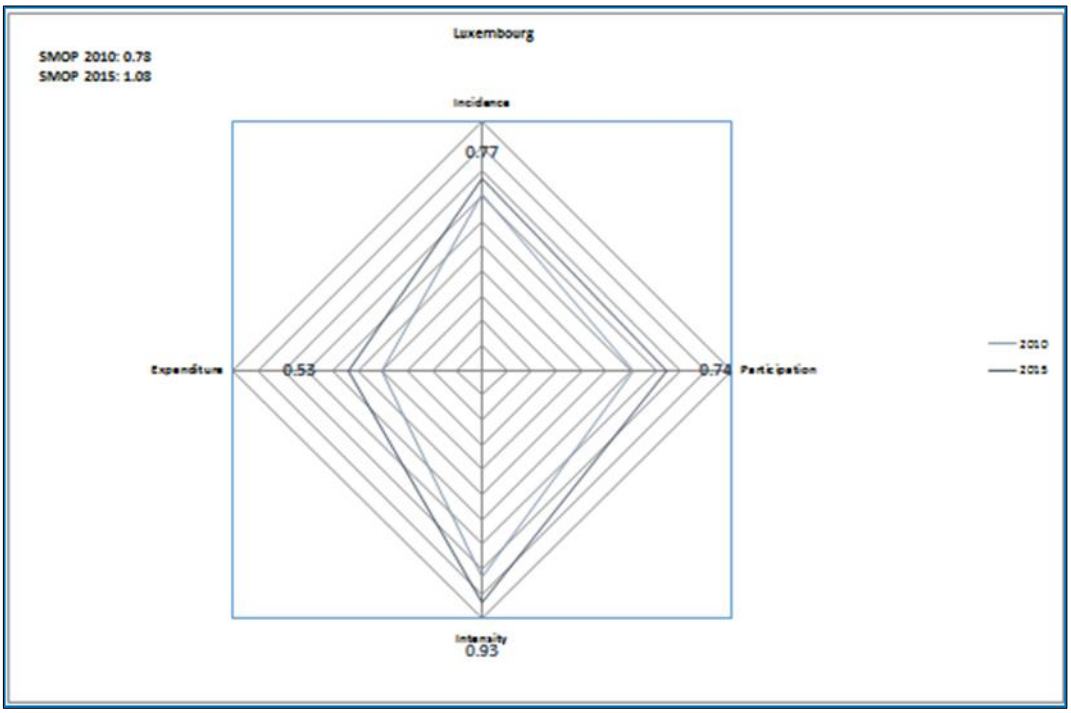
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 43. **Performance of key CVT indicators, Lithuania**



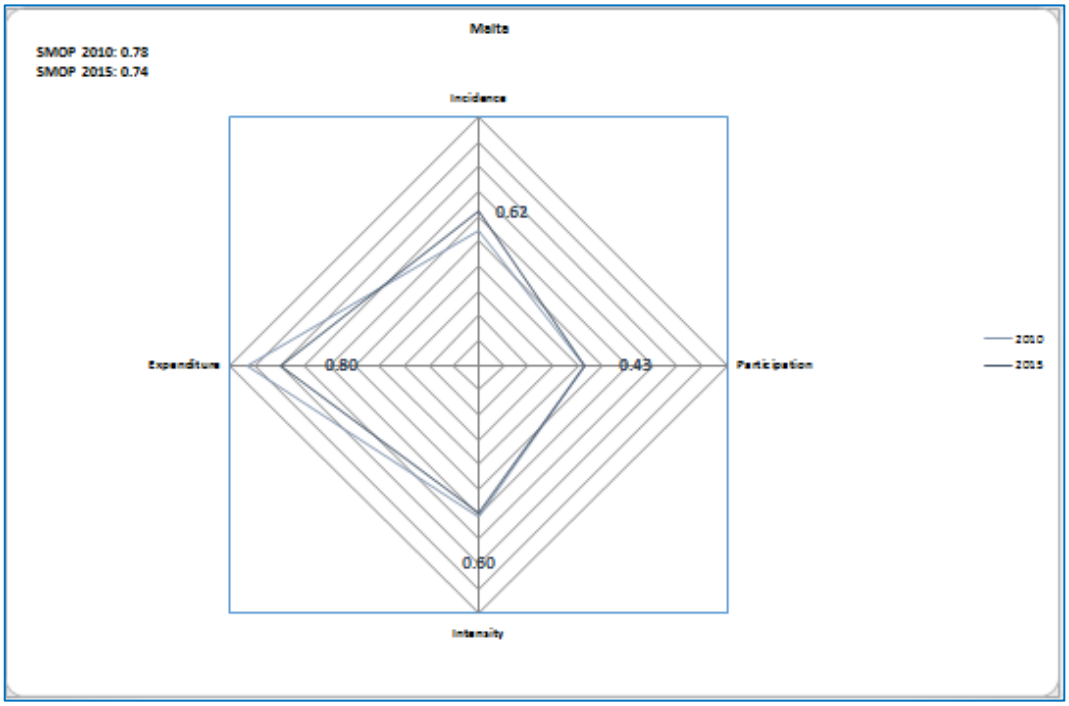
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 44. **Performance of key CVT indicators, Luxembourg**



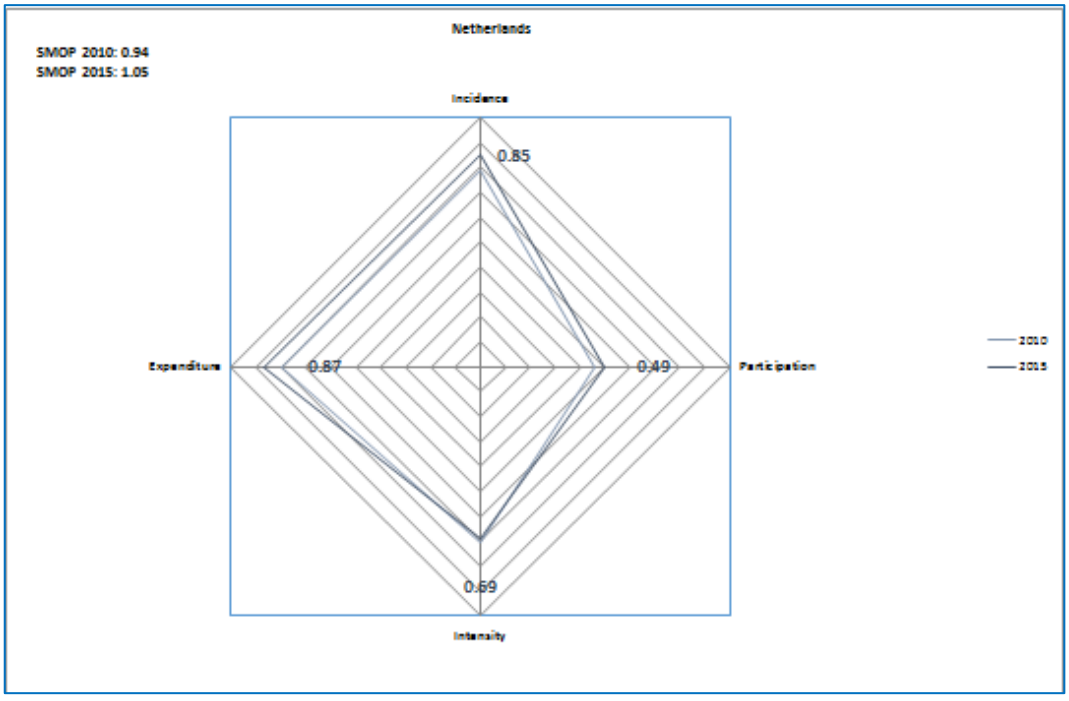
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 45. **Performance of key CVT indicators, Malta**



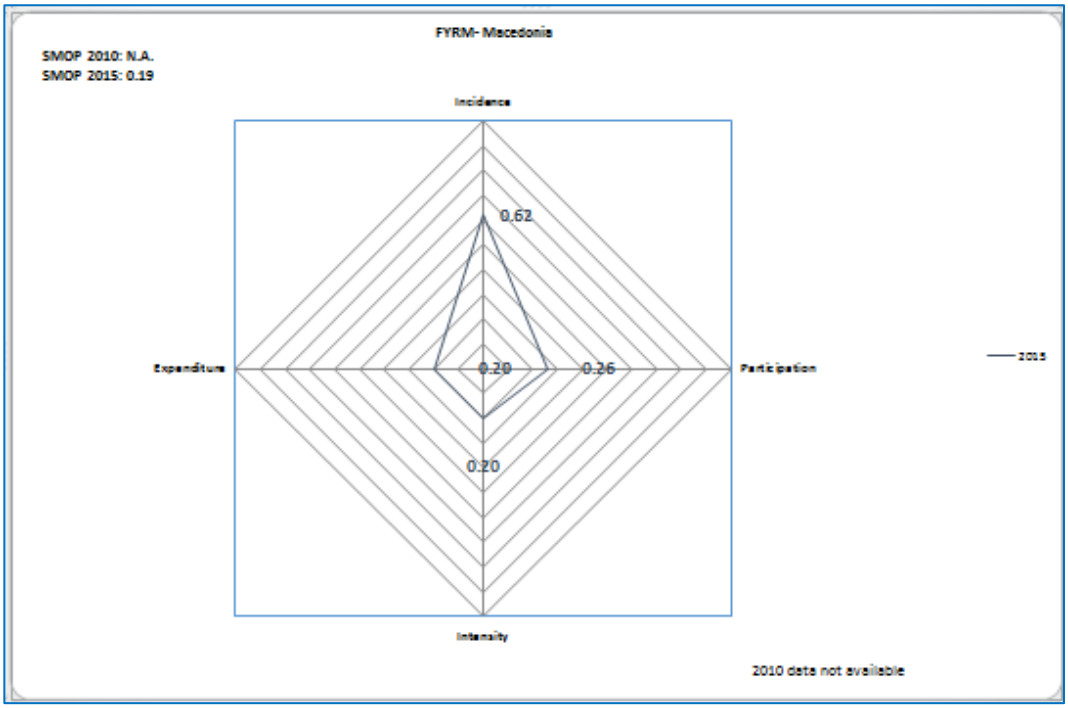
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 46. **Performance of key CVT indicators, Netherlands**



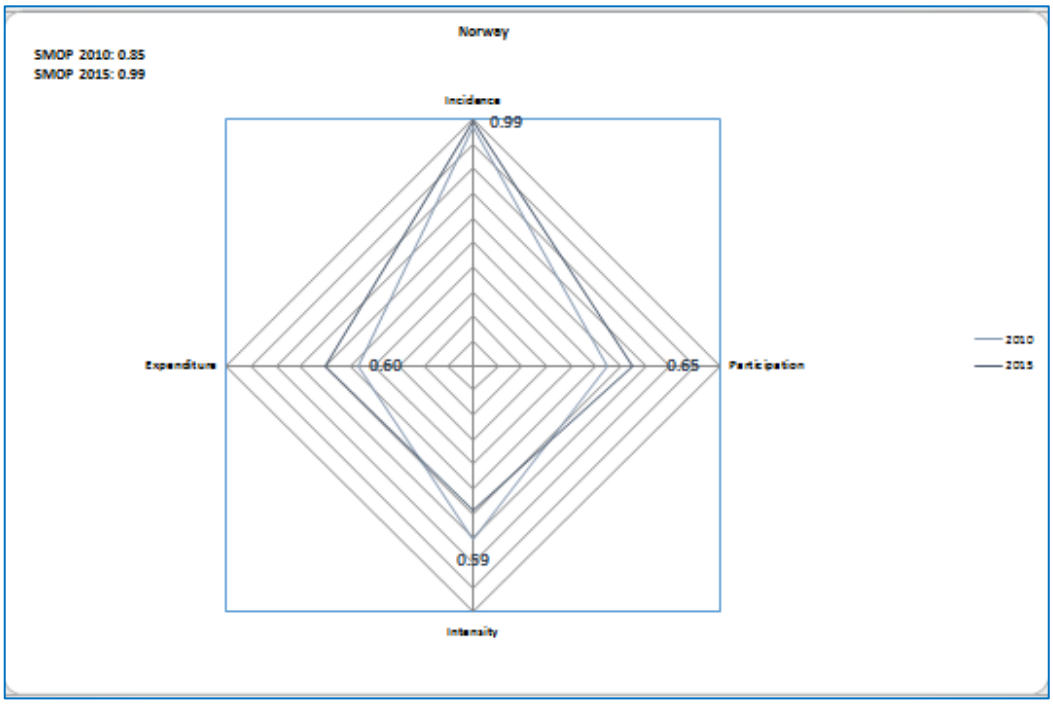
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 47. **Performance of key CVT indicators, North Macedonia**



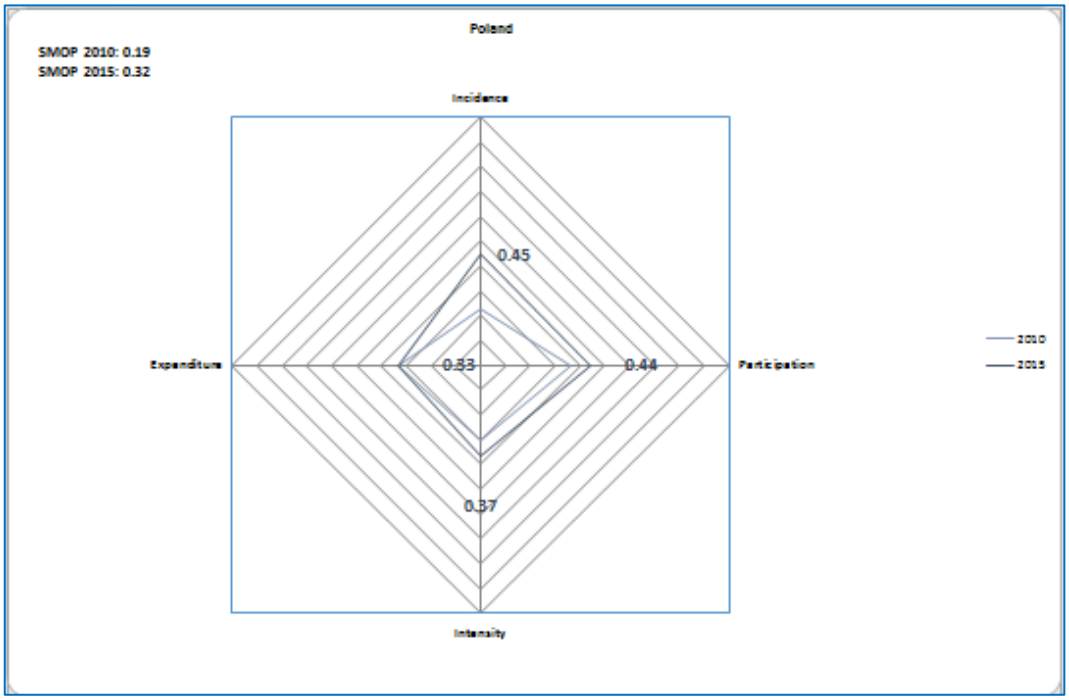
NB: 2010 data not available.
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 48. **Performance of key CVT indicators, Norway**



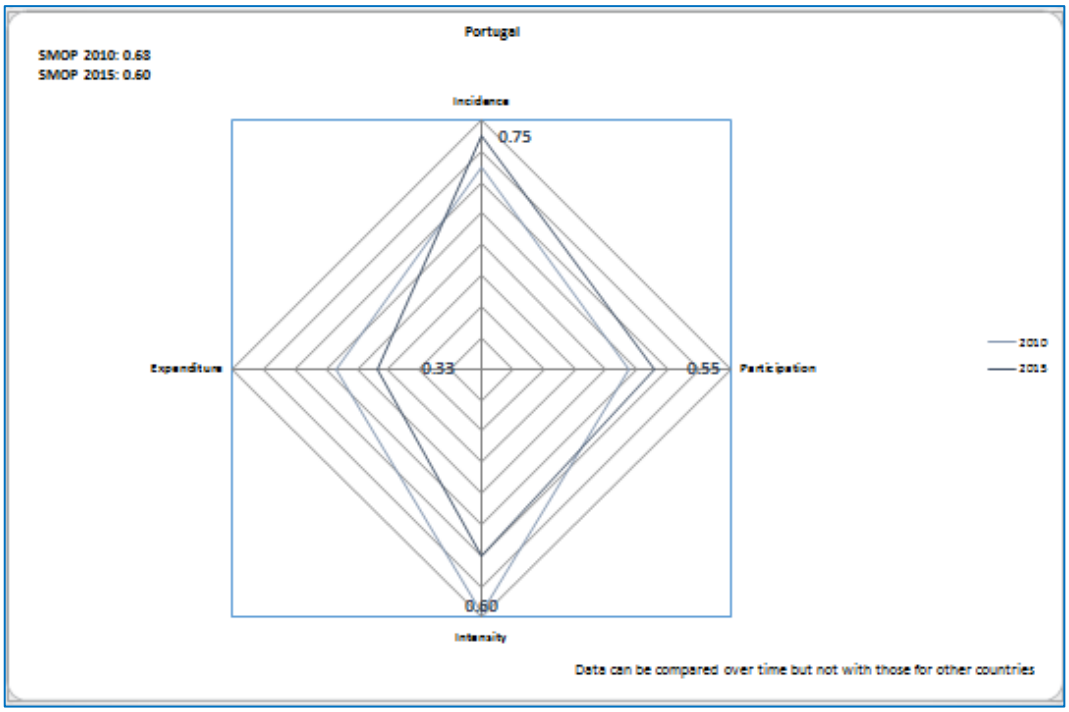
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 49. **Performance of key CVT indicators, Poland**



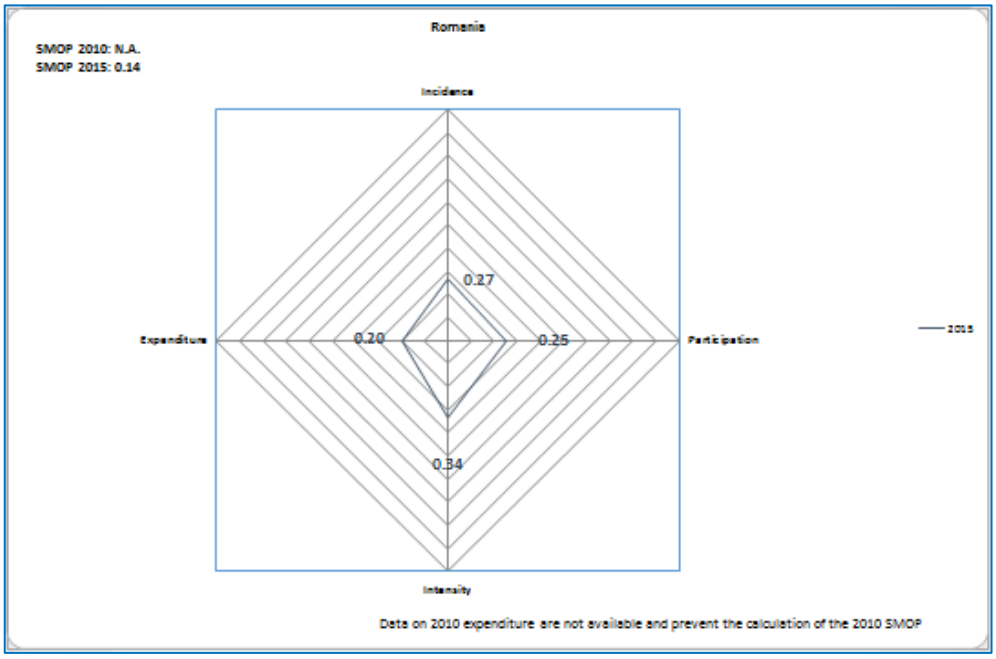
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 50. **Performance of key CVT indicators, Portugal**



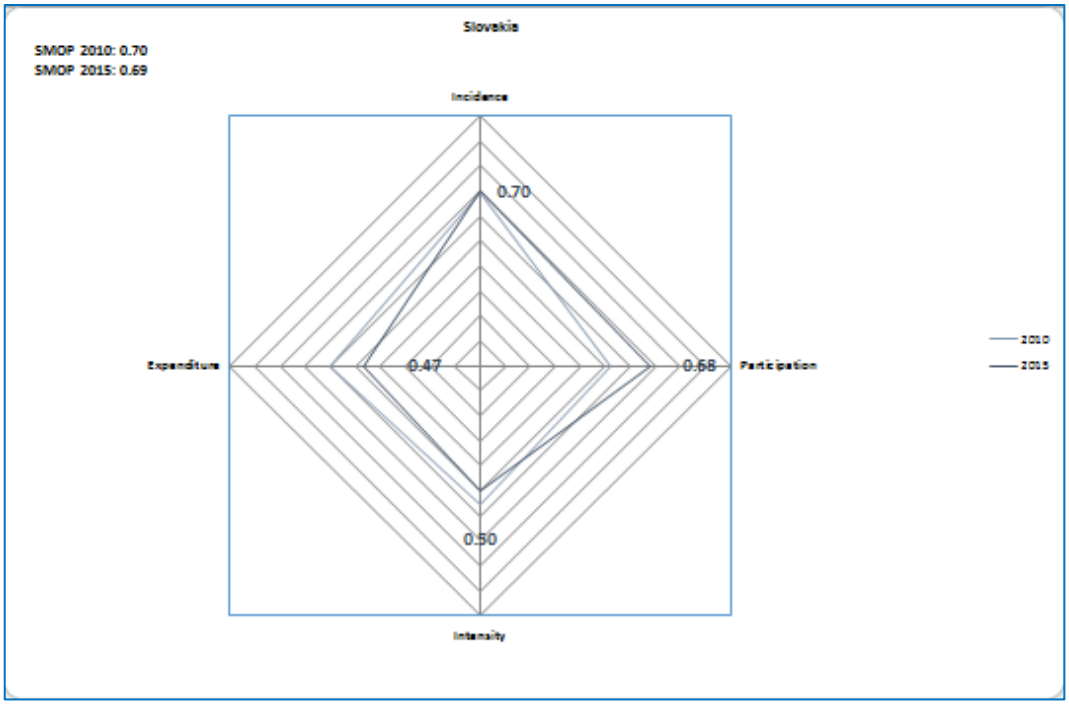
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 51. **Performance of key CVT indicators, Romania**



