



BUILD UP SKILLS
ENERGY TRAINING FOR BUILDERS



BUILD UP Skills

Vocational education and training for building sector workers in the fields of energy efficiency and renewable energy



BUILD UP Skills background

The European Union has set itself ambitious targets – the so-called 20-20-20 targets – in its climate protection and energy policy. These provide for GHG emissions to be reduced by 20%, for energy consumption to decrease by 20% and for the percentage of renewables in overall energy consumption to increase to 20% – all by 2020.

The building sector plays an exceedingly important role in achieving these targets, as buildings account for nearly 40% of total energy consumption and are the cause of about one third of all GHG emissions. They also present major energy-saving potential.

To achieve these targets, building refurbishment activities need to be stepped up greatly in all European countries, including Germany. While all new buildings need to be constructed in ways ensuring minimal energy requirements, the focus is on the comprehensive energy-related refurbishment of the existing building stock.

There are however fears that, without sufficient numbers of skilled building workers, the energy efficiency targets of the EU and the Member States may turn out to be unachievable.

European initiative targeting the vocational education and training of building workers in the fields of energy efficiency and renewable energy

As a way of identifying and counteracting the deficit of skilled blue collar workers in the building sector, the European Union has launched an initiative targeting the vocational education and training of building workers in the fields of energy efficiency and renewable energy – the "BUILD UP Skills" programme.

The programme consists of two complementary projects:

Project 1: The first project involves establishing the status quo in each Member State with regard to the workforce in the building and finishing sectors (qualitative/quantitative), determining demand for skilled blue collar workers up to 2020, and, on the basis of a gap analysis, compiling national skills roadmaps for the period up to 2020. In preparation for this, national skills platforms are to be set up, ensuring that the main stakeholders in each Member State support the survey.

Consortiums were established in more than 20 Member States, with work on the surveys beginning in November 2011 and scheduled to be completed by April 2013. Further European countries came on board in the spring of 2012, meaning that the BUILD UP Skills programme is now being run in 30 countries.

Each National Skills Roadmap presents the requisite measures needing to be taken to ensure sufficient numbers of skilled blue collar workers to achieve the 20-20-20 targets. The Roadmap needs to have the support of the main stakeholders.

Project 2: The National Skills Roadmap constitutes the basis for the follow-on (Pillar 2) project involving the development of concrete VET measures for the building workforce. This independent follow-on project is scheduled to start in autumn 2013.

Tasks and objectives

The objective of the first BUILD UP Skills project phase is to make available all information on labour demand in the German building sector necessary for achieving the 20-20-20 targets (numbers and skill levels), whereby the focus is on blue collar workers actually working in the field.

In Germany, the main focus of the survey was on the following:

- ✗ Is additional investment needed to achieve the climate protection and energy policy targets in the building sector by 2020?
- ✗ Which skill sets do blue collar workers in the building sector need?
- ✗ What skill sets are taught within the existing IVET and CVET system?
- ✗ In what numbers are skilled blue collar workers needed?
- ✗ How many skilled blue collar workers are already available in the building sector and how will numbers develop from now until 2020.
- ✗ Which qualitative and quantitative gaps exist and what needs to be done to close these gaps?

To answer these questions, the European Commission required the following sub-projects to be executed within the overall survey:

- ✗ The establishment of a national skills platform with the objective of bringing together the relevant stakeholders and interested parties in the fields of energy efficiency and renewable energy;
- ✗ The execution of a status quo analysis of the building workforce and existing VET arrangements (quantitative and qualitative);
- ✗ The identification of the qualitative and quantitative demand for skilled blue collar workers in the building sector until 2020;
- ✗ The development of a National Skills Roadmap, based on a gap analysis; and last but not least
- ✗ The endorsement of the National Skills Roadmap by the main stakeholders belonging to the national platform.

