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PANORAMA

The dynamics of qualifications: defining and renewing occupational and educational standards

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The dynamics of qualifications: defining and renewing occupational and educational standards

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Foreword

The aim of this Cedefop report is to improve our understanding of how vocational qualifications are constructed and renewed. This is done by comparing how qualifications standards are defined and redefined in the 32 countries taking part in the Education and training 2010 programme.

Qualifications standards are the norms and specifications regulating the award of a certificate or diploma. By focusing on qualifications standards we indirectly ask the fundamental question of how to increase the overall relevance and quality of qualifications. A common concern in most of the countries covered by the study is whether qualifications are able to respond to the needs of the individuals and the enterprises they are ultimately supposed to serve. Do qualifications provide the level of knowledge, skills and competence required by a service and technology intensive labour market? Are these qualifications being renewed at a rate and in such a way that they provide individuals with the specific skills and the transversal key competences they need to tackle rapid change?

The study pays particular attention to the dialogue between different stakeholders in awarding qualifications, how this dialogue is organised and to what extent there is a balance or imbalance in the involvement and participation of different stakeholders. Dialogue and balanced participation are seen as prerequisites for the continuous renewal of qualifications and for the ability of qualifications systems to ensure the relevance of qualifications.

An important finding of the report is the diversity of national approaches to setting standards. There is little evidence that we are moving towards a common European approach: the processes put in place very much reflect national structures and traditions. Despite this, two common trends can be observed:

- more countries are introducing outcome-based standards;
- more countries are institutionalising the participation of social partners in standard-setting procedures.

These trends are important as they underline the need for a common language bridging education/training and work and for balanced participation in standard-setting. Both trends can be seen as preconditions for increasing the relevance and credibility of qualifications. The capacity of different stakeholders to articulate and express their needs and concerns is an important common challenge identified by the study. Formal representation is not sufficient if stakeholders systematically lack the time and resources to feed into the dialogue; this is seen in emerging professions and occupations, and in sectors consisting of small and medium-sized enterprises. This capacity problem may prove critical in a situation characterised by rapid change in occupations and qualifications.

The study on qualifications standards is one of several currently carried out by Cedefop on the changing roles and functions of qualifications in Europe. This focus reflects the fact that qualifications play an increasingly important role in our societies. The formal certification of learning is necessary to access to, and progress in, education, training and work. At the same time, the value of qualifications is, in some cases, being inflated and questioned.

The definition and renewal of qualifications standards – the feedback-loop between education and training and the labour market – is an important part of this changing landscape.

Aviana Bulgarelli
Director of Cedefop

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- Cedefop, Jens Bjørnåvold who initiated the study and was responsible for overall supervision of the study;
- Lena Krichewsky, Bridges, and Karin Lüth, Evalux, who drafted this report and undertook the research on which it is based ([1]).

Thanks are also due to Christine Nychas from Cedefop for her technical support in preparing this publication.

This report is part of Cedefop's continuing work on learning outcomes, qualifications and qualifications frameworks.

([1]) The study was carried out under Cedefop contract No 2007-0104.

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Executive summary

Qualification standards are a powerful coordination mechanism for improving the match between demand and provision of education, training and learning. Accordingly, the comparative study of the 32 VET qualification systems of the countries participating in Education and training 2010 reveals much reform activity concerning the definition and renewal of occupational and educational standards, with consequences for the role and profile of qualifications.

Qualification standards are the result of interactions between the worlds of work (embodied by social partners, professional associations, employments services, etc.) and of education (training providers, teachers, awarding bodies, education ministries, etc.). This interaction can be described as a feedback-loop, with different users of qualifications communicating either directly in the process of defining standards, or indirectly through the collection of information on employer expectations and the publication of learning requirements. The form taken by the feedback-loop in each country differs, but common challenges and trends can be identified.

Qualification standards, defined as norms and specifications regulating the award of qualifications, take various forms depending on the countries or the education segment. Approximately two thirds of the countries examined in this study have developed, or are in the process of developing, occupational standards. These standards, with their systematic occupation descriptions, are expected to simplify keeping qualifications up to date and relevant to the needs of the labour market while providing information to learners on the job profile targeted by the qualification. The forms and characteristics of occupational standards depend on how they fulfil this bridging function between the worlds of work and education. In one group of countries, occupational standards take the form of or a more or less elaborate but comprehensive classification system providing categories for monitoring the labour market. In a second group, occupational standards are designed as benchmarks for measuring occupational performance, in either a work or an educational context. In a third group, occupational standards describe the occupation targeted by a qualification and are developed in an integrated process with educational standards.

Educational standards can be distinguished from occupational standards because they follow a pedagogical logic, of progressive accumulation of knowledge and skills, and not the logic of a systematic description of occupational tasks, functions and associated competences. The variety of educational standards across Europe is as important as it is for occupational standards. Differences can be noted in the objects of standardisation (duration of study programmes, contents of teaching, teaching methods, etc.) and the degree of detail, with countries granting varying autonomy to local authorities, training providers and teachers to design and undertake curricula and learning programmes.

Qualifications are situated at the interface between the worlds of work and of education: they are awarded as the result of a learning process to be used on the labour market. Accordingly, the award of a qualification can be based on regulation of the learning process or on labour market requirements. In most countries, qualification standards address both

aspects. Occupational and educational standards are integrated and linked together to make the relationship between employment requirements and learning more evident. In the second largest group of countries, qualifications are based solely on educational standards, either because reforms introducing occupational standards have not yet been fully implemented, or because other coordination mechanisms are used to ensure a strong link between competence-based qualifications and the labour market. This is the case in Germany or the Scandinavian countries, where social partners involvement in defining qualifications and providing training offers powerful coordination between VET and the labour market. Finally, in a few countries following the British NVQ model, qualifications are based solely on occupational standards, a feature that makes them particularly open to validation of non-formal and informal learning.

Comparison of qualification standards across Europe further reveals a general shift towards the use of outcome-based standards, independent from the type (occupational or educational) qualifications are based on. Learning outcomes are generally seen as facilitating the link between employment and education; they are formulated in terms of competences, a concept shared by both systems. In addition, learning outcomes have an important role to play in international mobility (credit systems and qualification framework) as well as lifelong learning and validation of various learning experiences. The majority of countries have adopted outcome-oriented standards or is in the process of doing so, even though the regulation of learning inputs (duration, contents, learning arrangements, etc.) still plays an important role in most qualification systems. However, despite these common developments and some formal similarities in formulating of skills, knowledge and attitude standards, a detailed comparison of outcome-oriented standards shows persisting differences which can be traced back to different understandings of ‘competence’ and different goals ascribed to vocational education and training.

The use of work analysis methods and the involvement of stakeholders in defining standards are crucial elements of a well functioning feedback-loop to ensure the relevance of qualification standards to the needs of employers and other users.

No single method is dominant in the countries under scrutiny, but common principles were identified in various European projects developing qualification standards. Based on analysis of tasks and activities, these projects focus, for instance, on developing common competence standards which are then translated into national training programmes, according to the principle of subsidiarity. It is worth noting that European cooperation on developing standards still happens solely on a case-by-case basis, although some projects have created transferable tools and platforms for sharing experiences.

Stakeholders are increasingly involved in developing national qualification standards across Europe. Participation is institutionalised even in countries with weak traditions of social partnership and attention is paid to a balanced representation of both employers and employees. Whereas patterns of involvement may differ greatly depending on national contexts and traditions, some common challenges can be identified. The lack of capacity of employers to articulate their expectations and needs, especially in emerging professions, is a first challenge faced particularly by countries with weak social partners. Even where stakeholders have a long tradition of self-organisation and involvement, institutional

arrangements must be carefully designed to provide the participation opportunities for structurally weak actors such as SMEs and for professions not fitting into traditional sector categories. Finally, a challenge for every country is finding a way to balance conflicting interests of stakeholders; these conflicts originate from the multiplicity of social and economic functions of qualifications as instruments for fostering social inclusion, improving productivity, regulating tariffs and salaries, selecting employees, encouraging mobility, etc.

In the context of the Lisbon strategy and the establishment of a European education area, qualification standards are one important policy instrument for steering and reforming VET systems. Besides common trends such as the broad shift towards outcome-based approaches and the involvement of stakeholders in defining and renewing qualification standards, analysis of national systems reveals a continuing variety of approaches and systems. Qualification standards should, therefore, be further examined with other dimensions of the VET system, to identify whether the dynamics of qualifications are really converging.

Introduction

The relationship between occupational and educational standards: how to link employment requirements and education provision

This study was commissioned by Cedefop to identify the characteristics of standards underpinning vocational qualifications in the 32 European countries participating in Education and training 2010, and to understand how these standards are used to improve the link between employment and education/training. In a context of intense national and European reform, the study examines the impact of standards on the changing role of qualifications.

At the interface between the labour market and education, qualifications are examined here by focusing on the relationship between occupational and educational standards. The ultimate purpose of the study is to provide elements for improving the match between demand and provision of education, training and learning.

The report follows the different functions standards may fulfil to strengthen the link between employment requirements and education provision. It presents a synthesis of findings from the empirical data compiled in 32 country reports ([2]) and in-depth case studies on two qualifications in five countries. The country reports provide an overview of the qualification systems in each country.

The context of the research, the theoretical background and the detailed research framework are presented in the first part of the report. The second and the third part describe and compare the object and the formulation of standards, asking how standards can, by themselves, contribute to better links between education and work, improving transparency and offering instruments for steering the VET system. Part four, five and six focus on definition and renewal of standards, analysing how certain features of these processes, such as methods, stakeholder participation and evaluation, contribute to the match between provision of training/education and work requirements. The final part of the report summarises the findings and proposes some questions for further enquiry to reach better understanding of the implications of defining and renewing occupational and educational standards and the role of qualifications in Europe.

([2]) The detailed report on the 32 countries is available on request from Cedefop. Please contact: qualificationteam@cedefop.europa.eu

1. Research design and theoretical background

1.1. Qualification standards definitions

According to the definition of the European Commission in the recommendation on a European qualification framework for lifelong learning (European Parliament and Council of the EU, 2008), a qualification is 'a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to a given standard'.

A qualification as defined above is expressed in a formal document (certificate, degree, diploma or award) and is based on norms and specifications regulating its award. These norms and specifications constitute qualification standards.

For the purpose of this study, qualification standards are considered to be norms and specifications applying to the following aspects of qualifications ([3]):

(a) occupation standards may specify 'the main jobs that people do', describing the professional tasks and activities as well as the competences typical of an occupation. Occupational standards answer the question 'What does the student need to be able to do in employment?';

(b) education standards may define the expected outcomes of the learning process, leading to the award of a qualification, the study programme in terms of content, learning objectives and timetable, as well as teaching methods and learning settings, such as in-company or school-based learning. Educational standards answer the question 'What does the student need to learn to be effective in employment?';

(c) assessment standards may specify the object of assessment, performance criteria, assessment methods, and the composition of the jury entitled to award the qualification. Assessment standards answer the question 'How will we know what the student has learned and is able to do in employment?'.

In nearly all European countries, qualifications are based on standards addressing these three aspects. However, the comparative analysis of 32 countries in the first phase of the research (see Annex 1) revealed great diversity in:

- the degree to which standards addressing the different aspects are developed as separate categories; the distinction between assessment standards, occupational standards and educational standards does not exist in every country;
- the concepts and the terminology used in standards, for instance the meaning ascribed to the concept of 'competence';

([3]) The typology of standards and the questions associated with each type are based on the definition of vocational education and training standards provided by Mansfield (2001), p. 19.

- the level of regulation, e.g. the decision whether specific issues are the object of standardisation or whether they are left to the competence of teachers, training providers, juries, etc.

To compare qualifications across Europe, it is important to identify what standards look like in each country. This was the object of the first phase of research referred to above and will be further analysed in Chapter 2.

1.2. Standards and the Education and training 2010 programme

The issue of qualification standards, and the general question of how to improve the link between the labour market and qualification systems, have to be examined in the context of European education policy and Education and training 2010. Recalling the objective of the Lisbon strategy to make the EU 'the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010', the following issues affect the standards of vocational qualifications.

The first issue is improving the employability of young people, who need to be equipped with qualifications relevant for the labour market: this is the main issue addressed in this report. To achieve better employability and ensure that training is relevant to the needs of the labour market, the worlds of work and education must cooperate closely. Qualification standards offer an instrument to ease communication between the two worlds by providing information on the competences acquired and demonstrated by an individual and by communicating the requirements and expectations of the labour market. The process of developing the standards, the methods and information used during that process also contribute to the match between training and labour market needs.

The second issue is the transparency and comparability of qualifications for worker and student mobility within the EU. Initiatives to establish the European qualification framework (EQF) and to introduce the European credit system for vocational education and training (ECVET) call for a common 'language' in the formulation of standards: the language of competences and learning outcomes. Because of the huge diversity of education systems in Europe, standards pertaining to 'inputs' (duration of studies, syllabi, teaching specifications, etc.) cannot be easily compared. Learning outcomes, in contrast, can be related to the descriptors of national qualification frameworks and the EQF, aiding understanding of qualifications and enhancing their legitimacy abroad.

The third issue is lifelong learning, an essential element of the Lisbon strategy. Validation of non-formal and informal learning, an important instrument of that strategy, requires qualification standards to be formulated as learning outcomes to be open to more learning experiences (Cedefop, 2009).

Finally, all these issues are related to modularisation of qualifications. Organising learning outcome standards, in a set of units which can be certified separately, offers more individualised training paths and makes learning more independent from institutional settings. This, in turn, aids international mobility and the combination of different forms of learning to

individual choice. For this reason, modularisation is discussed at European and national levels and many countries are changing qualification standards accordingly.

These issues are the background against which the research was designed. Bearing in mind what is at stake for European integration, the study provides information on two key questions: what are the characteristics of qualification standards in the 32 countries subject to the study, and how are these standards developed?

1.3. Theoretical background

The assumption underlying this research is that by analysing how qualification standards are formulated, referring to or describing employment requirements (occupational standards) on one hand and training specifications (educational standards) on the other hand, it is possible to 'improve our understanding of the relationship between employment and education/training and how to improve the match between demand ([4]) and provision of education, training and learning'.

Hence the study refers to the model of a demand-driven qualification system, focusing on one function of education, which is to provide qualified people to meet the needs of the labour market. Not accounting for other functions of education, such as fostering social inclusion, strengthening the capabilities of individuals to participate to social and cultural life, steering economic development, etc., this study is based on this model and focuses on the interaction between the labour market and education to guide the empirical research.

To address the purpose of the study, it is first necessary to make clear what is meant by the formula 'match between demand and provision of education, training and learning': What is the nature of the 'link' between qualification standards and the labour market? Second, the use of the term 'improvement' implies that the quality of the link can be determined. This leads to the next question: What is a 'good' link between education provision and employment requirements?

1.3.1. Standards, employment and education

Mismatch between education/training provision and demand can be quantitative or qualitative. In the first case, there will be a discrepancy between the number of jobs and the number of people with the qualifications required for those jobs. A qualitative mismatch means that the education system fails to develop the competences needed in the workplace, failing to train people to a sufficient level to meet employment requirements.

Following (Lassnigg, 2001), we can consider the education and business as two subsystems of society, constantly interacting and connected, but following their own

([4]) 'Demand' is understood here as originating mainly from employers, who look for potential employees with relevant qualifications and for training opportunities to improve the skills of their employees.

particular rules and logic. The question is how to coordinate both subsystems to reduce quantitative and qualitative mismatches ([5]).

Coordination mechanisms can include a wide range of instruments, policies and institutional arrangements. Some are used primarily to tackle quantitative mismatches, whereas others improve the qualitative match. Lassnigg identified information and guidance based on labour market analysis and skill forecasts as one instrument to improve the quantitative match, encouraging people to choose qualifications needed on the labour market.

On the qualitative side, defining occupational and educational standards and the correspondence between them is one potentially powerful coordination mechanism. To assess the situation in a particular country, it should remembered that other coordination mechanisms exist, so that the same result of a 'good match between demand and provision of education and training' can be attained with a different mix of instruments. Coproduction of skills, apprenticeship and adequate training of teachers and trainers also perform coordinating functions (Lassnigg, 2001, p. 23). The necessary precondition for standards to fulfil a coordinating function is that standards really impact on teaching and assessment practices ([6]).

