



# Competence-oriented vocational education and training

Approaches and Experiences in Europe

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# Competence-oriented VET – the results of a European exchange of experiences

Heiko Weber

## Introduction

Notwithstanding ongoing national debates about reforms and crises<sup>1</sup> (cf. Baethge/Wieck 2015; Severing 2015), international discussions are increasingly showing a marked interest in the German approach of dual VET. This approach ensures a comprehensive level of occupational competence, it is considered a guarantee for low unemployment of the young compared to the rest of Europe and serves as the basis for securing the availability of skilled human resources; hence dual VET, from a macro-social point of view, is making a significant contribution to Germany's economic performance. The reason: under the dual system, VET is administered directly at the workplace, with the apprentices attending vocational school in parallel to their apprenticeship at the workplace. The formula for success is precisely this direct and immediate combination of theory and practice, coupled with a regulated quality assurance system. In the meantime, a number of studies (cf. CEDEFOP 2015) have shown that VET models with a high proportion of work-based learning are counteracting the high unemployment of the young; countries using full-time school-based VET programmes with a low proportion of work-based learning are reporting a significantly higher level of unemployment of the young (cf. Figure 1)<sup>2</sup>.

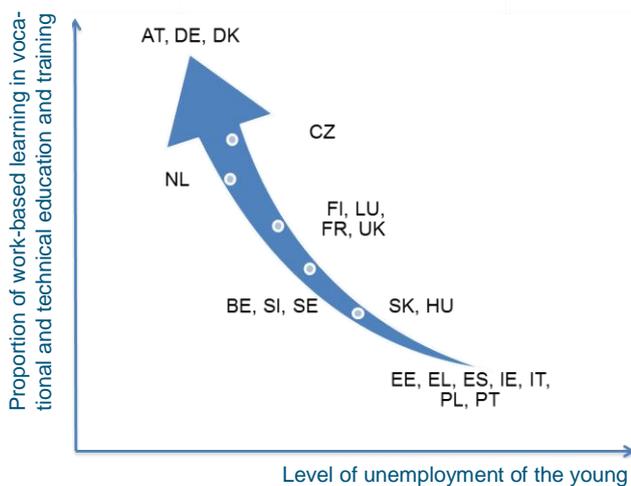


Figure 1: Unemployment of the young and work-based learning (Source: Cedefop)

<sup>1</sup> In its annual report, the Federal Institute for Vocational Training [BIBB] states: “ 2014 saw a continuation of the downtrend observed over the past three years for the apprenticeship and traineeship market: both the number of available apprenticeships and the demand for them has decreased, whereas the number of newly signed apprenticeship contracts declined even further: the 522,200 contracts signed in 2014 represent an all-time low: 2014 saw the lowest number of newly signed apprenticeship contracts since Germany's reunification “ (BIBB 2015, Page 1).

<sup>2</sup> In reference to the educational dimension please refer to Geldermann's contribution in this volume.

In line with these findings, all EU Member States, both in the 2010 Bruges Communiqué and most recently in the “Riga Conclusions“ of June 2015, committed to promoting work-based learning with greater vigour by following the example of dual VET. The main objective is to achieve a marked decrease in the level of unemployment of the young which is very high in many countries. Whereas in Germany, only some 7 percent of all young people aged 25 or younger are unemployed, the rates reported for most European countries are considerably higher. Whereas in the United Kingdom and the Czech Republic, the youth unemployment rate at 15 percent and 13 percent is still below the EU average von 21 percent, whereas the rates of Italy (41 percent) and Spain (49 percent) are significantly above the EU average<sup>3</sup>. In an effort to decrease these figures with sustainable effect, the European Commission is dedicated to promoting mainly those VET models which are work-based oriented and which, due to the close coordination between the stakeholders of the education and the labour market, correspond most closely with business enterprises’ qualification requirements. Countries using other systems such as e.g. full-time school-based type VET systems, rarely if ever meet this perfect matching ratio: many students’ knowledge and skill level at the end of their school-based VET often fails to dovetail with the business enterprises’ requirements. The consequence: school-to-work transition is difficult, youth unemployment is comparatively high, and in many cases additional qualifications are required.

However, dual models characterized by the social partners’ consensual development of apprenticeships, and characterized by business enterprise and vocational school alike sharing responsibility for the VET, are more often than not historically grown. When developing models along those lines, it is therefore important to take into account the tradition of the country in question; the blanket transfer of one country’s entire system to another country is not immediately feasible (cf. Euler 2013).

## Current developments in Europe

Due to the presumed correlation between lower rates of youth unemployment and highly work-based oriented VET systems, many European countries are currently aiming to orient their VET along the lines of the dual systems traditionally anchored in Germany, Austria, and Switzerland. Hence, the aim is to redesign the VET systems e.g. of Spain, Italy, Czech Republic, or the United Kingdom for closer relevance to the practical realities and to increase on-the-job learning in order to better meet the requirements of the labour market.

An idea which is already being put into practice by the “Centro de Referencia Nacional de Formación Profesional” located in the central Spanish town of Valladolid, a reference centre for vocational training and professional development: the “Centro“ is dedicated to developing and testing new training concepts, with a central focus on learning-outcome orientation and competence orientation. The apprentices are for the most part young adults in need of competence development in order to become or remain employable. Learning takes place in real-life work and business processes, and the skills imparted are the skills required on the labour market. This close alignment with the requirements demanded in an actual on-the-job environment is not part for the course: it is only in recent years, as a consequence of the economic and financial crisis and the rising unemployment, that we have seen the initiation of new VET models based on the principles of the dual VET system.

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<sup>3</sup> The data from eurostat, the Statistical Office of the European Union, are available at: [ec.europa.eu/eurostat](http://ec.europa.eu/eurostat). The data on youth unemployment were last updated in September 2015.

In the United Kingdom, the baseline situation is different but the objectives are the same. The VET system has been traditionally closely linked with the requirements of individual regional business enterprises. On the one hand, this market-driven model ensures the matching between supply and demand. Hence, the unemployment of the young is comparatively low. On the other hand, many suppliers – the so-called VET provider such as colleges – need to ensure the practical relevance of their educational offerings on a regular basis. This is a challenge also faced by Coleg Cambria in Wales – one of the country’s biggest colleges: only if this requirement is met will the graduates have a chance at being hired by a particular business enterprise. That is why the college has for sometime also been offering “apprenticeships” comparable to those of a dual VET system.

However, all efforts towards more work-based oriented vocational training notwithstanding, it is important to remember that in many countries, VET enjoys a significantly worse image than is the case e.g. in Germany, Austria, or Switzerland. For adolescents and young adults e.g. in Spain, Italy, or the United Kingdom, VET is fraught with negative prejudices – VET is considered unattractive, is believed to result in lower incomes compared to academic qualifications, and is generally believed to lead to less favourable employment prospects – and is therefore second choice more often than not. General higher education enjoys higher prestige in these countries<sup>4</sup>. However, there has been a change of thought for some years now, and in many cases image campaigns have been launched to argue the advantages of work-based VET compared to purely school-based VET or university programmes<sup>5</sup>.

In spite of the differences between the educational systems pictured, the challenges faced by most European countries are largely comparable: the point is how best to deal with the unemployment of the young resulting from the economic and financial crisis, the demographic change, and the need for meeting business enterprises’ requirements for skilled human resources. The following contains a description of the latest approaches on the political and educational-practice level aimed at meeting precisely these challenges.

## Quality and work-based learning: Die European Alliance for Apprenticeships

Based on the Bruges Communiqué of December 2010, the European Commission is increasingly supporting work-based learning/apprenticeship approaches, combined with measures to improve quality in VET. 2013 saw the launch of the “European Alliance for Apprenticeships” destined to promote VET in Europe. This initiative intends to support reforms in within the member nations in an effort to implement the elements of more work-based oriented VET (“apprenticeships”). The objective is to improve the quality and offerings of VET, thereby decreasing the unemployment of the young in Europe in the process. The European Alliance<sup>6</sup> will be sponsored by a broad alliance of key stakeholders from politics, industry, and education.

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<sup>4</sup> This is true notably for the United Kingdom with its internationally acclaimed universities (e.g. University of Oxford, University of Cambridge, UCL Institute of Education, University of Sussex, London Business School).

<sup>5</sup> More examples from the partner countries are described in the contributions by Gitta Geldermann in this volume.

<sup>6</sup> f-bb have joined the Alliance in 2015.

### Important definitions in the context of the “European Alliance”

#### Apprenticeships / dual VET

Systematically structured long-term training (normally with a duration between two and four years) administered in alternating sessions by the educational institution or VET centre and the workplace (the business enterprise). The apprentice enters into a contract with the employer and is paid remuneration (apprenticeship pay). It is the employer’s duty to ensure that the apprentice receives VET qualifying the apprentice for a very specific skilled trade or career.

#### On-the-job training

Vocational training (job training) administered within the scope of an ordinary work environment. On-the-job training may be administered either alone or in combination with VET outside the workplace.

#### Work-based learning

Acquisition of knowledge and skills through completion of and reflection on learning and work assignments carried out in a vocational and technical context, either at the workplace or in an educational or vocational training institution.

Source: Cedefop Glossary

On June 22, 2015, the responsible European ministers for vocational training agreed on a medium-term programme in Riga, a programme designed to make VET in Europe more innovative and more competitive. The “Riga Conclusions” once again emphasize the programme’s objective, which is a more vigorous promotion of work-based learning in all its forms. Another objective is to further develop the mechanisms of quality assurance in VET. Particular emphasis shall be placed in this context on the importance of learning outcomes which, akin to a common language, are intended to ensure greater transparency and comparability across the various educational systems. Yet another objective will be the periodic professional development of the teaching and training staff that will be ultimately expected to plan, implement and administer high-quality competence-oriented VET in their educational institutions and business enterprises. The real challenge, according to the “Riga Conclusions”<sup>7</sup>, is to find a suitable format for familiarising trainers, teachers and assessors with the instruments and processes of work-based VET. An attempt along these lines has been made with the TrainCom Project.

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<sup>7</sup> Link to the “Riga Conclusions”: [ec.europa.eu/education/policy/vocational-policy/doc/2015-riga-conclusions\\_en.pdf](http://ec.europa.eu/education/policy/vocational-policy/doc/2015-riga-conclusions_en.pdf) (Stand: 3.8.2015)

## The TrainCom Project<sup>8</sup>

The transfer and implementation of education-policy guidelines from the European level all the way to educational practice in a particular region requires targeted operationalisation involving the relevant local stakeholders. In an effort to identify the various developments in and approaches to competence-oriented VET in Europe and make them available to the teaching staff in business enterprises and educational institutions, the Forschungsinstitut Betriebliche Bildung [*Research Institute for Vocational Education and Training*] (f-bb), in collaboration with five partner institutions<sup>9</sup> hailing from Austria, Czech Republic, Spain, the United Kingdom, and Italy, have collected good-practice examples of VET and compiled these examples in a multilingual, internet-based information and learning platform entitled [www.train-com.de](http://www.train-com.de). This transnational project was carried out with the assistance of the European Commission within the scope of the Lifelong Learning Programme.

The big advantage of internet-based learning platforms is that they can be integrated with comparative ease in situational learning and learning integral to work and business processes. According to the results of the Adult Education Survey (AES), in-house professional development activities are less time-consuming than other approaches, taking just a couple of hours in many cases (BMBF 2015). That is why the use of internet-based learning media would appear particularly suitable, as they can be retrieved as needed and for any (learning) occasion. They provide the target group with low-threshold access teaching contents on a particular subject.

Noteworthy examples include two successful online platforms addressed to business enterprises' in-house teaching staff: The [AUSBILDERNETZ.DE](http://AUSBILDERNETZ.DE) portal offers business enterprises assistance for starting their own VET programmes, including assistance in the planning, organization, as well as didactic & methodological support. The [QUALIFIZIEREN IM BETRIEB](http://www.qib.f-bb.de) [*In-house Qualification*] platform ([www.qib.f-bb.de](http://www.qib.f-bb.de)) provides information on the options and approaches available for qualifying low-skilled employees in business enterprises. For this reason, the internet would also appear a suitable medium for the target group aimed at by the TrainCom Project, i.e. training and teaching staff.

## Project realisation

The project was realised in the following three phases:

- As a first step, the “Peer Review in European VET” method was used to achieve structured European Peer Learning. The results of this phase were summarized in peer review reports and country reports. In Germany, the Peer Review was conducted by Audi<sup>10</sup> in Ingolstadt.
- During the second phase, a multilingual internet-based learning programme based on the information collected was developed, tested and evaluated for the training and teaching staff in vocational and technical education.

<sup>8</sup> Project title: TrainCom – Developing Training Competence in IVET by Using Units of Learning Outcomes. Term: October 1, 2013 through September 30, 2015. Project number: DE/13/LLP-LdV/TOI/147605

<sup>9</sup> The “TrainCom” project’s consortium includes the following partners: Forschungsinstitut Betriebliche Bildung [*Research Institute for VET*] (f-bb) (Nuremberg, Germany), öibf - Österreichisches Institut für Bildungsforschung [*Austrian Institute for Educational Research*] (Vienna, Austria), bfz o.p.s. (Cheb, Czech Republic), Fundación Tripartita para la Formación en el Empleo (Madrid, Spain), Coleg Cambria (Wrexham, Wales, UK), ECAP Consulenze s.r.l. (Como, Italy), Brose Fahrzeugteile GmbH & Co. KG (Coburg, Germany), AUDI AG (Ingolstadt, Germany).

<sup>10</sup> We wish to express our warmest gratitude to AUDI AG (Education Department) for their kind preparation of the Peer Review. For detailed information on the procedure of the Peer Review please refer to Roland Löffler’s contribution in this volume.

- During the third phase, the results of the TrainCom Project were presented at a closing conference held in July 2015 at the premises of the company Brose<sup>11</sup> in Coburg. The key project results will additionally be made available to a broader audience both in this final publication and on the project's homepage at [www.train-com.de](http://www.train-com.de).

The TrainCom Project aims to make a contribution to implementing the learning-outcome approach in in-company VET commensurate with the European Commission's educational-policy objectives outlined above. The project partners are convinced that the use of units of learning outcomes described as competence-oriented, in combination with continuous competence assessment, can make a substantial contribution towards quality assurance in vocational training.

## The quality criteria of VET

The compilation and processing of good-practice examples in VET requires the prior coordination of shared quality standards. That is why the TrainCom Project partners formulated the criteria of high-quality, competence-oriented VET at the start of the project and attributed these criteria to the following areas:

### VET contents

VET contents should be modelled on real-life work and business processes; all relevant experts (notably the experts from actual on-job environment, the social partners) should be involved in the description processes. The description of learning outcomes – i.e. the description of what somebody knows, understands, and is capable of doing upon completion of a learning process – is based on the competence to be acquired.

In Germany, all new vocational training regulations will as of 2015, commensurate with the Recommendation of the Steering Committee of the Federal Institute for VET of June 26, 2014, on the structure and design of vocational training regulations, be described in a competence-oriented manner and with due consideration of the pillars of the German Qualification Framework (DQR). On the one hand, for the purposes of practical implementation, the curricula need to be concisely formulated in order to serve as easy-to-understand working aids to the trainers and teachers. On the other hand, the breadth and depth of the various competences needs to be clearly illustrated. Add to that the increasing requirement for including personal competence in the training regulations.

### VET methods

The main focus of VET should be on encouraging independent action as well as problem-solving and decision-making competence through on-the-job learning and work assignments based on the prin-

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<sup>11</sup> We furthermore wish to extend our sincerest gratitude to Brose for their valuable assistance in the preparation of the conference entitled "Praxisnah ausbilden – eine Herausforderung für Europa" ["Work-based Vocational Training – a Challenge for Europe"] conference held on 9 July, 2015, in Coburg. The conference documentation is available at [www.f-bb.de/veranstaltungen/dokumentationen.html](http://www.f-bb.de/veranstaltungen/dokumentationen.html)

principles of self-contained activity<sup>12</sup>. These assignments should be compatible with the objective of the VET, i.e. the acquisition of vocational and technical coping skills. During the VET, the apprentices should be involved in real-life work and business processes, and accompanied and individually supported by a qualified team of teachers and trainers. The processes at the learning venues, i.e. the workplace (business enterprise) and the vocational school, should be transparent for all parties involved, the responsibilities should be clearly defined, and the points of contact should be clearly designated. But none of this will work without a finely tuned cooperation between the learning venues. Besides, it is advisable to stipulate the communication and feedback rules<sup>13</sup>.

## Competence assessment

Competence assessment is recommended as an adjunct to VET, with individual competence assessments conducted along the various training phases.

Competence assessments conducted not only once – as is customary e.g. in Germany or Austria with the final examination – would encourage the apprentices’ self-reliance and motivation (cf. Weber 2012). Needless to say that it will be indispensable to document the quality framework and/or the legal fundamentals for this kind of procedure.

To ensure the high quality of the VET even beyond these areas, the qualification profiles and training regulations should be adapted to the business enterprises’ needs and requirements without undue delay, the training and teaching staff should undergo professional development on a regular basis, and innovative training and examination methods should be put to the test in training practice. These methods also include, for example, media-supported forms of learning or strategies of administering competence assessments concomitantly with the VET which could also be credited towards the final examination. This would make it possible to make VET more flexible and allow a greater level of permeability between and within the various sectors of education even in Germany without undermining the particular strengths of the dual system – such as the facilitation of reflected experience-based knowledge or the concept of “modern professionalism [moderne Beruflichkeit]” (Urban 2015).

Also included in the scope of the TrainCom Project was the concerted summarization, in line with the foregoing criteria, of good-practice examples of competence-oriented VET in a multilingual information and learning platform<sup>14</sup>. The preparation of the platform involved project partners from all of the six countries. Please refer to the following contributions for a detailed description of the project’s results.

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<sup>12</sup> See also Geldermann’s article entitled „Umsetzungsbeispiele kompetenzorientierter Ausbildung“ [*Implementation of skills-oriented vocational training*] in this volume. The phases of self-contained activity are: informing, planning and decision-making, implementation, checking, assessing.

<sup>13</sup> See also the quality tools developed under the pilot project programme entitled “Entwicklung und Sicherung der Qualität in der betrieblichen Berufsausbildung“ [*Development and assurance of quality in in-company vocational training*] (2010-2013). [www.deqavet.de/de/Instrumente-der-Modellversuche-4160.php](http://www.deqavet.de/de/Instrumente-der-Modellversuche-4160.php) (Stand: 3.8.2015)

<sup>14</sup> Available languages: English, German, Spanish, Italian, and Czech.

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# The Educational Policy Dimension: Labour Market Relevance and Transparency of Educational Pathways in Europe

*Brigitte Geldermann*

## Introduction

An observation of recent national and international reform initiatives concerning Vocational Education and Training (VET) reveals two main objectives: The first one is the international comparability and transferability of qualifications and educational stages. With reference to European instruments, many member states redefine or redesign their education systems to better adapt them to the internationalisation of the business world. The second one – and this objective is not new but has gained in importance against the background of the economic crisis – concerns an intensified orientation of VET towards the requirements of the labour market. Competence orientation plays a major role with regard to both these issues.

Starting from current European programmes to promote apprenticeships, the following paragraphs will highlight the needs for reform of vocational education systems which have recently been identified and the reform initiatives which have been triggered off by the European instruments EQF and ECVET. Subsequently, the central terms „learning outcomes“ and „competences“ will be discussed and their use in different countries outlined. The assessment of competences as the basis for awarding qualifications is of importance not only for individual career paths but also as indicator for the achievement of educational institutions and systems as a whole. Finally, some concerns and challenges will be pointed out which have been voiced with regard to the introduction of competence and learning outcome orientation.

## Dual VET as a model for labour market relevance of education

The impact of the economic crisis on the situation of young persons at the threshold to employment has reinvigorated the attention of European educational policy for a dual VET system (apprenticeship), which is the standard type in Germany, Austria, Switzerland and Denmark. This kind of system, by combining school-based and work-based learning, provides the skilled workforce of the future trained exactly to requirements and helps to prevent the high youth unemployment rates prevalent in many other European countries. Evidence-based on cross-country data shows that a higher uptake of apprenticeships in the youth population is associated with a higher youth employment rate (ages 15 - 24) and lower youth unemployment (see European Commission 2014, Flyer „European Alliance for Apprenticeships“).

The European Commission states the discrepancy between high youth unemployment on one hand and a lack of skilled workforce on the other. Stronger involvement of employers and the introduction of phases of work-based learning into the VET system could soften this imbalance:

„A lack of workplace experience and the related skills and competences is one of the factors contributing to the ‚skills gap‘ in the EU today. While 5.6 million young people in the EU suffer the consequences of unemployment, 36 percent of employers report that they struggle to find new recruits

with the skills they need. Something is clearly wrong. The need to identify, adapt and adopt practices which can tackle this skills gap is urgent.

Part of the solution can be found in high quality vocational education and training (VET) systems, in which the active participation of employers and a strong element of work-based learning facilitate young peoples' transition to work by providing the knowledge, skills and competences which they need for a successful first step into the labour market. Countries with strong and attractive VET systems, and notably those with well-established apprenticeship systems, tend overall to perform better in terms of youth employment“ (European Commission 2013, p. 4).

Against this background, the European Alliance for Apprenticeships was founded in July 2013. Its aim is to improve the quality, the extent and the attractiveness of apprenticeships across Europe and to change mind-sets towards this type of learning.

The Alliance is a platform that brings together key stakeholders from the employment and education sectors in order to coordinate and upscale different initiatives for successful apprenticeship-type schemes (see *ibidem*). The European Commission promotes the transfer of knowledge within this framework. 23 member states have committed themselves to take further steps to increase quality, quantity and supply of apprenticeships (as of April 2015). Approximately 50 organisations (social partners, chambers, enterprises, training providers and others) have pledged to take specific actions in support of the objectives of the alliance, such as the exchange of best practices, awareness raising and measures to increase the quality and the supply of apprenticeships. On initiative of the European Round Table of Industrialists (ERT) a pool of „business ambassadors“ and coaches for companies, notably small and medium-sized (SME) was set up. Currently (April 2015) 19 organisations have signed up. The Commission has requested the member states to cooperate closely and exchange know-how on work-based learning and training schemes. The project TrainCom<sup>15</sup> carried out by the Forschungsinstitut Betriebliche Bildung with partners from six countries also forms part of these activities. Its findings are also presented in this publication.

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<sup>15</sup> TrainCom: Development of a multilingual web-based learning programme for the competence-oriented design of teaching-learning processes in VET (2013 – 2015) [www.train-com.de](http://www.train-com.de)

## Need for Reform in European VET

A recent study<sup>16</sup>, commissioned by the European Parliament's Committee on Culture and Education, examines the strengths and weaknesses of a dual VET/apprenticeship and of the efforts taken in the member states to improve the quality of their VET.

A comparison of the systems in ten countries reveals the following key drivers for reform in this ranking:

1	Divergence between VET and labour market/Improvable employer engagement	CZ, FI, IT, PL, PT, DE, UK (Eng)
2	Quality and efficiency challenges in VET/alternance schemes	DE, FI, NL, UK (Eng)
3	High youth unemployment	EL, FR, IT, PT
4	VET/alternance schemes less attractive than other tracks	CZ, FI, NL
5	High rates of early school-leavers and drop-outs	FI, PT
6	Demographic challenge/ageing population	CZ, DE

Figure 2: VET systems in ten countries. Source: Chatzichristou et al. 2014, p. 11

The study states: „The adverse effects of the economic crisis, especially high youth unemployment, are driving reforms across Europe. Alternance schemes and alternance/apprenticeships in particular, are viewed by the European Commission as a tool to upgrade young peoples' skills, and promote their employability“ (ibidem, p. 57).

At the same time, the German apprenticeship system is not presented outright as a model. The two most important drivers for reform – lack in labour market relevance and efficiency challenges – make themselves felt there, too.

„Whilst the German system can be considered successful, it may not be appropriate for implementation in all countries, especially those with different labour market structures and little/no experience in apprenticeships. Research has highlighted that even well-established systems face considerable challenges and that there are areas for improvement“ (ibidem, p. 12).

Nevertheless, in many member states reform initiatives are being introduced with a view to raise the employment rate of adolescents by an apprenticeship system, on the assumption that these systems increase the employability of graduates. Countries which hitherto have no VET with work-based phases, are presently adopting such schemes or creating additional options (for example Greece and

<sup>16</sup> Chatzichristou, S./Ulicna, D./Murphy, I./Curth, A.: Dual Education: A Bridge over Troubled Waters? Directorate General for Internal Policies: Policy Department B: Structural and Cohesion Policies, Culture and Education, 2014

Portugal). Countries that did not have apprenticeship/alternance schemes brought them into effect or created more such schemes, and where they were in existence, the reforms concentrated on improving the schemes. To increase participation, governments tried to make the schemes more attractive to employers (for example in France, by offering financial incentives and cutting the administration) and to young people (for example in France, reducing the age limit to enter apprenticeships; offering benefits to apprentices, etc.). Improvements to schemes also concerned their quality and labour market relevance. For example, they included an increase in the share of work-based learning ('apprenticeship courses' in Portugal) and the development of a robust legal framework (in the pre-existing schemes in Greece). (see Chatzichristou et al. 2014, p. 58).

Challenges for the German VET system regard early tracking which can have a demotivating effect on those who have been incorrectly oriented (ibidem, p. 38 et seq.), the dependency from the willingness and capacities of employers to offer training places and the restricted chances for disadvantaged students who have to be absorbed in a „transition system“ and the principle of holistic qualification which may result in a lack of opportunities for drop-outs (ibidem, p. 106 et seq.).

These challenges for VET have also been discussed in Germany for some time:

„Among the central issues of reform discussions in VET are the competence orientation of occupational profiles and examinations, the improvement of the flexibility of dual initial training by the introduction of occupational groups and training modules and the reduction of dropout rates“ (Euler/Severing 2015, p. 13, own translation). Competence orientation is being called for with a view to an increased transparency of training objectives for employers and comparability of educational paths with an ensuing heightened permeability of the system.

Increased permeability is seen as a prerequisite for drawing fully on the potential of young talents for social and economic development and as a chance for the individual correction of an educational course once chosen (see ibidem, p. 16).

## EQF and ECVET as Triggers for Reform

The European Qualifications Framework (EQF) which has been adopted by the Council of the EU and the European Parliament in 2008 is a reference tool to compare the qualification levels of the different qualifications systems and to promote lifelong learning (see European Union 2008). The member states are encouraged to align their national qualification systems to the EQF and „use an approach based on learning outcomes when defining and describing qualifications“ (ibidem, p. 3).