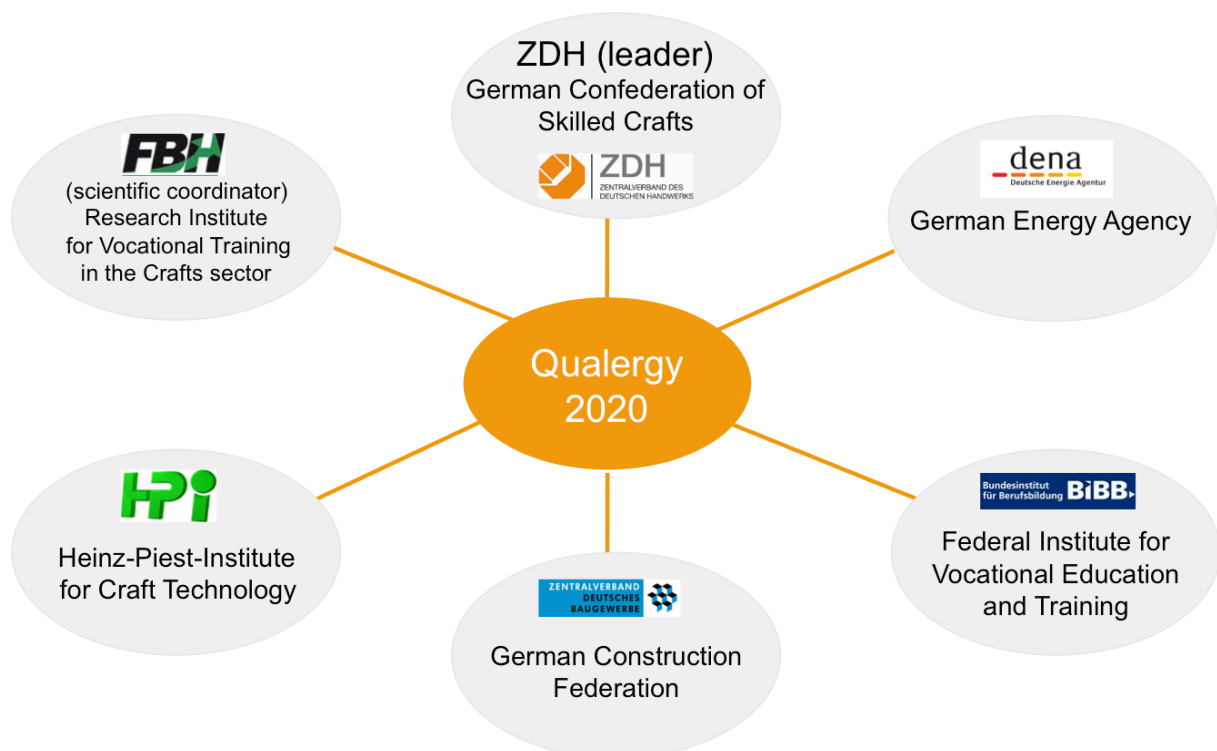
Structure of the consortium and the national platform

To analyse the status quo of the building workforce in Germany and to determine requirements up to 2020, a broad-based consortium of stakeholders from the academic world, trade associations, the VET sector and the energy sector was established (see Figure 1).

The consortium is made up of the following institutions:

- × Zentralverband des Deutschen Handwerks (ZDH) / German Confederation of Skilled Crafts (head of the consortium)
- × Forschungsinstitut für Berufsbildung im Handwerk an der Universität zu Köln (FBH) / Research Institute for Vocational Training in the Skilled Craft Sector (scientific coordinator)
- × Heinz-Piest-Institut für Handwerkstechnik (HPI) / Heinz Piest Institute for Craft Technology
- × Deutsche Energieagentur (dena) / German Energy Agency
- × Zentralverband des Deutschen Baugewerbes (ZDB) / German Construction Federation and the
- × Bundesinstitut für Berufsbildung (BIBB) / Federal Institute for Vocational Education and Training