The functions of standards as coordination mechanisms between the worlds of work and education can be described as follows:

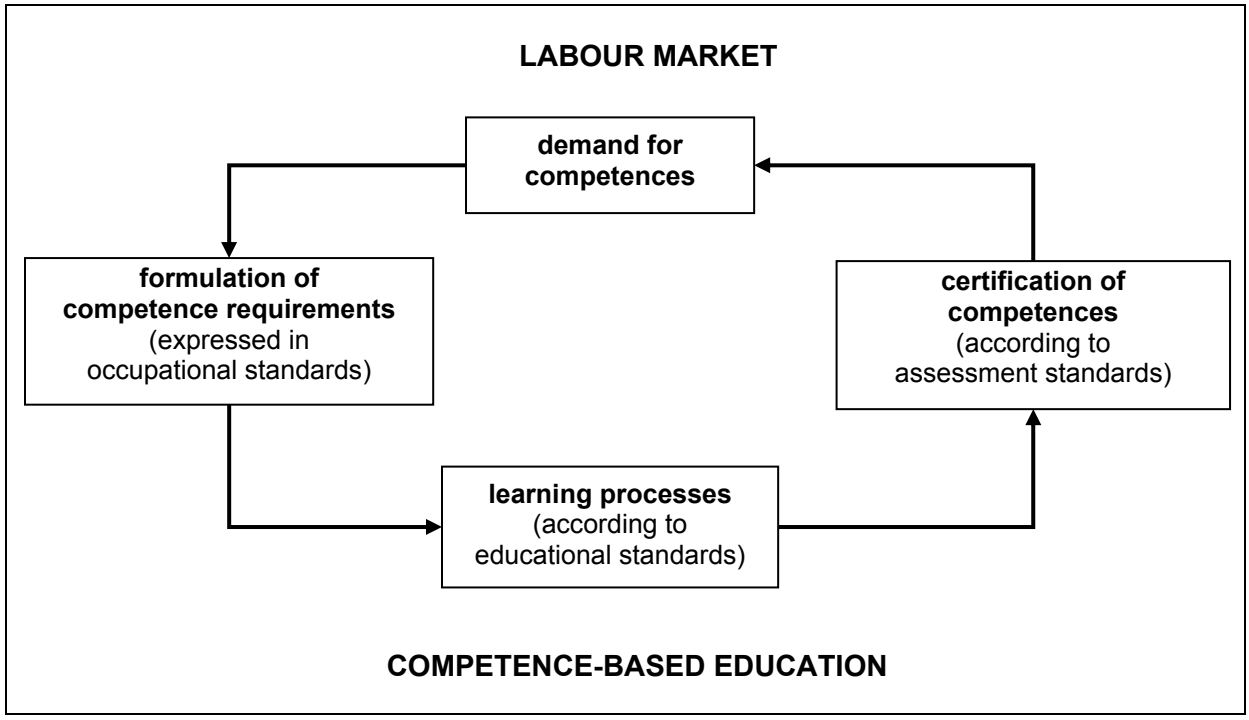
(a) to improve transparency for users (employers, teachers, learners) about the value, the character, the profile, and the requirements of specific learning experiences. (Chapter 2);
(b) to reform VET by orienting it on the development of competences. (Chapter 3);
(c) to provide sound information about occupations and the expectations of employers, to design appropriate learning programmes and qualifications (Chapter 4);
(d) to ease communication between stakeholders: social partners, trainers and teachers, experts, representatives of students and parents, or other interest groups. (Chapter 5);
(e) to make qualification systems more flexible, to respond to changing demands of the economy (Chapter 6).

A model of the interaction process between the subsystems of work and education takes the form of a 'feedback-loop' (Fretwell, 2001) or a continuing communication process, where standards play a mediating role. The world of work formulates employment requirements, and the world of education responds with adequate training specifications. Regular evaluations and monitoring ensure that communication goes on and is effective:

([5]) Closing the qualitative gap in a rapidly changing economy may be a utopia, because of the delays between the expression of demand by the labour market and the duration of a learning programme and the imperfect reliability of skills forecasts.

([6]) This proposition is essential, as the usefulness of qualification standards depends critically on their impact on teaching and learning practice. However, it is not the object of this study to challenge it. For further work on that issue, see Cedefop research projects (especially: The relationship of learning outcomes on curricula; The changing role of VET teacher and trainers).

Figure 1: **The feedback-loop between the labour market and education**



Source: Adapted from Gielen et al. (2000).

According to this model, qualification standards are the result of interaction between the world of work (embodied by social partners, such as employer and employee associations, as well as professional associations, employment agencies, etc.) and the world of education (teachers and their representatives, awarding bodies, school administrators, education ministries, scientists, etc.). This interaction might be direct (people from both spheres working together to develop qualification standards) or indirect. In the latter case, teachers and other education specialists rely on information gathered through surveys, direct observation and desk research or produced by representatives of business and social partners.

Empirical evidence to support the choice of the feedback-loop model is provided by the project Standards 2000 conducted by the European Training Foundation (ETF) and further developed by (Fretwell, Lewis et al., 2001) on behalf of the World Bank, the ETF and Ohio State University (Mansfield, 2001). On the basis of comparative research, the authors demonstrated how the use of standards in vocational education and training (VET) helps to improve the responsiveness of qualification systems to changing labour market needs. The crucial point here is that training specifications (educational standards) have to be developed based on employment requirements (occupational standards) ([7]), either in an integrated process or successively.

([7]) 'The important lesson for most European countries has been that the design of vocational education and training programmes must start with an employment specification – we cannot move directly to the learning specification and design the curriculum first' (Mansfield, 2001, p. 5).

1.3.2. The ‘good’ link between employment and education

Matching demand and education and training provision by linking educational standards to occupational standards raises the question of how close the link between employment requirements and learning outcomes should be.

It is commonly agreed that VET has to take into account the demands of the labour market in order provide the competences the market needs. The positive impact of a highly educated population on the performance of the economy is widely acknowledged. However, it proves more difficult to assess the effects of a close link between competences certified by qualifications and job requirements are against macro-economic criteria. Comparing the occupations of people holding a particular qualification and the qualifications of people working in a particular occupation, researchers concluded that the link is quite ‘elastic’ even in countries deemed to perform ‘well’ like Germany or the US (Cedefop; Ahola, 1999). It is only for some highly professionalised occupations, most of them high-skilled and sometimes regulated (for instance in the health care sector) that a strong link exists. This suggests that the optimal correspondence between qualifications and employment requirements may vary across occupations.

Lacking clear indicators and agreed preferences regarding the overlap of qualification standards and employment requirements in terms of competences or learning outcomes, it is impossible to assess the link between employment and qualification standards on the ‘content’ side. A comparative evaluation of how the relationship between the competence profile of a qualification and the requirements of particular job-positions impacts on employability and career paths still remains to be done.

Instead, we propose to examine whether instruments, methods and processes to define and renew qualification standards are potentially favourable to developing a well-functioning responsive qualification system.

1.4. Research questions and limitations

This study is limited to vocational education and training (VET), with a particular focus on initial VET (IVET). Information has been systematically gathered for IVET at the secondary/upper-secondary level in the main stream(s) of education (apprenticeship and / or school-based VET depending on the national systems). Whenever possible, additional information has been included on tertiary VET and continuing VET (CVET).

Due to the scope of the study, which includes 32 countries, and the limited previous research, the primary aim of this study is descriptive and explorative.

The collection of data on VET qualifications in the selected countries followed two sets of questions. The first addressed the characteristics of standards:

(a) what are the types of qualification standards?;
(b) what are the categories (descriptors) used to formulate standards?;
(c) what is the understanding of competence underpinning the standards?;
(d) are qualifications modularised?;
(e) are qualifications registered in a national framework or directory?

Standards, being norms and agreed specifications, are themselves an instrument contributing to transparency and thus to better communication between the worlds of education and business. Once the existence of a set of standards has been ascertained, the question arises whether these standards are relevant to the needs of the economy, i.e. whether they truly reflect the demands for qualifications. The second set of questions, therefore, focuses on the institutions and processes leading to the development and the renewal of qualification standards. The objective is to identify whether a feedback-loop exists between work and education:

(a) who are the actors involved in definition and renewal of qualification standards?;
(b) are there formalised procedures/decision processes to develop standards, and what are they like?;
(c) what are the methods used to develop new standards (functional analysis, DACUM, ETED, etc.)?;
(d) what information is used in the process (skill needs forecasts, labour market analysis)?;
(e) what are the evaluation and monitoring mechanisms in place to ensure a regular update of the standards?

1.5. Methodology

This study is based on the comparative analysis of the 32 country reports (see footnote 2), complemented with five case studies.

The country reports were produced following a common template and from information gathered through desk-based research. The following documents were included in the research:

(a) official national and international reports;
(b) legislation pertaining to the VET system and qualifications;
(c) manuals, handbooks and guides published by qualification authorities and similar organisations;
(d) country profiles published by ReferNet under the auspices of Cedefop;
(e) academic literature.

The country reports were quality-assured by the national expert members of the cluster on recognition of learning outcomes managed by DG EAC and Cedefop.

Five case studies further examined standards of two qualifications (plumbing and logistic operations manager), and how they were developed in five countries:

(a) Germany;
(b) Denmark;
(c) Scotland (SVQ);
(d) Poland;
(e) Spain.

The selection of countries was based on geopolitical criteria (new and old Member States) and differences in approach to vocational education and training.

Germany has a VET system which is often presented as an ideal because of its long tradition and orientation towards the concept of *Beruf*. Highly regulated and based on the participation of social partners, is undergoing profound transformation, which makes it particularly interesting to study. Because other countries such as Austria, Iceland, Liechtenstein and Switzerland are influenced by the German system of qualifications, this case study may produce transferable knowledge.

The involvement of social partners in standards development at all levels makes Denmark an interesting case. In recent years, considerable efforts have been made to reinforce the links between the labour market and education through extensive involvement of social partners in formulating qualification standards and training programmes.

Spain has recently adopted an outcome-oriented approach to VET and modularised its qualifications. European policy seems to have played an important role in the conception of the reforms, which aims at making the qualification system compatible with the EQF, ECVET and validation of non-formal and informal learning.

The VET system of the United Kingdom is viewed as a prototype for a modularised qualification system based on occupational standards. It is particularly interesting because the terminology and concepts used in the UK seem to have a huge influence on European policy and reforms in some of the new Member States, for instance Lithuania and Malta.

Poland is moving from a strong input- to an outcome-orientation in VET. In several reform phases the system has been aligned to European VET policies. Current efforts to define a set of occupational standards make it an interesting example, illustrating the developments in the new Member States.

It was thought necessary to examine two qualifications of the same level (ISCED 3) per country to aid the representativity of the case studies within each country. By choosing two qualifications in distinct occupational fields (logistics and plumbing), the risk of generalising findings which are due to specificities of one occupational field is reduced.

The same objective of minimising the effect of field specificities led to the decision to look for similar qualifications in the five countries. However, it is important to stress that it is not the object of the case studies to compare the activities targeted by qualifications across the countries, as the jobs differ considerably in organisational contexts and traditions. Therefore, differences in jobs targeted by the qualifications are acknowledged, but they are not subject to further analysis.

Logistics is a growing sector in Europe, with logistics jobs (excluding transport and support jobs) representing approximately 2-2.5 % of overall employment ([8]). The branch is subject to a high degree of international mobility and professional challenges due to changing technologies. New occupations are frequently created and the demand for well-educated professionals is high, with serious skills shortages. IT competences and language skills are increasingly demanded by employers ([9]).

([8]) Logistic training database: http://www.novalog-project.org/english/database/ [cited 6.11.2008].

([9]) See information presented on the website of the 'Day of logistics' (*Tag der Logistik*) at: http://www.tag-der-logistik.de/26_1 [cited 18.4.2008].

In countries with a large number of specialised qualifications related to warehousing and transport, preference was given to a qualification including administrative aspects (for instance order processing clerk) over management, operative (for instance forklift driver, packer) and supporting aspects.

Qualifications examined in the case studies are:

- Germany: *Kaufmann/Kauffrau für Spedition und Logistikdienstleistung*;
- Scotland (UK): SVQ Logistics operations management;
- Denmark: *Lager- og logistikoperatør*;
- Poland: *Technik logistyk* (342205);
- Spain: *Organización del Transporte y la distribución* (*Cualificación* COM317_3).

Plumbing is the skilled trade of working with pipes, tubing and plumbing fixtures for sanitation, heating, air conditioning and water systems. Plumbing work has a direct impact on public health, safety and welfare, hence in some countries it is a regulated profession (for instance Belgium, Germany and Luxembourg). Due to environmental concerns and energy efficiency issues, it has evolving requirements in terms of skills and knowledge. In addition, it is also an activity characterised by growing mobility.

Qualifications examined in the case studies:

- Germany: *Anlagenmechaniker für Sanitär-, Heizungs- und Klimatechnik*;
- Scotland: SVQ mechanical engineering services domestic plumbing;
- Denmark: *Vvs- og energimontør*;
- Poland: *Monter instalacji i urządzeń sanitarnych* (713[02]);
- Spain: *Planificación, gestión y realización del mantenimiento y supervisión del montaje de redes y sistemas de distribución de fluidos* (*Cualificación* IMA378_3).

The analysis of the standards and of related documents in the case studies was supplemented by qualitative telephone interviews with experts involved in developing the standards (representatives of social partners, officials, or teachers) ([10]).

Qualifications are embedded in a national or regional context. A comparative analysis of 32 countries raises two sorts of difficulties: the first is understanding since, even where the same words are used, they may have different meanings. Formal similarities might conceal disparities and even contradictory informal practices. The second difficulty arises as soon as we move from pure description to interpretation and assessment: some institutional features or methods may be functional in one context and dysfunctional in a different context. The risk of oversimplification and generalisation associated with comparative research cannot be excluded but it can be reduced.

The strategies adopted in this study to cope with these problems are, first, 'technical' solutions:

(a) providing detailed information in the country reports;
(b) recontextualising information when illustrating statements with examples;
(c) using terms in the original language, with English translation and definition whenever needed;

([10]) The names of the experts are included in Annex 1.

(d) specifying the type of qualifications examined, at least when there are differences within a country between different levels or segments of the VET system;
(e) submitting research results to national experts;
(f) conducting case studies in a range of countries to provide more reliable data for verifying hypotheses.

Second, the research results were compared and interpreted along with the results of other Cedefop projects addressing on qualifications (learning outcomes, quality assurance, validation of informal and non-formal learning, modularisation, etc.). This was done to compensate for the narrow focus of this research by including new parameters into the interpretation process.

2. Qualification standards and transparency

2.1. Transparency and communication on qualifications

Standards, being 'norms and specifications', are a means of encouraging transparency and communication about the value, the character, the profile, and the requirements of the learning experience which led to the award of a qualification, and the requirements linked with the performance in the occupation targeted by the qualification.

Nationally, qualification standards are important in facilitating communication and coordination between various actors involved in education, the labour market and human resource management: public employment services, human resource departments, schools and awarding bodies, and individuals seeking a job or wishing to engage in further learning.

Internationally, standards are of even greater importance in encouraging transparency about qualifications, as they make explicit the character and content of learning processes and outcomes which may be taken for granted by national actors familiar with the system.

A first difference among national VET systems appears to be the degree of standardisation of qualification systems: the objects and the level of abstractness of standards differ, as do the designation of standards.

2.2. Standardisation in European qualification systems

2.2.1. Occupational standards

For the sake of this research, a broad definition of occupational standards was adopted: occupational standards are 'classifications and definitions of the main jobs that people do'. Their main feature is the bridging function they perform to link qualifications to the labour market, but definition can be refined by further examining how they perform this function.

This can be done through standards of various characteristics such as content, terminology used, and mode of development. When clustering the occupational standards described in the 32 country reports, it is possible to identify three different ways in which occupational standards establish a link between qualifications and occupations on the labour market. These different ways, in turn, account partly for the different characteristics of occupational standards in terms of form and content.

A first group of occupational standards is primarily conceived as a classification system providing categories for statistical monitoring of the labour market. Occupational standards of this type, for instance ISCO-88, do not necessarily express competence requirements of the labour market. However, qualifications may refer to them for guidance and the classification may be used also to collect information prior to developing qualification standards. In some countries, more elaborate classifications of occupations provide information on competences, work conditions, and qualifications required to get a job position in that occupation: this is the

case in France with the *Répertoire Opérationnel des Métiers et des Emplois* (ROME) ([11]). The key features of these standards is their comprehensiveness; all 'the main jobs that people do' in a country are systematically registered and classified.

A second group of occupational standards takes the form of benchmarks for measuring occupational performance, in either a work or an education context. Like the standards in the first group, they tend to include all the occupations existing on the labour market. The idea of benchmark inherent in them leads to formulation of performance requirements, meaning that they are based on a systematic work analysis and that they are measurable. The best example for this kind of occupational standards is the national occupational standard in the United Kingdom. They serve as a reference to develop qualifications and learning programmes, but they are also used in human resource management for assessing learning needs or benchmarking good practices ([12]).

A third group of occupational standards describes the occupation to which a specific qualification should lead. In this case, occupational standards are developed in an integrated process with educational standards. For each qualification, occupational standards are developed first to serve as a basis for defining educational and assessment standards. Spain can be seen as an example of this approach. In addition, occupational standards in that group can be related to different job positions in a classification of occupations. This is the case in France and in French-speaking Belgium for instance: standards describing the professional activities and competences typical for the holder of a particular qualification (*référentiel d'activité/de compétence* in France, *profil de qualification* in Belgium) make reference to various occupations described in the *Répertoire Opérationnel des Métiers et des Emplois*. This is a model typical for regulated systems, especially in IVET, where qualifications are awarded by the state (sometimes in cooperation with social partners), and where one qualification corresponds to one occupational profile.

The rationale for developing occupational standards is the strong assumed link between employment requirements and education when qualifications are related to occupational standards. Standardisation is expected to aid keeping qualifications up to date and relevant to the needs of the labour market.

These arguments, and the fact that most countries have developed, intend to develop, or are in the process of developing occupational standards, raises the question of why some countries do not possess such standards in IVET. These countries include Denmark, Finland, Germany, Ireland, Norway and Sweden.

IVET qualifications in these countries are competence-based, but although standards are formulated in terms of learning outcomes, they do not explicitly refer to a description of 'the job that people do' in terms of tasks, activities and associated competences.

([11]) See: www.anpe.fr/espaceemployeur/romeligne/RliIndex.do [cited 6.11.2008].

([12]) See: www.ukstandards.org/ [cited 6.11.2008].