The EQF has been designed as a translation tool for the comparison of different national qualifications. It contains eight levels which are broken up into the learning outcomes „knowledge“, „skills“ and „competence“. The concentration on learning outcomes means that on referencing a qualification neither the educational path, nor its duration or venue are taken into consideration; only standards of performance compared to other qualifications are considered.

While the EQF (and consequently also the German Qualifications Framework) has been designed for referencing complete qualifications, the European instrument ECVET (European Credit System for Vocational Education and Training) aims at a comparison of educational programmes and the competences they impart, in a way that phases of an educational programme can be transferred to another learning context. Thus, it takes into account the requirements of an international labour market and the demand for international compatibility of vocational programmes associated with it.

For not only large corporations act internationally. Recruiting on the international labour market and the setup of subsidiaries abroad has hitherto been impeded by the lack of a „common language“ for the translation of the contents of different education systems. In addition, mobility phases of students have been severely hampered by a lack of transparency and subsequent recognition opportunities of the contents of training phases abroad.

ECVET facilitates educational mobility and flexibility. For that, not only the outcomes of a qualification, but those of separate stages of an educational programme („units“) are to be detailed and rated with credit points which reflect their relative weight in the entire programme (see Reglin/Schöpf 2010, p. 95 et seq.).

The principles of ECVET are:

- Learning outcome orientation

„The definition of learning outcomes is a methodological device to structure qualifications gained irrespective of learning term and site (ECVET page [www.ecvet-info.de/de/249.php](http://www.ecvet-info.de/de/249.php)).

- Statements of learning outcomes

„‘Learning outcomes’ means statements of what a learner knows, understands and is able to do on completion of a learning process and which are defined in terms of knowledge, skills and competence“ (EU 2009).

- **‘knowledge’** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study.
- **‘skills’** means the ability to apply knowledge and use know-how to complete tasks and solve problems;
- **‘competence’** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy“ (EU 2008).

- Units of learning outcomes and
- Identification and Assessment of learning outcomes and learning units

The National Agency at the German Federal Institute for Vocational Education and Training summarizes the benefit for the German VET: „The attractiveness of VET is raised by improved programmes for international mobility and the prospect of increased flexibility within the national educational system. Transnational mobility phases and international cooperations gain in significance“ ([www.ecvet-info.de/\\_media/na\\_ecvet\\_1205\\_web.pdf](http://www.ecvet-info.de/_media/na_ecvet_1205_web.pdf), own translation).

## Understanding and Use of the Concepts Learning Outcomes and Competences

Core concepts of the European tools relevant for national reform debates are *learning outcomes* and *competences/competencies*.

Learning outcome orientation is regarded a key mechanism for the attainment of the Copenhagen objectives „transparency, comparability, transferability and recognition of competences and/or qualifications, between different countries and at different levels“ (Copenhagen declaration, 29-30 November 2002). It does not only concern the level of curricula but also that of systemic aims, pedagogy, assessment and quality assurance (see CEDEFOP 2009, p. 10).

Which are the functions of the learning outcomes concept? Statements of the expected outcomes of education and learning processes are meant to improve the comparability of learning achievement from different contexts including those outside standardised programmes. Thus, also the transferability of qualifications or partial qualifications is increased. The disengagement from a strict content canon and institutional setting facilitates recognition and crediting and promotes permeability between educational sectors and systems (see Frommberger 2013, p. 8, own translation).

Learning outcome orientation is not only a translation tool for different learning contexts but also a means for a better adaptation of curricula to the requirements of the business world:

„Findings of empirical research widely recognise that curriculum relevance is a condition sine qua non, not only for improving the human capital potential of education and training graduates but also for retaining learners in education and training systems. The endemic irrelevance of curriculum may be one of the greatest obstacles to matching education and training provision successfully to learner and labour market needs.

Adopting a learning outcomes approach when developing curricula, valuing what a learner knows, understands and is able to do on completion of a learning process – irrespective of how, when and where this learning takes place – is seen by many European countries as an effective way to avoid such potential mismatches and promote active learning and inclusive teaching“ (CEDEFOP 2010, p. 1).

In Austria and Germany learning outcomes are integrated in the educational standards (Bildungsstandards)<sup>17</sup>.

Apart from the level of curricula, the learning outcomes concept relates also to the institutional and the system level and has – in short – the following functions (see CEDEFOP 2009, p. 50 et seq.):

- as reference level descriptors for comparisons of between national/sectoral formal and non-formal learning,
- as a tool for relating theoretical and practical learning. The concept of learning outcomes facilitates the application of knowledge to practice,

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<sup>17</sup> „Die von der Kultusministerkonferenz verabschiedeten Bildungsstandards greifen allgemeine Bildungsziele auf und legen fest, welche Kompetenzen die Schülerinnen und Schüler bis zu einer bestimmten Jahrgangsstufe an wesentlichen Inhalten erworben haben sollen. Die Bildungsstandards konzentrieren sich auf Kernbereiche eines Fachs und beschreiben erwartete Lernergebnisse“ (KMK 2005: Bildungsstandards der Kultusministerkonferenz. Erläuterungen zur Konzeption und Entwicklung, München: Wolters Kluwer). This is also an example of the often interchangeable use of *Kompetenzen* and *Lernergebnissen*.

- as standards in assessments and examinations,
- as a vehicle for quality assurance and the evaluation of education systems (for example in school performance tests like PISA or TIMSS).

The term *learning outcomes* is not identical to the term *competences*, although both are often used interchangeably and related to each other, as in the definition of „Learning outcomes“ of the ECVET cited above.

Competence orientation is regarded as a method for aligning educational sequences with the requirements of subsequent work or learning phases (labour market, further education, society etc.). In addition, the connectivity of the education system to international educational concepts is to be ensured by it: „The redesign of VET towards competence orientation is a major prerequisite for the improvement of connectivity across sectoral and national borders“ (BIBB 2009, p. 3, own translation).

The concept of competence orientation, originally developed in the USA, has been taken up and re-interpreted in Europe. Whilst in the American HR policies the focus was on criteria for recruitment according to psychological characteristics, in Europe, the requirements of the labour market were seen as the basis for developing competence definitions and models (see Delamare Le Dist/Winterton 2005, p. 33). The United Kingdom was the first to introduce a competence-based VET system which was developed by means of functional analyses. During the next decades, most of the European countries took a similar course.

Competence orientation can be seen from a curricular or a pedagogical perspective (see Gillen 2013, p. 4). From the pedagogical perspective the question is, which teaching/learning strategies are suitable to support the development of competences. This leads to work-based learning concepts, particularly those including autonomous decisions and problem solving. Examples are given in detail in the article „Good Practice in Competence-Oriented VET – the Project TrainCom“ in this publication. With regard to curriculum development it is a question of determining goals, specifically intended results of learning processes.

In outcome-oriented curricula, the particular competences, skills or abilities to be achieved, are derived from the action fields of real work processes and transferred to learning fields or units.

Competence concepts and competence models in Europe vary according to educational tradition and educational policies. As examples, the concepts prevalent in Germany, France and the United Kingdom are summed up here:

### Germany

Competence of action-taking or *Handlungskompetenz* is the principal aim of VET in the dual system: to enable the student to take autonomous and responsible action within the workplace. It is a multi-dimensional concept comprising occupational competence (*Fachkompetenz*), social competence (*Sozialkompetenz*), procedural competence (*Methodenkompetenz*) and personal competence (*Selbstkompetenz*). Each of these dimensions relates to particular knowledge, skills and competences. The latter include moral and social attributes such as taking responsibility and showing awareness of the consequences of occupational action.

### England

In the English model, competence relates not to the overall capacity of the individual but to the individual's performance of prescribed tasks or skills to a defined standard. This is epitomised in the National vocational qualifications (NVQ) system which combines 'units of competence' based on occupational standards into NVQ awards. Competence in this model is based on narrow and fragmented skill sets, which are cumulative rather than integrative. Any knowledge presumed necessary for underpinning performance is equally fragmented. With its focus on output, competence in the English system is not a holistic concept, nor does it encompass an individual's social or civic qualities. It contains no notion of development of the self.

### France

The French approach draws on knowledge (*savoir*), skills (*savoir-faire*) and social competences (*savoir-être*). Individual competences relate to each other and are difficult to disassociate from the overall occupational profile. Competences can be understood as dynamic processes of learning, developing and passing on knowledge. France has a competence-based qualifications framework. Competences have been derived from job content analysis and serve as a basis for both curriculum development and assessment.

Source: Excerpt from CEDEFOP 2009, p. 19 et seq.

With regard to the development of learning outcomes for a particular curriculum or qualifications framework three different types of procedure can be identified:

1. Learning outcomes based on theoretical or research findings,
2. Learning outcomes based on negotiations between stakeholders and
3. Learning outcomes borrowed/adapted from an external context.

In most cases a mixture of these three types will be realised (see *ibidem*, p. 50). An example is the procedure of preparing training regulations in Germany which today also includes competence orient-

tation: Research on Vocational Education and Training by the Federal Institute for VET creates the basis for a design resp. redesign or adaptation of training regulations according to economic, technical and social developments. The details of the training regulations are worked out in conjunction with employers and union representatives. In this way, experiences from training practice are incorporated and the acceptance of new regulations by the training companies is ensured (see BIBB 2014, p. 17 et seq.).

## Competence assessment

Valid competence assessment is required for an evidence-based controlling and evaluation of the shift in education policy towards learning outcomes/competences. Competence assessment within or subsequent to learning processes is carried out for confirming a learning achievement, but corresponding methods are also used for vocational entry or aptitude testing.

Competence assessment relates to different levels:

Competence assessment on *system level* aims at evidence-based, management-specific statements on the performance of the Vocational Education and Training system also in an international perspective. As an instance of competence assessment on system level, the PIAAC survey of the OECD (Programme for the International Assessment of Adult Competencies) in 2012 can be seen which concentrates on the domains of literacy, numeracy and problem solving. It claims to meet the high standard of supplying data for comparison across language and cultural borders.

Results are appraised by governments as statements on the performance of their national educational system. The German Federal Ministry for Education and Research for example comments on the German results as a testimony for the quality of the VET system:

„PIAAC also shows: The VET system maintains the international competitiveness of Germany. States with a more academic orientation and higher rates of university graduates have no substantial advantages in competence over Germany or even perform worse. In addition, the German dual system imparts occupational skills“ ([www.bmbf.de/de/13815.php](http://www.bmbf.de/de/13815.php), own translation).

Competence assessment on an *institutional level* supplies feedback on the effects of their work to schools and training providers. It is about inter-institutional differences and comparisons with target figures and aims at the improvement of learning settings and further development of the didactical culture.

As instances for competence assessments on the institutional level the school assessments can be seen, which are carried out regularly in Germany as state rankings against the educational standards.

Competence assessment on the *individual level* is related to crediting and awarding qualifications. It is necessary therefore in the context of decisions on selection, placement or development of individuals (see Seeber/Nickolaus 2010, p. 11).

In Germany, the assessment and/or validation of competences on the individual level has been on the agenda of education policy for some 25 years. It is a matter of providing opportunities for awarding qualifications outside the formal education system. Under consideration are methods for the recognition of informally and non-formally acquired competences in the context of lifelong learning

and the substitution of qualifications by identifying and documenting competences in terms of labour market relevance.

From the mid-nineties of the last century a number of education and competence passes have been developed in various regional and national contexts. External assessment, prevalent in formal settings is in these cases replaced or complemented by self-assessment. The objective is not to gain a qualification but to reflect on one's own professional or extra-professional activities (for example family responsibilities), to become aware of attained competences and be able to explain them to an employer. A well-known example is the „Profilpass“ issued by the Deutsches Institut für Erwachsenenbildung. This pass can also be used when applying for an apprenticeship.

A different course was taken by the European Commission with the introduction of the „European Skills Passport“ in 2005 ([europass.cedefop.europa.eu/en/home](http://europass.cedefop.europa.eu/en/home)). As an European-wide coordinated toolset it is meant to particularly increase the comparability of learning and working experiences. In this way, the European CV not only shows formal qualifications but also professional experience and language, social and other skills in a standardised manner.

An element of the European Skills Passport is the Common European Framework of Reference for Languages (CEFR), which is represented here as an example for a standardised ranking of competences which is set up in a purely descriptive language- without „good“ or „bad grades“. The competence dimensions Understanding, Speaking, Reading and Writing are distinguished on six levels from basic to mastery.

A1 Breakthrough	I can understand familiar names, words and very simple sentences, for example on notices and posters or in catalogues.
A2 Waystage	I can read very short, simple texts. I can find specific, predictable information in simple everyday material such as advertisements, prospectuses, menus and timetables and I can read short, simple personal letters.
B1 Threshold	I can understand texts that consist mainly of high frequency everyday or job-related language. I can understand the description of events, feelings and wishes in personal letters.
B2 Vantage	I can read articles and reports concerned with contemporary problems in which the writers adopt particular attitudes and viewpoints. I can understand contemporary literary prose.
C 1 Effective operational proficiency	I can understand long and complex factual and literary texts, appreciating distinctions of style. I can understand specialised articles and longer technical instructions, even when they do not relate to my field.
C2 Mastery	I can read with ease virtually all forms of written language, including abstract structurally or linguistically complex texts, such as manuals, specialised articles and literary works.

Figure 3: Common European Framework of Reference for Languages: Self-Assessment Grid (excerpt „Reading“).  
 Source: [www.coe.int/lang-CEFR](http://www.coe.int/lang-CEFR)

In countries like France or the United Kingdom competence assessment or validation procedures are customary in VET and serve as basis for the awarding of qualifications. In this context, assessment methods and practices have been developed which are more appropriate for the structure of informal learning as the traditional examination oriented towards reproduction of knowledge: portfolios and dialogue-based methods. In Germany, competence-oriented examinations are still under development, whereas one procedure for the formal confirmation of existing competences is firmly established: the external examination for a vocational qualification. This opportunity was created at the end of the nineteen sixties for adults with long-term professional experience. They can take part in the final examination for a recognised occupation without having completed an apprenticeship. It is the same examination which trainees have to pass for a qualification.

For competence assessments outside the formal education system leading to an equivalent qualification, the term „validation“ was coined on the European level, a term which avoids a legal significance.

In the glossary attached to the „European Guidelines for the Validation of non-formal and informal Learning“ (CEDEFPOP 2009a, p. 77), validation is defined:

**„Validation of learning outcomes:** The confirmation by a competent body that learning outcomes (knowledge, skills and/or competences) acquired by an individual in a formal, non-formal or informal setting have been assessed against predefined criteria and are compliant with the requirements of a validation standard. Validation typically leads to certification.“

The „European guidelines for validating non-formal and informal learning“ drafted by the Council of the European Union include the following criteria:

- Equal access to all individuals
- Obligations of stakeholders
- Confidence and trust of processes
- Credibility and legitimacy (see EU 2004)

In December 2012, the Council of the European Union issued a recommendation to the member states. These should

„have in place, no later than 2018, in accordance with national circumstances and specificities, and as they deem appropriate, arrangements for the validation of non-formal and informal learning which enable individuals to:

a) have knowledge, skills and competences which have been acquired through non-formal and informal learning validated;

b) obtain a full qualification, or, where applicable, part qualification, on the basis of validated non-formal and informal learning experiences;“ (EU 2012, C 398/01)

The prescriptive status of the European guidelines does not correspond as yet with a comprehensive implementation in the member states. Among others, the following problem areas are being pointed out:

- Up to now, only few target groups profit by these processes.
- In many cases they are social policy instruments, geared to the needs of special, disadvantaged target groups and not honoured on the labour market.
- The procedures are complicated and expensive.
- The methodological standards vary strongly.
- Validations are only snap-shots.

Employers state that they have their own tailor-made assessment or test systems in place and do not depend on an official system (see comments in NA at BIBB 2014).

A recent study by CEDEFOP states: „In France, Ireland and Norway, for instance, people have the legal right to have their non-formally and informally acquired knowledge, skills and competence validated. But if this regulation is not binding, procedures differ, or people are simply not aware of the opportunities, take-up will be limited. Information on take-up and outcomes of validation is patchy“ (CEDEFOP 2015, p. 58).

Validation of informally or non-formally acquired competences has even in countries where comprehensive procedures are in place only a shadowy existence, as yet.

## Objections and challenges

Competence orientation has up to now not been met with unanimous applause, particularly in Germany. From a pedagogical/didactical perspective it is argued that concentration on the outcomes of learning must not obscure the learning process itself. The desired outcomes, it is pointed out, can only be achieved when a study of the specific subject has taken place, also disengaged from its practical application. Competence or outcome orientation does not signify that curricula and training plans can be dispensed with:

„Only particular and carefully selected special study subjects lead to professional knowledge and based on that, to the development of competence and to the desired substantial competence. The significance of institutional education and training processes lies above all in the provision of these professional learning opportunities and that means, not only in an application context and practice-related but also in abstract learning processes and theory-related. A training regulation for a qualification hitherto did definitely not consist in the didactical construction of an image directly reflecting the existing job reality“ (Frommberger 2013, p. 9, own translation). An outcome orientation bias may obscure the fact that the quality of learning outcomes is determined by the quality of the teaching/learning processes.

Concerns are also brought forward with regard to overtaxing the learners. If the pathways towards the acquisition of competences loose in significance, schools and training centres might waive responsibility for the quality and success of learning. The learners would then have the sole responsi-

bility for adequately using haphazard learning opportunities:

„In this respect, the strategy of learning outcome orientation includes always a risk of losing sight of the institutional embedding and commitment of institutions to learning processes. So finally, the responsibility for provision and quality of learning processes could be returned to the learners“ (Frommberger 2013, p. 9).

Still another, more fundamental objection to competence and learning outcome orientation claims that contrary to being abandoned, learners are in danger of being severely under control. The economic aspect of education should not take precedence:

„It [the concept of competence] ignores that the state and the market are not the purpose of humans. A human being does not exist for the purposes of the market or the state, but on the contrary: market and state exist for the purposes of humans and humanity“ (Grigat 2010, p. 251, own translation).

Education should on no account promote exclusively the adaptation to flexible, global work processes and the preparation of employees for the requirements of enterprises, but also support personality development, social participation and empowerment for shaping one’s own life as well as actively taking part in economy and society (see Blings 2012, p. 19, own translation).

These objections are definitely taken into consideration by the promoters of reform initiatives and interpreted as challenges associated with the implementation process. The development of outcome-oriented curricula is quite often regarded as time-consuming and complicated, because their wording requires a higher degree of differentiation and has to be verified over several stages of development. In this process, their transparency might even suffer.

„Learning outcomes approaches are likely to involve more research, more separate stages of development, more expertise, greater regulation and more consultation“ (CEDEFOP 2012, p. 89).

This means: more bureaucracy as well. Stakeholders, particularly from the industry have to be involved which increases the effort but also the chances for success. „Effective representation of stakeholders in the different stages of curriculum development is a prerequisite for valid and credible curricula“ (ibidem, p. 143). This still presents a major challenge for many countries.

## Conclusion

Impulses for national reforms concerning increased labour market relevance and comparability of educational pathways have sprung from the European education policy. Against a background of youth unemployment on one hand and skills shortage on the other, work-based learning has become an issue. „At European level, launching the European qualifications framework (EQF) and the European credit system for vocational education and training (ECVET) has put learning outcomes firmly on the political agenda“ (CEDEFOP 2009, p. 1).

The competence concept as well as the learning outcomes approach are today firmly established and generally accepted in European VET. Their main potentials are in short:

- Learning outcomes orientation facilitates the comparability of learning achievements across education systems and national borders and consequently support education and labour

mobility.

- It enhances the transparency of learning opportunities for participants and the legibility of qualifications for employers.
- Learning outcome orientation provides for diverse pathways within the education system.
- It presents a common format for different learning opportunities, such as classroom learning and work-based learning.
- It facilitates a better recognition of learning achievements between different institutions or countries.
- It can support the quality of teaching/learning processes by inducing reflection on educational goals.
- It contributes to a better appreciation of VET.

On the other hand, there are certain risks and challenges associated with the implementation:

- If learning outcomes are written as an intricate, extremely detailed catalogue, they can impede the learning process and the autonomy of learners and teachers.
- Labour market relevance should not be the sole criterion.
- The development of curricula with learning outcomes is time-consuming and requires the involvement of stakeholders. This could entail additional bureaucracy.
- Drafting learning outcomes and competence descriptions should not substitute the responsibility of teachers and investment in training processes.

In most European countries learning outcome orientation is embedded in the strategies and procedures for the implementation of lifelong learning and labour market relevance of VET. Its impacts on the implementation process, i. e. on the development of occupational profiles and curricula, on pedagogic concepts and on the training of trainers can at present be only observed but not judged conclusively, as the conversion process has not been completed by far in most countries.

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# Competence Orientation in European VET. State of Play, Highlighted in Six Country Portraits

*Brigitte Geldermann*

## Introduction

Against the background of national frameworks for lifelong learning which are being developed currently, learning outcomes and competence concepts have gained in significance. They are a key mechanism for the redefinition of qualifications and curricula in VET as well as in general academic education and higher education.

This text focuses on the level of national education systems in Europe, highlighting those countries from which partner institutions have participated in the project TrainCom<sup>18</sup>: Germany, Austria, United Kingdom, Czech Republic, Spain and Italy. It discusses the understanding and the application of learning outcomes and competences in the VET systems.

Learning outcome or competence orientation (the terms are often used interchangeably)<sup>19</sup> has gained broad acceptance in European VET. There is, however, no entirely consistent terminology in the different countries. Particularly the term „competence“ (German: Kompetenz, french: compétence, italian: competenzaa, spanish: competencia, czech: schopnost) has varying connotations according to educational traditions. In Germany, for example, a holistic concept, influenced by vocationalism (Berufsprinzip) is preferred, whereas in the UK or in Spain the requirements of workplace functions take priority, which are directly reflected in learning outcome statements.

Concepts based on learning outcomes were introduced in education systems from the mid nineteen eighties in connection with reforms aiming at improving the employability of young and jobless people and increasing the labour market relevance of qualifications. Therefore, it was vocational education which came first into focus. One of the tools introduced was the functional analysis of occupations, with learning outcomes (or competences) as one of the key elements of the methodology. This approach was highly developed in the literature of the English-speaking world, but was also clearly present in the approaches to functional analysis used, for example, in Germany and in France (see CEDEFOP 2009, p. 31)

## National qualification frameworks as drivers of learning outcome orientation

In a national qualifications framework (NQF), all educational sectors and levels are combined in an overall system with a view to create transparency regarding possible educational pathways and passages and increase the permeability between the different educational sectors. The idea behind this is, that qualifications have to blend into a joint structure based on learning outcomes, if they are to

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<sup>18</sup> TrainCom: Development of a multi-lingual, internet-based learning platform for the competence-oriented design of learning processes in VET, [www.train-com.de](http://www.train-com.de)

<sup>19</sup> As regards terminology, see also the article: The Educational Policy Dimension: Labour Market Relevance and Transparency of Educational Pathways in Europe in this publication.

be awarded subsequent to different educational achievements or on the grounds of a validation of professional experience. Furthermore, the sectors of initial and continuing education are to be combined in one framework, to support lifelong learning.

For this purpose NQF are structured by means of several levels and descriptors of these levels. Usually, they are drafted and set up in conjunction with the relevant stakeholders. Some NQF (or equivalent structures) state the level descriptors in terms of learning outcomes. Others include the learning outcomes in the different types of standards. In many cases, this link between qualifications, learning outcomes and lifelong learning is intended to serve as a facilitating mechanism for progression in VET and improved access to higher education (see CEDEFOP 2009, p. 58).

Establishing a qualifications framework requires a number of procedural rules and consultation processes. Some countries have in this respect reached an early operational stage: Belgium, Croatia, Estonia, Germany, Iceland, Latvia, Lithuania, Luxemburg, Montenegro, Norway and Portugal (see CEDEFOP Briefing Note Nov. 2014, 1, p. 1)

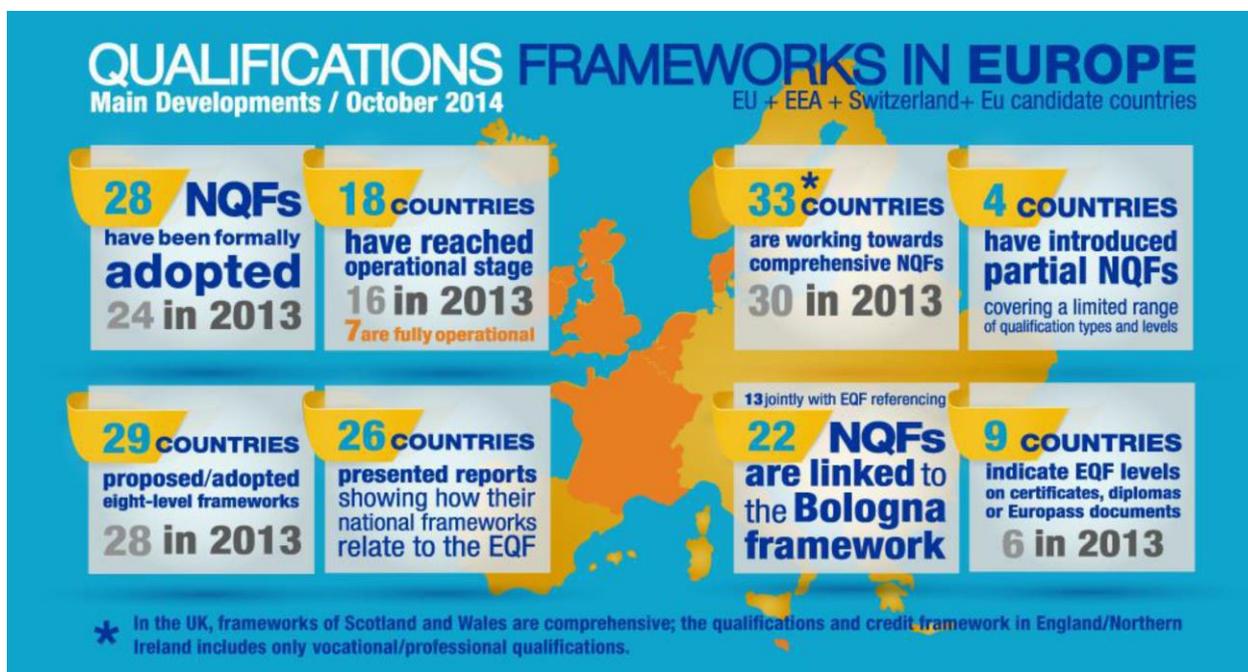


Figure 4: Status of Development of Qualifications Frameworks in Europe. Source: CEDEFOP BRIEFING NOTE | NOVEMBER 2014, No 1

Before adoption of the EQF in 2008 only Ireland, France and the United Kingdom had a national qualifications framework in place. At the end of 2012, already 36 countries (EU member states plus Macedonia, Iceland, Liechtenstein, Montenegro, Norway, Serbia, Switzerland and Turkey) were developing NQF.