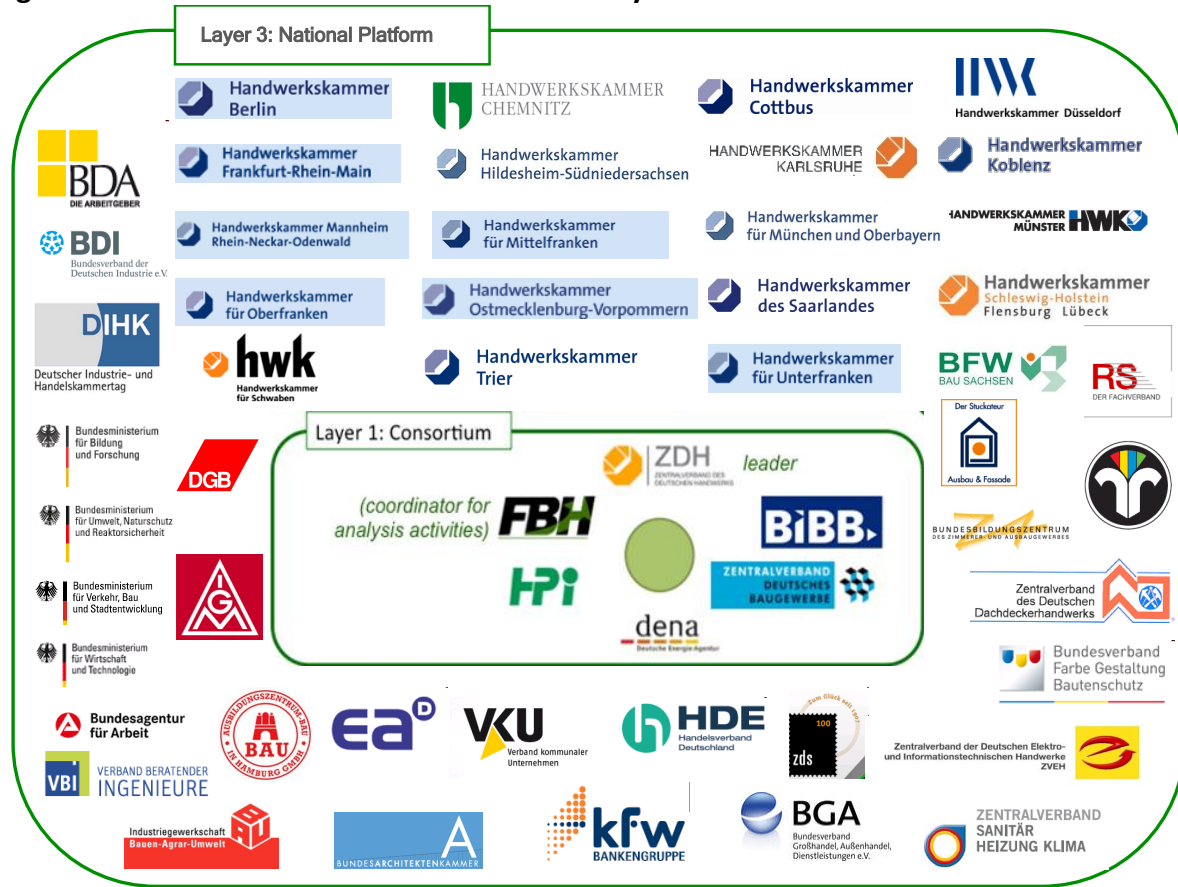
Figure 1: The German BUILD UP Skills consortium



As part of the project, a National Skills Platform was established, made up of a total of 54 institutions from the fields of renewable energy and energy efficiency, as well as relevant

stakeholders (see Figure 2). All National Skills Platform members support the project and worked on it at different levels of intensity.

Figure 2: The National Skills Platform in Germany



Results of the status quo analysis

The status quo analysis for the building workforce in Germany¹ showed that a major boost to current investment levels was needed to achieve the climate protection and energy-efficiency targets in the building sector. Between 2014 and 2020 EUR 23.6 billion a year of additional investment needs to flow into the refurbishment of residential and non-residential buildings in order to bring down the energy consumption of buildings by 20%. This has major consequences on the demand for skilled workers. To cope with this rise in investment levels, some 90,000 additional skilled blue collar workers will be needed in the occupations of relevance to energy-related refurbishment between 2014 and 2020.

Even so, the model calculations of the QUBE² team show that, despite the surge in demand, there will not be any nationwide shortage of skilled workers - at least on paper - and that

¹ Cf. Weiss, P. / Reibold, R.R. (Eds.): (2012). BUILD UP Skills – Germany. Analysis of the national status quo. Accessed on 27 January 2013 on <http://www.bauinitiative.de/informationen/publikationen/build-up-skills-germany-analysis-of-the-national-status-quo.html>

² QUBE stands for "Qualifikation und Beruf in der Zukunft" (Future skills and occupations), a joint initiative of the Federal Institute for Vocational Education and Training (BIBB), the Institute for Employment Research (IAB), the Institute of Economic Structures Research (GWS) and the Fraunhofer Institute for Applied IT (FIT).

even in 2020 the supply of skilled workers will still be slightly greater than demand. The forecast additional demand is expected to reduce the existing surplus of workers to – dependent on the model used – 150,000 workers (BIBB-DEMOS) or 50,000 (BIBB-FIT). This does not however mean that there will be no regional shortages of skilled building workers before 2020. Moreover, when looking at specific occupations, it can be seen that shortages of skilled labour can be expected before 2020 with regard to electricians, metalworkers, technicians, installers and fitters. Even now shortages of skilled labour are being experienced in certain regions with regard to occupations related to building technology systems.