Table 1: **Types of occupational standards (OS) in Europe**

OS = classification of the main jobs	**OS = benchmark for assessing occupational performance**	**OS = occupational profile associated with a qualification**	**No OS at all**
France (*référentiel métier*) Greece (in preparation) Romania Slovenia Switzerland (*Tätigkeitsprofil*)	Belgium (CVET: *beroeps-competentieprofiel*) Lithuania Malta (planned) Poland United Kingdom	Austria Belgium (*profil de qualification*) Estonia France (*référentiel d'activité*) Hungary Italy Latvia Luxembourg Netherlands Portugal Spain Switzerland (*Qualifikationsprofil*) Turkey (developed on a project basis)	Bulgaria Cyprus Czech Republic Denmark Finland Germany Iceland Ireland Liechtenstein Norway Slovakia Sweden

Source: Country reports (see footnote 2).

One explanation may be that learning outcomes are based on ('implicit') descriptions of occupations, which do not have the character of qualification standards (i.e. of agreed norms and specifications included in or referred to in qualifications). This seems especially to be the case in Ireland, where representatives of business contribute their expertise in defining learning outcomes which, in fact, reflect the competences needed to perform in an occupation ([13]). In the Scandinavian countries, qualifications in IVET target large occupational fields, with specialisation occurring gradually in the course of education programmes. At secondary level IVET qualifications include competences needed in a particular occupational field, but they are based on occupational standards. The link between qualifications and employment requirements is further ensured through active participation of social partners in the design of curricula.

In Germany, a short description of the occupation is developed in the process of defining a new qualification and then put online, to be used for guidance. Similar to Denmark, a list of tasks/skills and knowledge areas called *Berufsbild* (image of the occupation) or *kompetence-områder* (competence field) is sometimes seen as occupational standards. According to our definition, they correspond to educational standards, because their purpose is not systematically to describe an occupation, but to describe the tasks, knowledge areas and skills which will be covered by the education and training, providing a form of 'training plan'. For German qualifications, these positions are further detailed in the form of learning objectives for work-based learning in the *Ausbildungsrahmenplan*. In Denmark, the

([13]) According to the definition given by the Further Education and Training Awards Council (FETAC), competence 'refers to the process of governing the application of knowledge to a set of tasks that is typically acquired by practice and reflection. It is the effective and creative demonstration and deployment of knowledge and skill in human situations. Such situations could comprise general, social and civic ones as well as specific occupational ones'.

competence fields are reflected in a more detailed enumeration of job-specific tasks and competences in the branch-specific regulation, the *Bekendtgørelse om uddannelser i de erhvervsfaglige fællesindgange*. The framework curriculum (*uddannelsesordning*) refers directly to the relevant *bekendtgørelse* and links single subjects to the list of competences.

A comparison of occupational standards leads to the conclusion that, behind the similarity suggested by the use of a single term, sit various standards in terms of form, content and functions. This variety is not surprising, as VET systems across Europe are also very diverse. However, it could be worth analysing the costs and benefits of linking education and employment of various kinds of occupational standards in their national context.

2.2.2. Educational and assessment standards

According to a very broad definition, educational standards 'focus on what people need to learn, how they will learn it, and how the quality and content of learning will be assessed'. In contrast to occupational standards, which are written following the logic of the occupation, educational standards follow a pedagogical logic. As an example, occupational standards may include a list of competences, clustered to follow the main tasks and functions of an occupation: the aim is to deliver a systematic description of the occupation. In contrast, educational standards include a list of competences organised in learning fields or teaching units, following the logic of progressive accumulation of knowledge and skills: the aim is to steer the learning process. Differences in the content of occupational and educational standards are possibly because some competences required at the workplace are beyond the scope of educational and assessment processes.

As the research focuses on qualifications, educational standards are understood to include all specifications for learning included in the document regulating the award of a specific qualification. This may include curricula or framework curricula in countries where teaching content is regulated centrally. This may also include specifications about the learning environment, duration of studies, qualification of teachers and trainers, etc. However, when comparing occupational and educational standards and their relationship, the focus is on educational standards regulating the content of teaching and/or learning outcomes.

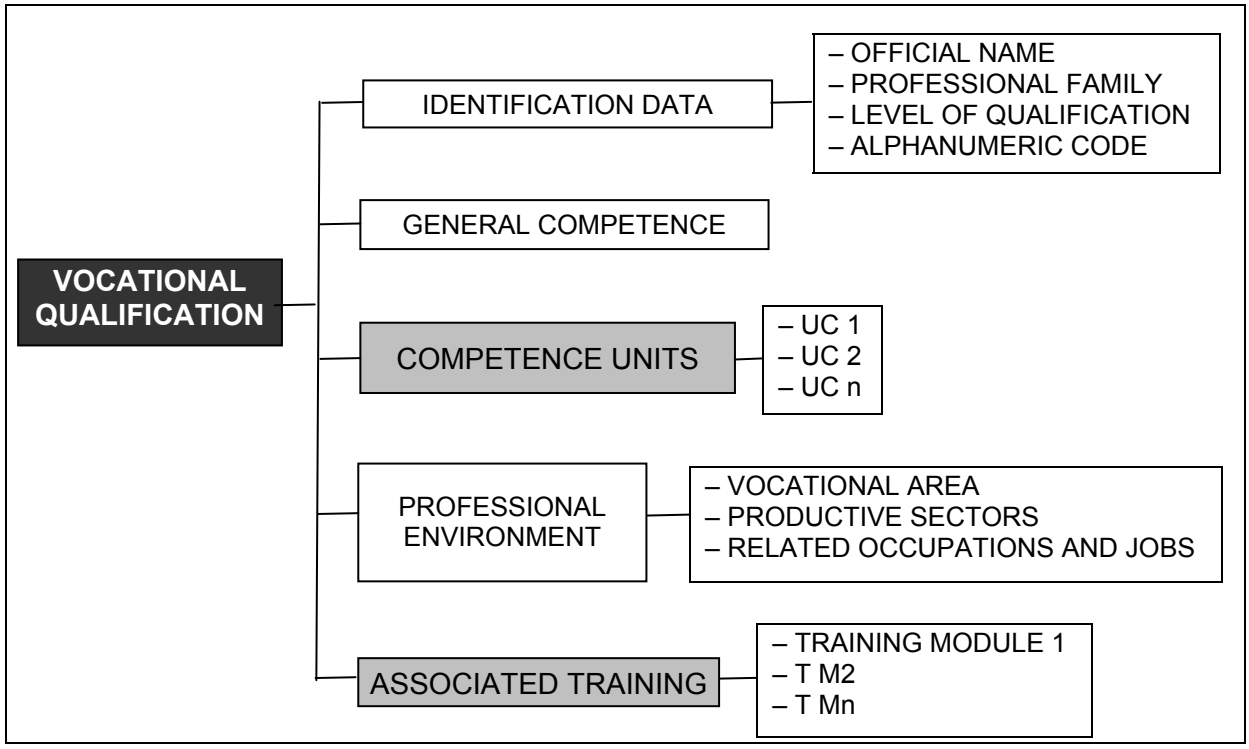
2.3. The relationship between occupational and educational standards

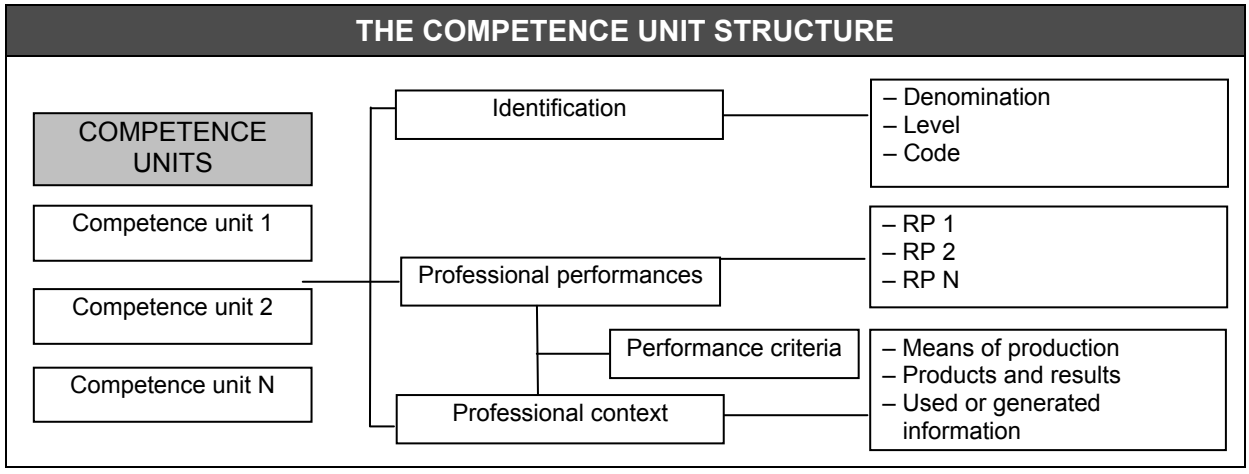
Qualifications are situated at the interface between the worlds of work and of education, generally awarded as the result of learning and used on the labour market (Chapter 1). Accordingly, the award of a qualification can be based on the regulation of education or on the requirements of the labour market. In most cases, qualifications address both aspects.

In the majority of countries, qualifications are based on both occupational and educational standards, these standards being integrated and linked together to make the relationship between employment requirements and learning more evident.

The Spanish vocational qualification system provides a good example of integration of occupational and educational standards in qualification specifications.

Figure 2: **Structure of vocational qualifications (Spain)**

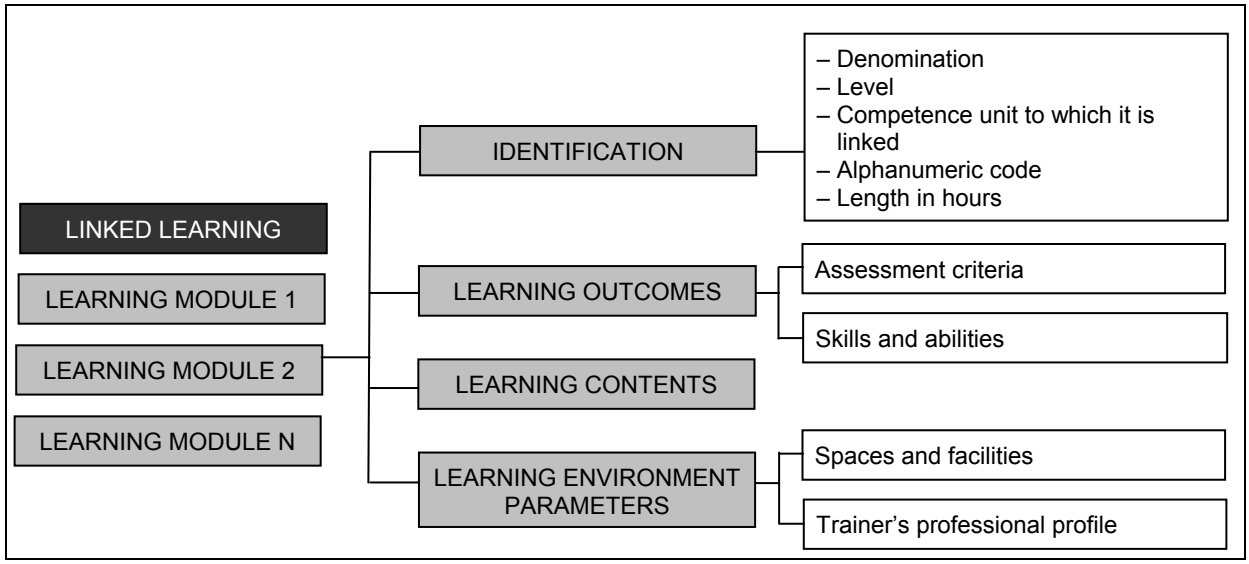




Source: Incual: National catalogue of qualifications, March 2008.

To link better the competences described in occupational standards and learning outcomes defined in educational standards, each training module (*módulos formativos*) is associated with a competence unit (*unidades de competencia*).

Figure 3: **Structure of training modules, vocational qualifications (Spain)**



Source: Incual: National catalogue of qualifications, March 2008.

Another example of the relationship between occupational and educational standards is provided by the qualification structure (*landelijke kwalifikatiestructuur*) in the Netherlands. Occupational standards (*beroepscompetentieprofiel*) exist for 237 occupations. They contain a broad job description with core functional or technical tasks (*kerntaken*) and core behaviours (*kernopgaven*). These are associated with competences subdivided into four dimensions: method or process, administrative-organisational or strategic, social-communicative, and development (referring to competences that contribute to the development of an individual, team, occupation, organisation or business). These competences are described in terms of knowledge, skills and attitudes. Educational standards (*kwalificatieprofilen*) are formulated as learning outcomes. They include the competences described in occupational standards as well as in learning and citizenship (*leer- en buergershapscompetenties*) and preparing for further education on secondary or tertiary level (*uitstroomdifferentiaties*). Educational standards serve as a basis for curriculum development (input-focus), which is left to the responsibility of training providers.

In a second group of countries, qualifications are based solely on educational standards. Some countries are in the process of reforming their qualification system; Greece and Cyprus are developing occupational standards and plan to link training programmes and qualifications to these standards. Poland has already developed a set of standards, but educational standards and qualifications have not yet been linked to it.

Germany, Denmark and other Scandinavian countries have developed competence-based qualifications, but do not possess occupational standards (see Section 2.2.1.). Other coordination mechanisms are used to ensure a strong link between qualifications and the labour market. The involvement of the economy in training provision or participation by social partners in developing educational standards may be such coordinating mechanisms, fulfilling the same function performed elsewhere by occupational standards.

Finally, qualifications may be based solely on occupational standards, as with Scottish national vocational qualifications in the UK. Qualifications are only based on assessment

standards, which are identical with occupational standards. NVQs can thus be awarded as the result of informal, non-formal or formal learning without distinction. Curricula, learning programmes and learning materials for such qualifications are developed in a decentralised system by training providers themselves. A similar system also exists in Lithuania.

The dominant model of IVET qualifications in Europe is based both on occupational and educational standards. Standardisation is thus widely used as one instrument to coordinate education provision and employment requirements. Taking the research a step further, it is necessary to examine the content of standards: are they addressing learning outcomes?

3. Linking through outcome-orientation

3.1. Introduction: outcome-oriented standards and VET

The formulation of educational standards as learning outcomes is seen as an effective way to aid the link with employment requirements, as they target competences.

Standards of learning outcomes can be defined as 'statements of what a learner knows, understands and is able to do on completion of a learning process and are defined in terms of knowledge, skills and competences' (Cedefop, 2008b, p. 15). Learning outcomes are at the heart of what is generally called competence-based education, meaning that education should 'enable students to acquire the competencies needed in their future profession and in society as a whole' (Biemans et al., 2005, p. 523). The focus is thus shifted from what is being taught and how it is being taught (input), to what a student will know and will be able to do (output/outcome).

Competence-based education has become very popular; it emphasises the idea of empowerment and 'fits very well within the policy discourse of employability and lifelong learning' by 'rendering learning processes and outcomes that are measurable and manageable throughout [the] lifespan' (Biemans et al., 2005, p. 526). But although this approach is seen as particularly effective in closing the gap between education provision and employment requirement, associated risks should be kept in mind. Bureaucratisation and the tendency to lag behind the developments of work practice could jeopardise the bridging function standards are intended to perform between education and employment. In addition, using learning outcomes to formulate standards and to shape assessment practices should have a strong impact on curriculum design, on delivery and on teaching evaluation. For those countries where this approach is new, adopting it may signify a 'paradigmatic turn' which implies a whole range of other VET reforms. In a first stage of such reforms, there might be a gap between formal (conceptual, institutional and legal) developments on one hand, and the practices of education and training professionals in the field on the other hand.

As it is not the object of this report to analyse the advantages and disadvantages of using learning outcomes, risks and questions cannot be further examined. The country reports, however, illustrate a general shift to learning outcomes, which corroborates the theses of the popularity of competence-based education.

3.2. Shift from input to outcomes

A recent Cedefop publication mentioned, on using learning outcomes, that 'most European countries are planning or making a marked shift in this direction and learning outcomes feature as a component of lifelong learning strategies and mechanisms for implementation' (Cedefop, Leney et al., 2008, p. 94). The results of the desk research in the 32 European countries participating in Education and training 2010 seem to confirm this conclusion also for VET. Qualification standards are formulated increasingly as learning outcomes, although there are still different understandings of learning outcomes (see Section 3.3.).

If we consider standards to be outcome-oriented when they include a set of knowledge, skills or competences to be attained, irrespective of their name (learning objectives, performance standards, learning outcomes, etc.), we find that the vast majority of countries have adopted or are in the process of adopting outcome-oriented standards.

Table 2: **Outcome-orientation of qualification standards in Europe**

Standards are outcome-oriented	**The introduction of outcome-oriented standards is being prepared**	**No formulation of outcome-oriented standards / no information**
Belgium Denmark Estonia Finland France Germany Hungary Iceland Ireland Latvia Lithuania Malta Netherlands Norway Poland Portugal Slovenia Spain Sweden Switzerland United Kingdom	Austria Bulgaria Czech Republic Italy Luxembourg Romania Turkey	Cyprus Greece Liechtenstein (*) Slovakia

(*) As far as the national vocational school is concerned, standards are input-oriented.

Source: Country reports (see footnote 2).

The above classification is only an attempt to illustrate the popularity of outcome-oriented standards. Qualification systems are changing over time, especially against the background of recent developments of (national) qualification frameworks and credit systems, whereas this classification simply reflects the situation described in the country reports written at the beginning of 2008. In addition, differences may exist between segments of VET within a country.

Having acknowledged the general shift towards a learning-outcome based approach to qualification standards, it is necessary to distinguish between different understanding of learning outcomes.

