

Leonardo da Vinci



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Education and Culture

Construction Site Practical Manager

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**Pilot projekt PP 146 294/2005:
Formation Credit Points**

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Preface

One of the major challenges Europe will have to face over the next few years will be to find a solution on how to make the qualifications and competences acquired in vocational education and training (VET) transparent and facilitate credit transfer. The development of strategies for lifelong learning and mobility are as indispensable to develop a knowledge-based Europe as increased cooperation in VET.

In the Copenhagen Declaration, European education ministers and the European Commission have committed themselves to introducing a European Credit Transfer System for Vocational Education and Training (ECVET). Citizens increasingly need to be able to follow individualised learning and work pathways on different levels of education and training, for different occupations and sectors and in different countries.

Within the framework of the Leonardo da Vinci project "Formation Credit Points" and under the auspices of Chamber of Crafts Trier (Handwerkskammer Trier), eight project partners from Belgium, Germany, Austria, the Czech Republic, Spain and Slovakia prepared a contribution for a "single European currency" for VET qualifications and competences on the basis of a modular further training model termed "Praxismanager auf der Baustelle" ("Construction Site Practical Manager").

The project results laid down in the following should be integrated into the current concept development of national qualifications frameworks and the designing of related credit transfer systems. In this way, the project will make a major contribution towards adapting systems in VET and making Europe the most competitive and dynamic knowledge-based economy in the world.

Rudi Müller
President, Chamber of Crafts Trier



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1. Aims of the project

European initial vocational education and training (IVET) and vocational education and training (VET) systems are characterised by a high degree of diversity. This fact can become an advantage when looking at it from the right perspective and using active strategies to enhance mobility. The principle connecting all relevant efforts is their orientation towards qualifications and learning outcomes. This means that the outcomes of qualification processes are in focus and not their inputs, such as years of learning or names of institutions. This is also the context of the large ECVET project in Europe.

ECVET aims to enhance mobility in Europe by making available a suitable system facilitating transparency, comparability, credit transfer and recognition of competences and/or qualifications in different countries and at different levels. This has been initiated and funded by resolutions and declarations at European level. In addition, the development of ECVET is given top priority in the Maastricht Communiqué of 14 December 2004. On the basis of the results of the consultation process of member states, current work focuses on finalising the proposal on ECVET at expert level.

Accompanying the activities at expert level and the consultation process, as a bottom-up strategy, a wide range of European projects worked on ECVET programmes within project partnerships – on the basis of different occupational fields and probably also with different priorities. This project refers to the construction sector and, more concretely, to an important intermediary qualification. Transparency and comprehensibility of qualifications is highly relevant particularly in sectors where many cross-border projects are conducted and where companies and workers are characterised by a pronounced degree of mobility.

Whereas there exist regulations in the form of an EU directive for the levels of architects and master builders, there are no regulations for non-regulated professions. This is where other approaches come into play, particularly ECVET.

In Germany and Austria, the qualification this project focuses on is, as a rule, termed “Polier” (“foreman/forewoman”). Even the translation of this term and transnational identification of this professional role in other employment systems represented a major challenge for the project group. As a result, the term Construction Site Practical Manager (CSPM) was chosen to show the CSPM’s intermediary function between construction management and implementers on the construction site.

At the core of this project was the undertaking – in line with the general ideas of ECVET – to define the qualification of CSPM in terms of outcomes. These learning outcomes are intended to be structured into “meaningful sets of units”. At the centre of the project’s tasks was the clarification of the “units” and their relative significance with regard to the whole CSPM qualification as well as the formulation of a related proposal. The proposals for the units and their relative weighting for the CSPM qualification were based on expert judgements of the countries taking part in the project. For this purpose, surveys were conducted among experts of the construction sector and of continuing training in the construction sector, and then the survey results were processed statistically.

The experts’ judgements were selected as the assessment criterion for the relative significance of the units in the CSPM qualification, as no time-related reference values fit in with all systems due to the prevailing diversity of IVET and VET systems. The outcome of the processing of the experts’ judgements from participating countries is truly encouraging so that this approach will continue to be used in the assessment of the relative weight of outcome-oriented units.

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In addition, the project team worked on the relationship of ECVET with EQF (European Qualifications Framework). The ECVET approach with its focus on qualifications and units can gain by being integrated into a qualifications framework that functions as a “translation tool” for the CSPM level, particularly with regard to the clarity and unambiguity of classification into employment systems. Based on the comprehensive competence descriptors pursuant to the proposal for a recommendation on the EQF, the working group considered Level 5 a realistic reference level.

As assignments to levels are often made on the basis of semantic details, competence descriptions for Level 5 in the EQF proposal for a recommendation made in September 2006 will be quoted in German and English: “Leiten und Beaufsichtigen in Arbeits- oder Lernkontexten, in denen nicht vorhersehbare Änderungen auftreten - Überprüfungen und Entwicklung der eigenen Leistung und der Leistung anderer Personen“ - “Exercise management and supervision in contexts of work or study activities where there is unpredictable change - review and develop performance of self and others“

The conclusion of the project outlines the scope and major elements of an important intermediary or upper intermediary qualification in the construction sector. The supra regional extension of labour markets and the business sphere requires information about IVET and VET and qualifications that should be as valid as possible. These cannot be provided by commonly used formal educational classifications (such as ISCED), particularly if a qualification is concerned that, in many countries, is largely determined by work experience (informal learning) and non-formal continuing vocational education and training (CVET).

ECVET is oriented towards domains of professional competence and not simply towards formal educational qualifications. Professional competences, viz. “domain-specific knowledge and skills” however, need to “age” in learning processes within work contexts. Informal learning or work experience must therefore be taken into account in the EQF NQF. It is necessary to approximate the qualification more closely as well as the real qualification paths and forms of validating learning outcomes. Therefore, in the final project stage, aspects of validating learning outcomes were examined on the basis of HR management approaches.

This European project aims to contribute towards developing ECVET on the basis of an exemplary employment and business sector, particularly in terms of defining a qualification and its units as well as their validation.

2. Description of work process

Within the framework of the two-year term of the Leonardo da Vinci project “Formation Credit Points”, between 01.10.2005 and 30.09.2007, a coordinated toolbox model for the Construction Site Practical Manager was developed in five work stages. The model’s individual “units” were linked to a credit point system oriented towards a European comparison, which describes and evaluates the acquisition of the qualification on the basis of expert judgements from the construction sector in relation to “outcomes”.