29 countries are developing or have developed comprehensive NQF, covering all types and levels of qualification; all are using a learning outcomes-based approach to define the NQF level descriptors; eight countries are developing or have developed partial NQF covering a limited range of qualifica

tions or consisting of separate frameworks operating apart from each other<sup>20</sup> (see CEDEFOP 2013, p. 8).

The efforts to reach a better coherence of the systems, using learning outcomes as a „common currency“, are in many member states accompanied by the objective of a recognition of informal and nonformal learning experiences. Recognition policies aim at visibility and transferability of the skills and knowledge that working people and citizens accumulate through experience (see CEDEFOP 2009, p. 133).

The development of NQF contributes to a high degree to the establishment of learning outcome orientation virtually in all education sectors. With regard to drafting learning outcomes in the individual subsystems, conflicts emerge sometimes which the countries address in different ways. Some countries try to formulate learning outcomes on a more general level to suit all subsystems, others prefer to define them separately for each subsystem.

Competence and outcome orientation have not only found their way into qualification systems but also into the curricula for educational cycles. During the past 10 years, all European countries have implemented some kind of reform of the curriculum in initial VET. In general, such reforms have been undertaken to increase the labour market relevance of IVET curricula and also to enhance their flexibility. In connection with these reforms, an increase in competence and outcome orientation can be ascertained, however, quite often, these developments cannot be dated exactly. While competence concepts have been used for quite a long time, the use of the concept of learning outcomes in curricula is comparatively recent and often related to the European tools (see CEDEFOP 2012, p. 38).

Most countries are adopting categories of learning outcomes for VET curricula that incorporate wider key competences, or soft skills (see CEDEFOP 2009, p. 100).

A study on curriculum reform in European VET concludes: „At a more operational level, outcomes orientation has often been driven by the development of national qualifications frameworks and credit transfer arrangements, with the European qualifications framework (EQF) being a key driver in most countries“ (CEDEFOP 2012, p. 12).

## Promotion of work-based learning

Apart from curricular and regulatory reform initiatives the education policy in many countries – in part stimulated by recommendations on European level – pays heightened attention to work-based learning. Competence and learning outcome orientation in this context means the provision of learning experiences in a real work environment. This ensures a better preparation of the students for the requirements of the labour market.

„Work experience is essential because it completes theoretical learning by providing the practical experience, knowledge and skills needed by young people“ (European Commission 2013, p. 48).

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<sup>20</sup> In the UK, the frameworks of Scotland and Wales are comprehensive; the qualifications and credit framework in England/Northern Ireland includes only vocational/professional qualifications.

Dual VET, combining in-company and classroom learning is the typical form in Germany and Austria. In 2008, in these countries there was a ratio of one apprentice for every 20 employees in the companies, whereas in 10 of the 17 countries surveyed in the *Eurydice Report* there was less than one trainee for every 100 employees.

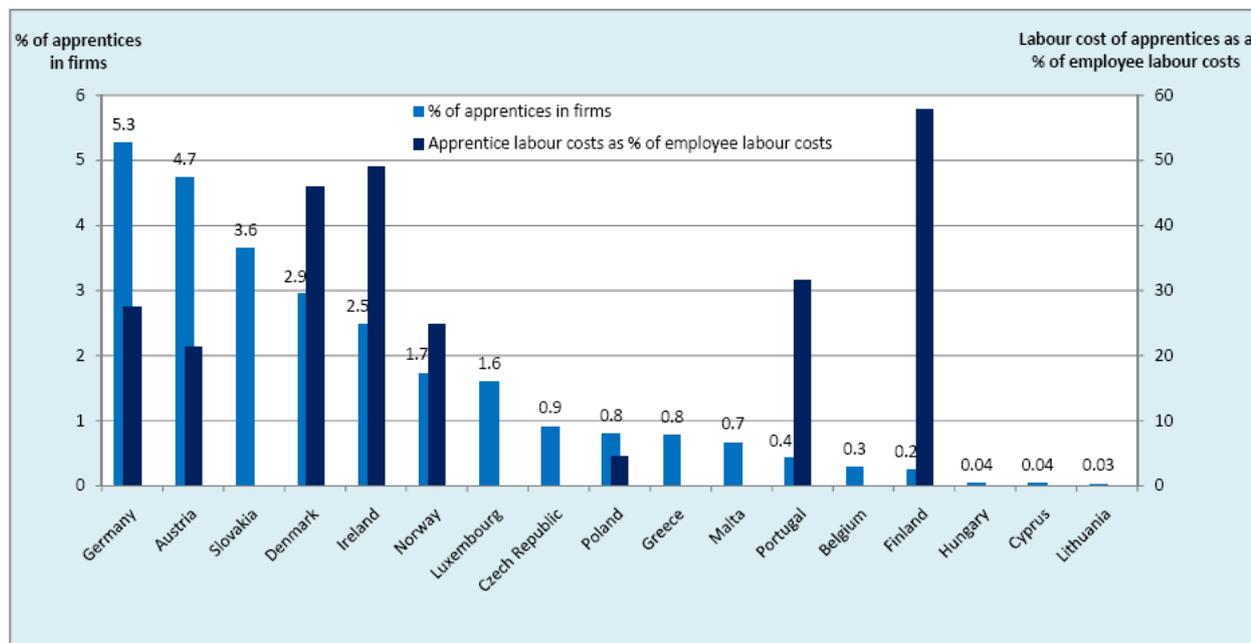


Figure 5: Percentage of apprentices in firms. Source: European Commission 2013a, p. 5, Cedefop calculations based on Eurostat's Labour cost survey, 2008 data

In the Bruges communiqué (European Commission, 2010), the member states have committed themselves to promote work-based learning. Alternatively to a dual model of the German/Austrian type, work placements or internships can be integrated into a school-based system. Several countries have created corresponding regulations since then, for example Spain and Italy.

Six EU members want to cooperate closely with Germany on the reform of their VET systems. Germany, Spain, Greece, Portugal, Italy, Slovakia and Latvia have, with the involvement of the European Commission, signed a memorandum in Berlin in December 2012. This contains a number of practical measures for the introduction of a VET system similar to the German model (see Bundesministerium für Bildung und Forschung: [www.bmbf.de/de/17127.php](http://www.bmbf.de/de/17127.php)).

However, there are still challenges to be dealt with:

„Nevertheless, image problems still prevail, even in countries with high participation. In some countries, apprenticeships are associated with low status and low wage sectors and occupations“ (CEDEFOP 2015, p. 36).

## Progress in individual countries

The following section deals with the state of play regarding competence and learning outcome orientation in some country cases. Apart from publications and statistics of European institutions, the recent reports of the partners in the TrainCom project are used as sources. These highlight rather diverse aspects of the progress in the respective countries. Therefore the account given here also emphasises diverse features.

### Germany: Occupational action competence as overarching category

The main pillar of the German VET is the „dual system“ (apprenticeship ISCED 3B), which combines two learning environments – company and vocational college. Besides that, a great number of fulltime school-based VET programmes exist.

For access to VET no formal school leaving certificate is required, the programmes are basically open for everybody. The adolescents conclude a contract with a company on training in a „recognised occupation“. The training period is from two to three and a half years and leads to a craftsman/journeyman qualification.

The overarching category of the German VET is the „occupational action competence“ (berufliche Handlungskompetenz) based on vocationalism (Berufsprinzip), that is a highly standardised organisation form of labour and its marketing.

The drafting and updating of the occupational profiles and training regulations is the responsibility of the Federal Institute for VET in consultation with the social partners and representatives of the federal states. In 2008 a model was developed for the design of competence-based training regulations which links competence dimensions to work and business processes.

The model is based on the following guiding principles:

- Competence orientation

The competences to be attained by the apprentices are fixed as obligatory in the training regulations. The competences are defined with regard to their professional, methodological, social and personal dimensions.

- Definition of competences in terms of learning outcomes

The training regulations specify competences in terms of learning outcomes. Learning outcomes are statements of what a learner knows, understands and is able to do after the conclusion of a learning process.

- Orientation towards work and business processes

Starting point for structuring and arranging the contents of training resp. the competences to be attained are work and business processes (see Bundesinstitut für Berufsbildung 2009).

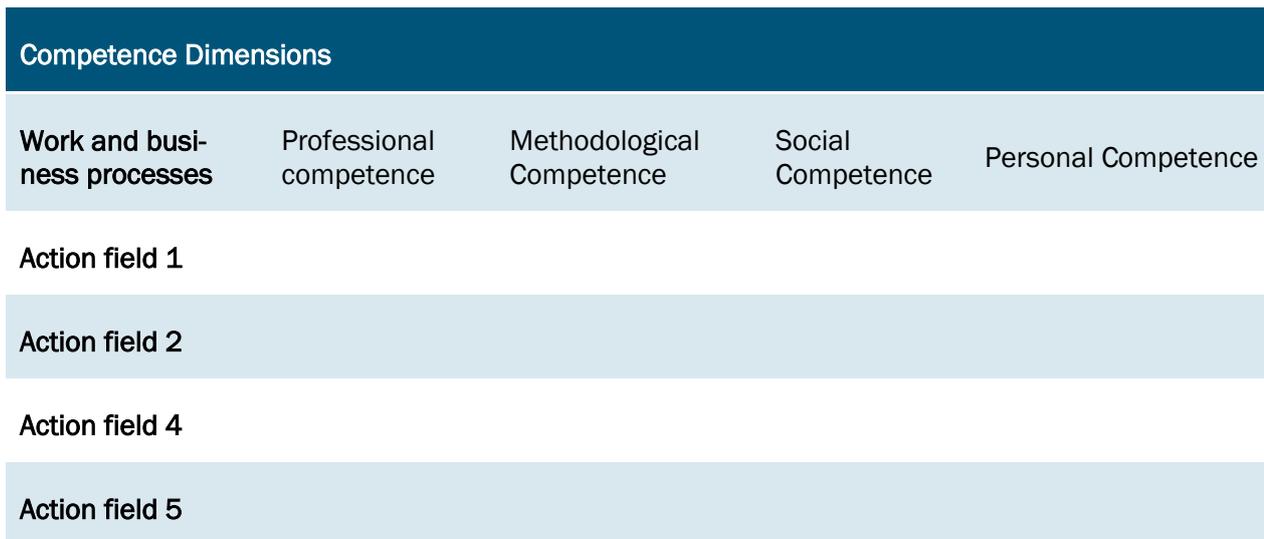


Figure 6: Competence model for the design of competence-based training regulations. Source: Bundesinstitut für Berufsbildung 2009, p. 6

As from 2015 all new training regulations will be written in terms of competences.

In February 2009 the working group DQR has submitted the draft for a German Qualifications Framework (DQR). It features eight levels referencing formal qualifications of general, higher and vocational education. The qualifications are specified by means of the competence categories „professional“ and „personal competence“ which are both further subdivided into two categories (professional: „knowledge and skills“, personal: „social competence and autonomy“).



Figure 7: Uniform structure for the specification of the eight levels of the DQR. Source: [www.dqr.de](http://www.dqr.de)

The occupations requiring a two-year training cycle are referenced to level 3, those based on a three or three and a half years' cycle to level 4. On a pilot basis, referencing has been done in the sectors metal/electrics, trade, health and IT.

The DECVET-Initiative („Development of a Credit System in VET“), which was started as the national implementation of ECVET, the European Credit System for VET, has developed and tested procedures for the identification, assessment and transfer of learning outcomes in ten pilot projects and identified feasible recognition potentials. A central task in this connection was the definition of learning *units*, which means breaking up a training programme into independent modules which are defined by learning outcomes and relate on one hand to the legally binding regulations and on the other to business processes of companies for immediate labour market relevance. The purpose of that was not the fragmentation of a training programme, but the creation of transfer and credit options between vocational orientation and training or between different training programmes, in order that phases of the programme would not have to be repeated. Particularly the opportunity for learning experiences abroad which can be credited to the overall qualification is welcomed in this context.<sup>21</sup>

A fundamental result of the pilot projects was the need for approved competence assessment procedures for the learning units. Consequently, the issue of competence-oriented examinations and the revision of established examination rules and methods appeared on the agenda. (see Frommberger/Milolaza 2010).

As from the nineteen eighties, revised procedures and formats for the final examinations of the dual programmes had been developed periodically to suit the corresponding reform initiatives. Practical relevance or process orientation are keywords in this context which already suggest an affinity to competence orientation. Even after learning units and curricula have been rewritten in learning outcomes, this is only a basis for assessment but the methodology has still to be found. It was also in this respect that the projects of the DECVET initiative did pioneer work.<sup>22</sup>

From 2010 to 2014, the Federal Institute for VET carried out a research project regarding the design of competence-based examinations. As a result, detailed recommendations were given for further elaboration which can only be summarised in short, as follows: The regulations have to state clearly the competences which are expected from the student. Examination rules and organisation have to ensure that all relevant competences of an occupation are assessed, in order to provide valid evidence concerning the attainment of occupational action competence. In addition to the traditional summative assessments, separate assessments with a formative character are to be carried out in the respective learning environments to monitor and support the competence development of the apprentices in a systematic way. Assignments should bear a direct relationship to professional tasks and embedded in descriptions of „real“ situations to guarantee practical relevance. They should include a certain scope for autonomous decisions and work organisation (see Lorig et al. 2014, p. 83 et seq.).

In summary, it can be concluded that competence orientation in Germany is implicitly rooted in a dual VET which comprises learning at the workplace. Concerning the level of training regulations, it is, however, not always easily reconciled with the occupational profiles and their largely monolithic education programmes. This conflict is no more seen as fundamentally problematic today, as in recent initiatives and pilot projects, ways have been indicated to resolve it, which are being further explored at present.

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<sup>21</sup> As regards the results of the pilot projects see the final report: BMBF (Ed.): Durchlässigkeit und Transparenz fördern - DECVET – Ein Reformansatz in der beruflichen Bildung, Bonn 2012.

<sup>22</sup> See e. g. Reglin/Schöpf (2012) and Weber (2012)

## Austria: Flexibilisation of qualifications and competence orientation in sub-sectors

Vocational Education and Training plays a major role in Austria. 75 percent of all adolescents who have finished compulsory education, enrol in a VET programme. The uptake of school-based and dual VET is about equal. A dual programme is offered in about 200 occupations. It takes on an average three years (see CEDEFOP 2014a).

Learning outcome orientation<sup>23</sup> is a key driver for the Europeanisation and modernisation of the Austrian VET and for the development of a strategy for lifelong learning.

Consequently, in 2011, the Austrian Strategy for Lifelong Learning „LLL: 2020" was presented by the responsible ministries, which contains as action line 10 „Measures for the recognition of non-formally and informally acquired skills and competences“. The following objectives were put down:

- Transparency of the entire education system on a national and international basis will be heightened by an improved comparability of qualifications, irrespective of where and when these qualifications were awarded.
- Knowledge, skills and competences achieved independent of the traditional educational institutions will be recognised and made visible by means of the „National Qualifications Framework“ (NQF) and referenced to the formal qualifications.
- Formal, non-formal and informal education processes will be assessed according to their learning outcomes.
- The mutual recognition and accreditation of qualifications across institutions and sectors will be established as principle in the entire education and vocational education system.
- A comprehensive validation strategy will be available and put into practice.
- The national and international mobility, particularly of persons with low formal educational achievements will be increased (see Republik Österreich 2011, p. 45, own translation).

At the same time, the strategy paper states, that the level of competence of people in Austria is up to now rated primarily on the grounds of formally acquired, regulated certificates, whereas non-formally and informally attained competences have low value. Permeability and accreditation of skills and competences acquired are managed autonomously by training institutions in an arbitrary and piecemeal way. The practices are unsystematic and corresponding responsibilities not sufficiently coordinated.

The following measures are envisaged:

- Establishment of responsible bodies for qualifications („Qualifikationsverantwortliche Stellen“) in connection with the implementation of the „National Qualifications Framework“ (NQF)
- Redesign of school and university curricula according to learning outcomes orientation.

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<sup>23</sup> This text is based on a working paper of the TrainCom project (Löffler, R.: Country Report Austria).

- Elaboration of an Austrian validation strategy involving the responsible ministries, the federal states and the social partners, for the comprehensive recognition of competences resulting from non-formal and informal learning.
- Application of competence assessment formats for the integration and recognition of prior learning and experiences.
- Development of assessor competences by appropriate training programmes and creation of cross-sector quality assurance systems for the assessment procedures. (see *ibidem*, p. 46).

As regards the present state of play, input statements still prevail in curricula. When learning outcomes are integrated in the descriptions of educational goals or job descriptions for teachers, they are for the most part abstract, unsystematic and without relation to assessment indicators.

In the course of the implementation of the EQR and the development of a national qualifications framework, however, a tendency appears to adopt learning outcomes. The following initiatives by various parties can serve as indicators for this.

In 2005, the ministry for education started a scheme for the development of educational standards for general and vocational key subjects. These state fundamental competences required by the students and are meant to ensure quality and comparability of instruction at different schools. In the section of VET it is a matter of general key competences, professional competences and social and personal key competences<sup>24</sup>.

In some educational sub-sections, competence models have been developed and implemented. Thus, a competence model was adopted by the department of food economics and tourism at the lower and upper secondary schools for commercial and tourism occupations in Vienna, which is intended to ensure the labour market relevance of tuition.

With the amendment of the Vocational Education Law (BAG) in 2006, the basis for the modularisation of apprenticeships was created in Austria. A modular apprenticeship is structured in three types of modules: Basic, principal and special modules, and each programme has to offer at least one basic, one principal and one special module. Some occupations mainly in the administrative and commercial sector have by now been structured in up to ten learning units. An apprentice in a modular programme takes a basic module first and chooses a principal module afterwards. Subsequently, he can study another principal or special module. The decision for principal and special modules is always taken in consultation between training company and apprentice.

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<sup>24</sup> Further information can be accessed on [www.bildungsstandards.berufsbildendeschulen.at/de/bildungs\\_standards/bildungsstandards/home.html](http://www.bildungsstandards.berufsbildendeschulen.at/de/bildungs_standards/bildungsstandards/home.html)

### Example:

The modular apprenticeship programme in metal technology comprises a mandatory two years' training in the **basic module metal technology** and one and a half years' training in one of the following **principal modules**:

- Mechanical engineering, Automotive manufacturing, Metal construction and sheet metal technology, Steel construction, Forging, Toolmaking, Welding, Chipping

In addition, a second principal module or one of the following **special modules can** be taken for another half year of training:

- Automation, Design technology, Construction technology, Process and manufacturing technology

### Duration of apprenticeship:

- 3,5 years: Basic module + one principal module
- 4 years: Basic module + one principal module + one special module
- 4 years: Basic module + two principal modules

Source: BerufsInformationsComputer [www.bic.at](http://www.bic.at)

This modularisation is meant to reduce the number of training programmes and improve their transparency. A redesign of curricula according to learning outcomes is not connected with it.

Learning units which can be taken at different times have been created in the scheme „Competence with system“ („Kompetenz mit System“ KmS), which the Austrian Labour Market Service has provided since 2007. KmS within this scheme gives unemployed persons the opportunity to complete one or more of interrelated modules during their period of unemployment and by that eventually attain the knowledge and skills of a formal qualification which they can be awarded after an external examination similar to the German model. Usually, there are three steps: Basic, advanced and final course. In contrast to merely subdividing a training programme into individual units, this model advances one step farther towards competence orientation by giving detailed definitions of learning outcomes in so-called competence matrices. Each module is completed by a skills check and a certificate. Lateral access to module two or three is possible. Up to now, competence matrices and training modules have been developed for 14 apprentice programmes (date 2015).

KmS can be seen as a model for integrating elements of competence orientation into the structure of a formal VET programme and at the same time making the VET system more flexible and thus available for additional target groups in the framework of employment schemes.

However, learning outcome orientation is, in general, only rudimentarily present in the Austrian VET system. Often it is argued that competence orientation is realised „per se“ in work-based learning which is provided by the dual model of VET. Even so, the challenge remains to establish it also in the training and examination regulations, that is, to operationalise the contents and prepare them as

basis for assessments, in particular with a view to improve the international transparency and comparability of Austrian qualifications.

Three conditions have to be fulfilled for that (see Bliem et al. 2014, p. 95 et seq.):

1. The training regulations have to define minimal standards for the competences to be achieved and differentiate between professional, methodological and personal competences.
2. These competences have to be written in terms of learning outcomes. By that, the flexibility of the training would be increased and the companies provided with more scope for organising the apprenticeship according to their requirements.
3. Finally, the competences have to be defined in relation to business processes. Work and business processes have to be the basis for determining content and structure of the training programme.

### United Kingdom: Homeland of Learning Outcomes

The UK approach to developing an outcomes-based system with NVQs in the mid-1980s was the first of this type in Europe and struggled for many years to tackle all the ensuing issues linked to the balance between vocational competence and underpinning knowledge, the roles of the different actors, the place of curriculum, the needs of young people as opposed to adults, etc. (see CEDEFOP 2009, p. 78). Sometimes it is maintained that NVQs developed a bureaucratic life of their own, and a frequent outcome was the presentation by candidates of huge paper-based portfolios claiming evidence of competence, as opposed to a collection of assessor statements that confirmed competence as assessed by them in the workplace (see Ollin/Tucker 2012, S. 15). As from 2010, NVQs are being updated and integrated into the „Qualifications and Credit Framework“ (QCF).

The QCF is a certification system of competences and qualifications in VET. (It is valid in England, Wales and Northern Ireland, in Wales being part of the more comprehensive CQFW. Scotland has its own qualifications framework: SQCF). It is structured in units with credits allocated. Qualifications can contain various numbers of units. These have a uniform format, listing the expected learning outcomes, the average number of learning hours and the assessment criteria. There are eight levels (which in parallel are also valid for the academic education). A certain vocational qualification again has three levels: Award = 1 – 12 credits, certificate = 13 – 36 credits und diploma = 37+ credits. 1 credit equals 10 average learning hours. There are several thousand recognised qualifications and about 200 awarding bodies. Training centres/colleges and awarding bodies are in most cases separate institutions.

The role of an awarding organisation is:

- to take responsibility for the quality assurance of its qualifications;
- to deliver and publish qualifications specifications;
- to approve centres to run its qualifications;
- to provide centres with information about qualifications, including training and assessment

materials, produce publications, arrange training for programme deliverers and assessors, and provide consultancy;

- to authorise specially adapted assignments or qualifications that a particular centre might wish to use;
- to ensure risk is assessed and managed in the delivery of qualifications;
- to arrange for the marking of examination papers and the checking of coursework marks from centres;
- to award results and grades to candidates;
- to issue certificates to candidates (see Ollin/Tucker 2012, p. 20).

Assessors are required to complete a course preparing them for conducting assessments.

The vast number of awarding organisations has been reduced during the last years. There are some thousand institutions providing vocational qualifications, from large colleges to small training centres.

Linked to the QCF but not to be confused with it is the System of National Occupational Standards (NOS). These are developed and regularly updated by employers together with sector skills councils and awarding organisations.

“National Occupational Standards (NOS) are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding“ (URL: [nos.ukces.org.uk/Pages/index.aspx](http://nos.ukces.org.uk/Pages/index.aspx), as of 27.06.2015).

They relate to occupational activities not to qualifications, however, they are used as basis for the development of qualifications.

For achieving a qualification within the QCF system neither the completion of a school-based nor a company-based training programme is required.

The qualifications are based on standards derived from the functional analysis of jobs. These standards constitute the benchmarks for the individual assessment of performance in a work context. Learning outcomes are phrased as observable behaviour (see CEDEFOP 2010, p. 49) and as such can be taken directly for measuring performance which is effected by observation at the workplace. In some cases, also reports and tests can be used as evidence for awarding a qualification.

**Example:** COMPETENCY IN REMOVING AND FITTING BASIC LIGHT VEHICLE MECHANICAL, ELECTRICAL AND TRIM (MET) COMPONENTS AND NONPERMANENTLY FIXED VEHICLE BODY PANELS (5 Credits, 40 learning hours:

Evidence Requirements

<p>You must produce evidence from your normal workplace of removing and replacing <b>6 of the 12</b> units or components from the list below on <b>at least 2 occasions</b></p>	<p>Evidence Ref.</p>
<p>bumpers</p>	
<p>headlamp units</p>	
<p>road wheels</p>	
<p>batteries</p>	
<p>bonnet fittings</p>	
<p>interior trim components</p>	
<p>exterior trim components</p>	
<p>wings</p>	
<p>doors</p>	
<p>bonnets</p>	
<p>boot lids and tailgates</p>	
<p>bumper bars, covers and components</p>	
<p>You must be observed by your assessor on <b>at least 2 occasions</b>, each observation covering the removal and replacement of <b>different</b> units.</p>	<p>Observation Ref.</p>

Figure 8: Excerpt from: IMI Awards Level 2 Diploma in Light Vehicle Maintenance and Repair Competence (VCQ)25

<sup>25</sup> This and other extensive materials were supplied for the TrainCom project by the partner Coleg Cambria (Wales).

Although the system of qualifications and the National Occupational Standards benefit from intensive employer commitment, VET was until quite recently mainly school-based. As a response to an increasing skills gap and the necessity to meet the requirements of the labour market, schemes of work-based learning were introduced and the growing intransparency of qualifications reduced.

As precursor of the apprenticeships now existing in the UK, the „Modern Apprenticeship Scheme“ of 1995 can be seen, which provided almost exclusively work experience without formal education. In 2003/04 the technical certificate was created which requires besides practical competences also theoretical knowledge and thus includes classroom learning in accordance with a dual form of VET.

Apprenticeships are available in England, Wales and Northern Ireland at three levels of the QCF, in Scotland at four levels. They include a work contract, an accredited technical and occupational qualification and core, transferable skills such as numeracy, literacy and ICT (see CEDEFOP 2014e). In the academic year 2013/14 440.000 persons enrolled in an apprenticeship (House of Commons)<sup>26</sup>.

As a short conclusion it may be noted that the strong focus on learning outcomes in the UK, the pioneer in this respect, is gradually complemented by a growing awareness for the learning process itself and the competence orientation “per se” incorporated in a work-based VET.

