



European
Commission

Executive Agency for
Small and Medium-sized Enterprises

BUILD UP Skills EU exchange meeting

12 November 2014

Brussels

Meeting report



Contents

Preliminary note	3
Agenda.....	9
Morning session	10
Parallel session on training recognition	10
Parallel session on incentives.....	20
Parallel session on cross-craft understanding.....	26
Afternoon sessions	32
Parallel session on innovative training methods.....	32
Parallel session on financing	46
Parallel session on mutual recognition	53
Closing session.....	55
Participant list.....	56

Preliminary note

This report describes the outcomes of the [BUILD UP Skills EU exchange meeting](#) that took place in Brussels on 12 November 2014. The event focused on BUILD UP Skills' Pillar II objectives: supporting qualification and training schemes in EU member states.

In attendance were representatives from BUILD UP Skills Pillar II ongoing projects representing 21 countries. Project representatives from four countries not yet at the Pillar II stage were also in attendance (*see participant list for full details*).

The day began with introductions by **Vincent Berrutto**, Head of Unit at EASME and **Didier Gambier**, Head of Dept LIFE and H2020 Energy, Environment & Resources at EASME. Berrutto spoke about recent policy developments related to energy and the building sector—the [July communication on energy efficiency](#) and the [European Council's recent decision](#) on revised 2030 targets—and BUILD UP Skills' importance in achieving these goals. Gambier gave an overview of EASME, its programmes, and the agency's continued support for BUILD UP Skills, which began in 2011.

An [update on the BUILD UP Skills initiative and future plans](#) were presented by **Zoé Wildiers** and **Alessandro Proia** of EASME. Of the 30 countries that have completed Pillar I activities—EU28 plus MK and NO—most have identified skills shortages, with more than 3 million workers requiring up-skilling in energy efficiency or renewable energy sources by 2020. Cross-trade knowledge was also reportedly in need of improvement in most countries.

Wildiers and Proia also gave a quick review of the BUILD UP Skills Pillar II projects started in October 2013 (in AT, CY, DE, EE, ES, FI, IE, LV, NL, RO) and the 12 BUILD UP Skills Pillar II projects started in September 2014 (in BG, EL, HR, HU, IT, LT, LU, MK, PT, SE, SK).

Two upcoming tenders were announced. The objective of the first is to develop a methodology to evaluate the impacts of the BUS PI projects and offer recommendations for future market uptake activities within H2020. The second is for the design and organisation of upcoming EU Exchange meetings and Technical Working Groups on specific topics of interest for the BUS PII coordinators.

[ConClip](#) was also presented, a project supported under the [Lifelong Learning Programme](#) that produces multi-lingual video clips for the construction of passive houses for craftsmen and site supervisors.

Peter Wouters of the International Network for Information on Ventilation and Energy Performance and **Horia Petran** of INCD URBAN-INCERC then gave an overview of [QUALICheck](#), a project that works to strengthen compliance with quality standards in the building sector. Nine countries—Austria, Belgium, Cyprus, Estonia, France, Greece, Romania, Spain and Sweden—have so far participated in the project. Other countries were encouraged to take part.

A mapping exercise then followed in which participants were asked to list their country codes under relevant sector issues. These were:



- 1.1 Tradesman: Building fabric
- 1.2 Tradesman: Building services
- 1.3 Tradesman: Energy sources
- 2.1 Types of training
- 2.2 Training methodology
- 3.1 Training recognition
- 3.2 Certification and accreditation
- 4.1 Sources of finance
- 5.1 Stimulating demand
- 6.2 Exchange activities

Images of the results of that exercise are below.

1.1 TRADESMEN: BUILDING FABRIC

	CY	UK	PT	RO	SK	BG
INSULATION	ES	HR	IT	NL	LT	SI
WINDOWS, GLAZING, DOORS	CY	NL	IT	RO	PT	MK
	ES	HR	LT	SK	BG	SI
EXTERNAL WALLS	ES	NL	LV	SK	BG	
	HU	HR	IT	LT	SI	
ROOFS	ES	NL	SK	LT		
	HR	IT	BG			
INTERNAL FINISHES	BG	AT				
ALL OF THE ABOVE	UK	BE	IT	MK	SE	
	LU	FI	EE	EL	IE	

1.2 TRADESMEN: BUILDING SERVICES

LIGHTING	SK	PT	IT	SI		
	BE	NL				
VENTILATION & AIR CON.	HU	ES	FI	IE	PT	NL
	BE	IT	LT	AT	IT	LU
						MK
						SI
ELECTRICS	PT	IT	NL	LT	IE	
CONTROL SYSTEMS	HU	IT	AT	IT	NL	LV
PLUMBING	FI	IE	UK	NL		
	IT	SK	LT	IT		
HEATING	HU	ES	SK	BG	IT	
	FI	LU	LV	EL	EE	
	NL	BE	IT	IE	SI	

1.3 TRADESMEN: ENERGY SOURCES

BOILERS eg. biomass, gas	LU	HU	IT	LV	NL	EL	BG
	FI	BE	ES	LT	AT	CY	IT
HEAT PUMPS eg. air/ground source	FI	UK	IT	LU	IE	BE	PT
	ES	HU	EE	AT	IT	LT	NL
							BG
WIND POWER	PT	IT	MK				
SOLAR THERMAL	HU	FI	IT	PT	NL	BE	
	ES	LU	BG	LV	AT	IT	
PHOTOVOLTAICS	IT	PT	NL	BE			
	IE	BG	MK	IT			
HYDRO POWER (water)							
FIRES & STOVES	IT	IT	EL	NL	IE		

2.1 TYPE OF TRAINING

ON SITE	SE, EE	LU, RO	LV, IT	AT, MK
OFF SITE eg. classroom	FR, RO			
E-LEARNING (internet, mobile)	SE, IT	DE, LT	UK, MK	AT, SI
CROSS-CRAFT or INTER-DISCIPLINARY	HR, LU	DE	IT, UK	
ALL OF THE ABOVE	HU, BE	BG, IT	FI, IE	NL
BLENDED TRAINING	ES, HR	SK, CY	EL, IT	
Virtual Reality Total Immersion	IT, LU		SI	

2.2 TRAINING METHODOLOGY

PRACTICAL eg. site visits, mentoring	LU, NL	RO, SE	CY, LT	DE, IT	LV, FI	RO
THEORETICAL CONCEPTS	SE, RO	CY, NL	HU			
UPGRADING EXISTING EDUCATION	ES, HR	NL, HU	BG, IT	UK		
HIGHLIGHTING FREQUENT ERRORS	HR, AT	NL, IT	FI, HU			
TESTS/EXAMS	CY, SE	LT, HR	RO, HU	NL		
BEST PRACTICE EXAMPLES	NL, FI	UK				
COMBINATION OF SOME OR ALL OF THE ABOVE	RO, FR	EL, BE	IT, EE			
PRACTICAL LABORATORIES	IT, RO					

3.1 TRAINING RECOGNITION

NATIONAL REGISTER OF QUALIFICATIONS	LV, FR	NL, SK	SE, IE	EL, RO	IT, CY	MK, BG	IT, EE	FI
TRADES ASSOCIATION REGISTER	LT, RO	NL, BE	HU, IT					
MUTUAL RECOGNITION BY COUNTRIES	LU, BE	BG, SK	ES, HR	RO, FI	IT			
COMPANY/INDUSTRY RECOGNITION	LT, ES	NL, RO	IE, AT	FI, HU	HR, MK	SI		
EQF/ ECVET	IT, HU	EL, IT	RO					
POSTGRADUATION	HU!							

3.2 CERTIFICATION & ACCREDITATION

ACCREDITATION OF TRAINERS	LU	PT	ES	IT	IE	HR
	MK	SE	UK	LT	RO	
CERTIFICATION OF QUALIFICATION SCHEMES	CY	BE	EL	HR	SE	
	LU	SK	ES	BG	IT	SI
COMPANY-BASED QUALITY LABEL	BE	HU	SI			
INDIVIDUAL WORKER CERTIFICATION	LT	IE	SK	ES	RO	
	EL	MK	LV	HR	IT	
TRADES ASSOCIATION MEMBERSHIP CONDITIONS	LT	UK	AT	HU	EL	
COMBINATION OF ALL	IT	NL	HU	EE	FI	

4.1 SOURCES OF FINANCE

INDIVIDUAL WORKER	EL	HU				
EMPLOYER	UK	LU	SK	SE	LV	HU
						SI
EU FUNDS (e.g. social funds)	LU	LT	HR	RO	BE	
	EL	HU	ES	IT		SI
NATIONAL FUNDS	ES	MK	IT	HU		
TRADE ASSOCIATIONS	AT	IT	HU			
PRODUCT SUPPLIERS	LV	IT	HU	RO	SI	
COMBINATION OF ALL	IE	UK	HR	IT	RO	FI
	PT	SK	CY	BG	BE	EE
	NL	IT				

5.1 STIMULATING DEMAND

AWARENESS CAMPAIGNS (END USER)	IE	AT	HR	SK	LV	ES	BE	HU
AWARENESS TO WORKERS/INDUSTRY	LT	RO	LV	DE	PT			
PROCUREMENT/TENDER REQUIREMENT	SE	IT	EE	RO	SK	ES	MK	
WORKER SKILLS CARD	NL	IE	SE	BE	ES			
TRADES ASSOCIATION REQUIREMENTS	LT	EL	IT	SK	LU	SI		
ENFORCEMENT OF REGULATIONS	IE	RO	UK	BE	HU	PT		
ALL OF THE ABOVE	EL	LV	ES	HU	SE	CY	SI	
	IT	BG						

0.2 EXCHANGE ACTIVITIES

AT CROSSCRAFT	IE	NL	SK	LT	DE
BG EnerPro	IT	LU	BE	FI	
CY WE-QUALIFY	EL	IT	PT	RO	
DE QUALITRAIN	SE	BE	AT	HU	IT
EE BUILDEST II	NL	LV	EE	LT	
EL UPSWING	SE	HU	FI	LV	LT
ES Construye2020	HR	MK	CY	PT	
FI BEEP	IT	BG	PT		
HR CROSKILLS II	IE	SE	EL	LT	
HU TRAINBUD	IT	EE	AT		
IE QualiBuild	SK	MK			

6.2 EXCHANGE ACTIVITIES

IT BRICKS	IT	LV	MK			
IT I-TOWN	UK	ES	BG			
LT ENERGOTRAIN	IT	LV	CY	EE		
LU LuxBuild	IT					
LV FORCE	SE	EE				
FYROM BEET	CY	HR				
NL N@L	AT	PT	IE	MK		
PT FORESEE	HU	SK	UK			
RO QualShell	CY	ES	LU	IT		
SE SWEBUILD	IT	ES	BG	EL		
SK STAVEDU	BE	IT	FI	EE	IE	LU
	IT	HR	MK	IE		

Agenda

Chairman: Vincent Berrutto, Head of H2020 Energy Unit, EASME

8:30	Registration – Welcome coffee
9:00	Introduction , Mr Didier Gambier, Head of Department LIFE and H2020 Energy, Environment & Resources, EASME
9:15	Update on the BUILD UP Skills initiative
9:35	Qualicheck , Peter Wouters, INIVE EEIG, and Horia Petran, INCD URBAN-INCERC
9:50	BUILD UP Skills Common mapping exercise
10:30	Presentation of 5 sessions by facilitators
10:45	Coffee break
11:15	1st parallel session: - Training recognition - Incentives - Cross-craft understanding
13:00	Lunch break
14:00	2nd parallel session: - Innovative training methods - Financing - Open session
15:45	Coffee break
16:15	Feedback from sessions Wrap-up and Closing
17:15	Cocktail
18:15	End

Morning session

Parallel session on training recognition

Facilitators: Risto Ivanov (FYROM), Horia Petran (RO), Seamus Hoyne (IE), Alessandro Proia (EASME)

Background

Training which constructions workers undertake can be given recognition in a number of ways, including:

- Formal Recognition of Prior Learning (RPL) procedures
- Formal accreditation of training programmes in line with the European Framework of Qualifications (EFQ) and relevant National Frameworks of Qualification (NFQ)
- Systems which acknowledge on-site or other training, but do not provide a formal recognition/accreditation
- Etc.

The majority of Pillar II projects include some or all of the above elements.



EMPLOYER.

- X PUBLIC PROCUREMENT
 - ↳ MUT COMPETITIVENESS.
- X QUALITY OF WORK.
 - ↳ MORE WORK
 - ↳ REPUTATION.
 - ↳ EXPERIENCE
- X REDUCED RISK. e.g. HAND-OVER. GUARANTEES.
- X QUALITY MARK. E.G. SUSTAINABILITY ASSESSMENT.