With regard to the required and existing skill sets of the German building workforce, the status quo analysis has shown that the necessary skill sets are already well-anchored in the apprenticeship frameworks and master craftsman examination regulations of the occupations studied and that the relevant technologies and processes are basically covered. Existing gaps in the apprenticeship frameworks (intentional gaps in the advisory and planning processes) are closed at a later stage in the context of gaining a master craftsman qualification, meaning that the latter can be seen as playing a decisive role in training and quality assurance. At the same time, the detailed analysis showed that a large number of interfaces exist between the different trades.

In addition, Germany has a very comprehensive CVET system for the building workforce. Just looking at the field of energy efficiency and renewables, a 2011 survey of organisations offering CVET programmes revealed 315 offerings (not including programmes for gaining a master craftsman qualification and not taking product-specific courses offered by manufacturers and distributors into account). Within this very broad range of offerings, two focuses can be observed: On the one hand, a large number of short-length courses (5 - 50 hours of instruction) focus on skill updates or on providing information on new statutory requirements, while on the other hand there are a large number of longer-length courses (>200 hours) for acquiring/upgrading skills, for instance qualifying a person as a certified energy consultant. Looked at overall, these CVET offerings cover all relevant technologies and processes.

Gap analysis and the National Skills Roadmap

Even if Germany, on account of the high skill levels of its building workforce and the sufficient number of workers (at least until 2020) is relatively well positioned to achieve the climate protection and energy saving targets in the building sector, the status quo analysis has revealed a number of quantitative and qualitative gaps and barriers:

- ✘ we can already see that there will be an increasing shortage of skilled workers in the German building sector after 2020, the result on the one hand of demand for energy-efficiency refurbishment measures continuing at a high level, and on the other hand of a progressive decline in the supply of skilled workers on account of demographic factors. Against this background, the need to ensure sufficient numbers of skilled blue collar workers at this early stage assumes major importance.
- ✘ While skill levels in individual trades are high, there are deficits with regard to interfacing with other trades.

- ✘ In this context, one skill missing is the capability to think beyond one's own process, understanding the whole house/building as one integrated system.
- ✘ Existing early warning systems for skills are not used systematically and are not interlinked with each other, meaning that CVET courses often do not take into account steadily increasing requirements.
- ✘ The number of participants in CVET courses is generally low and has decreased continually over the last three years. The reason for this can be seen in the good economic situation of craft companies in the construction, finishing and building technology sector. Incentives aimed at promoting continuous participation in CVET courses could help to increase uptake.
- ✘ These courses are often not clearly structured and/or not known to target groups not belonging to the respective chambers. Existing databases are not used as often or as intensively as possible, a situation possibly reflecting deficits in tailoring them to the needs of the target groups.

All these problems need to be tackled in order to ensure a continuing supply of workers with the right qualifications in the building sector.

Despite the existing high skill level of the building workforce in Germany and the improvements made over the last few years, skill deficits remain. The intention of the "National Skills Roadmap for Employees in Germany's Building Sector" is to come up with suggestions and measures capable of overcoming them. To accomplish this, the German BUILD UP Skills project has continued the strategic process begun in 2011 and set up a 26-institution steering board. Alongside the actual consortium members, the board includes representatives from the most important stakeholder groups (ones with a multiplier effect) from the National Skills Platform (government ministries, trade unions, trade associations, chambers and institutions relevant for refurbishment work) as well as from industry.

The steering board met three times between September 2012 and January 2013. In the first meeting, the recognised quantitative and qualitative deficits were discussed, with initial recommendations being developed and further gaps and barriers identified on the basis of the knowledge and experience of the experts. This led to a survey of board members, looking for initial ways of solving the problems and for suggestions for their institutional implementation. These steps have led to the crystallisation of three main focuses for which concrete measures and actions now need to be developed.

- ✘ Overcoming quantitative deficits - measures for ensuring an adequate supply of skilled blue collar workers
- ✘ Overcoming qualitative deficits - measures for upgrading the skills of skilled blue collar workers, and
- ✘ Overcoming the barriers.