### Czech Republic: Strategies for increasing labour market relevance of VET

In the Czech Republic, students enter vocational education after completing their nine years' compulsory schooling. VET comprises three different school types, providing programmes lasting between two and four years:

At the secondary vocational schools (Cz. střední odborná učiliště, SOU) generally two to three-year programmes are offered mainly in the crafts sector. Graduates receive a Výuční List (journeyman certificate). At some of these schools occasionally a university entrance certificate can be gained in addition to a vocational qualification after completing a four year cycle.

At the secondary technical schools (Cz. střední odborná škola, SOŠ) three to four-year educational programmes can be chosen such as machine and electrical engineering and ICT technologies, but also service and commercial subjects (banking, trade, management). Practical training is carried out by work placements in companies or in school workshops. Three year cycles terminate with a Vysvědčení o závěrečná zkouška (final examination). After four years, the students can be awarded a university admission certificate, in addition.

From 1995, at the higher technical colleges (Cz. vyšší odborná škola, VOŠ), students with a university entrance qualification can enrol in two or three-year vocational programmes. These conclude with an examination in occupational subjects and a foreign language and the submission of a final paper. Graduates receive the title "Diplomovaný specialista" (certified specialist).

There are in total 275 different vocational qualifications in the Czech Republic, which are decreed by the Ministry of Education, Youth and Sport. In 2004, a curriculum reform with the aim of competence orientation was enacted. Since then, the core curriculum programmes have to be approved by the chambers, occupational associations and the regions. They define compulsory subjects, objectives,

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<sup>26</sup> URL: [researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06113](https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06113)

duration, area of validity and the framework conditions of the programme. As early as 2005, the drafting of a National Qualifications Framework was undertaken in the Czech Republic. The aim was, to create transparency regarding the diverse qualifications in all of the sub-systems of general and vocational education for employers, educational institutions and all individuals interested in initial or continuing education. The Czech NQF in accordance with the EQF contains eight levels. To date, partial systems (vocational qualifications and higher education) have been developed, a decision on a comprehensive framework including primary and secondary education is still pending (CEDEFOP 2013b, p. 1). A learning outcomes approach is generally practised, however, there are differences in terminology and application in the various sub-systems (ibidem, p. 3).

Vocational qualifications defined by the National Qualifications Framework are full or partial qualifications. While by partial qualifications primarily the outcomes of informal and nonformal learning are indicated which entitle employees to practise a certain occupation, full qualifications can only be achieved at institutions listed in the Czech register of official educational institutions. They require for example a final examination of a vocational college or the *maturita* examination of a technical college (see Pohankova 2009, p. 25).

A law which has come into effect in 2007 defines a framework for the validation of non-formally and informally acquired competences. Basis for recognition is a general system for assessment of learning outcomes and a transparent and objective procedure for assessing knowledge and competences of an individual. Apart from the definitions of the partial and full qualifications, the NQF also states qualifications and assessment standards for these qualifications.

The recognition of a partial qualification requires an assessment by authorised assessors. Its contents are determined by the qualification descriptions in the NQF (qualification standards) and the assessment standards also stated therein. At the same time, the required assessor qualifications are recorded in the assessment standards. Assessors have to be accredited to be allowed to carry out assessments and award the certificate for the respective partial qualification.

Work-based learning takes place in school workshops or work placements in companies. As enterprises are often dissatisfied with the competences of school graduates, opportunities for apprenticeships are being discussed and field-tested (see Kanakova 2014, p. 19 et seq.)

Several – larger – enterprises (for example Skoda) offer dual studies in cooperation with universities. The Bosch Group Czech Republic has set up a training centre for metal processing used by their own apprentices and the students of neighbouring schools. The Bosch plant for polymer processing and design at Budweis has installed a vocational college directly on its premises.

In July 2014, an education strategy of the Czech Republic for 2020 was adopted, which includes the aim to reinforce the link between VET and the labour market (by increasing amounts of practical training in final stages of studies) (see [www.cedefop.europa.eu/de/news-and-press/news/czech-republic-new-strategy-education](http://www.cedefop.europa.eu/de/news-and-press/news/czech-republic-new-strategy-education)).

To sum up: Competence orientation has been established in the Czech Republic on the level of the definition of qualifications and in the regulations for recognition of nonformally and informally acquired competences. As a central challenge apart from improving the consistency of the education system as a whole, an increased practical relevance of initial training by stages of company-based learning is perceived (see CEDEFOP 2013a, p. 4).

## Spain: Elaborate modular system of qualifications

The law passed in 2002 on qualifications and VET (*Ley Orgánica de las Cualificaciones y la Formación Profesional* - LOCFP) can be regarded as the starting point for the reform of VET in Spain. Subsequently, a comprehensive system of VET, of qualifications and of validation of competences (*Sistema Nacional de Cualificaciones y Formación Profesional* – SNCFP) was created which was intended to meet the social and economic requirements.

The national qualifications and education system is organised in two different strands of VET: One belonging to the education system and another, also providing qualifications, to the employment system. VET in the education system is mainly oriented towards initial training of young people after completion of compulsory schooling. VET in the employment system is directed towards adults either employed or unemployed and is considered continuing education. VET in the framework of the national employment system has been denoted a national subsystem of VET for employment since 2007.

Fundamental for both subsystems is the National Catalogue of Qualifications (CNCP) which has been derived from the requirements of the industry. In this catalogue, the respective qualifications are complemented by training content and training modules.

VET in Spain is a three-tier system<sup>27</sup>:

- Elementary level (*Programa de cualificación profesional inicial PCPI*) (ISCED - 3C) for adolescents from the age of 16 who have not completed the lower secondary school: This corresponds to level 1 in the National Catalogue of Qualifications. This programme is presently under review. It contains specific prevocational as well as general and optional modules. Graduates are awarded the lower secondary school leaving certificate.
- Vocational intermediate level (*Ciclos Formativos de Grado Medio- CFGM*) requiring the lower secondary school leaving certificate: This programme has a modular structure and includes a placement in a company. It concludes with a diploma of technician in the chosen field (ISCED- 3B).
- Advanced vocational education (*Ciclos Formativos de Grado Superior - CFGS*): Entry requirement is the Spanish Baccalaureate (*Bachillerato*). The advanced level cycles have also a modular structure including a traineeship in a company. Students who successfully complete this programme receive the Diploma of Higher Technician/Advanced Vocational Diploma of the corresponding profession (ISCED- 5B), enabling them to enrol in university studies in areas related to that diploma.

Modernising VET through increased flexibility is the main objective of Spanish education and employment policies. For the fight against the consequences of the economic crisis, particularly the high youth unemployment rate VET plays a major role.

The National Catalogue of Qualifications contains 26 vocational branches and five levels which only partially correspond to the EQF. To date (2015) 664 qualifications on the first three levels have been elaborated in the different branches. The training contents are detailed in the module catalogue of

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<sup>27</sup> This report is based on a working paper of the TrainCom project which was supplied by the Spanish partner Fundacion Tripartita para la Formacion en el Empleo.

VET. Updating this catalogue as well as the Catalogue of Qualifications, is the responsibility of the National Institute for Vocational Education and Training (INCUAL).



Figure 9: Catalogue of Professional Qualifications and Training Modules Source: INCUAL [www.educacion.gob.es/educa/incual/ice\\_catalogoWeb.html](http://www.educacion.gob.es/educa/incual/ice_catalogoWeb.html)

A professional qualification is a set of professional competences significant in employment which can be acquired through vocational modules or any other kind of learning structure as well as through work experience. Every professional qualification consists of competence units (*Unidad de Competencia* - UC). The competence unit (UC) is the minimum set of professional competences which can be recognised and accredited.

The UC is defined by professional performance (*Realizaciones Profesionales* - RP) which details the expected behaviour of a person in terms of outcomes or results of the activities performed. Every professional performance (RP) is assessable through a set of performance criteria (*Criterios de Realización* - CR) which express the acceptable level of professional performance in a business environment. Every competence unit is linked to a learning module (*Módulo Formativo* -MF). Each learning module has a standardised structure which includes the identification and specifications of that particular learning process. The learning specifications are expressed as capacities along with their related assessment criteria.

In 2009, a common procedure for the evaluation and accreditation of professional skills acquired through work experience or non-formal learning<sup>28</sup> was approved.

This procedure consists of two parts: The first part is for information and guidance to the candidate, in which a skills dossier is prepared and an interview is conducted to assess the candidate's professional experience and skills; the second part is the evaluation and demonstration of those skills. Professional competence advisors and evaluators are employed for each of these stages. At the end of the procedure the candidate is awarded the accreditation of the unit or qualification of the CNCP.

<sup>28</sup> Real Decreto 1224/2009, de 17 de julio, de reconocimiento de las competencias profesionales adquiridas por experiencia laboral, [www.boe.es/boe/dias/2009/08/25/pdfs/B0E-A-2009-13781.pdf](http://www.boe.es/boe/dias/2009/08/25/pdfs/B0E-A-2009-13781.pdf)

The implementation of a dual vocational education and training in Spain is to be developed through two different models defined in the Royal Decree of 8 November 2012<sup>29</sup>:

- a) Dual VET regulated by the Education Authority. It enables students from an education centre to combine their theoretical training with practical training in a company. This scheme is regulated by cooperation agreements with the centres and aims at improving student skills taking into account the development of the labour market.
- b) Dual VET regulated by the Employment Administration. This is organised through a *training and learning contract* which is a mechanism for young people who want to combine their work in a company with periods of training received in training centres. The training has to be relevant to their job requirements.

The first model is a two or three-year training cycle, 33 per cent of which is the responsibility of the company, the school-based period preceding the in-company training. The final examination is carried out by the training institution, while results of the work placement are taken into account.

This form of a dual VET has had a rising uptake since 2012. It is, however, compared to other paths still of marginal importance.

The aim of the second model is to provide unskilled and lowskilled persons with qualifications by supplying relevant training periods leading to a (partial) qualification on an intermediate or upper level. Originally it was intended for the age group under 25, now persons up to 30 years of age can participate as long as the unemployment rate has not dropped under 15 per cent.

To conclude: A flexible modular system of qualifications and training exists in Spain which provides qualifications also for disadvantaged target groups. Competence orientation is - similar to the UK system - mainly established on the level of descriptions and regulations while work-based learning has as yet only marginal importance. As a general challenge the still insufficient attractiveness of VET is put forward (see CEDEFOP 2013b, p. 38).

### Italy: Improving coherence and labour market relevance

The Italian education system provides at upper secondary level the following VET options (see CEDEFOP 2014d, p. 22 et seq.):

- Technical schools (*istituti tecnici*) offer five-year programmes for technical and administrative qualifications. In vocational school programmes (*istituti professionali*) learners acquire specific theoretical and practical preparation enabling them to carry out qualified tasks in production fields of national interest. Both offer a combination of general and vocational education. The certificates awarded are at EQF level 4 and graduates are entitled to apply for university admission.
- Modular three or four-year programmes designed and organised by the regions (*istruzione e formazione professionale, leFP*) impart basic general and professional competences and in-

<sup>29</sup> Real Decreto 1529/2012, de 8 de noviembre, por el que se desarrolla el contrato para la formación y el aprendizaje y se establecen las bases de la formación profesional dual [www.boe.es/boe/dias/2012/11/09/pdfs/BOE-A-2012-13846.pdf](http://www.boe.es/boe/dias/2012/11/09/pdfs/BOE-A-2012-13846.pdf)

clude work placements. Learners can change their subject easily, as there is a possibility for the transfer of credits. The qualifications on EQF level 3 and 4 are recognised nation-wide.

- Three and four-year apprenticeship-type schemes lead to qualifications on EQF levels 3 and 4.

Dual VET or apprenticeship was until recently only of marginal relevance. An exception was the province Bolzano/South Tyrol which disposes of an established system of in-company training after the German model.<sup>30</sup>

In Italy, the term vocational education and training tends to be ‘reserved’ for specific programmes primarily under the remit of the regions and autonomous provinces or the employment administration, while the programmes provided by technical and vocational schools are classed with the „system of general education“ under the governance of the ministry for education.

The VET programmes provided by the regions have for a long time been very heterogeneous. To tackle this issue, the conference of national government and regions set up nationally valid minimal standards for VET. These relate to national occupational profiles and the corresponding qualifications and training programmes contained in the qualifications register created in 2011.

Apprenticeships were reformed in 2011 with a view to gain control over the high youth unemployment (40 per cent). Italian and German experts are cooperating on the basis of a bi-national agreement of 2012 to jointly develop models of VET cooperation between schools and companies (vgl. [www.bmbf.de/de/17127.php](http://www.bmbf.de/de/17127.php)).<sup>31</sup>

The number of apprenticeships has decreased during the last years. In 2012 there were only 470.000, due mainly to changing legislation regarding under 18 year-olds. In the age group 15 to 29, 13,9 per cent of employees are trainees (see CEDEFOP 2014f., p. 38 et seq.).

As Italy can until now not rely on political support for an own NQF, it will reference its formal qualifications without the intermediary of a NQF directly to the EQF.

Italy has included EVCET in the agenda of its EU-related activities. The expert group for the development of a national system of minimal standards for VET provision and recognition of competences has together with the stakeholders (relevant ministries, regions, social partners) coordinated a national system within a uniform methodological framework. Among its aims are the definition, recognition and awarding of qualifications, the transparency of competences and the establishment of training and occupational standards.

Learning outcomes are specified, for example in the documents attached to Law 53/2003 regarding the reform of secondary education. Therein the outcomes are differentiated in „knowledge, skills and competences“.

In July 2012, the Law 92/2012 on labour market reform came into effect which provides for the recognition of informally and non-formally acquired competences. It specifies these important princi-

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<sup>30</sup> see [www.bq-portal.de/de/db/berufsbildungssysteme/705](http://www.bq-portal.de/de/db/berufsbildungssysteme/705), date 26.06.2015

<sup>31</sup> The German-Italian working group for VET met for a constituting session in February 2013 in Bologna. The Italian side designated the fields of mechatronics, transport and renewable energies for the joint elaboration of apprenticeship structures ([www.bibb.de/de/govet\\_10105.php](http://www.bibb.de/de/govet_10105.php)).

ples:

- Competences can be acquired in various contexts.
- Certification is an official act intended for transparency and recognition of learning outcomes in accordance with EU regulations.
- A structured competence model is to be developed as a basis for awarding credits.
- A system for the identification and validation of non-formal and informal learning is to be created.
- Professional experience is to be recognised as an essential element of the educational achievements of individuals.

In connection with that, the *Libretto Formativo del Cittadino* can be mentioned which – similar to the Europass – serves for documenting learning experiences and competences. In several regions it has been implemented since 2006 for target groups such as unemployed persons, migrants and trainees.

Conclusion: The present status with regard to competence orientation in Italy comprises manifold initiatives and programmes, but hitherto only scant results. To date, an improved coherence of the education system as a whole, hampered by fragmented responsibilities, is the first consideration. The promotion of work-based learning by means of transnational partnerships is still in its infancy.

## Summary and outlook

In the countries reviewed above, diverse reform initiatives touching on competence and outcome orientation are under way in accordance with their diverse challenges and points of departure. However, some common features emerge.

All countries aim at an increased coherence of their education systems and a heightened international transparency of the qualifications provided. The European Qualifications Framework is often used as model in this context. Modular systems of competences and learning units with detailed descriptions (Spain, UK) and high flexibility co-exist with holistic systems marked by „vocationalism“ (Germany, Austria), which aim to create transparency and comparability via learning outcomes in their curricula.

The concept of competence orientation is not limited to the perspective of descriptions of qualifications and curricula, but is also understood as the task to put it into practice in schemes of work-based learning. This is a feature inherent in the German/Austrian apprenticeship system. With regard to the comparatively successful integration of young persons into the labour market in these countries, other countries follow suit and implement work-based learning in their systems, partly with support from German experts.

The recognition of informally and nonformally acquired competences has generally been accepted as political objective, but not yet comprehensively realised. One reason for this is, that procedures for validation and assessment have not been worked out satisfactorily. Spain and the UK can be considered pioneers in that respect.

As a general challenge remains the increase of the esteem for VET in many countries. This is why:

„Vocational qualifications are required in European labour markets and constitute about 60 percent of all medium level qualifications. The future retirement of a large generation of older workers with medium level qualifications creates pressure on IVET to be seen as a promising alternative route to general upper secondary and higher education“ (CEDEFOP 2014g, p. 1).

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# Competence Orientation in VET Practice

Brigitte Geldermann

## Introduction

The transnational project TrainCom<sup>32</sup> has collected examples of competence-based VET from everyday professional practice and from pilot projects in various countries and developed a learning platform for teachers and trainers who wish to implement or strengthen competence orientation in their VET programmes. Partners in the project were educational and scientific institutions based in Germany, Austria, Spain, Italy, the Czech Republic and the United Kingdom and the automotive enterprises Audi<sup>33</sup> and Brose<sup>34</sup>.

The implementation cases detailed below are meant to highlight the diverse aspects of competence orientation in VET and bring inspiration and useful material to practitioners.

## Phases of a competence-based VET

The concept of competence has been introduced into VET programmes to prepare young persons even more specifically for the requirements of their future professional life. These not only encompass technical knowledge and skills but also self-reliance and social behaviour.

The key objective of VET in Germany is for the students to achieve the ability or competence for professional action (§ 1 Berufsbildungsgesetz).

Professional action competence is the ability and willingness of a person to use knowledge, skills and personal, social and methodological abilities for his/her professional and personal development (Bundesinstitut für Berufsbildung [www.good-practice.de/2914.php](http://www.good-practice.de/2914.php)).

Consequently, reference to professional action plays a decisive role in the design of German training regulations. On the occasion of restructuring the industrial metal and electrical occupational profiles in 1987, a holistic conception of professional behaviour was adopted for the first time. The hitherto prevailing aspects of knowledge and skills were supplemented by those of autonomous planning, implementing and controlling (action orientation).

In other European countries, there are also efforts undertaken to link vocational learning more closely to work practice (see CEDEFOP 2010, p. 43). To appraise these developments, we have to determine in the first place what competence orientation means for the procedures and processes in a VET establishment be it an enterprise or a training centre.

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<sup>32</sup> TrainCom: Development of a multi-lingual internet-based learning programme for the a competence-oriented design of learning processes in VET, 1.10.2013-30.9.2015

<sup>33</sup> AUDI AG, Bereich Berufsbildung, Standort Ingolstadt

<sup>34</sup> Brose Fahrzeugteile GmbH & Co. KG, Coburg

The following outline of practical examples uses a five-phase model of competence-based VET as basic structure, which is also the organising principle of the TrainCom information and learning platform (see figure 10).



Figure 10: The TrainCom phase model<sup>35</sup>

The first section concerns what has to be taken into account when planning and preparing a VET programme according to learning outcomes and competences (phase 1). The second deals with the introduction of workplace and practice-related learning which implies a learning-friendly work environment (phase 2). Suitable documentation of learning outcomes is crucial for their evaluation (phase 3) which leads to the discussion of appropriate examination and assessment methods (phase 4). And finally, the question is raised how to support, accompany and guide the trainees during their programme (phase 5).

### Phase 1: Plan and organise competence-based VET

The preparation of a competence-based VET programme requires fundamentally three steps: The first is to define learning phases or units – in accordance with legal provision – corresponding to typical occupational tasks or business processes. Next, the competences expected as results of the respective learning unit have to be specified and finally, the assessment criteria determined for a valid decision on success or failure of the student.

For this purpose, training institutions in some countries can (or, in the case of publicly funded programmes, are obliged to) draw on detailed catalogues or modular systems which ensure a uniform quality standard. In Germany, competence-based training regulations are not yet comprehensively available but frequently under development.

In these training regulations typical occupational tasks are defined as action or learning fields and underpinned by competence descriptions.

In this way, the occupational profile of metal technology specialist requiring two years' training was created in August 2013. The following excerpt from the framework curriculum shows that it contains learning outcomes as opposed to learning content.

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<sup>35</sup> Accessible on [www.train-com.de](http://www.train-com.de)

## Learning field 2 Fabricate components with machinery

First year of training, average learning hours: 80

- The students are competent to fabricate components with machinery according to constructive, technological and qualitative specifications.
- They analyse technical documents such as partial, assembly and general arrangement drawings and flow charts to evaluate manufacture-related data (tolerances, clearances, surface specifications, pre-product and material details).
- The students plan the manufacturing process. They prepare or complement part drawings and flow charts also by the aid of application programmes.
- They compare selected manufacture processes and determine the suitable production parameters taking into account functional (functional and quality specifications), technological (manufacturing process) and economic (production time and cost) aspects.
- They carry out the corresponding calculations using technical documents also in foreign language like table books and manufacturer manuals. They plan the use of suitable tools by determining the specific material properties and considering the cutting material properties.

Source: RAHMENLEHRPLAN für den Ausbildungsberuf Fachkraft für Metalltechnik (Beschluss der Kultusministerkonferenz vom 22.3.2013), own translation

This framework curriculum contains learning outcomes informing the educational staff – in this case teachers in vocational colleges – about what the students should be *able to do* after completing their studies. Moreover, the content of the programme is structured in learning fields which have been derived from occupational fields of action. They cannot, however, be taken and validated separately like modular learning units but only as stages of a complete training programme.

A modular arrangement of vocational learning units has in Germany hitherto only been realised in the framework of the employment services or in pilot projects. For instance, the Audi corporation has explicitly defined learning units in a pilot project run by the Forschungsinstitut Betriebliche Bildung (f-bb). Together with some more enterprises learning units were developed in this project for in total eight metal and electricity occupations with a view to identify possibilities for credit transfer between the different occupations. (see Weiss-Aziz/Meyers 2012). Basis for the definition of distinct learning units was the official general curriculum (relevant for the in-company part of the training) which states similar learning subjects for the first apprenticeship cycle in the occupations under review. For the occupation of „Manufacturing mechanic“ the following learning units were defined:

- Learning unit 1: Manufacture of components with hand-guided machinery (ca. 4 months)
- Learning unit 2: Machine manufacture of components and sub-assemblies (ca. 4 months)
- Learning unit 3: Machine manufacture of components and mounting of complex, pneumatically operated assemblies (ca. 4 months)

More learning units were defined for the second and third training cycle.

They contain all technical and methodological competences required for the execution of a typical occupational task. Skills like scribing and graining, reaming, filing etc. are imparted in training sessions with progressive degrees of difficulty. Generic competences like technical communication, planning, quality control, occupational safety and environment protection are integrated in the training sessions. Team and project work are included to improve teamworking skills. In addition, opportunities are provided for self-directed learning.

Each learning unit is concluded by a competence assessment. This entails the execution of a typical occupational task in accordance with the model of the self-contained action and assesses all outcomes of the learning unit. These competence assessments do not replace the mandatory examinations, however, they are a good preparation and contribute to the quality assurance of the training programme.

The companies appreciate the benefits of structuring the programmes in learning units, in spite of the increased effort for the assessments, because this allows to change programmes within the same family and ensure a better match between the VET programme and the requirements of the company as well as the abilities of the apprentice. An important consideration for the future is the alignment of the mandatory school tuition with the learning units and the inclusion of the subjects taught at the vocational colleges in the competence assessments.

While, in Germany, the fundamentals of a competence-based VET – the training regulations - for the most part still have to be worked out, their „full version“ (including assessment criteria and evidence requirements) can be studied in the case of the United Kingdom. An example from the automotive industry is given here to illustrate this:

The level 2 diploma for competence in „Light Vehicle Maintenance and Repair“ is organised in sixteen mandatory learning units (basic, specialist) of 30 to 60 average learning hours with a credit value between three and seven credits, and 13 optional learning units with two or three credits respectively. From the last group at least five credits have to be achieved. For the complete diploma a minimum of 98 credits is required.

Outcomes and corresponding assessment criteria are defined for each unit. The unit „Knowledge of Materials, Fabrication, Tools and Measuring Devices Used in the Automotive Environment“ is structure in four learning outcomes. This is an excerpt:

Learning Outcomes	Assessment Criteria
The Learner will	The Learner can
<p><b>...understand, how to select, use and care for hand tools and measuring devices in the automotive environment.</b></p>	<ul style="list-style-type: none"> <li>1.1. Identify and explain the use of common types of hand tools used for fabricating and fitting in the automotive environment</li> <li>1.2. Identify and explain the use of common measuring devices used for fabrication and fitting in the automotive environment</li> <li>1.3. Describe, within the scope of their responsibilities, how to select, prepare and maintain hand tools, measuring devices and PPE used for fabrication, repair and fitting in the automotive environment</li> <li>1.4. State the limitations of common hand tools and measuring devices used for fabricating, repair and fitting in the automotive workplace</li> <li>1.5. Explain how common hand tools and measuring devices used for fabricating, repair and fitting in the automotive environment should be stored and maintained</li> <li>1.6. Identify common electrical measuring tools used in the repair of vehicles and components</li> <li>1.7. Explain the preparation and safe and correct use of common electrical tools when measuring voltage, current and resistance</li> </ul>

Figure 11: VCQ Assessment Record for IMIAL Level 2 Diploma in Light Vehicle Maintenance and Repair Competence<sup>36</sup>

<sup>36</sup> Provided by the TrainCom partner Coleg Cambria

For the validation of the whole learning unit the following evidence is required:

- Evidence of undertaking basic routine checks of hand tools, measuring devices and workshop equipment (electrical, mechanic, pneumatic und hydraulic)
- Evidence of fabricating **at least 1 item** from suitable materials to known tolerances, which includes the following processes: filing, tapping threads, cutting, drilling, joining
- Observation by an assessor at the workplace carrying out routine checks and during stages of fabrication

This example illustrates the above-mentioned three steps of planning a competence-based VET programme: 1. Definition of learning units according to business processes, 2. Description of the expected learning outcomes per learning unit and 3. Definition of assessment criteria and evidence requirements.

## Phase 2: Implement work-based learning

Competence-based VET entails a departure from traditional classroom and timetable learning. It is based on performance standards instead of lessons given and refers to the real work situation. In Germany and Austria the dual VET has all along mainly taken place in companies which already signifies an implicit competence orientation.

Work-based learning can, however, be implemented also in other formats, for example in work placements or internships. In any case it contributes to prepare the students effectively for the requirements of the labour market. A recent OECD study highlights the following benefits for this kind of education:

- Work-based learning offers realistic experience and makes it easier to acquire practical skills on up-to-date equipment and through colleagues and supervisors familiar with the most recent technologies and working methods.
- The employer offer of work placements signals that a connected vocational programme is of labour market value.
- In the workplace, employers get to know and assess trainees, who in turn get to know the workplace and the employer, providing both parties with valuable information (see. OECD 2014, p. 56).