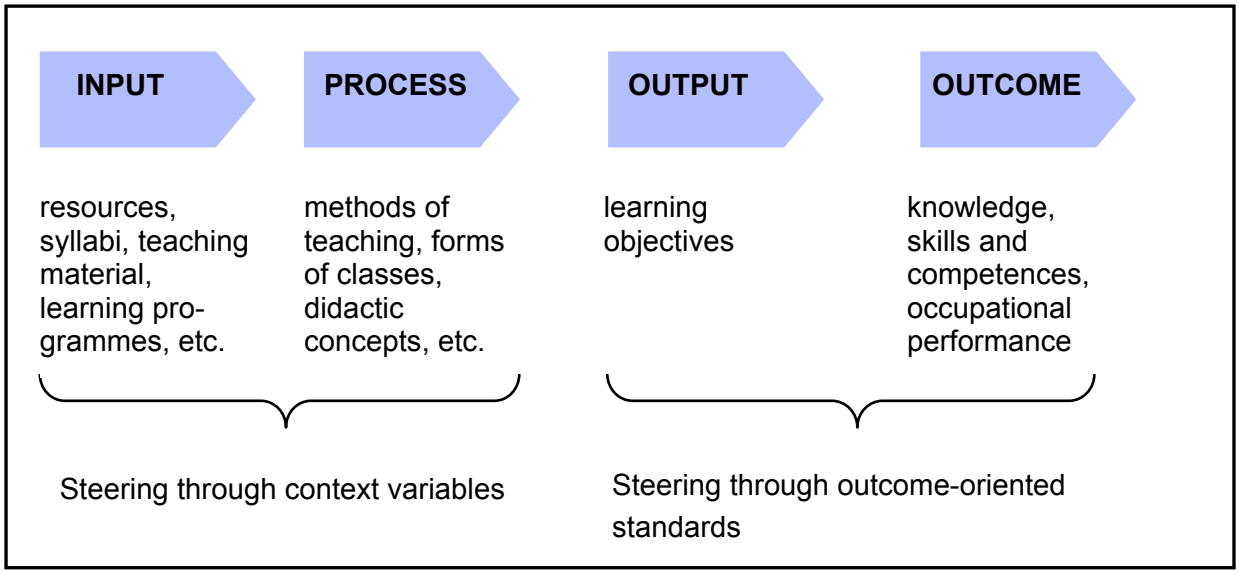
3.3. Different understanding of competences

3.3.1. Different concepts of competences

Policy instruments for steering education and training systems can be categorised according to their education target (Sloane, 2007):

A degree of confusion seems to persist regarding the difference between output and outcome of education and training. According to the above graph, output can be defined as the results of learning in an educational context, whereas the outcome of learning is the capacity of an individual to implement what he or she has learned in a ‘real life’ professional context.

Figure 4: **Steering the education and training process**



Source: Adapted from Sloane (2007).

In practice, however, few countries explicitly acknowledge the difference between output and outcomes in their standards. To distinguish neatly between output- and outcome-oriented standards, it would probably be necessary to agree on the implications of both types on teaching and assessment practice, and to take the implementation in a specific national context into account.

For the purpose of this study, output- and outcome-standards are summarised as 'outcome-oriented standards'. This concerns the results of learning, especially in terms of competences, and raises three questions:

- what does 'competence' mean?
- how can competences be measured / observed?
- what competences should stand as the result of learning?

Typically, two different understandings of 'competence' are opposed in Europe, with more or less distinct intermediate categories (Brockmann, 2007). These differences impact on the formulation of standards.

First, a 'functionalist' concept of competence is used in the UK system of national vocational qualifications (NVQs), which are based on national occupational standards (NOS) ([14]). Competences describe good practices, what is required in the workplace (rather

([14]) To avoid oversimplification, it is necessary to add that NVQs are but one type of vocational qualifications in UK, and that they do not include any provisions regarding learning. When taken by learners in secondary education (age 14-19), NVQs may be attained through school-based training as well as through work-placement or a combination of both. In any case, it is strongly recommended by the Qualifications and Curriculum Authority to combine at least one more general qualification with the chosen NVQ, especially to develop key skills such as communication, ICT, mathematics, etc. As a consequence, it would be useful to conduct further investigations to understand what theoretical model of competence underpins the practice of teachers and curriculum developers in secondary schools and colleges. Considering the high degree of

than what people are like) and play a role in linking organisational strategy and individual training needs (Cedefop and Winterton, 2006). They are divided into units of competence reflecting functions or roles in an occupation; the focus is on the object of activity, rather than on the personal qualities of the subject. In NVQs, competence standards are composed of knowledge ('you will know and understand: …') and practical skills and behaviours ('you will be able to: …'), and they can be measured (Weigel et al., 2008). The underlying assumption is that competences can be made explicit and can be observed. The functionalist approach requires standards to be derived systematically and logically from analysis of occupational requirements.

This approach has been adopted in many countries that started recently to reform their VET system and have chosen to follow the British approach, for instance Cyprus, Lithuania, Malta and Turkey.

A second, more 'holistic' understanding of competence, has been developed in Germany. The concept of action competence (*Handlungskompetenz*) is subject-centred and includes implicit knowledge and skills, meaning that it cannot be fully documented and measured. *Handlungskompetenz* refers to the role of the learner in the context of a profession (*Beruf*) and in society as a whole. As the overall goal of VET, it is located on the 'outcome' side of the process graph after Sloane (see above).

Handlungskompetenz (a word which exists only in the singular) entails four dimensions: occupational competence (*Fachkompetenz*), personal competence (*Personalkompetenz* – attributes of a person), methodological competence (*Methodenkompetenz*) and social competence (*Sozialkompetenz*). This model of competence provides a theoretical background for organising education and assessment. However, the four dimensions are not broken down to standards of learning outcomes. Educational standards for the school-based part of training refer to *Handlungskompetenz*, but they are formulated as learning objectives (*Lernziele*), not as learning outcomes. Educational standards for the work-based part of training are organised according to the main activities, tasks and knowledge areas identified in the *Berufsbild* (professional profile). They are formulated in terms of 'skills and knowledge'. To ensure that the theoretical (school-based) and the practical (work-based) part of training correspond, occupations are divided into activity fields (*Lernfelder*), to which learning objectives for the school-based training are ascribed. A checklist is used to ensure that skills and knowledge acquired in the workplace are also treated in class.

Other countries with a VET system resembling the German system, like Denmark, Switzerland and Austria, are adopting similar approaches.

For a range of countries, the understanding of 'competence' cannot be classified into one of these two categories. They form a third group tending to reconcile a concept of competence as a divisible entity, and a more holistic approach integrating the different dimensions of competence ([15]). In the French context, competences are understood as resources, on which an individual can draw to act (such as to solve problems) in a given

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flexibility and decentralisation of the British VET system, it was not possible to include such research in the case studies.

([15]) Biemans (2007) and Brockmann (2007).

situation. Competences have multiple dimensions (cognitive, experiential, behavioural) and they are manifested in actions taking place in a given organisational context; this approach tends to reconcile the individual dimension of competence as an attribute of the person, and the organisational or contextual dimension of competences ([16]). The methodology used in France to develop occupational standards is based on this definition, leading to formulation of standards taking into account the working conditions and organisational contexts in which tasks and activities are performed. Similar approaches are implemented in Belgium (Wallonia).

3.3.2. Similarities and differences in the formulation of learning outcomes

Different approaches of competences, allied with different goals ascribed to VET in general and to qualifications and qualification standards in particular (Gelibert and Maniak, 2007, p. 45), lead to differences in the formulation of standards, such as a more or less systematic mapping of competences and the inclusion of context information about work conditions and equipments. Despite these differences, however, comparison of standards targeting learning outcomes or learning objectives also reveals important formal similarities.

Table 3: **Example of item No 5.1 of the professional profile of the vocational qualification in logistics, as developed in the general training plan (Germany)**

Position in the professional profile	Skills and knowledge, which have to be conveyed involving autonomous planning, executing and controlling capacities of the student
Sending goods and transport	Compare performance of transport modes (road, rail, air, water). Assess adequacy of transport modes for specific goods, taking into account norms and regulations. Make use of the possibility of combining different modes of transport. Choose a transport route following economic and geographic criteria. Assess capacities in combined transport modes. Describe the organisation of transport as one core element of logistics, and explain the difference with own-name operation. Choose service providers, especially freight carrier. Make arrangements for transportation means and technical equipment with regard to charging and discharging schedules. Describe area of application of handling technologies and equipments.

Source: *Ausbildungsordnung Kaufmann/Kauffrau für Spedition- und Logistikdienstleistungen* (2003).

([16]) See for instance the definition of competences provided by Mandon in (Liaroutzos and Sulzer, 2006, p. 7): '*Le savoir-mobiliser ses connaissances, capacités et qualités pour faire face à un problème donné. Les compétences expriment le rapport entre les hommes (leurs savoirs) et les emplois découpés par l'organisation (postes*)': (being able to draw on one's knowledge, skills and attributes to cope with a given problem. Competences express the relation between individuals (their knowledge, know-how, etc.) and the occupation defined by organisations (jobs)).

Table 4: **Example of standards, vocational qualification 'Logistics operations management' (Scotland)**

Skills for Logistics National Occupational Standards for Logistics Operations Management	
Unit LOM6	Utilise transport modes in logistics operations

You will be able to:	**You will know and understand:**
1) Review the nature of the supplies being handled in the logistics operations	**Transport modes**
2) Identify the main transport modes and transportation routes used to deliver the supplies to their destination	a) advantages and disadvantages of different transport modes
3) Identify any factors that affect the transportation of the supplies	b) types of vehicles used in different transport modes
4) Select the most suitable transport modes to enable supplies to reach their destination according to the organisation's requirements	c) major routes, transport hubs, and destinations
5) Coordinate logistics resources to work effectively with the selected transport modes	d) geography of routes and destinations
6) Ensure the data that is required to use the transport modes is processed correctly	**Legislation and regulations**
7) Report work activities and record them in the appropriate information systems according to organisational procedures	e) legislation and regulations relating to health, safety, and logistics operations
8) Comply with all relevant work and safety legislation, regulations, standards, and organisational procedures	f) sources of information on legislation and regulations
	g) regulatory bodies and their compliance requirements
	Organisational procedures
	h) roles, responsibilities, and management systems
	i) working practices, operating procedures, guidelines, and codes of practice
	j) information systems and communication methods used by the organisation

Source: National occupational standards (NOS) directory. See: www.ukstandards.org

An initial similarity is the abstract nature of competence descriptions. Baethge (Baethge, 2006, p. 35) distinguishes between five levels:

(a) 'generic': transferable competences ('key skills'), not linked to a particular occupational context;
(b) 'occupational': targeting occupational competences for a wide range of occupations, formulated in a highly abstract way;
(c) 'task-specific but independent of specific jobs': linked to the description of specific tasks (for instance roof tiling) without describing exactly how the task has to be fulfilled;
(d) 'job-specific, enterprise-specific' based on the description of the way tasks have to be executed in a specific organisational context;
(e) 'person-specific' based on a description of how an individual carries out tasks in a particular system.

The qualification standards describing learning outcomes in the five case studies can all be characterised as 'Task-specific but independent of specific jobs' ([17]).

The target level of the standards is also similar according to the typology proposed by Pilz (2006), who distinguishes between:

- minimal standards: all the standards have to be met to be awarded the qualification;
- average expectations: weaknesses in one area can be compensated by particular strengths in other areas;
- maximal standards: these standards express best practices and represent goals to be striven for.

The qualification standards in the examples provided here are setting minimal standards.

Formal differences exist especially concerning:

- the degree to which standards systematically describe all the skills and knowledge needed to perform certain tasks and activities: whereas NVQ standards adopt a very systematic step-by-step description, standards in Denmark, Germany or Poland are more heterogeneous, being very detailed in some areas or qualifications and less in others;
- the categorisation of knowledge, skills and attitudes.

Differences in the formulation of outcome-oriented standards can partly be traced back to the understanding of competences underpinning them (see Section 3.3.1.). Another factor may be the function of outcome-oriented standards in learning and assessment, which may be:

(a) to provide performance criteria for assessment: standards have to be very detailed and associated with success criteria (for instance through the use of adjectives and adverbs);

(b) to formulate learning objectives for the design of curricula: standards may be very detailed and binding in a regulated system like the UK, or they might be rather unspecific to allow different forms of implementation, as in the German dual system where work-based training is provided in companies which may be very different;

(c) to describe the competences associated with a qualification: when qualifications are based on standards regulating the input-side of learning, learning outcomes can be described on a very general level to inform stakeholders about their content and/or to provide a basis for relating the qualification to a qualification framework.

The idea that standards of learning outcomes might be helpful for linking education and employment is widely accepted and most European countries have reformed their VET system to make it more competence-oriented. However, there is still a broad range of diverging theories and practices and no comprehensive evaluation to assess the actual contribution of outcome-oriented standards to a better match of demand and provision of training. Existing differences in the understanding of competences and the formulation of learning outcomes may be justified in different national contexts. However, they could prove problematic when efforts are made to compare qualifications across national borders.

([17]) For more examples, see footnote 2.

4. Linking through scientific work analysis

4.1. Examples of methods and information

The existence of standards alone does not provide any guarantee of a better link between employment and education. The relevance of standards is of crucial importance: how should standards be developed and updated to reflect the needs of the labour market? Scientific methods are one essential instrument.

Methods can be focused either on the analysis of work, to identify tasks and related competences, or on translating the results of that analysis into curricula and learning programmes. Some methods, such as DACUM (developing a curriculum) cover both functions (Bauer, 2008).

The following methods are especially popular for developing occupational standards and job descriptions to provide information for defining educational standards:

(a) DACUM: identification of major tasks and duties, as well as knowledge, skills, tools and equipment, is carried out in a guided group discussion among experienced workers. Experts are asked about future developments and trends, and the results are checked with other workers and through a survey. This method is used in Slovakia and in a project for developing qualification standards in Turkey;

(b) functional analysis: the key purposes of an occupation are identified and subdivided into functions and sub-functions until the outcomes of each function are identified. The outcomes are what individuals are expected to achieve. They are further analysed to determine performance criteria. Practitioners, managers and users are consulted to develop the standards and to confirm their accuracy (Mansfield and Schmidt, 2001, p. 15). This method is used in Spain, Lithuania and the United Kingdom;

(c) ETED (*Emploi-type étudié dans sa dynamique*): this method is based on the understanding of competences as resources on which an individual can draw to act in a given situation and organisational context (see Section 3.3.1.). Accordingly, it aims at linking the individual and the organisation to analyse jobs. Two kinds of dynamics are taken into account: the development trends (economic, technical, etc.) which are likely to modify sensitive areas or activities of the job, and the possible or observed extensions of activities around the basic core activities common to experienced job-holders. The development of a job profile is based on gathering a large quantity of contextual information, on interviews with managers and job-holders, and on validation by the job-holders involved ([18]);

(d) mixed methodologies: one example of mixed methodologies, which are widely used, is the conference method developed by the Higher Institute for Labour Studies in Belgium.

([18]) Mandon and Suzer (1998) and Liaroutzos and Sulzer (2006).

This method combines desk research, interviews and guided group discussions. First, a draft profile of the occupation is prepared, that identifies executive, preparatory, supporting and organising tasks, as well as competence requirements and the context in which the occupation is performed. This draft is assessed within a guided group discussion (conference) involving practitioners, social partners, vocational training providers, etc. Before a final evaluation of the profile takes place, sector experts are asked to discuss future developments affecting the occupation (Bollen and Ramioul, 2004, p. 15).

Research did not focus on comparative analysis of these methods but on gathering information about which methods are actually used. Analysis of documents and interviews provided more detailed information for Denmark, Germany, Poland, Scotland and Spain and revealed that different methods and information are often used depending on the qualification to be defined.

4.1.1. Germany

The qualification for 'plant mechanic for sanitary, heating and air-conditioning systems' was developed in 2003 to replace two qualifications: one specialising in heating and air-conditioning systems and one in water and gas systems. When the standards were reviewed, it was not felt necessary to conduct systematic work-process analysis, as existing standards could be used as a basis. The results of several research projects concerning themes and competences new to the former two qualifications were integrated in the process: the design of learning arrangements for renewable energies; a pilot project focused on cross-occupational electrical engineering competences; and the benefits and arrangements for learning with order processing.

The qualification for 'Freight forwarding and logistics services clerk' was updated following extensive evaluation of training and qualifications in the logistics and transport sector. Research focusing on the freight forwarding and logistics services clerk was carried out in form of case studies in 15 companies, with qualitative interviews of managers, expert workers, apprentices and staff representatives. A telephone survey was carried out later among 122 managers, workers and in-company trainers to confirm the results of the case studies. Study visits were further organised in vocational schools and assessment sessions.

The interviews did not provide extensive information on the methods and theoretical models used in developing the framework curriculum for the school-based part of training. Apparently, the definition of learning fields and learning objectives was primarily the result of intensive debates between the participants. This contrasts with the extensive scientific literature on the subject of curriculum development methods.

4.1.2. Denmark

Standards for both qualifications examined in the case studies have been revised and updated in 2007. Although no large-scale changes to the existing standards were considered necessary, the revision process lasted about a year. The interviews conducted with members of the Ministry of Education who had participated in the process revealed that negotiations

between the social partners, who are represented in the trade committees, played an essential role in definition of standards. Trade committees usually use different instruments to conduct sector analysis and skill forecasting to provide data for standards: surveys, focus group interviews and case studies are used. The committees also consult training providers in the course of the process to consider the teaching and training realities of standards.