EMPLOYEE.

- EMPLOYMENT
- SALARY IMPROVEMENT.
- RESPECT / IMAGE

BUILDING OWNER.

- X HIGHER QUALITY BUILDING.
- X PRIVATE CLIENTS HAVE PARTICULAR KNOWLEDGE GAPS.
- X EPC FRAMEWORKS.
- X BANKS / FINANCING ORGS → DEMAND TRAINED WORKERS.

GUIDANCE

HOW TO SUCCESSFULLY DEVELOP NQS ?

- APPROACH → NATIONAL LEVEL ?
- ES - Industry - LT
- EU System - RO, HU, FI, LV, BG, GR
- Industry + Europ. + EU - ES, PT, IT
- Europ. (Labour) - CY, SI
- Industry + EU - IR, SE
- CHALLENGES → NQS COMPATIBILITY ?
 - procedure for NQ Catalogue update + time
 - certified for lifetime + 'specialisation' trainings
- ENGAGING NQSA ?

PR. PART: 3/5, 4/5	7/13
CONS. COMMITTE: 1/5, 2/3, 1/5	4/13
Providing input to NQSA: 1/3, -1/5	1/13
	2-1/13
- INDUSTRY EXPECTATIONS ?
 - registry of contractors (voluntary) - IR
 - bureaucracy reduced
 - reduced periods for training programs.
 - quality recognition
- TRAINING DURATION ↔ RECOGNITION ?
 - Potential problem → apprenticeships and site trainings
 - reduce the minimum duration ?
- ESCO USEFULNESS ?
 - Not well known
 - mix of occupations / skills (- no duration indicated)

QUALIBUILD. I.E.

CONSTRUCTION INDUSTRY REGISTER [C.I.R.I.]

- VOLUNTARY MOVING TO LEGAL REQUIREMENT
- ORGANISATION LEVEL
- C.P.D A SPECIFIC REQUIREMENT
- → GAP → MANY EMPLOYERS SUBCONTRACT X LIKELY NOT TO CAPTURE WORKERS TRNG.

Q.R. CONSTRUCTION WORKERS REGISTER

- MODEL UNDER DEVELOPMENT.
- PILOT IN 2015
- ~~TRANSPARENT~~ TRANSPARENT DEMO OF TRAINING THAT WORKERS HAVE COMPLETED
- ULTIMATELY INTEGRATE WITH C.I.R.I. WORKERS CARD.

EMPLOYER.

- QUALITY MARK.
 - MARKET COMPETITIVENESS
- EFFICIENCY - REDUCED COST
 - REDUCED RISK.
- PUBLIC PROCUREMENT
- BEST PRACTICE SCHEMES
- HIGHER PREMIUMS - IMPROVED PROFIT.

EMPLOYEE.

- RESPECT / IMAGE / RECOGNITION.
- COLLECTIVE PURCHASING
- BETTER EMPLOYMENT.
- WORKERS CARD
- SALARY IMPROVEMENT
- MUTUAL RECOGNITION

BUILDING OWNER

- GUIDELINES - PRIVATE SECTOR IN PARTICULAR.
- BETTER VALUE FOR MONEY
- IMPROVED COMFORT.
- REDUCED RISK / COST / INSURANCE
- FUNDING CRITERIA.



- INVOLVEMENT.
- VALUE OF TIME FOR EACH.
- BOTTOM-UP APPROACHES.

EMPLOYER.

- QUALITY MARK
 - MARKET COMPETITIVENESS
- EFFICIENCY - REDUCED COST
 - REDUCED RISK
- PUBLIC PROCUREMENT
- BEST PRACTICE SCHEMES
- HIGHER PREMIUMS - IMPROVED PROFIT

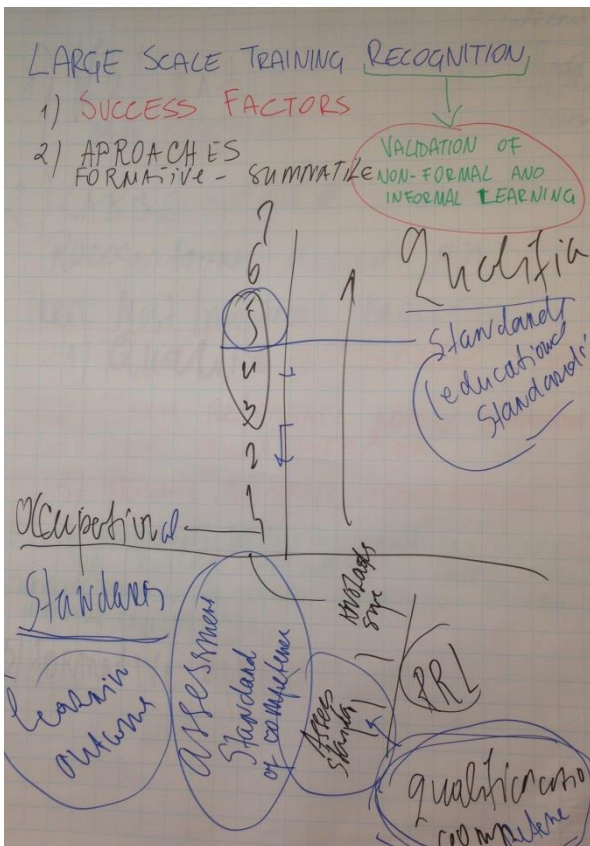
EMPLOYEE.

- RESPECT / IMAGE / RECOGNITION
- COLLECTIVE PURCHASING
- BETTER EMPLOYMENT
- SALARY IMPROVEMENT
- MUTUAL RECOGNITION

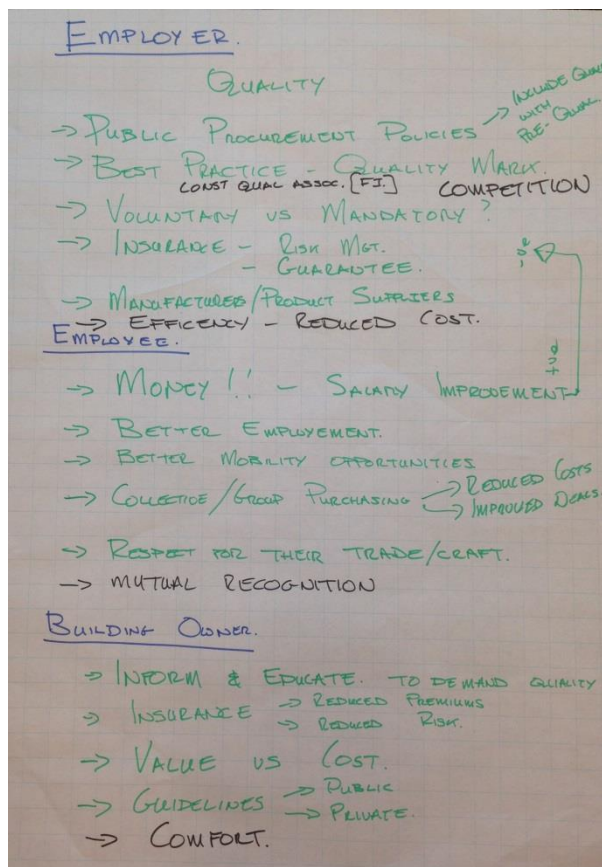
BUILDING OWNER

- GUIDELINES - PRIVATE SECTOR IN PARTICULAR
- BETTER VALUE FOR MONEY
- IMPROVED COMFORT
- REDUCED RISK / COST / INSURANCE
- FUNDING CRITERIA

OF NON-FORMAL & INFORMAL
 1) Validation is tool ~~for~~ ~~to~~ ~~provide~~ skilled EE workers
 2) LARGE scale - training
 Recognition depends on:
THREE Most Important Factors:
 2.1) Quality assurance system
 2.2) CLEAR reference point/ standards and qualification
 2.3) Private sector acceptance
 3) Less important factors: 3.1) employers' fear for higher salary; 3.2) private sector unwillingness to share experiences 3.3) low personal expectations
 3) Formative approach



- 2 SUCCESS FACTORS
- SUCCESS FACTORS
- 1) PARTNERSHIP (HU, BG, FI, SE, IT, PT, ES, IE)
- 2) STD/Q. LEVELS
- 3) QA.
- 4) Guide Staff
- 5) Uncert. → Planning
- 6) RESOURCES (SI, SE, IT)
- 7) HQT → NonTrad. Q
- 8) PRIVATE SECTOR ACCEPTANCE (EL, IT)
- 9) LACK OF BUY-IN FROM COMPANIES (LV)
- 10) HIGH TRUST IN VALIDATING CULTURE
- 11) PERCEPTION OF COMPLEX AND LONG PROCEDURES FOR VALID.
- 12) POOR ACCESS TO INFO (FI, SI)
- 13) LOW PERSONAL EXP (CI, EL, SE)
- 14) EMPLOYERS' FEAR (BG, LV, HU)
- 15) LARGE VARIETY OF METHODOLOGIES
- 16) PRIVATE SECTOR UNWILLINGNESS TO SHARE (LT, PT, ES)
- 17) DEVELOPING METHODOLOGIES WHICH ARE LEARNING-OUTCOMES BASED



Objectives of this session

The aim of this session was to offer fuller picture of the necessary steps and procedures needed for the recognition of the training schemes at National and EU level as well as exploring the issue of market acceptance and training recognition by the building industry.

The following key issues were addressed:

- Topic 1: Recognition of Prior Learning – key success factors
- Topic 2: Formal Training Systems – from pilot to National Implementation
- Topic 3: Market Recognition

These topics were discussed in parallel in three different groups each of them chaired by a facilitator. All participants switched group for three times and therefore contributed to all discussions.

Topic 1: The scope and the approach in "large scale" training recognition and its key success factors.

Facilitator: Risto Ivanov (MK)

The discussions focused on the validation of non-formal and informal learning which according to EU council recommendations ([2012/C 398/01](#))¹ depends on four elements: Identification, Documentation, Assessment and Certification (linked with formal educational standards) with aim of providing an answer to the following questions:

¹ Official Journal of the European Union, Council of European Union, Recommendation 20.12.2012, ([2012/C 398/01](#)). point 2

- Can the scope be developed only for first three elements to provide validation of the learning outcomes that will concern occupational standards or certification should be seen as a mandatory step for recognition?
- Could we use only formative approach in assessment instead of the summative approach (certification of the qualification according to formal education standards)?

Main findings:

- Validation of non-formal and informal education (recognition of prior learning) can play an important role for the employability and mobility of construction workers. It is recommended by European Council to the EU Member States, to have in place a system of recognition of prior learning, not later than 2018 in accordance with national circumstances and specificities.
- CEDEFOP guidelines on recognition of prior learning provide direction in implementation of validation of non formal and informal education for "large scale" training schemes and comparability on EU level regarding to principles, approaches, processes, tools, learning inputs and learning outcomes.
- 7 out of 22 Build UP Skills Pillar II projects foresees to implement recognition of prior learning as steps towards provision of huge number of required skilled workers for Energy Efficiency measures.
- Formative approach (identification, documentation and validation) seems more applicable for validation than prior learning, giving opportunities for establishing trade and industry registers for Energy Efficiency workers. Establishing national registers could slow down the process which included assessment/certification in compliance with formal education standards.

Conclusions:

- Validation of non-formal and informal education (recognition of prior learning) can be a useful tool within BUILD UP Skills Pillar II projects for provision of required number of skilled workers for Energy Efficiency through market acceptance by trades and industries;
- "Large scale" training recognition is focused on validation of learning outcomes and competences that could be comparable at the BUILD UP Skills projects level as well at the EU level.
- Formative approach using portfolio of competences can provide mutual recognition of skills and competences among projects while summative approach (certification) will lead towards mutual recognition among EU countries.

Topic 2: Developing a National Training Programme – Key Success Factors

Facilitator: Horia Petran (RO)

Most of the BUILD UP Skills Pillar II projects are funded to implement formal training programmes (validated against the relevant National Framework of Qualifications) at a pilot scale. Discussions in this topic focused on the following questions:

- What approaches are being taken to scale these projects to a National level?
- What are specific challenges to ensure compatibility with the National Qualification System?
- Are relevant National Qualifications Standards Authorities engaging?
- What are the industry expectations?
- How the duration of a national training programme influences its recognition?

- How can the link with ESCO² be further exploited?