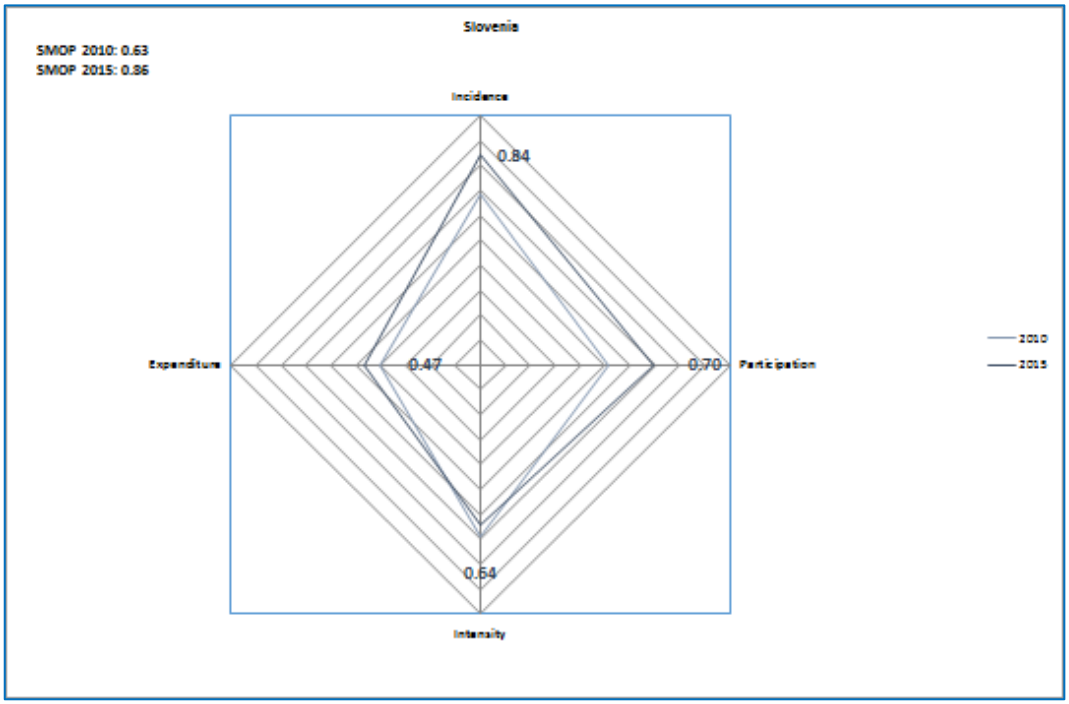
NB: Data on 2010 expenditure are not available and prevent the calculation of the 2010 SMOP.
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 52. **Performance of key CVT indicators, Slovakia**



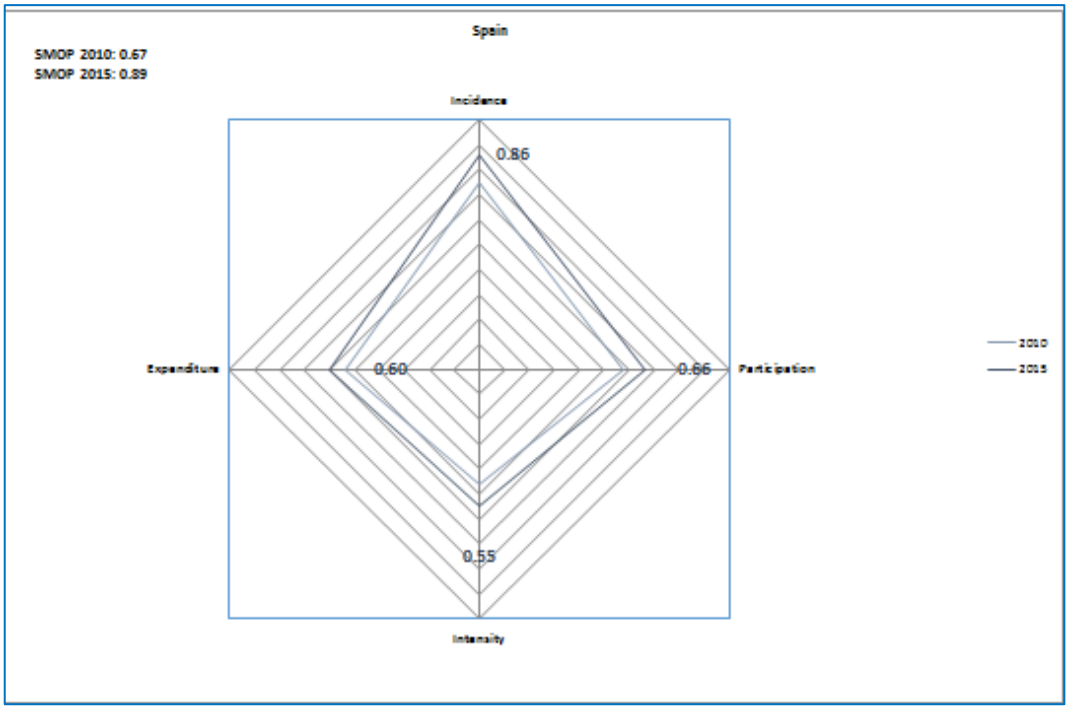
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 53. **Performance of key CVT indicators, Slovenia**



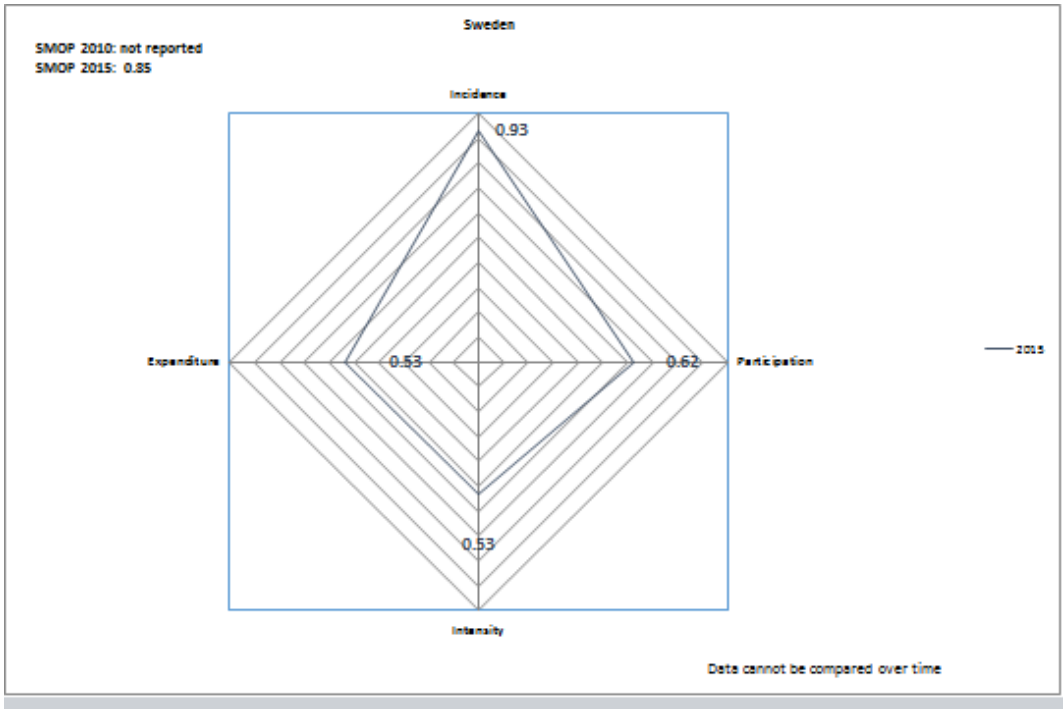
Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 54. **Performance of key CVT indicators, Spain**



Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

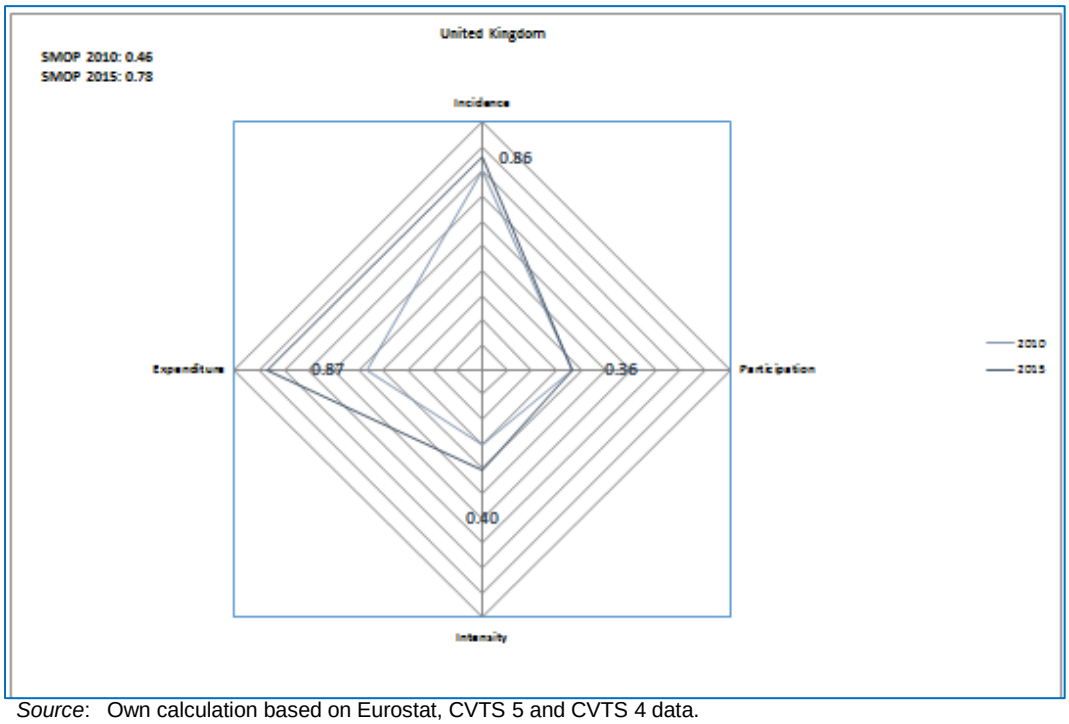
Figure 55. **Performance of key CVT indicators, Sweden**



NB: Data cannot be compared over time.

Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

Figure 56. **Performance of key CVT indicators, United Kingdom**



Source: Own calculation based on Eurostat, CVTS 5 and CVTS 4 data.

CHAPTER 4.

Main skills needs in enterprises

CVTS provides policy-relevant data on the main skill needs identified by employers in the EU, in two different ways. A common battery of items (skills bundles) is used for reporting on:

(a) main skills considered important for the development of enterprises in the near future;

(b) main skills targeted by employer-sponsored CVT courses.

This allows relating the perceived importance of skills for the future of companies in the EU to training course provision which actually occurred in the reference year. Questions on main skills considered important in the near future are answered by all enterprises, while questions on main skills targeted by CVT courses are only asked of enterprises that provide CVT courses in the reference year of the survey.

Question A12 of the European standard questionnaire (Eurostat, 2016) has particular information on the skills and competences considered most important for the development of the enterprise in the next few years. The question presents a battery of 12 selected skills items (skills bundles), including an item 'other'. In CVTS 4, respondents were asked to state whether or not each item was deemed important. This was changed in CVTS 5 and respondents were asked to state only the three most important items. This change in the survey strategy implies a break in time series, limiting the comparison of results between CVTS 4 and CVTS 5. Data for Sweden were not available due to low reliability.

The same battery of items (skills bundles) is used in CVTS 5 to survey the content of the training provided by employers in question C5 of the European standard questionnaire (Eurostat, 2016). Training enterprises are asked to indicate from a list, the three most important skills/competences targeted in their CVT courses. Identification of the three most important items is based on the number of training hours sponsored during the reference year of the survey. A methodological change occurred in CVTS 5, limiting comparability over time of the relevant data. In CVTS 4, enterprises were asked to indicate from the list all the skills bundles for which they sponsored CVT courses; in CVTS 5 the focus was on the three most important ones. Data for Czechia (low reliability) and Greece on main skills targeted by CVT courses were not available at the moment of data extraction.

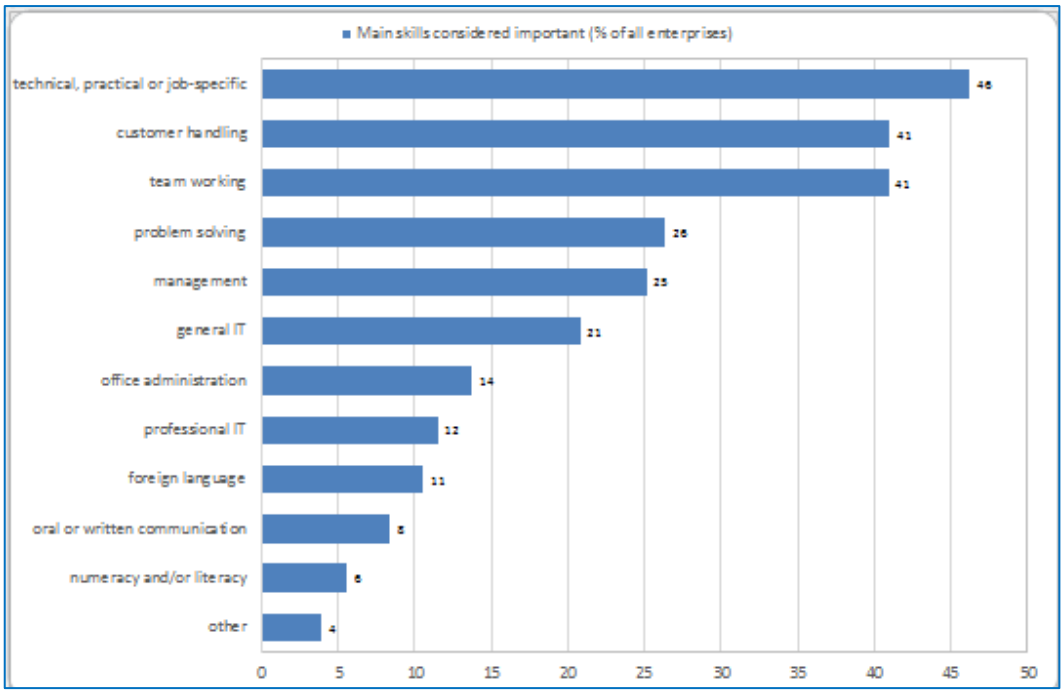
It is important to note that CVTS 5 results on skills considered important by employers and skills targeted in their CVT courses no longer offer a comprehensive view of enterprises' skills needs. Enterprises only indicate, as part of their answers, the skills bundles which they identify as the three most important ones. Skill bundles that rank lower in their priority are no longer reported and they are not present in the calculation of the indicators.

4.1. Main skill needs at the EU-28 level

Figure 57 and Figure 58 present the CVTS 5 estimates for the EU-28, excluding data for Norway and North Macedonia, as well as those countries for which data were unavailable. Given their weight among all enterprises, overall figures strongly reflect the position of small enterprises.

When enterprises in the EU-28 are asked to declare the three skills bundles they consider most important for their development in the near future, technical, practical or job-specific skills come out on top, selected by 46% of enterprises. Skills/competences in customer handling and teamwork are prioritised by 41% of all enterprises. Other general skills such as problem-solving (26%) and management skills (25%) complete the top four skills bundles. Information technology (IT) skills, general and specialised IT skills are rated as most important in the years to come by 21% (general IT) and 12% (professional IT) of enterprises. Skills in office administration are listed in the top three skill needs in the years to come by one out of seven enterprises (14%). Oral and written communication, foreign language and literacy and numeracy are skills that are less often (6% to 11%) indicated as most important for enterprises' future development.

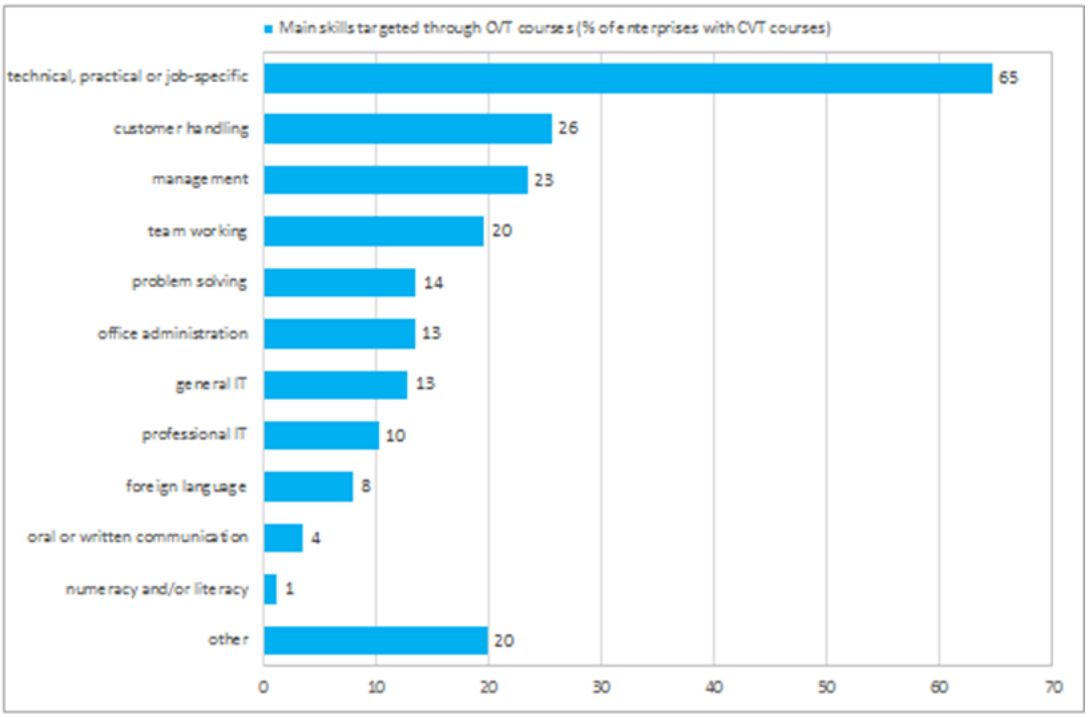
Figure 57. **Main skills considered important in the near future, EU-28 average, 2015, % of enterprises quoting each option**



NB: Enterprises were asked to indicate the three most important skills bundles for their development in the near future. % values are percentages of enterprises quoting each option as one of the three most important skills bundles.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculation.

Figure 58. **Main skills targeted in CVT courses, EU-28 average, 2015, % of training enterprises quoting each option**

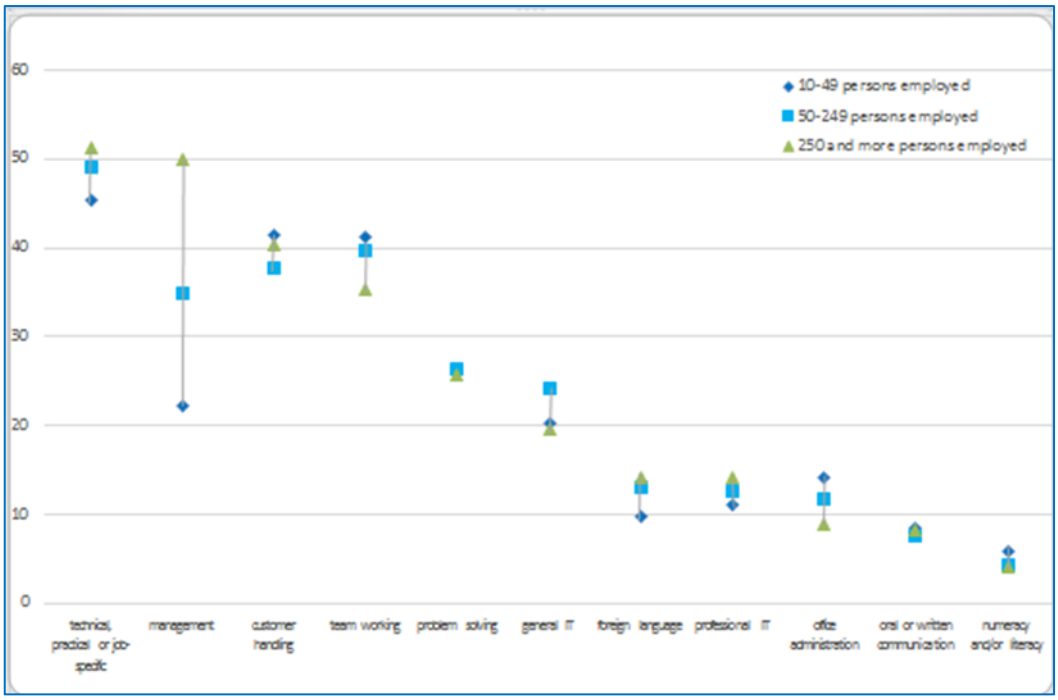


NB: Training enterprises were asked to indicate the three most important skills bundles targeted in their CVT courses (based on hours of training sponsored). % values are percentages of enterprises quoting each option as one of the three most important skills bundles.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

The importance of technical, practical or job-specific skills for enterprise development in the next few years is often combined with priority provision of related training courses: 65% of training enterprises state that skills in this domain are a priority in their CVT course provision (among the three most important skills/competences targeted by their CVT courses in relation to the number of hours of training). A significantly smaller proportion of training enterprises indicate that skills in customer handling (26%), management (23%) and teamwork (20%) are among their top-three skills trained. Skills that are less frequently prioritised in course provision are those in office administration (13%), as well as general (13%) and specialised IT skills (10%). Least prioritised subjects in CVT-course provision are foreign languages (8%), oral and written communication skills (4%) and literacy and numeracy skills (1%).