4.1.3. Poland

The development process for Polish vocational qualifications standards has been designed in several, partially EU-funded, reform projects. Standards are defined based on information gathered through research in companies and interviews with professionals in order to analyse the workplace and job requirements for the qualification in question. In phase 1, representatives from the relevant professional associations and social partners, and experts in work analysis, labour psychology, pedagogy and vocational counselling, develop a questionnaire for the research on up-to-date job requirements. According to an interviewee responsible for methodological aspects of standard development, 40 professionals and human resource managers have responded to that questionnaire for the qualification as *monter instalacji i urządzeń sanitarnych*. Additionally, education and labour market experts are asked for their opinion on future skill needs (phase 2). Besides this information, strategic national development plans on education, forecasts of labour market development and national and international publications on professional change are also used in the process.

After analysis of the research results (phase 3), the qualification standard is written by representatives from education providers. In phases 5 and 6, the standard is evaluated during a seminar with the team of authors and three external evaluators from recognised authorities and practitioners of the profession, then extensively reviewed by representatives from branch-related education providers and universities. In the final phase, vocational qualification standards are sent to the Commission for Qualification Standards (Komisja ds. Standardów Kwalifikacji) and its branch-related committees for final evaluation ([19]).

4.1.4. Spain

The methodology of standard development is, according to the interview partners from the National Institute for Qualifications (Incual), characterised as participative, providing for the participation of employers, trade unions and administration in all stages of the process. Professional qualifications are designed by working groups comprising experts in the respective professional domain and in vocational training. Functional analysis was used to develop the standards in logistics and plumbing. Information on other EU countries, sector analysis and technological input from experts completed the picture. Training modules are based on competence units, which include information on the professional context and performance criteria. Once developed, they are subject to external review by public

([19]) The process of standard development has been described in detail by Kwiatkowski and Woźniak (2006). See also website of Doradca Consultants Ltd. at www.doradca.com.pl [cited 6.11.2008].

administration, employer organisations, and trade unions from the respective branch before being approved by the Council of Ministers of Spain.

4.1.5. United Kingdom (Scotland)

The sector skills council responsible for the development of occupational standards and NVQs in the logistics sector, Skills for logistics ([20]), developed a sector skills agreement in each of the four nations of the United Kingdom, setting a strategy for the supply of the right skills to the industry. In Scotland, this agreement is supported by Scottish employers and key stakeholder organisations. In the process of developing the agreement, important research activities were carried out to identify skill needs. The research was used as background information to develop the occupational standards and the structure of the SVQ/NVQ level 3 'logistics operations management'. The standards themselves were developed by functional analysis.

The preparation of the sector skills agreement is a five-stage process, with the first three stages dedicated to research activities. In December 2004, the SSC appointed a consultancy, Social Research Associates (SRA) to assist in the data gathering and analysis of the first two stages of the SSA process throughout the UK. Stage 1 dealt with current and future skills needs, Stage 2 with the assessment of current training provision, and Stage 3 with the analysis of the gaps and weaknesses in current workforce development activity.

Stages 1 and 2 used several sources of information: a review of relevant literature; a survey of training provided by firms in-house, by universities, further education institutions and private training companies; a review of statistical sources and quantitative information; discussion groups with practitioners and students in logistics; in-depth interviews with key informants in the industry and higher education; and 'moral maze' debates to hear evidence from industry, trade unionists and other experts (Moral maze is a BBC-4 programme taking the form of a controversial – even combative – debate between members of a panel). Stage 3 started with a series of workshops seeking the views of invited industry representatives on the validity of the identified skills gaps, and their ideas for potential solutions to the problems in the industry caused by these gaps. A series of scenarios were then developed, from the gaps identified in the earlier reports, and the responses received from discussions at the workshops. Finally, participants were invited to make further comments through the submission of a 'further comments' form issued at the workshops, or via e-mail.

4.1.6. Further needs

Whereas our interview partners could provide very detailed information on the methods used for analysing work requirements, it was more difficult to obtain information on the methods and theories used for translating these requirements into educational standards, curricula and learning programmes. Here, there seems to be a need for deeper research.

([20]) See: www.skillsforlogistics.org

4.2. Integrating the European dimension

Systematic inclusion of EU labour market forecasts and data on technological trends into defining and renewing qualification standards was not found to be formally prescribed in any country. Instead, such information seems to be used on a case-by-case basis, as seen in the case studies. Similarly, cooperation in defining common standards or the search for good practices abroad takes place mostly at the initiative of the actors involved in the process.

The case studies examined two different qualifications, one in the logistics sector and one in plumbing. Common European standards do not exist for these two qualifications, but one Leonardo da Vinci project, Novalog (2001-04) ([21]), in logistics provided a map of occupations and qualifications in 16 Member States and designed a competence framework for warehousing and assistance functions. Common professional standards of the European Logistics Association ([22]) were set in 2004 at a level superior to the ISCED-level 3 which was taken as a reference for the case studies, so that they are not immediately relevant.

Asked about the information used to develop qualification standards and about European cooperation, most interview partners denied that the European dimension had played an important role for the two qualifications examined in the case studies. The following reasons were quoted:

(a) no relevant information was found worth integrating into the process. One interview partner from Germany in the logistics sector added that mid- and long-term forecasting generally do not provide reliable information for IVET, especially as the period between development of a qualification and the award to the first generation of learners is generally a minimum of two years. At the time when the logistics qualification was developed (2003) there were no common competence standards available;
(b) the qualification system of other countries is perceived as being too different, so that it would be useless to look for transferable good practices;
(c) the occupation for which a qualification is developed does not exist in a similar fashion in other countries (example of the *Kaufmann/Kauffrau für Spedition und Logistik*).

Although the European dimension did not play an important role in definition of the qualification standards examined in the case studies, various projects demonstrate the interest of training providers and institutions in all Member States in common standards. Three projects which developed qualification standards for a range of professions according to a common methodology can be cited: *Professionnalisation durable*, *Kernberufe* and Certiskills:

- *Professionalisation durable* (sustainable professionalisation) is a project which developed and tested a methodology for defining occupational and assessment standards. First, experts identify a set of professional activities, so avoiding the difficulties raised by starting with an international comparison of occupations. These activities are divided into tasks, defined in relation to the expected output rather than the ways of executing them.

([21]) See: www.novalog-project.org

([22]) See: www.elalog.org/

Competences are then identified by defining implicit criteria the successful execution of the tasks: these criteria are based on 'descriptors' such as autonomy, initiative, assuming responsibilities, cooperating with others, etc. The next step includes the identification of resources necessary to execute the tasks, and of concrete and measurable/observable operations. Resources are first technical means, then information, procedures and methods, and finally associated knowledge. Finally, competences are clustered around 'core axes of the occupation' and assessment criteria are developed. Educational standards are not defined in this process, on the grounds that national VET systems are too different and that the training provision should therefore be regulated as maximum at the level of the Member State ([23]);

- *Europäische Kernberufe* (European core occupational profiles) is an approach which was used to develop occupational standards for several existing occupations (car mechatronic, recycling and waste economy, aerospace industry). Using an occupational profile defining tasks and related competences, this approach aims at formulating learning objectives which are then adapted to the specific national or regional context and implemented at Member States level. Like 'professions durable', this approach starts with common occupational standards, with educational and assessment standards placed more directly under the responsibility of the national authorities following the principle of subsidiarity.

  The approach is based on work-process analysis, using instruments of sector analysis, case studies and expert-workers workshops. The profile is built around a core area representing 50-60 % of the occupation, with a company- and region-specific application area and an integrative elective area of 20-30 % each. The core tasks are structured following the competence development model (Dreyfus and Dreyfus, 1986), which identifies five different development levels from novice, via intermediate novice, competent actor and professional, up to expert. Competences, with their associated thinking and behaviour, are associated to each of these levels ([24]);
- Certiskills ([25]) is a Leonardo da Vinci project which developed methodology for defining common occupational, assessment and training standards for a set of occupations. The method is based on a concept of competence understood as a resource ('competence consists of flexible assets of the individual, as acquired and developed through diversified, occasional and intentional experiences, which enable him/her to creatively operate in a wide range of activities' ([26])). First the competences required in an occupation are identified with a work process analysis followed by the identification of core tasks and associated outputs, which offer the basis for defining skills requirements and the elements of competence (knowledge, abilities, behaviours) necessary to perform the tasks. Next, competences are aggregated to homogenous units called 'competence units', for which

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([23]) Asseraf, George. *Professionalisation durable: Schéma d'ensemble de la méthode*. Available from Internet: http://www.trainingvillage.gr/etv/Projects_networks/CCprojects/dipl_methodofinale_FR.pdf [cited 6.11.2008].

([24]) Blings and Spöttl (2003, p. 41). See also Grollmann et al. (2007).

([25]) See: http://certiskills.net

([26]) Certiskills (2006). Building competence dictionaries (p. 5). Available from Internet: http://certiskills.net/Vproduct/CD1/en/index.html [cited 6.11.2008].

assessments standards are developed. Finally, technical standards directed to the training providers; assessment methods, training place, equipment, etc. are defined in a document named ‘training unit’.

With regard to the growing mobility of workers and students, the case studies suggest that a bottom-up approach is presently most successful for the development of common qualification standards, at least in those occupations which are not regulated for safety or other public concerns. A second conclusion is that, in most cases, international cooperation focuses on the development of occupational standards, in some cases also assessment standards, but leaves the definition and implementation of educational standards to national or regional actors.

To understand better the challenges faced by such cooperative approaches, we recommend analysing how the common standards developed in the framework of *professions durables*, *Kernberufe* and Certiskills were implemented in the different national contexts, how they were translated into qualifications and training programmes. Further, it could be interesting to evaluate the link between the qualifications based on these common standards, and the requirements of local and foreign labour markets.

5. Linking through participation

5.1. Introduction: the feedback-loop

Stakeholder involvement in defining and renewing qualification standards is an important indicator for the existence of a feedback-loop between work and education. This study focuses on the involvement of social partners (employees and employers) and professional or branch associations. The involvement of other stakeholders (students, parents, teacher's unions and other representatives of civil society) in developing standards was considered of minor importance to the link between education and employment.

Involvement of stakeholders in VET can generally be considered to fulfil at least two different functions: to increase, first, the relevance, and, second, the legitimacy of qualifications (Winterton, 2000, p. 29). This study focuses on the first function, looking at who is directly involved in defining standards and what institutional resources the actors have to influence the process.

Training systems are 'embedded in broader systems of social relations with which they interact' (Winterton, 2000, p. 29), so the characteristics of stakeholder involvement can only be fully understood by considering its context. Relevant elements of the context include types of industrial relations and labour market regulations, which directly impact on the role of qualifications and may explain the type of interactions between social partners in developing standards. As an example, the role of qualifications in the branch agreements on salaries is crucial to understanding why trade unions are so deeply engaged in the negotiations about standards in Germany ([27]).

In comparing the relative importance of stakeholder involvement as one of several coordination mechanisms between education and employment, it should be sufficient initially to concentrate on following indicators:

- number and nature of actors participating in definition of standards: these indicators provide information about how various actors might formulate their demands for education;
- the institutionalisation of stakeholder involvement: this provides information about the regularity of interactions between work and education, the underlying assumption being that institutionalisation may influence positively the quality of communication and mutual understanding of enterprises and education specialists;
- the role of actors: stakeholders may have an advisory or a decision-making role.

Because of the number of countries included in the analysis, it is not possible to provide context details for each. This chapter offers a broad overview of some characteristics of VET concerning the existence of a feedback-loop between work and education. A comprehensive analysis, taking into account the interplay between interests of stakeholders and institutional

([27]) A detailed comparison of stakeholder involvement in France and Germany, taking into account the institutional context and labour market traditions, is provided by Möbus and Verdier (2000).

arrangements to assess the performance of the feedback-loop, could be conducted in a future study. It would provide a better basis for identifying the strengths and weaknesses of particular systems.

5.2. Forms of stakeholder participation

The desk-based research on 32 countries confirms the findings of other studies regarding the high degree of involvement of social partners in VET policy in Europe ([28]). However, a great diversity of institutional arrangements exists across the continent.

An initial characterisation of stakeholder involvement can be made with regard to the degree of institutionalisation of their participation. In almost all countries the involvement of stakeholders is foreseen by the law. Only a few countries (Greece, Cyprus, Turkey) have no institutional framework for the involvement of stakeholders in developing IVET qualifications ([29]).

The form of involvement may vary considerably, as shown in the examples below and in the country reports. Variations are especially in the power granted to stakeholders regarding occupational and educational standards, and the selection of participants for the process. The table below aims to classify the form of stakeholder involvement according to these two criteria.

The first dimension is the decision powers granted to stakeholders. An important number of countries grant stakeholders an advisory role, but a trend towards greater involvement including decision-making powers is noted across Europe. This can be seen in the new Member States, which are in the process of reorganising their qualification systems according to what they perceive to be 'best practice' or 'state of the art'. But old Member States like Italy are also striving to give social partners more power in defining minimum training requirements and standards in national post-secondary VET.

Differences exist among the countries in the degree of autonomy of decision-making. The UK system gives sole responsibility for developing occupational standards and qualification structures to the industry-led sector skills councils. Public authorities only have a regulatory role, ensuring the quality and conformity of standards with legislation ([30]). In the Netherlands, the approach is based on partnership between the social partners and the state. The branch-related knowledge centres (Kenniscentra beroepsonderwijs bedrijfsleven) in charge of defining qualification standards are composed of employer and employee

([28]) Please refer to Winterton (2000), Cedefop and Winterton (2006), Stringfellow and Winterton (2005) and the Cedefop National VET reports. Available from Internet: http://www.trainingvillage.gr/etv/Information_resources/NationalVet/

([29]) In Greece and Cyprus, the social partners are involved only in post-secondary IVET and in CVET, whereas in Turkey the social partners are involved in the projects for the definition of standards at upper-secondary level. See country reports.

([30]) The introduction of sector skills agreements between the sector councils and the regional governments introduces and element of partnership into the system at the level of sector policy (Le Deist and Winterton, 2007, p. 11).

organisations as well as representatives of public administration and education, who cooperate on the basis of equal partnership.

The second dimension is the identity of the stakeholders involved. In most European countries, an equal representation of employer and employee organisations is ensured, assisting the legitimacy of standards and relevance to the needs of the economy. Also, the range of stakeholders involved may be interpreted as reflecting the various functions of qualifications. An analysis of the debates taking place in standard development groups between stakeholders illustrates the diversity of interests at stake. The title of a qualification may be subject to conflict because of image-concerns of some stakeholders ([31]); debates about the range of competences targeted by a qualification may express different views of the function of qualifications regarding social and hierarchic mobility ([32]); and conflicts about assessment methods and entry requirements can be explained by function of qualifications in collective agreements on salaries ([33]).

France provides an example of a system acknowledging the political dimension of qualification development. Sectoral consultative commissions (*commissions professionnelles consultatives,* CPC) are composed of a defined number of representatives of employers, employees, teachers and parents. The selection of members is based on criteria aiming at a balanced representation of all stakeholder interests, with rules set to ensure a proportional representation of trade union organisations (in France, trade unions are organised according to ideological criteria and not following sectors of activity).

The UK is often cited as having an industry-led VET system, as occupational standards are developed by bodies composed of businesses. However, the consultations organised by the sector skills councils to gain support for the NVQs means that trade unions and other stakeholders are not totally absent from the process, although they have no decision-making powers.

The countries chosen as case studies illustrate different models of stakeholder involvement.

In Germany, social partners play a major role in defining standards. Employers and employees participate equally in the process of definition and renewal of qualifications and the 'consensus principle' guarantees that their positions will be taken into account. They develop the qualification structure, the assessment standards and the standards applying to workplace training in cooperation with the federal institute for vocational training (BiBB), which coordinates the project and carries out research projects to support their work. Educational standards for the school-based part of training are developed in parallel by

([31]) This is an example of the German case study (see footnote 2) concerning both qualifications in logistics and in plumbing.

([32]) Trade unions usually argue for a broader spectrum of competences to be included in qualifications, whereas employers favour more specialised profiles without taking into account the interest of learners in changing jobs.

([33]) This is an example from the German case study (see footnote 2) on the plumbing qualification, where some employers' representatives fought hard to make final examinations more selective.

teachers and experts from the *Länder*, with an elaborate system of coordination between both working groups ensuring that all standards are consistent.

Table 5: **Stakeholder involvement in defining qualification standards**

	Institutionalised participation		**Involvement on a case-by-case basis**
	Equal representation of employers and employees	**No equal representation / no information (*)**	
Advisory role	Austria France Belgium Italy (regional level) Luxembourg Malta Slovakia Finland Portugal	Czech Republic Hungary (*) Poland	Cyprus Greece Turkey
Decision-making role	Bulgaria Denmark Estonia Germany Iceland Latvia Lithuania Netherlands Norway Romania Spain	Ireland Liechtenstein (*) Slovenia Sweden (*) Switzerland United Kingdom	

Source: Country reports (see footnote 2).

The process for renewal or definition of qualification standards generally lasts between one and two years. The federal umbrella organisations of unions and employers' associations, which are obligatorily involved in the process, chose five experts each to participate in the working group: either some of their own staff, or individuals from member organisations. As one interview partner complained, these experts may be very experienced practitioners, but they are not always familiar with standard development processes and, especially in the case of entrepreneurs from SMEs, they sometimes lack the capacities for long-term involvement, causing inefficient turnover. However, guidance offered by the BiBB, and the fact that most unions and branch organisations have some employees working full-time on educational matters who can offer some support, seem to compensate for problems.