Main findings:

- Representatives of 14 countries participated in the workshop (BG, CY, EL, ES, FI, HU, IR, IT, LT, LV, PT, RO, SE, SI) of which 13 are currently implementing Pillar II projects.
- Scaling to national level the qualification schemes developed within BUILD UP Skills projects is directly linked to the body which ensures the recognition of trainings (e.g. by approval of curricula / training programmes, authorisation of training providers and/or managing occupations registers) at national level. This body represents different stakeholders in different countries, namely the building industry (LT), the education system (BG, EL, FI, HU, LV, RO), a joint body from industry + employment (labour) + education system (ES, IT, PT), the employment (labour) system (CY, SI) or joint industry sector and education system (IR, SE).
- The main challenges to ensure compatibility with the National Qualification System relate to the relatively long and complicated procedure of updating the national catalogue of qualifications. A good compatibility of a newly developed qualification scheme is easier to be ensured when the qualification framework is well defined for at sector level or for an occupational area and having well defined set of modular competences. In most countries, after the finalisation of a qualification programme the certification is given 'for life'; this leads to the need for definition of specialisation courses to ensure an effective updating of certified competences according to technological developments and market evolution.
- Engagement of National Qualifications Standards Authorities is very good in the participant Pillar II projects, either directly as project partner (7 of 13 countries) or as member of consultation/advisory/steering committee (4 of 13 countries), while in two countries input from the project to the relevant authorities is taken into consideration.
- Acknowledging and meeting industry expectations are needed to ensure actual training recognition. An effective way in this direction could be the establishment of a registry of contractors as a voluntary system (IR) or the implementation of the Construction Professional Card (TPC) endorsing training on safety and health, professional qualification and experience in the construction sector (ES). Other key issues for the training recognition by the industry are: reducing bureaucracy, reducing the duration of training programmes, quality recognition in tendering process.
- Training duration could be a potential problem (claimed by many construction companies) in ensuring the recognition of training schemes. Possible solutions to this problem could be the apprenticeship system and the implementation of on-site training programs. Moreover, the correct sizing of training programs based on competences analysis is preferred in order to reduce minimum durations imposed by the national qualification system.
- The ESCO (European Classification of Skills/Competences, Qualifications and Occupations) portal is not very well known among the participants, thus its usefulness for the development of national qualification schemes is uncertain at his moment.

² ESCO is the European Classification of Skills/Competences, Qualifications and Occupations, system available at <https://ec.europa.eu/esco/home>

Conclusions:

- Ensuring compatibility with the national qualification system and meeting industry expectations are crucial aspects for the recognition of training programs developed under Pillar II of BUILD UP Skills;
- Direct involvement of National Qualifications Standards Authorities in the process of developing new qualification schemes targeted at national level is very important, especially if the national qualification system is under revision or updating process;
- The improvement of ESCO structure could be useful to increase mutual recognition of skills; this could be further explored in the BUS exchange activities.

Topic 3: Market recognition of the new training schemes

Facilitator: Seamus Hoyne (IE)

Discussions focused on the direct experiences of BUILD UP Skills projects with consideration of implications for the wider construction sector in terms of industry recognition of the new training schemes. The facilitator introduced his own experience in this respect which regards the setting up of a register for construction workers to allow the recording all their trainings (formal and informal).

The session sought to consider the 'value' which is placed on training from the view point of the worker (employee); employer/construction company and the building owner/client. The following conclusions were raised under each heading and should be used to influence the engagement of the market in using workers who have undergone relevant training.

Employer/construction company

- The use of highly trained and skill staff to deliver high quality building projects could be used to differentiate their company from others and support them in gaining greater market share.
- In particular for public buildings, where procurement processes could include conditions in relation to use of trained workers companies would use and support workers to engaging in training could have an advantage in the competitive market
- There is potential for greater efficiency for the company if their workers are trained. This could also reduce risk and potential cost overruns due to re-working etc. and therefore protect the companies margins

Employee/Worker

- The provision of training should support the worker in gaining great employment security, potentially result in increased wages and improve their potential for gaining employment in different companies and organisations
- The training should add value to the workers overall skills and knowledge and in some cases present them with progression opportunities in their respective field/craft
- The issue of recognition of the workers skills through training and training registers was felt as important as such registers provide a physical record of the training profile of the worker and all them to present their credentials within the market place

Client/Building Owner

- The client or building owner should be encouraged to utilise workers, crafts people and companies who met the relevant standards. One way of achieving this is by proving that the workers have the relevant training completed.

- Public procurement provides an opportunity to influence this through the inclusion of stipulations and conditions that require proof of training and Continuous Professional Development (CPD) processes to be in place e.g. <https://ciri.ie>
- Private sector procurement is not as easily influenced but through communications campaigns to building owners and potential clients on the value of focusing on quality and utilising trained workers this can be influenced.
- The potential for development of a workers card which demonstrates skills, competencies and training levels was deemed to an opportunity worth further development

Barometer: success factors in validating non-formal and informal learning

Facilitator: Risto Ivanov (MK)

Discussions focused on the success factors in validating non-formal and informal learning identified by CEDEFOP³ with the aim of determining whether some of these factors can be considered more important than others. Some of these factors are the following: partnership and coordination among stakeholders, quality assurance system, clear learning outcomes, capacity of staff, validation methodology, lack of buy-in to the validation process from companies etc.

A majority of participants identified three factors as the most important and three as the least important. Based on the participants' votes, three most important factors for "large scale" training recognition were identified: quality assurance system; clear reference points for occupational and qualification standards and private sector acceptance. The three least important factors identified during the session were: employer's fear for higher salary; private sector unwillingness to share experience and low personal expectations.

Participants identified the points that are more important for mutual recognition of training. QAS can facilitate process of recognition of educational/training standards; referent point can provide visibility of qualification levels as criteria for recognition and private sector acceptance will be consider as indicator for reaching occupational standards with "large scale" training schemes.

General conclusions

- Reaching of large number of skilled workers within BUILD UP Skills Pillar II projects is linked with three main types of action: validation of non-formal and informal education (recognition of prior learning), national training programs groups underpin by formal education standards and involvement of construction industry in training by recognition of skills for blue-collar occupations.)
- Validation of non-formal and informal education is the fastest way to reach large number of qualified builders and it depends on partnerships with all stakeholders.
- Mutual recognition has to meet four groups of criteria: occupational standards; qualification levels; educational/training standards and assessment standards. Having in mind that occupational standards are harmonised among EU Member States by ESCO, qualification levels with EQF, the main focused of the projects have to be on assessment standards related to learning outcomes.

³ European guidelines for validating non-formal and informal learning, CEDEFOP 2009, p 20
http://www.cedefop.europa.eu/EN/Files/4054_en.pdf

Recommendations for a future session on the same topic

Next topics should refer to:

- Visibility of skills and competences within the projects,
- Assessment of learning outcomes and links with types of training,
- Training methodology for practical trainings,
- Apprenticeship programs and on-site trainings to meet industry expectations,
- Usefulness of ESCO facility to support the definition of skills and development of training programs at national and to improve mutual recognition between BUILD UP Skills Pillar II projects.
- Public Procurement requirements as a means to stimulate demand for trained workers

Parallel session on incentives

Facilitators: Ursel Weissleder (DE), Gábor Csirszka (HU) and Janna Schönfeld (EASME)

This session aimed to offer a fuller picture of existing incentives for workers to seek out training and for landlords to seek skilled workers. Groups discussed the three topics outlined below.



Background

Pillar I of the BUILD UP Skills initiative aimed to set up national qualification platforms and roadmaps to successfully train the building workforce in order to meet the energy targets for 2020 and beyond. At this stage all the Pillar I projects have come to an end and 21 countries have an ongoing Pillar II project.

Objectives of this session

This session aimed to offer a fuller picture of the existing incentives to stimulate the demand encouraging workers to participate in the training and landlords to choose skilled workers.

Organisation of the session

After a short introduction/presentation of the topics the facilitators explained how the session would be organised. (World Café method). Then the participants split in 3 groups and decided each one a

"table host". The ideas raised during the discussion were written down into the flipcharts. At the end the group leader presented for the whole team the result/main points of the outcome of the discussions. The sessions closed with questions and answers and sum up by the facilitators.

Topic 1

Existing incentives to stimulate the demand in trainings

- The issue is, as in markets where there are already lots of training courses in the field of energy performance of buildings, the participation of craftsmen to the training can be increased. This can be done by regulatory measures or through voluntary incentive systems. At the beginning of the workshop, measures were introduced for this purpose from the German BUILD UP Skills Project. The following points are related to the topic treated in the context of the on-going project: early recognition systems of future qualifications and skills needs (workshop - discussion on existing systems in other countries)
- strengthen support structures for the lifelong qualification of employees; development and implementation of career concepts within the HR development of SMEs in the building sector (e.g. to strengthen the attractiveness of the building trades)
- develop concepts for the CVET consulting and development of a main CVET database in the building sector
 - databases and also apps exist in several countries that allow workers to easily find courses that match their professional training needs
 - in larger training markets there could be a need to merge and standardize trainings (create market "brands")
- The "Master system" in Germany creates training needs (craft workers can only become self-employed with a master degree – which they receive after joining an extensive training course and passing a state-approved exam).
- HR support: some bigger building companies have upscaling programmes, but not relevant in small and medium sized crafts companies
- Some consultancy in the chamber of crafts for the vocational education training and also for further education training but sometimes not as structured and specific for the target group as it could be
- Obligations to hire certified workers /energy consultancies (e.g. for receiving subsidies)
- voluntary agreements in the construction industry to further educate their staff
- ESCO/EPC: these arrangements encourage quality—and in some cases also upskilling—since payment depends on cost savings that are generated through real energy improvements
- Sometimes there's a lack of incentive to train workers for fear of losing them to the job market after they've gained skills
- But - sometimes it is also an incentive for employees when the company provides further trainings and shows further career paths (compare CSR concepts that also exists in some crafts companies)

- Questions for further reflection:
- Which kind of incentives exist in your country?

- E.g. regulations, financial incentives, qualification campaigns
- Does (advanced) educational trainings are obligatory or voluntary for energetic renovations?
- Is there any system for the early recognition of future qualification and skills needs?
- How is the situation of HR development of SMEs in the building sector/crafts sector?
 - Are there supporting structures?

Topic 3 was: Existing incentives to choose skilled workers/ How to encourage home owners to choose skilled workers.

The importance of this topic was to try to find out how the results of the projects could be extended after the end of the project. The aim was to set up a kind of benchmarking activity or else sharing best practices to collect ideas from the different countries and to generate new ideas on the basis of the existing practices. The three main questions which were discussed were as follows:

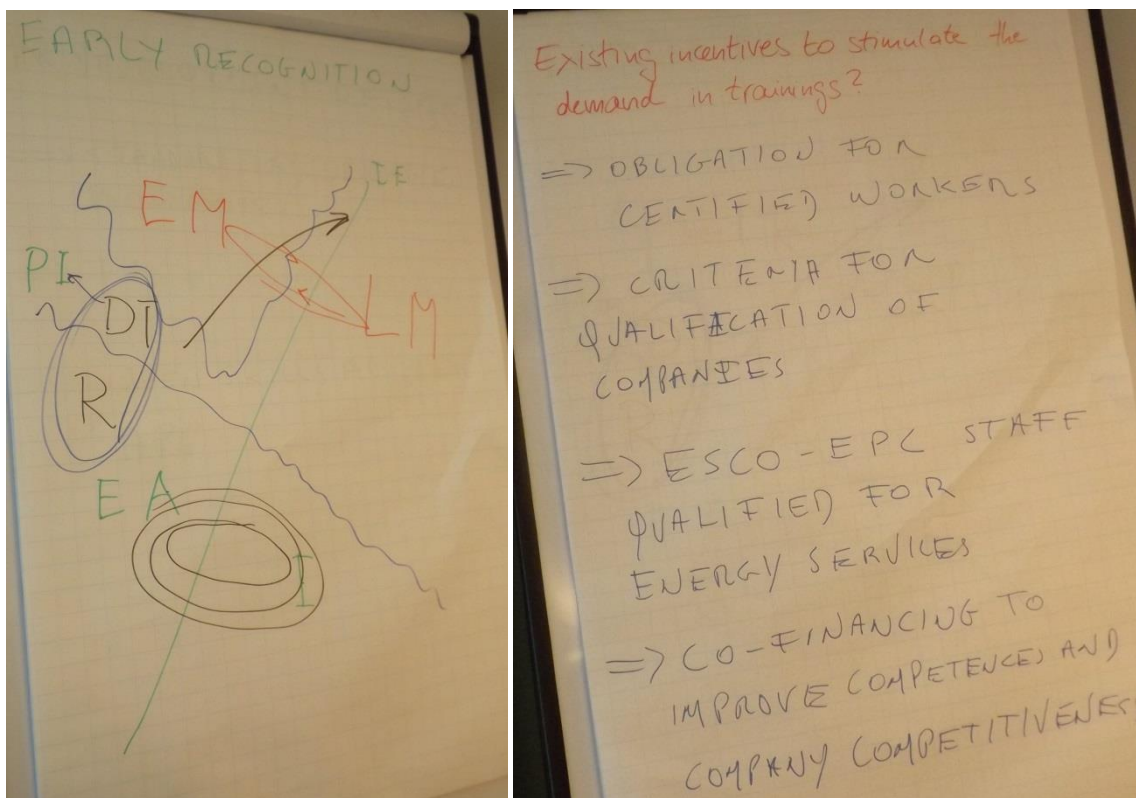
- i. Why should home owners choose skilled workers / energy efficient improvements?
- ii. What was the financial advantage of the improvements performed by skilled workers?
- iii. With what tools could the demand be stimulated/homeowners could be reached?