In a second steering board meeting, parallel workshops (each with 8-10 participants) for each focus were held with the aim of coming up with concrete proposals for the National Skills Roadmap. The results constituted the basis for a first draft of the National Skills

Roadmap, which was discussed, approved and further detailed in a third board meeting at the end of January.

In developing the National Skills Roadmap, attention was paid – right from the word "go" – to the measures

- ✘ having as wide an effect (reach) on the workforce situation as possible (quantitative effectiveness),
- ✘ having a long-term effect on the quantitative and qualitative workforce situation (qualitative effectiveness), and
- ✘ gaining wide acceptance and support from the stakeholders involved (acceptance and support).

In the context of this process, strategic objectives were defined for each of the three focuses and a total of 40 proposals for measures developed. These proposed measures were assigned implementation priorities on the basis of the above-mentioned criteria.

Finally, the 40 proposed measures of the National Skills Roadmap were "poured" into 26 concrete actions, each with a list of planned steps, institutions responsible for their implementation and an implementation timeframe. As individual actions are also dependent on external factors (such as funding options), the constraints are also listed. The actions contained in the overall action plan are divided into three blocks according to their implementation priorities:

- ✘ Measures and actions with a high implementation priority, for which implementation is foreseen under Pillar II of the BUILD UP Skills Initiative;
- ✘ Measures and actions with a high implementation priority, though not to be implemented under Pillar II;
- ✘ Measures and actions with a low to medium implementation priority.

Looking specifically at the situation in Germany, the focus is not so much on concrete skill measures, as Germany already has a well-functioning apprenticeship system, as well as a comprehensive offering of CVET courses. For this reason, it is recommended that BUILD UP Skills Pillar II actions be designed in such a way that they strategically support and strengthen the existing systems, as well as addressing "multipliers" within the system. The establishment of career development concepts for workers in SMEs in the building sector, the creation of an early warning system for skills, a CVET database targeting specific groups and reflecting market requirements and regional "train the trainer" symposiums are some of the instruments foreseen. Nevertheless they need to be flanked by measures aimed at solving the biggest problems associated with energy-related building refurbishment and construction in Germany: the interfaces between trades and the lack of any understanding for a house/building as one integrated system. In this area, actions are proposed aimed at anchoring these aspects in apprenticeship frameworks and CVET offerings.

It is recommended that the established and well-oiled National Skills Platform be maintained for implementing this strategic approach.

Action plan in the context of the National Skills Roadmap

a) Measures and actions to be applied for under “Pillar II” of BUILD UP Skills

Roadmap item	Next steps
<p>1. Development of staff development concepts for SMEs in the building sector, taking into account the career development concept (BLK) of the skilled craft sector and age considerations <u>AS WELL AS</u> Analysing the factors motivating people to stay in the building trade <u>AS WELL AS</u> Increased "branding", together with the development and distribution of promotional material making the range of CVET offerings better known</p>	<ul style="list-style-type: none"> • Project application in the context of Pillar II • Analysing the factors motivating people to stay in the skilled craft sector • Further developing the career concept as an instrument for career planning and development in skilled craft companies • Developing staff development concepts for SMEs in the construction, finishing and building technology trades
<p>2. Study of the requirements and conditions encouraging young people and skilled workers from individual EU Member States to come to Germany and to remain there</p>	<ul style="list-style-type: none"> • Project application in the context of Pillar II
<p>3. Creating a database tailored to the needs of specific target groups and the market, and taking career development concepts into account <u>AS WELL AS</u> Standardising training measures on the CVET market <u>AS WELL AS</u> Increased "branding", together with the development and distribution of promotional material making the range of CVET offerings better known <u>AS WELL AS</u> Developing a CVET advisory concept</p>	<ul style="list-style-type: none"> • Project application in the context of Pillar II • Identification of target groups • Survey of skilled craft companies • Creation of a database • Entering the available CVET courses • Establishing a long-term system for updating the system (by regional and trade organisations)
<p>4. Setting up an early warning system for qualifications</p>	<ul style="list-style-type: none"> • Project application in the context of Pillar II • Identification and interlinking of existing early warning systems for qualifications • Developing and implementing a system for the building sector, with the principal focus on energy efficiency and renewable energy
<p>5. Checking whether a model-tested teaching method for cross-trade learning situations can be implemented throughout Germany in the construction and finishing trades.</p>	<ul style="list-style-type: none"> • Development of exemplary cross-trade teaching/learning arrangements suitable for application in the IVET structures in the construction and finishing trades throughout Germany • Assessment of the experience gained in the building trade VET centre (Pädagogisches Bauzentrum) in Hennef • Exploratory talks with the Competence Network for Building and Energy (KOMZET Bau) with the aim of supporting the Germany-wide introduction of cross-trade inter-company instruction in the building sector