Figure 59. **Main skills considered important in the near future by enterprise size class, EU-28 average, 2015, % of enterprises quoting each option**



NB: Enterprises were asked to indicate the three most important skills bundles for their development in the near future. % values are percentages of small, medium and large enterprises quoting each option as one of the three most important skills bundles. Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across enterprise size classes in 2015). Relative range: relative range in 2015 (this is the absolute range expressed as a percentage of the minimum indicator value across enterprise size classes in 2015).

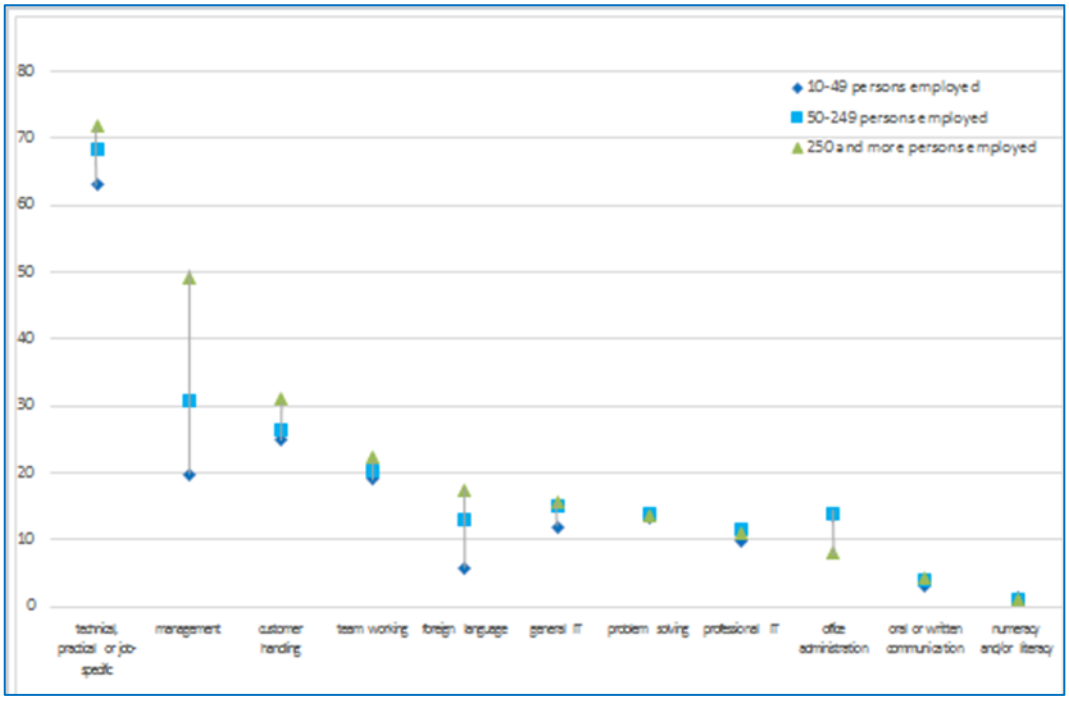
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

The strategic importance of the different skills bundles shows small variability across enterprise size classes at EU level in 2015 (Figure 59). Only for management skills are there large differences between size classes; their importance for future enterprise development rises with enterprise size. Some differences can also be noted with respect to technical, practical or job-specific skills, foreign language and professional IT skills, with large enterprises indicating them as important more often than medium and small enterprises. Small enterprises identify customer handling, team working, and office administration skills as main skill needs more often than medium-sized and large enterprises, but differences are quite small. General IT skills are more forward as main skill needs put by medium-sized enterprises than small and large enterprises. For skills related to problem-solving, oral and written communication and literacy and numeracy, differences in the perceived importance between small, medium and large enterprises are estimated to be negligible.

For skills primarily targeted by CVT courses, differences across training enterprise size classes are again small for most skill sets (Figure 60). Absolute differences between size classes are largest (29 percentage points) for management skills, followed by foreign language skills (12 percentage points). As foreign language skills are less often prioritised than management skills, relative differences between small and large enterprise are larger. Next, differences between size classes for technical, practical or job-specific skills and customer handling are small (respectively eight and six percentage points). Differences across enterprise size classes are negligible for skills related to problem-solving, IT skills, oral and written communication, literacy and numeracy.

To the best possible extent, results have been compared to those originated from CVTS 4 in 2010 (Cedefop, 2015). While the indicators cannot be compared numerically due to methodological change in survey strategy, the rank order of skills deemed important, as well as the rank order of skills targeted by enterprise training, is quite similar across surveys.

Figure 60. **Main skills targeted in CVT courses by enterprise size class, EU-28 average, 2015, % of training enterprises quoting any option**



NB: Training enterprises were asked to indicate the three most important skills bundles targeted in their CVT courses (based on hours of training sponsored). % values are the percentages of small, medium and large training enterprises quoting each option as one of the three most important skills bundles. Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across enterprise size classes in 2015). Relative range: relative range in 2015 (this is the absolute range expressed as a percentage of the minimum indicator value across enterprise size classes in 2015).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

4.2. Main skill needs in countries

This section focuses on the identification of cross country differences in main skills considered important by enterprises and main skills targeted by employer-sponsored CVT courses.

Table 11 focuses on cross country differences in main skills considered important by enterprises for their future development. To facilitate cross country comparisons, Table 11 highlights the three skills bundles that are most frequently indicated by enterprises as being among the most important ones for their development. To do this, the following colour scheme (with the EU-28 average used as an example here below) is adopted for each country in Table 11.

	Most frequent skills bundle considered important for enterprises' future development	Second most frequent skills bundle considered important for enterprise future development	Third most frequent skills bundle considered important for enterprise future development
EU-28	technical, practical or job-specific skills	customer handling skills	team working skills

Based on available 2015 data, a clear pattern emerges and three sets of skill bundles clearly dominate in almost all countries. These are technical, practical or job-specific skills, customer handling skills and team working skills. The share of enterprises that indicated the bundle of technical, practical or job-specific skills as one of three most important ranges from 65% in France to 21% in Spain. For customer handling skills, values range from 68% of enterprises in Cyprus to 22% in Croatia. Values for team working skills range from 73% of enterprises in Romania to 23% in Slovakia.

Table 11. **Main skills considered important in the near future: 2015, % of enterprises quoting each option**

	Technical, practical or job-specific	Customer handling	Team working	Problem-solving	Management	General IT	Office administration	Prof. IT	Foreign language	Oral or written communication	Numeracy and/or literacy	Other
EU-28	46	41	41	26	25	21	14	12	11	8	6	4
AT	46	55	61	29	16	19	9	8	11	18	2	7
BE	61	45	39	29	16	27	9	6	11	8	2	0
BG	64	47	62	21	7	21	5	11	10	6	8	1
CY	44	68	59	31	16	21	6	11	16	9	3	
CZ	42	34	34	24	13	20	7	5	15	19	12	
DE	47	45	45	28	13	31	13	8	8	5	2	5
DK	46	45	35	20	31	29	7	14	6	10	4	4
EE	58	39	48	29	23	20	4	12	18	7	3	4
EL	50	48	33	22	15	29	6	18	20	9	1	1
ES	21	50	58	31	50	10	16	7	15	2	0	1
FI	47	55	39	22	42	17	11	11	5	4	2	6
FR	65	31	35	23	30	11	15	12	9	6	6	6
HR	47	22	31	20	18	41	15	8	19	4	3	9
HU	34	26	39	33	8	20	7	19	16	8	5	4
IE	48	56	48	16	36	24	14	11	2	11	4	10
IT	48	40	32	27	28	16	15	20	17	2	1	1
LT	47	45	44	28	31	35	2	11	19	4	4	1

	Technical, practical or job-specific	Customer handling	Team working	Problem-solving	Management	General IT	Office administration	Prof. IT	Foreign language	Oral or written communication	Numeracy and/or literacy	Other
LU	54	45	41	17	16	22	10	10	19	9	3	9
LV	41	42	25	16	10	17	2	9	12	8		7
MK	38	26	65	7	29	31	18	12	9	15	2	13
MT	44	52	51	19	34	18	9	8	6	9	5	7
NL	47	50	25	22	23	14	7	9	5	10	2	10
NO	50	62	51	31	28	15	2	10	3	21	7	17
PL	48	40	31	12	17	12	11	8	12	3	2	10
PT	42	35	52	20	24	29	10	20	13	3	1	9
RO	57	48	73	41	32	13	6	13	6	5	1	0
SE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SI	54	50	47	31	26	20	7	9	19	5	2	10
SK	44	44	23	26	24	24	11	15	24	13	2	5
UK	36	33	36	31	30	30	27	12	5	25	24	0

NB: Enterprises were asked to indicate the three most important skills bundles for their development in the near future. % values are percentages of enterprises quoting each option as one of the three most important skills bundles.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

The overall importance of these skills bundles is illustrated by the fact that they rank in the top three items for almost all countries. Only in Spain are technical, practical or job-specific skills not among the three most important skills needs. Customer handling skills are not in the top three in Croatia, Hungary and North Macedonia, while team working skills are absent from the top three in Finland and Slovakia.

It is important to recall that in selecting the three most important skills bundles for their development in the near future, enterprises could opt for the category 'other', indicating that they could not express their main skill needs within the list of skills bundles available in the questionnaire. In most countries, 10% or fewer enterprises did so, Norway being the exception (17%). While countries are encouraged to ask for further explanation on these needs, no further detail is available in the European CVTS data.

Table 12 lists the cross country differences in the skill bundles targeted by CVT courses. Table 12 highlights for each country the three skills bundles that are most often targeted by enterprises in their CVT provision. To do this, the following colour scheme (with the EU-28 average used as an example) is adopted in Table 12 for each country.

	Most frequent skills bundle targeted by CVT courses	Second most frequent skills bundle targeted by CVT courses	Third most frequent skills bundle targeted by CVT courses
EU-28	technical, practical or job-specific skills	customer handling skills	management skills

In the EU-28, technical, practical or job-specific skills are the most frequently targeted in CVT course provision, followed by customer handling and managerial skills. The skill bundle other skills ranks fourth, while team working skills complete the top five. It is important to note that the other skills bundle has to be characterised as a heterogeneous item as it is an aggregate of all skills targeted outside the list of items in the CVTS questionnaire. In some countries quite a large share of training enterprises indicated this item. The highest shares are found in Norway (46%), Italy (36%) and the Netherlands (35%).

In every country technical, practical or job-specific skills are the most frequently indicated as a top subject of CVT courses. Customer handling skills are also generally prioritised in most of countries: they only appear outside the top three skills bundles in France, Croatia, Italy, Hungary, Romania and Sweden. For the rest of skills bundles, the picture is more fragmented.

Management skills are present in the top three skill bundles targeted by CVT courses in 11 countries, while team working skills emerge in five countries (Bulgaria, Estonia, Italy, Portugal and Romania); problem-solving skills are highlighted in Greece, Croatia, Cyprus and Romania, as are general IT skills in Belgium and professional IT skills in Hungary. In most countries, communication skills, as well as literacy and numeracy, are less often indicated as a top subject for enterprise CVT courses. Above-average provision of CVT courses addressing communication skills can be found in Slovakia (12%), Austria (11%) and Norway (10%). Foreign language skills are most frequently prioritised in Slovakia (22% of training enterprises), Hungary (18%) and Luxembourg (17%).

Table 12. **Main skills targeted in CVT courses, 2015, % of training enterprises quoting each option**

	Technical, practical or job-specific	Customer handling	Management	Other	Team working	Problem-solving	Office administration	General IT	Prof. IT	Foreign language	Oral or written communication	Numeracy and/or literacy
EU-28 (*)	64.6	25.6	23.4	19.9	19.6	13.5	13.4	12.8	10.2	7.9	3.5	1.2
AT	62.7	30.4	20.4	20.9	20.1	17.1	19.8	16.8	7.5	7.1	11.1	0.3
BE	79.1	28.0	20.0	0.1	19.9	18.4	8.1	24.0	6.7	7.7	6.1	0.9
BG	77.3	33.1	9.8	2.8	35.1	24.7	5.0	9.3	12.9	6.0	3.4	0.9
CY	59.0	39.3	23.1	8.4	20.9	24.0	6.4	6.9	14.9	2.1	2.4	
CZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DE	64.3	26.6	17.8	22.7	15.5	16.8	14.3	20.4	10.7	5.7	1.5	0.2
DK	56.5	26.1	28.8	22.8	22.8	24.7	5.3	19.7	14.0	2.8	6.8	1.8
EE	72.9	36.0	26.8	11.0	44.3	28.0	10.8	12.7	13.8	8.6	4.1	1.4
EL	65.3	38.1	17.5	11.3	16.6	20.8	5.1	11.0	16.3	10.4	6.3	
ES	47.0	21.4	16.3	22.1	17.2	9.6	14.0	12.9	6.0	15.9	1.6	0.7
FI	70.0	30.9	40.8	14.2	18.8	7.5	25.8	8.5	10.8	2.4	2.7	
FR	72.0	17.3	20.7	25.4	8.3	6.5	19.9	7.5	11.0	9.3	2.0	1.1
HR	60.4	17.6	17.5	30.2	17.9	21.5	16.5	19.6	8.8	10.6	4.2	0.8
HU	49.5	14.7	10.7	22.6	12.7	12.6	5.7	13	21.9	17.8	3.9	0.1
IE	65.0	43.2	34.9	28.1	31.0	13.0	10.6	18.4	10.7	0.5	8.1	2.3
IT	57.5	15.3	14.9	36.0	15.4	12.8	10.2	8.1	13.8	9.5	1.2	0.3

	Technical, practical or job-specific	Customer handling	Management	Other	Team working	Problem-solving	Office administration	General IT	Prof. IT	Foreign language	Oral or written communication	Numeracy and/or literacy
LT	65.0	26.2	27.7	7.7	24.1	18.6	4.7	8.4	12.5	7.9	2.0	4.2
LU	74.6	22.8	19.2	27.1	15.2	9.3	8.1	21.0	12.8	16.6	3.1	1.4
LV	64.1	29.1	14.7	30.4	10.2	13.0	3.6	7.0	13.4	6.5	5.4	
MK	54.2	21.3	23.3	15.6	35.9	9.2	16.9	12.1	13.6	6.0	6.8	
MT	62.8	34.8	37.7	21.9	23	10.8	4.9	12.0	13.3	2.7	6.1	1.8
NL	62.3	25.7	18.1	34.6	13.3	7.6	6.9	11.7	8.4	4.7	7.8	1.2
NO	69.0	36.1	27.6	46.4	29.1	20.4	4.8	17.5	11.0	1.2	10.3	1.6
PL	59.4	33.7	31.7	22.5	18.3	13.2	20.2	10.1	10.3	14.1	1.3	0.9
PT	58.1	27.8	23.2	24.4	30.8	16.2	12.7	20.2	17.3	9.6	3.5	0.7
RO	72.3	33.0	32.4	1.4	51.2	47.0	14.9	13.3	19.4	7.7	4.7	0.1
SE	62.3	18.9	26.1	23.1	18.5	6.1	11.2	8.3	11.5	1.2	3.3	0.5
SI	56.3	29.3	18.9	31.6	16.3	21.9	9.2	12.4	8.7	12.3	2.8	1.1
SK	59.9	34.2	25.1	20.7	11.7	16.1	18.5	16.0	22.8	22.1	11.6	0.9
UK	75.6	39.1	43.9	0.6	37.2	16.1	10.6	10.6	6.5	0.7	5.3	4.2

(*) EU-28 average: without Czechia: no data available at the time of data retrieval.

NB: Training enterprises were asked to indicate the three most important skills bundles targeted in their CVT courses (based on hours of training sponsored). % values are the percentages of training enterprises quoting each option as one of the three most important skills bundles.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

CHAPTER 5.

Reasons for not providing (further) training

To expand employer-sponsored training, it is important to understand the factors limiting provision; CVTS provides relevant data.

In CVTS, enterprises that do not provide any kind of training during the reference year are asked about the reasons for not having done so. Enterprises that provided training are asked about factors limiting the provision of further training. In both CVTS 4 and CVTS 5, respondents were invited to tick any applicable reason from a list of items (with answer categories not being mutually exclusive).

The interpretation of these data should consider their context. Table 13 provides information on the large differences in training activity across countries and enterprise size classes. In most countries the majority of enterprises are training enterprises, and training incidence increases with company size. In some countries, such as Latvia, Norway or Sweden, the share of non-training enterprises is small or close to zero. In other countries, such as Bulgaria, Greece, Hungary and Poland, training enterprises are a minority, particularly among small enterprises (Table 13).

Table 13. **Enterprises with and without training activity by size class, 2015, (%)**

	Enterprises with training activity (basis for indicators on obstacles for further training)			Enterprises without training activity (basis for indicators on obstacles for any training)		
	10-49	50-249	250 or more	10-49	50-249	250 or more
EU-28	69	86	95	31	14	5
AT	87	95	99	13	5	1
BE	81	94	100	19	6	0
BG	38	56	78	62	44	22
CY	66	88	100	34	13	0
CZ	89	95	100	11	5	0
DE	73	87	99	27	13	2
DK	84	95	98	16	6	2
EE	85	92	99	16	8	1
EL	19	40	68	81	60	32
ES	84	97	99	16	3	1
FI	80	95	98	20	5	2
FR	75	98	100	25	3	0
HR	51	71	88	49	29	12
HU	38	65	91	62	35	9
IE	75	89	95	25	11	5

	Enterprises with training activity (basis for indicators on obstacles for further training)			Enterprises without training activity (basis for indicators on obstacles for any training)		
	10-49	50-249	250 or more	10-49	50-249	250 or more
IT	57	82	93	43	18	7
LT	56	82	96	44	18	4
LU	73	92	97	27	8	3
LV	100	100	100	0	0	0
MK	60	69	81	40	31	19
MT	56	80	95	44	20	5
NL	82	94	98	18	6	2
NO	99	100	100	1	0	0
PL	39	65	86	61	35	14
PT	72	93	99	28	7	1
RO	22	38	67	78	62	33
SE	92	98	100	8	2	1
SI	81	95	100	19	5	1
SK	66	83	93	34	17	7
UK	84	94	97	16	6	3

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

It is argued that the lower incidence of training among small enterprises is related to the more irregular occurrence of training needs and/or training activities in these enterprises; this is under the assumptions of a smaller propensity to innovation and larger propensity to concentrate training activities in a given period of time for efficiency reasons. This would result in fluctuations between the status training/non-training enterprises. For larger enterprises training would be provided more steadily, so, within a short observation period, such as that of CVTS, it is more likely that a small enterprise is found as a firm that does not provide (further) training (Neubäumer and Kohaut, 2007, p. 254).

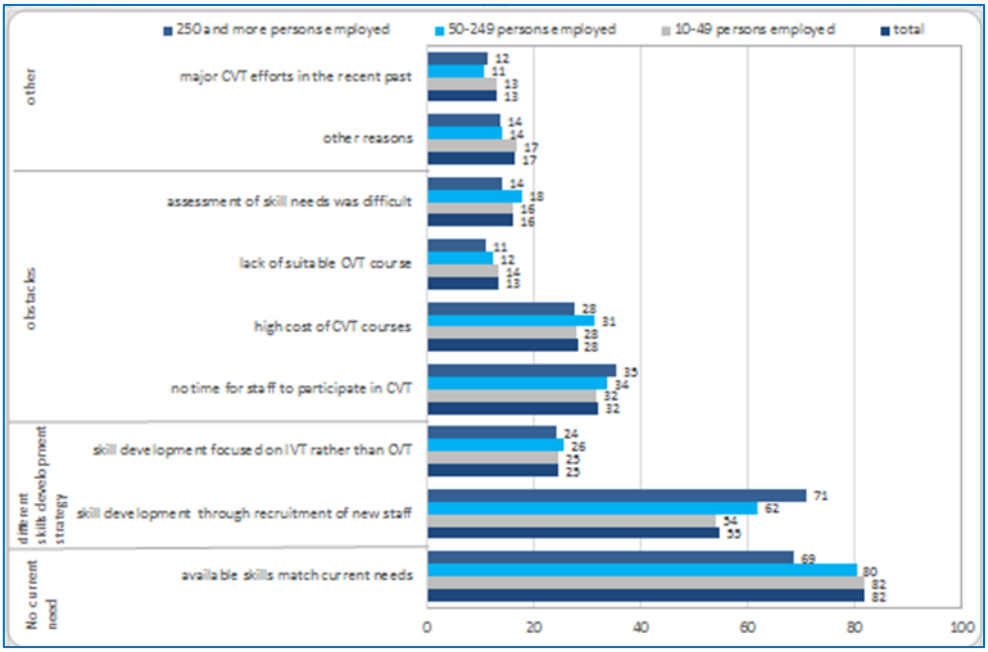
5.1. Reasons for not providing training

This section focuses on the reasons for not sponsoring any type of training activities. The base for the percentages presented in this section is the number of non-training enterprises.