For the above questions the below comments, opinions, practices might be highlighted as the most interesting, important ones which came out during the debate:

- Compulsory regulation could be a very effective tool to orient homeowners to the required direction. However in the UK, worker qualification standards for government building projects have grown too broad/permissive—many different routes to earn/justify qualifications. Original requirement then became vacuous.
- In Germany there is a mandatory consultation of a building energy consultant for homeowners if they wish to apply for funding for energy efficiency of buildings. The consultation will be provided by engineers, architects or skilled master craftsmen.
- Layers of sub-contracting can become a problem: ‘you lose track of who is doing the job’.
- Health and safety of final construction might act as incentive for choosing skilled workers.
- In certain countries people choose between contractors: online reviews (crowd recommendations) vs. certified lists.
- Ideology and ‘prestige factor’ as a driving force for choosing skilled workers/seeking energy efficient construction; however that was a common understanding that this ‘state of mind’ only held by a smaller part of population.
- Another possible incentive was the worst case scenario: show cost or danger of doing wrong.
- Demographics should be considered when talking about incentives; different business cases depending on profile of property owners. (I.e. Some owners could afford but would invest.)
- Getting the building community itself to promote benefits would be a huge step forward.

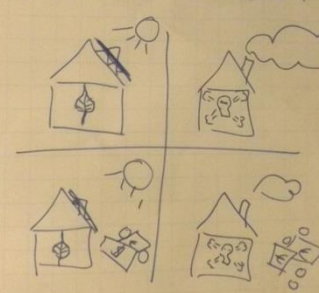
- Very different opinions on financial advantage: Did renovations increase value of real estate? In BE and UK it's questionable—widespread apathy. In Sweden and Germany, equipped houses could and did sell for more.
- Comfort—more so than money savings—reason for energy efficiency improvements.
- UK feed-in tariff and Green Deal: shortcomings discussed.
- ESCO/EPC: these arrangements encourage quality since payment depends on cost savings that are generated through real energy improvements
- In some countries, experts in local authorities could also be very important – as advisers.
- Summary of the answers for the question “How to reach homeowners?” (In no particular order): financial benefit, comfort, health & safety, smart building systems, checklist, ideals/philosophy.
- The answers for the question “The tools with which the homeowners could be reached?” were; net, word of mouth, experts of the local authorities, energy consultants, the business/producers and building companies.

It was not surprising that the legislative frameworks are different in the countries. Based on the group discussion it became very clear that the existing incentive practices are also very different in the various countries. What works in one country does not work or is unknown in another. Nevertheless there were a lot of ideas which were new for some of the participants. It gave us the impression that the discussion was very useful hence the mentioned new ideas might be implemented, copied in those countries, areas where that were unknown.



INCENTIVES TO CHOOSE SKILLED WORKERS
 ENCOURAGE HOME OWNERS

- compulsory regulations
- ^{related to the works} ^{within the incentive} reliability
- ideology
- ignorance
- show the cost of doing wrong



- guarantee

What tools to reach home owners?

- financial benefit
 - billing system
- comfort
- health & safety
- smart building system
- checklist
- idea/philosophy

Tools!

- business cases for building companies
- experts in local authorities

Which competences do craftsmen need for energy renovations?
 Who do we have to train further?

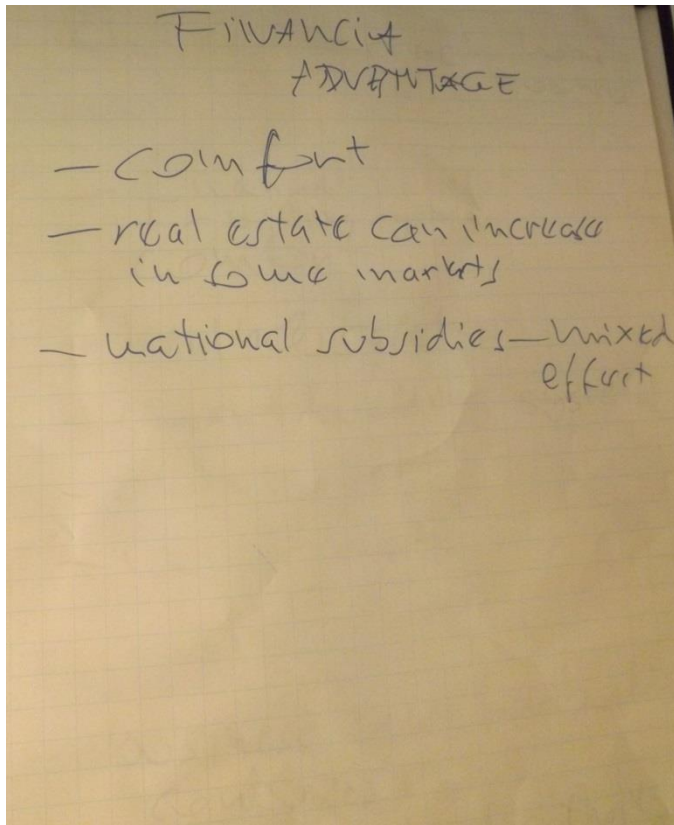
- organization of the training market
- cross-craft training \Rightarrow also involve architects + engineers
- competences of training providers

Existing incentives to stimulate the demand in training

- + training fund by construction companies
- + certificate companies for EE/RE
- trained people leave company

HR DEVELOPMENT OF SMEs

- \Rightarrow STANDARDIZED DEVELOPMENT PROGRAMMES
- \Rightarrow FREE CONSULTANCY
- \Rightarrow GREEN SKILLS ADVISER APP



Parallel session on cross-craft understanding

Facilitators: Anna Moreno (IT), Gerhard Bittersmann (AT) and Zoé Wildiers (EASME)

This session explored ways to enhance communication and understanding between different professions on construction sites.



Background

Nearly zero energy buildings are highly complex regarding the design but also the implementation of the various techniques. Even if there are only highly qualified professionals engaged at the construction site many problems still occur at the intersections of the different work areas. In many cases the craftsmen do not know about the needs of other professionals and so difficulties or even faults may occur. Examples of such problems are:

- 1) Thermal bridges
- 2) Permeations of air-tight envelope and of thermal insulation
- 3) moisture proofing at the plinth
- 4) installation of windows
- 5) installation of steam break

Objectives

The objectives were to exchange on the questions mentioned below. These exchanges were done in two small groups, who, at the end of the session, put their findings together.

Main findings

The main findings for each question are detailed below.

How can craftsmen from one profession know the needs of other professions (and the needs for the whole construction/refurbishment) for a specific construction site?

- Obligation on the quality of results to be shared among all the workers.
- Training on performance and quality control of other professions to be ready for nearly zero-energy buildings (NZEB).
- “Market driven”, it means that training in cross craft skills should be compulsory for all the workers for accessing incentives (French model).
- Higher educated building construction workers should promote this cross-craft understanding.
- Strengthen the responsibility for each craftsman in performing his work at high level.

How can the communication between the different professions be enhanced at the construction site?

- Soft skill training should be always included.
- Opportunities and time for craftsmen to get to know each other and their needs should be given, e.g. having common coffee break in order to facilitate communication.
- Building information modeling could be the basis for improvement of communication.
- There is the need not only for communication but also for change of culture i.e. to move, for instance, from the number of bricks laid in one hour to the quality of the construction.
- Higher educated technicians should motivate the other workers.

How can VET address cross-craft understanding?

- The knowledge and the consequences of badly performed work for other workers should be part of the training.
- The responsibility of the training should lie with the quality manager of the building site.
- Training the trainers should be extensively promoted even if it is very difficult to change the training system. So the idea is to train the trainers to improve the motivation for being trained.

How can educations (trainings) other than VET address cross-craft understanding? Are dedicated trainings on cross-craft understanding a possible solution or should cross-craft understanding be part of any training for professionals in the building sector?

- There should be a split between soft and technical skills.
- It is important to have clear responsibilities of site manager for providing cross-craft understanding (if there is a site manager).
- There is the need to approach the problem in a different way for big and small construction sites.

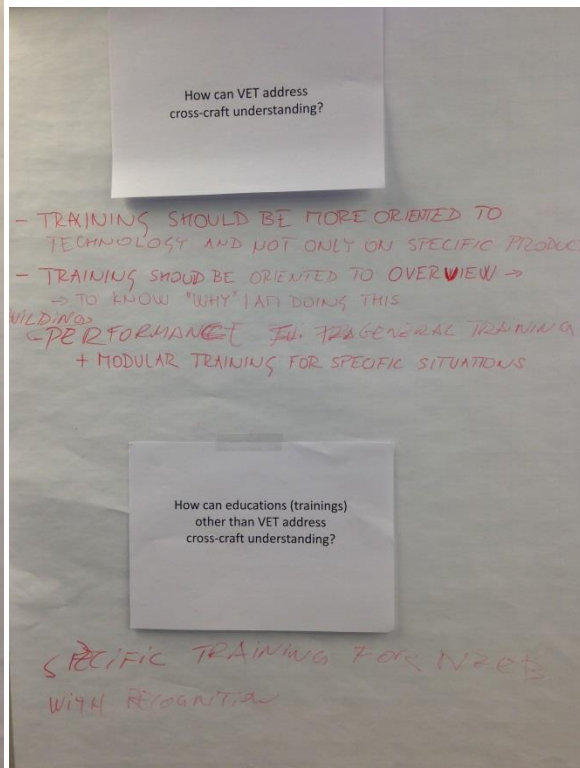
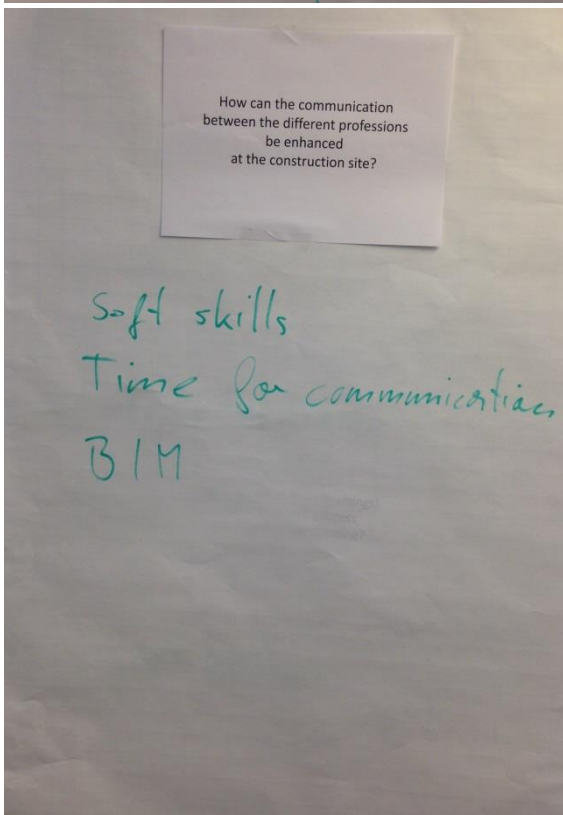
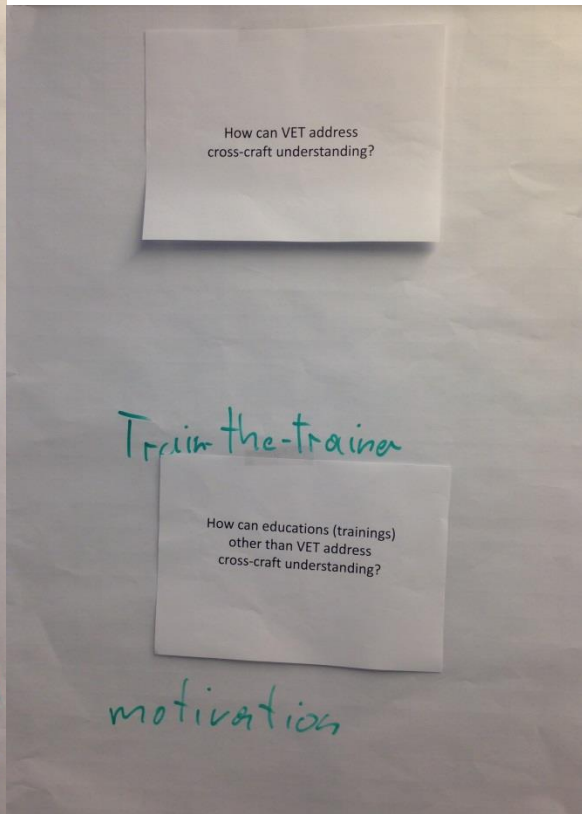
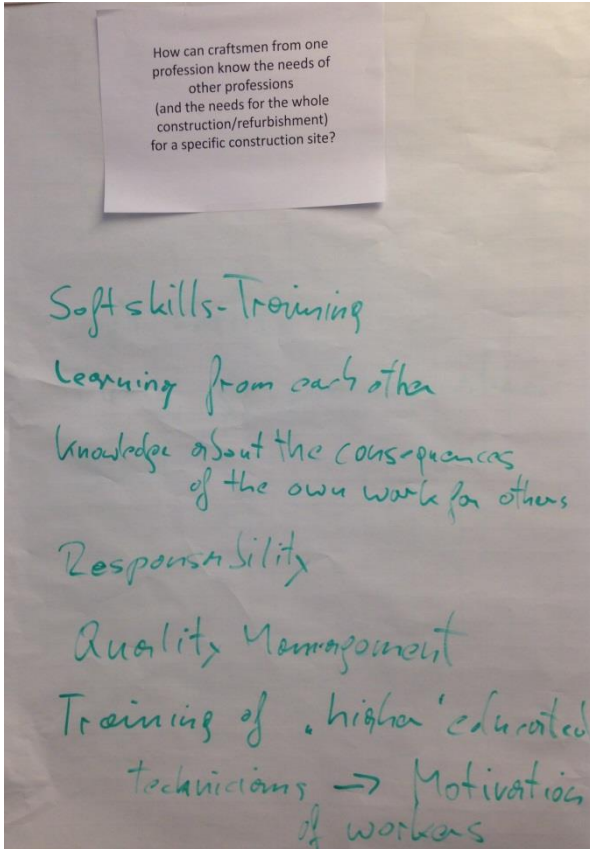
- Need use more modern tools like YouTube, apps, full virtual immersion.
- There is an example of compulsory training if involved in the refurbishment of social house in France and this training is free but compulsory before the works start.
- To train workers on the consequences of work not performed in a correct way.
- There is a need not only for cross-craft competences but also for “border competences”⁴ which could be better addressed if using BIM.

