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*PROGRESS call*  
*"Delivering on skills for growth and job"*  
*VP/2013/010*  
*Action 3.1 – Targeted Sector: Construction*

## **Project**

# **BU.G.S. – Building Green Skills**

Workpackage 3: good practice and training pathways

# **Definition of training pathways and conception of training modules**

### **Responsible Partner:**

Europäisches Zentrum für erneuerbare Energie Güssing GmbH (PP10)

Il progetto è supportato dal Programma dell'Unione europea per l'Occupazione e la Solidarietà Sociale - PROGRESS (2007-2013).

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## Introductory note

According to the project's application form, WP3 is targeted to fulfil two main tasks:  
*"a. A study will be carried out in order to identify good or success practices of industry self-made evaluation and self-training measures adopted to face green skills gaps  
b. Training pathways will be developed for high, intermediate and low skilled workers"*

For better handling, these targets have been split up into four tasks by the –then– WP-leader EEE Güssing GmbH (PP10). In the course of working on the tasks it turned out, that two important term complexes are somehow characterized by almost no, or very vague definitions.

These terms or term complexes are:

- The term: "Training Pathway"
- The term complex: "high, intermediate and low skilled"

At first sight, these terms seem to be clear, because often used, but it turned out that in literature they are having a broad variety of meanings. This fuzziness or lack of clear definition was hampering the development of useable tools to produce the demanded outputs of the work package. Thus, as a first step, the working concept needs to be outlined by a definition of terms.

## Definition of terms

### Training pathways definition

The term "training pathway", due to the lack of a clear definition, is, in the following used as a synonym of the already established term "career pathway" since they are functionally serving the same purpose.

A "career pathway" means a clear sequence of education coursework and/or training (credentials) that include the following components:

- The pathways are aligned with the skill needs of industries important to the regional or state economies in which they are located, and reflect the active engagement of employers in targeted industry sectors regarding the skill



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requirements for employment or career progression in high demand occupations.

- Include postsecondary education options with a non-duplicative progression of courses clearly articulated from one level of instruction to the next, with opportunities to earn postsecondary credits and lead to industry-recognized [and/or] postsecondary credentials;
- Include curriculum and instructional strategies that make work a central context for learning (contextual learning) and help students attain work readiness skills;
- Lead to the attainment of an industry-recognized degree or credential, which may include stackable credentials of value in the labour market and that articulate progressively to higher-level credentials or degrees.
- Help a worker enter or advance within a specific sector or occupational field, regardless of their skills at the point of entry.
- Have the goal of increasing an individual's educational and skills attainment and employment outcomes.

### **General structure of training pathways**

The core elements of a training pathway are the training modules, ideally characterized by:

- Multiple entry points so that participants can begin their training path at the most appropriate skill level
- Multiple exit points so that individuals can enter the workforce at various milestones and easily return to their education when they're ready—either between jobs or while they are working
- Well-connected and transparent education, training, credentialing, and support services to facilitate progress along the pathway and ensure participants can get credit for their education and experience in the future

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***As a short definition in the project's context:***

***A training pathway is a clear sequence, or pathway, of education coursework, training credentials, and/or work experiences aligned with the skill needs of industry and carried out by training institutions, that allow workers to advance to increasingly higher levels of education and employment.***

## **Skills definition**

Skills are an ability and capacity acquired through deliberate, systematic, and sustained effort to smoothly and adaptively carry out complex activities or job functions involving ideas (cognitive skills), things (technical skills), and/or people (interpersonal skills)

(<http://www.businessdictionary.com/definition/skill.html#ixzz3kZNscejx>)

## **Skill levels and skill level groups**

A clear definition of skill levels could be found at the National Statistics Office of the UK. According to the definition there, skill levels can be characterized as follows: Skill level groups are created by grouping jobs together based on their occupation according to the Standard Occupation Classification (SOC) 2010 minor level groups, as follows:

2.1 High – This skill level is normally acquired through a degree or an equivalent period of work experience. Occupations at this level are generally termed 'professional' or managerial positions, and are found in corporate enterprises or governments. Examples include senior government officials, financial managers, scientists, engineers, medical doctors, teachers and accountants.