Figure 61 shows the 2015 CVTS 5 results at EU level. They are further broken down by enterprise size class. The main reasons for not providing training, as indicated by EU enterprises, are the absence of current skills needs and (where present) satisfaction of such needs by strategies different from training. The absence of a current need (available qualification, skills and competences match current needs) is the main reason for not sponsoring training. It is indicated by 82% of non-training enterprises in the EU. The

average is largely driven by the findings for small and medium-sized enterprises (82% in both cases). The absence of current needs is also an important factor for non-training enterprises of large size but to a smaller extent (69%). The second most important reasons which EU enterprises give for not providing training is that skills needs are satisfied through recruitment of new staff (55%). This is more often the case for non-training enterprises of large size (71%) than for those of medium and small size (54% and 61% respectively). In addition, one out of four (25%) of non-training enterprises stress the importance of IVET as an alternative to CVT, with almost no variation by size class.

Figure 61. **Reasons for not providing CVT by enterprise size class, EU-28, 2015, % of non-training enterprises quoting each option**



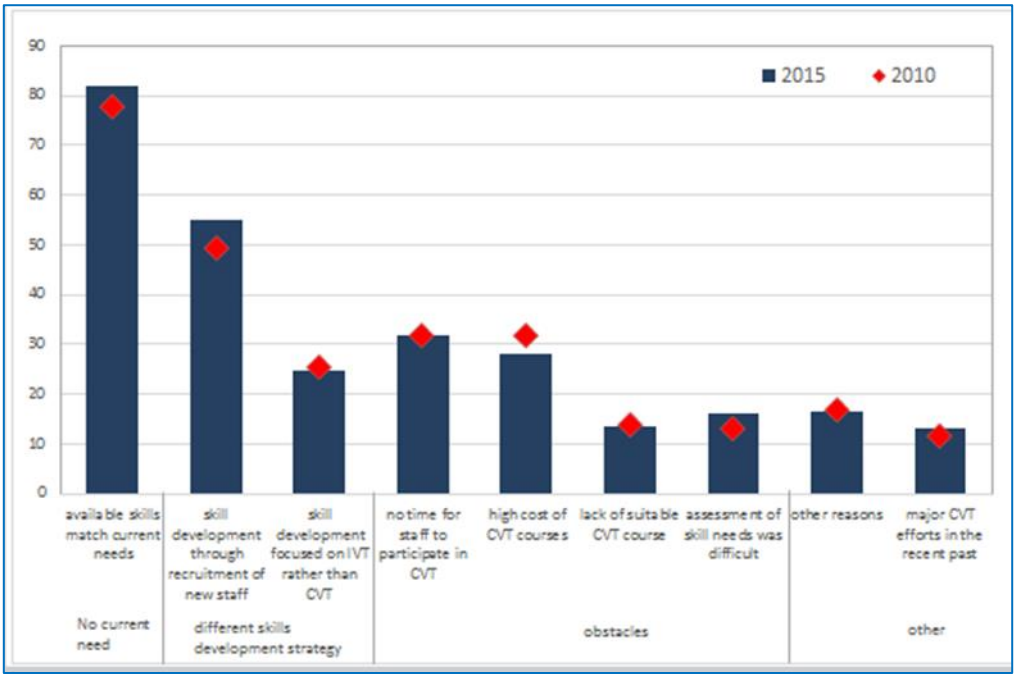
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

Factors which could be properly considered as obstacles are less important reasons for not providing training but still play an important role. One third (32%) of non-training enterprises point to a high workload and a lack of time for staff to participate, again with little variation across enterprise sizes. A slightly smaller share (28%) point to high costs of CVT courses, again with little variation across enterprise sizes. Even fewer enterprises report difficulties with the assessment of training needs (16%) or a lack of appropriate CVT courses in the market (13%).

Figure 62 addresses the changes over time in reasons reported by enterprises for not to train, based on the EU-28 average, and shows little

change between 2010 and 2015. Compared to 2010, the share of non-training enterprises pointing to high CVT costs as a reason for no provision has dropped from 32% to 28%, while the share of enterprises indicating no training needs has increased from 78% to 82%. Over time, a larger share of non-training enterprises reports meeting skills needs through recruitment of new staff (49% in 2010 compared to 55% in 2015).

Figure 62. **Reasons for not providing CVT, EU-28, 2015 and 2010, % of non-training enterprises quoting each option**

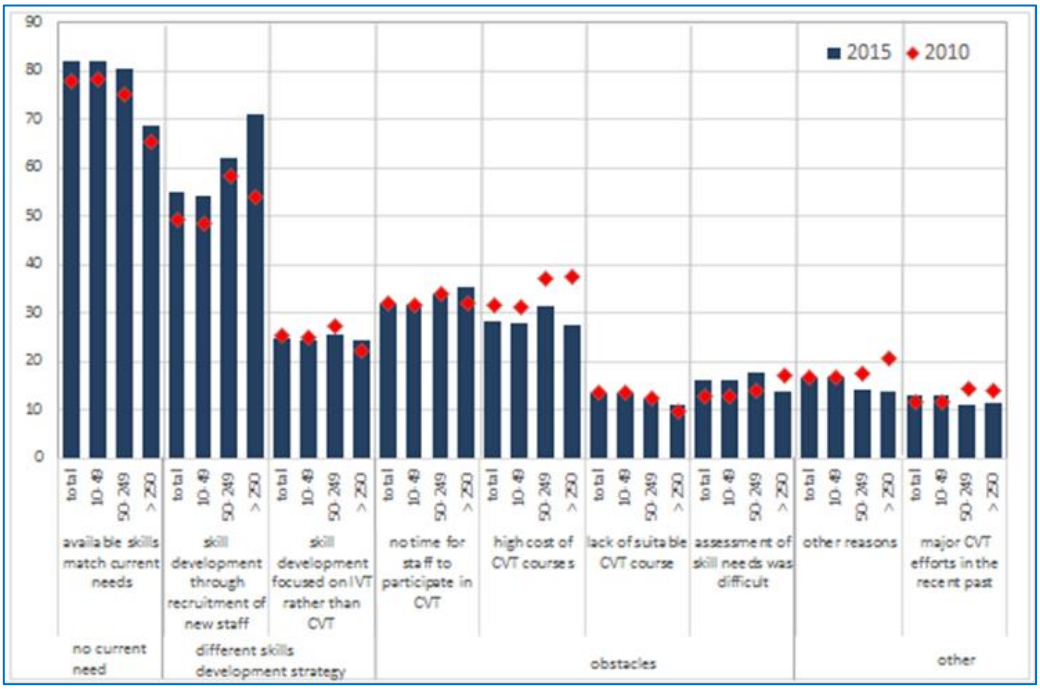


Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 63 displays the evolution between 2010 and 2015 broken down by enterprise size class, showing that dynamic for all size classes strongly resembles the overall pattern. When deviations from the general pattern occur, they are typically observed among large enterprises. The strategy to recruit new staff to fulfil skill needs instead of providing training became more popular from 2010, especially so among large enterprises (from 51% to 74% of non-training large enterprises). Among large and medium-sized enterprises the share of non-training enterprises due to high CVT costs has dropped sharper than among small enterprises (respectively from 38% to 28%, from 37% to 31% and from 31% to 28%). While an increasing shares of SMEs point to difficult needs assessments as a reason not to provide training, this is not the case for large enterprises. Compared to 2010, medium-sized and large

enterprises slightly more often pointed to major CVT efforts in the past than small enterprises.

Figure 63. **Reasons for not providing CVT by enterprise size class, EU-28, 2015 and 2010, % of non-training enterprises quoting each option**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

Based on available data, it is also possible to analyse cross country differences in the reasons indicated by employers for not providing any type of training, and to consider related changes over time.

In some cases, particularly in countries with a small share of non-training enterprises and for less frequent answer categories, data are flagged as unreliable due to the small number of available observations. Non-training enterprises are very few in Latvia and Norway; values for both countries are flagged due to confidentiality reasons. Confidentiality reasons also apply to some, but not all reasons for non-provision of training in Estonia and Luxembourg. General flags due to low reliability apply to data for non-training enterprises in Ireland and North Macedonia. Czechia and Sweden indicate a break in time series for this indicator.

Over time, the relative importance of the main reasons not to train have remained stable. Both in 2015 and 2010, non-provision of CVT training is mainly attributed to a perceived lack of current needs (in the sense that available skills match current needs) or to a different strategy to cope with skills needs (recruitment instead of training). In almost all countries, these two items

emerge among the three most frequently indicated reasons not to provide training in 2015 (similar to the situation in 2010). Lack of time among staff and the high costs of CVT courses also turned out to be important factors both in 2010 and 2015. In 2010, these were among the three most frequently mentioned reasons in 11 or 12 countries. This slightly diverged in 2015 as time barriers became important in 16 countries, while high costs were quoted in nine (Table 14).

Table 14. **Most frequently mentioned reasons for not providing CVT (non-training enterprises) 2015 and 2010**

	Ranked in the top three in 2015	Ranked in the top three in 2010
Available skills match current needs	in 28 countries	in 26 countries
Skill development through recruitment of new staff	in 27 countries	in 26 countries
No time for staff to participate in CVT	in 16 countries	in 12 countries
High cost of CVT courses	in 9 countries	in 11 countries

Source: Own calculations, based on Eurostat, CVTS 4 and CVTS 5, dissemination database.

Table 15 presents, in more detail, cross country differences in the reasons put forward by enterprises for not providing any type of training in 2015. In Table 15, the three reasons that are most frequently indicated by enterprises are highlighted according to the following colour scheme (which uses the EU average as an example).

	Most frequent reason for not providing CVT activities	Second most frequent reason for not providing CVT activities	Third most frequent reason for not providing CVT activities
EU-28	available skills match current needs	skill development through recruitment of new staff	no time for staff to participate in CVT

While country results typically confirm the EU pattern, it is worth noting some national peculiarities. In Denmark, Germany and Poland, IVET as an alternative to CVT appears among the three most frequently indicated reasons. In some countries quite a large share of enterprises indicated ‘other reasons’ for not providing training. In Czechia, Estonia, Italy and the Netherlands ‘other reasons’ is among the three most frequently indicated items.

Difficulties in the assessment of skills needs are put forward by more than a third of non-training enterprises in Denmark (38%), France (37%) and Lithuania (46%). In France and Lithuania this was also the case in 2010.

In most countries, the lack of suitable CVT courses is among the least cited reasons for non-provision. It is, however, put forward by more than one in four non-training enterprises in Spain (31%), Lithuania (26%) and Portugal (30%). In Lithuania and Portugal, this was also the case in 2010.

Major CVT-efforts in the recent past are little mentioned. Above-average shares of enterprises pointing to efforts in the past are reported for Spain (22%), France (34%) and Slovenia (30%). In France and Slovenia this was also the case in 2010.

5.2. Reasons limiting enterprise provision of more training

In CVTS, enterprises providing (at least some) training during the reference period are asked about the reasons which limited the provision of further training. Results closely follow the patterns revealed by the analysis of non-training enterprises.

Figure 64 shows the 2015 CVTS 5 results for the EU as a whole, broken down by enterprise size class. The base for the calculation of the percentages is training enterprises.

The majority of training enterprises (52%) saw no need for more training activities in 2015 (in the sense that the level of training provided was considered appropriate). Small enterprises (53%) indicated this item more frequently than medium (47%) and large enterprises (43%).

Half of all training enterprises (50%) did not provide more training in 2015 as they preferred to recruit new staff with the skills required to fulfil company needs. Large and medium-sized training enterprises more often (53% to 54%) adopt this strategy compared to small (49%) enterprises.

Only a minority (16%) of training enterprises explain the absence of further training activities by a focus on IVET. Small enterprises (17%) support this item more often than large ones (13%).

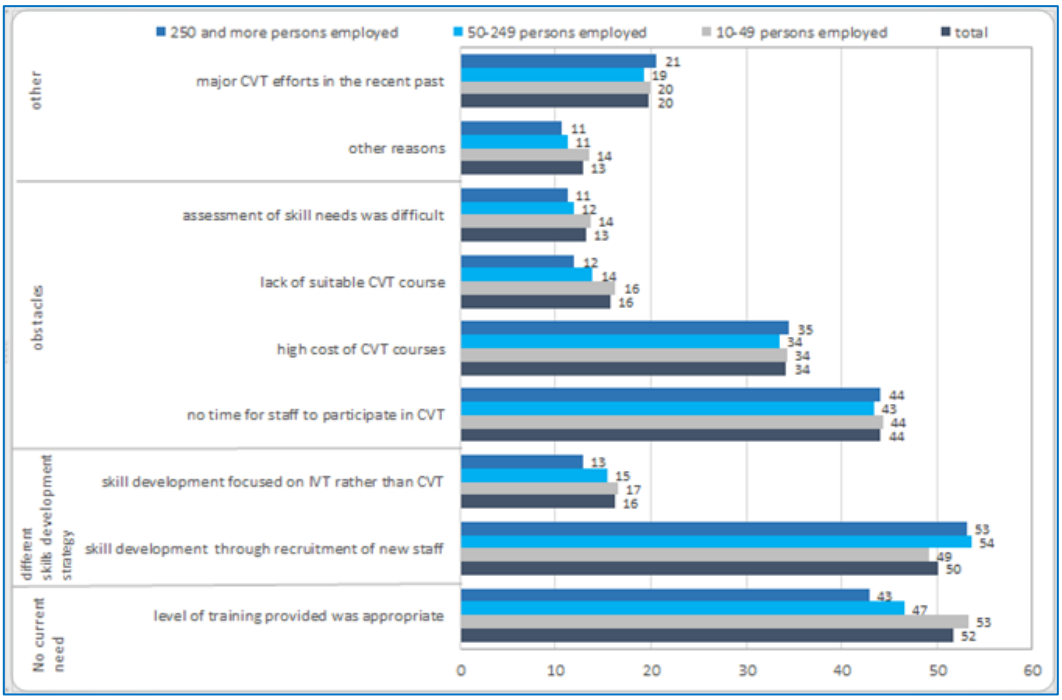
Table 15. **Reasons for not providing CVT, CVTS 5 and CVTS 4 (% non-training enterprises quoting each option)**

	Available skills match current needs		Skill development through recruitment of new staff		No time for staff to participate in CVT		High cost of CVT courses		Skill development focused on IVT rather than CVT		Other reasons		Assessment of skill needs was difficult		Lack of suitable CVT course		Major CVT efforts in the recent past	
	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*
EU-28	81.8	3.8	54.9	5.6	32.0	0.0	28.2	-3.7	24.6	-0.8	16.6	-0.2	16.2	3.2	13.4	-0.3	13.0	1.2
AT	88.2	6.3	50.0	5.0	44.0	3.6	32.0	-6.6	12.2	-15.2	19.2	-6.3	10.9	-19.3	10.8	-12.9	1.6	-14.1
BE	75.5	-5.5	28.3	-6.7	19.0	-2.3	10.7	-5.2	3.2	-4.5	(a)	(a)	2.5	-4.6	6.4	-4.7	2.0	-2.0
BG	81.2	4.4	82.8	4.4	39.5	0.6	42.7	-6.5	21.7	-15.5	6.7	5.1	15.0	1.1	21.5	1.7	9.5	1.1
CY	78.2	6.2	59.7	10.1	34.2	-0.9	19.8	-9.9	7.4	-23.5	3.3	-18.9	3.8	-5.4	13.8	-1.9	8.7	-1.1
CZ (2)	69.1	-3.3	4.3	-19.6	5.6	-2.7	5.6	-4.2	1.0	-0.8	23.3	14.1	(a)	(a)	2.3	1.3	1.4	-5.4
DE	87.7	7.3	53.2	16.3	32.4	-8.1	23.3	-4.3	47.1	17.7	21.8	9.6	23.3	11.6	12.2	-0.7	13.9	9.5
DK	73.9	-18.9	65.3	0.6	41.9	16.2	22.0	-6.3	44.0	-5.4	16.4	-1.4	38.1	11.4	19.5	8.7	4.5	-1.1
EE	43.9	-21.6	15.8	-41.0	10.7	-14.3	8.8	-37.9	1.0	-12.9	36.7	-19.3	(a)	(a)	2.3	-13.7	(a)	(a)
EL	65.7	-9.0	55.5	-4.5	42.2	0.9	28.8	-8.2	16.4	-9.5	12.6	-8.1	9.2	0.0	13.8	-14.1	2.7	-0.7
ES	84.4	15.4	61.4	37.6	47.7	16.2	38.3	23.4	4.2	4.0	33.4	23.4	20.3	15.1	31.2	19.1	22.0	17.5
FI	89.3	6.1(d)	66.2	4.9 (d)	48.7	-1.1(d)	39.9	10.0(d)	36.1	-0.5(d)	16.4	8.6(d)	17.5	0.9 (d)	14.4	-2.0(d)	5.1	0.6(d)
FR	88.5	9.5	63.4	-0.9	72.6	11.5	48.3	7.0	58.3	2.6	19.0	-4.4	36.8	2.4	21.0	1.5	33.5	3.1
HR	79.2	8.1	34.5	-15.5	12.1	-12.5	14.1	-13.5	4.2	-0.7	11.6	-7.6	6.2	2.7	7.0	1.0	2.2	-17.2
HU	85.2	11.5	63.5	34.3	22.7	13.8	30.6	15.5	14.2	10.6	16.9	6.0	10.5	7.7	13.4	9.6	5.0	3.8
IE (1)	78.6(c)	NA	51.3(c)	NA	27.3(c)	NA	14.8(c)	NA	7.0(c)	NA	15.1(c)	NA	10.3(c)	NA	9.3(c)	NA	3.5(c)	NA
IT	74.3	-8.3	15.4	-12.6	14.5	-11.9	13.3	-14.3	8.5	-18.8	17.1	-3.9	4.9	-4.6	6.0	-9.1	12.1	-4.3
LT	87.4	2.9	85.2	6.4	40.3	1.7	63.7	-4.4	15.8	4.9	6.6	-7.8	45.5	0.7	26.1	4.0	12.2	1.0

	Available skills match current needs		Skill development through recruitment of new staff		No time for staff to participate in CVT		High cost of CVT courses		Skill development focused on IVT rather than CVT		Other reasons		Assessment of skill needs was difficult		Lack of suitable CVT course		Major CVT efforts in the recent past	
	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*
LU	70.1	-8.8	22.3	-16.9	16.1	-1.4	6.0	-6.3	4.2	-1.1	15.3	-2.5	(a)	(a)	3.5	-0.2	(a)	(a)
LV	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	100.0	78.2	NA	NA	NA	NA	(a)	(a)
MK (1)	47.2(c)	NA	28.1(c)	NA	20.4(c)	NA	26.8(c)	NA	8.6(c)	NA	17.9(c)	NA	7.7(c)	NA	10.2(c)	NA	2.8(c)	NA
MT	79.9	-8.4	60.9	-6.1	39.6	4.9	20.7	-3.2	6.9	-1.4	15.0	-3.8	11.5	2.0	8.2	-1.4	3.8	-0.9
NL	73.1	3.1	53.5	11.5	9.5	-16.7	14.1	-6.4	5.9	-8.6	33.3	17.1	3.1	-3.0	4.4	-2.8	2.2	-1.5
NO	100.0	13.1(d)	30.0	-2.1(d)	2.9	-14.3(d)	44.6	31.9(d)	(a)	(a.d)	(a)	(a.d)	(a)	(a)	(a)	(a.d)	(a)	(a.d)
PL	85.2	3.8	70.4	1.4	24.9	0.5	33.7	-9.8	38.3	-0.2	17.7	-6.5	12.1	3.2	11.4	1.0	16.1	0.2
PT	76.5	2.9	64.4	5.3	40.5	4.0	46.3	-7.6	22.3	-5.2	40.4	3.0	30.6	1.0	30.3	-0.8	7.9	-0.3
RO	83.5	19.1	78.3	15.6	26.1	11.7	34.0	4.3	5.4	3.9	1.5	0.4	6.7	2.9	8.0	3.9	5.6	3.1
SE (2)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
SI	92.0	3.6	64.1	3.8	20.8	2.8	31.3	-9.5	11.9	-19.3	13.0	2.4	5.5	-0.7	10.1	1.7	30.0	0.3
SK	74.2	-10.5	48.1	1.6	30.2	11.4	30.6	-1.6	22.9	-11.5	12.2	0.5	7.9	0.0	8.9	0.1	15.0	-9.7
UK	88.7	5.9	73.2	8.5	35.7	-5.2	19.1	-6.3	23.3	5.9	10.8	-6.5	30.8	9.8	19.4	6.3	13.6	1.7

(1) No participation in CVTS 4
(2) Break in time series between CVTS 4 and CVTS 5.
(a) Confidential in CVTS 5.
(b) Confidential in CVTS 4.
(c) Low reliability in CVTS 5.
(d) Low reliability in CVTS 4.
(*) = difference between 2015 and 2010 in percentage points; negative values point to decreasing shares of enterprises citing this reason.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Figure 64. **Reasons for not providing more CVT by enterprise size class, EU-28, 2015, % training enterprises quoting each option**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

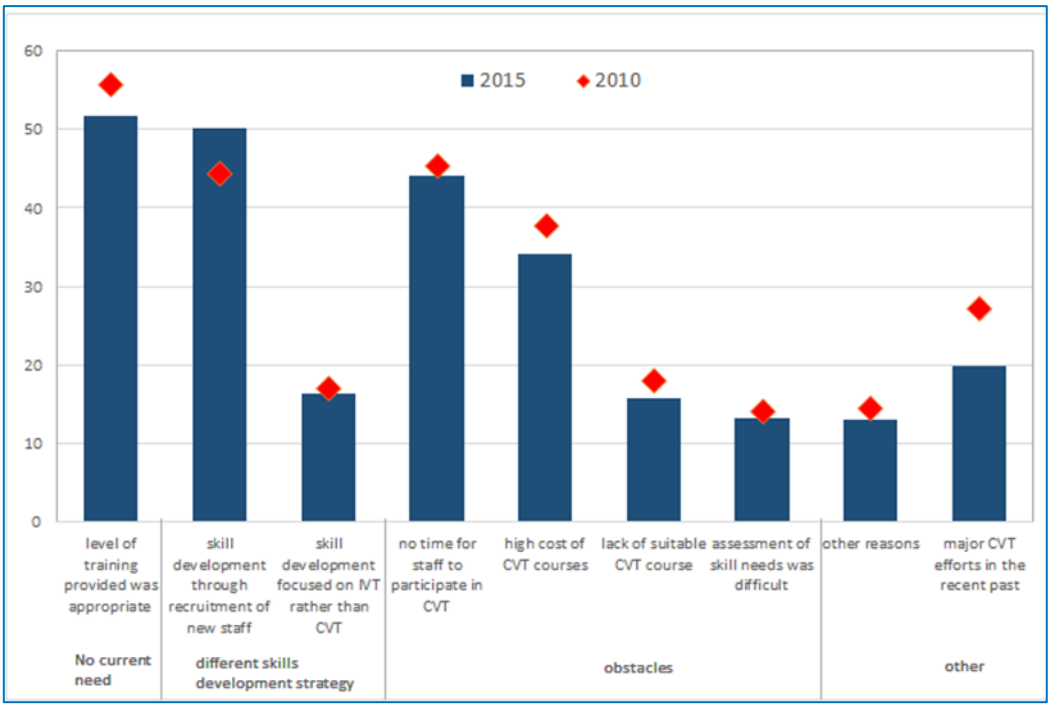
Among reasons which can be classified as proper obstacles, lack of time finds most support, being indicated by 44% of training enterprises, with almost no variation by size. Costs were indicated as a barrier to more training by one out of three training enterprises (34%) again with no significant variation according to enterprise size.