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2.1 Stocktaking

The stocktaking procedure aimed to collect comparable relevant further training regulations and curricula, or comparable documents, within the framework of the partnership, for the acquisition of interdisciplinary leadership know-how in occupations in the construction sector. Due to the IVET and further training programmes existing in the partner countries the collection was restricted to the occupation of bricklayer.

The toolbox model to acquire leadership knowledge in the bricklayer occupation was structured as follows:

Technical knowledge: working methods, specialist knowledge (safety on the job, construction plans, quality management)

Business knowledge: work planning, business planning

Training: social competences, HR management

The result of the stocktaking process was a research basis generated by the European partnership for the joint development of a modular toolbox system to acquire leadership knowledge in the bricklayer occupation.

2.2 Product and structural comparison

The product and structural comparison was conducted by the Craft Sector Research Institute (FBH) of the University of Cologne on the basis of the stocktaking procedure. The result of the product and structural comparison was a levelled research basis that was oriented towards the European framework and led to a defined modular structure in the form of “units”. The European Qualifications Framework (EQF) served as the basis for the work of classifying the qualifications system to be developed.

The selected working title for the qualifications system was “Construction Site Practical Manager” (in German: “Praxismanager auf der Baustelle”). Classification within the European Qualifications Framework was qualification level 5:

The Construction Site Practical Manager encompasses broad theoretical and practical knowledge and skills, including knowledge and skills relevant for a specific field of work or study.

The individual units include knowledge, skills and competence to develop strategic solutions in order to apply them to precisely defined and concrete problems.

2.3 Toolbox model „Construction Site Practical Manager“

Within the framework of the development stage, recommendations for actions and design regarding the structuring of a modular toolbox system and a concept for the national testing of the model were developed. In addition, a basic model of a credit point system was prepared on the basis of surveys among experts from the construction sectors of the partner countries.

The “units” to be completed within the Construction Site Practical Manager model are defined via their “outcomes”. The development of the “units” was conducted by partners applying the descriptive criteria of the EQF levels, knowledge, skills and competence.

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The following basic structure was selected for the toolbox model:



For the units it does not matter if the individual learning unit builds on attendance phases (face-to-face learning), distance learning, e-learning or informal learning. The exemplary collection of e-learning units from Germany, Austria and Spain complements the toolbox system in terms of content. It can be downloaded from the project's web pages.

The units need to be verifiable.

The relevance of a unit must be assessed by experts. According to these judgements, the units are assigned "credit points".

2.4 Credit Point System

The basis of discussions about the assignment of units to a credit point system model were the Commission Staff Working Documents "Towards a European Qualifications Framework for Lifelong Learning" and "European Credit System for Vocational Education and Training (ECVET)".

The assignment of units to a credit point system was achieved by weighting the units. This weighting was conducted by experts from the construction sectors in the partner countries. The weighting by percentage as conducted by the experts enable the assignment to the credit point systems discussed in the countries.

The weighting of units by experts from the construction sector was conducted by using an interview manual that contained the following reference points:

Share of the relevant activity of a "unit" in working time

Estimated time for learning

Significance of a "unit" for the work of a Construction Site Practical Manager

2.5 Verifiability of units

To enable verifiability of the units, the FBH developed a toolbox to examine the learning units. This toolbox enables the examination of knowledge, skills and other competences on the basis of job-specific success-critical core situations typical for the profession.

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Responses or answers to job-specific success-critical core situations typical for the profession could serve as a basis for assessing the knowledge, skills and competence acquired in the past. The inclusion of sectoral experts in the assessment of situations aims to ensure that the theoretical content of the different units are tested by applying practical situations that should be as reality- and action-oriented as possible.

3. Project results

3.1 The unit system

Zentrale Aufgabe des vorliegenden Projektes war die Bestimmung von Qualifikationen und Kompetenzen, die in den einbezogenen Partnerländern von einem *Construction Site Practical Manager* (CSPM) erwartet werden. Dazu wurden auf der Basis von regionalen Analysen der Partner in gemeinsamen Besprechungen neun Qualifikations-/Kompetenzbereiche eingegrenzt, die in allen Partnerländern relevant sind. Neben der fachlich-technischen Qualifikation sind dies vor allem die folgenden acht überfachlichen Bereiche: Teamwork und Mitarbeiterführung, Sicherheit, Arbeitsplanung, Umweltschutz, Regeln, Qualitätssicherung, Lesen und Umsetzen von Plänen und Kostenbewusstsein. Mit Blick auf die zeitlichen Möglichkeiten im Projekt erfolgte eine Eingrenzung auf die Beschreibung von Units für die herausgestellten überfachlichen Qualifikationsbereiche.

3.1.1 Description of units

The units were described by indicating the learning outcomes on the basis of Commission recommendations on the formulation of qualifications and were structured accordingly by knowledge, skills and competence. The formulation of the individual units was carried out in collaboration by the experts and combined and coordinated in a subsequent joint meeting. The following presentation of units includes the result of this process.

Unit: Teamwork and HR management

Knowledge

- know, assess the basics of HR management and present them on the basis of problematic situations: corporate culture, leadership guidelines and leadership styles, the role of the executive between the requirements of the management and of employees leadership instruments: information, delegation, motivation, control / feedback leadership of specific employee groups: trainees, younger employees, older employees, immigrants HR development: methods of identifying potential, qualification options
- perceive social relations and assess forms of communication in the company: effects of the organisational environment on the employees' behaviour fundamentals of communication, communication disturbances, conflicts and conflict management approaches fundamentals of rhetoric and moderation technique
- recognise needs of teamwork: group features and structures, formal and informal groups fundamentals of forming company working groups and teams

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Skills

- delegate to individual employees and follow up on work assignments taking into account the work requirement, performance prerequisites and individual aptitude to work, assess the results of work with regard to execution and quality
- communicate corporate information clearly and in a targeted manner
- ensure motivating working conditions
- develop and communicate behaviour rules for corporate cooperation and ensure they are observed
- hold conflict-resolution and appraisal talks
- prepare employer's references
- prepare and hold work meetings and summarise results
- instruct trainees, unskilled and skilled employees, specify assignments and implement them
- act as a mediator in the case of differing demands and requirements of employees, on the one hand, and of construction management, on the other
- develop requirement profiles on the basis of work requirements
- plan and implement induction phases for new employees in a structured manner
- assess the potential of employees and recommend appropriate training measures for the further development of employees to ensure they can cope with specific work requirements