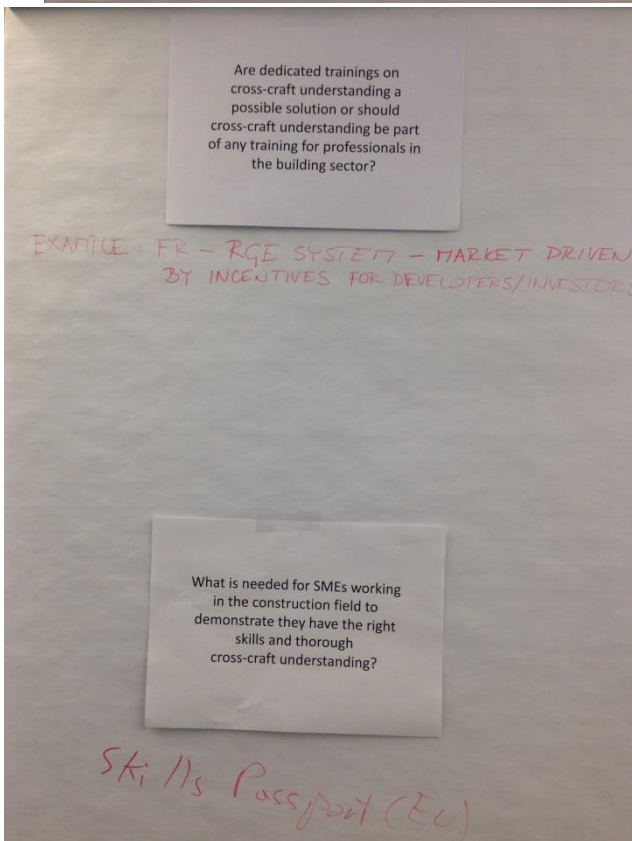
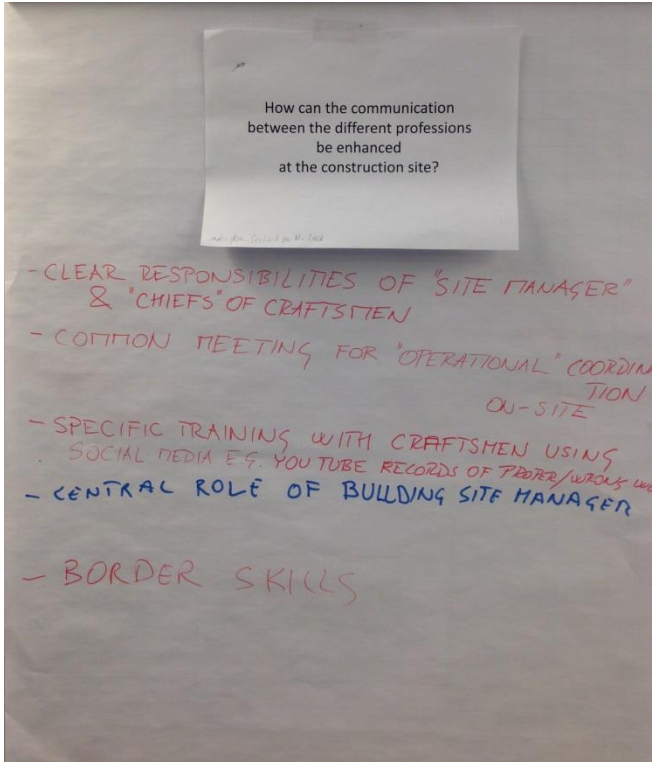
What is needed for SMEs working in the construction field to demonstrate they have the right skills and thorough cross-craft understanding?

- The motivation for SMEs could come from the compulsory requirement for cross-craft skills from the market.
- In some countries enterprises are obliged to devote funds for training workers. These funds could be used for the cross-craft training.
- Training should be more oriented to technology and not product specific.
- Training should be oriented to know why it has to be done in a certain way more than simply describing the technique.
- The training should contain building performance theories plus modular training for specific situations and this should be recognized for NZEB workers.
- In France the RGE system⁵ is market driven by incentives for developers and investors.
- The skills EU passport could be another important key to promote a wider acceptance of this cross-craft skills training.

⁴ E.g. an installer of photovoltaic panels also needs to know the requirements for installing solar panels or a roof insulation in order to avoid problems when working on the roof of an apartment. This is also the case for electric and hydraulic installations in an apartment. By the use of Building Information Modelling (BIM), it is possible to simulate the different installations in order to understand the different requirements in the design phase and avoid any problem while installing.

⁵ From 1 September 2014 onwards, energy efficient refurbishments in buildings can benefit from public financial incentives if the works are being performed by companies having the RGE label ("Reconnu Garant de l'Environnement"). Since the implementation of this measure, there has been a significant increase in the participation in trainings on energy efficiency in buildings.







How can craftsmen from one profession know the needs of other professions (and the needs for the whole construction/refurbishment) for a specific construction site?

- TO KNOW THE PERFORMANCE OF RESULT
- TRAINING ON PERFORMANCE AND IN QUALITY CONTROL OF OTHER PROFESSIONS TO BE READY TO MEET
- "obligation of result" (shared)
- Market driven with compulsory training for all
- Object & company hierarchy has to be involved (Top Down)
- GENERAL KNOWLEDGES OF THE BUILDING PROCESS WITH REFERENCE TO THE CROSS POINT WITH DIFFERENT PROFESSIONS
- Not. INCENTIVES \rightarrow Y. DIRIONET TO COMP. TRAINING

Are dedicated trainings on cross-craft understanding a possible solution or should cross-craft understanding be part of any training for professionals in the building sector?

split between softskills and tech-skills

Afternoon sessions

Parallel session on innovative training methods

Facilitators: Javier Gonzalez (Spain), Charalampos Malamatenios (Greece), Irmeli Mikkonen (Finland, BUILD UP Skills BEEP) and Antonio Aguilo (EASME)



Background

During the BUILD UP Skills EU Exchange meeting 3, Nov 2012, BUILD UP Skills Pillar I national projects exchanged on "Innovative training methods for the construction sector". The discussions highlighted that new and innovative approaches to training and up-skilling of workers are necessary. The following was concluded:

- Priority should be given on one hand to cross-professional training and on the other to develop specific CVET programmes targeted to the professions involved.
- The «multimedia / (web-based) self-learning in combination with real life/hands-on training» option was ranked as high priority.
- The need to train the trainers (and foremen) was highlighted.
- The cooperation between VET schools and companies, e.g. school building as training site, is a matter that should be promoted.

With this background in mind, Pillar II projects are likely to be taking these and other recommendations on board, and can act as a lever to foster a change in the teaching-learning process.

Objectives of the session

The session was designed to allow participants to exchange concrete experiences and to share best practices and examples of approaches to the design and delivery of trainings. The following topics were explored during the discussions with the participants:

- ✓ **Topic 1:** Motivational drivers that a training method should have to attract adult trainees.
- ✓ **Topic 2:** Pedagogical aspects that a training method should include to facilitate the teaching-learning process.
- ✓ **Topic 3:** Best practices and examples:
 - Hands-on training - innovative methods.
 - Innovative training resources based on ICT.

In the session two BUILD UP Skills II projects present their examples in detail:

1. BUILD UP Skills Construye2020 will present an example on the use of multimedia simulators for the training of construction workers and
2. BUILD UP Skills BEEP will illustrate their on-site training approach using a mentorship scheme

A total of circa 25 people attended the discussions.

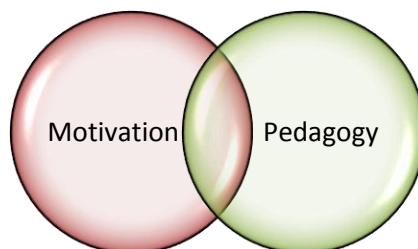
Summary of the session

The first half of the discussions was spent on topics 1 and 2. These topics were discussed in parallel in two groups. Before splitting into two groups, an introduction was made as described below.

Introduction to topics 1 and 2

The group tried to analyze the influence of two important factors in vocational training, aspects that sometimes are not considered in depth when professionals design courses despite their core relevance to guarantee the success of the learning-teaching process, specially taking into account that the target group are adults:

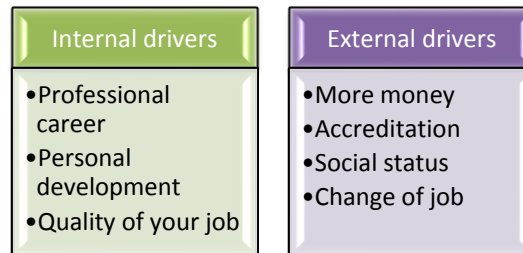
- motivational drivers that a training method should have to attract adult trainees
- pedagogical aspects that a training method should include to facilitate the teaching-learning process



Topic 1: Motivation

Several aspects were identified as key ones to provide an effective training (see figure below):

People are motivated by internal and external drivers:



GROUP 1 - Conclusions:

A good practice to attract workers to trainings could be to foster common decisions between “boss-employees” regarding training, in order to facilitate a mutual benefit.

A good way to improve the recruitment of people for trainings would be to design information material applicable to each target group.

When the training course provides an accreditation the motivation to attend the course is higher.

It is necessary to focus our efforts on attracting those workers who are not interested in being trained.

There is a generational problem in VET because trainings are participated at the same time by young and older workers, and sometimes the older ones feel uncomfortable because their education took place long time ago and the methods were very different to those of today and consider that they won't be able to follow the learning process in the way the younger ones do.