To make sure that a sector is adequately represented, social partners pay attention to choosing experts both from SMEs and big companies. In addition, unions and employers' associations usually have internal working groups which are regularly kept informed about the process and give feedback and suggestions to their representatives.

Social partners and members of the BiBB generally expressed a high degree of satisfaction with the participative character of the German qualification system. Although some conflicts arose during the process, especially concerning the title of the qualification and the alternatives for flexible specialisation by students at the end of the training period,

the debates were seen as rather constructive and consensual. Standards were mainly seen as reflecting the demands of the labour market.

In Denmark, social partners are traditionally involved in developing qualification standards in equal partnership with the Ministry of Education (Undervisningsministerium) ([34]). The Council for Vocational Training (Rådet for de Grundlæggende Erhvervsrettede Uddannelser) is composed of Danish employer organisation from different branches, the confederation of trade unions (Landsorganisationen, LO) and organisations of training providers, VET teachers and students. The Council advises the ministry on overall (not occupation-specific) educational standards.

For each economic sector, trade committees (*faglige udvalg*) gather an equal number of representatives from both employer and employee organisations. They have their own secretariats financed by the social partners, ensuring continuity. Trade committees are responsible for regular monitoring of the labour market through skills forecasting and analysis, and for identifying needs for new, for modification of already existing, occupation-specific educational standards. In formulating content-specific educational standards (*uddannelsesordning*), trade committees consult representatives of leading enterprises and vocational teachers.

There is a good level of cooperation between the Ministry, the trade committees and schools, teachers and trainers. It seems that the standard development process is highly consensual and differences in positions have not arisen in the course of updating standards for plumbing and logistic qualifications.

NVQs in the United Kingdom provide a good example of strong stakeholder involvement, but without equal representation of employees and employers. Sector skill councils (SSC) are industry-led bodies licensed by the governmental Sector Skills Development Agency (SSDA). The criteria for a sector skills council to get a license and submit national occupational standards include financial capacity, knowledge of the sector, support from employers and interest groups across the country, as well as professional capacity of the staff ([35]). SSCs are responsible for identifying the skills, education and training needs of their sector and for developing national occupational standards and NVQ qualification structures. To collect evidence for the development of the standards, SSCs conduct surveys and consultations involving users of the standards (awarding bodies, vocational schools, etc.). Standards are registered into the NOS directory, and NVQs, respectively SVQs (Scottish vocational qualifications), have to be accredited according to quality criteria by one of the qualifications and curriculum authorities of the UK, Scotland, Wales and Northern Ireland.

([34]) The representation of social partners in bodies at different levels as well as their responsibilities are described in Sections 34 to 41 of the Ministerial Order on Vocational Education (*Bekendtgørelse om erhvervsuddannelser*) BEK No 1518 of 13.12.2007. Available from Internet: https://www.retsinformation.dk/Forms/R0710.aspx?id=114118 [cited 6.11.2008].

([35]) Eligibility criteria for organisations to develop NOS defined by the UK Commission on Employment and Skills. See: http://www.ukces.org.uk/PDF/NOS_1.pdf [cited 6.11.2008].

Compared to the German system, the British system of stakeholder involvement is not based on the logic of social bargaining and balance of interests, but on a regulatory approach associated with the voluntary involvement of industry.

According to the interview partners from the National Institute for Qualifications (Instituto Nacional de Cualificaciones, Incual), Spain is adopting a participative approach to defining qualification standards; collective bargaining has become the main instrument for regulating the occupational classification system and the development of qualification standards. Following the Organic Law on Education of May 2006, the General Council for Vocational Training (Consejo General de Formación Profesional, CGFP) was founded as a tripartite advisory body with employer and employee organisations as well as representatives from the national authorities and the autonomous communities. The CGFP is the governing body of the National Institute of Qualifications (Instituto Nacional de Cualificaciones, Incual), which coordinates the development of qualification standards, monitors and accredits vocational qualifications.

The CGFP has set up 26 occupation-related working groups in charge of defining qualification standards; these are steered by Incual. The members of these working groups are educational and professional experts selected by the organisations represented in the CGFP. As an example, the qualification COM317 Coordination of transportation and distribution of goods was developed by a working group including the Ministry of Development and Infrastructure, transport and logistics companies such as SDF and DHL, as well as professional organisations including National Federation of Agencies of Transport (Anatrans) and the Spanish Confederation of Training in Transport and Logistics (Ceftral).

The working groups first design competence units, which serve as a basis for training modules (*modulos formativos*) including learning outcome standards and assessment criteria. After external testing by employers, employee organisations and public administration, the proposed qualification standards are submitted for approval to the CGFP and the Education State Council. Finally, Incual registers the qualification standard in the National Catalogue of Vocational Qualifications.

In Poland, the Ministries for National Education and Sport (Ministerstwo Edukacji Narodowej i Sportu) and for Labour and Social Politics (Ministerstwo Pracy i Polityki Społecznej) are responsible for definition and renewal of qualification standards in vocational education and training.

A new set of qualification standards (*standardy kwalifikacji i skolenia*) based on occupational standards was released in March 2008, but no qualifications relying on those standards have yet been awarded. Up to now, the new occupational standards are used by employment agencies and by companies as an instrument for human resource management. As it is planned to link training curricula to these standards, the process for the developing these qualification standards can be taken as an example to illustrate future practice of stakeholder involvement in Poland.

The development process for vocational qualification standards is steered by the Ministry of National Education and Sport. Social partners like the Confederation of Polish Employers, the Polish Confederation of Private Employers, the Association of Polish Crafts and the National Chamber of Commerce, the Business Centre Club and the largest trade

unions (NSZZ Solidarność, OPZZ and Trade Unions' Forum) take part in counselling and designing the research on specific professions to develop adequate job profiles. Interviews reveal, however, that social partners have not participated actively in the process; the Ministry of Education has played the central part even in the details of job descriptions. These job profiles build the basis for development of vocational qualification standards by representatives from research institutes, training providers and professional experts.

Educational standards for 133 professions in the form of core curricula (*podstawy programowe kształcenia w zawodzie*) are designed by the Ministry of National Education in consultation with schools, teachers, professional experts and the ministries responsible for the particular profession. Each curriculum guideline includes learning inputs (educational objectives and content) and outcomes (specific skills and competences) that have to be achieved for a qualification in the respective profession. Based on the curriculum guidelines, the Central Examination Commission develops assessment standards (*standardy wymagań egzaminacyjnych*) in consultation with employer organisations as well as VET teachers, universities and research and development centres. Assessment standards have to be approved by the Minister for National Education and Sport.

Employer organisations are further involved in defining assessment standards under the responsibility of the Central Examination Commission.

A comparison of the country reports and the case studies reveals that the categories proposed by (Cedefop, Leney et al., 2008, p. 29) concerning the mode of derivation of learning outcomes in qualification standards do not appropriately reflect the complexity of individual countries. According to Leney, three types can be distinguished, although 'in many cases, the derivation will be a mixture of these types':

- type 1: learning outcomes are based on a theoretical or research formulation;
- type 2: learning outcomes are based on negotiation between stakeholders;
- type 3: learning outcomes are borrowed/adapted from elsewhere.

In all five case study countries, stakeholders are involved in preparing qualification standards but scientific methods and theoretical concepts are used to identify competence requirements and develop qualification standards. In Germany, where fierce negotiations take place between the social partners, the theory-based model of *Handlungskompetenz* and the results of research projects on sectors and occupations play a major role in defining learning objectives. Type 3 can only be observed in Malta, where qualifications are directly imported from the UK, but a system of national qualifications developed based on the needs of the local market is being set up.

Stakeholder involvement is, mostly, closely linked to national traditions of cooperation between the state and civil society, as well as to the degree of self-organisation among employees, employers, branches, etc. It is, therefore, impossible to generalise about the functionality of these arrangements without taking a whole range of contextual elements into account. However, the desk-based research and case studies indicate some issues worth considering in relation to the existence of a feedback-loop between work and education.

5.3. Stakeholder involvement opportunities and limitations

Of general relevance is the capacity of social partners to deliver valid and relevant information about present, let alone future, skill needs. The evaluation of the new qualification system introduced in the Netherlands in 1996 (Nijhof, 2004) came to the conclusion that the quality of information delivered by social partners with regard to the competences required in their branch or occupation is rather poor. Branch-related organisations seemed to cling to traditional views, missing strategically relevant factors impacting on competence requirements. It was also observed that actors in particular branches, for instance small and medium enterprises, were not properly represented through lack of ability to organise themselves and invest in the process. As these problems were observed in a country where social partners are traditionally strongly involved in policy-making and have relatively good organisational and financial capacities, a similar, possibly greater, problem can be inferred in countries lacking these favourable conditions. An example of such a case is Turkey, where it was considered necessary to integrate special measures for capacity building among social partners in the framework of the EU-funded project 'Strengthening the VET system in Turkey'.

A second issue concerns the ability of sector committees to acknowledge the emergence of new professions and to address transversal competence needs. An evaluation of the Danish system came to the conclusion that trade committees organised according to traditional economic sectors and industries did not succeed in recognising skill needs and the need for new qualifications in emerging industries (Clematide et al., 2004). As a result, it was decided to establish a new committee composed of VET specialists, cooperating on an ad hoc basis with universities and research institutes to carry out surveys and studies on specific sectors. In the Netherlands, the lack of coordination among sector committees responsible for the development of qualifications was felt to 'cause greater differentiation in the qualification structure than necessary' (Nijhof, 2004, p. 234). This tendency was reinforced by the financing system that grants financial means in proportion to the qualifications developed by each committee, thus encouraging them to develop many narrow qualifications and discouraging cooperation. This issue highlights the impact of organisational aspects on the development of qualification standards.

A third issue is raised by the diverging qualifications interests of stakeholders. Qualifications are an instrument to make competences visible and comparable, contributing thus to transparency on the labour market. But qualifications may also have numerous other functions, for instance to regulate access to further education and to certain professions or hierarchic positions, to maintain a trade-specific culture and identity, or to legitimate differences between individuals or groups in terms of wages and social prestige. According to (Gulowsen, 1988), a 'technical' definition of standards, based on work requirements and focusing on the first of the above functions, leads to a close match between occupational and educational standards. When other functions become predominant, the outcome of standardisation is more difficult to predict. However, in either case it seems necessary to examine the interests at stake and the resources of the different actors involved, to understand the distinctive features of qualifications in Europe.

6. Qualification flexibility mechanisms

6.1. Evaluation and monitoring mechanisms

Most European countries have set up systems for monitoring developments on the labour market and anticipating skill needs. As a comprehensive overview of these systems is already provided in a Cedefop publication ([36]), this report focuses on monitoring of qualifications and the mechanisms in place to initiate the renewal of qualifications standards.

Two different approaches can be identified: a formalised approach providing for regular update of qualifications after a fixed period of time; and an informal approach characterised by a renewal of standards 'on demand', either at the initiative of the authorities or of the social partners. These two approaches are illustrated in the case studies.

6.1.1. Denmark

According to the interviewee at the trade committee for logistics, there are frequent informal contacts between sectoral organisations and education providers and teachers to check whether existing standards are up to date. This was confirmed by a representative from the Ministry of Education who also stressed that cooperation and exchange was taking place between different branch-related departments within the Ministry. Monitoring the qualification standards is one of the tasks of the trade committees. This information is considered in the revision of qualification standards that is foreseen after a period of at least four years.

A central committee formed by the Ministry of Education and the advisory councils on IVET and CVET is responsible for transversal competences and emerging occupations. This committee works together with universities and external consultants on an ad hoc basis to establish qualification standards for newly emerging professions.

6.1.2. Germany

The validity of qualification standards is not limited to a definite period of time, although some interview partners stated that the objective of their organisation is to update the standards every four years. The responsibility for each qualification in IVET is ascribed to a project manager of the federal institute for vocational education (BIBB), who has an advisory function and coordinates the standard development process. This key person keeps in close contact with the social partners, vocational schools and companies, as well as with learners. The renewal of standards can be initiated by various actors, but the process can be formally launched only on agreement of the social partners on the main elements of a qualification (*Eckdaten*). To assess the need for an update and to prepare for the development of new standards, the federal ministry in charge can decide to carry out an evaluation. This was

([36]) Cedefop (2008a).

done, for instance, in the logistics sector to assess the needs of the labour market in relation to different qualifications.

6.1.3. Poland

The authors of the newly developed system of vocational qualification standards have recently started to work on evaluation and monitoring methods.

6.1.4. Spain

Review and adjustments of qualification standards are undertaken every five years or more often if necessary. The National Institute of Qualifications (Incual) monitors qualitative and quantitative changes on the labour market within a network including sectoral and regional observatories. Incual conducts an internal quality control of the qualification standards and consults the CFGP working groups regarding modifications to the standards.

6.1.5. United Kingdom

NVQs are approved for a period of four years. After that period, standards must be updated and submitted anew for accreditation. The sector skills councils are responsible for continuously monitoring the qualifications in their sector.

6.2. Modularisation as a means of flexibility

Rapidly changing patterns of occupations create uncertainties about the value of qualifications on the labour market, challenging the link between qualification and a particular profession (Cedefop; Béduwé et al., 2008). Lego-like qualifications seem to be increasingly accepted as a solution. Besides offering flexibility, modularisation is crucial with regard to the introduction of international credit systems.

A comparison of the country reports reveals that different forms of modularisation are applied in the 32 European countries. Peter Sloane (Sloane, 1997) distinguishes between three forms of modularisation:

(a) supplementary form: additional modules can be taken to supplement a qualification which, in itself, is not modularised;
(b) differentiation form: a qualification can only be awarded as a whole (no partial qualifications), but it is possible for a learner to choose among a set of optional modules. This corresponds to a modularisation of training;
(c) isolation form: single modules are recognised on the labour market and can be combined according to the choice of the learner. This corresponds to a modularisation of qualifications.

In CVET, the supplementary form is widely available in Europe. In IVET, however, modularisation can better be understood as following either a differentiation form or an isolation form. Whereas in the differentiation form the certification of modules has only a

value within the education and training system, in the isolation form the value of partial qualifications is also recognised on the labour market.

In several countries, modularisation is still in the test phase or concerns only some qualifications; it is, therefore, difficult to categorise all the countries. The table below aims to provide an approximate picture of the present situation in Europe. It is based on the country reports and therefore reflects the situation of those segments of IVET described there.

Table 6: **Forms of modularisation**

	Modularisation of qualifications (partial qualifications have a value on the labour market)	**Modularisation of training (module certificates only have a value in the education system)**	**No modularisation**	**No information**
… has already been realised	Bulgaria Finland Ireland Malta Norway Portugal Spain Switzerland United Kingdom	Estonia Hungary Iceland Netherlands Poland Romania Sweden	Belgium (French-speaking community) Cyprus Czech Republic Denmark France Greece Italy Latvia	Liechtenstein
… is being prepared/ tested/ introduced	Belgium (Flemish community) Lithuania Slovakia	Austria Germany Luxembourg Slovenia Turkey		

Source: Country reports (see footnote 2).

6.2.1. Spain

Spanish qualifications are modularised. Training modules (*módulos formativos*) based on educational standards are registered in the modular catalogue of vocational education and training (*Catálogo Modular de Formación Profesional*, CMFP). Training modules correspond to competence units, which are based on occupational standards and which are combined to form a qualification registered in the national catalogue of qualifications (*Catálogo Nacional de Cualificaciones Profesionales,* CNCP). Certification of a definite set of competence units following assessment criteria specified in the training modules leads to the award of a full qualification. It is, however, possible to choose to pursue certification for single competence units.

6.2.2. Denmark

IVET qualifications are not modularised, but the training is organised to allow a degree of flexibility in the choice of specialisations. In the 12 occupational fields (*indgange,* basic

access channels or common access routes to VET) ([37]), education and training takes place in a basic course (*grundforløb*) and a main course (*hovedforløb*) which have to be completed successively. While basic courses teach knowledge and skills common to several qualifications within a branch, main courses are oriented towards qualification-specific outcomes. A combination of obligatory and voluntary subjects allows further adaptation to personal training needs within both levels. The certificate issued after completion of the basic course lists all training units completed by the student. This document allows resumption of VET at any time, but does not constitute a qualification in itself.

Flexibility is also introduced by the accreditation of prior learning and professional experience according to Section 31 of the Ministerial Order on Vocational Education (*Bekendtgørelse om erhvervsuddannelser, BEK No 1518 of 13.12.2007*) and Section 57 of the Law on Vocational Education (*Bekendtgørelse af lov om erhvervsuddannelser, LBK No 1244 of 23.10.2007*). The trade committees (*det faglige udvalg*) within each occupational field decide on so-called *meritveje* (interim education paths) which allow individual assessment of a person's competences by vocational schools. The learning objectives listed in the occupation-specific educational standards serve as a reference point for accreditation and for reducing the regular number of study years to achieve a formally certified qualification.

6.2.3. Germany

Training and qualifications in IVET are not modularised. A certain degree of flexibility is attained through the possibility offered in some qualifications to opt for specialisation in the work-based part of learning.

In a pilot project, Germany has developed training modules based on learning outcomes for 16 qualifications. The objective is to allow individuals who failed to find a training company in the dual system to reach qualifications through a more flexible combination of school-based training and internships. These training modules are closely related to the standards set in the *Ausbildungsverordnung* regulating the dual training system; a checklist clarifies correspondences. They are not certified separately, assessment is conducted along the criteria set in the qualification regulation of the dual system.

As an example, the qualification in logistics is composed of five modules which must be completed in a predefined order.