Competence

- take on responsibility for oneself and others
- positive image of mankind, stable personality
- strong communicative skills and willingness to communicate, integration ability
- prevent, identify, tackle and resolve conflict
- ability to work in teams
- assertiveness, critical awareness, judgement
- intercultural skills

Unit: Safety

Knowledge

- know legal bases and be able to distinguish between areas of application: valid European and national standards and principles assess safety rules, regulations, and laws and describe how to implement them at the construction site: safety at work, health protection, hygiene at work (cleanliness at work), and fire protection, protection of the construction site
- describe requirements on safety and hygiene at work on the basis of the situations below:
 - handling of loads
 - work at heights
 - pollutants safety and fire protection equipment
 - personal protective gear
 - documentation of situations on the basis of safety legislation
 - obligation to conduct training seminars and examinations

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Skills

- assess and apply regulations on safety at work, health protection, hygiene at work (cleanliness at work), fire protection
- apply technical equipment and technological procedures in line with safety and fire protection regulations
- prepare, implement and document the introduction of employees to regulations of occupational health and health protection legislation
- use of personal protective gear within the meaning of valid regulations
- assess the employees' abilities (working at heights, body postures and balance)
- trigger measures in case of accidents, organise first aid

Competence

- stamina, ability to work under pressure, particularly in emergencies
- ability to work at heights, sensitivity for body posture and balance
- safety awareness and sense of responsibility
- independence

Unit: Work planning

Knowledge

- know general basics of work planning for work on the construction site:
 - cycles and phases in the planning process
 - required steps in the work process
 - planning instruments for cost and time planning
 - problem-solving and decision-making processes
 - organisational forms
- know about work preparation measures and describe them on the basis of given situations:
 - inspection and analysis of construction site
 - schedules and execution plans
 - construction implementation and its tools

Skills

- prepare realistic workflow plans and schedules for staff on the basis of construction planning
- coordinate plans and adapt them to changed requirements
- reports planning / construction documentation
- transfer of construction documentation to other work

Competence

- organising skills
- realistic assessment of the workers' willingness to work and skills
- teamwork, assertiveness, critical awareness, communication skills
- responsibility for employees, resources and the environment
- judgement
- intercultural skills

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Unit: Environmental Protection

Knowledge

- understand and know processes, legal rules, standards and protective measures related to environmental protection and health
- analyse and integrate processes and workflows and examine environmental standards in building construction for:
 - preventive measures in the field of sanitation and hygiene of workers
 - storage and disposal of poisonous or dangerous substances
- identify and describe possible defects

Skills

- adhere to and implement environmental protection standards regarding:
 - employees
 - machinery
 - installations
 - storage

Competence

- environmental awareness: ability to assess unexpected situations as regards to their effects and hazards for the environment, in cases where advice from superiors is required and in cases where privacy must be respected
- resource-saving behaviour

Unit: Rules

Knowledge

- know rules and legal bases for work on the construction site:
 - legislation and jurisdiction
 - labour law fundamentals
 - terminology and language in construction legislation
- assess construction-specific legal bases and present them on the basis of situations:
 - construction legislation technical rules and standards
 - contract and tendering legislation
 - contract legislation regarding the involvement of subcontractors and external service providers
 - guidelines for places of work and accommodation

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Skills

- identify legally relevant situations at the construction site and put rules and legal bases both into practice and into the construction site workflow
- explain rules comprehensibly and emphatically and formulate them as applicable instruction and examine adherence to rules
- identify and analyse deviations from standards and infringements of rules, and assess their type and gravity
- decide if any countermeasures and/or elimination is required, and suggest and introduce countermeasures and/or elimination
- point out deviations and infringements to staff/subcontractors and explain these to them with a view to their future reoccurrence

Competence

- responsibility for legally compliant behaviour
- decision-making competence in the practical application of rules
- assertiveness
- use own initiative to sign up for company internal and external further training courses to acquire and extend knowledge and skills

Unit: Quality assurance

Knowledge

- assess the fundamentals of construction technology and workflows for quality-relevant aspects
- process control by using suitable procedures:
 - work planning, workflows, work control
 - construction procedures for concrete and reinforced concrete
 - fundamentals of foundation laying and measurement
 - fundamentals to prepare a construction measure and for construction site organisation
- present product monitoring / results by using appropriate procedures:
 - computation of quantities pursuant to legal bases and performance
 - specifications
 - costs
 - drawings
 - construction material
 - execution of building work and building construction
 - statics
 - insulation against heat, noise and fires

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Skills

- conduct any necessary stocktaking and testing using the bill of quantities:
 - identify outstanding deliveries on the basis of daily reports and confirmations of orders
 - examine material stock, incoming material and material quality
 - examine the quality of construction material (such as concrete samples)
 - quality testing of the construction work (measurements)
 - prepare documentation
- prepare and convey performance acceptance:
 - compare execution of building work with the specification
 - reports about special services
 - compile documents required for final accounts
 - prepare documents about follow-up cost accounting

Competence

- organising skills
- responsibility
- assertiveness
- negotiating skills
- frustration tolerance

Unit: Reading and implementation of plans

Knowledge

- distinguish between types of plans (e.g. submitted plan, foreman plan) and plan symbols (lengths, widths, heights, absolute height, etc.)
- identify terms for material and the materials themselves on the basis of symbols, coloured drawings and standardised symbols and identify patterns on the basis of existing standards
- relevant knowledge of geometry for reading plans, knowledge of legal rules and standards
- read and understand EURO codes, particularly with regard to fire protection of individual components

Skills

- read and understand plans: drafts, submitted plans, foreman plans, detailed plans, formwork plans, structural engineers' plans, reinforcement plans, measurement plans
- to scale implementation of plans into reality (scale of 1:50 is relevant)
- combine and coordinate different levels of planning
- take into account carcass dimensions and prefabricated buildings dimensions
- production of sketches in special cases, e.g. measure up

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Competence

- sketches for settlement of accounts
 - handling of measurement instruments to put plans to practice
- handle plans independently and responsibly
 - flair for construction theory and depth, movement of the sun, dimensions of human body
 - spatial power of imagination, e.g. three-dimensional thinking