Roadmap item	Next steps
<p>6. Including the topics "interfaces between trades" and "understanding a house/building as an integrated system" in a cross-trade CVET programme</p>	<ul style="list-style-type: none"> • Presentation of the planned measures in the appropriate ZDH bodies • Project application in the context of Pillar II • Identification and verification of existing offerings • Development of a CVET programme (possibly under § 42a HwO) and a framework curriculum • Compilation of suitable promotional material • Promotion and PR activities
<p>7. Raising the awareness of training staff for "interface problems": design of a CVET concept, conduct of a workshop, as well as the development of information material <u>AS WELL AS</u> Examining existing materials (e.g. checklists) with a view to improving quality standards in the building sector, where necessary adapting them, and finally disseminating them</p>	<ul style="list-style-type: none"> • Project application in the context of Pillar II • Design of a CVET concept, to be discussed in a workshop and to be implemented on a regional basis • Testing the CVET concept through a pilot project (workshop) involving different trades, instructors and people from the field. Focus: "interface problems" • Compilation of information material (making use of the workshop results) for the purpose of supporting a multiplication of such workshops • Promotional and PR activities promoting the take-up of such workshops
<p>8. Monitoring (project evaluation)</p>	<ul style="list-style-type: none"> • Checking and monitoring the implementation status of the proposed measures • Only possible in the form of an interim assessment, as the measures have long-term effects

b) Measures and actions with high implementation priority, though not to be implemented under "Pillar II"

Roadmap item	Next steps
<p>9. "A career in the building sector after dropping out of university" - a pilot project with the aim of gaining university dropouts in specific disciplines for a career in the building sector</p>	<ul style="list-style-type: none"> • Checking the feasibility of a pilot project • Analysing and assessing existing training offerings • Clarifying mutual recognition issues
<p>10. Further development of the craft sector's image campaign to promote the positive aspects and the modern and forward-looking orientation of occupations in the building sector <u>AS WELL AS</u> Highlighting career opportunities more – leveraging the skilled craft sector's image campaign and propagating successful career stories <u>AS WELL AS</u> Giving greater prominence to women in image campaigns (also via best practice examples</p>	<ul style="list-style-type: none"> • Presentation in the campaign's steering committee and in the decision-making bodies
<p>11. Information sessions for job centre staff for updating their knowledge of the relevant building occupations <u>AS WELL AS</u> Informing about the requirements needing to be fulfilled to take up an apprenticeship in the building sector</p>	<ul style="list-style-type: none"> • Checking the feasibility of a pilot project • Developing a concept for information sessions • Compilation and development of information material for vocational guidance

Roadmap item	Next steps
12. Including the basic principles of a system-based approach in the apprenticeship frameworks	<ul style="list-style-type: none"> Occupation-specific inclusion of this topic (a house as an integrated system) in the relevant apprenticeship frameworks and framework curricula
13. Giving greater weight to the CVET programme training people to become a certified energy performance consultant <ul style="list-style-type: none"> Checking the feasibility of a standard Germany-wide regulation. if feasible, then implementation Marketing <p>AS WELL AS Increased "branding", together with the development and distribution of promotional material making the range of CVET offerings better known</p>	<ul style="list-style-type: none"> Discussions on the issue of a Germany-wide regulation in the appropriate ZDH bodies (PG CVET, UDH discussion group) Initialisation and realisation of the revision procedure Compilation of promotional material Promotional and PR activities
14. Checking the feasibility of a CVET programme for "one-stop-shop" services	<ul style="list-style-type: none"> Discussion of this issue and further steps in the appropriate ZDH bodies (e.g. PG CVET) Checking funding possibilities Possible inclusion in Pillar II
15. Studying the need to take greater account of the process "maintenance" / "identification of refurbishment needs" in CVET offerings. AS WELL AS Identifying the necessary skill sets needed by a journeyman to provide high-quality advice. If needed, development of an appropriate CVET programme	<ul style="list-style-type: none"> Discussion of this issue and further steps in the appropriate ZDH bodies (e.g. PG CVET) Checking state support possibilities
16. Giving greater weight to the topic "customer orientation" in apprenticeship frameworks AS WELL AS Including the processes "maintenance"/"identification of refurbishment needs" in the apprenticeship frameworks and framework curricula	Occupation-specific inclusion of this topic in the forthcoming revision procedure.