2.2 Upper-middle – This skill level equates to competence acquired through post-compulsory education but not to degree level. Occupations found at this level include a variety of technical and trades occupations, and proprietors of small business. For the latter, significant work experience may be typical. Examples of occupations at this level include catering managers, building inspectors, nurses, police officers (sergeant and below), electricians and plumbers.

2.3 Lower-middle – This skill level covers occupations that require the same competence acquired through compulsory education, but involve a longer period of work-related training and experience. Examples of occupations at this level include machine operation, driving, caring occupations, retailing, and clerical and secretarial occupations.

2.4 Low – This skill level equates to the competence acquired through compulsory education. Job-related competence involves knowledge of relevant health and safety regulations and may be acquired through a short period of training. Examples of occupations at this level include postal workers, hotel porters, cleaners and catering assistants.

***As a definition in the project's context:***

- ***High - This skill level is normally acquired through a degree or an equivalent period of work experience, or, equates to competence acquired through post-compulsory education but not to degree level. Occupations at this level are generally termed 'professional' or managerial positions, and are found in corporate enterprises or governments, or, include a variety of technical and trades occupations, and proprietors of small business. For the latter, significant work experience may be typical.***
- ***Intermediate – This skill level covers occupations that require the same competence acquired through compulsory education, but involve a longer period of work-related training and experience. Examples of occupations at this level include persons who have completed regular VET and are experienced in their profession. Foremen are included in this group.***
- ***Low - This skill level equates to the competence acquired through compulsory education. Job-related competence involves knowledge of relevant health and safety regulations and may be acquired through a short period of training***

### **Task 3: Evaluation of how good practice does minimize or close the gaps**

#### **Good practice and training pathways in the BU.G.S context**

The result of the preceding desktop research in the fields of green skills development and the existence and organization of green training pathways carried out, that there are many attempts - in the EU, but also worldwide - to meet the demands of measures regarding energy efficiency and reduction of CO2 emissions.

The collection of good practice framework and good practice examples in the course of the project brought evidence, that, beyond implementation of green skills education in basic national VET, some post-secondary training pathways are already on the way, showing different stages of development towards meeting the target line of originating skilled labour forces, capable to plan, construct and maintain near zero energy buildings.

### Step one: Interaction of stakeholders and framework construction

The first step towards closing skills gaps is the solution-driven interaction of all stakeholders in the respective sector. The minimum interactive platform in this case is the cooperation of stakeholders in politics and administration, representatives of the economy sector and labour forces and training institutions.

The interaction of stakeholders could be detected in each partner country during the good practice collection (after request also for the Austrian training institutes). The most important part for a framework for the development of effective training pathways

### Step two: Stakeholders reach an agreement on acknowledged credentials or certificates

The second step of a good training pathway is to reach an agreement on trainings which, after completion, provide competences and skills levels which are verifiable by acknowledged credentials. This means, that in upskilling pathways, each reached skill level is substantiated by the documentation of learned contents and implemented hands-on training, which have been checked by a final examination. The result is a national valid credential or an ISO certificate, valid on European level.