Unit: Cost-awareness

Knowledge

- take into account the fundamentals of actual and planned cost accounting in cost settlement of the construction site:
 - performance areas, cost types and cost centres in construction enterprises
 - cost structure and cost priorities of the company cost-relevant collective bargaining regulations identification of overheads
 - indirect costs and cost rates calculation procedures in construction budget and cost control
- present possibilities of data processing and documentation, in particular with relevant sectoral software

Skills

- prepare building dimensions and service documents
- prepare preliminary cost accounting
- carry out cost comparisons for inexpensive procurement of material, equipment and services
- prepare performance reports for intermediary and follow-up cost accounting as regards working hours and used material
- use of relevant sectoral software

Competence

- economic thinking
- frustration tolerance

3.1.2 Assessment of units

The units presented here were assessed by 21 experts from the construction industry who had been addressed by the project partners involved in the participating countries. The assessment aimed at appraising these units' and their learning outcomes' (knowledge, skills, competence) relevance for the job of a Construction Site Practical Manager (CSPM) at the interface between construction management and staff on the construction site.

Experts from participating countries assessed the presented units as relevant overall for the CSPM. Within the units, a more detailed assessment of the relevance of individual learning outcomes for the qualification of a CSPM was conducted in some areas. The experts came to the same general conclusion. It was found that only applied basic qualifications are required in the units "cost awareness" and "rules".

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3.2 Development of a credit point system

Within the framework of the project, a proposal for a credit point system for the qualification of Construction Site Practical Manager (CSPM) was elaborated. This system builds on the developed partial qualifications as presented in the previous section. The development took account of the current state of discussions and consultations of the European Commission.

The European Credit Point System for Vocational Training (ECVET) aims to enable the description and assessment of qualifications in the form of transferable and accumulable learning units. On this basis it is possible to recognise qualifications existing in individual cases independent of how they were acquired, i.e. in which learning context and in which country. Provided the acquired credit points are mutually recognised, the credit transfer system promotes employee mobility. At the time of the publication of this report, the consultation process on ECVET was still ongoing and no clear statements about the assignment of credit points to partial qualifications nor about the transfer process were available.

The transfer of credit points is linked to a number of central prerequisites for the system of partial qualifications for the CSPM developed in the project:

- title of whole qualification
- description of knowledge, skills and other competence making up a partial qualification
- coherent structure of partial qualification
- criteria for the assessment of learning outcomes

In the first step of the development of a credit point transfer system, the assessment of the individual partial qualifications was conducted in relation to the whole qualification of the Construction Site Practical Manager. This aims to present the relative value of a partial qualification in relation to the whole qualification.



For the awarding of credit points to individual partial qualifications, the European Commission Working Document of 31.10.2006 suggests various criteria:

- significance of the contents of every partial qualification in relation to knowledge, skills and other competence
- in relation to the (real or assumed) duration of a training plan
- in relation to the (real or assumed) efforts of a learner within a formal VET framework
- in relation to the (real or assumed) learning efforts to be made by a learner within an informal VET framework
- a combination of several of these criteria

The project partners decided to use the significance of the contents of every partial qualification for the whole qualification as a criterion for determining credit point, viz. not to use any time-related criteria. The following two reasons were decisive: First of all, the

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career and VET paths towards the qualification Construction Site Practical Manager are very different in Europe. In some countries (Germany, Austria), there exist regulated qualifications with recognised diplomas, with formal qualification durations varying widely as well. In other countries (Spain), qualifications are mainly acquired informally. Due to this heterogeneity it is not possible to conduct any valid timing for the acquisition of partial qualifications and hence credit points. Secondly, project partners considered it a content-related step backwards to assess partial qualifications with output-oriented competence analysis by using input-oriented criteria.

To specify the significance of the partial qualification, a total of 21 experts were questioned in the six countries involved. Experts were provided with descriptions of the partial qualifications and asked for a weighting, which was oriented towards the following criteria: significance of the partial qualification for the activity of the CSPM; the share of the CSPM's working hours instructed with the partial qualification; and the estimated learning time for acquiring the qualification. The results of the assessment by experts were averaged and can be seen from the table column "weighted significance". For the partial qualification "technical / expert qualification" there is no output-oriented description and it is possible in principal to develop some additional relevant partial qualifications

Partial qualifications	Weighted significance	Credit points
Technical / expert qualifications	22 %	22
Teamwork and HR management	13 %	13
Work planning	12 %	12
Reading and implementing plans	11 %	11
Cost awareness	10 %	10
Safety	9 %	9
Quality assurance	9 %	9
Rules	7 %	7
Environmental protection	6 %	6
Total	100 %	100 Credit Points

To "convert" the partial qualifications weighted in percentage rates to credit points it was necessary to define a number of points for the whole qualification of the CSPM. From the current state of implementation of the ECVET, no compelling approach could be derived in this regard. Project partners agreed on assessing the whole qualification with 100 credit points.

With a view to the described competences and the connected scope of responsibility, it is suggested – as already stated in the chapter on the "Aims of the project" – to classify the CSPM at EQF Level 5. The qualification level described there is in line with the CSPM's knowledge, skills and competence. Knowledge at Level 5 is described as follows: "comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of the knowledge". Skills are described as

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follows: “a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems“. Competence is described as follows: “exercise management and supervision in the context of work or study activities where there is unpredictable change; review and develop performance of self and others “.

The formulated proposal for the credit point system enables a flexible adjustment to, and further development of, national requirements and is, in principle, compatible with the European Commission’s ideas and proposals and hence linkable.

3.3 Strategies of transfer and valorisation

3.3.1 Strategies in Germany

In Germany, the transfer and valorisation of project results will mainly be conducted by the ZWH. These activities will, on the one hand, take into account current developments of qualifications for the target group of “Poliere”, whose qualification requirements essentially correspond to those of the CSPM. On the other hand, current discussions about the development of a credit point transfer system in Germany will be considered.

The previous further training regulation for “Poliere” is outdated, for which reason the Association is thinking about updating it. Against this background, the ZWH will present the concept of “units” in a differentiated way to the Central Association of German Construction Industry (Zentralverband des Deutschen Baugewerbes e.V. ZDB and advocate that results are integrated into the planned further development of regulations concerning the occupation “Polier”. In addition, the project results will be made available to other involved social partners and bodies responsible for drawing up a Further Training Regulation pursuant to § 53 of the Vocational Training Act (Berufsbildungsgesetz) at the Federal Institute for Vocational Education and Training (Bundesinstitut für Berufsbildung, BIBB).