Only a minority of training enterprises report difficulties with needs assessment (13%) or the absence of appropriate training opportunities (16%).

A further 20% of training firms, with no variation according to size, indicated past CVT efforts as a reason limiting further training provision in 2015

Figure 65 shows comparisons over time of the reasons limiting provision of further CVT, as indicated by training enterprises in the EU as a whole. In 2015 (CVTS 5), the three most frequently mentioned reasons are identical to those in 2010 (CVTS 4).

Figure 65. **Reasons for not providing more CVT, EU-28, 2015 and 2010, % of training enterprises quoting each option**

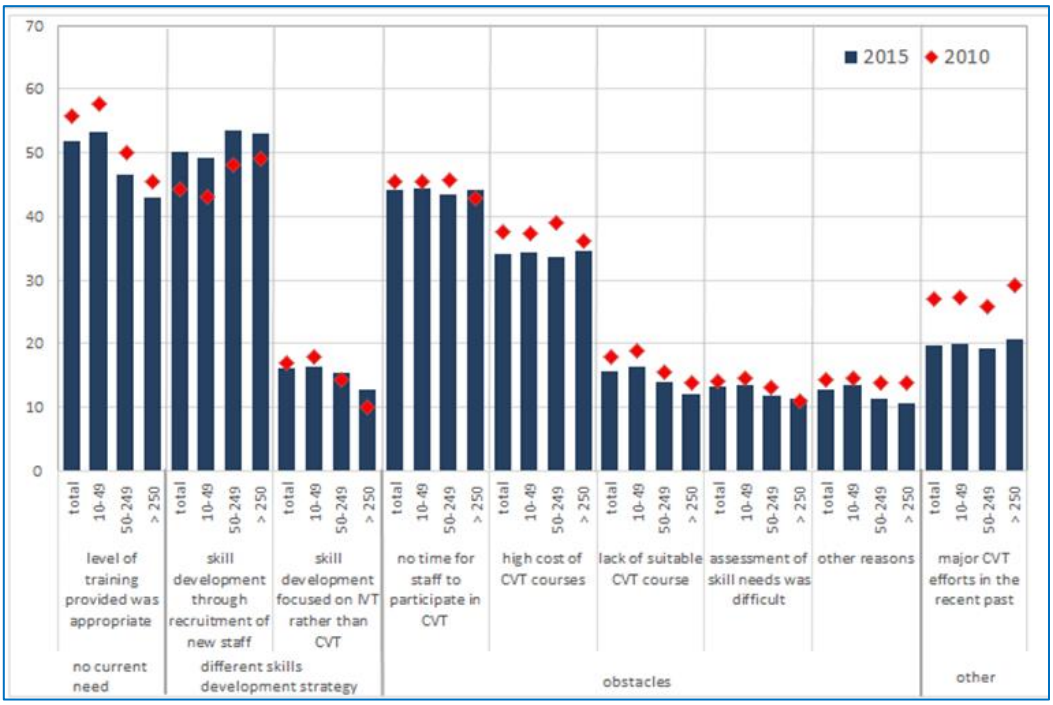


Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Between 2010 and 2015, a general small decline is observed in the importance of almost all reasons preventing the provision of further training. Compared to 2010, the share of training enterprises pointing to major CVT efforts in the past dropped from 27% to 20% in 2015. Also the lack of suitable CVT courses is less often mentioned as a barrier. High CVT costs as a reason for not extending CVT provision dropped from 38% to 34%, while the share of enterprises indicating no training needs declined from 56% to 52%. The only item growing in importance is the recruitment of new staff to meet skills needs (44% in 2010 compared to 50% in 2015).

Figure 66 shows relevant changes between 2010 and 2015 broken down by enterprise size. In general terms, the overall pattern is reflected by all size classes.

Figure 66. **Reasons for not providing more CVT by enterprise size class, EU-28, 2015 and 2010, % of training enterprises quoting each option**



Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018).

Based on available data, it is also possible to analyse cross country differences in the reasons indicated by employers for not providing further training and to consider related changes over time.

Over time, the relative importance of the main reasons for not providing further training has remained stable (Table 16).

Table 16. **Most frequently mentioned reasons for not providing more training (training enterprises) 2015 and 2010**

	Ranking in the top three in 2015	Ranking in the top three in 2010
Level of training provided was appropriate	in 26 countries	in 26 countries
Skill development through recruitment of new staff	in 20 countries	in 18 countries
No time for staff to participate in CVT	in 20 countries	in 17 countries
High cost of CVT courses	in 15 countries	in 20 countries

Source: Own calculations, based on Eurostat, CVTS 4 and CVTS 5, dissemination database (accessed 6.2.2018).

In almost all countries (26), both in 2015 and in 2010, the lack of current needs emerges as one of the three most frequent reasons for not providing more training (in the sense that the training provided was considered appropriate). Recruitment, instead of training, and lack of time among staff are also important items: in 2015, they rank among the three most frequently indicated reasons in 20 countries (with small variations as compared to 2010). The high cost of CVT courses is also an often cited reason for not providing more training: in 2015 it is among the three most frequent reasons in 15 countries (20 in 2010).

Table 17 presents, in more detail, cross country differences in the reasons limiting the provision of more training, as indicated by training enterprises. To facilitate cross country comparisons, in Table 17, the three reasons that are most frequently indicated at country level are highlighted according to following colour scheme, which uses the EU average findings as an example.

	Most frequent reason limiting further training provision	Second most frequent reason limiting further training provision	Third most frequent reason limiting further training provision
EU-28	level of training provided was appropriate	skill development through recruitment of new staff	no time for staff to participate in CVT

Though the country level results generally resemble the EU average pattern, there are a few points worth noting. In Greece, France, Latvia and Austria approximately 30% of training enterprises point to major CVT efforts in the recent past as an important reason for not providing more training. Despite a large decline since 2010, when 67.4% of training enterprises quote recent CVT efforts, it is still among the three most cited reasons in 2015 (16%).

IVET, as an alternative to CVT, is cited by 38% to 40% of Bulgarian, Latvian and Polish training enterprises. Compared to 2010, this reason is put forward by larger shares of training enterprises in all three countries in 2015.

A lack of suitable CVT courses is quoted by approximately 30% of training enterprises in Spain and Portugal. This was also the case in 2010.

In most countries, difficulty in assessing skills needs is among the least cited reasons limiting provision. It is, however, quoted by approximately one out of three training enterprises in France (32%) and Lithuania (34%). In France this was also the case in 2010. In Lithuania this is a marked increase compared to 2010 when only 24.7% of training enterprises quoted this reason.

Table 17. **Reasons for not providing more CVT, 2015 and 2010, % of training enterprises quoting each option**

	Level of training provided was appropriate		Skill development through recruitment of new staff		No time for staff to participate in CVT		High cost of CVT courses		Major CVT efforts in the recent past		Skill development focused on IVT rather than CVT		Lack of suitable CVT course		Assessment of skill needs was difficult		Other reasons	
	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*
EU-28	51.7	-4.1	50.1	5.7	44.1	-1.4	34.2	-3.5	19.8	-7.3	16.2	-0.8	15.7	-2.3	13.2	-0.9	12.9	-1.5
AT	62.3	-0.6	23.5	11.1	64.6	17.5	42.3	13.3	28.9	21.2	13.0	2.2	17.0	5.2	15.5	9.5	12.9	5.3
BE	27.9	-3.0	16.0	-4.3	37.2	-7.2	22.8	-3.2	8.3	-0.6	3.3	1.0	12.0	1.7	6.1	-1.2	0.5	-0.8
BG	51.4	3.5	69.0	0.9	44.9	1.6	36.2	-10.1	13.1	-2.9	38.5	5.4	18.7	0.0	9.2	-0.8	0.9	-0.2
CY	45.1	3.1	53.2	23.1	49.3	7.5	25.8	-7.4	22.8	11.8	8.0	-10.5	13.9	-0.6	2.8	-4.1	3.0	-3.7
CZ (2)	57.0	12.8	13.2	-16.4	15.7	-11.9	9.9	-20.1	5.3	-10.2	3.1	0.3	6.1	2.2	1.5	-0.5	6.9	-2.5
DE	5.2	-5.6	77.1	11.7	48.7	1.6	33.2	2.8	20.7	3.3	25.7	5.9	11.5	-0.3	1.7	0.1	5.9	-3.7
DK	49.6	-1.0	19.0	-13.5	31.1	-14.4	24.0	-3.6	20.9	-1.9	21.8	-5.1	15.3	1.7	19.2	-2.3	8.4	-4.6
EE	33.5	20.4	14.6	-5.2	22.6	-17.4	32.4	-24.4	2.9	-6.5	2.0	-11.6	13.1	-6.8	1.7	-9.0	12.9	-33.9
EL	57.5	-6.2	38.6	-1.0	44.3	-3.0	33.2	-7.4	29.3	3.9	9.8	-12.1	13.5	-5.9	3.8	-7.3	7.9	-8.1
ES	71.8	9.6	49.4	7.9	60.0	4.4	48.2	0.7	23.1	8.8	2.7	1.3	27.7	-0.1	15.6	3.0	42.5	9.2
FI	50.7	0.7(d)	41.1	-2.6(d)	57.2	-11.1(d)	40.9	-2.8(d)	11.0	5.3(d)	23.6	-0.8(d)	21.6	0.6(d)	14.3	-7.4(d)	8.9	-3.7(d)
FR	53.4	-3.7	50.5	-2.0	57.4	-3.4	52.7	4.8	29.8	-10.7	13.0	-19.7	16.9	-5.4	32.2	0.8	17.0	3.9
HR	65.1	12.0	35.9	-11.4	20.5	-21.8	20.3	-25.5	4.5	-20.2	3.8	-1.2	8.7	-3.3	3.8	-2.3	11.2	-0.7

	Level of training provided was appropriate		Skill development through recruitment of new staff		No time for staff to participate in CVT		High cost of CVT courses		Major CVT efforts in the recent past		Skill development focused on IVT rather than CVT		Lack of suitable CVT course		Assessment of skill needs was difficult		Other reasons	
	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*
HU	57.0	-4.5	34.2	14.5	24.5	8.0	31.6	4.5	5.3	1.7			18.1	8.7	8.2	5.1	8.7	1.8
IE (1)	22.1		44.5		49.8		36.1		12.8		8.6		17.5		9.4		10.6	
IT	55.0	-23.3	5.0	-5.3	16.7	-16.5	13.2	-14.9	15.5	-51.9	4.0	-12.0	5.8	-11.2	3.8	-8.3	10.0	-8.9
LT	65.6	13.6	75.5	11.2	38.4	3.8	62.7	7.5	21.7	-0.2	14.6	7.2	20.0	7.4	34.2	9.5	13.1	5.5
LU	32.7	3.8	6.5	-15.2	16.2	-17.6	17.2	-5.7	2.5	-3.1	1.2	-4.6	9.2	-5.5	3.0	-3.8	6.4	-8.1
LV	74.4	14.0	73.1	13.0	36.4	0.1	46.4	-2.6	28.6	2.9	40.2	10.5	18.8	2.0	19.8	5.1	20.7	1.5
MK (1)	30.3(c)		8.7(c)		18.8(c)		17.8(c)		31.9(c)		9.4(c)		41.8(c)		19.1(c)		17.6(c)	
MT	55.7	-2.9	48.6	3.2	55.5	3.5	31.0	-6.1	16.3	0.7	8.6	1.7	21.9	4.1	12.5	0.4	7.8	-10.0
NL	35.7	-31.1	41.0	-5.3	30.1	-9.2	29.1	-6.8	7.7	-4.9	11.9	-2.9	10.7	-2.4	10.8	1.9	14.1	1.4
NO	28.6	2.1	20.3	4.3	34.9	-6.2	31.2	0.0	18.3	0.2	10.2	-1.6	14.0	-1.1	8.5	0.6	11.7	0.4
PL	79.6	1.5	68.3	7.0	18.1	5.2	35.5	-2.2	15.7	4.3	37.5	16.9	8.9	0.1	7.7	2.1	15.7	-1.8
PT	65.6	5.4	56.2	10.6	38.1	1.6	50.0	-2.7	17.0	4.1	20.7	6.7	30.2	3.1	17.1	2.1	27.9	3.2
RO	55.6	14.1	27.4	-6.7	15.8	0.2	18.0	-9.4	4.4	-2.3	2.6	0.5	4.9	0.1	2.1	-0.3	0.3	-1.0
SE (2)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)	(c)	(c.d)
SI	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
SK	57.7	-9.6	30.7	9.4	27.2	-0.9	31.5	-6.7	21.5	-5.8	17.1	6.2	8.5	-1.2	4.0	-1.0	5.7	-6.2

	Level of training provided was appropriate		Skill development through recruitment of new staff		No time for staff to participate in CVT		High cost of CVT courses		Major CVT efforts in the recent past		Skill development focused on IVT rather than CVT		Lack of suitable CVT course		Assessment of skill needs was difficult		Other reasons	
	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*	2015	2015-2010*
UK	83.9	1.1	70.8	7.6	56.3	0.9	30.7	-10.6	23.1	-1.0	23.4	2.6	20.8	1.1	20.3	-0.9	4.1	-2.9

(1) No participation in CVTS 4.
(2) Break in time series between CVTS 4 and CVTS 5.
(a) Confidential in CVTS 5.
(b) Confidential in CVTS 4.
(c) Low reliability in CVTS 5.
(d) Low reliability in CVTS 4.
(*) = difference between 2015 and 2010 in percentage points; negative values point to decreasing shares of enterprises citing this reason.
Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

CHAPTER 6.

Conclusions and outlook

The quality of the CVTS data has been assessed as good, particularly their comparability over time and across countries. As the framework of CVTS had already matured in course of the earlier waves, changes in methods (including the standard questionnaire) between CVTS 4 and CVTS 5 have been small. The key performance CVT indicators on incidence, participation, intensity or expenditure were not affected by major changes in their definition and calculation, so that they could be compared over time. However, some data issues emerged. Developments in CVT over time could not be properly assessed in Czechia and Sweden (due to methodological changes in the implementation of the survey and consequent breaks in time series), Ireland and North Macedonia (which did not participate in CVTS 4) as well as in Romania (with missing expenditure data from CVTS 4). Geographic comparability of 2015 expenditure data for Czechia has been assessed to be weak, due to the adoption of a different definition. Particular caution should also be used when interpreting 2015 CVTS 5 results for Germany, Ireland and the UK, due to high non-response rates, and Portugal, which derived some of the key data from administrative registers in both CVTS 4 and CVTS 5. A major methodological change in occurred in CVTS 5 compared to CVTS: employers were no longer asked to indicate all the skills they considered important for the development of their enterprise in the next few years, only the three most important ones. A similar change concerned the measurement approach for the skills targeted in their CVT courses provision: employers were requested to indicate the three most important ones based on hours of training provided. These changes unfavourably affected related data in terms of information content and proper comparability over time. Nevertheless, data have been considered still relevant and have been analysed; comparisons over time have been carried to the best possible extent, based on main patterns emerging from the data rather than on value comparisons. Sectoral analysis has also been limited: to comply with statistical reliability and confidentiality thresholds, results by economic sector of activity had to be produced with a high level of aggregation. This led to considering categories which were too few in number and which presented a high level of internal heterogeneity, hampering analytical possibilities. This is why sectoral analysis

is given less prominence in the report, though available sectoral breakdowns are displayed.

With such limitations, it has been possible to analyse four key dimensions of enterprise performance on CVT and related changes over time at country level: incidence, participation, intensity and expenditure. For each dimension, one indicator has been selected, based on methodological considerations. The four selected indicators are:

(a) incidence: enterprises providing any type of CVT as % of all enterprises surveyed;
(b) participation: participants in CVT courses as % of persons employed in all enterprises surveyed;
(c) intensity: number of hours of CVT courses per 1 000 hours worked by persons employed in all enterprises surveyed;
(d) expenditure: total monetary expenditure on CVT courses (direct costs plus contributions minus receipts) as % of total labour costs of all enterprises surveyed.

These four indicators have been brought together to derive a composite index measuring levels and changes of overall enterprise training performance, at country and EU level.

The dynamic of the composite index between 2010 and 2015 indicates moderate but positive changes.

For 15 countries, as well as the EU average, an increase in overall performance of more than 10% is reported: Bulgaria, Croatia, Denmark, Estonia, Greece, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Slovenia, Spain and the UK. Positive progresses involved most of the countries which had particularly low scores in 2010 (Bulgaria, Greece, Croatia, Latvia, Lithuania and Poland), even though their ranking on the composite index is still low. For six countries, the overall performance did not change more than 10% between 2010 and 2015 so that their SMOP can be considered remaining fairly stable at high levels (Belgium and France) or medium levels (Germany, Malta, Austria and Slovakia). Only in four countries did overall performance fall by more than 10% between 2010 and 2015: Hungary, Portugal and Finland (by 11% to 13%) and Cyprus (21%).

Table 18 summarises the key results for the EU-28 as a whole, considering the four key performance indicators underlying the composite index. They show signs of moderate but favourable progress. For the EU-28, training incidence has reached 73% in 2015, showing a positive increase of seven percentage points or 10.5% over the 2010 baseline. Training participation and training intensity (hours spent in training) grew less quickly by

8.5% and 7% respectively compared to 2010. Total monetary expenditure was fairly stable and the relative increase 12.5% is largely due to a small base effect. Progress for the EU as a whole reflects different patterns at country level. However, for most countries and dimensions of analysis, changes were favourable (with indicators raising more than 10% compared to the 2010 baselines) or relatively stable (with positive or negative changes no larger than 10%).

Table 18. **EU-28 results for incidence, participation, intensity and expenditure in 2015 and 2010**

	Indicator value		Absolute difference	Relative difference (in %)
	2010	2015	2015-2010	2015-2010
Incidence (%)	65.7	72.6	6.9	10.50%
Participation (%)	37.6	40.8	3.2	8.51%
Intensity (hours)	5.8	6.2	0.4	6.90%
Expenditure (%)	0.8	0.9	0.1	12.50%

Source: Eurostat, CVTS4 and CVTS 5, dissemination database (accessed 6.2.2018); own calculations.

The report shows that the training gap between large and small enterprises narrowed over 2010-15. This is summarised in Table 19. For the EU-28 average, this occurred on all four indicators, both in terms of absolute and relative performance gaps. As measured by the relative performance gap between large and small enterprises, inequities in training incidence fell from 50% in 2010 to 38% in 2015; inequities in training participation fell from 84% to 59%, in training intensity from 100% to 68% and in training expenditure from 43% to 25%. Training gaps also reduced in most countries. In relative terms, inequalities in training provision between small and large enterprises dropped in 21 countries. Inequalities in participation rates between small and large enterprises dropped in 16 countries, while inequalities in training intensity and total monetary expenditure dropped in 14 countries.

Table 19. **Enterprise size class and key CVT indicators**

		Incidence	Participation	Intensity	Spending
2015 EU-28	Small (S)	69.3%	30.0%	4.4 hours	0.8%
	Medium (M)	85.6%	37.2%	5.7 hours	0.9%
	Large (L)	95.3%	47.7%	7.4 hours	1.0%
2015 Country differences	L>M>S	27 countries and EU-28	23 countries and EU-28	24 countries and EU-28	20 countries and EU-28

		Incidence	Participation	Intensity	Spending
	M>L		Norway, UK	Belgium	Austria, Luxembourg, Malta, North Macedonia, Sweden, UK,
	S>L			Ireland, UK	Greece, Finland, Sweden, UK
	S>M		North Macedonia	Ireland, UK	Cyprus, Greece, Finland, Norway, Slovakia
2010-15 (1)	EU-28 absolute performance gap large vs small	drops from 31 to 26 percentage points	drops from 21 to 18 percentage points	drops from 3.6 to 3.0 hours	drops from 0.3 to 0.2 percentage points
	EU-28 relative performance gap	drops from 50% to 38%	drops from 84% to 59%	drops from 100% to 68%	drops from 43% to 25%
	Inequity rises	in six countries	in 10 countries	in 12 countries	in nine countries
	Inequity drops	in 21 countries and EU-28	in 16 countries and EU-28	in 14 countries and EU-28	in 14 countries and EU-28

(1) No assessment of developments over time is done for Ireland and North Macedonia (no participation in CVTS 4) or for Sweden and Czechia (break in time series between CVTS 4 and CVTS 5). 2010 Data for Romania on training expenditure are not available.