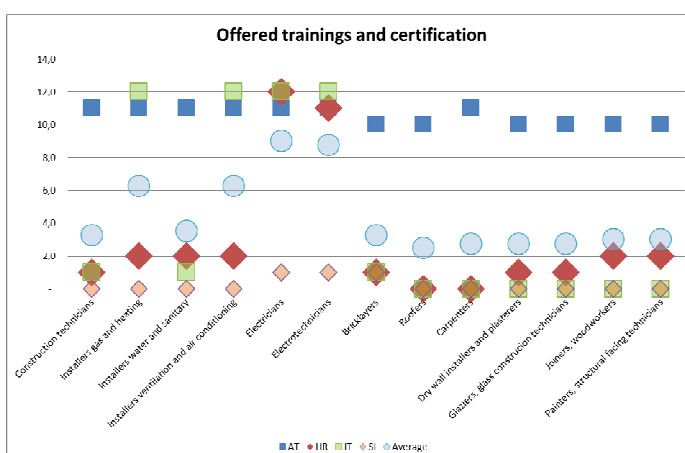


Figure1: Profession groups and training certification as detected in the good practice collection

The good practice analysis showed, that in most partner countries, there are already efforts to implement a credential and certification system. These efforts can be found at an advanced stage for planning and supervising, HVAC and electricity supply. The issues of physical building construction profession groups still appear to need some development.

Extending these efforts to all related profession groups and skill levels, is an important step to close existing skills gaps.

### Step three: Organization of well-structured and elaborated trainings according to skill demands

In the third step, the development of the training pathway reaches the level of the trainers, who will have to carry out the trainings. Besides the formal organization of trainings as described in step one and two, a curriculum needs to be provided, which, in the optimum case, is developed in accordance with the technical, economic and efficiency-policy demands and in cooperation with the stakeholders mentioned above. Experienced trainers need also to be included in the process, because, according to the results of the good practice collection, there are already existing trainings, which, with some adaption, are already fitting a green skills development pathway.

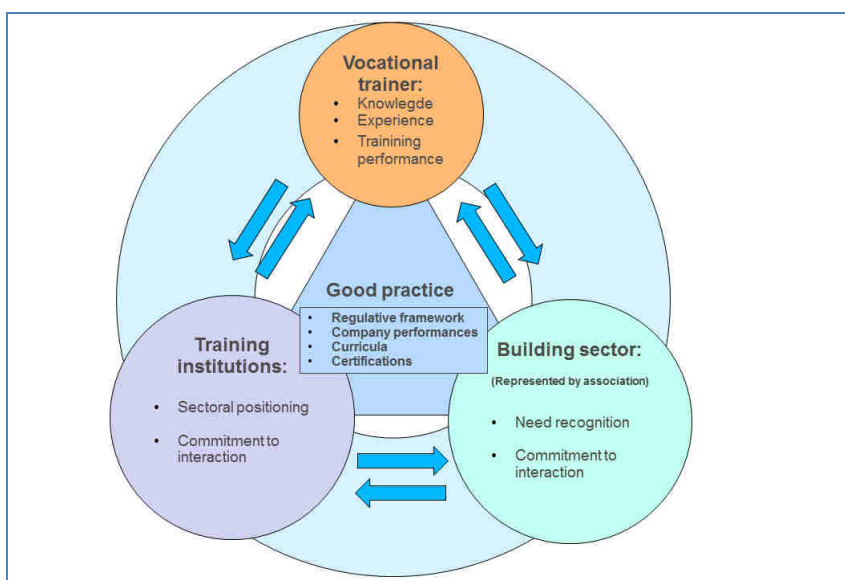


Figure 2: Complex of good practice in VET in the building sector as a basis for training pathways (EEE, 2015)



Trainers have to conduct trainings, containing specific green-skills and performance related contents. These are characterized by the following features, which, in complete but also varying settings, could be detected in the good practice examples collection:

- Extended curricula: green skills are treated as an important aspect of the main professional training
- Imparted contents are state of the art
- Leading of trainees to work as far as possible on their own, after training completion (depending on skill level)
- Fully content covering and comprehensive teaching material
- Hands-on training
- Final audit of knowledge
- Leading of trainees to meet requirements for receiving certification

#### **Step four: (pilot-) training evaluation, adjustment of didactics and contents and securing the pathways**

All conducted trainings need to be continuously evaluated by trainers, trainees and, if necessary, also by the stakeholders. In all partner countries this type of quality management for trainings is already implemented. Securing the chosen and tested training pathway means that stakeholders reach an agreement to continue or extend the training and to provide the needed frame conditions for its continuation.