Finally, a good way to attract people to trainings is to provide training as real as possible to reality (on an authentic building site or at a training centre with workshops)

GROUP 2 - Conclusions:

Regarding the “internal drivers”, it was made possible – following the suggestions of the participants in this 2nd group - to identify some more (in addition to those already prescribed), namely the achievement of better and more specific knowledge in the area of interest, the refreshment of the existing knowledge, as well as the attitude of the worker to be well informed (e.g. about recent advances) in his field of activity; also, the more general mode of the worker's “green thinking” was mentioned as a motivating driver for the participation of workers in the trainings foreseen for them.

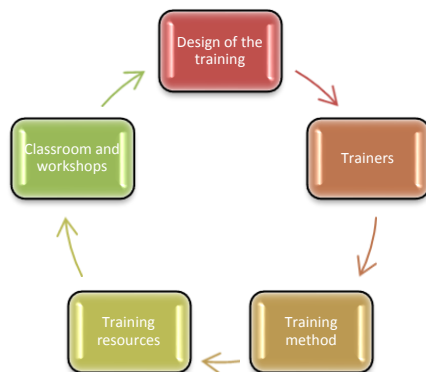
Apart from the already defined “external motivational drivers” (see above), some more were listed as being critical, namely the provision of tools to remain competitive (stay in the market), the liability that is inhered in the “new” training/certification schemes , as well as the “certified” by the schemes improved quality of services.

Another motivational driver mentioned, which can be equally considered as being internal or external, is the general attitude of people – especially in southern Europe – to “show” (to their clients, family, friends) that they “hold a diploma”.

Last, but not least, special reference was made to the effect of existence (and display) of concrete examples of “successful stories”. As such, a Leonardo Da Vinci Programme funded project was mentioned, in the frame of which 600 workers from Ireland were trained and specialized in order to work in the construction of passive houses in Germany; this project had a great visibility and impact. The need to collect and prepare a database (being available to every interested person) of such “good practices” was highlighted.

Topic 2: Pedagogical aspects

Several aspects were identified as key ones to provide an effective training (see figure below):



GROUP 1 - Conclusions:

Design of the training: It should contain at least:

- General objectives
- Specific objectives
- Contents
- Timetable of the contents
- Methodology
- Training resources
- Assessment

Trainers

- The training of trainers should take into account the specificities of the group they usually train.
- It is absolutely necessary to motivate trainers.

- Important data to bear in mind: 65% of trainers are not able to teach using new ICT material

Training method

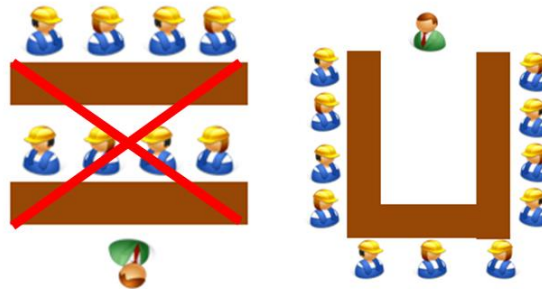
- All participants agreed that the training should follow a practical and hands-on method. Alternatively, the trainer should use while teaching demonstrative, investigative and/or imitative method.

Training resources

- Training resources (information, material, manuals, ICT, etc.) should be designed following a visual approach. Also, training resources should focus on practical examples.

Classroom and workshops

- The seating plan in classroom trainings should be in a U shape rather than classical one, in order to facilitate interaction between the trainees and thus foster useful and fruitful discussions.



- The workshops and on-site trainings should simulate as close as possible to the reality of a building site.

GROUP 2 - Conclusions:

In the 2nd group, each one of the 5 topics forming the overall picture of pedagogical aspects was discussed separately, and the conclusions are the following:

- ✓ Regarding the design of training, a very good idea mentioned was that the design should be relied on the opinion of the potential trainees themselves (i.e. the target groups of trainings), and this could be achieved through the circulation to as many of them as possible of a properly designed questionnaire.
- ✓ For the trainers, what was highlighted is that this group of experts should pass from the traditional form of very specific training for one profession per time to a new approach that has to address cross-craft issues; and for this purpose a relevant training of trainers is necessary (as an example, the case of Germany was mentioned, in which the “train-the-trainers” is done through a 1 day in-classroom course, that focuses on cross-craft issues, and the special issues for the respective profession are provided to them through e-learning).
- ✓ As regards the training method, all participants in the group agreed that the “investigative” procedure is the most suitable one, while all also agreed that the best combination is: In-classroom training +

Practical training (e.g. in a workshop / laboratory) + On-site practising (the only “problem” being to find the optimum share between them).

- ✓ In the case of training resources, the opinion of the participants was that the knowledge should be easily accessible to everybody and from everywhere, and this can be achieved through the use of “new technologies” (ICT); also, the possibility to create visual materials, such as videos, that “tell the story” was highlighted.
- ✓ Finally, regarding the settlements of the training, and as regards the in-classroom part of the training, it was mentioned that the general rule is to have no more than 25 trainees in a classroom at the same time (although from some of the participants this was considered as too high – e.g. in the case of restricted establishments, while by others it was considered as too low, in case that thousands of workers need to be trained in restricted time periods); regarding the practical part of the training, it was considered that the existence of a “mobile lab / workshop” (something like a bus that today will be here and tomorrow in a completely different town or even suburb of a city) is a very good option for fulfilling this task.

Topic 3: Best practices and examples

Following the discussions above, and in the frame of Topic 3 “Best practices and examples”, concrete examples on training methods were presented from Spain and Finland.

Example 1: BUILD UP Skills Construye2020 – Build a greener and a more sustainable 2020

1. Target group of the training

The target group of the training that Construye 2020 project is addressing, it is shown on the next picture:



2. Didactic design of the training (skills map, objectives, contents, practical activities and assessment)

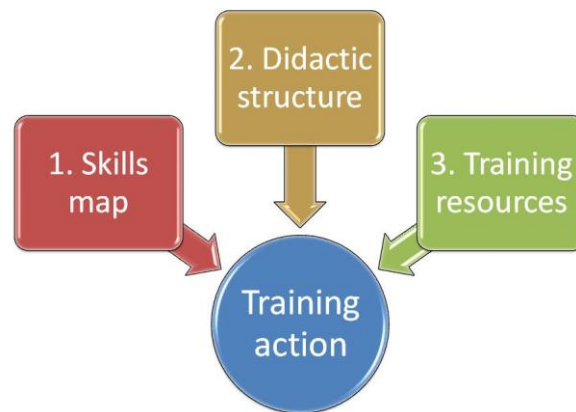
2.1. Experts

Construye 2020 training has been designed by experts in all the fields considered in the initiative in order to get training contents really adapted to target groups:



2.2. Elements

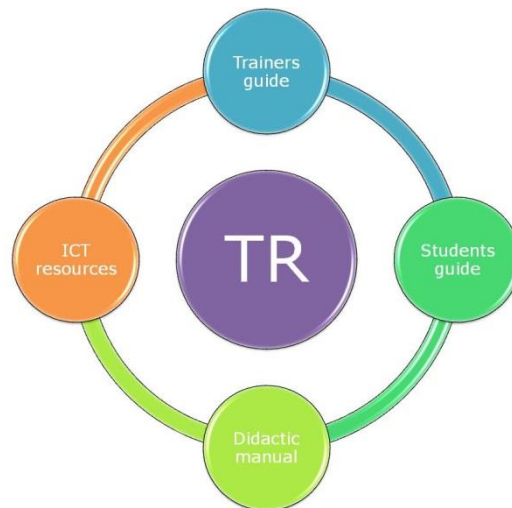
The training design has taken into account three important elements:



The skills map has been the basis to develop the didactic structure: General data, objectives, contents, activities, schedule and assessment.

2.3. Training resources

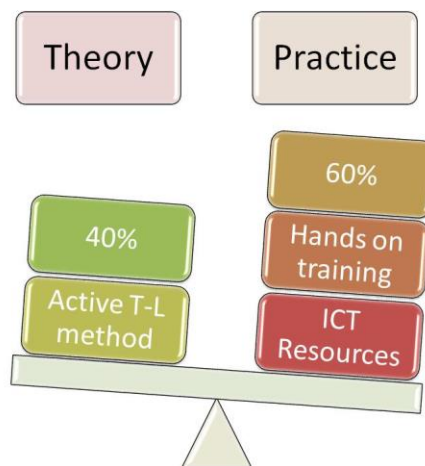
Specific training resources have been associated to each training actions in order to support the teaching learning process:



- ✓ Trainers guide is a manual that will help teachers to provide the training properly and the same way in all over Spain.
- ✓ Students guide is a manual that will help trainees to follow easily the ongoing course.
- ✓ Didactic manual is a contents document with the most important aspects that trainees should know regarding the training course concerned. This manual will be supported by images, graphs, etc.,
- ✓ The training courses will have some ICT resources available to aid trainees learning.

3. Didactic method / Setting of the training

The didactic method will combine theory and practice activities, 40% and 60% of the available time respectively. Theory will be based on an active teaching-learning method (interrogative approach) whilst practice activities will follow a hands-on one (demonstrative + imitative strategy). It is noteworthy that assessment will have a core importance in these training activities.



4. Innovative training resources

As for ICT resources, the training courses will have available two simulators that will hone students learning:

- ✓ Training simulator on energy rehabilitation: This tool allows students to simulate the energy rehabilitation of a building. Based on three different building models the trainee starts selecting a Spanish province in order to launch a specific simulation. Afterward, the students can decide on different refurbishment solutions that, under the criteria of comfort, price and energy saving, can be applied to different parts of the building, namely:
 - Envelope
 - Ventilation
 - Solar panels installation
 - Air conditioning and heating



Users can access the simulator by clicking on the following link:

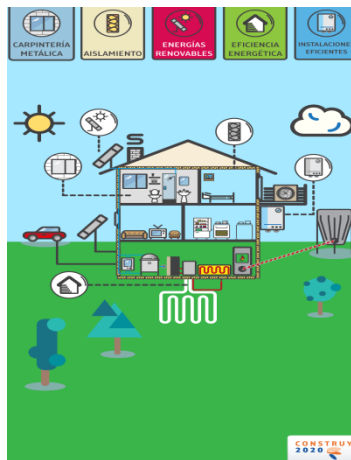
<http://multimediafundacionlaboral.com/archivos/Simuladores/Eficiencia/>

Usuario (user): invitado

Contraseña (password): invitado

- Training simulator on good practices in renovation of buildings: This tool is under development, being its aim to show building workers concerned, good practices related to different activities in a building under renovation:
 - Aluminum carpentry
 - Insulation
 - Renewable Energy Systems
 - Energy Efficiency
 - Efficient installations

It should be noted that this tool will be available as an APP for mobile devices on Google Play and Apple Store, probably by the end of January 2015.



Example 2: BUILD UP Skills BEEP – Best Energy Efficient construction Practices

“Innovative Twist to Conventional Training”

1. Target group of the training and trainers’ qualification

i. *Training the trainers*

- Survey of competence of trainers
 - Competence gaps, most critical topics for updates
- Training scheme development
 - Based on survey results, Staus Quo analysis and current needs (new building codes, nZEB, etc.)
- Pilot trainings
 - new training methods applied

ii. *On-site training of workers*

- Training scheme development
 - Classroom training
 - Hands-on training
- Training of change agents
 - Experienced, trusted workers
- Train, mentor, encourage co-workers
 - Substance training
 - Attitude building, professional pride
- Pilot trainings

iii. *On-site training ambassador*

- Support to change agents
- Promotion of the scheme to construction companies

2. Didactic design of the training (skills map, objectives, contents, practical activities and assessment)

i. Development of new training materials – Training schemes development – Pilot trainings – Further development of training schemes – Uptake of training schemes by relevant bodies


- New training materials to meet the current and future needs:
 - ppt-slides, booklet of slides, instruction cards, video clips
 - illustrative, descriptive
 - 5 languages FI-SE-EN-EE-RU
 - accessible on-line, on-site (break rooms)
 - in electronic and printed format

ii. Illustrative ppt slides for training sessions


- 12 topics with 15-20 slides each

Työmaan ilmanvaihto


- Kynnysraot ja pienet talotekniikan läpimenot sopivat hyvin työmaan ilmanvaihtoon.
- Työmaan ilman kosteutta mitataan
- Tuuletusikkunoilla säädetään sopiva ilman kosteus
- Parvekeovia aukomalla hukataan energiaa turhaan.