Source: Eurostat, CVTS 4 and CVTS 5, dissemination database (accessed 6.2.2018); own calculations.

Table 20. **EU-28 results for incidence, participation, intensity and expenditure by enterprise size class in 2015, 2010**

	Incidence (%)		Participation (%)		Intensity (hours)		Expenditure (%)	
	2015	2010	2015	2010	2015	2010	2015	2010
small	69.3	62.1	30.0	25.0	4.4	3.6	0.8	0.7
medium	85.6	80.3	37.2	33.8	5.7	5.0	0.9	0.8
large	95.3	93.1	47.7	46.0	7.4	7.2	1	1

Source: Eurostat, CVTS 4 and CVTS 5, dissemination database (accessed 6.2.2018); own calculations.

The report confirms the persistence of training gaps across different enterprise size classes in 2015, with large enterprises typically outperforming medium and small enterprises. This pattern is found for the dimension of training incidence in every single country analysed. It also holds in the majority of countries for other dimensions of analysis such as participation (with only North Macedonia, Norway and the UK showing diverging patterns) and training

intensity (with exceptions being Belgium, Ireland and the UK). Training gaps across enterprise size classes are smaller when measured in in terms of total monetary expenditure (expressed as % of total labour costs); in more countries the break-down by enterprise size class does not conform to the pattern of increasing expenditure with increasing size. Results are mirrored by EU averages (Table 20). In 2015 in the EU, almost all large enterprises (95.3%) provided training to their staff (but only 69.3% of small enterprises did so). In large enterprises, staff participation in CVT courses (47.7%) was considerably higher than in small enterprises (30%), as was the corresponding time devoted to training (7.4 hours per 1 000 hours worked as opposed to 4.4). Although smaller, differences also persist in total monetary expenditure on CVT courses (1.0% of total labour cost in large enterprise as opposed to 0.8% in small ones) (Table 20).

Policy attention paid to SME training patterns should be kept particularly high in countries where, by international comparisons, they account for a larger share of the economy. This is the case in Bulgaria, Greece, Italy, Cyprus, Latvia, Lithuania and Romania, which also present comparatively lower levels of enterprise training performance.

The report also analyses the reasons reported by EU enterprises for not providing (further) training in 2015, indicating a stable, yet not fully reassuring, picture compared to previous survey waves. A majority of enterprises who did not provide training to their staff (82%) identified no need as the main reason; they perceive available skills matching their current needs. Even among large enterprises a clear majority (69%) states that available qualification, skills and competences match current needs; 55% of non-training enterprises adopt a skill development strategy other than training in the form of recruitment of new staff with the required skills to fulfil company needs. Larger non-training enterprises more often adopt this strategy compared to medium-sized and small enterprises. One in four non-training enterprises stresses the importance of IVT as an alternative to CVT, with no or small variation by size class. Reasons which can be more properly considered as obstacles for non-training enterprises are less frequently indicated, but they still play an important role. The major obstacles are time and cost. One third of non-training enterprises quote a high workload and a lack of time for staff to participate; a slightly smaller share (28%) of enterprises quotes high costs of CVT courses. Both time and cost barriers are reported with little variation across enterprise sizes. A similar pattern emerges from the analysis of the reasons not to provide further training, as indicated by firms which sponsored training activities. Findings are coherent with those of previous survey waves, CVTS 3 for 2005

and CVTS 4 for 2010. They suggest the importance of policies continuing to act in two directions: increasing awareness of the importance of training as a way to update and enlarge skills and competences in a way which goes beyond the mere satisfaction of short-term skills needs (a way which considers training as an investment for continuous skills development in a broader and longer-term perspective); and removing obstacles to training, particularly related to time and cost,

The report also analyses the main skill needs identified by employers as captured in the CVTS methodological framework. When EU-28 enterprises are asked to indicate the top three skills which they consider important for their development in the near future, technical, practical or job-specific skills come out on top, selected by 46% of enterprises. The importance of technical, practical or job-specific skills is often combined with priority provision of related training courses: 65% of training enterprises state that this skills domain is a top subject for their CVT courses. Skills/competences in customer handling and teamwork are considered important by 41% of all enterprises and prioritised in training provision by, respectively, 26% (customer handling) and 20% (teamwork) of training enterprises. These three skill bundles (technical, practical or job-specific skills, customer handling skills and team working skills) are those most frequently indicated as important by enterprises in the EU and are the main skills considered important by enterprises in almost all countries.

In every country technical, practical or job-specific skills are the most frequently indicated priority target of CVT courses. Next to technical, practical or job-specific skills, customer handling skills are generally prioritised as a subject of employer-sponsored CVT courses (26% of training enterprises in the EU) and across most of countries. Management skills are present in the top three of skill bundles targeted in 11 countries, while team working skills are present in the top three of skill bundles targeted by training in five countries (Bulgaria, Estonia, Italy, Portugal and Romania).

Main skill needs do not differ considerably across enterprise size classes for the EU-28. Only for management skills do large differences between size classes exist, and the importance of management skills for future enterprise development rises with enterprise size. This also holds for skills primarily targeted by courses. Compared to the CVTS 4 survey, the rank order of skills deemed important, as well as the rank order of skills targeted by enterprises, is similar over time for the EU-28 average. Based on CVTS metrics, technical practical and job-related skills emerge as the top priority for employers both when indicating main skills important for enterprises development and when

prioritising provision of CVT to their staff. In contrast, literacy and numeracy skills emerge as a low priority.

In conclusion, the report shows that CVTS data are a unique and precious source of policy-relevant information. It provides a coherent synthetic statistical picture of employer-sponsored CVT in Europe and related changes over time. It shows that a moderate but favourable expansion in the provision of employer-sponsored CVT has occurred in EU enterprises, and that a reduction in inequalities based on their size has occurred in 2015 compared to 2010. The report also shows that, despite progress achieved, notable training gaps persist among EU enterprises in the provision of employer-sponsored CVT, across countries and enterprise size classes, with resulting training levels comparatively lower in small and medium firms. In line with previous results, the report confirms that the main reasons which employers indicate for not providing (further) training relate to the perceived absence of a need and the adoption of a different skills development strategy. Yet, obstacles to training, related to time and cost, continue to play an important role. In the EU as a whole, no major variation is observed in the patterns of skills considered important by employers. Policy implications of key findings are discussed in the relevant section of the executive summary.

Abbreviations and acronyms

Cedefop	European Centre for the Development of Vocational Training
CVET	continuing vocational education and training
CVT	continuing vocational training
CVTS	continuing vocational training survey
EU	European Union
ISCED	International standard classification of education
IT	information technology
IVT	initial vocational training
LLL	lifelong learning
LFS	labour force survey
NACE	Statistical classification of economic activities in the European Community
n.e.c.	not elsewhere classified
NSA	national statistics authority
PAC	personnel absence costs
LCS	labour cost survey
PPS	purchasing power standards
SME	medium-sized enterprise
SMOP	surface measure of overall performance
TME	total monetary expenditure
VET	vocational education and training

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ANNEX 1. CVTS 5 data quality

A.1.1 Geographic coverage

The geographic coverage of CVTS has increased over time. The first CVTS round in 1993 was carried out as a pilot survey with a sample of 50 000 enterprises in all 12 EU Member States at the time. The second round of the CVTS took place in 1999 and covered 24 of the current EU-28 Member States (Croatia, Cyprus, Malta and Slovakia were not included and in Poland only the region of Pomorskie was surveyed). In 2005, the third CVTS survey covered the EU-27 of that time and also Norway. In 2010 coverage included the 27 EU Member States (excluding Ireland) and Norway. The fifth CVTS round in 2015 covers 30 countries, the current EU-28 Member States as well as Norway and North Macedonia.

Table A 1. **Country coverage in the CVTS rounds 1-5**

	CVTS 1 (1993)	CVTS 2 (1999)	CVTS 3 (2005)	CVTS 4 (2010)	CVTS 5 (2015)
AT		X	X	X	X
BE	X	X	X	X	X
BG		X	X	X	X
CY			X	X	X
CZ		X	X	X	X
DE	X	X	X	X	X
DK	X	X	X	X	X
EE		X	X	X	X
EL	X	X	X	X	X
ES	X	X	X	X	X
FI		X	X	X	X
FR	X	X	X	X	X
HR				X	X
HU		X	X	X	X
IE	X	X	X		X
IT	X	X	X	X	X
LT		X	X	X	X
LU	X	X	X	X	X
LV		X	X	X	X
MK					X
MT			X	X	X
NL	X	X	X	X	X

	CVTS 1 (1993)	CVTS 2 (1999)	CVTS 3 (2005)	CVTS 4 (2010)	CVTS 5 (2015)
NO			X	X	X
PL		X	X	X	X
PT	X	X	X	X	X
RO		X	X	X	X
SE		X	X	X	X
SI		X	X	X	X
SK			X	X	X
UK	X	X	X	X	X

Source: Own observations based on Eurostat, CVTS 3, CVTS 4, CVTS 5, dissemination database.

All the territories of the participating countries are covered, with the following exceptions:

(a) Cyprus: which only covers the areas under the control of the government of the Republic of Cyprus;
(b) France: which excludes the overseas departments and territories;
(c) Norway: which does not include Svalbard;
(d) Spain: which excludes Ceuta and Melilla (approximately 0.2% of the enterprises which have more than one employed person).

A.1.2 Sampling design

In CVTS 5, all national statistics authorities (NSAs), which implemented the survey locally, used a stratified random sample design, according to the mandatory provisions of the regulation. Strata were based on 20 NACE economic sectors of activity and at least three enterprise size classes (six for large countries). This is shown in Table A 2 and Table A 3.

Table A 2. **Grouping of economic activities for CVTS sample stratification (NACE)**

Section	Division	Name
B	B05-B09	Mining and quarrying
C	C10-C12	Manufacture of food products; beverages; tobacco products
C	C13-C15	Manufacture of textiles; wearing apparel; leather and related products
C	C17-C18	Manufacture of paper and paper products; printing and reproduction of recorded media
C	C19-C23	Manufacture of coke & refined petroleum products; chemicals & chemical products; basic pharmaceutical products & pharmaceutical preparations; rubber & plastic products; other non-metallic mineral products

C	C24-C25	Manufacture of basic metals; fabricated metal products, except machinery and equipment
C	C26-C28+C33	Manufacture of computer, electronic and optical products; electrical equipment; machinery and equipment n.e.c.; repair and installation of machinery and equipment
C	C29-C30	Manufacture of motor vehicles, trailers and semi-trailers; other transport equipment
C	C16+C31-C32	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials; furniture; other manufacturing
D-E	D-E	Electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities
F	F	Construction
G	G45	Wholesale and retail trade and repair of motor vehicles and motorcycles
G	G46	Wholesale trade, except of motor vehicles and motorcycles
G	G47	Retail trade, except of motor vehicles and motorcycles
H	H	Transportation and storage
I	I	Accommodation and food service activities
J	J	Information and communication
K	K64-K65	Financial service activities, except insurance & pension funding; insurance, reinsurance and pension funding, except compulsory social security
K	K66	Activities auxiliary to financial services and insurance activities
L,M,N,R,S	L+M+N+ R+S	Real estate activities; professional, scientific and technical activities; administrative and support service activities; arts, entertainment and recreation; other service

Source: Eurostat (2016).

Table A 3. **Grouping of enterprise sizes for CVTS samples stratification**

Countries with < 50 million inhabitants	Countries with > 50 million inhabitants
1. from 10 to 49 persons employed	1. from 10 to 19 persons employed
	2. from 20 to 49 persons employed
2. from 50 to 249 persons employed	3. from 50 to 249 persons employed
3. 250 persons employed and more	4. from 250 to 499 persons employed
	5. from 500 to 999 persons employed
	6. 1000 persons employed and more

Source: Eurostat (2016).

In CVTS 5, the most commonly used sampling frames at national level were official business registers/databases, typically considered the gold standard for business surveys. Only Spain used a different sampling frame. Belgium, Bulgaria, Estonia, Ireland, Italy, Latvia, Lithuania, Luxembourg, Hungary, Poland, Austria, Portugal, Slovenia, Slovakia and Finland did not report any specific shortcomings in their national sampling frames. No information was available for Greece and North Macedonia. Comments on

minor issues related to the sampling registers used for CVTS 5 are shown in Table A 4.

Table A 4. **Sampling frame shortcomings**

Country	Sampling frame shortcomings
Croatia	Time lag between the last update of the sampling frame and the moment of the actual sampling from the Statistic business register. In the field enterprises often provide activities from the Administrative business register, so for the processing we have opted to use SBR data since they are updated daily and considered to be more accurate.
Cyprus	The sampling frame was extracted from the Cyprus Statistical business register. The register covers all legal units, enterprises, local units and enterprise groups carrying out an economic activity according to the Statistical classification of economics activities NACE Rev. 2 of the EU. It is updated on an annual basis. The sample was selected from the sampling frame with 2014 as reference year, since this was the latest available version. Some enterprises in the sample were ineligible (did not belong to the target population of enterprises).
Czechia	Business register was used to draw a sampling frame and a sample. The sampling was done in December (with data available on 2015.11.2030), however, some data (e.g. on employed persons) referred to September 2015. It also did not reflect creation of new firms or their abolishment provided it was done in December.
Denmark	The enterprises are sampled based on their CVR-number. However, the activities of some companies involve several CVR-numbers which means that the answers in the interview cannot be related to the specific CVR-number sampled. As various people in the enterprise had to answer specific parts of the interview, several inconsistencies in the answers were found in the data. The follow-up and corrections necessary demanded considerable effort.
France	The French Statistical business register (SIRENE register) can be useful as a database due to the vast amount of administrative data which it contains, since enterprises are identified in all national registers by their SIRENE number. Some data are updated daily, although there is no updating of all the data at the same time on a fixed date. That also means that, for a given variable, the update is not the same for all enterprises, so that the value available is the one most recently registered for this enterprise.
Germany	The time lag of address data was only two months, but the time lag of data about the number of employees was two years.
Malta	The NSO makes regular updates to its business register, which in turn is used as the sampling frame for this survey. There is a time lag from the date of the last update up to the date when sampling is conducted.
Netherlands	National business register of 31.12.2015. This register contains (all) enterprises and their legal units in the Netherlands. Shortcomings include timeliness (e.g. time lag between last update of the sampling frame and the moment of the actual sampling), geographic coverage, and coverage of different subpopulations.
Norway	The sampling frame was the Norwegian Business register. The register is of good quality and both over- and under-coverage are usually fairly small. However, there are changes, especially among the smallest enterprises, which are less stable. Small enterprises more often close down than the large ones and they are also more prone to be taken over by others than large local units. Accordingly, we must expect some movement between different size groups from the point of time when the sample was drawn to the time of interview.

Country	Sampling frame shortcomings
Romania	The sampling frame used to draw the sample was built using the Romanian Business register and contained the statistical information related to the reference period, the calendar year 2015. The register was designed and implemented having administrative files and statistical sources as main data sources. The main administrative source of data for REGIS is the Fiscal register. The Trade register is used as a consultation data source to improve the quality of the register. Other files used as source of data for the REGIS in Romania are: balance sheet files; VAT files; an exclusively REGIS survey for the new enterprises regarding their main activity and size. The information received from different data sources (surveys carried out by INS in Romania) is also complemented. As a consequence, the main over/under coverage problems are related to information quality concerning size class of enterprises by number of employees.
Spain	The Social Security contribution accounts only include workers covered by the Social Security regime (although these are the majority). Workers included under the Special regime for civil servants are not included but the majority work in agencies with NACE 84 and 85 would therefore not be included in the target population. Contribution accounts are updated continuously.
Sweden	Swedish *Företagsregister* or business register. The register contains information on all of the country's enterprises. It is updated with information from the tax authorities (weekly), Sweden Address Change AB (bi-weekly), Statistics Sweden's business census (annually in November) and feedback from external users (continuously). There can be a lag of one day to one year for number of employed persons.

Source: CVTS 5 national quality reports.

A.1.3 Characteristics of the data collection

Participation in the 2015 CVTS was compulsory in 23 participating countries and voluntary in seven others (Austria, Belgium, Denmark, Germany, North Macedonia, Norway and the UK).

In Czechia and Malta, exemptions from compulsory participation were possible. Compared to CVTS 4 only Slovakia changed participation from voluntary (CVTS 4) to mandatory (CVTS 5).

In all countries except Spain, the CVTS survey was implemented as a stand-alone survey both in CVTS 5 and CVTS 4. In Spain, the CVTS survey was embedded in the annual labour survey. This is a multiple purpose enterprise survey conducted on a yearly basis from reference year 2013. It collects information about the way companies adapt to economic changes in their environment, through internal flexibility measures such as geographic or functional mobility, wage flexibility, workday or timetable modifications, or through other – external – measures, as well as labour relations regulation, employer associations, vocational training related issues and economic prospects.

The data collection approach is determined nationally: countries implement the survey according to the approach that is best suited to obtaining

a sufficiently high response rate. In many countries, multi-mode data collection methods were implemented to ensure participation by enterprises. The questionnaire was mostly self-administered online or on paper. Face-to-face interviews were carried out only in Germany, Greece, Cyprus and the UK. Telephone interviews were used in Denmark, France, Austria and also the UK.

Various countries use administrative sources for background variables on sector of activity (var A1), employment (var A2tot, A2m, A2f), hours worked (var A4) and labour costs (var A5). Only Portugal conducted the survey by using data from administrative sources on participation in CVT and paid working time spent on CVT. Spain uses administrative data on enterprises' contributions to funds aimed at CVT. In Belgium, data from administrative sources were used to impute missing values on participation in CVT, paid working time spent on CVT, total cost of CVT provision, as well as on enterprises' contributions to funds aimed at CVT and subsidies or fund receipts aimed at CVT provision.

Table A 5. **Administrative data used in CVTS 5 on key CVT indicators**

	Contributions to funds aimed at CVT	Subsidies or fund receipts aimed at CVT	Persons employed participating in CVT course		Paid working time spent on CVT		Total costs of CVT provision
			total	by gender	total	internal/external	
	B5a	B5b	C1 tot	C2m, C2f	C3 tot	C3i, C3e	C7sub
Belgium	X	X	X		X		X
Spain	X						
Portugal			X	X	X	X	

Source: Own observations based on national quality reports.

A.1.4 Deviation in concepts or definitions

For CVTS 4 and CVTS 5 most countries conducted their surveys in line with the regulations. Some deviations are reported in an effort to adapt the regulations efficiently at national level (e.g. slight changes in the questionnaire, including wording and sequence of questions, use of administrative data for the completion of specific items of the questionnaire). For North Macedonia no country report is available.

In CVTS 5, only some countries report deviation in concept definitions for certain variables, which should be kept in mind when reading the data. Data for

Belgium, Denmark and Spain refer to employees rather than persons employed. In Italy, data for persons employed refer to the annual average in 2015 and not the situation at the end of the reference period. In Czechia, the definition of persons employed has been used in a way which does not include persons working under contracts of services without an employment relationship. This kind of contracting staff is a national speciality; it is usually done just for a short time period and it could distort the results by introducing bias in international comparisons. Also for the national analysis and comparing results with other surveys it is more convenient not to include those working under contracts of services in the concept of persons employed.

In CVTS 5, only five countries indicate deviations from the model questionnaire, with no or minor implications for the data presented in this report.

Table A 6. **Deviations in variable implementation**

No deviations	Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Croatia, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Slovakia, United Kingdom
Deviation with no impact	Austria, Czechia, Germany, Sweden
Deviations	Spain

Source: Own observations based on national quality reports.

In Austria the question on staff representative involvement in CVT used two separate questions: one on whether there are staff representatives/committees, and one on whether they are involved in the CVT management process.

In Czechia some variables were split into more detailed variables, some items were added (e.g. statistics for persons employed at the age of 55 years and older, or number of persons employed who attended courses that were part of formal education). In section D, questions were added following a discussion with representatives of various national interest groups during the questionnaire development.

In Germany, the costs for training centre, rooms and teaching materials were surveyed in two questions.

In Sweden, the ordering of the questions D3b-D3iT and questions E1a-E1i were different in the Swedish questionnaire compared to the Eurostat manual.

In Spain the question ‘Is there a specific person or unit within the enterprise having the responsibility for the organisation of CVT?’ has three answer categories instead of two.

In answering the question on the most important training providers the enterprise used for all external CVT courses, respondents are asked to tick the three most important training providers from a list. Respondents are asked to consider the most important providers in relation to the number of all training hours during paid working time in external courses. In Spain, respondents are asked to consider the most important training providers for external CVT courses undertaken both during and outside working hours.

Table A 7. **Deviations from questionnaire**

No deviations	Austria, Belgium, Bulgaria, Cyprus, Denmark, Germany, Spain, France, Croatia, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia, United Kingdom
Deviations	Czechia, Finland, Italy, Estonia

Source: Own observations based on national quality reports.

The total number of hours worked was not included in the Czech version of the CVTS questionnaire but appended to the data matrix from the labour cost survey (LCS).