6.2.4. United Kingdom

The modularisation of vocational qualifications in UK is a typical example of the 'isolation form of modularisation' defined by (Sloane, 1997). Modules are based on occupational standards, can be certified separately either after completion of formal or informal learning, and can be accumulated by learners following their own choice. NVQs are structured around a set of compulsory and optional modules.

([37]) In the course of educational reforms, five new professional fields were introduced in August 2008. Thus, there are 12 professional fields in total. See: http://www.elevplan.dk/offentlig/default.aspx?sideid=indgangstart&mc=3 [cited 6.11.2008].

7. Conclusion

Combining the different ways of linking education and employment requirements in the qualification system which have been described in this report, it is possible to identify some broad trends and tendencies.

First, a growing number of countries are using outcome-oriented qualification standards to improve the link between the worlds of work and of education. Definition of occupational standards seems particularly popular in countries reforming their VET system, in new Member States like Estonia, Lithuania or Poland as well as in old Member States like Spain, Italy or Luxembourg. The challenges ahead concern the implementation of outcome-based approaches in education and training. Comparative studies should pay particular attention to the different concepts of competences underpinning learning outcomes.

Second, there is a wide variety of methods and information sources used to define qualification standards. Whereas some countries have developed their own theory-based methodologies, others do not disclose their practices or rely more on the involvement of experts and practitioners to identify competence requirements. This diversity and, in some cases, also the lack of transparency which could imply that there is no real methodological reflection, raise the question of quality assurance of standards. Further studies would be interesting, while keeping in mind that the functions of qualification standards and the underpinning concepts of competence must be taken into account to assess whether existing practices may be fit for purpose.

A trend towards using the same methods for the derivation of learning outcomes does not appear to exist, but it is possible to identify a similar approach in European projects developing common standards. This approach entails identification of core tasks and competences, which are then used as a basis for developing national educational standards and curricula. It is, however, worth noting that the European dimension is not part of formal arrangements for defining qualification standards at systemic level. International cooperation for the development of common European qualification standards happens more on a case-to-case basis or at grass-roots level. The challenge consists of developing such initiatives and ensuring that they are ‘sustainable’, meaning that they would not degenerate into simple window dressing.

A fourth trend is the growing involvement of stakeholders in defining qualification standards. The overwhelming majority of countries have institutionalised the participation of stakeholders, especially social partners, to increase the relevance and the legitimacy of qualifications for the labour market. There is a challenge, in several countries which do not possess a strong tradition of social partnership: building the capacity of stakeholders to allow them to participate effectively to the process.

Modularisation is an issue not only for the flexibility and responsiveness of VET systems, but also for credit systems to aid international mobility. Accordingly, most countries have started to modularise training and, in some cases, also qualifications. The diversity of modularisation forms, however, represents a challenge as soon as it is envisaged in a comparative perspective. A detailed overview of current approaches and practices does not seem to exist to date, but it could be interesting in relation to ECVET.

There is a need to combine different comparative research projects to gain a better view of current developments in the qualification systems of the countries participating in Education and training 2010. It is only by taking into account various dimensions of a VET system that we can try to identify whether all the countries are moving in the same direction, agreeing on a set of common principles and tools.

List of abbreviations

BiBB	Bundesinstitut für Berufsbildung [Federal Institute for Vocational Education and Training]
CGFP	Consejo General de Formación Profesional [General Council for Vocational Training]
CMFP	*Catálogo Modular de Formación Profesional* [modular catalogue of vocational training]
CNCP	*Catálogo Nacional de Cualificaciones Profesionales* [national catalogue of vocational qualifications]
CPC	Commission professionnelle consultative [professional consultative commission]
CVET	continuing vocational education and training
DACUM	developing a curriculum
DG EAC	Directorate-General for Education and Culture of the European Commission
EQF	European qualifications framework
ECVET	European credit system for vocational education and training
ETED	*Emploi-type étudié dans sa dynamique* [typical job studied in its dynamic]
ETF	European Training Foundation
EU	European Union
Incual	Instituto National de Cualificaciones [National Institute for Qualifications]
ISCED	international standard classification of education
ISCO	international standard classification of occupations
IVET	initial vocational education and training
NOS	national occupational standards
NVQ	national vocational qualification
ROME	*Répertoire opérationnel des emplois et des métiers* [operational register of occupations and professions]
SME	small and medium-sized enterprise
SSA	sector skills agreement
SSC	sector skills council
SSDA	Sector Skills Development Agency
SVQ	Scottish vocational qualification
VET	vocational education and training

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Annex 1: List of experts interviewed

We would like to thank the following for their contributions to the case studies conducted in Denmark, Germany, Spain, Poland and the United Kingdom:

	Interviewee	Organisation / Position
Germany	Benedikt Peppinghaus	Bundesinstitut für Berufsbildung (Federal Institute for Vocational Education and Training) / Qualification manager
	Elke Schneider	DSLV Deutscher Speditions- und Logistikverband e.V. (employer organisation) / Education policy officer
	Jens Vojta	Vereinte Dienstleistungsgewerkschaft (Ver.di) (trade union) / Education policy officer
	Tilo Schmidt	Bezirksregierung Köln / Coordinator of the curriculum framework development commission of the qualification *Kaufmann/Kauffrau für Logistik und Speditionsdienstleistung* (Rahmenlehrplankommission)
	Petra Westpfahl	Bundesinstitut für Berufsbildung(Federal Institute for Vocational Education and Training) / Qualification manager
	Clemens Buchberger	Zentralverband Sanitär, Heizung, Klima (employer organisation) / Spokesperson of the Commission on VET
	Hans-Josef Claessen	Handwerkskammer Düsseldorf (chamber of crafts) / Vice-president (employee representative)
	Claus Drewes	IG Metall (trade union) / Education policy officer (technical occupations in CVET and IVET, European cooperation)
Denmark	Henrik Bertelsen	Trade committee for plumbing professions (Det Faglige Udvalg for Vvs-uddannelsen) and its secretariat (el- og vss-branchens uddannelses sekretariatet), EVU / Chief consultant at the EVU
	Michael Ørum Henriksen	Ministry of Education (Undervisningsministeriet, UVM) / consultant for access routes regarding cars, planes and other means of transportation as well as transport and logistics
	Michael Larsen	Trade committee on logistics (Transporterhvervets Uddannelsesråd) TUR / consultant
Spain	Inés Sancha	Fundación Tripartita / research and evaluation
	Yolanda Ponces	CCOO, Fundación Tripartita
	Francisca Arbizu Echávarri	National Institute for Qualifications (Instituto Nacional de Cualificaciones, Incual) / chairwoman / director
	Begoña Arranz Sebastián	Incual / head of qualification design
	Leocadio Brun Muñoz	Incual / head of accreditation and educational integration
	Mª Luz Ruiz Junco	Incual / head of social and legal qualifications
	Catalina Cantero Talavera	Incual / work group director
	Enrique López Ariznavarreta	Incual / work group director

	Interviewee	Organisation / Position
Poland	Dr Ireneusz Woźniak	National Research Institute in Radom/Poland (Instytut Technologii Eksploatacji – Państwowy Instytut Badawczy w Radomiu) / research fellow / academic advisor
	Mirosław Żurek	National Research Institute in Radom/Poland / research assistant
	Jarosław Zysnarski	Doradca Consultants Ltd. sp. z o.o. / chairman
	Zdzisław Kordel	University of physical education and sport (AWFiS) in Gdańsk, Poland / Department for tourism and leisure (Wydziału Turystyki i Rekreacji)
	Renata Pacocha	Upper-secondary school complex No 3 in Łódz (Zespół Szkół Ponadgimnazjalnych nr 3 w Łodzi) / teacher for vocational education
	Janusz Moos	Teachers' education and vocational training centre in Łódz (Łódzkie Centrum Doskonalenia Nauczycieli i Kształcenia Praktycznego) / headmaster
	Krzysztof Wojewoda	Leon-Wyczolkowski-Vocational school No 2 in Ryki (Zespół Szkół Zawodowych nr 2 im. Leona Wyczółkowskiego w Rykach) / teacher for vocational education and informatics/computer sciences
	Jolanta Kosakowska	Polish craft association, vocational education and social problems department (Związek Rzemiosła Polskiego, Zespół Oświaty Zawodowej i Problematyki Społecznej) / vice manager
	Wojciech Januszko	Polish chamber of commerce, office for legalisation, certification and ATA Carnets (Krajowa Izba Gospodarcz, Biuro Legalizacji, Certyfikacji i Karnetów ATA) / director/manager
	Józef Wszołek	Center for Vocational Education (Centrum Szkolenia Zawodowego) / chairman
UK	Christine Keenan	Scottish Qualifications Authority / qualifications manager

In addition to these interviewees, the Polish Confederation of Private Employers (Polska Konfederacja Pracodawców Prywatnych Lewiatan) contributed to the report.

Annex 2: Overview of qualification standards in Europe

This is not considered as a qualification standard

This element is not an object of standardisation

Country	occupation-related standards		education- and assessment-related standards			
	tasks, activities, functions	**competences**	**learning outcomes**	**assessment criteria and methods**	**subject-based framework curriculum**	**syllabus**
Austria	*Berufsprofil*		*Ausbildungsordnung* (school-based learning)		*Lehrplan*	school curriculum
Belgium (Wallonia)	*profil de qualification*		*profil de formation*		*référentiel de formation*	
Belgium (Flanders)	*beroepscompetentieprofielen*		curriculum	(included in *beroepscompetentieprofielen*)		
Bulgaria	educational standards (*държавни образователни изисквания*)				national curricula	
Cyprus					curriculum	
Czech Republic	professional profiles		(included in *rámcové vzdelávací programy*)		*rámcové vzdelávací programy*	*školní vzdělávací programy*
Denmark			*bekendtgørelser om erhvervsfaglige uddannelser i 12 fællesindgange*		*uddannelsesordning*	school curriculum
Estonia	occupational standards				national curriculum	school curriculum
Finland			national core curriculum			
France	*référentiel d'activité*	*référentiel de compétence*		*référentiel de certification*	*référentiel de formation*	*programme*
Germany			*Ausbildungsordnung*		*Rahmenlehrplan*	
Greece	occupational profile (being developed)				training programme	
Hungary	qualification standards			national core curriculum (*nemzeti alaptanterv*)	framework curricula	local curricula
Iceland	training programmes in the national curriculum guidelines (*Aðalnámskrá framhaldsskóla*)					
Ireland			specific standards			

Country	occupation-related standards		education- and assessment-related standards			
	tasks, activities, functions	**competences**	**learning outcomes**	**assessment criteria and methods**	**subject-based framework curriculum**	**syllabus**
Italy	*figuri professionali*		*profilo formativo*			
Latvia	*profesiju standarti*			*valsts profesionālās izglītības standarts*		*izglītības saturs*
Liechtenstein	*Tätigkeitsprofile und Berufsentwicklungsprofile* (CH)	*Qualifikationsprofil* (CH)	*Bildungsplan* (CH)			*Lehrpläne*
Lithuania	national occupational standards		curricula (*profesino mokymo dalykai*)			
Luxembourg	*profil professionnel*	*profil de formation*		*référentiel d'évaluation*	*programme directeur*	*programme d'étude*
Malta		national competence standards				
Netherlands	*beroepscompetentieprofiel*		*kwalificatieprofilen*	assessment standards		
Norway			core curriculum			subject syllabi
Poland	*standardy kwalifikacji zawodowych*		*podstawy programowe ksztalcenia w zawodzie*	*standardy wymagan egzaminacyjnch*	(included in *podstawy programowe ksztalcenia*)	*programy nauczania*
Portugal	*perfis profissionais*		*referenciais de formação*	assessment standards		
Romania	*standarde ocupaționale*		*standarde de pregatire profesionalã*		national core curriculum	
Slovakia					*ucebné plany*	*ucebné osnovy*
Slovenia	*poklicni standardi*		*standardi strokovnih znanj in spretnosti*		*programi poklicnega izobraževanja*	
Spain	*unidades de competencia*		*módulos formativos*			
Sweden			curriculum			
Switzerland	*Tätigkeitsprofile und Berufsentwicklungsprofile*	*Qualifikationsprofil*	*Bildungsplan*		*Rahmenlehrplan*	school curricula
Turkey	qualification standards					
United Kingdom	occupational standards		educational standards	competence/ performance standards		

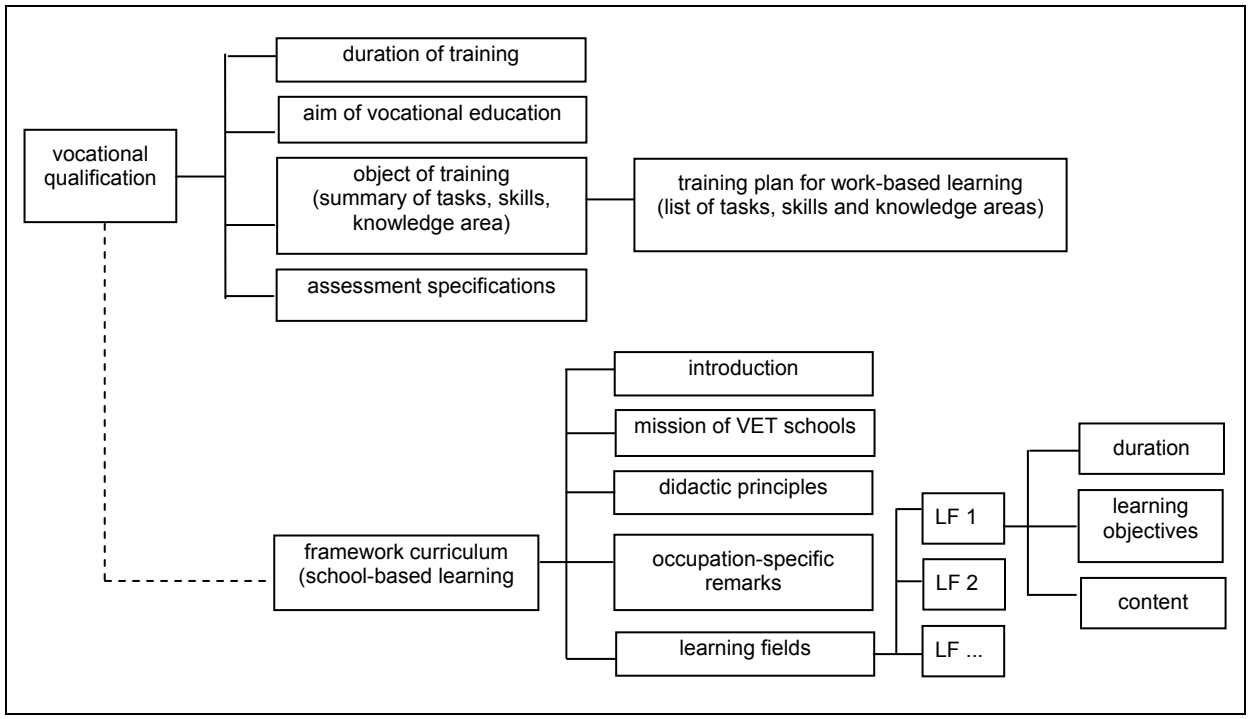
Source: Country reports (see footnote 2).

Annex 3: Case study examples of outcome-oriented standards

These are examples of outcome-oriented qualification standards concerning the occupational competences and activities related with choosing transport modes and routes for sending goods.

Germany

Figure 5: **Structure of a vocational qualification in the dual system of IVET (Germany)**



Source: Ausbildungsordnung Kaufmann/Kauffrau für Spedition und Logistikdienstleistung.

Excerpt from the *Ausbildungsrahmenplan*, which is the document listing minimum skills and knowledge to be conveyed in the work-based part of training. These skills and knowledge provide the basis for assessment with correspondence between them and the curriculum of the school-based part of training.

Table 7: **Example of item No 5.1 of the professional profile of the vocational qualification in logistics, as developed in the general training plan (Germany)**

Position in the professional profile	**Skills and knowledge, which have to be conveyed involving autonomous planning, executing and controlling capacities of the student**
Sending goods and transport	Compare performance of transport modes (road, rail, air, water). Assess adequacy of transport modes for specific goods, taking into account norms and regulations. Make use of the possibility to combine different modes of transport. Choose a transport route following economic and geographic criteria. Assess capacities in combined transport modes. Describe the organisation of transport as one core element of logistics, and explain the difference with own-name operation. Choose service providers, especially freight carrier. Make arrangements for transportation means and technical equipment with regard to charging and discharging schedules. Describe area of application of handling technologies and equipments.

In a pilot project, Germany has developed training modules based on learning outcomes to allow individuals who did not succeed in the dual system to reach qualifications through a more flexible combination of school-based training and internships. These training modules are closely related to the standards set in the *Ausbildungsverordnung* regulating the dual training system; a checklist clarifies correspondences.

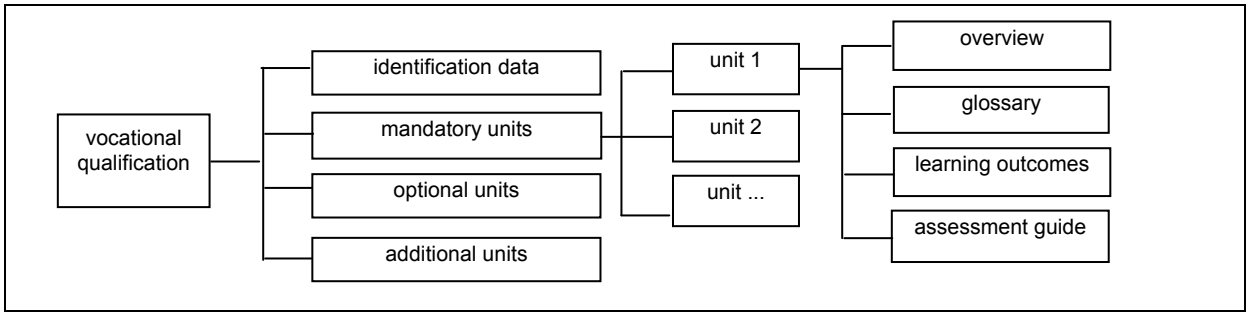
The qualification in logistics is composed of five modules which must be completed in a predefined order.