In order to support a broad transfer of these project outcomes, the ZWH will report about the project results in its magazine “zwh aktuell” and refer to this publication, which visitors will be able to download from the ZWH’s website. Copies of the above-mentioned ZWH magazine will be delivered to a distribution list totalling 9,000 addresses of all craft and trade organisations, particularly chambers of craft trades, associations, district associations of craftspeople, guilds and training establishments in the craft and trade sector.

In the course of the development of the German Qualifications Framework and the testing of a credit point transfer system, the ZWH will provide information to the bodies of the Central Association of German Craft Trades (Zentralverband des Deutschen Handwerks) and involve them in related discussions.

3.3.2 Strategies in Austria

Dissemination of project results will be done through a variety of means.

Initially, the construction sector institutions at federal and provincial levels, the colleges for construction occupations (BauAkademien) such as the IVET and CVET providers of the construction sector, and the construction industry at federal and provincial levels will be informed about the content and results of the Formation Credit Points project.

Already agreed is the publication of a concise project information page on the ibw’s website and an article in the “ibw-Mitteilungen” magazine, which comes out quarterly and boasts a wide circulation among experts and decision-making bodies in the VET sector – in training enterprises, schools, CVET institutions, and in public administration.

Also fixed is the inclusion of the project information in the periodic newsletter “BERUFSINFORMATION”.

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The linking of project-related information on the ibw's website with the website of the IFA (International Young Workers' Exchange Association, Verein für den Internationalen Austausch von Lehrlingen, jungen Fachkräften und Ausbildern der Wirtschaft) aims to promote the dissemination of results. The IFA will use ECVET-relevant results and disseminate them in different contexts.

The multilingual brochure about the project will be made available to download for interested visitors to the ibw's website.

Another step towards valorisation is the provision of information about the project results to the info channel of the Austrian Federal Economic Chamber (Wirtschaftskammer Österreich, WKÖ) called "Bildung & WIFI", ensuring that IVET and CVET experts can be reached also via this medium.

Presentations of the project results will be made in front of experts from the IVET and CVET sectors at the federal and provincial levels, particularly from training enterprises.

Following transmission of project results to the Leonardo da Vinci National Agency, the ibw will be able and willing to take on project presentations at events of the Leonardo da Vinci National Agency for valorisation purposes.

It is envisaged that a project presentation will be held at an event planned by the ibw on ongoing EU projects and key issues of European VET policy (e.g. ECVET and EQF-NQF) with IVET and CVET experts from the Austrian economic chambers and the Federation of Austrian Industry (Industriellenvereinigung) in the autumn of 2007.

3.3.3 Strategies in Belgium

The modular curricula for the construction sector developed within the framework of the project will subsequently be presented to all subject teachers and lecturers in the construction sector who work at our two training centres. For this purposes, a conference day will be held with the foci: use of the developed modules for existing IVET and CVET programmes, and considerations about introducing a programme completed with the "Polier"/CSPM qualification. Date of conference: beginning of the school year.

The credit point system developed within the framework of the project for vocational (dual) training will then be presented to the political decision-makers of the German speaking community and the bodies competent for training. For this purpose, a working session is scheduled to be held with the competent regulatory minister, his cabinet and the Education and Training Unit of the Ministry for the German-speaking Community, which will focus on the following topic: the use of the developed validation model in the context of the ongoing EQF and NQF debate.

The results will be presented personally to Walloon (IFAPME) and Flemish (SYNTRA) sister institutes, supervisory authorities for dual training, within the framework of a working group.

The developed products and results will be transmitted in writing to the following institutions:

- Education and training centres for dual training provided by medium-sized enterprises in the German speaking community (ZAWM)
- Head office and training centres of the labour office of the German speaking community (bricklayers school)
- Professional associations, chambers and the training fund for the construction sector
- Members of the IAWM's Administrative Council as the representative of professional and trade associations
- Inspectors of the pedagogical service of the Ministry for the German-speaking Community
- Education and Training Unit of the Ministry for the German-speaking Community

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· other national partner institutions for dual IVET and CVET

and the competent minister for education and employment of the German-speaking community.

3.3.4 Strategies in Spain

The first steps for valorisation foreseen by the Consejo Superior de Cámaras de Comercio is to make some hundred copies of the project results. These will be sent to the main organisations for education, employment and the economy.

An additional measure will be publication of final project results at the website of the organisation Consejo Superior de Cámaras de Comercio (camaras.org). This will make dissemination and printing easier.

As a final step of valorisation, copies will be sent to the Spanish Chamber of Commerce and the regional chambers of commerce with the request to publish the research findings on the Internet and other available media.

3.3.5 Strategie in Slovakia

At the basis of the valorisation of project results is the provision of information by the SZZ about the Slovak Trade Association's participation in the project to Štátny inštitút odborného vzdelávania (SIOV) – the national institution for specialist training, which collaborates closely with the School Ministry and, at the same time, is considered an expert for methods of skilled workers' training.

In addition, contact is established with Zväz stavebných podnikateľov Slovenska (ZSPS) – the association of Slovak construction enterprises and, at the same time, the most experienced construction association – as well as the skilled workers' schools for the construction sector and with experts for construction and skilled workers' training.

Apart from consultation, a further measure will consist in close cooperation with the above-mentioned institutions and organisations aiming to jointly implement project results in the bricklayer occupation and seek possibilities to further develop the project and its products.

Finally, relevant information will be translated into Slovakian and made accessible to the general public by means of a localisation at the SZZ's website.

3.3.6 Strategien in the Czech Republic

The final results of the project "Formation Credit Points" will be put up for discussion to the AMSP's committees for financing and education, and consequently also to the AMSP's supervisory board, as early as in October this year.

As a second step, the results will be put on the websites of ASAMP – the Association of Small and Medium-sized Enterprises and the Craft Trades of the Czech Republic – in order to encourage dissemination and print.

Furthermore, the project results will be sent by e-mail to all members of AMSP, including both companies and employees, and the members of the above-mentioned committees, including also external experts.