On CVT costs, Czech companies were asked to fill in the total amount of money spent on any training (of any kind, not only courses) in question C7sub of the European standard questionnaire (Eurostat, 2016). According to the Czech experience, enterprises are not able to distinguish between expenditure on different forms of education and they only record the total amount spent on training in their accountancy. This makes expenditure data from Czechia in 2015 not comparable with other countries and not comparable with previous CVTS. The total labour costs of persons employed was also absent from the Czech version of the CVTS questionnaire but appended to the data matrix form as a result of estimations based on the LCS survey data ([2]).

Due to an error, variables A12o (answer category ‘do not know’ on the question about skills deemed most important) and D2Be (answer category ‘other’ on the question about methods used to assess outcomes of CVT activities) were absent from the Finnish CVTS 5 questionnaire. In Italy, the number of persons employed is an average of 2015.

([2]) The following formula was used: as a sum of the following variables: wages without other personal expenditure + social expenditures without cars and compensation money + personal expenditures + compensation money to surrenders + number of cars usable also for personal purposes * 48 000 of CZK + taxes and sanctions related to employing people - subsidies.

In Estonia, questions A1 (principal economic activity of enterprise), A2 (number of persons employed in 2015) and A5 (total labour costs of persons employed in 2015) were not asked in the questionnaire but entered from the business register. Question A4 (total number of hours worked by persons employed in 2015) was moved into section C as both A4 and C3tot (paid working time (in hours) spent on all CVT courses in 2015) concern the concept of paid working time. However, this caused an unforeseen consequence as the people with no CVT in the year did not answer section C and therefore did not provide any answer for A4 as well. This was only discovered after the data collection was complete. To provide better data and limit the rate of non-response, some of the missing values were entered from other sources (with the same definition for the variable) for enterprises which had filled both questionnaires. This left a fairly low rate of non-response, which we were able to impute later on for the imputed dataset.

Due to question A9 (Does the enterprise regularly assess future skill needs?) and A10 (How does enterprise usually react to future skills needs?) sharing a similar concept (future needs), the question A10 was only asked if the answer to the previous question A9 was ‘yes’ (2 or 3). In the case of A9=no, the answers for A10 were coded as non-response (9) to comply with Eurostat coding, but the majority non-response was ‘not applicable’ (8).

For question B2 (Provision of CVT forms in 2015), enterprises were first asked to select any CVT forms used from a list, then asked about the absolute number of participants for each of the selected forms of CVT. This differs from the manual which uses a yes/no question for each form used and then asks about the percentage of staff participating immediately following each form. For Eurostat, the percentages were calculated later, based on these answers.

ANNEX 2. Complementary tables and figures

A.2.1 Relative participation rates

Differences in staff participation across all enterprise size classes can also be examined by relative participation rates. We therefore use an index number relative to the participation rate of staff working in medium-sized enterprises (which is made equal to 100 in all countries and on the EU average). The participation rate of staff in small enterprises is then expressed in relation to that of staff in medium-sized enterprises (81% for the estimated EU average). For large enterprises, the relative participation rate in 2015 is, on average, 128% of medium-sized enterprises. The last column of Table A 8, range (maximum-minimum) shows the range of relative participation rates, providing an indicator of the magnitude of a country's overall inequity of participation.

Table A 8. **Participation in CVT courses, participation rate and relative participation rate of persons employed by enterprise size class (all enterprises), CVTS 5**

	Participation rate in %				Relative participation rates (index, 50-249 persons employed = 100)			Range (max-min)
	Total	10-49 persons employed	50-249 persons employed	250 or more persons employed	10-49 persons employed	50-249 persons employed	250 or more persons employed	
EU-28	40.8	30.0	37.2	47.7	81	100	128	48
AT	45.4	35.3	41.2	54.9	86	100	133	48
BE	53.9	41.5	56.3	59.2	74	100	105	31
BG	26.5	15.7	21.9	40	72	100	183	111
CY	33.2	21.7	32.2	51.9	67	100	161	94
CZ	83.7	80.9	84.1	84.9	96	100	101	5
DE	38.1	31.9	33.6	41.8	95	100	124	29
DK	34.6	25.4	31.2	41.8	81	100	134	53
EE	31.9	21.2	27.8	47.5	76	100	171	95
EL	18.5	4.6	14.7	36.7	31	100	250	218
ES	55.4	38.9	50.1	69	78	100	138	60
FI	43.8	37.6	41.7	48.9	90	100	117	27
FR	48.3	27.4	40.8	62.3	67	100	153	86

	Participation rate in %				Relative participation rates (index, 50-249 persons employed = 100)			Range (max-min)
	Total	10-49 persons employed	50-249 persons employed	250 or more persons employed	10-49 persons employed	50-249 persons employed	250 or more persons employed	
HR	28.7	16	21.2	40.2	75	100	190	114
HU	19.4	10.6	14.6	27.4	73	100	188	115
IE	49.7	33.2	43.8	62.9	76	100	144	68
IT	45.9	28.4	42.9	63.1	66	100	147	81
LT	25.6	14.4	24.1	38.3	60	100	159	99
LU	61.8	36.8	62.1	76.7	59	100	124	64
LV	27.2	15.7	25.6	41.6	61	100	163	101
MK	22	17.7	16.9	29.7	105	100	176	76
MT	35.8	18.9	34.2	52.8	55	100	154	99
NL	41.4	34.1	41.1	44.2	83	100	108	25
NO	54.3	53.1	55.3	54.3	96	100	98	4
PL	37.1	15.1	26	55.4	58	100	213	155
PT	46.3	32.9	44.9	61.4	73	100	137	63
RO	21.3	8.8	13.7	32.6	64	100	238	174
SE	52.2	46.9	52.7	55.3	89	100	105	16
SI	58.3	42.8	54	72	79	100	133	54
SK	56.8	42.5	52.1	66.8	82	100	128	47
UK	30.4	30.3	32.2	29.9	94	100	93	7

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

On average in the EU, the chances of a person employed in a small enterprise participating in employer-financed training are 19% lower than those of a person employed in a medium-sized enterprise (relative participation rate at 81), while those of a person employed in a large firm are 28% higher (relative participation rate at 128, Table A 8).

In all countries but North Macedonia, the chances of participating in CVT courses are lower for staff working in small enterprises than for staff working in medium-sized enterprises. In 10 countries the differences are quite high and the relative participation rate in small enterprises is lower than 70%. Four of these countries are east European (Latvia, Lithuania, Poland, Romania), four are south European (Greece, Italy, Cyprus and Malta) but France and Luxembourg also belong to this group. Further, in three of these countries

(Greece, Poland and Romania) the chances of staff of large enterprises participating in employer-financed CVT are at least double the chances of staff of medium-sized enterprises.

A more equal distribution of training participation between SMEs appears in the Netherlands, Finland and Sweden, as the chances of participation do not differ strongly between staff of small, medium-sized and large enterprises (at most 20% higher than the reference group).

A quasi-equal distribution of training participation appears in Czechia, Norway and the UK, as the differences in participation rates between staff of small, medium-sized and large enterprises are small (only 4-7% higher than the reference group).

Compared to 2010, inequity in participation rates by size class has decreased in the EU-28 as the relative participation rate of staff in small enterprises was 74% and the relative participation rate for staff in for large enterprises was 136%, leading to a range of 62% Table A 9.

In most countries, the opportunities for staff from large enterprises to participate in employer-financed training in 2015 are closer to the reference group (staff in medium-sized enterprises) than in 2010, indicating an increase in equity between staff in medium-sized and large enterprises. Only in Denmark, Estonia, France, Croatia, Portugal and Austria did inequities between staff large and medium-sized enterprises increase markedly between 2010 and 2015.

However, notable increases in relative participation rates in large enterprises occurred in 16 countries (Belgium, Bulgaria, Czechia, Greece, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Romania, Slovenia, Finland and the UK), indicating significant increases in inequity between staff in medium-sized and large enterprises.

When considering relative participation rates of staff in small enterprises, smaller changes between 2010 and 2015 occurred. Increases in inequity are observed in Denmark, Greece, Croatia, Cyprus, Lithuania, Luxembourg and Finland, as relative participation rates of staff in small enterprises decreased.

Notable increases in relative participation rates in small enterprises occurred in 10 countries (Bulgaria, Czechia, Germany, Malta, Poland, Portugal, Romania, Slovenia and Slovakia), indicating significant increases in equity between staff in small and medium-sized enterprises.

Table A 9. **Participation in CVT courses, participation rate and relative participation rate of persons employed by enterprise size class (all enterprises), CVTS 4**

	Participation rate in %				Relative participation rates (index, 50-249 persons employed = 100)			Range (max-min)
	Total	10-49 persons employed	50-249 persons employed	250 or more persons employed	10-49 persons employed	50-249 persons employed	250 or more persons employed	
EU-28	37.6	25.0	33.8	46.0	74	100	136	62
AT	33.2	26.4	33.2	38.2	80	100	115	36
BE	51.8	34.5	51	61.5	68	100	121	53
BG	22	8.5	15.9	43.6	53	100	274	221
CY	36.7	23.5	30.9	60.8	76	100	197	121
CZ	60.8	46.5	60.1	69.8	77	100	116	39
DE	39.5	28.1	35.4	44.4	79	100	125	46
DK	37.1	35.8	39.5	36.5	91	100	92	9
EE	30.6	21.8	31.4	41	69	100	131	61
EL	16.3	6.9	11.3	30.9	61	100	273	212
ES	48.3	35.3	44.9	60.6	79	100	135	56
FI	40.2	32.2	31.9	48	101	100	150	50
FR	45.4	26.7	41.9	55.6	64	100	133	69
HR	22.5	19.2	18.8	26.9	102	100	143	43
HU	19	10.8	14.6	27.8	74	100	190	116
IE (1)	NA	NA	NA	NA	NA	NA	NA	NA
IT	36	21.2	31.8	53.9	67	100	169	103
LT	18.6	11	16.6	28.3	66	100	170	104
LU	51.1	33.5	44	68.9	76	100	157	80
LV	24.2	14.2	22.4	38.8	63	100	173	110
MK (1)	NA	NA	NA	NA	NA	NA	NA	NA
MT	35.8	14.6	32.6	59.8	45	100	183	139
NL	38.6	29	35.2	44.6	82	100	127	44
NO	45.8	44.7	43.9	47.5	102	100	108	8
PL	30.5	8.8	20.7	48.1	43	100	232	190
PT	39.8	26.6	41.8	51.7	64	100	124	60
RO	17.8	5.9	11	28.4	54	100	258	205
SE	47.1	39.9	47.9	52.7	83	100	110	27
SI	43.1	24.5	36.3	60.4	67	100	166	99
SK	43.6	28.3	43.6	53.8	65	100	123	58
UK	30.6	24.9	28.3	33.1	88	100	117	29

(1) No participation in CVTS 4.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

A.2.2 Types of training in EU enterprises

Table A 10. **Percentage of enterprises providing any other form of CVT, by form of training, CVTS 5 and CVTS 4**

	CVT courses		Other forms of CVT									
	CVT courses	CVT courses	Guided on-the-job training	Guided on-the-job training	Job rotation, exchanges, secondments	Job rotation, exchanges, secondments	Conferences, workshops, trade fairs and lectures	Conferences, workshops, trade fairs and lectures	Learning/quality circles	Learning/quality circles	Self-directed learning	Self-directed learning
	2015	Change 2015 - 2010*	2015	Change 2015 - 2010*	2015	Change 2015 -2010*	2015	Change 2015 -2010*	2015	Change 2015 - 2010*	2015	Change 2015 - 2010*
EU-28	61.2	5.6	44.2	10.0	12.5	2.8	39.3	4.9	12.4	3.0	21.5	7.4
AT	81.6	9.2	48.7	9.4	17.1	-2.8	65.4	1.7	26.5	4.0	21.6	8.6
BE	78.4	6.6	47.8	7.4	19.0	5.0	49.0	8.7	18.3	6.0	24.1	7.1
BG	31.9	11.4	28.8	7.8	9.2	5.4	16.5	0.7	10.6	1.2	8.3	1.6
CY	52.1	4.4	37.4	-3.6	7.2	-4.7	28.2	-10.2	16.7	-13.8	10.7	-1.9
CZ (2)	89.4	26.9	26.6	-15.4	6.3	1.8	21.5	-20.2	3.5	-2.5	11.7	-4.2
DE	61.9	0.6	64.3	18.9	9.9	2.9	59.3	3.4	18.5	6.7	26.4	11.6
DK	69.9	-6.4	45.5	-10.2	11.1	-11.4	57.3	-5.3	19.1	0.6	29.8	-2.7
EE	64.4	7.5	65.7	30.0	16.0	-2.2	39.5	1.2	6.4	-2.0	19.2	-2.2
EL	12.7	-8.1	10.5	-0.6	2.0	-0.4	6.9	-7.3	6.6	-0.8	3.9	-1.5
ES	80.6	9.3	47.1	12.1	14.5	7.6	28.3	5.5	16.4	5.7	25.8	5.7
FI	78.0	11.5	44.6	7.8	14.5	4.2	46.5	5.4	8.6	1.3	31.2	7.7
FR	75.1	4.2	23.5	0.0	8.3	-1.7	26.5	3.6	7.1	-1.7	11.6	2.9
HR	42.7	-7.1	27.8	2.5	12.7	5.1	35.3	2.2	8.3	2.3	15.5	7.9
HU	32.1	-5.9	21.3	2.1	3.3	-0.7	26.6	-1.1	5.3	0.4	8.8	0.9
IE (1)	57.1	:	59.5	:	18.2	:	52.7	:	15.1	:	36.6	:

	CVT courses		Other forms of CVT									
	CVT courses	CVT courses	Guided on-the-job training	Guided on-the-job training	Job rotation, exchanges, secondments	Job rotation, exchanges, secondments	Conferences, workshops, trade fairs and lectures	Conferences, workshops, trade fairs and lectures	Learning/quality circles	Learning/quality circles	Self-directed learning	Self-directed learning
	2015	Change 2015 - 2010*	2015	Change 2015 - 2010*	2015	Change 2015 -2010*	2015	Change 2015 -2010*	2015	Change 2015 - 2010*	2015	Change 2015 - 2010*
IT	52.3	5.5	28.0	4.1	9.8	-0.3	26.7	0.7	3.6	0.1	12.3	5.9
LT	43.7	6.7	36.3	13.0	3.9	2.4	41.3	5.6	21.7	7.3	20.5	6.4
LU	71.9	6.5	52.6	13.5	26.9	14.9	54.9	14.0	26.1	11.5	30.8	11.6
LV	31.3	4.7	99.9	78.0	9.8	5.1	30.1	10.1	8.6	4.4	9.1	4.6
MK (1)	45.9	:	21.8	:	14.1	:	22.6	:	11.4	:	8.1	:
MT	43.3	5.8	49.7	13.8	15.6	3.2	27.1	-11.0	16.4	6.3	17.3	2.7
NL	75.5	5.7	50.9	11.7	24.7	12.1	59.1	9.1	29.2	12.6	42.5	13.9
NO	90.4	0.8	73.7	2.5	29.5	-5.9	49.4	-3.5	23.8	1.8	42.6	12.6
PL	29.2	8.7	31.7	23.4	10.0	7.8	24.2	13.6	1.9	1.3	9.3	6.7
PT	53.8	9.3	57.7	16.6	10.2	4.6	34.4	4.9	16.8	5.8	15.5	6.5
RO	21.1	5.1	13.0	3.5	4.8	0.8	10.1	1.4	4.2	0.9	11.7	2.9
SE (2)	81.6	5.2	73.1	23.4	38.6	6.0	60.6	10.3	10.5	4.4	47.0	28.2
SI	72.9	32.1	59.2	11.8	14.4	5.7	55.4	6.7	19.3	4.5	21.7	9.9
SK	63.6	10.0	33.3	1.4	11.1	4.2	40.7	-4.1	19.1	0.7	24.5	0.5
UK	67.1	7.2	62.7	3.4	18.2	2.4	52.9	6.6	15.9	1.9	33.9	8.0

(1) No participation in CVTS 4.

(2) Break in time series between CVTS 4 and CVTS 5.

(*) = difference between 2015 and 2010 in percentage points.

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

A.2.3 Inequalities by enterprise size class

Table A 11. **Training incidence, percentage of enterprises providing any type of CVT training (courses or other forms) by size class, 2015 and 2010**

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
LV	100	100	100	0	0%	37	54	83	46	123%
NO	99	100	100	1	1%	96	99	100	3	4%
CY	66	88	100	34	52%	68	88	100	32	47%
FR	75	98	100	24	32%	72	95	98	26	36%
BE	81	94	100	18	23%	74	94	99	26	35%
CZ (2)	89	95	100	11	12%	68	90	97	29	43%
SI	81	95	100	18	22%	64	84	95	31	49%
SE (2)	92	98	100	8	8%	85	96	99	14	16%
ES	84	97	99	15	18%	73	90	97	25	34%
AT	87	95	99	12	14%	85	96	99	14	17%
EE	85	92	99	14	17%	64	83	97	33	52%
PT	72	93	99	27	38%	61	86	97	37	60%
DE	73	87	99	25	35%	69	82	96	27	39%
NL	82	94	98	17	20%	75	89	97	22	29%
DK	84	95	98	15	17%	89	98	100	11	13%
FI	80	95	98	18	23%	70	92	90	20	29%
UK	84	94	97	13	16%	78	93	98	20	26%
LU	73	92	97	24	33%	66	86	100	34	51%
LT	56	82	96	40	71%	48	67	89	41	86%
MT	56	80	95	39	70%	49	73	90	41	85%
EU-28	69	86	95	26	38%	62	80	93	31	50%
IT	57	82	93	36	63%	53	77	91	38	72%
SK	66	83	93	26	40%	65	84	90	25	38%
HU	38	65	91	53	139%	43	75	95	52	120%
HR	51	71	88	38	74%	53	73	86	33	62%
PL	39	65	86	47	121%	16	41	75	59	370%
MK (1)	60	69	81	22	36%					
BG	38	56	78	40	104%	27	49	80	53	199%
EL	19	40	68	50	267%	24	46	83	59	242%
RO	22	38	67	46	211%	20	36	64	44	223%
IE (1)										

(1) Ireland and North Macedonia: no participation in CVTS 4.

(2) Czechia and Sweden: break in time series between CVTS 4 and CVTS 5.

(3) 2015 Abs. diff: absolute difference in 2015 (this is the difference between the indicator values for large and small enterprises in 2015). Relative difference in 2015 (this is the absolute difference expressed as a percentage of the indicator value for small enterprises in 2015). 2015 absolute and relative differences are marked in green (red) if they are smaller (bigger) than the corresponding 2010 differences.

NB: Countries are sorted based on the 2015 indicator value for large enterprises (descending order);

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 12. **Training participation rate, % of persons employed participating in CVT courses by enterprise size class (all enterprises), 2015 and 2010**

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
CZ (2)	81	84	85	4	5%	47	60	70	23	50%
LU	37	62	77	40	108%	34	44	69	35	106%
SI	43	54	72	29	68%	25	36	60	36	147%
ES	39	50	69	30	77%	35	45	61	25	72%
SK	43	52	67	24	57%	28	44	54	26	90%
IT	28	43	63	35	122%	21	32	54	33	154%
IE (1)	33	44	63	30	89%					
FR	27	41	62	35	127%	27	42	56	29	108%
PT	33	45	61	29	87%	27	42	52	25	94%
BE	42	56	59	18	43%	35	51	62	27	78%
PL	15	26	55	40	267%	9	21	48	39	447%
SE (2)	47	53	55	8	18%	40	48	53	13	32%
AT	35	41	55	20	56%	26	33	38	12	45%
NO	53	55	54	1	2%	45	44	48	3	6%
MT	19	34	53	34	179%	15	33	60	45	310%
CY	22	32	52	30	139%	24	31	61	37	159%
FI	38	42	49	11	30%	32	32	48	16	49%
EU-28	30	37	48	18	59%	25	34	46	21	84%
EE	21	28	48	26	124%	22	31	41	19	88%
NL	34	41	44	10	30%	29	35	45	16	54%
DE	32	34	42	10	31%	28	35	44	16	58%
DK	25	31	42	16	65%	36	40	37	1	2%
LV	16	26	42	26	165%	14	22	39	25	173%
HR	16	21	40	24	151%	19	19	27	8	40%
BG	16	22	40	24	155%	9	16	44	35	413%
LT	14	24	38	24	166%	11	17	28	17	157%
EL	5	15	37	32	698%	7	11	31	24	348%
RO	9	14	33	24	270%	6	11	28	23	381%

UK	30	32	30	0	-1%	25	28	33	8	33%
MK (1)	18	17	30	12	68%					
HU	11	15	27	17	158%	11	15	28	17	157%

(1) Ireland and North Macedonia: no participation in CVTS 4.

(2) Czechia and Sweden: break in time series between CVTS 4 and CVTS 5.

(3) 2015 Abs. diff: absolute difference in 2015 (this is the difference between the indicator values for large and small enterprises in 2015). Relative difference in 2015 (this is the absolute difference expressed as a percentage of the indicator value for small enterprises in 2015). 2015 absolute and relative differences are marked in green (red) if they are smaller (bigger) than the corresponding 2010 differences.