These assets, however, take effect only when workplaces are designed in a learning-friendly way and processes allow for an autonomous application of knowledge and a systematisation of experiences. There is often a danger of restricting competence achievement in the workplace by routine processes, standardisation or formal organisation structures. Consequently, as from the nineteen eighties criteria for a learning-friendly work environment have been developed. Some of these are summarised in the table below.

Requirements for a learning-friendly work environment:

Criterion	Short description
Complete action	Inform, plan, decide, execute, control, evaluate
Scope of action	Leeway in decision-making, diverse possibilities for competent action
Problem, complexity of experiences	Intricacy, vagueness, inter-connections at work
Social support / collectivity	Communication, inspiration and support with and from colleagues and superiors
Professional development	Improvement of professional competence by building a repertory of successful action strategies
Reflexivity	Possibility for reflection on structures and self-reflection

Figure 12: Adapted from Dehnbostel, P.; Elsholz, U. (2007), p. 42

These criteria emphasise the significance of self-direction in learning for competence development. Applying the concept of the complete action, employees should be given at the workplace opportunities to access information, to reflect different courses of action and control and assess their proceedings.

Scope for action like the possibility for sharing successful problem-solving strategies with colleagues or opportunities for trying out new strategies, increases the learning potential of the task and supports competence development.

Professional development is stimulated by changing assignments and requirements and the possibility to reflect and review an acquired standard.

In this sense, the Audi corporation has for some time applied concepts of self-directed learning. The „S-Learn“ scheme is a fixed component of VET programmes at Audi. Core elements are:

- Consequent learner activation by increasing self-direction in learning and work processes,
- Action oriented learning by autonomous problem solving in theoretical and practical training sessions and
- Enhancing the responsibility of the students for their own learning achievements and their personal development

Included features are teamwork, investigation assignments, project work in a team, team training and value-adding work at plant learning stations. For these, learning station agents are appointed who assure learning processes and impart organisation structures (see Weyers 2009, p. 271 et seq.).

The following example for a learning and work assignment shows, how the principles of autonomy and action orientation can be implemented in practice.

### Example for a learning and work assignment: Big air-powered piston engine

2–6 Trainees, 7 days

- **Information:** Technical drawings, Questions to be answered
- **Planning and Decision:** Work sequence, Assembly plan, Calculation of production time, Planning of resources
- **Operation:** Production and project control, Continuous quality control
- **Control:** Measures, function (checked by trainer)
- **Evaluation:** Presentation by trainees, Questions to be answered

Source: Weiss 2014<sup>37</sup> (AUDI AG)

The trainees develop themselves a strategy to solve the problem and carry out the task in a structured way. The intention is that they learn not only to execute directions, but participate in modelling work processes and fill a scope for action which also will be expected of them in their later professional life.

The degree of difficulty of the learning and work assignments should be matched to the level of competence of the trainees to avoid over- or undertaxing. Demanding too little of the trainee will not stimulate him/her to learn and can be demotivating in the long run. Demanding too much, on the other hand, may lead to learning barriers which will later be hard to overcome.

### Phase 3: Monitor and document learning outcomes

Competence-based VET implies also that the progress of learners with regard to their action competence is regularly (at the conclusion of a learning unit) evaluated and assessed. This requires clearly formulated learning outcomes statements.

Evidence of competences achieved – be it for the purpose of gaining a qualification or for the validation of informally acquired competences – can be supplied by products, artefacts (reports, presentations) or documents like job descriptions and references. Some procedures, like the traditional writ-

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<sup>37</sup> Presentation on the occasion of the TrainCom Peer Review Meeting at Audi, May 2014

ten or oral examination, but also tests or simulations give a momentary impression of performance, whereas observations over a certain period of time or portfolios aim at capturing the stability of the competence in an authentic environment – without the pressure of a test situation. The latter formats, however, are difficult to standardise, so that the comparability of the results of different persons cannot always be ensured. Regardless of the method employed, the performance of the student has to be rated against a pre-defined standard. This can be a minimum standard as basis for a „pass“ or „fail“ decision or a rating scale meant to capture degrees of the competence demonstrated.

The table below gives an overview of current assessment methods and instruments (adapted from Deißinger/Hellwig 2011, p. 18):

Assessment method	Observation
Evidence	Product and/or process on-the-job
Techniques	Checklists, rating scales, log books, skills books, work experience diary, interaction analysis, peer assessments, time series analysis
Testing process	Checking, categorising, rating
Assessment method	Test
Evidence	Work sample, skill sample, practical project
Techniques	Checklists, rating scales, research tasks, assignments
Testing process	Checking, categorising, rating
Assessment method	Simulation
Evidence	Simulation, observation of product and /or process
Techniques	Case studies, simulators, computer-adaptive tests, faults-findings
Testing process	Checking, categorising, rating

[Table is continued on next page]

Assessment method	Evidence of prior learning /achievement
Evidence	Examination of documents
Techniques	Certification, transcripts, portfolios
Testing process	Checking, categorising, rating
Assessment method	Interview/Questioning
Evidence	Oral, written, questioning
Techniques	Supply answer (short answer, restricted essay, extended essay) vs. select <b>answer</b> (multiple choice, matching, completion, true/false, alternate answer, identification), viva voce or oral exam, self-ratings
Testing process	Checking, categorising, rating

Figure 13: Overview of current assessment methods and instruments

The philosophy of competence assessment with its „focus on observable outcome and performance“ (Deißinger/Hellwig, p. 26) often leads to an under-representation of „knowledge“ as well as of social and personal competences in the assessments (see Lorig et al. 2014, p. 29), as it is often difficult to underpin these dimensions with unambiguous descriptions of behaviour. Knowledge is mostly examined by supplementary tests or in an interview. As regards the social and personal competences, it is frequently assumed that they are captured implicitly together with the technical ones because they are necessary ingredients of the performance demonstrated. The National Qualification Authority of Ireland for example states, that competence implies also attitudes, emotions and values which can be included as learning outcomes in a programme, but cannot be reliably captured by the assessment methods available (see CEDEFOP 2010, p. 50). Accordingly, in the learning outcomes statements of the revised German training regulations social and personal competences are not explicitly represented.

In the United Kingdom and in Spain there exist detailed procedures and instruments for assessing and rating the competences achieved in a learning unit. An example from the *VCQ Assessment Record for IMIAL Level 2 Diploma in Light Vehicle Maintenance and Repair Competence* has already been cited above. It is directed at establishing proof of the required competence as such, not on rating it higher or lower.

An illustration of a simple point system is this excerpt from an assessment sheet of the Centro Nacional de Formación Profesional Ocupacional de Valladolid<sup>38</sup>, which distinguishes the categories knowledge, abilities, attitudes and productivity:

<sup>38</sup> Provided by the TrainCom-Partner Fundación Tripartita para la Formación en el Empleo, translation by the author

Evaluation of the in-company learning unit						
Student	Know- ledge 3 Points	Abilities 3 Points	Attitudes 2 Points	Productivity 2 Points	Total 10	Signature of the Student
Remarks of the Trainer:						

The institute uses a different assessment method for the formative self-evaluation of the students. The online self-assessment sheet is structured in main and sub-groups of occupational activities which have to be rated like this:

1 – I cannot do it, 2 – I can do it with aid, 3 – I can do it unaided, 4 – I can do it unaided and could teach others.

In Germany an interim and a final examination by the relevant chamber are compulsory. Many companies, though, carry out additional competence assessments or structured feedbacks resembling the Audi example cited above. At Daimler AG the assessments are based on the concept of the complete action.

Similar to the learning and work assignments related above, the learning assessments contain the elements Inform, Plan, Decide, Act, Control and Evaluate.

The learning assessments are structured like this:

Element	Competence requirements
Work instructions	Correct reading, realise time structures, process information
Information task	Apply theoretical and practical knowledge from school and workplace, Read drawings and find out connections
Partial drawing and bill of materials	Identify connections in drawing and bill of materials
Work plan	Plan fabrication processes, Plan machine disposability on consultation with colleagues, Identify functional connections, Identify test devices and plan testing process
Evaluation sheet	Identify criteria for testing, plan and document
Hand over to customer	Communication skills Assessment of quality and methodical work
Associated interview	(During the operational phase of the assessment): Technical knowledge, systematic course of action, communication skills

Figure 14: Source: Presentation Dietmar Eger/ 29.6.2009

The main element is a task assigned by the company, e. g. manufacturing of a building component, repair of an assembly or maintenance of a device. The trainee receives for preparation written instructions with time schedule, drawings or other relevant documents and the necessary tools and equipment. Apart from executing the task and preparing a complementary documentation, he/she has to answer theoretical questions in writing, which have a bearing on the matter on hand. Finally the trainee is required to evaluate the achievement. During the operations, the assessor can put additional questions regarding the course taken by the trainee.

A different model of a learning assessment is the feedback meeting which is used among others by the Audi corporation<sup>39</sup>. A development interview between trainer and trainee is scheduled annually, a concluding interview after a training section (unit) of several months' duration. The feedback system

<sup>39</sup> Anjo Berz, Bildungswesen AUDI AG: Berufsausbildung bei Audi, presentation at the Berufsbildungsforum Gundelfingen, 27.4.2011

for trainees is meant to

- enhance their occupational and personal development,
- increase their strengths and reduce their weaknesses and
- help identify problems, interests and potentials at an early stage.

It has the following structure:

**Feedback Trainer – Trainee**

Technical competence	Knowledge and skills perception
Individual competence	Ability to apply knowledge, performance and motivation, reliability and accuracy confidence and self-reliance
Social competence	Cooperation and teamwork
Entrepreneurial mindset and behaviour	Orientation towards cost effectiveness and quality

**Feedback Trainee – Trainer**

Technical knowledge	Knowledge and skills gained by trainee
Instruction	Clear explanations received, learning objectives achieved, connections clarified between tasks and business processes
Support	Support received, resources provided, emerging problems were solved.
Cooperation	Person in charge was available, when necessary, information flow was ensured, feedback was given on learning progress.
Encouragement of self-reliance	Trainee could participate in operations and try out new paths, Trainee could plan and execute tasks independently.

It is interesting that this kind of feedback system includes also social and personal competences, as these are often underrepresented in assessments. The opportunity for the trainee to give in turn feedback to his/her supervisor presents in itself a stimulation of social and personal competences.

In connection with the implementation of the ECVET in Germany, several pilot projects carried out preliminary studies for competence assessments referring to learning units.<sup>40</sup> An assessment of social competences was also included in these tests Here is an excerpt:

Responsibility, self-reliance	The requirements/expectations were ...				
	met partially	Met essentially	met	exceeded	not observed
<b>The trainee</b>					
is willing to perform					
works systematically					
complies with rules and agreements					
reacts flexibly to changes					
acts with social responsibility (fair, helpful to others)					
behaves in an appropriate manner towards customers					
avoids waste of resources					
...					

Figure 15: Working paper of the project EDGE

<sup>40</sup> See the project EDGE – Development of Models for the Transfer of Credits between Occupations Based on ECVET, documented in: Loebe, H./Severing, E.: Kompetenzorientierung und Leistungspunkte in der Berufsbildung, Bielefeld 2012

This instrument is particularly designed for measuring the competence category „self-reliance“, one of the columns of the German Qualifications Framework (besides „knowledge“, „skills“ and „social competence“) including social and communicative aspects. The person in charge of the trainee rates his/her behaviour against four levels. However, underpinning descriptions of behaviour for the items are not provided.

While similar instruments have been firmly established in business practice, they have as yet not been applied in the official examinations in Germany. Even competence-based training regulations refer rather in a vague manner to social competences as shown in the following example from the training regulations for „metal worker, speciality construction technology“:

„Concerning the examination subject ‚customer’s order‘ the sitter has to carry out two assignments representing orders from customers and document them. In addition he/she is required to answer technical questions relating to one or both of the completed assignments; by this technical interview the sitter has to demonstrate that he/she can receive orders from customers, identifying customer problems and requests and explaining technical problems and their solutions to the customer in a clear manner“ (Verordnung über die Berufsausbildung zum Metallbauer und zur Metallbauerin vom 25.07.2008, own translation).

The expressions „identifying customer problems and requests“ and „explaining to the customer in a clear manner“ indicate to the examiners that they should pay attention to social and communicative competences, without, however, giving clear specifications of these.

Competence assessments have to meet certain standards to be acceptable and credible. Quality criteria for them have been drawn up among others in the „European Guidelines for Validation of Nonformal and Informal Learning“ (CEDEFOP 2009, p. 70 et seq.). Drawing on these the following criteria have been formulated in the project EDGE:

- Authenticity: The test tasks are taken from everyday professional practice and represent the essential requirements of the activities addressed in the learning unit.
- Completeness: The competence assessment refers to all elements of the learning unit and comprises the different competence categories knowledge, skills, competences.
- Principle of the self-contained action: The assessment is based on the phases of the self-contained action (collect information, plan and decide, operate, control, evaluate).
- Provision for both learning environments: The dual VET in Germany combines learning phases in a company and at a vocational college. Ideally, learning outcomes from both environments should be condensed into one learning unit and assessed together.
- Timeframe: A certain timespan is defined for sitting the assessment which ensures the comparability of results.
- Efficiency: The competence assessment should take into account the restricted resources of the participants (the jury) (see Reglin/Schöpf 2012, p. 150).

Regarding the German examination procedures, two of these principles are new: completeness and provision for both learning environments. The second one will certainly not be obtained easily. On the other hand, authenticity and the principle of the self-contained action have been considered in the creation of the more recent examination formats (see e. g. the quality standards for chamber exami-

nations<sup>41</sup>).

The German dual system decrees an intermediate and a final examination (for some years now also in the shape of the „extended final examination“). The chamber examination and the leaving examination of the vocational college are held separately. The examination formats have been revised towards stronger action-orientation during the last years and instruments introduced into the chamber examination like the „operational order“ and the „complex task“. Both formats are detailed below.

The project EDGE has developed and tested a design for an embedded competence assessment pertinent to some metal and electrical occupations (see Weber 2012, p. 158 et seq.). Its main feature is a practical task representing a typical job in the occupational field, and at the same time covering the respective learning unit with its expected learning outcomes. For the assessment of the learning unit „Set up and put into operation programmable logic controllers and basic control circuits“ in the training for mechatronic technician a typical job resp. task is defined: „Convert a hard-wire programmed controller into a stored-programme controller, put it into operation and document the process“.

To start with, the trainees receive a rough structure of the task with a time schedule. After that, the task is specified by the aid of technical documents and split up into separate subtasks. The trainees plan and execute the assignment step by step right up to the final check and quality control. After that the trainee has to hand over and explain the result to the assessor in the role of customer who can then ask some more relevant technical questions. In addition written questions relating to the task have to be answered.

Inform (20 percent)	Outline of the task in writing, supplemented by ca. 10 – 15 closed and ca. 4 open questions (30 – 60 min.)
Plan/decide (10 – 15 percent)	Set up a work plan (15 – 30 min.)
Operate/act (30 – 40 percent)	Carry out practical task (230 – 280 min.) Create an inspection sheet
Check/control quality (20 percent)	Functional checks Check test log Assess quality
Assessment/evaluation (10 – 20 percent)	Handover conversation (ca. 10 min.): Check on trainee’s understanding of task and quality

Figure 16: Structure of the competence assessment( Source: adapted from Weber 2012, p. 159)

<sup>41</sup> URL: [www.dihk.de/themenfelder/aus-und-weiterbildung/ihk-pruefungen/ausbildungspruefungen/ausbildungspruefungen](http://www.dihk.de/themenfelder/aus-und-weiterbildung/ihk-pruefungen/ausbildungspruefungen/ausbildungspruefungen)

The assessment formats recently introduced in German chamber examinations „operational order“ and „complex tasks“ have a similar structure and could profitably be adapted for the assessment of learning units.

#### Phase 4: Competence assessment and awarding of certificates

In the following section some examination formats will be discussed which lend themselves to competence assessments or could be adapted for that purpose. In this context, examination tasks will be considered as well as ranking (marking) schemes.

Examinations in the German VET system have been redesigned and modernised repeatedly. With the introduction of the „extended final examination“ a first step has been done towards overcoming the traditional model of one-time measurement in the dual system and establishing an assessment structure which depicts more closely the process of competence development. This allows in principle to draw a nuanced picture of the level and development of a person's competences and, moreover, to estimate the potential that might still evolve in future.

Separate examinations have in part been replaced by formats linking learning and assessment. The standardisation of examination requirements has to a certain extent been relaxed. New formats were created, among others the „complex task“ and the „operational order“:

The method „complex task“ provides diverse possibilities for design and implementation. It is based on the model of the self-contained action and can be realised in writing as well as in a practical task. In the written version, an occupational problem is taken as the starting point for the definition of subtasks, each of these representing a particular phase of the action cycle. The decisive feature of this variant of the complex task is that it allows to assess separately technical, methodological and personal competences and requires the trainee to observe and analyse a case from different perspectives (e. g. economic, social perspective) (see Ebbinghaus 2005, p. 5).

The „operational order“ consists of a typical occupational job connected with the operations of an enterprise. The operational order is proposed by the company employing the trainee, approved by the examination board of which management and union representatives as well as teachers at vocational colleges are members and carried out in the company or at the customer's site. The execution of the order has to be documented in the manner customary in the company and explained to the jury in a technical discussion; in addition a presentation can be required (see [www.prueferportal.org/html/688.php#jump696](http://www.prueferportal.org/html/688.php#jump696)).

Learning outcomes are in general not only assessed for their substance but also ranked or marked against a grading system using point values or percentages. A certain amount of points or percentages has usually to be achieved for passing the examination.

Competence assessments (as opposed to traditional examinations) do not easily fit into a linear pattern ranging from „excellent“ to „insufficient“. Either the competence is displayed or it is not. On the other hand, based on predefined outcomes, detailed statements can be derived regarding which skills have been attained and which have still to be further developed. Consequently, formative assessments gain in importance.

The feedback procedures and embedded assessments used by companies which have been related above, are predominantly formative in character, as they do not replace the official examinations.

But also the regular examination systems can contain formative elements as the case of the „extended final examination“ indicates.

The competence assessments which are used in the United Kingdom for awarding a qualification generally imply several occasions of observation entailing obligatory feedback and formative evaluation. The final summative assessment for awarding the certificate does not include marks.

Subsequently, an example is given from the assessor guideline for the above-mentioned awards in the automotive sector:

### Assessor comments and feedback

Assessors should comment and give feedback each time they observe a learner or meet with a learner to review evidence. Therefore each time an observation or review of evidence takes place the assessor should enter the date and the evidence number, and make appropriate comments and feedback.

The following provides guidance as to the type of comments that can be included below:

- A description of the various activities being carried out by the learner for each unit.
- How the learner has met the Learning Outcomes for each unit.
- Questions that you have asked, particularly to cover Evidence Requirements, not demonstrated through performance.
- Questions you have asked to ascertain Essential Knowledge.
- Issues arising from assessment.
- Identification of good or poor performance.
- Any action required to further develop the learners knowledge and skills.
- Constructive feedback to the learner.

Source: IMIAL Level 2 Diploma in Light Vehicle Maintenance and Repair Competence (VCQ), p. 93

By contrast, learning outcomes are marked against rating scales in Spain. For example, a scale from 1 to 5 is applied for the assessment of the learning unit *Maintenance of Heat Engines Two and Four Stroke*. The candidate has to attain at least level 4 to receive the certificate. This level is defined as follows (excerpt):

The assessed person

- checks the manufacturer's technical documentation (workshop manual) and performs the various operations of diagnosis according to the information contained therein,
- selects the required measuring and diagnosis tools and uses them with skill,
- performs the sequencing process according to specifications,

- checks the correspondence of the operating parameters specified by the manufacturer,
- identifies symptoms of damage, locates the parts concerned interrelating the various components and systems,
- determines the cause of the failure and evaluates alternatives for repair. Neglects only secondary aspects.<sup>42</sup>

As the German examination regulations provide for a graded assessment (marks 1 – 6) based on point values, also the companies using learning units and learning outcome assessments apply point systems for scoring results.

An example:

	<b>Inform</b>	Points achievable	Score
1	Theoretical questions 1 – 5	50	
2	Theoretical questions 6 – 10	50	
	<b>Plan/Decide</b>	Points achievable	Score
1	Bill of material complete	10	
2	Work plan correct, complete	20	
...			
	<b>Operate</b>		
1	Clean, competent installation of cables	10	
2	Competent and correct connection of inputs	10	
...			
5	<b>Hardware configuration complete and correct</b>	10	
...			

<sup>42</sup> Taken from a document provided by the Spanish partner Fundacion Tripartita en el Empleo.

	<b>Control</b>	Points achievable	Score
1	Competent start-up, visual inspection	10	
2	Competent start-up, measurements	10	
...			
	<b>Evaluation (Handover)</b>	Points achievable	Score
1	Associated interview	10	
2	Documents handed over, complete	10	
3	General impression, competent behaviour	10	

Figure 17: Scoring sheet used by the Brose company (excerpt)

The points achieved by the candidate and their weighting are the basis for awarding a grade. The respective number of points achievable reflects the relative weight of the respective competence dimension. The sub-categories are clear and specific, allowing a differentiated and highly objective assessment.

### Phase 5: Learning support and guidance

The shift towards competence orientation in VET is often seen as the emergence of a new learning culture which attributes to the trainer the role of learning guide rather than that of instructor. This role requires, however, apart from didactical skills also the ability to give individual support in case of learning difficulties, for tuning the programme to the abilities of the trainees and for assessing their progress.

VET institutions generally provide for these challenges information and materials.

The Spanish employment administration for example publishes on its website<sup>43</sup> related to the qualifications within its range of authority guidelines for instructors. These guidelines contain teaching/learning methods, provide additional material for the professionalisation of the trainers and give advice on the assessments they have to carry out.

In the United Kingdom assessors have to possess a qualification on level 3 attesting them profes-

<sup>43</sup> [www.sepe.es/guias\\_docentes/jsp/guias.jsp](http://www.sepe.es/guias_docentes/jsp/guias.jsp)

sional competence and an in-depth familiarity with the qualification they will assess. The *Vocational Assessor Handbook* states among others the following criteria for the assessments:

- They should understand the assessment requirements by being given opportunities to discuss and clarify what is needed.
- They should be supported in pacing themselves so that they produce the evidence for assessment on agreed dates and within the necessary timescale.
- They should take part in self and/or peer assessment.
- The assessor should be in regular contact with the learner, to be able to identify problems at an early stage.
- The learners' views should be taken seriously, their ideas discussed with respect.
- Learners should not be thrown 'in at the deep end'. The assessor should devise strategies to increase their levels of responsibility gradually.

Generally, the assessment should not „be done“ to the learners but involve them as far as possible and give them the opportunity to discuss their progress and self-assess (see Ollin/Tucker 2012, p. 122 et seq.).

### Example

In Germany, a number of guidelines are available for trainers, also dealing with the subject of learning support and guidance. The online platform [www.ausbildernetz.de](http://www.ausbildernetz.de) indicates among others these points:

#### Support provided by the trainer as learning consultant to the trainee:

- Explain the subject of the learning unit and provide further clarification by techniques like brainstorming
- Give a clear definition of the objectives of the learning unit and motivate for the task
- Give a short description and information on the individual steps to take for completing the task
- Provide for diverse formats for the presentation of outcomes
- Invite to discuss possible applications of the learning contents

#### The trainee decides for himself/herself

- Which tasks he/she wants to work on,
- which methods he/she wants to apply (i. e. problem solving),
- Which kind of technique he/she wants to apply,
- Which tools he/she wants to use,

- How he/she schedules his/her work,
- How he/she wants to present learning/work results.

Adapted from: [www.ausbildernetz.de/plus/waehrend/vermittlung/lerntechnik/sol.rsys](http://www.ausbildernetz.de/plus/waehrend/vermittlung/lerntechnik/sol.rsys)

Another example of learning support given to trainees is provided by the Audi corporation in its programme „S-Learn“ which employs new learning and work techniques for stimulating self-reliance, problem solving skills and social competences of the students.

The trainers check the methods used for their potential in this respect and revise them accordingly. Moreover, train-the-trainer-workshops are organised on the following subjects:

- Methodology: How to develop and apply learning and work assignments combining activating and social techniques with occupational relevance.
- Learning support: How to increase the self-learning competences of the trainees.

The workshops are backed by systematic coaching at the workplace of the trainers.

## Summary

Adequately educated training personnel is an important asset not only regarding the implementation of competence orientation in VET but also in view of quality and attractiveness of VET in general.

The examples highlighted in this text show the diverse approaches in different countries according to their economic situation and legal framework as well as the creative ways chosen by companies and training providers to tune their training practices still more effectively to the competences required by the labour market and thus ensure the skilled workforce of the future.

Naturally, no „one-size-fits-all“ approach can be recommended. However, it can confidently be assured that the use of learning units underpinned by outcome descriptions combined with embedded assessments can contribute significantly to the quality and labour market relevance of VET.

The „vocationalism“ (Berufsprinzip) prevailing particularly in Germany and Austria is not incompatible with the definition of learning units and the organisation of competence assessments. The strategies and procedures used by other countries can in this respect provide valuable inspiration for reform activities.

The practical information and materials collected in the project TrainCom are meant to contribute to further strengthen and professionalise the key factor for a competence-oriented design of VET: the teachers and trainers.

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# Learning from one another with Peer Review: a new approach to quality assurance in VET. Experiences gained from the TrainCom Project

Roland Löffler

## Initial situation

The “Dual System” of VET, in the form practiced for many decades in Germany, Austria, and Switzerland, is considered a model of success for practice- and labour-market oriented VET. Nevertheless, there is still considerable potential for improvement and development in many areas of in-company VET. Many companies have a difficult time identifying this potential and putting it to use to their advantage. External assistance, e.g. in the form of checklists or vocational training instructions offered by advocacy organisations, are often of too little practical relevance and are often too unspecific to address the individual problems of business enterprises or to provide realistic support. Indeed, there is a need for the viewpoints of persons faced with similar situations themselves to better identify the potential for improvement as well as potential shortcomings in the VET structure. It is the Peer Review Process which targets precisely this point.