Aukko Ø160 mm
40-100 m³/h





Kynnys rako 5 cm
70-200 m³/h



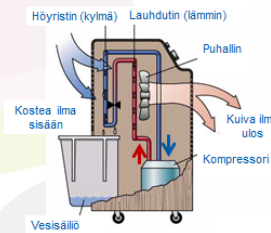
Tuuletusikkuna
0-2000 m³/h





Oviaukko
0-10000 m³/h

Kondenssikuivain



- Kondenssikuivaimessa ilmaa jäähdytetään alle kylästympisteen, jolloin vettä tiivistyy höyrystimeen
- Kondenssikuivain soveltuu kuivattamiseen, kun kuivatettavan ilman lämpötila ylittää 15 astetta
- Vesi johdetaan altaaseen tai suoraan viemäriin
- Energiataloudellinen kuivatustapa

- iii. Instruction cards in comic strip format (see example below)
 - Illustrations with descriptive texts of most critical work phases
- iv. 10 topics Educational videos for self-learning
 - Silent video clips: 4-6 topics, each about 5 minutes, subtitles in 5 languages, critical phases of construction

Puurankaseinän eristystyöt

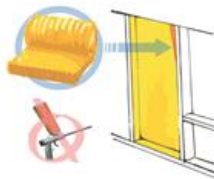
1. Työvälineet ja saajavälineet



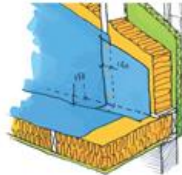
3. Ennen lämmöneristeen asennusta tuulensuojatehteen nauhaus runkoon tai kiinnityspuuhin rakennusmateriaalin mukaan, saumat teipataan tarkoitukseen sopivalla teipillä.



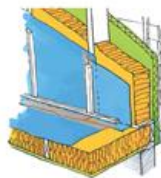
5. Mahdolliset raot tulee tiikittää pehmeällä villalla, ei saa käyttää vaahdotta!



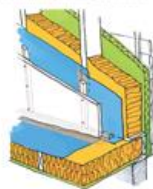
7. Höyrystulkumuovin pystysaumot sijoitetaan runkotolppien kohdalle. Saumat limitetään 150 mm, myös ala- ja yläpohjan höyrystulkumuovien kanssa. Höyrystulkumuovi nidotaan runkotolppaan kiinni.



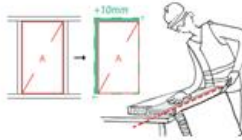
9. Saumojen puristaminen tiiviiksi ruuvaamalla puuritut (50x50) runkotolppia vasten.



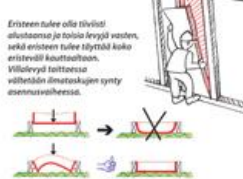
10. Sisäverhouksen kiinnitys rimoihin.



2. Tarvittavan leivyn mittaus n. 10 mm suuremmaksi kuin asennustila. Leivyn leikkaus viljipuuksella tai sahalla pohdasta ja tasasta leikkauslastaa vasten.



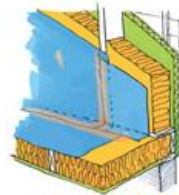
4. Levyn asennus paikalleen.



6. Kulmien kohdalla nurkka eristetään tiiviisti pintaa vasten kahdella eristelevyllä ja höyrystulku kierittää kulman kohdalla ohuemmän erikerroksen päältä.



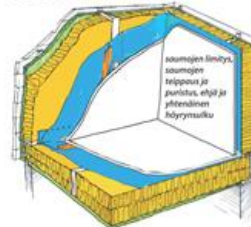
8. Liitos- ja limityssaumojen ja pienen reikien teippaus höyrystulkuteipillä.



11. Tarkista höyrystulun asennuksen lopputulos:



12. Seinärakenteen lopputulos



Example of instruction cards in comic strip format

3. Didactic method / Setting of the training

i. Training the trainer

- Up-take and use of activating training methods is emphasised. The length of the courses is intentionally short (2 days per each pilot training) to best match the challenges (e.g. time schedules) of the working life. Teacher trainees for pilot training are to be selected from different training organisations to maximise the distribution of the scheme. Altogether 20+20 construction sector trainers will be selected.
- Training programme will take into account the results of the teacher survey carried out to find out the competence gaps. In addition to substance training also communication and attitude building will be included in the training plan.

ii. Training of change agents

- Training methods will be developed on learners' terms. Training will be divided to two parts: a theory part and a practical part at the construction site. The new material can be adapted into short efficient packages of the most important topics. The video clips will also play an important role in the pilot training.
- Interaction between trainers and trainees will be emphasized to ensure best suited training methods and process

Assessment of training schemes will be executed along the process by direct feedback of trainees through an assessment questionnaire after each specific training session. Also the feedback from the trainers/teachers and the on-site training ambassador will be asked after the trainings.

4. Innovative training resources

i. On-site training of change agents

ii. Change agents to mentor co-workers

iii. On-site training ambassador

- Promotion of the on-site training scheme
- Support to change agents

iv. Versatile training material

- Adaptable to training of different target groups
- Usable in several situations (classroom, on-site, break rooms, self- learning)
- 5 language options

Parallel session on financing

Facilitators: Christiane Conrady (LU), Agris Kamenders (LV), Dragomir Tzanev (BG)



Background

Pillar I of the BUILD UP Skills initiative identified a clear need to improve the training of workers in the construction of nearly zero energy buildings. One of the key issues for Pillar II of BUILD UP Skills is how to finance this training. Looking forward, this question becomes relevant to the wider construction industry as we approach 2020. The question of financing touches on important related issues: who pays, and what incentive do they have to pay.

Objectives of this session

This session aimed to address these broad questions:

- What kind of financing can we get hold of?
- How much money is required?
- What are the consequences of these choices?

The discussions focused on the direct experiences of the BUILD UP Skills projects, with consideration of the implications for the wider construction sector.

Organisation of the session

We started with a plenary session in which the facilitators briefly explained how the session would be organised. Participants then all split into the three sub-topics for discussion, each with one facilitator. Each group discussed their topic for 20-30 minutes, then the groups rotated with the facilitator remaining on the topic. The facilitator briefly summarised the previous group's discussions and the new group took this forward. Facilitators gathered to draw up flipcharts summarising conclusions on the three topics which were reported back to the participants in a plenary session

The discussions were based around three topics:

Topic 1: Attracting public money

Facilitator: Dragomir Tzanev

The discussion was designed to analyse the options and approaches to finance the trainings which are planned to be delivered on the BUS projects in the second pillar of the initiative through public sources. It was envisaged that during this discussion, principle solutions for financing of training courses would also come to the fore. The most important conclusions were as follows:

- There are very limited number of agreements reached for financing of the trainings planned on BUS Pillar II project, as only the team in Netherlands has declared specific activities already undertaken to reach agreement with national Social Fund managing authorities;
- In general, there are two distinct approaches to financing of the trainings: through support from the EU Structural Funds and through engagement of industry and other market players;
- During the discussions, it was agreed that integrated approach would be the most useful one, covering all sources – EU programmes, support through national operational programmes and other national resources, involvement of the construction industry (including suppliers of building products, components and technologies), self-financing;
- All public support should trigger market deployment of the training schemes; all actions should involving public money target sustainability, improved market position and added value of the trainings for both employers and employees;
- An important source for financing are the programmes for qualification for the unemployed. Further efforts for cooperation with the responsible national actors should be exerted.

- Additional efforts should be put in the continuing qualification for elderly employees in the construction sector, as well as for the improvement of the qualification of young workers, who are entering the labour market; these approaches could be supported by responsible national authorities;
- The clearly outlined demand for cross-craft trainings, also triggered by the requirements of the RESD, EPBD and EED for specific trainings, could reflect in increased public support for training schemes developed on BUS projects;
- An opportunity which could be explored is cooperation with regional (or local) authorities, not only for financing but also for delivery of trainings. In some countries, regional training centres operate and collaborate with BUS partners;
- Some support for trainings could be provided through projects under Horizon 2020 projects, as except the specifically targeted topic EE-04, there could be other opportunities for limited amount of training activities, for example under EE-05 or EE-02;
- Significantly more options are available under Erasmus+ programme, which has opened its first submission procedures in October. Under this programme, there are opportunities for training of trainers and for activities supporting mutual recognition of acquired qualification;
- Another option for financing of trainings to be delivered on BUS projects are the Partiarian funds, which exist and operate in several European countries.

Topic 2: Working with industry

Facilitator: Christiane Conrady

1. *Who is “the industry”?*
 - o Producers
 - o Product suppliers, traders
 - o Companies, employers

Producers are the most active group in terms of financing training programs. Training on specific products is a marketing instrument. Of course these training programs have some disadvantages:

- training program according to a specific product
- **exclusivity:** the craftsman handles only one specific product and depends on this product
- **no neutrality:** general “know how” is less a concern

2. *How could these training programs be organised with the financial support of the producer and - in the same time- how could these programs be more neutral and less exclusive?*

There are interesting examples in the Netherlands and in Austria, which were presented by the participants of these two countries. Based on the examples the following scenario has been developed:

- Combination of a “neutral” training part and a practical training part on specific products of preferably all producers operating on the national market.

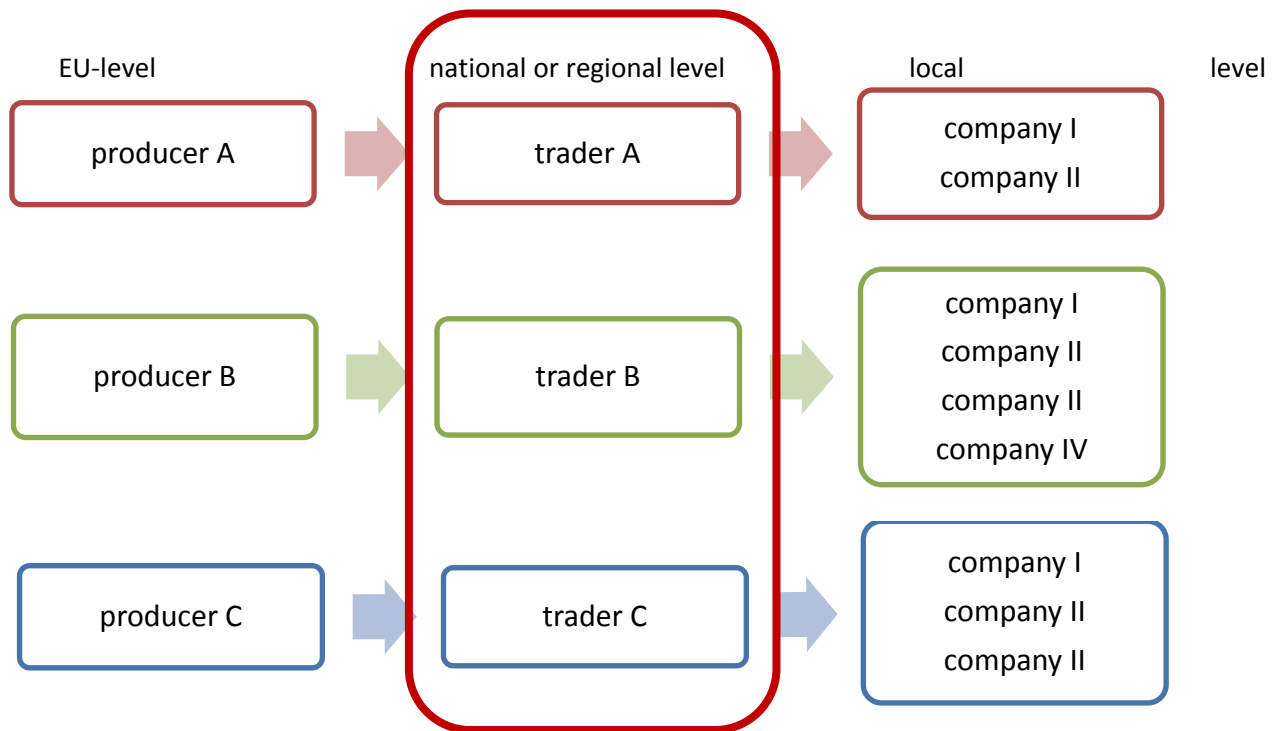
Part I Strengthen the neutrality	Part II minimise the exclusivity
<p>“neutral training”</p> <ul style="list-style-type: none"> - Recognise mistakes and find the solutions! 	<p>“practical training”</p> <ul style="list-style-type: none"> - implement the know-how of part I
<p>Overview on typical mistakes <u>common to all products</u></p> <p>Overview on typical solutions, how to avoid typical mistakes</p>	<p>In <u>one course</u> practical training on material and products of different producers</p> <p>Preferably of all producers selling their products on the national market</p>
<p>Financed by e.g. training funds</p> <p>Up to 1/3 of the training costs</p>	<p>Financed by the industry</p> <p>up to 2/3 of the costs</p>

3. *Who can be interested to finance the “practical” part by providing “training material” such as heat pumps, ventilation systems, isolations material etc.? Whom to address?*

The traders and suppliers have been identified as the most interested group to address to for co-financing of a training program. Producers often operate in whole Europe and are far away from the problems companies operating on local level have to face.