NB: Countries are sorted based on the 2015 indicator value for large enterprises (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 13. **Hours spent in CVT courses per 1 000 hours worked by enterprise size class (all enterprises), 2015 and 2010**

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (hours) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (hours)	Relative diff. (%)
LU	7.5	11.6	15.3	7.8	104%	7.5	9.3	14.5	7.0	93%
EE	3.3	9.3	14.4	11.1	336%	2.6	4.3	7.9	5.3	204%
BE	8.6	15.6	14.3	5.7	66%	6.9	11.8	16.1	9.2	133%
MT	3.1	6.3	14.1	11.0	355%	2.9	4.8	15.8	12.9	445%
IE (1)	13.1	9.5	12.4	-0.7	-5%					
PT	5.0	6.9	12.2	7.2	144%	6.1	11.1	14.2	8.1	133%
SI	5.6	6.4	11.7	6.1	109%	5.6	10.1	10.6	5.0	89%
FR	4.6	6.9	11.1	6.5	141%	4.5	6.0	10.6	6.1	136%
NL	6.4	7.7	10.7	4.3	67%	6.7	8.4	10.8	4.1	61%
DK	1.7	5.8	10.0	8.3	488%	15.4	10.4	8.9	-6.5	-42%
ES	4.3	6.3	9.7	5.4	126%	3.7	5.1	8.5	4.8	130%
IT	3.4	5.3	9.4	6.0	176%	2.5	4.1	9.4	6.9	276%
SK	4.2	5.6	8.4	4.2	100%	3.9	7.7	9.4	5.5	141%
PL	1.3	2.3	8.2	6.9	531%	0.9	2.2	6.9	6.0	667%
SE (2)	5.5	6.8	8.2	2.7	49%	8.0	6.6	6.4	-1.6	-20%
CZ (2)	5.0	6.7	8.0	3.0	60%	3.3	4.7	6.6	3.3	100%
NO	8.0	7.0	8.0	0.0	0%	7.1	12.3	9.0	1.9	27%
AT	4.4	6.8	7.9	3.5	80%	4.3	7.3	6.9	2.6	60%
EU-28	4.4	5.7	7.4	3.0	68%	3.6	5.0	7.2	3.6	100%
RO	1.3	3.0	6.9	5.6	431%	0.8	1.9	6.8	6.0	750%
BG	2.4	3.9	6.8	4.4	183%	1.4	3.2	5.2	3.8	271%
DE	3.6	4.9	6.3	2.7	75%	3.1	4.6	6.9	3.8	123%
EL	0.8	1.7	6.3	5.5	688%	0.9	1.0	3.2	2.3	256%
CY	2.6	4.0	6.0	3.4	131%	2.7	4.8	9.2	6.5	241%
FI	4.4	4.5	5.9	1.5	34%	4.2	4.6	7.0	2.8	67%

HU	1.1	1.4	5.0	3.9	355%	1.2	1.9	6.2	5.0	417%
HR	2.8	3.8	4.7	1.9	68%	3.3	2.6	1.0	-2.3	-70%
LV	1.6	2.9	4.7	3.1	194%	1.2	1.9	3.2	2.0	167%
LT	1.8	2.8	4.4	2.6	144%	2.6	4.9	4.3	1.7	65%
UK	7.5	7.2	4.0	-3.5	-47%	3.6	4.8	3.9	0.3	8%
MK (1)	2.5	2.4	3.0	0.5	20%					

(1) Ireland and North Macedonia: no participation in CVTS 4.

(2) Czechia and Sweden: break in time series between CVTS 4 and CVTS 5.

(3) 2015 Abs. diff: absolute difference in 2015 (this is the difference between the indicator values for large and small enterprises in 2015). Relative difference in 2015 (this is the absolute difference expressed as a percentage of the indicator value for small enterprises in 2015). 2015 absolute and relative differences are marked in green (red) if they are smaller (bigger) than the corresponding 2010 differences.

NB: Countries are sorted based on the 2015 indicator value for large enterprises (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 14. **Direct enterprise monetary expenditure on CVT courses as % of total labour cost by size class (all enterprises), 2015 and 2010**

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. % points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
DK	0.4	0.6	1.8	1.4	350%	0.8	0.6	0.7	-0.1	-13%
NL	1.0	1.1	1.3	0.3	30%	0.8	0.9	1.3	0.5	63%
MT	0.8	1.2	1.1	0.3	38%	1.4	1.2	1.4	0.0	0%
LU	0.6	1.2	1.1	0.5	83%	0.7	0.8	0.8	0.1	14%
BE	0.6	0.7	1.0	0.4	67%	0.4	0.7	1.2	0.8	200%
UK	1.5	1.7	1.0	-0.5	-33%	0.8	0.8	0.6	-0.2	-25%
IE (1)	0.6	0.9	1.0	0.4	67%					
NO	1.0	0.8	1.0	0.0	0%	0.7	0.7	0.6	-0.1	-14%
EE	0.6	0.7	1.0	0.4	67%	0.5	0.6	0.5	0.0	0%
FR	0.2	0.3	0.9	0.7	350%	0.5	0.8	1.3	0.8	160%
HR	0.4	0.5	0.9	0.5	125%	0.3	0.8	0.3	0.0	0%
LT	0.6	0.6	0.8	0.2	33%	0.8	0.6	0.6	-0.2	-25%
PT	0.5	0.5	0.8	0.3	60%	0.7	0.9	1	0.3	43%
EU-28	0.5	0.7	0.8	0.3	60%	0.5	0.6	0.9	0.4	80%
SI	0.7	0.7	0.8	0.1	14%	0.3	0.7	0.9	0.6	200%
SK	0.7	0.7	0.8	0.1	14%	1	0.9	0.9	-0.1	-10%
DE	0.6	0.7	0.8	0.2	33%	0.6	0.7	0.8	0.2	33%
HU	0.3	0.5	0.8	0.5	167%	0.4	0.6	1.1	0.7	175%
SE (2)	0.8	0.9	0.7	-0.1	-13%	0.9	1	0.9	0.0	0%
PL	0.3	0.4	0.7	0.4	133%	0.2	0.4	0.8	0.6	300%
CZ (2)	0.6	0.7	0.7	0.1	17%	0.5	0.7	0.8	0.3	60%

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. % points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
BG	0.6	0.7	0.6	0.0	0%	0.4	0.7	0.7	0.3	75%
ES	0.4	0.5	0.6	0.2	50%	0.4	0.4	0.7	0.3	75%
AT	0.5	0.6	0.6	0.1	20%	0.6	0.8	1	0.4	67%
FI	0.6	0.6	0.6	0.0	0%	0.5	0.6	0.8	0.3	60%
IT	0.3	0.4	0.5	0.2	67%	0.3	0.3	0.4	0.1	33%
RO (1)	0.3	0.3	0.4	0.1	33%					
EL	0.1	0.3	0.4	0.3	300%	0.1	0.1	0.4	0.3	300%
CY	0.4	0.3	0.4	0.0	0%	0.5	0.5	0.7	0.2	40%
LV	0.3	0.4	0.4	0.1	33%	0.3	0.3	0.5	0.2	67%
MK (1)	0.3	0.4	0.2	-0.1	-33%					

(1) No CVTS 4 data available for Ireland and North Macedonia (no participation) and Romania (missing).

(2) Czechia and Sweden: break in time series between CVTS 4 and CVTS 5. CVTS 5 data for Czechia are not fully comparable to those of other countries.

(3) 2015 Abs. diff: absolute difference in 2015 (this is the difference between the indicator values for large and small enterprises in 2015). Relative difference in 2015 (this is the absolute difference expressed as a percentage of the indicator value for small enterprises in 2015). 2015 absolute and relative differences are marked in green (red) if they are smaller (bigger) than the corresponding 2010 differences.

NB: Countries are sorted based on the 2015 indicator value for large enterprises (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 15 **Total enterprise monetary expenditure on CVT courses as % of total labour cost by size class (all enterprises), 2015 and 2010**

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. % points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
DK	0.4	0.6	2.5	2.1	525%	0.8	0.7	0.7	-0.1	-13%
FR	0.9	1.2	1.7	0.8	89%	1	1.4	1.8	0.8	80%
HU	1	1.1	1.6	0.6	60%	1	1.3	1.6	0.6	60%
NL	1.1	1.2	1.3	0.2	18%	0.9	1	1.4	0.5	56%
BE	0.7	0.7	1.2	0.5	71%	0.6	0.7	1.2	0.6	100%
MT	0.9	1.3	1.2	0.3	33%	1.4	1.2	1.5	0.1	7%
UK	1.6	1.7	1.1	-0.5	-31%	0.8	0.8	0.6	-0.2	-25%
EU-28	0.8	0.9	1	0.2	25%	0.7	0.8	1	0.3	43%
IE (1)	0.6	0.9	1	0.4	67%					
NO	0.9	0.8	1	0.1	11%	0.6	0.7	0.6	0	0%
EE	0.6	0.7	0.9	0.3	50%	0.4	0.6	0.5	0.1	25%
ES	0.7	0.8	0.9	0.2	29%	0.8	0.8	0.9	0.1	13%

	2015					2010				
	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. % points) (3)	Relative diff. (%) (3)	10-49 persons employed	50-249 persons employed	250 + persons employed	Abs. diff. (% points)	Relative diff. (%)
HR	0.3	0.4	0.9	0.6	200%	0.3	0.7	0.2	-0.1	-33%
DE	0.6	0.7	0.8	0.2	33%	0.6	0.7	0.9	0.3	50%
SK	0.7	0.6	0.8	0.1	14%	1.1	0.8	0.9	-0.2	-18%
PT	0.4	0.5	0.8	0.4	100%	0.5	0.7	1	0.5	100%
CY	0.7	0.6	0.7	0	0%	0.8	0.7	1	0.2	25%
LT	0.6	0.6	0.7	0.1	17%	0.5	0.4	0.6	0.1	20%
LU	0.6	1	0.7	0.1	17%	0.7	0.7	0.5	-0.2	-29%
PL	0.3	0.4	0.7	0.4	133%	0.1	0.4	0.6	0.5	500%
SE (2)	0.9	0.8	0.7	-0.2	-22%	0.9	0.9	0.9	0	0%
SI	0.7	0.7	0.7	0	0%	0.3	0.6	0.9	0.6	200%
CZ (2)	0.5	0.6	0.7	0.2	40%	0.4	0.6	0.7	0.3	75%
AT	0.6	0.7	0.6	0	0%	0.6	0.7	0.9	0.3	50%
BG	0.6	0.6	0.6	0	0%	0.4	0.8	0.6	0.2	50%
EL	0.7	0.6	0.6	-0.1	-14%	0.4	0.4	0.5	0.1	25%
IT	0.5	0.5	0.6	0.1	20%	0.4	0.4	0.5	0.1	25%
FI	0.6	0.5	0.5	-0.1	-17%	0.5	0.6	0.8	0.3	60%
LV	0.4	0.4	0.4	0	0%	0.3	0.3	0.5	0.2	67%
RO (1)	0.3	0.2	0.4	0.1	33%					
MK (1)	0.3	0.4	0.3	0	0%					

(1) No CVTS 4 data available for Ireland and North Macedonia (no participation) and Romania (missing).

(2) Czechia and Sweden: break in time series between CVTS 4 and CVTS 5. CVTS 5 data for Czechia are not fully comparable to those of other countries.

(3) 2015 Abs. diff: absolute difference in 2015 (this is the difference between the indicator values for large and small enterprises in 2015). Relative difference in 2015 (this is the absolute difference expressed as a percentage of the indicator value for small enterprises in 2015). 2015 absolute and relative differences are marked in green (red) if they are smaller (bigger) than the corresponding 2010 differences.

NB: Countries are sorted based on the 2015 indicator value for large enterprises (descending order);

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

A.2.4 Inequalities by economic sector of activities

Table A 16. **Training incidence, % of enterprises providing any type of CVT training (courses or other forms) by economic sector of activity, 2015**

	Industry	Construction	Trade, accommodation/food activities and transport/storage	Information, communication and insurance/finance	Other technical and recreational services	Range (max-min) (1)	Relative range (%) (1)
NO	100	98	99	100	99	2	2%
LV	100	100	100	99	100	1	1%
SE	92	91	91	97	97	6	7%
BE	86	83	81	96	85	15	19%
CZ	92	93	89	95	90	6	7%
AT	89	87	85	95	92	10	12%
FI	82	82	83	94	82	12	15%
SI	85	69	85	93	90	24	35%
PT	71	68	76	93	83	25	37%
LU	80	61	75	93	84	32	52%
ES	87	90	84	93	85	9	11%
DE	80	73	75	92	77	19	26%
DK	83	83	84	92	94	11	13%
UK	82	90	82	91	90	9	11%
IE	76	74	73	90	84	17	23%
EE	83	87	87	89	88	6	7%
NL	85	86	84	88	85	4	5%
CY	71	61	65	87	75	26	43%
FR	82	66	76	86	86	20	30%
MT	56	42	51	86	82	44	105%
EU-28	71	72	69	86	79	17	25%
SK	72	74	66	85	70	19	29%
IT	61	75	51	80	65	29	57%
MK	64	54	58	77	70	23	43%
LT	60	59	58	72	73	14	26%
PL	46	39	39	67	56	28	72%
HR	54	49	53	66	65	17	35%
HU	47	46	39	65	43	26	67%
BG	42	47	36	61	50	25	69%
RO	27	26	22	42	33	20	91%
EL	24	18	19	42	25	24	133%

(1) Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across economic sectors in 2015). Relative range: relative range in 2015 (this is the

absolute range expressed as a percentage of the minimum indicator value across economic sectors in 2015).

NB: Countries are sorted based on the 2015 indicator value in the sector of Information, communication and finance (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 17. **Training participation rate, % of persons employed participating in CVT courses by enterprise economic sector of activity (all enterprises), 2015**

	Industry	Construction	Trade, accommodation/food activities and transport/storage	Information, communication and insurance/finance	Other technical and recreational services	Range (max-min) (1)	Relative range (%) (1)
CZ	87	90	81	87	77	9	12%
LU	68	36	49	80	69	44	121%
IE	53	38	39	78	48	41	108%
SI	61	32	60	76	49	45	141%
SK	62	51	45	75	62	30	65%
AT	45	34	44	74	39	40	116%
IT	45	45	41	74	42	33	80%
ES	57	49	54	74	51	25	50%
BE	64	44	55	70	41	29	72%
PT	42	42	50	70	38	32	83%
PL	39	24	35	62	28	39	161%
MT	39	7	25	62	41	55	753%
SE	61	49	48	61	47	14	29%
FR	56	38	45	61	43	24	63%
NO	50	61	48	61	63	15	30%
CY	31	13	28	59	33	47	375%
EL	19	12	14	57	8	49	640%
EU-28	44	37	38	56	37	19	51%
HR	21	13	35	56	24	43	320%
NL	46	50	36	55	41	20	56%
EE	26	27	33	53	33	27	105%
DK	31	26	32	51	37	25	96%
MK	22	12	20	50	17	38	315%
LT	26	20	23	49	28	29	147%
BG	24	22	27	49	24	27	126%
LV	25	22	27	48	25	26	118%
DE	42	35	40	46	28	19	68%
FI	46	48	40	46	43	9	22%
RO	25	10	18	40	17	30	303%
UK	24	41	27	38	36	18	65%
HU	18	16	22	27	15	12	79%

(1) Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across economic sectors in 2015). Relative range: relative range in 2015 (this is the absolute range expressed as a percentage of the minimum indicator value across economic sectors in 2015).

NB: Countries are sorted based on the 2015 indicator value in the sector of Information, communication and finance (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 18. **Hours spent in CVT courses per 1 000 hours worked by enterprise economic sector of activity (all enterprises), 2015 and 2010**

	Industry	Construction	Trade, accommodation/food activities and transport/storage	Information, communication and insurance/finance	Other technical and recreational services	Range (max-min) (1)	Relative range (%) (1)
SK	6.1	5.5	4.3	17.9	7.1	13.6	316%
IT	5.5	5.2	5.0	15.6	5.2	10.6	212%
SI	10.4	1.8	6.2	15.2	5.9	13.4	744%
EL	2.0	0.5	1.4	15.1	1.1	14.6	2920%
EE	12.5	3.6	4.3	14.8	10.7	11.2	311%
AT	7.0	4.7	5.2	14.7	5.3	10.0	213%
DK	4.1	3.9	3.1	14.7	8.4	11.6	374%
CZ	6.6	8.2	5.8	14.5	6.3	8.7	150%
ES	7.8	6.3	5.9	14.3	5.9	8.4	142%
BE	15.1	8.2	10.6	13.5	14.9	6.9	84%
PT	6.7	5.9	9.0	13.0	7.0	7.1	120%
NL	9.8	8.7	6.6	12.7	10.2	6.1	92%
LU	12.8	4.5	12.1	12.3	16.1	11.6	258%
BG	5.1	2.0	2.5	12.0	4.1	10.0	500%
FR	9.9	6.3	6.6	12.0	8.1	5.7	90%
SE	6.6	4.7	5.3	12.0	8.5	7.3	155%
EU-28	6.5	5.4	4.6	11.7	6.4	7.1	154%
MT	9.5	0.5	3.8	11.0	12.0	11.5	2300%
UK	4.9	8.7	3.1	10.9	7.8	7.8	252%
IE	16.3	11.4	11.8	10.6	9.0	7.3	81%
PL	4.4	2.5	5.1	10.6	3.6	8.1	324%
DE	6.6	4.0	3.9	9.5	4.4	5.6	144%
NO	6.5	7.4	7.5	9.3	9.1	2.8	43%
RO	5.4	1.8	3.1	8.9	3.6	7.1	394%
HR	3.5	2.0	3.7	8.4	4.6	6.4	320%
CY	2.7	1.4	3.2	8.3	4.0	6.9	493%
LT	3.3	2.1	2.3	8.0	3.5	5.9	281%
HU	2.8	1.8	3.2	7.4	1.4	5.6	311%
LV	2.2	4.2	2.8	7.2	2.5	4.4	157%
FI	5.0	4.6	4.6	5.9	5.9	1.3	28%
MK	2.2	0.7	3.6	5.0	1.9	4.3	614%

(1) Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across economic sectors in 2015). Relative range: relative range in 2015 (this is the absolute range expressed as a percentage of the minimum indicator value across economic sectors in 2015).

NB: Countries are sorted based on the 2015 indicator value in the sector of Information, communication and finance (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Table A 19. **Direct enterprise monetary expenditure on CVT courses as % of total labour cost by economic sector of activity (all enterprises), 2015**

	Industry	Construction	Trade, accommodation/food activities and transport/storage	Information, communication and insurance/finance	Other technical and recreational services	Range (max-min) (1)	Relative range (%) (1)
MT	1.1	0.2	0.9	1.5	1.0	1.3	650%
NL	1.2	1.0	0.9	1.5	1.5	0.6	67%
LT	0.6	0.4	0.6	1.5	0.8	1.1	275%
UK	1.2	2.7	0.8	1.4	1.4	1.9	238%
DE	0.8	0.4	0.5	1.4	0.6	1.0	250%
SI	0.7	0.4	0.7	1.2	0.9	0.8	200%
EE	0.7	0.5	0.7	1.2	1.1	0.7	140%
BG	0.5	0.2	0.7	1.1	0.5	0.9	450%
EU-28	0.7	0.6	0.6	1.1	0.7	0.5	83%
IE	0.8	0.5	0.6	1.1	1.0	0.6	120%
SK	0.7	0.5	0.6	1.1	0.7	0.6	120%
AT	0.5	0.2	0.6	1.1	0.5	0.9	450%
CZ (2)	0.6	0.6	0.6	1.1	0.9	0.5	83%
BE	0.9	0.5	0.9	1.0	0.9	0.5	100%
NO	1.0	0.7	1.0	1.0	1.1	0.3	43%
SE	0.7	0.7	0.7	1.0	0.9	0.3	43%
LU	1.1	0.5	0.8	1.0	1.4	0.9	180%
DK	0.3	0.3	2.5	1.0	0.7	2.2	733%
PL	0.5	0.3	0.5	1.0	0.5	0.7	233%
HU	0.6	0.4	0.6	0.9	0.5	0.5	125%
FR	0.6	0.4	0.5	0.9	0.5	0.5	125%
HR	0.6	0.4	0.5	0.9	0.5	0.5	125%
PT	0.5	0.4	0.7	0.7	0.6	0.3	75%
EL	0.2	0.1	0.2	0.7	0.2	0.6	600%
ES	0.6	0.4	0.5	0.7	0.5	0.3	75%
IT	0.4	0.4	0.3	0.7	0.5	0.4	133%
FI	0.5	0.5	0.6	0.7	0.9	0.2	40%
RO	0.3	0.1	0.3	0.6	0.3	0.5	500%
LV	0.3	0.3	0.4	0.5	0.4	0.2	67%
CY	0.3	0.1	0.3	0.4	0.7	0.3	300%
MK	0.3	1.1	0.2	0.3	0.1	1.0	1000%

(1) Range: absolute range in 2015 (this is the difference between the maximum and minimum indicator values across economic sectors in 2015). Relative range: relative range in 2015 (this is the absolute range expressed as a percentage of the minimum indicator value across economic sectors in 2015).

(2) Data are not fully comparable to those for other countries.

NB: Countries are sorted based on the 2015 indicator value in the sector of Information, communication and finance (descending order).

Source: Eurostat, CVTS, dissemination database (accessed 6.2.2018); own calculations.

Continuing vocational training in EU enterprises

Developments and challenges ahead

This publication provides a comparative statistical analysis of skills development through continuing vocational training (CVT) in EU enterprises. It is based on data from the latest rounds of the CVTS survey (CVTS 5, 2015 and CVTS 4, 2010) covering EU-Member States, Norway and North Macedonia and reporting on progress towards key policy objectives. The analysis considers indicators on enterprise CVT provision, staff participation, time devoted to training and enterprise expenditure. These are analysed and then summarised by means of a composite index. Results are further complemented with an analysis of data concerning the reasons given by enterprises for not providing (further) training and main skill needs in companies. The report pays particular attention to training efforts of SMEs.

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CEDEFOP | European Centre for the Development of Vocational Training

Europe 123, 'SERVICE POST', 57001 Thermi, GREECE
Tel. +30 2310490111, Fax +30 2310490020
Email: info@cedefop.europa.eu
www.cedefop.europa.eu

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