## The Peer Review Process

### Objectives, characteristics and benefits

The Peer Review Process was developed among a series of international projects significantly contributed to by the Austrian Institute for Research on Vocational Training [*Österreichisches Institut für Berufsbildungsforschung - öibf*] for the vocational training schools sector and implemented in Austria as an integral component of the VET Quality Initiative (QIBB) for vocational training schools. It represents a form of external evaluation procedure aimed at supporting to quality development and assurance methods of vocational training institutions and is implemented by a group of external experts (the “Peers”). It is the Peers’ task to assess the quality of the various segments and services offered by an educational institution. The Peers are external persons working in a similar environment and possessing specific specialist expertise and knowledge in the area(s) to be evaluated. They are independent and they are equals of or on equal standing with the persons whose performance is being evaluated. The general objectives of the process are: to stimulate quality assurance and development; to increase the transparency and comparability of quality in vocational training by creating uniform standards; and to support equal opportunity.

The process per se is characterised by the following, most important specific requirements and characteristics:

- a focus on the persons involved in the process, including their needs and interests,
- Peer objectivity and impartiality,
- transparency in all areas of the process, for all persons involved,

- confidentiality agreements and rules on the use of the results which are established beforehand and adhered to by all persons involved,
- avoidance of conflicts of interest and direct competition between the Peers (or their institutions of origin) and the institution to be evaluated,
- promoting of openness, integrity and honesty as prerequisite for peer-to-peer learning,
- awareness of cultural influences in vocational training and evaluation, notably within the scope of transnational Peer Reviews,
- promoting of a questioning and critical attitude both among the Peers and among the institutions evaluated, and
- design and implementation of Peer Reviews not in the form of technical-bureaucratic procedures but in the form of dynamic and motivating processes designed to benefit both the Peers and the institutions evaluated.

The participating vocational training institutions and business enterprises can equally look forward to getting a multitude of benefits out of the Peer Review Process: they stand to profit from the process in that they will receive critical yet constructive feedback on the quality of their vocational training offerings from colleagues working in the same field, get to know an external perspective, get to ascertain and satisfy themselves of the quality of their offerings, get to identify the strengths of their offerings and good-practice examples, are made accountable to their stakeholder groups, are made aware of blind spots and weaknesses, get to establish networks and cooperation arrangements with other vocational training institutions, and in that they will receive an external evaluation report on the quality on the quality of their offerings at a comparatively low price.

Within the scope of the Peer Review Process, the Peers for their part will get to encounter other vocational training institutions and their training schedules and implementation strategies, pick up suggestions for their own training situations, engage in exchanges with colleagues working in the same field, and contribute in this manner to the quality development and assurance in their own respective spheres of action.

### Phases of the Peer Review Process and quality fields

The Peer Review Process comprises a total of four phases:

1. Preparatory phase: during this phase, the Peer Review is organised and the self-evaluation report prepared by the vocational training institution. The Peers are recruited and trained. A time schedule for the Review is established and agreements for the Peer Visit are made.
2. Peer Visit: Peers pay a visit to vocational training institution and conduct an evaluation. This evaluation includes a tour of the premises as well as interviews with the stakeholder groups concerned and involved. The Peers issue their first oral feedback at the end of the Peer Visit.
3. Report: After the Peer Visit the Peers prepare a draft report which will be presented to the vocational training institution for their comments. After that point, the final Peer Review Report will be edited.

4. Improvement of the vocational training offerings: the results and recommendations gathered during the Peer Review Process are translated into concrete goals, which are then planned and implemented.

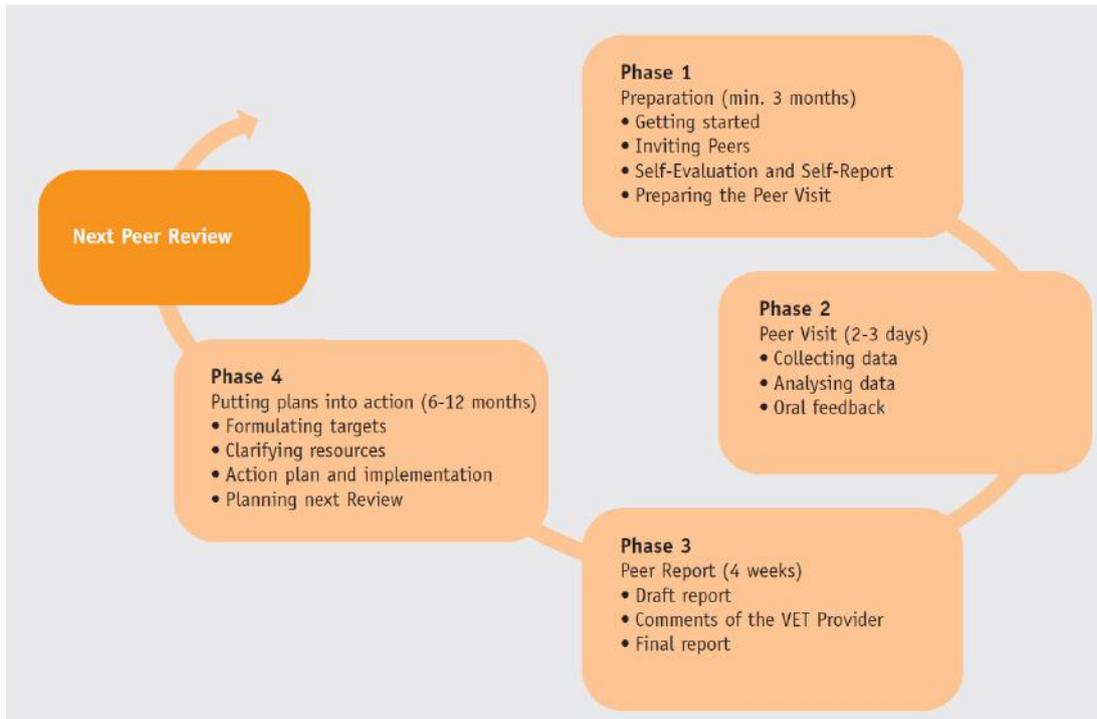


Figure 18: The phases of the Peer Review Process – Source: Gutknecht-Gmeiner, Maria (ed.): Europäisches Peer Review Handbuch für die berufliche Erstausbildung [European Peer Review Manual for Initial Vocational Training]. Vienna: Austrian Institute for Research on Vocational Training (Österreichisches Institut für Berufsbildungsforschung - öibf) 2007, Page 8 [14]

During the preparatory phase of the Peer Review Process, institution to be reviewed will need to make a number of decisions which are of paramount importance for the success and sustainability of the process.

### Preparatory decisions

A Peer Reviews always starts with

- management's decision to conduct a Peer Review,
- the decision as to whether the Peer Review should be performed for the entire institution or for parts thereof,
- the decision as to the objectives and purposes of the Peer Review,

- the distribution of the tasks and responsibilities including the appointment of a Peer Review organiser and a quality team, and
- the decision as to the time schedule and resources required for the Peer Review.

### Selection of the quality fields

The next step concerns the decision as to which quality fields should be evaluated within the scope of the Peer Review. Vocational training institutions should select only those quality fields which are within their sphere of influence. The following quality fields may be the subject of closer scrutiny within the scope of a Peer Reviews:

Quality field 1:	Curricula
Quality field 2:	Teaching and learning
Quality field 3:	Assessing and evaluating
Quality field 4:	Learning outcomes and their usefulness for career purposes
Quality field 5:	Socio-economic environment and access to the vocational training institution
Quality field 6:	Management and administration
Quality field 7:	Goals & values and strategic planning
Quality field 8:	Infrastructure and financial resources
Quality field 9:	Human-resources planning, recruiting and human-resources development
Quality field 10:	Working conditions
Quality field 11:	External relations and internationalisation
Quality field 12:	Participation and social relationships
Quality field 13:	Gender mainstreaming
Quality field 14:	Quality management and evaluation

Figure 19: Quality fields

## Selection of the Peers

The team of Peers needs to put together in line with the selection of the quality fields to be reviewed. The persons selected as Peers will be persons who are equals of or on equal standing with the person(s) whose performance is being reviewed, who work in a similar or identical field of work and/or for a comparable institution, who are external (i.e. from a different institution), and who are independent (i.e. without personal/institutional “stakes” in the evaluation process), and who have specific professional expertise and knowledge in the field (similar education or training, shared values, professional skills and attitudes, shared language, etc.), and who can thus bring a degree of “inside” knowledge of the object of review into the process and combine it with the external view of somebody coming from a different organisation (“external insider”). The Peers analyse the self-evaluation report, compile and evaluation schedule (who will be interviewed, interview guidelines) and conduct the Peer Review.

Depending on the objectives of the Peer Review, the Peer Visit may also be used for a more intensified exchange between the Peers and the representatives of the vocational training institution which may also include elements of Peer counselling.

In order to establish the Peer Review Process as a lasting instrument of quality assurance, it is essential to set up the relevant networks of institutions who participate in these processes – both as reviewed institutions and as Pools for Peers. In Austria, this goal has been successfully achieved for the vocational schools with the assistance of the Federal Ministry of Education and Women. The Ministry has adopted the Peer Review Process as part of a quality initiative and is offering, via an outsourced office, a platform for schools wishing to participate in this process. However, the Peer Review Process has not yet been established in Austria for in-company VET under the dual system. Implementation of the Peer Review Process for in-company vocational training will require separate multipliers in the realm of the advocacy organisations and/or the competent Federal Ministry of Science, Research and Economics.

## Peer Review within the framework of the TrainCom Project – experience gained in VET by business enterprises

### Objectives of the TrainCom Project

The Leonardo da Vinci-TrainCom Project<sup>44</sup> aims at developing a multilingual internet-based learning programme intended to support trainers and teachers in VET in the organization of competence-oriented teaching and learning processes. In the respect, the project attempts to provide answers to the following key issues:

- How is VET administered in the partner countries? (legal framework, curricula, learning venues, teaching and learning, forms of proficiency assessment and review, teachers und instructors/training supervisors)
- Is learning-outcome orientation of importance in the partner countries?

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<sup>44</sup> See article of Heiko Weber in this volume

- How best to assess learning outcomes?
- What are the relevant criteria for realizing this approach? How is VET structured? How are the learning outcomes described? How are learning outcomes assessed and documented?
- How best to support teachers and trainers in the configuration of competence-oriented VET? How best to design an internet-based learning programme?

### Implementation of the Peer Review Process in the TrainCom Project

In order to address these issues within the project framework, the Peer Review Process, in addition to the country reports on the framework conditions and structure of VET, was used for the first time in conjunction with in-company vocational training. The purpose of the Peer Reviews conducted at the various educational institutions was to find good-practice examples of in-company vocational training in the automotive industry in Germany, Wales (UK), Spain and the Czech Republic.

The Peer Review Process was implemented in the project by the following steps:

- Presentation of the process during the kick-off meeting
- initial training of the project partners during the second partner meeting
- Definition of the institutions to be evaluated and the issues of interest
- Elaboration of the Peer-Review manuals and organisation of the Peer Reviews
- Peer Reviews in Germany (Audi), Wales (Coleg Cambria, Wrexham), Spain (Centro de Referencia Nacional de Valladolid) and Czech Republic (Střední Škola – Centrum Odborné Přípravy, Prague)
- Preparation of Peer Review Reports based on the Peers' feedback (project partners)
- Preparation of a synthesis report
- Incorporation of the results from the Peer Reviews in the design of the learning platform

Country	Town	Business enterprise/ educational institution	Peer coordinator
Germany	Ingolstadt	Audi	Heiko Weber (f-bb)
Wales	Wrexham Deeside	Coleg Cambria	Simon Hughes (Coleg Cambria)
Spain	Valladolid	Centro de Referencia Nacional de Valladolid	Inés Sancha (Fundacion Tripartita)
Czech Republic	Prague	Střední Škola – Centrum Odborné Přípravy (COP)	Bronislava Samková (bfz)

Figure 20: Peer Reviews within the framework of the TrainCom Project

The composition of the Peer teams differed from one Peer Review to the next. However, most of the partners participated in at least two Peer Reviews.

The starting point, or point of reference, for the Peer Reviews were presentations on the national VET systems and quality assurance systems on the occasion of the partner meetings held in Nuremberg und Vienna. During the visits to the educational institutions, the institutions presented themselves, their curricula, and their assessment procedures, followed by a tour of their vocational training facilities (workshops) and discussions with training supervisors and apprentices. The project consortium reflected on the essential results along the lines of the quality fields previously outlined by öibf.

## Results and experiences

In the following, the results and experiences gained from the Peer Reviews within the framework of the TrainCom Project will be illustrated on the basis of selected Good-Practice examples. Any sort of presentation or assessment of the actual Peer Review Processes has been left out deliberately, as it is not the process itself which commands centre stage, but the use of the process for the purpose of obtaining findings which can be applied to the project itself. Nevertheless, it was found that the Peer Reviews were experienced both by the institutions visited and by the Peers as a valuable and useful instrument for quality development the exchange of experiences.

It proved possible, during the course of the four Peer Reviews, to deal in-depth with a number of quality fields which were of major relevance for the objectives of the TrainCom Project and to gain

experiences useful for the creation of e-Tutorials. Specifically, these quality fields were as follows: 1, 2, 3, 4, 5, 7, 8, 9 and 14 (see chart 1). The number of quality fields to be dealt with during the Peer Reviews were deliberately limited to the fields mentioned above right from the outset, in order to manage completion of Peer Reviews within a limited timeframe on the one hand and to concentrate on the areas of central importance of the project on the other hand.

The following describes examples of central findings gained from the Peer Reviews which were of relevance for the further work on the TrainCom Project.

### “Curricula“ quality field: flexible VET at Audi

Audi is one of Germany’s most important automobile manufacturers with 9 production sites in 8 countries (not including Germany) and two production sites in Germany. The Audi training department is associated with the company’s human resources department. In 2014, Audi employed approximately 2,500 apprentices, 2,100 of whom assigned to industrial-technical careers, approximately 130 assigned to clerical careers, and 200 college students enrolled in the university of cooperative education (“Duale Studiengänge”, dual degree courses). The overall percentage of female apprentices is 25 percent (22 percent of the industrial-technical apprentices, 79 percent of the clerical apprentices, and 23 percent of the students enrolled in the university of cooperative education (Duale Studiengänge, dual degree courses)). The apprentices are distributed over 16 different career profiles such as e.g. production engineering technicians or mechatronics technicians.

In Germany, apprenticeships are established by the business enterprises on the basis of the government vocational training regulations and coordinated with the regional chambers of trade or commerce, a step aimed at ensuring the employability of the apprentices or trainees. This helps to ensure that the apprentices or trainees will be taught precisely the knowledge and skills demanded by the business enterprises. The professional laws and regulations provide a framework which allows flexible interpretation by the business enterprises and which can be adjusted to corporate needs by a shift towards learning outcomes and by modularization of the VET units.

Audi is conducting competence assessments accompanying the training for the vocation-specific learning and work areas which are designed to encourage the apprentices’ self-reliance. The VET programme also allows flexible adjustment to every apprentice’s specific requirements and helps maintain a good balance between theory and practice. The learning process is structured in a manner allowing it to be adapted to the learning progress and the individual development of the apprentices involved. Psychometric tests and potential assessments administered at the start of the training help identify every apprentice’s or trainee’s ideal “learning path“ which will allow them to best use their individual skills and talents.

Audi has a comprehensive and structured rating system as well as well-defined assessment criteria. The learning outcomes defined on the company’s own initiative serve as basis for regularly assessing the apprentices between the two parts of the final examination. The company has also developed a mode for documenting the learning progress. The performance assessment is integral part of the system. The different processes help to identify weak points while providing the apprentices with clear and transparent feedback.

Audi’s flexible design of its training and its competence assessment served as the TrainCom Project’s role model for the design of the web-based tutorial, notably in the areas of “monitoring and

documentation of learning outcomes“, ”competence measurement“, and ”learning support and guidance“.

### “Competence assessment“ quality field: Coleg Cambria’s assessment approach

Coleg Cambria is one of the most successful vocational colleges in Wales serving more than 27,000 students and apprentices with a staff of 1,600 employees. The Coleg offers a wide range of professional development courses for full-time and part-time students as well as for apprentices and has cooperation arrangements with more than 1,000 business enterprises.

In terms of performance assessment, Coleg Cambria may well be judged as having a “best-practice” system. The performance assessment system stands out for the following characteristics:

- Firmly defined credit points and credit levels for every single curriculum unit.
- Consistently evidence-based certificates (portfolio system).
- Apprentices, reviewers, internal and external examiners may access the electronic portfolio at any time.
- Every performance assessment encompasses the use of a wide range of assessment procedures: direct observation, observation reports, review of finished work pieces, examination of written material, discussions with experts, personal explanations, oral questioning, assignments or projects, and audio/video recordings.
- There is a stringent rating system in place to ensure fair and consistent assessments of the apprentices or trainees.
- Flexibility in learning and assessment to address the individual needs and opportunities of the learning progress, e.g. through RPL (recognition of prior learning).

This system not only ensures that the graduates will acquire skills certificates which are comparable on a national and international level; the ongoing performance assessment during the VET also ensures sustainable learning progress coupled with high apprentice motivation. Moreover, an accompanying tutorship system ensures that learning difficulties can be detected at an early stage and remedied by customized solution approaches.

### Systematic quality assurance system: CRN Valladolid

The Centro de Referencia Nacional de Valladolid is one of Spain’s national reference centres. These centres are public education centres dedicated to implementing innovative and experimental apprenticeships in various areas on the basis of the national qualification catalogue and developing national models for specific vocational fields, including, among other things, vocational training activities for apprentices, employees, entrepreneurs, trainers, and teachers in the new or experimental fields.

These national reference centres have the following goals:

- Completing the national catalogue of vocational and technical qualifications
- Improving the national systems of qualification and vocational education (SNCyFP)
- Developing new assessment and certification procedures
- Improving trainer qualification
- Establishing partnerships with the framework of SNCyFP
- Developing innovations and pilot projects for the national qualification system
- Ensuring the professional development of all stakeholders involved in the national qualification system
- Participation in international projects
- Developing measures aimed at promoting equality, social responsibility, environmental awareness, and quality
- Providing assistance to entrepreneurs for the accreditation of their qualifications

CRN Valladolid is making a huge effort to improve the quality in all areas of vocational training. Among other things, CRN Valladolid is currently reforming the curriculum in an effort to improve the quality of the courses on the basis of the national professional qualification system. For this reason, CRN Valladolid introduced monitoring procedures in order to ensure documentary evidence of the practical skills for every part of the vocational training.

The vocational training plan offers a time schedule for every single training module which provides the trainers with information on the resources and teaching aids to be used, the relevant activities, the practical elements, the assessment, and the methods used for every model. Correspondingly, the trainers plan and document every vocational training module.

This planning and documentation system makes it possible to collect documentary evidence for all skills acquired: the apprentices outline the steps of every practical training unit, whereas the trainers assess their activities. The documentary evidence is then signed by apprentice, the trainer(s) and the competent coordinator of the vocational training institution. This makes it possible, on the one hand, to find out whether or not the learning units are adequate and commensurate with the specifications of the vocational training plan and to verify the results of the learning processes, and on the other hand serves as evidence attesting to the apprentice's skills.

CRN Valladolid's approach contains various means of quality assurance:

- Internal professional development: CRN's management team is instructed annually in the definition and development of clear concepts and methods.
- Training of the trainers: individual or collective training units for the trainers are administered at the beginning of every course.

- Control and dissemination of the documentation system: all documents are saved in the Cloud for shared use by the trainers. All training documentations are filed in a location accessible to apprentices and trainers and are reviewed by the coordinator. The trainers also share the working documents with apprentices in the Cloud.
- Control meetings: the coordinators check the course progress on a daily basis. Follow-up meetings with other trainers in related areas are held at weekly intervals.

CRN Valladolid's next quality management goals include:

- Development of a computer database with defined practical elements of VET. For this purpose, CRN Valladolid has been busy completing the definitions for the various practical phases with additional documents (manuals for apprentices, technical flashcards, tutorial videos, and photographic materials).
- Creation of an IT tool for pooling the information provided by the apprentices with photo and video evidence.

### State-of-the-art learning methods

The vocational training institutions in Germany, Wales and Spain visited during the Peer Reviews are equally counting on state-of-the-art teaching methods. This fact was confirmed during the Peer Visits and is evident in many areas:

- Updated structure of the learning process: the apprentices start with simple tasks and continue with complex tasks. This method caters to the aptitudes and learning progress of the individual apprentices, with the learning process structured in line with individual aptitudes and learning progress.
- VET administered at these institutions is characterized by the transparency of the self-contained learning activities. This is further promoted by the institutions' protected learning environments which foster a positive learning culture. Another positive effect is obtained by the institutions' stimulating learning infrastructure with its holistic work assignments including test models, simulations, and eLearning on the one hand, and professional trainers providing support during the work assignment and feedback and reflection after completion of the work assignment on the other hand, all of which combines into powerful support for successful VET.
- The trainers organise the activities based on the principles of personal responsibility, self-control, project management, target-oriented problem solution, and a focus on productivity.
- Peer learning and a cooperative learning approach right from the start of the apprenticeship will promote teamwork skills, communication skills, and leadership and management skills by working towards a common goal (which becomes ever more complex as the VET progresses).

## Conclusions and outlook

The conducting of Peer Reviews during the TrainCom Project has shown that this method can be used even for practical (in-company) vocational training and that it can contribute significantly to a deepened understanding of the training-related challenges and the quality development in vocational training for all institutions involved. In addition, the Peer Reviews have contributed significantly towards identifying the differences and similarities of the VET systems prevailing in the various European countries on the basis of good-practice examples of business enterprises and VET providers, and towards using these differences and similarities for a joint project, i.e. the development of an internet-based learning platform. Much of the knowledge acquired during the Peer Reviews has found its way into the different sections of the learning platform, both in the form of general principles and in the form of explicit good-practice examples.

As of this writing, the Peer Review Process is known only on vocational-school level and is already used in some countries such as Austria within the scope of quality assurance systems. In order to establish the process for practical (in-company) vocational training, it will be essential, on a national level,

- to disseminate information on the objectives, advantages and benefits of the process via advocacy organisations and multipliers,
- to develop a procedure, adapted to the companies' operational situation, for preparing and implementing the process and for securing the results and sustainability of the process,
- to develop supporting materials (manuals, checklists, etc.) for implementing the Peer Review Process for the corporate context,
- to develop a platform in charge of control and coordination for networking business enterprises and vocational training institutions, and
- to establish the Peer Review Process as part of a comprehensive quality assurance procedure for in-company vocational training.

This requires the support both of the institutions in charge of defining VET (in Austria: the Federal Ministry of Science, Research and Economics) and the advocacy organisations serving the business enterprises (in Austria: Chamber of Commerce, Federation of the Austrian Industry).

Above all, it is essential to convince the business enterprises that the companies hailing from a particular industrial sector are not merely competitors, but that they can actually learn from each other – for the purpose of improving vocational training and hence the competitive situation for the entire industrial sector. It is our sincere hope that the TrainCom Project has made an important contribution to this learning process.

## Literature

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## Competency-Based Vocational Education and Training in action: lessons learned and perspectives

Furio Bednarz

### Competence oriented training design and assessment

#### Pedagogical drivers

Despite its huge success, “competence” still remains a controversial concept and a word carrying different meanings. A large number of definitions have been produced by sociological, organizational and pedagogical literature. In economic and social research as well as in pedagogy, the concept of competence has come to the fore during the last decades. Works related to the use of competence in order to define educational pathways and their expected outcomes have been developed firstly in the USA, in Australia and in the UK since the seventies as a reaction and an answer to the need of improving vocational training, making it closer to preoccupations and trends emerging in companies (the shifting from massive to customer oriented and flexible production). Competence generally indicates the possession of knowledge and skills which enable someone to act in a proper way in a wide variety of specific situations and contexts, at his/her level of responsibility. It means that competence is an asset to individuals, but at the same time a “quality” that has to be strictly contextualized. In addition, *competence* can be defined in relation to different roles, depending on the period of a person’s life or the stage of his or her professional career.

Organizational theories as well as sociological literature have gone into more depth in exploring the concept of *competence*. Their contributions are particularly significant in our case because they help us defining the pedagogical implications of this concept. The French sociologist Guy Le Boterf, whose contributions move between organizational research and a growing interest in work based learning processes, stresses the importance of defining *competence* by starting from the analysis of human activities envisaged to produce a specific performance (Le Boterf 1997). He clearly states that competences must always be described as visible and self-consistent activities, producing actual results. Competence is totally embedded in action; it represents the specific modality through which individuals mobilize specific cognitive, operative, methodological, relational resources to reach a goal, corresponding to an expected performance. This mobilisation act implies certain autonomy, because it happens in an original way, depending on educational, experiential and relational assets of individuals and from the organizational context.

Pedagogy and vocational training research focused on the concept of competence with growing interest during the last decade of the previous century, providing us with targeted definitions. Among them, we consider Jorgensen’s one, quoted by Illeris (Illeris 2007); he clearly refers to competence as capabilities normally acted on by a person qualified in a broader sense: “It’s not merely that a person masters a professional area, but also that the person can apply this professional knowledge – and more than that, apply it in relation of the requirements inherent in a situation which perhaps in addition is uncertain and unpredictable. Thus competence also includes the person’s assessments and attitudes, and ability to draw on a considerable part of his/her more personal qualifications” (Jorgensen 1999).

This definition clearly states some key points:

- competence has to be related to “application” of knowledge, and therefore to the role played by experience and reflection in building up applicable and transferable knowledge
- competence is something which includes a certain mastery in dealing with unexpected and critical situations, coping with something “diverse” from routines, far apart from our common framework
- as competence implies the mobilization of our personal attitudes, relations and emotions, it also implies a holistic perception of human learning, including the cognitive and content dimension of learning, but also the affective and social ones.

Despite the relatively long history of the notion of competence, the institutionalized use of it in the development of vocational education is a quite recent phenomenon to be related to progresses occurring in the world of work and with other innovations like the diffusion of diverse forms of self-managed learning, the focus on improving the integration between theory and practice, the growing attention for informal and non-formal learning, including the validation of prior learning. Competence based education and training (CBET) slowly gained its place amongst the new theories of learning, such as authentic learning, social constructivism and knowledge construction (Mulder/Weigel/Collins 2006).

From the pedagogical point of view, three main traditions inspired the implementation of competence based education and training: the behaviorist, the generic and the cognitive <sup>45</sup>. The definition of competence in the *cognitive* approach is for sure the most suitable in order to decline a coherent pedagogy. It includes all of the mental resources of individuals that are used to master tasks, acquire knowledge and achieve a good performance (Mulder/Weigel/Collins 2006). Whereas the classical cognitive approaches focused on general cognitive competences, during the recent years they encompassed ‘social’ or ‘emotional’ learning drivers, and they progressively paved the road to the social-constructive approach which provided the principle theoretical support for the development of competence-based education.