For the traders this offer represents a Win-win situation:

- traders are confronted with mistakes and complaints
- the training helps to avoid mistakes
- traders are in direct contact with the companies
- if the business rival participates in the program, he has to participate as well



Topic 3: Individual workers

Facilitator: Agris Kamenders

During discussion financing options and possibilities to attract money from workers was discussed. Several options were evaluated and advantage/ disadvantage over other analysed:

1. Workers pays – worker attending trainings voluntary and paying for that. Due different reasons (economic situation, dependence from employer, lack of motivation etc.) most of the participants from different countries admitted that it would be hard or even impossible to based financing model on workers willingness to pay for trainings offered. It was agreed that maybe it could work in highly competitive market and for some part of workers that should be trained. Small part of the specialized workers or self-employed specialists like installers of boilers or ventilation systems could be interested in such training and would interested even to invest money. However probably a majority would be not ready to fully pay for their training if there is no clear short term benefits or demands.

However it was also mentioned that training shouldn't be offered totally for free as it could reduce credibility of trainings, engagement and possible feedback from workers on training quality.

2. Compulsory training – during meeting possibilities to introduce compulsory training also were discussed. Regarding compulsory training it was mentioned that in this case there is a risks that trainings will become very formal and ineffective. As well participants of the discussion didn't see this as best way how to motivate workers to gain new knowledge and skills required.



3. Cost sharing between employer and employee. During discussion it was argued that it is possible to introduce trainings if costs are shared. Otherwise if only workers should pay it will create one more additional barrier to engage workers to trainings. If costs are shared and both parties are contributing it would allow them to demand better quality of trainings. It would also increase feedback and active participation from workers and employer side.

WORKERS

* WORKERS pays:

- ↳ in general NO (only if there is benefits)
- ↳ self employees, small business, specific installers

* Compulsory training

- ↳ NO
- ↳ if there is some fund for training; in form of tax

* Cost sharing - maybe good idea

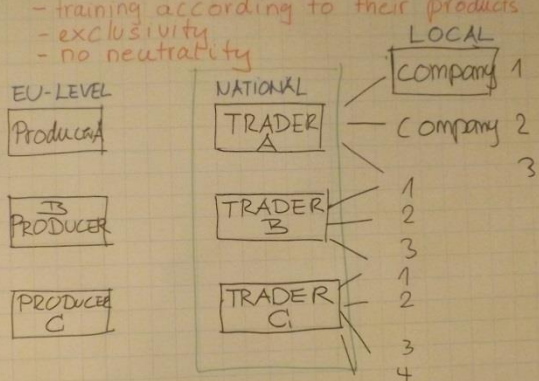
- ↳ good motivation
- ↳ value of trainings

(+) goal motivation (-) big barrier

Financing training with "industry"

- producers
- product suppliers, traders
- companies, employers

- training according to their products
 - exclusivity
 - no neutrality

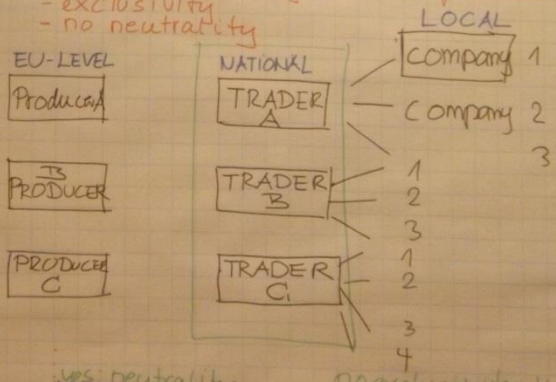


neutral training: mistakes ↔ solutions 1/3
 practical training: material from TRADER A, B, C 2/3
 Workers Fund

Financing training with "industry"

- producers
- product suppliers, traders
- companies, employers

- training according to their products
 - exclusivity
 - no neutrality



yes neutrality no exclusivity !!!
 neutral training: mistakes ↔ solutions 1/3
 practical training: material from TRADER A, B, C 2/3
 Workers Fund

Parallel session on mutual recognition

Facilitator: Frantisek Doktor (Slovakia)



The following countries took part in the break-out session:

- Countries participating in the initiative led by Croatia in achieving mutual recognition of certificates (Croatia, Slovakia, Former Yugoslav Republic of Macedonia, ...);
- Italy, Luxembourg proposing to develop a wider initiative that would lead to establishing a system for mutual recognition of learning outcomes from further education and training of craftsmen and on-site workers in the sector of buildings.

The further steps of the initiative led by Croatia were discussed. It was stressed that the countries involved in this initiative should meet soon to discuss the mechanism on which the mutual recognition of certificates could be based. The different options were preliminary discussed, further discussion and exchange of information on the national qualification frameworks - specifically the qualification standards systems - and the progress achieved in the relevant countries is needed. This would facilitate the discussion on how to achieve the mutual recognition:

- From administrative point of view (for example, through acceptance of the qualification standards, setting minimum requirement for accepting learning outcomes etc.);
- From the point of view of achieving effective recognition by employers (involving employers in the system, ensuring ownership of the system);

- From the point of view of concerting the specific actions of the projects in the respective countries.

Italy and Luxembourg proposed further discussion on wider system of mutual recognition of learning outcomes. This suggestion was supported by Slovakia (Ireland was not participating, but presented a similar proposal in the presentation during the workshop of Concerted Action on 13 November 2014).

This mutual recognition could be based on:

- European qualification standards that would set minimum requirements for ensuring mutual recognition of the learning outcomes;
- Mutual recognition of specific learning outcomes based on existing models of mutual recognition;
- Developing a new system of mutual recognition that would take inspiration from existing systems in Europe, for example, the system of European driver's license.

Italy, Luxembourg and Slovakia will develop a proposal for further considerations of other Member States.

Closing session

For the closing session of the day all participants gathered together to share the outcomes of each of the parallel sessions.



Participant list

First Name	Family Name	Organisation	Project	Country
Marie-Pierre	Establie d'Argencé	Alliance Villes Emploi		France
Loëva	Labye	Alliance Villes Emploi		France
Risto	Ivanov	Association of business and consultancy (ZBK Kreacija)	BUILD UP Skills BEET	FYROM
Frantisek	Doktor	Association of Construction Entrepreneurs of Slovakia	BUILD UP Skills STAVEDU	Slovakia
Georg	Trnka	Austrian Energy Agency	BUILD UP Skills Crosscraft	Austria
Steven	Vercauteren	BBRI		Belgium
Marjana	Šijanec Zavrl	Building and Civil Engineering Institute		Slovenia
Stilyan	Ivanov	Bulgarian Construction Chamber	BUILD UP Skills EnerPro	Bulgaria
Charalampos	Malamatenios	Centre for Renewable Energy Sources and Saving (CRES)	BUILD UP Skills UPSWING	Greece
Richard	Bayliss	Construction Industry Training Board		United Kingdom
Kristina	Fleischer	Croatian Employment Service	BUILD UP Skills CROSKILLS II	Croatia
Anthi	Charalambous	Cyprus Energy Agency	BUILD UP Skills WE-Qualify	Cyprus
Tim	O'Leary	Dublin Institute of Technology	BUILD UP Skills Qualibuild	Ireland
Alessandro	Proia	EASME, European Commission		Belgium
António	Aguilo Rullán	EASME, European Commission		Belgium
Didier	Gambier	EASME, European Commission		Belgium
Gordon	Sutherland	EASME, European Commission		Belgium
Philippe	Moseley	EASME, European Commission		Belgium
Vincent	Berrutto	EASME, European Commission		Belgium
Zoé	Wildiers	EASME, European Commission		Belgium
Jadranka	Arizankovska	Economic Chamber of Macedonia	BUILD UP Skills BEET	FYROM
Gábor	Csirszka	ÉMI Non-profit Limited Liability Company for Quality Control and Innovation in Building	BUILD UP Skills TRAINBUD	Hungary
Dragomir	Tzanev	EnEffect Group	BUILD UP Skills EnerPro	Bulgaria
Per-Johan	Wik	Energy Agencies of Sweden	BUILD UP Skills SWEBUILD	Sweden
Henri	Le Marois	Espace Inter-Initiatives		France
Maaaja	Katrin Kerem	Estonian Qualifications Authority	BUILD UP Skills BUILDEST II	Estonia
Pol	Goetzinger	Fédération des artisans	BUILD UP Skills LuxBuild	Luxembourg
Giovanni	Carapella	FORMEDIL - Ente Nazionale per la Formazione e l'Addestramento Professionale nell' Edilizia	BUILD UP SKILLS I-TOWN	Italy
Katrin	Rasch	Foundation for the Advancement of the Research Institute for Vocational Education and Training in the Crafts Sector at the University of Cologne	BUILD UP Skills Qualitrain	Germany
Kristof	Van Roy	fvb-ffc constructiv		Belgium
Ursel	Weissleder	German Confederation of Skilled Crafts e.V	BUILD UP Skills Qualitrain	Germany
Attila	Zoltán	Hungarian Coordination Association for Building Engineering	BUILD UP Skills TRAINBUD	Hungary
Anna	Moreno	Italian National agency for new technologies, Energy and sustainable economic development (ENEA)	BUILD UP SKILLS BRICKS	Italy

Javier	González López	Labour Foundation for Construction	BUILD UP Skills Construye2020	Spain
Seamus	Hoyne	Limerick Institute of Technology	BUILD UP Skills QualiBuild	Ireland
Dalius	Gedvilas	Lithuanian Builders Association	BUILD UP Skills ENERGOTRAIN	Lithuania
Irmeli	Mikkonen	Motiva Services Oy	BUILD UP Skills BEEP	Finland
Christiane	Conrady	myenergy	BUILD UP Skills LuxBuild	Luxembourg
Horia	Petran	National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development	BUILD UP Skills QualiShell	Romania
Helder	Goncalves	National Laboratory of Energy and Geology	BUILD UP Skills FORESEE	Portugal
José Antonio	Tenorio	National Research Council	BUILD UP Skills Construye2020	Spain
Haris	Doukas	National Technical University of Athens	BUILD UP Skills UPSWING	Greece
Jan	Cromwijk	OTIB	BUILD UP Skills Netherlands At Work	Netherlands
Diogo	Beirão	Portuguese Energy Agency (ADENE)	BUILD UP Skills FORESEE	Portugal
Mantas	Jonauskis	Regional Innovation Management Centre	BUILD UP Skills ENERGOTRAIN	Lithuania
Agris	Kamenders	Riga Planning Region	BUILD UP Skills FORCE	Latvia
Sara	Cattabriga	Sinergie Società Consortile a Responsabilità Limitata	BUILD UP SKILLS I-TOWN	Italy
Giovanni	Pede	Sinergie Società Consortile a Responsabilità Limitata	BUILD UP SKILLS I-TOWN	Italy
Jan	Magyar	Slovak Innovation and Energy Agency	BUILD UP Skills STAVEDU	Slovakia
Ruud	Geerligs	Stichting SBR	BUILD UP Skills Netherlands At Work	Netherlands
Gerhard	Bittersmann	Styrian Energy Agency	BUILD UP Skills Crosscraft	Austria
Liina	Henning	Tallinn University of Technology	BUILD UP Skills BUILDEST II	Estonia
Jaakko	Sorri	Tampere University of Technology	BUILD UP Skills BEEP	Finland
John	Widell	Technological Institute Sweden	BUILD UP Skills SWEBUILD	Sweden
Ligia	Florea	The Ownership of Producers for Thermo-Insulating Carpentry	BUILD UP Skills QualiShell	Romania
Ivana	Banjad Pečur	University of Zagreb Faculty of Civil Engineering	BUILD UP Skills CROSKILLS II	Croatia
Aija	Ruse	Vidzeme Planning Region	BUILD UP Skills FORCE	Latvia

Non-attended:

First Name	Family Name	Organisation	Project	Country
Martin	De Bono	BICC		Malta
Panayiotis	Kastanias	Cyprus Energy Agency	BUILD UP Skills WE-Qualify	Cyprus
Katerina	Vigliari	EASME, European Commission		Belgium

Registered on-site:

First Name	Family Name	Organisation	Project	Country
Roman	Horvarth	DG ENTR, European Commission		
Peter	Wouters	INIVE EEIG		