It is also planned to print 120 copies of the project results, to be sent to the major representatives of education, employment and the economy, to the Czech Association for

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Industry, the Association of Private Universities, the chambers of commerce of the Czech Republic, the Education Ministry, the National Training Fund, and to similar institutions and organisations.

Additionally, the results of this cooperation will be published in the report of the ASMP of the Czech Republic for 2007 to the general assembly of its own organisation.

As a final step, parts of the project results will soon be discussed by the Education Commission of the Ministry for Labour and Social Affairs and the Ministry for Education of the Czech Republic.

3.4 Processes to validate learning outcomes of individual units of the Construction Site Practical Manager qualification

3.4.1 Background

One aim of the pilot project Formation Credit Points consisted in identifying validation options on the capacity included in the nine units of the Construction Site Practical Manager (CSPM) qualification.

In the six participating partner countries, construction site executives develop their skills on the basis of widely varying didactic and institutional backgrounds (keywords: formal, informal and non-formal learning). In the opinion of experts involved in the partner countries, there exist success-critical situations at the construction site that can be compared to the CSPM, however. Reference to such situations and successful action in these situations could supply important information as regards the interdisciplinary content of examinations and, at the same time, remain independent of its methodical design.

Against this background, the FBH decided to use the “critical incidents technique” (cf. e.h. CHELL in SYMON, 1998), which is usually applied as a method of staff recruitment. In analogy to this method, the developed process applies success-critical work situations as the basis for validating capacity in which the Construction Site Manager bears special responsibility for the construction enterprise’s workers, capital and success. The CSPM’s activities in such situations will have a decisive impact on his/her own professional success and on corporate success, and can serve as an indicator for his/her professional capacity.

3.4.2 Procedure within the framework of the process

In a three-step process, it would be possible to gather information about concrete success-critical situations, related promising actions, and hints for the CSPM’s special responsibilities as the basis for validating his/her capacity. In this context, the following three key questions need to be asked successively:

- a) What are the typical professional situations in the field X in which an executive will be particularly able to prove his/her professional knowledge, skills and competence on the construction site?
- b) What is the behaviour that will most likely lead to successfully tackling these situations?
- c) In how far will an executive on the construction site take on responsibility for workers and capital in the above-mentioned situations?

The answers are as follows:

- a) This question will be put for each individual unit of the CSPM qualification. To explain the knowledge, skills and competence that the project partners connect with the

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various professional areas of the units, the descriptions prepared in the course of the project will be used (see presentation of units). To illustrate the question, some generally formulated examples will be presented operationally. The answers to the first question can be used as the basis for exam situations.

b) Descriptions of behaviour provide clues on how the knowledge, skills and competence could typically be expressed in the identified situations. The replies to the second question can be used as the basis for “best practices” in success critical situations.

c) Statements on acceptance of responsibility will, on the one hand, provide further clues on the didactic implementation of the answers collected in questions 1 and 2, for example in the form of particularly responsible areas of activity or reflected behaviour patterns to be found in practice. On the other hand, they could enable an initial classification of the identified core competences of the Construction Site Practical Manager into the European Qualifications Framework (EQF). In the EQF, competence is described in terms of “responsibility” and “autonomy”. Whereas the criterion of “autonomy” could be interpreted as a must-criterion for the Construction Site Practical Manager (CSPM) by sector experts, statements on acceptance of responsibility could provide more information as the basis for a rough classification into the EQF.

The following presentation summarises the three-step procedure to identify exam situations, it includes the above questions to be answered by sector experts.

1. success-critical situation

*What are, in your opinion, the typical professional **situations** in the above-mentioned field in which an executive will be particularly able to prove his/her professional knowledge, skills and competence on the construction site?*

2. Behaviour to ensure successful tackling of the success-critical situation

*What is, in your opinion, the **behaviour** that will most likely lead to successfully tackling these situations?*

3. Responsibility for workers and capital in the success-critical situation

*In how far will an executive on the construction site take on **responsibility** for workers and capital in the above-mentioned situations?
(e.g. management and supervision of teams, check economic indicators, etc.)*

3.4.3 Outlook

The application of this procedure, plus the input of sector experts, could provide valuable clues to examine the capacity of the CSPM and still leave sufficient scope for the selection of examination methods and instruments to meet the requirements of different individual teaching and learning contexts. In principle, the procedure can be used in all areas where emphasis is placed on holistically validating capacity. Apart from the construction sector, therefore application in IVET and further training in other national and international contexts is conceivable.

4. Summary

Encouraged by the efforts of the European Commission to put into practice ECVET and hence a system of mutual recognition of qualifications, discussions are ongoing particularly among educational experts of many European countries to find viable options to develop and set up credit point transfer systems. Already the large number of open questions in relevant working papers alone, as well as many educational policy discussions, makes clear that quite a lot of effort to develop, test and in particular consult is still necessary to obtain functioning systems and processes and thus achieve acceptance. For this reason,

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both national and European projects are being conducted at present to accompany the current development processes and find answers to open questions.

This Leonardo project provides some interesting exemplary solutions and clues regarding some of these questions. The project focussed on the process of developing a credit point transfer system for a selected qualification area in the construction sector in cooperation with partners from six European countries. In accordance with the project plan, a systematic procedure to form units for a jointly defined whole qualification of a Construction Site Practical Manager (CSPM) and to assign credit point to these units was implemented and documented. The key success element of this process is the targeted and structured involvement of national experts into the central development steps. The combination and evaluation of results on the basis of the experts' judgements was conducted in joint meetings by the project partners. The partners found that the selection of suitable experts – e.g. from companies and educational organisations – can play a major part for the acceptance of results.

In addition, some initiatives were set out about appropriate approaches towards validating learning outcomes within the framework of the recognition process. In this context, a procedure was presented and assessed as useful that focuses on typical professional situations and relevant actions. This procedure is so flexible that it can be used smoothly in different national examination and certification contexts.

Feedback about the first transfer steps has revealed large interest in project outcomes and their future implementation. However, issues also related to the concrete implementation process and the involvement of suitable competent bodies have been raised, for the clarification of which project partners consider further analysis and testing within the framework of a transfer project important.

5. Projektpartner

Germany

Handwerkskammer Trier (Chamber of Crafts Trier)

The Chamber of Crafts Trier is project applicant and contractor and was responsible for coordination and overall implementation of the project. The Chamber of Crafts Trier had been assigned to develop the "Quality Assurance" unit and discussed the toolbox system with regional experts of the construction sector.