Constructivist approaches brought wider innovation in training design. They contributed by underlining essential aspects such as the high importance of mentoring, the continuous dialogue between student and mentor, the necessity of performance in practice as well as the multidisciplinary tasks the student has to cope with. In general, the social-constructive approach stresses the similarity between the competencies needed for successful performance in society (such as learning competence, cooperation, problem solving, information processing, coping with uncertainty, decision-making based upon incomplete information, risk assessment) and collaborative competence development (as a synonym of social-constructive learning) (Mulder/Weigel/Collins 2006, S. 7)

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<sup>45</sup> The behaviorist approach stresses the importance of observing successful and effective job performers and determining what differentiates them from their less successful colleagues. This approach was promoted by McClelland and by the Hay Group consultancy unit, mainly with the aim of raising the performances of the workers at the workplace. According to this approach, competences are acquired through a successful interaction between training and professional development (expertise). Competence is based on the description of observable behaviors or performance on site. The focus is on assessment of actual behaviors of the individuals, more than on training and instructional design. Learning outcomes are considered independent from the learning process. The generic approach, by its side, aims at identifying the common abilities that explain variations in performance, also looking at most effective performers in a specific context, in order to detect distinguishing characteristics at the basis of their excellence. However, even if the aim is to define common elements characterizing work processes and qualification profiles of individuals, competence is something to be related to a particular context of application, and a competent behavior overcomes the following of a simplistic recipe. Once again the focus is on individuals in a context, and the consequences for revising pedagogies are not that evident, because the learning setting is still unpredictable and always original.

Constructivist visions are at the basis of Competence oriented training design, and Competence Based Vocational Education and Training (CBVET). As by literature, CBVET is an approach to VET, “in which skills, knowledge and attitudes are specified in order to define, steer and help to achieve competence standards, mostly within a kind of national qualifications framework” (Deißinger T., Hellwig S. 2011, S. 6). If competence can be understood as the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace, CBVET may be described as training which is *performance-* and *standards-*based and related to realistic workplace practices. Outcomes of such a practice are defined by what learners can do at the end of a learning process rather than on the courses they have done.

CBVET is conceptually linked to outcome orientation; it emphasizes new forms of assessment, in which “recognition” or “accreditation of Prior Learning” (RPL/APL) represent both a formative means and a route to validation. CBVET implies that learning mainly occurs through work experience and only practice, on which we reflect, can ensure the relevance and transferability of skills and knowledge as well as to lead people back into learning.

CBVET is also flexible. “Competency-based curricula consist of workplace-oriented and performance-based modules or units of competence that can be accumulated to a vocational qualification. Delivery of CBET can be designed individually by learners, teachers and trainers, which allows a self-paced mode independent from courses. However, a modular and self-paced approach to curricula and delivery is not necessary, although it is very compatible with CBET.” (Deißinger T., Hellwig S. 2011, S. 6).

Competence orientation in training design gained initially a solid reputation in countries like UK, Australia and New Zealand with the aim of reconnecting training provisions and needs of companies and organisations. Unsurprisingly countries in which VET was traditionally geared by the strong involvement of companies in providing training – such as Germany and in general the countries of the dual system – showed to be at least initially reluctant to adopt innovative approaches, as far as their traditional way of designing curricula on the basis of a participative definition of qualification profiles was proving to be effective and consistent.

However, during the recent years several countries belonging to this area looked with growing attention at the concept of CBVET in order to reform their VET systems. The TrainCom project has its roots in a comprehensive attempt to draw on the pedagogical framework at the basis of CBVET, in order to promote the knowledge and use of competence orientation in the partner countries. Thanks to the articulated composition of the partnership, the project is an ideal laboratory to understand convergences and differences in the application of CBVET. It focuses on the emergency of shared assumptions, aiming at defining common guidelines, affordable procedures and even at detecting factors which could hamper the application of principles at the basis of the model. A richness of TrainCom is for sure the possibility of considering the influence of diverse learning cultures on the implementation of CBVET; they are represented in the project by the German approach, trying to combine holistic visions with more flexible arrangements, by the British tradition, largely open to learning outcomes and unitization, by the Mediterranean one (Spain and Italy), actually looking at workplace learning as a new perspective to modernize their VET systems and last but not least by a new Member State (Czech Republic) facing the need of rethinking reforms made after the collapse of the communism, which largely deranged the VET tradition. In our contribution we will try to identify the spaces for a useful cross-fertilization between different approaches.

## Political drivers: European and national reforms

Beside progresses have been made at the pedagogical level, also policy drivers played a fundamental role in promoting competence orientation in training design (see also the other articles in this book, devoted to the framework in which the implementation of CBVET has to be considered).

In the Communication from the EU Commission “*Rethinking Education*” (EU Commission 2012)<sup>46</sup>, the needs of reforms are underscored and many aspects already mentioned in the Recommendation of the European Parliament and of the Council of 2006 on *key competences for lifelong learning*<sup>47</sup> come to the fore. EU efforts are motivated by the need of modernizing the system. “European education and training systems continue to fall short in providing the right skills for employability and are not working adequately with business or employers to bring the learning experience closer to the reality of the working environment. These skills mismatches are a growing concern for European industry’s competitiveness.” (EU Commission 2012)

These issues are focused by the Commission in its policy documents:

- the priority given to the development of soft skills as a component of qualifications and the upgrade of basic skills: “modern knowledge-based economies require people with higher and more relevant skills. CEDEFOP forecasts predict that the proportion of jobs in the EU requiring tertiary level qualifications will increase from 29 percent in 2010 to 34 percent in 2020, while the proportion of low-skilled jobs will fall in the same period from 23 percent to 18 percent. Transversal skills such as the ability to think critically, take initiative, solve problems and work collaboratively will prepare individuals for today’s varied and unpredictable career paths (...) Attention should be particularly focused on the development of entrepreneurial skills, because they do not only contribute to new business creation but also to the employability of young people” (EU Commission 2012).
- the focus on technical and scientific competences: “scientific subjects are also important. The demand for a qualified workforce in technology and research intensive sectors is and will remain at a high level, with an impact on the demand for science, technology, engineering and mathematics (STEM) related skills. Greater efforts must now be made to highlight STEM as a priority area of education, and increase engagement at all levels” (EU Commission 2012).
- the attention for the acquisition and recovery of basic skills as a gateway for employability and citizenship: “literacy, numeracy and basic maths and science are key foundations for further learning (...) and are a gateway to employment and social inclusion. These skills are nonetheless being redefined by the on-going digital revolution, as new forms of reading and writing and the diversity of information sources are changing their very nature” (EU Commission 2012).

The need of reforming the way in which VET is designed and implemented is also underscored, and transfer of best practices is encouraged. “Work based learning and notably apprenticeships and other dual models help facilitate transition from learning to work. These require a clear regulatory

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<sup>46</sup> Communication from the Commission to the European Parliament, the Council, the European economic and social committee and the Committee of the Regions. Rethinking education: investing in skills for better socio-economic outcomes: [eur-lex.europa.eu/legal-content/EN/TXT/?qid=1389776578033&uri=CELEX:52012DC0669](http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1389776578033&uri=CELEX:52012DC0669) (as of 19.8.2015)

<sup>47</sup> Recommendation of the European parliament and of the Council of 18 December 2006 on key competences for lifelong learning (2006/962/ec).

framework, defined roles for the different players and must be an integral part of the entire education system. The approach which underpins the dual system – classroom-based education side by side with hands on experience in the workplace - has an important potential role to play at tertiary level” (EU Commission 2012).

In order to stimulate open and flexible learning arrangements, aiming at improving the quality of VET, the documents from the EU Commission design a strategy closely linked to visions and ideas nurturing CBVET, in which the promotion of a learning outcomes approach, the focus on assessment and recognition of learning outcomes play a fundamental role. “Education and training can only contribute to growth and job-creation if learning is focused on the knowledge, skills and competences to be acquired by students (learning outcomes) through the learning process, rather than on completing a specific stage or on time spent in school. While the learning outcomes approach is already the basis of the European Qualifications Framework and national qualification frameworks, this fundamental shift has not yet fully percolated through to teaching and assessment. Institutions at all levels of education and training still need to adapt in order to increase the relevance and quality of their educational input to students and the labour market, to widen access and to facilitate transitions between different education and training pathways.” (EU Commission 2012)

On the other hand, assessment practices and their modernisation are conceived as a powerful means to support learning: “the power of assessment has to be harnessed by defining competences in terms of learning outcomes and broadening the scope of tests and exams to cover these. Assessment for formative purposes to support the day-to-day skills learning of pupils also needs to be more widely used. In this context, the potential of new technologies to help find ways of assessing key competences needs to be fully explored. Outside school, individuals should also be able to have their skills assessed, validated and recognised, providing a skills profile for potential employers. Information on the quality and quantity of skills across the population will allow authorities to better map potential shortages and focus on areas with the best returns on investment. Efforts should continue to develop tools for individual assessment of skills, particularly in the areas of problem solving, critical thinking, collaboration and entrepreneurial initiative” (EU Commission 2012).

EU mainstream tools elaborated during the last 10 years – such as the EQF (European Qualification Framework), the ECVET (European Credit System for VET), the Guidelines for validating informal and non formal learning – are clearly stressing the importance of principles and concepts largely coherent with CBVET; they focus on:

- outcomes orientation,
- assessment and recognition,
- flexible learning arrangements (including unitization of pathways)
- and anchoring qualifications to the reality of work processes.

A perfect EU-level example of competence framework construction is the ECVET, attempting to achieve enhanced cooperation in vocational training and harmonisation of higher education by the creation of a set of reference levels that form the basis both for the ECVET and the ECTS. Reference levels should be described in terms of learning outcomes, a typology of “knowledge, skills and competencies” has been developed. Knowledge in this typology is captured as cognitive competence, skills are captured as functional competence, and attitudes and behavior as social competence, being meta-competences incorporated within social competence (Mulder/Weigel/Collins 2006). It is evident that the implementation of ECVET principles by VET Institutions and providers, drawing on

the EQF, implies the adoption of a competence based training design.

Moreover, EU policies are stressing the relevance of embedding learning in workplace practices in order to modernize the system. Dual apprenticeship is taken as a reference model. Since 2013, the European Alliance for Apprenticeships (EAfA) brings together public authorities, businesses, social partners, chambers, vocational education and training (VET) providers, youth representatives, and other key actors to promote apprenticeship schemes and initiatives across Europe. EAfA works to:

- reform apprenticeship systems
- promote the benefits of apprenticeships
- encourage a smart use of funding and resources

Germany plays a key role in accompanying Member States on the road for developing consistent work based learning VET systems; at the same time the whole apprenticeship is at the center of investments aiming at improving its quality, through dialogue, peer reviewing practices and pilot initiatives. TrainCom has clearly a place amongst them.

### Competence orientation and learning cultures

Despite convergent visions and ideas, evolution processes are still and ever influenced all over Europe by divergent learning cultures. Studies and literature provide evidence of braking factors hampering the diffusion of best practices; also our project faced similar challenges and can be used as a laboratory to learn useful lessons.

Criticism on competence orientation characterizes both countries in which behavioristic approaches are largely accepted and practiced (such as the UK) and countries in which learning cultures inspired by cognitive and socio-constructivist approaches play a major role (such as France, Mediterranean countries and at a different level Germany, dominated by a holistic approach to qualifications hampering the flexibilisation and unitization of pathways).

In the UK recent debates are stressing the limits of a system – born with the NVQ reform about 30 years ago – which focused on assessment forgetting the relevance of investing in the innovation of learning processes. In France efforts have been made to develop validation and recognition of informal and non formal learning, but VET systems seem to move very slowly towards a greater integration with workplace learning. In Germany obstacles are provided by the holistic approach to assessment, and by the input-oriented curricula, structuring both training and workplace learning.

The difficult implementation of ECVET principles and tools at the European level and in the different Member States focused by recent CEDEFOP reports on the issue, let us understand the nature of the challenges with which we should cope in order to promote competence orientation. The report speaks of an increase in ECVET readiness in most of the EU countries. Member States “have progressed in putting in place the conditions necessary to implementation. However, full and systemic implementation is still far off in most Member States, despite agreement with main ECVET principles and an overall commitment.” (CEDEFOP 2014, S. 54)

Nevertheless it is possible to identify convergences and divergences concerning different issues and components of ECVET. “There is agreement on the importance of the principles underlying ECVET, namely the unitisation (or modularisation) of educational systems, and the description of qualifica-

tions in terms of learning outcomes. This also extends to the importance of easing the recognition and transferability of learning outcomes” (CEDEFOP 2014, S. 5). This agreement – however – is not totally homogeneous, and countries characterized by holistic approaches to qualifications pay some difficulties in implementing flexible systems based on units and accumulation of credits. In general Member States give a priority to the elaboration of NQFs, based on the EQF, in order to prepare the ground for ECVET, through the description of qualifications in terms of learning outcomes. ECVET is traditionally linked to the development of mobility, through the recognition and transfer of learning outcomes achieved by the learners in one country to another one. Most of the countries, however, “increasingly see ECVET as a tool for reform and for aligning qualifications to learning outcomes, as well as for engaging stakeholders further in VET development and design” (CEDEFOP 2014, S. 54); at the same time ECVET appears to be only a component of a complex and articulated set of tools expected to work together.

Critical points – underscored by the Report, but confirmed also by our project – particularly emerge, when we move from the acceptance of general principles of ECVET to its actual implementation. “*Work is needed*” – states the CEDEFOP report – “on the synergies between the tools, making them work together and under similar principles. Especially relevant for ECVET is the relationship with ECTS, since two different types of credit arrangements might cause confusion to the citizen that should be the ultimate user and beneficiary. Having two types also goes against increasing flexibility and permeability in the system. This shows another tension observed in the monitoring, the difficulty in dealing with credit points: there seems to be no agreement on their usefulness. However, not considering a points accumulation system might hinder the benefits of the transferability and portability of the learning outcomes, since the validation process might require more work than if points were automatically transferred” (CEDEFOP 2014, S. 54).

Looking at TrainCom, it seems clear that the project coped with the same challenges, in a framework characterized by a pervasive evolution of National VET systems towards the adoption of learning outcomes oriented descriptors of qualifications and curricula: In Germany this is for instance foreseen for all professional regulations after the approval of the NQF (DQR) and a large debate is opened on the future of workplace learning arrangements in the dual system. Therefore we will focus in the next chapter on a concrete experience of modernization of apprenticeship actually implemented in Germany – directly piloted in the framework of our project – in order to detect how progresses can be made in a bottom up perspective, safeguarding the holistic nature of the learning process, but promoting at the same time CBVET methodologies.

## From theories to practice

### Peer reviewing VET practices

Peer review is a method largely adopted at the EU level both for study and piloting policies and measures and for improving practices on a common basis. It can be considered a form of “cross evaluation”, with the aim of supporting the reviewed educational institution in its quality assurance and quality development efforts. Peer review represents a good method in order to transfer innovation and learn from practices. It’s the paradigm of how improvements can be made through exchange, mutual understanding and critical friendship. It is the method chosen by TrainCom for enabling the cross-fertilization between the different practices of VET design and management of the

partner organizations, trying to activate a bottom-up process of continuous improvement<sup>48</sup>.

According to the Peer reviewing method, TrainCom team members acted as an external group of experts (Peers), invited to assess the quality of different fields of the institutions and providers belonging to the partnership, organizing visits during which the hosting institution has been reviewed on the basis of a structured analytical grid (including 14 quality areas and a wide range of key indicators for each area)<sup>49</sup>. The implementation of Peer Reviewing in TrainCom showed how the method could be a powerful means for defining common quality standards in VET and to build up mutual understanding and readiness to innovate, in a respectful way, taking into account learning cultures and experiences already made by the partners. By the way, we were in a very specific and advantageous position, having the possibility of comparing how CBVET could work in traditional VET institutions, providers dealing with continuous vocational training, colleges and last but not least in workplace learning settings.

We evaluated during the project the reactions of the partners involved in peer reviewing, using an online questionnaire and discussing during the meetings. Two thirds of participants at these sessions strongly agreed on the added value provided by the method, no one manifested doubts, even if only one third of respondents declared to be perfectly at ease in dealing with reviewing tools. Nevertheless, after the deep discussion held during the second transnational meeting, which helped a lot build a common idea of what such a methodology implies, the Peer Review Methodology has been tested on field, proving to be effective. Peer reviewing enhances the value of a traditional exchange based on visits and encounters: It implies a careful preparation of the meetings on site, and the availability of both sending and receiving organizations to bring in ideas, points of view, insights, representing an added value for all participants. After all we are now aware of the potentialities of the method, which provided evidence of convergences and distances existing between the diverse VET systems from the point of view of the shifting to a learning outcomes approach.

Experience of peer review made evident the complexity of managing such a pathway. Particularly challenging seems to be:

- organizational issues considering time constraints, availability of the companies and resources: tight time schedule of the meetings, budget constraints to cover peer reviews travel costs, lack of external expertise in questioning peer reviewed institutions in a proper way;
- complexity of the preparation and management of reviewing processes: preparation of the peer review in regard to the specific situation of the peered institution needs a lot of information beforehand, which might be difficult to get; the peer review procedure is very complex, it's difficult to manage all the data in a short time;
- communication skills relevant to activate and manage peer reviewing processes: the use of a third language – such the so called Euro-English – can create additional difficulties, reducing interaction and deep understanding.

Peer reviewing can only succeed if benefits are shared by reviewers and reviewee, and in our case it seemed to be very effective when exchanges involved VET providers, experts and in company trainers. The peer reviewing process emerges by our experience as a complex and exigent process, but a powerful means to activate a profitable exchange between VET institutions and companies in order

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<sup>48</sup> See infra, the contribution of Roland Löffler, giving the details over the methodology.

<sup>49</sup> For more information see the chapters devoted to Peer Reviewing in this book, and also [www.peer-review-education.net](http://www.peer-review-education.net)

to improve training design, and build up a good consensus about the EU mainstream tools, largely depending from a more fluid relationship between the world of education and training and the world of work.

We should however be aware that it is necessary to focus peer reviewing on specific issues in order to provide an understandable added value and make peer reviewing sustainable, because the overarching structure of quality indicators potentially included in the process (according to the model) is really difficult to manage as a whole. It implies avoiding redundancies, such as the ones underscored by the Welsh partner, to ensure professionalism, to provide also visited organizations with a perceived added value. Therefore peer reviewing implies a good balance between competences and experiences that organizations participating at the process can bring in.

### Reforming dual apprenticeship: German experiences, concepts, methods, lessons learned

One of the Peer Reviews organized during the project, in the training department of AUDI AG in Ingolstadt proved to be very effective in order to focus more in general on how CBVET can be implemented in practice, contributing to a bottom-up reform of dual apprenticeship in Germany.

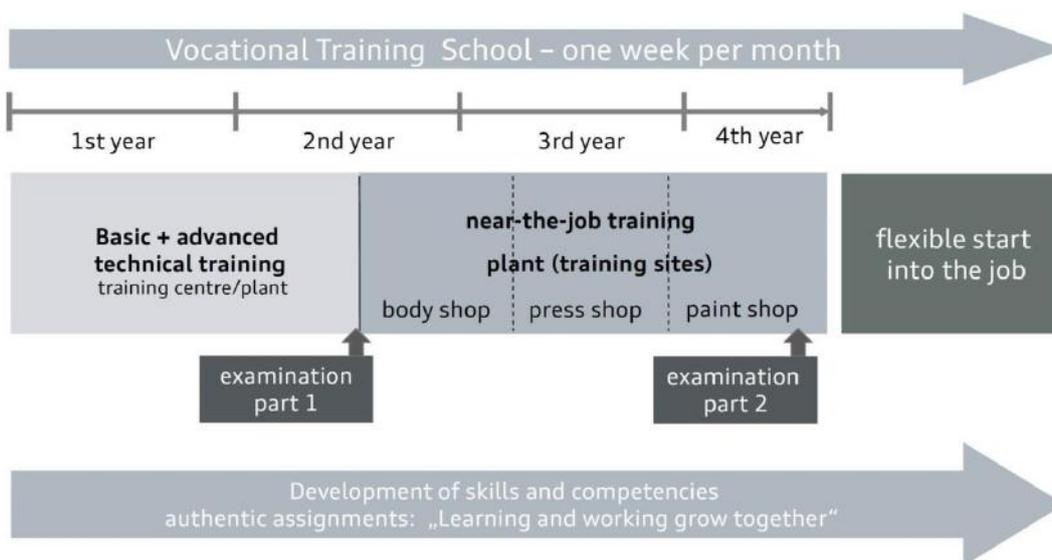


Figure 21: Apprenticeship pathway by AUDI AG (Source: AUDI AG)

At the same time the peculiarity of the location and the influence of this leading automotive company in orienting VET policies at the national and regional level – providing directly more than 56.000 workplaces in Ingolstadt and Neckarsulm, and hosting about 2.300 apprentices, in 7 different professional areas – have to be taken into consideration as a driving factor.

The “Audi philosophy” and its concrete implementation on field is not an unique example of how innovation is pushed forward in Germany<sup>50</sup>. Many similar concepts with peculiar implementations can be found in other companies engaging themselves in the reform movement, such as Brose - which was a partner in TrainCom, hosting the final public Conference - or Daimler, Bosch, BMW and many others. Some common trends - well understandable visiting the training departments of Audi or Brose - characterize these good practices, defining guidelines for implementing CBVET. The training pathways respect indeed the parameters and standards defined by professional regulations of the sector, but the leading companies - dialoguing with local institutions in charge of managing qualifications - have in any case the power of interpreting them in a more flexible way.

According to CBVET principles, curricula are rethought, introducing a set of relevant modifications in the traditional approach of the dual apprenticeship, safeguarding and even improving the role of training in building up a holistic qualification. This vision move the focus of the learning process from an input oriented training design to an output oriented one. It also foresees the key involvement of the learners, accompanied by teachers, trainers and mentors, in determining their learning pathway, experiencing actions in small groups, and reflecting on results in a cooperative way. This approach enhances the role of self-directed learning.

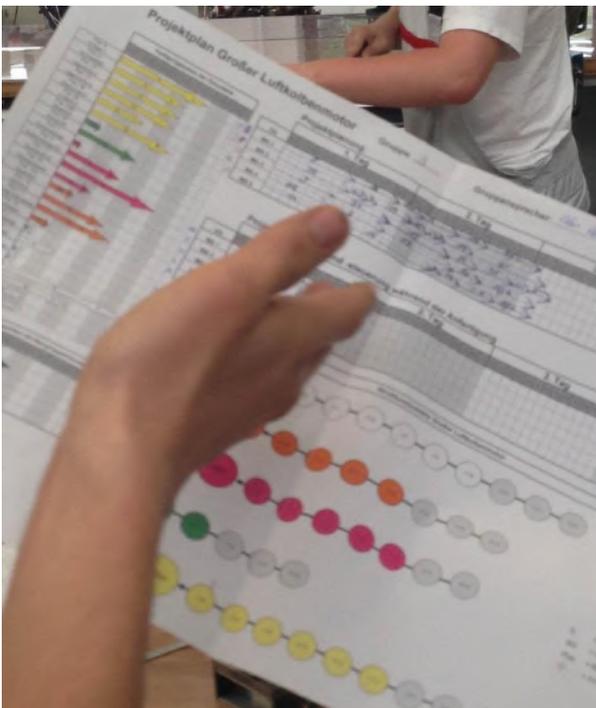


Figure 22: Work plan of an assignment at Audi in Ingolstadt

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<sup>50</sup> Different examples and practices referred to the EDGE Project are collected in Loebe, H./Severing, E. (Hg.): Kompetenzorientierung und Leistungspunkte in der Berufsbildung, Bielefeld 2012

Some crucial objectives lead the training:

- let trainees assume responsibility and autonomy in their daily work and their future development
- enable hands-on learning, problem solving and autonomous and responsible learning processes
- introduce action-oriented methods and facilitate self-directed learning.

Development of skills and knowledge is conceived as a means leading to competences and life-long learning strategies.

The whole qualification path is adapted to a new reality, focused on enhancing the learning process, in order to reach adequate learning outcomes. Apprentices work sometimes alone, but most of the time in small groups of 3 to 5 persons. At Audi, for instance, 2 small groups work independently on a comprehensive assignment. Apprentices are asked to plan, execute and evaluate at the end both the quality of deliverables according to predefined standards, and the sustainability of the work plan designed at the beginning. They can reflect afterwards on the outcomes of the assignment comparing their work with the one done by the other small group engaged in the same assignment (Which kind of similarities and peculiarities can be found? Which plan has worked better and why?), and discussing with their reference trainer, acting as a coach and a mentor in facilitating the reflective process.

Reflection is always facilitated by different means, aiming at documenting the work process: grids and forms help the collection of procedures and facts, some groups are also piloting a multimedia approach to documentation, recording short films in which assignments are narrated by images and voice. Apprentices use iPads, create the screenplay, film the actions and provide their narrative comments and explanations.