Table 8: **Excerpt from the competences targeted by module 3 'Freight forwarding services' (Germany)**

The learners identify the client's transport needs and present corresponding solutions. They assess the adequacy of different transport modes in relation to the goods to be transported. They take into account legal regulations and constraints as well as the possibilities for linking different transport modes; they also pay attention to economic and ecological consequences. They provide advice to the client regarding insurance coverage for transport and payment risks, customs duty, and regulations for the transport of dangerous goods. They clear the service requirements with the client and define the transport route.
The learners collect offers from transport providers, compare and assess them. They develop a proposal for the client from operative calculations.
[…]
The learners carry out their tasks and duties tactically and systematically and use adequate equipment and resources. They analyse possibilities for improving working methods, identify learning needs and use proper learning techniques.

Scotland

Figure 6: **Structure of a national vocational qualification (Scotland)**



Source: SVQ Logistics operations management (Level 3).

Table 9: **Example of standards of the vocational qualification 'Logistics operations management' (Scotland)**

Skills for Logistics National Occupational Standards for Logistics Operations Management	
Unit LOM6	Utilise transport modes in logistics operations

You will be able to:

1) Review the nature of the supplies being handled in the logistics operations
2) Identify the main transport modes and transportation routes used to deliver the supplies to their destination
3) Identify any factors that affect the transportation of the supplies
4) Select the most suitable transport modes to enable supplies to reach their destination according to the organisation's requirements
5) Coordinate logistics resources to work effectively with the selected transport modes
6) Ensure the data that is required to use the transport modes is processed correctly
7) Report work activities and record them in the appropriate information systems according to organisational procedures
8) Comply with all relevant work and safety legislation, regulations, standards, and organisational procedures

You will know and understand:

Transport modes

a) advantages and disadvantages of different transport modes
b) types of vehicles used in different transport modes
c) major routes, transport hubs, and destinations
d) geography of routes and destinations

Legislation and regulations

e) legislation and regulations relating to health, safety, and logistics operations
f) sources of information on legislation and regulations
g) regulatory bodies and their compliance requirements

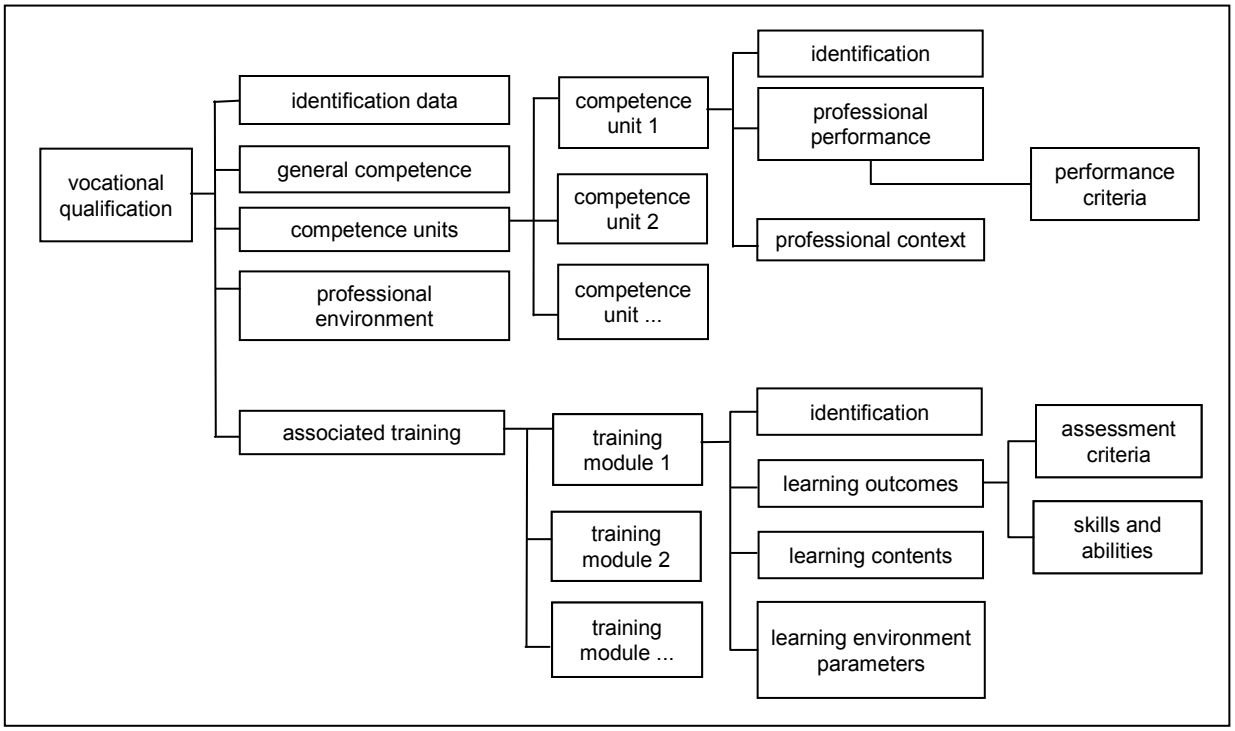
Organisational procedures

h) roles, responsibilities, and management systems
i) working practices, operating procedures, guidelines, and codes of practice
j) information systems and communication methods used by the organisation

Source: National occupational standards (NOS) directory. See: www.ukstandards.org

Spain

Figure 7: **Structure of a vocational qualification (Spain)**



Source: *Organización del transporte y la distribución* (*Cualificación COM317_3).*

Table 10: **Excerpt from competence unit 2 of the qualification in logistics (Spain)**

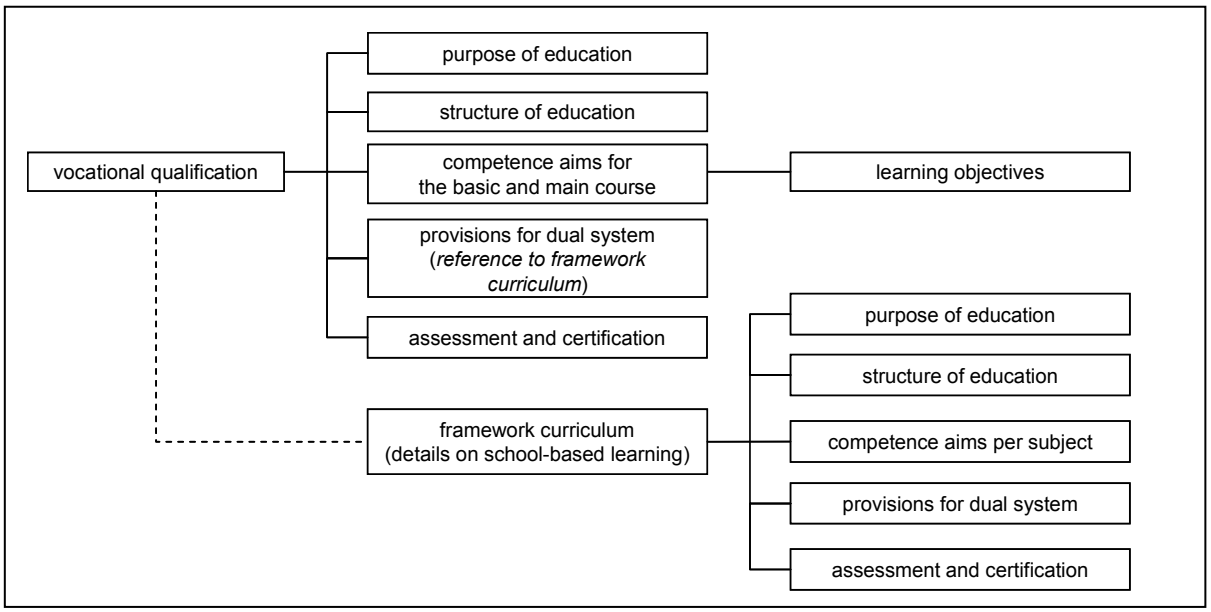
Code UC1012_3	**Organising, managing and controlling long distance transport**
MOP 1	Route selection / combination of different modes of operation
CR 1.1	Information required for the transport operation
CR 1.2	Routes and the possible need for alternative or combination of various means of transport
CR 1.3	Use computer applications processing routes and consider: • location point of collection and delivery; • road and rail networks, logistics platforms, terminals, ports and airports and, where appropriate, river network to pipe certain types of products; • restrictions on transportation of goods according to type and mode of transportation; • deadline, time and traffic regulations, rest and driving periods; • service providers for different modes of transport (air, sea, rail and road) with their respective requirements, delivery schedules, frequencies and fares.
CR 1.4	Design transportation routes depending on the type of cargo
CR 1.5	Choose the right mode of transportation
CR 1.6	Cost calculation
CR 1.7	Alternative routes, consolidation of goods and / or combination of different modes of transport

Table 11: **Excerpt from a training module (Spain)**

Code MF1013_3	**Training Module 2 Long distance transport** **Associated with UC organising, managing and controlling long distance transport.** Duration: 120 hours **Capabilities and assessment criteria:**
C1	Analyse alternative routes for long distance transport and multi-modal international operations
CE1.1	Describe the basic characteristics and distinguishing features of long distance transport and / or international transport of goods for a capillary distribution operation
CE1.2	Explain the elements that you must have in your database for planning long-distance routes, setting the variables to consider in relation to: • network of transport infrastructure; • network of logistics infrastructure available: branches, correspondents, delegations and / or storage sites available for consolidation of the merchandise; • location of points of origin and destination, transit and transhipment (ports and airports); • identification of suppliers and carriers; • customs agents, freight forwarders, agents and delegates available internationally.
CE 1.3	Choose from two scenarios of long-distance, intra- and intercontinental operations, properly characterised, analysing alternative route options by comparing various means of transport for each
CE1.4	Compare the features, advantages and disadvantages of different modes of transportation: air, road, rail, sea, river and other
CE1.5	Calculate the number of vehicles that would be needed given the weight, volume and type of goods, and the deadline for delivery to justify the cost of a local distributor
CE1.6	In a case study of transport over long distances, know the origin and destination, dates, deadlines, weight and volume of goods transported: • propose alternative travel modes and multimodal transport in describing the advantages of each; • identify the transport and transit documents required in each case (depending on the mode of transportation); • set the time and time required to perform the service on time; • explain the benefits of grouped freight; • explain the risks of multimodality and formulae used to avoid.

Denmark

Figure 8: **Structure of a vocational qualification in IVET (Denmark)**



Source: Lager- og logistikoperatør.

Descriptions of subjects (including learning objectives) taken from the *Uddannelses-ordning*, which provides details on single subjects and how these contribute to achieving certain competences required from graduates as laid down in the ministerial order regarding this qualification:

Table 12: **Excerpt from a training module (Denmark)**

43842 Planning and conducting a transport process
(*Planlægning og gennemførelse af transportforløb*)

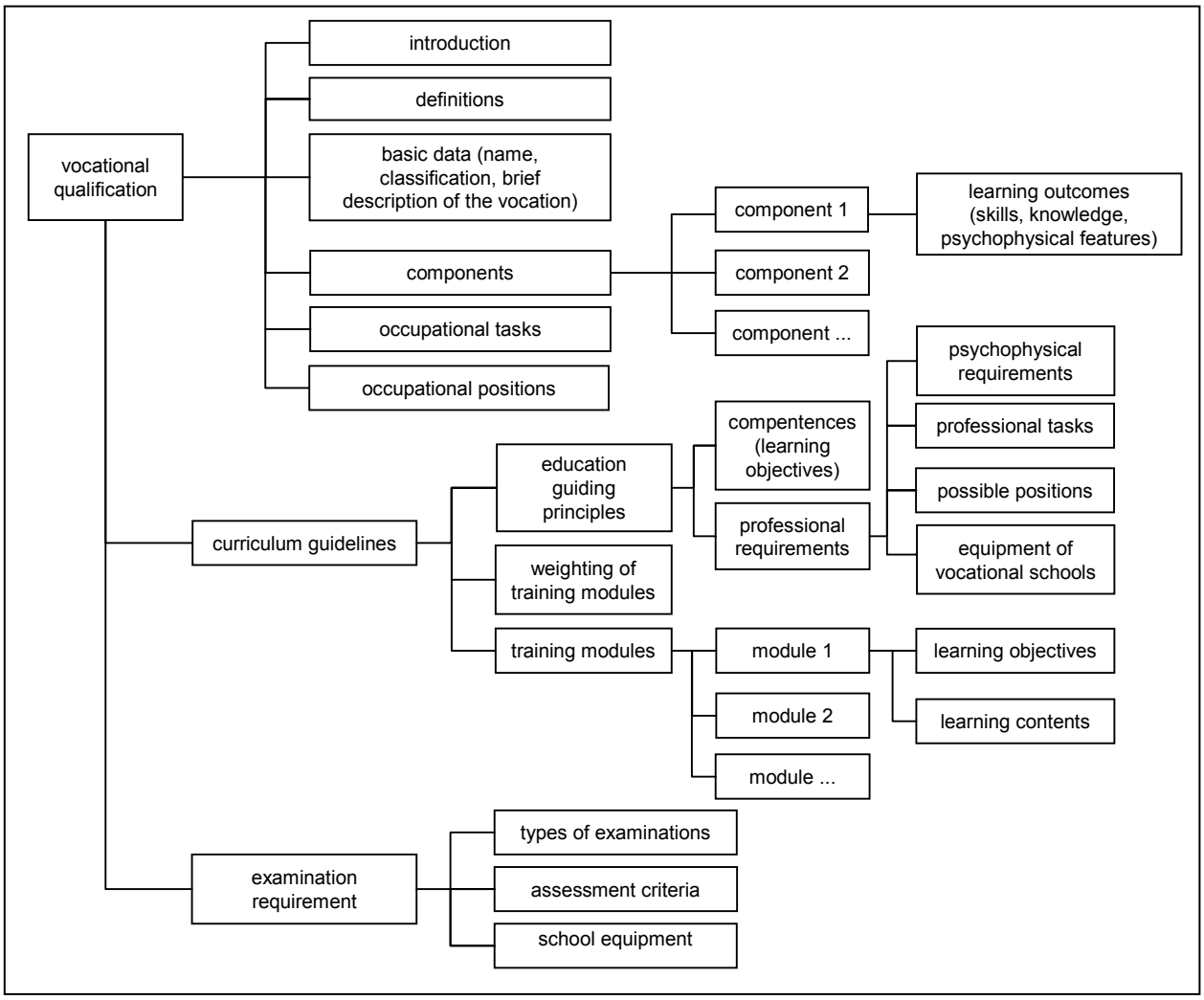
Level:	(without)
Length:	0.5 weeks
Subject category:	education for the labour market (AMU)
Obligatory/voluntary:	voluntary

Objectives:

1. The participant is able to plan and conduct the whole transport process for transport via water, air or road against the background of knowledge about the documents regulating different types of transport.
2. The participants can apply IT instruments and systems, such as information systems, general as well as branch-specific ones.

Poland

Figure 9: **Structure of a vocational qualification in IVET (Poland)**



Source: Technik logistyk

Excerpt from the curriculum guidelines (*podstawa programowa kształcenia w zawodzie technik logistyk, symbol cyfrowy 341 [04]*). The excerpt includes the learning objectives of one educational module (*blok programowy*) of the qualification:

Table 13: **Excerpt from a training module (Poland)**

Module: Guidelines for transport and freight forwarding

As a result of the training, a student should acquire following skills:

- categorising transport enterprises;
- categorising freight forwarding services;
- planning tasks in transport and freight forwarding;
- organising activities in transport and freight forwarding;
- organising loading activities;
- defining tasks in transport and freight forwarding, with regard to specific character and activity area of transport by road, rail, air, sea and inland waterway;
- utilising intermodal transport devices while realising work tasks;
- installing and using standard computer software supporting transport and freight forwarding processes;
- applying quality management procedures to freight forwarding services;
- applying basic marketing tools while carrying out research of the transport services market;
- categorising and utilising means of transport in accordance with the purpose, environment protection regulations and economic effects;
- applying legal regulations regarding the transport sector in Poland and worldwide;
- selecting transport means in regard to transport and freight forwarding tasks;
- calculating and analysing operation costs of means of transport;
- planning transport operations;
- complying with the labour time restrictions applicable to persons steering the means of transport, adhering to the standards of safety;
- presenting activities of a freight forwarding enterprise on the transport services market;
- keeping freight forwarding documentation in accordance with legal regulations;
- describing the economic results of a transport enterprise's activities;
- complying with the environment protection regulations while carrying out tasks in transport and freight forwarding.

The dynamics of qualifications: defining and renewing occupational and educational standards

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This report compares the use of qualifications standards in the 32 countries taking part in Education and training 2010. The report illustrates the diversity of approaches across Europe and underlines the importance of systematic dialogue between stakeholders to ensure the relevance and credibility of qualifications. The report pays particular attention to qualifications standards as bridges between education and training systems and the labour market.

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