c) Measures and actions without any high implementation priority

Roadmap item	Next steps
17. Kindling children's interest for construction, finishing and building technology occupations from a very early (kindergarten) stage	<ul style="list-style-type: none"> Initiate a survey of current activities, thereby creating greater transparency Proposal for inclusion of this aspect in a framework support programme of the next ESF programming period
18. Developing "hands-on" learning material for schools	<ul style="list-style-type: none"> Initiate an exchange of experience between associations Proposal for inclusion of this aspect in a framework support programme of the next ESF programming period

Roadmap item	Next steps
<p>19. Expanding opportunities for students to do a work placement / summer job in a building company <u>AS WELL AS</u> Providing more work placements and summer jobs <u>AS WELL AS</u> Introduction or further development of local or regional work placement / summer job "markets"</p>	<p>Having skilled craft trade associations promote this aspect in companies</p> <ul style="list-style-type: none"> • Trade journals / media • Mailings • Excitation to implement apprenticeship and work placement "markets" (such as an apprenticeship radar) • Greater marketing and publicity within the skilled craft organisations
<p>20. Checking the feasibility of setting up a CVET programme for training quality assurance officers in the building sector</p>	<ul style="list-style-type: none"> • Presentation and discussion of the proposal in the ZDH CVET planning group, together with the realisation of possible further steps • Checking the feasibility of gaining access to the working groups developing the Federal Government's demographics strategy
<p>21. Informing potential candidates about the attractiveness and career opportunities of occupations related to the energy-related refurbishment of buildings / more vocational guidance events</p>	<ul style="list-style-type: none"> • Conduct a survey of activities already taking place, thereby creating greater transparency • Develop information material for companies
<p>22. Leveraging existing initiatives (such as "Praktisch unschlagbar") to promote the career opportunities available in the building sector.</p>	<ul style="list-style-type: none"> • Checking the feasibility of a separate strand for building occupations
<p>23. Branding the CVET programme leading to a "certified renewable energy expert" qualification <u>AS WELL AS</u> Increased "branding", together with the development and distribution of promotional material making the range of CVET offerings better known)</p>	<ul style="list-style-type: none"> • Compilation of a flyer promoting the new CVET programme
<p>24. Identifying projects involving training immigrants / upgrading their skills and analysing the results</p>	<ul style="list-style-type: none"> • Determining initial experience with the Recognition of Professional Qualifications Act (Berufsanerkennungsgesetz) (in conjunction with the key chambers) • Exchange of experience with institutions that have already found jobs for immigrants and helped in their integration
<p>25. Systemising, consolidating and constantly updating the support instruments for funding further training</p>	<ul style="list-style-type: none"> • Proposal for inclusion of this aspect in a framework support programme of the next ESF programming period
<p>26. Concentrating CVET offerings in the winter months <u>AS WELL AS</u> Concentrating CVET offerings in the building sector in the winter months, thereby making the most of seasonal short-time working</p>	<ul style="list-style-type: none"> • Provide written information to the skilled craft trade associations and in particular to the VET centres

BUILD UP Skills contacts in Germany:

Dr. Peter Weiss
Zentralverband des Deutschen Handwerks
Mohrenstr. 20/21
10117 Berlin
Tel.: 030 206 19-263
Fax : 030 206 19-59-263
Email: weiss@zdh.de
Internet: www.zdh.de

Rolf Richard Rehbold
stellv. Direktor
Forschungsinstitut für Berufsbildung im Handwerk
an der Universität zu Köln
Venloer Str. 151-153
50672 Köln, 10. OG
Tel.: 0221/470-5679
Fax: 0221/470-7744
Email: rolf.rehbold@uni-koeln.de
Internet: www.fbh.uni-koeln.de

Elisa Majewski
Zentralverband des Deutschen Handwerks
Mohrenstr. 20/21
10117 Berlin
Tel.: 030 206 19-311
Fax : 030 206 19-59-311
Email: majewski@zdh.de
Internet: www.zdh.de

The detailed survey reports, the National Skills Roadmap and further information are available on:

www.bauinitiative.de