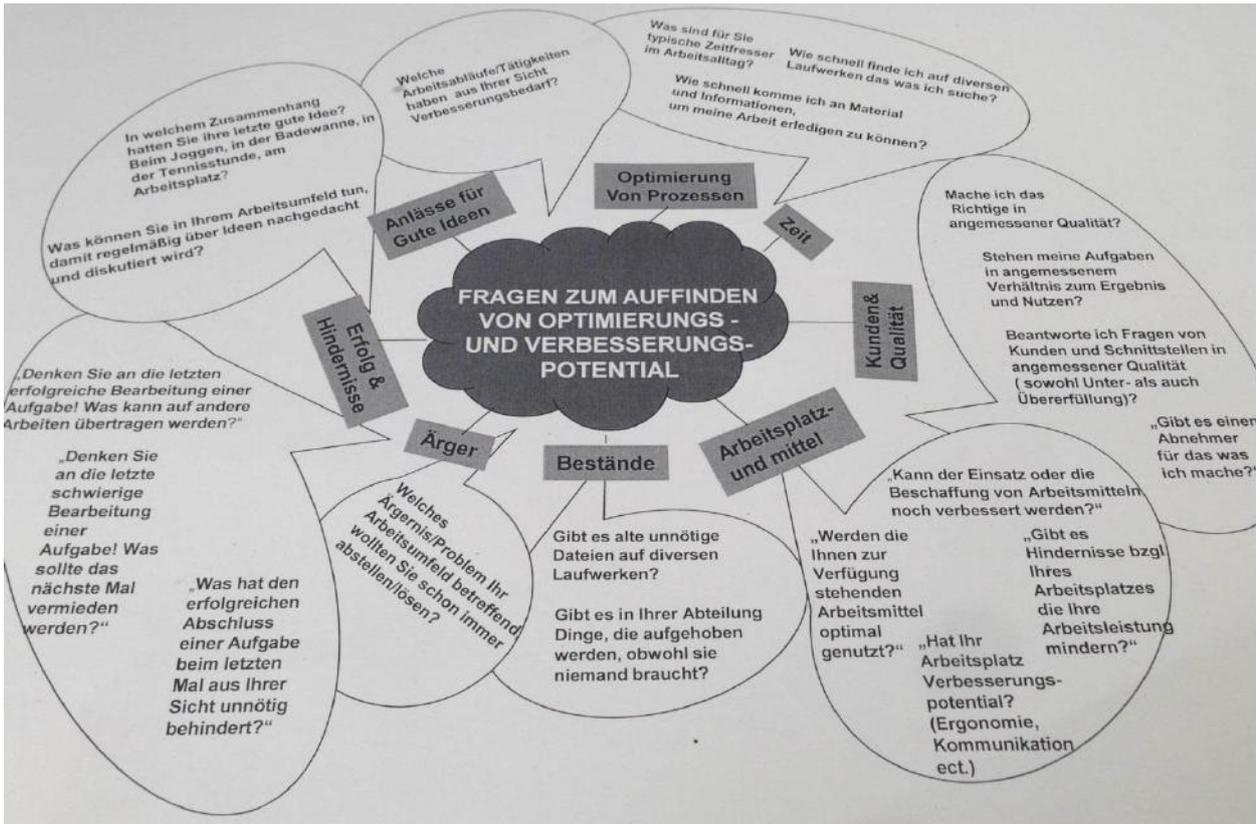


Figure 23: Reflective evaluation at Audi in Ingolstadt: how to find out improvement potentialities

The development of more solid basic skills, both transversal and work specific, is ensured in a preliminary phase in the internal training centre, where practical activities are organized in a learning setting as close as possible to the real work, in which apprentices learn fundamentals and also train key soft skills of cooperation, planning, problem setting and problem solving. The second part of the apprenticeship, after having passed the first part of the final examination, occurs in production process including body shop, tooling, maintenance, final assembly, logistics, etc. depending on the professional field.. In production lines apprentices work both in separate groups and integrated in larger teams, in any case followed by a qualified trainer and operating on tasks having a specific formative content.

In three or four years – depending on professional field – two parts of the final examination lead to the qualification. Progression of tasks – from simple manipulation and transformation of raw materials with manual tools to complex work with CNC machines and digital manufacturing – guides the acquisition of a complete qualification, including the capability of planning, executing, evaluating, regulating the work process. Soft skills are constantly developed activating discussion groups, and mainly through reflective exercises, focusing on experiences made during assignments, using reflective tools, quality circles and discussion groups.

Formative and summative assessments play a fundamental role in the training process (e.g. produce work samples/work pieces within work assignments). Formative assessments work at the crossroad between trainers’ feedbacks and reflective self-evaluation of outcomes. Summative assessments, characterizing the German system, are restructured and articulated along the pathway. Assessments

take into account that theoretical knowledge and practical skills acquired along the pathway are transferred into one complex work assignment. Assessment covers the whole work process: assuming the right information, planning the task, make decisions, do the work, control the results and evaluate the process and the outcomes as a whole. Candidates must show to be capable of learning by experience, reflecting on the work done and even on the lessons learned.

During the first assessment theoretical parts are related to the work process submitted to evaluation. Candidates have to complete the work according to the standards with limited resources (time, materials), planning consequently the work and preparing themselves to adopt a customer oriented perspective. A complete work assignment is combined with a written test. Competences to be achieved and assessed are expressed in learning outcomes; at the end of the preparatory phase the trainee should be able to:

- read and understand a technical drawing
- put working operations in the right sequence
- answer theoretical questions related to the work process
- produce components and assemble them
- assure quality by using adequate measuring instruments, taking measurements and report them

The first assessment, concluding the preparatory phase in the school department, is considered as a preparation for the 1st and 2nd part of the final exam.

The learning outcomes verified by the second assessment include a wider set of competences; trainees are expected to:

- read and understand information about the function of a complex module
- construct parts of the module according to technical specification
- decide and report the work sequence of the production of a component
- produce and assemble the component according to his/her own schedule
- optimize the function of the component according to functional specification
- answer theoretical questions in examination format
- assure quality with specific QA systems

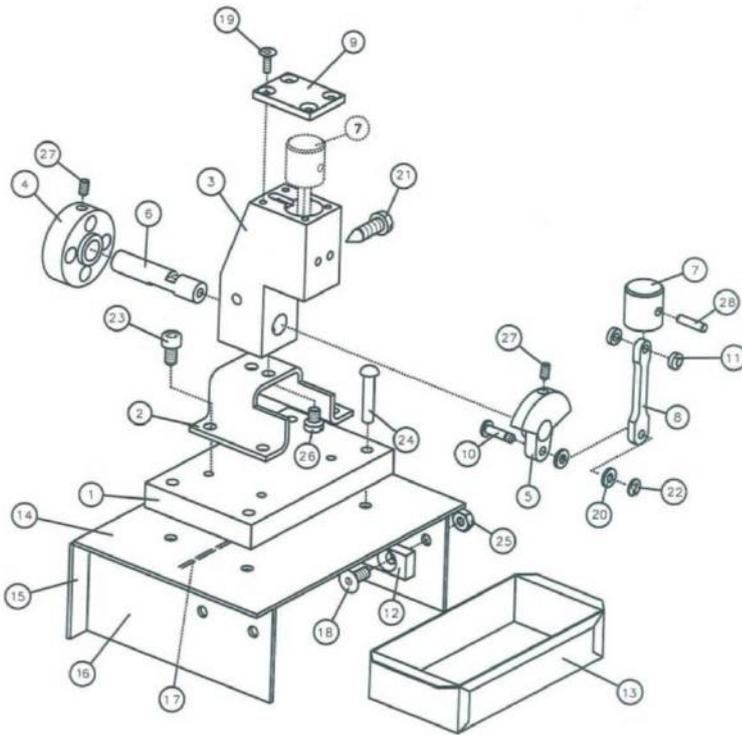


Figure 24: Example of 3<sup>rd</sup> Assessment: production of a small air powered piston engine (Source: AUDI AG)

The third assessment verifies the complete mastery of the competence corresponding to a full qualification in terms of complexity of tasks, autonomy and responsibility; learning outcomes include:

- read and understand information about the function of a complex module
- prepare the workplace, machines and tools
- decide and report the complete sequence of work steps
- answer theoretical questions related to the work piece in examination format
- produce and assemble all components according to schedule and quality standards
- integrate own pre-fabricated components
- assure quality (measuring, checking, functional tests)
- respect a time limit for the assessment

Summing up, some key words and concepts could be used to synthesise the lessons learned by this practice of excellence:

- A recognisable strategic vision guides the process: Audi is a global player and a coherent professionalization path means same quality standards; therefore the mission of CBVET reform

overcomes the border of the country and makes possible the globalization of production sites safeguarding quality standards relying in the management of the work process by qualified human resources

- apprenticeship is conceived as a first step in an internal career: a qualification in one of the profiles covered by Audi training department opens the road to further training, in tertiary B and even academic sectors; Audi recruits about 750 new apprentices per year in Germany (selecting them on 3.500 applications), and more than 95 percent of apprenticeships who conclude their qualification by Audi are hired by the company in Ingolstadt and Neckarsulm; best performers are involved in mobility projects since the beginning, and the training department also hosts people coming from other factories all over the world, qualifying as technicians, trainers and team leaders; the overall climate is very positive and selective recruitment process (1 on 7 applicants find a place in Audi) makes possible to work with a good mix of learners, having motivations and basic skills for progressing along the path, as the very limited dropout rate clearly shows.
- People learn with heart, brain and hands: the holistic approach is clearly put in action, the experiential pathway begins with knowing the basis of mechanic, work with metallic objects, feel the raw material, work with traditional tools; the whole approach focus on understanding the transformation process embedded in the automation of work processes.

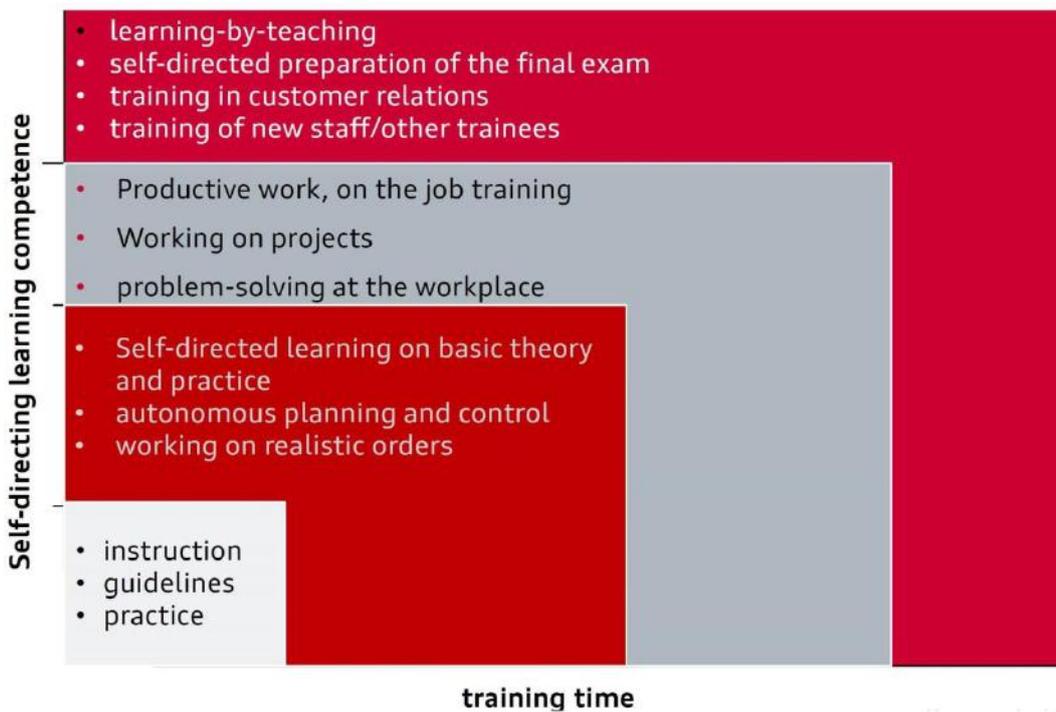


Figure 25: Progression of the learning process according to the “S-Learn” approach (Source: AUDI AG)

In the German reform movement, CBVET principles are implemented in design and management of the learning process and in the assessment of learning outcomes. Considering the learning process, the reform shows the relevance of some methods and tools:

- Self-directed learning is brought to a wider extent; apprentices are expected to develop a complete competence (*Handlungskompetenz*): find out the right information and set it, plan, do, check, evaluate and reflect on results; this philosophy represents an effective implementation of “Problem Based Learning” applied to real work situations and reflective learning in practice: it perfectly address the development of a fundamental key competence for lifelong learning (learning to learn, in a lifelong / lifewide perspective)
- the sequential development of assignments (from simple to complex, from the laboratory to production lines, from amazing experiences in groups to actual workplace life...), inspired by the same approach, characterizes the pathway; methodological skills are developed along a recursive process, embedding the treatment of specific subjects and learning objectives
- self-directed learning is complemented by cooperative work (small groups from 2 to 6 people), and is facilitated by trainers acting as mentors (pivotal role of trainers working since the beginning with the groups, in the training department)

The whole system works enhancing multidimensional drivers of learning, focusing on methods boosting cognitive dimensions, but at the same time enhancing effective and relational dimensions of learning. The relational dimension characterizes the whole learning process. Motivations – already engendered by the prestige of the brand - are fostered using diverse means, such as experiences of mobility abroad (in other units of the group) used as a way to award the best performers (talents). Also innovation is used to improve relational and emotional dimensions of learning, as in the case of experiments undertaken in the field of mobile learning, through the use of iPads by small groups of learners, as a means for recording and produce a multimedia documentation of particularly delicate assignments at the workplace.

### Enlarging our perspectives: progresses, braking factors, conditions

The Audi example is not isolated, even if the prestige of the automotive company makes it appealing and for sure unique. Audi group is the first large space of exploitation; the “S-Learn” philosophy is exported to other factories of the group all over the world, from the nearest European countries to the Far East and South America. In Germany, however, many middle and large size companies are sharing this approach, and an important VET institution connected with the entrepreneurial association active in Bavaria, like the bfz (Berufliche Fortbildungszentren der Bayerischen Wirtschaft), is implementing a similar CBVET methodology for qualifying adult unemployed workers.

In the other partner countries, progresses towards learning settings closer to workplace conditions are also evident. In the UK, vocational colleges strictly plan their training offers trying to respond to the needs of the companies; learning outcomes orientation and unitization are well accepted concepts by a long time. In Spain and in Italy reforms undertaken in VET focus on how to bring in elements of the dual system in a sustainable way, which implies a large investment in training and qualification of the trainers, engendering also a great, probably exceeding expectation, of importing read-made methods and tools from countries in which they proved to be effective.

Reviewing Audi practice, some pre-conditions comes to the fore, which could turn in limits and constraints, considering the transferability of the model:

- big companies – acting as key players and stakeholders at the regional, national and global level – have the power of orienting or at least interpreting in a favourable way professional regulations providing a frame in which qualifications are developed (this is really a shortcut, if compared to other experiences, facilitating the shifting to learning outcomes and unitisation in the German system)
- tradition and innovation are living together; despite flexible and personalized arrangements the learning process still foresees the respect of curricula, the use of structured mandatory tools (weekly reports) partially overlapping more interactive and innovative documentation practices and last but not least theoretical exams which normally stress the students during the final part of their apprenticeship (as some of the learners confessed during the visit, declaring to feel very comfortable with the method and very motivated, but a bit frustrated by obligations engendered by regulations: written reporting, traditional way of examining theoretical knowledge)
- the whole methodology, implying a careful socialisation of the learners and a preliminary work on key skills (as the one realized by Audi in a protected environment during the first phase in the Training Department), can be implemented only modifying the structure of the dual model, devoting space, resources and time to setting up laboratories, ensure accompaniment and employ the learners in activities in which they are outside of production lines (creating therefore a new balance between costs and benefits of the apprenticeship and making the transfer to different contexts, namely in the SMEs, very complex)
- if compared to traditional input oriented training design, CBVET implemented by German big companies is much more exigent from the point of view of qualification of the trainers; they must be capable of acting according to the methodology, as facilitators and mentors, and they should master complex didactical planning, with a good capacity of fixing adequate and proximal learning goals, achievable by the learners according to the stage in which they are and personal resources they have<sup>51</sup>.

The Peer Review Methodology worked well, but more in the sense of benchmarking a practice of excellence. Audi was a case of best practice, embedded in a very structured system and learning culture. Reviewers met some difficulties to make more than listening and interviewing with the aims of understanding. The 14 categories foreseen by the Model provided a well-structured guideline to be contextualised and adapted (selection of items) and they are also useful to prepare a set of key questions. Peer reviewing proved to be a thoughtful and meaningful approach, mainly for analysing the implementation of CBVET in training institutions active in formal learning, probably less for mapping workplace learning. Audi was in-between, and the method worked.

Particularly relevant showed to be the debriefing discussion between reviewers; it has been very effective to provide new insights through the exchange of what single participants noticed during the visit (from individual perceptions to a more collective and enriching one). Through the discussion additional constraints emerged, related to the transferability of components of the Audi model and at

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<sup>51</sup> Deißinger and Hellwig come at the same conclusion: “The design of CBET programs requires careful planning and continuous monitoring of development steps. The first step is to define competence standards by translating work-based requirements into nationally endorsed industry standards. This requires experts in relevant occupational fields who are able to depict essential work activities, tasks and functions with respect to a specific competence profile” (Deißinger/Hellwig 2011, S. 9).

the same time convergences between national systems and approaches – for instance the common trend to provide learners with grids and compulsory diaries/forms aiming at documenting the learning process and learning outcomes; the open question is still how to make them really effective.

Attempts of reforms developed in Germany during the last years provide evidence of a successful implementation of CBVET principles in a context – the dual system – in which this approach is far from being known and accepted – as for instance in the UK, and in countries like Australia or New Zealand. Quality criteria for CBVET developed by TrainCom are clearly recognizable: the orientation of the learning process to working and business processes is fully ensured, transparent criteria are set for the assessment, different assessment methods – in oral and written form – are combined, the qualification of assessors and trainers is ensured and all relevant stakeholders are involved in defining outcomes of training and assessment methods. The Audi experience shows how CBVET can be implemented in a way overcoming the critics underscoring the behavioristic approach underlying CBVET, presupposing a narrow task-orientation of the learning process and the separation of doing and thinking.

A wider exploitation of TrainCom results requires, however, further efforts from different actors in the European VET systems. As far as EU policies are identifying the dual apprenticeship as an ideal model for improving VET, obstacles and concerns can be better studied considering the acceptance of CBVET in Germany. Despite best practices, a certain skepticism and preoccupations come from vocational teachers and employers. Teachers often feel poorly informed and prepared for methodical and didactical innovations associated with CBVET. “Shifting from learning processes to outcomes often means that educational aspects, including underpinning knowledge and understanding, are disregarded in favour of economic objectives. The clear outcome orientation is also often associated with a decline in training quality. “Assessment on demand” as suggested in CBET is considered to be time-consuming and complex and is therefore often not conducted in the prescribed way” (Deißinger/, Hellwig 2011, S. 43). TrainCom developed at least first products and tools which could contribute at making teachers, trainers and even companies more informed, sensitive and open to accept CBVET, and approaches like the one reviewed in Audi, which are pursuing a wider concept of competence, redefining – in the area of apprenticeships – the holistic German vocational tradition.

## Competences for competence orientation

### The TrainCom learning platform (linking workplace learning to VET pathways)

The implementation of CBVET requires competences and a sensitive, qualified staff. Moreover, it implies a strict and structured relationship between training developed at the workplace, and basic skills and theoretical knowledge focused by professional schools. Teachers in VET Institutions must dialogue with in-company trainers, and of course in-company trainers have to be capable of managing experiential and reflective learning settings. Both teachers active in VET institutions, and in-company trainers or HR Managers must share concepts underpinning competence orientation.

The TrainCom Learning Platform has been conceived and designed first of all to provide a common basis of discussion and learning for all the relevant actors in the scenario. It aims at making them sensitive on the issues related to competence orientation. Moreover, it is addressed to in-company trainers, in order to make them aware of specific abilities needed for acting as coaches and facilitators. Qualification of the training staff is one of the challenges faced by German companies engaged in reforms of the dual apprenticeship. Normally an initial qualification in this field is foreseen: being a master craftsperson or a technician is a general pre-requirement, but also a pedagogical qualifica-

tion, correlated to a certain amount of work experience, is an obligation. Companies like Audi develop in addition a specific training to enable their trainers exploit the methodology of self-directed learning. Trainers are asked, in a certain sense, of experiencing the same approach, based on workplace learning and accompaniment. They work as “Assistant Trainers” for 2 or 3 years (near-the-job training) and they attend 4 short modules:

- „How to create competence oriented learn- and work assignments“(2 days)
- „How to facilitate learning processes“ (2 days)
- „Projects in vocational training“ (½ day and on-the job)
- „How to give feed-backs“ (½ day)

Furthermore individual training and coaching “on demand” is foreseen, in order to let these trainers develop their personal, social, methodical or professional skills.

The TrainCom Platform can play an interesting role in this framework, as far as it is conceived as a means for consolidating self-directed learning processes in managing CBVET approaches. The project was expected to develop formative methods and tools (valuing e-learning) aiming at promoting learning outcomes orientation in VET, approaching the description of curricula and the design of in-company training and assessment. Some crucial questions have been dealt with:

- which teaching/learning arrangements are suitable to promote competence orientation?
- how can the role of teachers and trainers as a coach and adviser be characterized?
- what can competence assessment procedures look like and which requirements (qualitative standards) do they have to fulfill?
- how can teachers and trainers be supported during the arrangement of competence oriented training? How does an internet based learning program have to be designed?

Despite progresses made during the last years CBVET largely represent in many VET landscapes and institutions a practically unknown object. Resistances are still strong, and the lack of confidence of teachers and trainers with workplace learning, experiential and reflective methods in VET is a reality. The platform largely represents a means for making teachers and trainers more sensitive and aware of the potentialities of CBVET. It’s also a space of exchange, providing examples of practices, methods and tools useful for activating CBVET. It doesn’t replace a proper qualification pathway, leading to cover functions like the ones presented above. However it can pave the road for in taking a professionalization process.

## Added value and limits

The effectiveness of the TrainCom Learning Platform, as well as spaces for improving it, have been focused by an initial on line evaluative survey<sup>52</sup>, which will provide also in the next future interesting feedbacks concerning project deliverables and their exploitation/development.

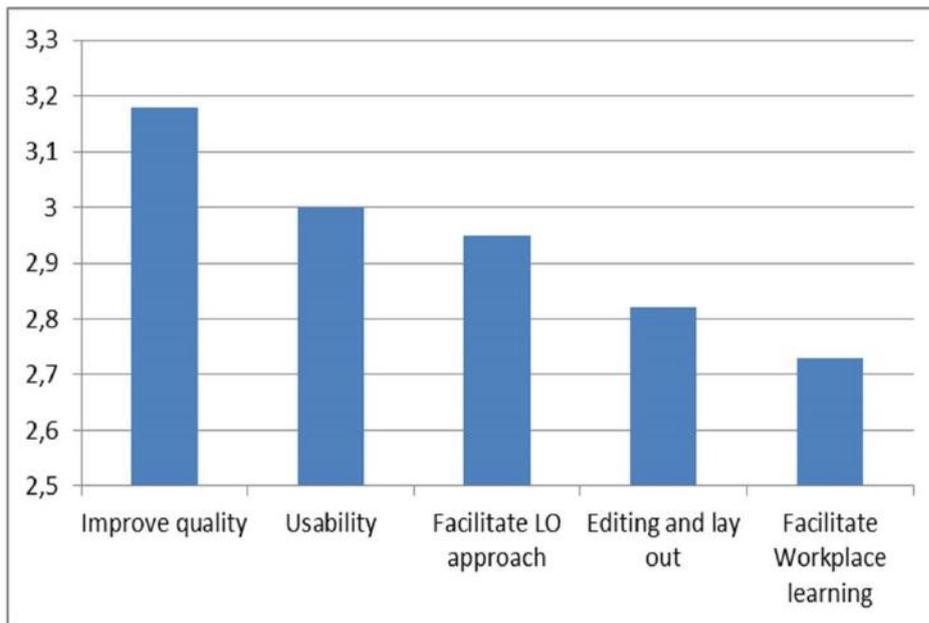


Figure 26: The TrainCom Learning Platform under the lens: best features of the model (Source: own diagram/research)

In a scale from 1 to 4 the Learning Platform scores as an average good result, considering its main features. The great majority of respondents, no matter the country, are convinced that they will continue to use the Platform in their organisations, in order to improve the quality of training design and management, making it closer to the needs of a modern VET system. The usability of the platform – a simple and understandable approach – is most appreciated. For sure the tool reaches one of its goals, facilitating the adoption of a learning-outcomes-approach, by teachers and trainers who sometimes pay difficulties in actually implementing mainstream principles of competence orientation. Spaces of improvement are at the opposite detected considering the lay out of the Platform. Also the exploitation of contents in order to develop workplace learning arose as a limit, particularly under-scored by respondents less familiar with methods and tools characterizing the dual apprenticeship, like Spanish interviewees.

The TrainCom Learning Platform scores good notes also considering some indicators evidencing potential success factors. It is evaluated as extremely coherent with EU Mainstream policies, and particularly relevant for making teachers and trainers aware and sensitive towards reforms stimulat-

<sup>52</sup> An online questionnaire in 4 languages (German, English, Czech, Spanish) has been made available to experts, stakeholders and trainers involved in piloting the Learning Platform, asking respondents to evaluate the effectiveness and the added value provided by the Learning Platform according to a set of variables and indicators, both concerning contents, lay out and usefulness of the tool. About 30 experts in Spain, Germany, Czech Republic and UK participated at the first evaluation, including all categories mentioned above.

ed at this level. Structure and contents of the platform fit the needs of potential users, bringing in some new ideas, even if in a context of solid principles, already practiced by professionals engaged in companies. From this point of view, the platform seems to give an answer to the needs of socialization and sensibilisation of teacher and trainers with CBVET.

The evaluation of the experts makes visible the correlation between judgements and differences embedded in the diverse learning cultures. Divergences are still playing a fundamental role in paving the road – or at the opposite hampering – the adoption of a competence based approach to training design. As far as CBVET implies strict relationships between workplace experience and learning in the construction of competences, the countries of the dual system are naturally ready to adopt this philosophy, but more reluctant to integrate other principles, such as the unitization of training design and moreover the flexibilization of competence assessment. On the other hand countries which are discovering just now the potentialities of embedding learning at the workplace needs to develop a consistent experience and readiness in training design and management according to CBVET principles.

### The next steps

The heritage of TrainCom project is for sure coherent, and valuable in a perspective leading to the actual implementation of CBVET as a mainstream for reforming and improving VET systems all over Europe, using the experience of the dual system as a reference, but safeguarding richness and diversity of learning cultures. CBVET principles can be applied in countries characterized by structured workplace learning or a by a mix between learning in schools or colleges and experience at the workplace. It provides a framework for designing learning at the workplace in an innovative way – such as in the German experiences taken into consideration in the article – but at the same time it helps design structured and flexible learning path, well anchored at work processes, also in full time VET schools and colleges.

TrainCom leaves us a consistent set of resources usable in a lifelong learning perspective, including:

- peer reviewing as a method for continuously improving the quality of VET, at different levels (macro, considering systems, and micro, considering teachers, trainers and VET institutions)
- the Platform, both in form of Guidelines and as a library/repository of tools for planning, managing, assessing learning.

The lay out and attractiveness of the Platform, could be made more appealing in time, but safeguarding the clear and easy fruition of contents actually characterizing the tool. The project paves the road to the development of further results, at the origin of future activities of the project partners.

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