The Chamber of Crafts Trier represents the interests of the entire crafts sector in the Trier region. A key task of the Chamber of Crafts Trier is to promote VET for its members.

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Central Agency for Advanced Training in the Skilled Crafts (Zentralstelle für die Weiterbildung im Handwerk)

In its function as a core partner, the Central Agency for Advanced Training in the Skilled Crafts (ZWH) took on the collection of documents for the acquisition of leadership knowledge in the bricklayer's occupation, including e-learning sequences, as available in Germany, as well as the modular structure of the CVET toolbox and the fundamentals for

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the credit point system. The ZWH had been assigned to develop the units “Teamwork and HR management” and “Cost awareness”. In collaboration with the Chamber of Crafts Trier, the ZWH conducted the expert interviews in Germany. The Central Agency guarantees the valorisation of the project results in Germany.

The ZWH is financed by the 55 German chambers of craft trades, the regional confederations of skilled crafts, and the German Confederation of Skilled Crafts (Zentralverband des deutschen Handwerks). The ZDH is a central service provider for more than 500 training establishments for the sector in Germany and supports them, among other activities, in the introduction and implementation of new study programmes, particularly for e-learning programmes, the development of framework curricula, course concepts and material.

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Craft Sector Research Institute (Forschungsinstitut für Berufsbildung im Handwerk)
 The Craft Sector Research Institute (FBH) prepared the product and structural comparison, made first classifications of the toolbox system in the European Qualifications Framework, and developed an examination system for the units.

The FBH is connected to the University of Cologne. The Institute is the coordination office for crafts-related IVET and CVET in the German crafts institute.

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Austria

Institute for Research on Qualifications and Training of the Austrian Economy (Institut für Bildungsforschung der Wirtschaft)

The Institute for Research on Qualifications and Training of the Austrian Economy (ibw) took on the task of collecting the documents available in Austria on the acquisition of leadership knowledge in the bricklayer's occupation, including e-learning sequences, conducted the expert interviews in Austria, and ensured classification of the toolbox system in the European context. The ibw had been assigned to develop the unit “Reading of plans”. The ibw guarantees the valorisation of the project results in Austria.

The Institute for Research on Qualifications and Training of the Austrian Economy is a research institution in the VET and CVET sectors in Austria. Many of the ibw's studies deal with IVET within the dual system, technical and vocational education and training at schools and colleges, part-time vocational schools, and universities. In addition, the ibw conducts labour market analyses and CVET research.

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Belgien

Institute for Vocational Education and Training in SME (Institut für Aus- und Weiterbildung im Mittelstand)

The Institute for Vocational Education and Training in SME (IAWM) took on the task of collecting the documents available in the German-speaking community and Wallonia on the acquisition of leadership knowledge in the bricklayer's occupation and conducted the expert interviews in Belgium. The IAWM had been assigned to develop the unit "Rules" and ensures the valorisation of the project results in Belgium.

The Institute for Vocational Education and Training in SME is an institution of public interest for the German-speaking community of Belgium. It acts as the supervisory authority in the field of dual IVET and CVET provided by medium-sized enterprises and boasts relevant experience in the designing, development and instruction of qualification modules on leadership knowledge and for the preparation for self-employment.

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Spain

Consejo Superior de Cámaras de Comercio, Industria y Navegación de España

The Consejo Superior de Cámaras de Comercio, Industria y Navegación de España (ccamaras) took on the task of collecting the documents available in Spain on the acquisition of leadership knowledge in the bricklayer's occupation, including e-learning sequences, and conducted the expert interviews in Spain. Ccamaras had been assigned to develop the "Environmental protection" unit. Ccamaras ensures the valorisation of the project results in Spain.

In its capacity as the umbrella organisation of Spanish economic chambers, the Consejo Superior de Cámaras de Comercio, Industria y Navegación de España represents and coordinates all Spanish economic chambers as an independent legal institution with instruction competence. The umbrella organisation's tasks comprise all functions of the chambers, including education and training. Within its functions including IVET and CVET activities, the umbrella organisation plays a significant part in the designing and coordination of programmes for business start-ups, in the development of pedagogical material for entrepreneurial training.

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Slovakia

Slovenský Zivnostenský Zwäz

The Slovak trade association Slovenský Zivnostenský Zwäz (SZZ) has been the umbrella organisation for craftspeople and self-employed in Slovakia since 1992. In addition to representing its members' interests, the SZZ is active in the fields of education and training, guidance and public relations. Aiming to improve the qualification standard and CVET, the SZZ cooperates closely with the education committee of the School Ministry's Council for Skilled Workers Initial and Continuing Vocational Training and coordinates teaching contents with schools and guilds.

The Slovak trade association Slovenský Zivnostenský Zwäz took on the task of collecting the documents available in Slovakia on the acquisition of leadership knowledge in the bricklayer's occupation and conducted the expert interviews. The SZZ had been assigned to develop the "Safety" unit. The SZZ guarantees the valorisation of the project results in Slovakia.

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Czech Republic

Asociace malých a středních podniků a živnostníků ČR

The Association of Small and Medium-Sized Enterprises and Craftspeople took on the task of collecting the documents available in the Czech Republic on the acquisition of leadership knowledge in the bricklayer's occupation and conducted the expert interviews. The Association had been assigned to develop the unit on "Work planning". The Association guarantees the valorisation of the project results in the Czech Republic.

The Association of Small and Medium-Sized Enterprises and Craftspeople (AMSP) is responsible for the entire Czech Republic. The Association's objective is to improve the climate for entrepreneurial activity. The AMSP supports the affiliated companies by representing them in business, politics and all parts of the Czech society. In the field of seminars, the AMSP organises programmes and seminars on business management.

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6. List of people involved

6.1 People involved in the project work

Name	Institution	Country	Professional Role
Alonso, Virginia	PAI Construcciones (building company)	Spain	HR management, examination of results
Altmeyer, Rainer	Handwerkskammer Trier	Germany	Financial controlling
Behr, Günther	Handwerkskammer Trier	Germany	VET official
Bonni, Patrick	Institut für Aus - und Weiterbildung im Mittelstand (IAWM)	Belgium	Project coordination
Centner, Carl-Ludwig, Dr.	Handwerkskammer Trier	Germany	Project management
Diart, Martin, Dipl.-Hdl.	Forschungsinstitut für Berufsbildung im Handwerk (FBH)	Germany	Scientific project support
Dobberstein, Rodger		Slovakia	Translations
Dobes, Karel	AMSP ČR	Czech Republic	Manager
Fijalkowski, Chantal	Institut für Aus- und Weiterbildung im Mittelstand (IAWM)	Belgium	Pedagogical official, development of modules and evaluation concept
Giménez, Vicente	Fundación Laboral de la Construcción (FLC)	Spain	Director, scientific project support
Gloede, Stefanie	Zentralstelle für Weiterbildung im Handwerk (ZWH)	Germany	Project web pages
Gómez, Gonzalo	Fundación Laboral de la Construcción (FLC)	Spain	Training of young talented people, examination of results
Hekman, Björn, Dr.	Forschungsinstitut für Berufsbildung im Handwerk (FBH)	Germany	Scientific project support
Kellerová, Andrea		Slovakia	Translations
Kirkpatrick, Blanca	Consejo Superior de Cámaras de Comercio	Spain	Administration and technical work

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Kluge, Pia	Institu für Aus- und Weiterbildung im Mittelstand (IAWM)	Belgium	Pedagogical official, development of modules an pedagogical content
Kramer, Beate, Dr.	Zentralstelle für Weiterbildung im Handwerk (ZWH)	Germany	Project management
Kromerová, Viola	Slowakischer Gewerbeverband	Slovakia	General Secretary of the Slovak trade association
Krtík, Ján		Slovakia	Head of skilled workers´school for the construction sector
Lanza, Fernando	Fundación Laboral de la Construcción (FLC)	Spain	Project web pages
Llopis, Jaime	Anchinal SL	Spain	Translations
Mikolasková, Sona	AMSP ČR	Czech Republic	Technician
Morales, Guillermo	Grupo OHL (building company)	Spain	Training of young talented people, examination of results
Muñoz, Valeriano	Consejo Superior de Cámaras de Comercio	Spain	Project coordination
Nagy, Alfred	AMSP ČR	Czech Republic	Manager (until April 2007)
Nowak, Sabine	Institut für Bildungsforschung der Wirtschaft (ibw)	Austria	Scientific project support
Prem, Rainer	Handwerkskammer Trier	Germany	Training master and expert for construction
Reimann, Frank	Handwerkskammer Trier	Germany	Project web pages
Rischar, Harry	Institut für Aus- und Weiterbildung im Mittelstand (IAWM)	Belgium	Freelance pedagogical employee, analysis of training and certification in the Belgian construction sector
Schaumann, Uwe, Dr.	Forschungsinstitut für Berufsbildung im Handwerk (FBH)	Germany	Scientific project support
Schmitz, Jessica	Handwerkskammer Trier	Germany	Translations
Schmitz, Ralf	Handwerkskammer Trier	Germany	Head of Construction Unit of the Education and Training Centre of Chamber of Crafts Trier, counselling on concept development for units

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Schneeberger, Arthur, Dr.	Institut für Bildungsforschung der Wirtschaft(ibw)	Austria	Project coordination
Schröder, Sabine	Zentralstelle für Weiterbildung im Handwerk (ZWH)	Germany	Scientific project support
Schwalbach, Matthias, Dr.	Handwerkskammer Trier	Germany	Scientist
Schwall, Karl-Heinz	Handwerkskammer Trier	Germany	Training counsellor, counselling on the concept development of units
Sologuren, Susana	Consejo Superior de Cámaras de Comercio	Spain	Administration and technical work
Svobodová, Eva	AMSP ČR	Czech Republic	Scientist, General Director
Willms, Marika	Handwerkskammer Trier	Germany	Administration
Zafra, Beatriz	Consejo Superior de Cámaras de Comercio	Spain	Administration and Technical work

6.2 People interviewed as experts

Name	Institution	Country	Professional Role
Bong, Bernadette	Arbeitsamt	Belgium	Expert
César Souto	Fundación Laboral de la Construcción (FLC)	Spain	Expert
Crone, Herr	Bildungszentrum im Baugewerbe Krefeld	Germany	Expert
Del Pino, Agustín	Fundación Laboral de la Construcción (FLC)	Spain	Expert
Dujacquier, Eric	FVB/FFC	Belgium	Expert
Durán, Paulina	Freelance	Spain	Expert
Graf, Günter, Baumeister	BauAkademie Niederösterreich - Lehrbauhof Schloss Heindorf	Austria	Expert
Hlavác, František		Slovakia	Expert and pedagogical counsellor in the construction sector
Holtsch-Quendler, Barbara, Baumeisterin DI	BauAkademie - Lehrbauhof Kärnten	Austria	Expert

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Janssen, Patrick	ZAWM Eupen	Belgium	Expert
Kopececk, Harald	BauAkademie BWZ Oberösterreich	Austria	Expert
Leuffgen, Günther	JM Leuffgen AG/SA	Belgium	Expert
Marquet, Patrick	IFAPME	Belgium	Expert
Pankert, Thomas	ZAWM Eupen	Belgium	Expert
Prigl, Thomas, Baumeister Dipl.-Päd. Ing.	Bauakademie Wien - Lehrbauhof Ost	Austria	Expert
Rodler, Kurt, Ing.	BauAkademie - Lehrbauhof Kärnten	Austria	Expert
Scherer, Peter, Dipl.-Ing.	BauAkademie Österreich	Austria	Expert
Schneider, Andrea	Freie Dozentin	Germany	Teacher and expert for business topics
Schneider, Uwe	Freier Dozent	Germany	Master bricklayer and expert for construction
Schützing, Christian, Baumeister Ing.	BauAkademie Salzburg - zum Zeitpunkt des Interviews	Austria	Expert
Seidel, Herr	Bildungszentrum im Baugewerbe Krefeld	Germany	Expert
Setznagel, Ronald, Dipl.- Ing.	Bauakademie - Lehrbauhof Salzburg	Austria	Expert
Skalníková, Helga		Slovakia	Experte for health protection and safety in construction
Steiner, Hans, DI DR.	BauAkademie - Lehrbauhof Kärnten	Austria	Expert
Triendl, Christa	BauAkademie - Lehrbauhof Tirol	Austria	Expert
Windisch, Michael, Ing.	BauAkademie Steiermark - Lehrbauhof Süd	Austria	Expert