#### **Task 4: Guideline for definition and conception of training modules**

The evaluation of the collected good practice examples leads to the result, that the basic components for training pathways in general, are already existing. The development of the training pathways themselves, by structuring the respective components, should be easy, because it follows the schemes of good practice in training organization.

In order to have comparable models, the training pathways have to be structured on three levels:



- General pathway structure: stakeholders define framework, credentials and certificates and target groups based on gap detection software
- Specific profession group pathway selection and train-the-trainers module of the pathway
- Actual pathway for trainees according to profession and skill level

### Core elements of the general training pathway: model and checklist

A “close-to-standardized” model of pathway definition is giving each project partner the possibility to compare with inputs and measures of the other partners. In this way, mutually enhancing the quality of the pathways, could lead to better results for all project partners.

The general pathway needs to be developed according to political and economic parameters. The main stakeholders on this level are politics and administration, representatives of economy and labour forces and, of course, the training institutions who are responsible for the operation of the training pathway.

Figure 3 is giving an overview of a well-organized general training pathway framework model.

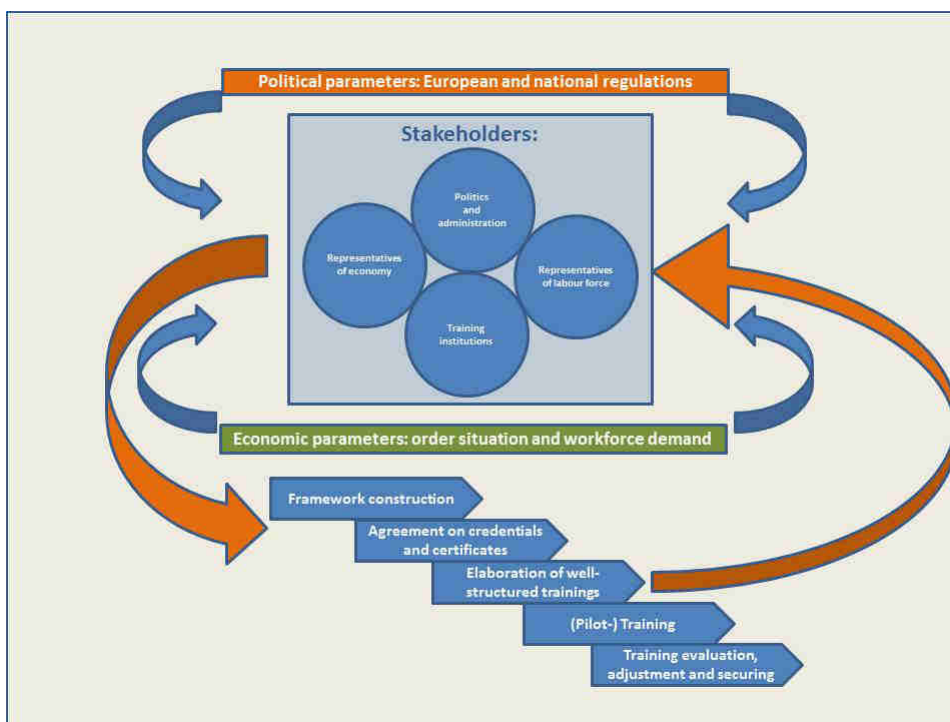


Figure 3: General pathway framework

Table 1 is providing a detailed checklist for individual pathway definition in the respective countries. The core elements of the pathways are specified by key components and exemplified by key questions. Thus, a description of the pathways on national level can be done easily.

Core element of training pathway	Key components	Key questions
<b>Pathway partnership</b>	<i>Partnership formation, leadership, vision funding</i>	<i>Who comes together to implement the training pathway and which resources do they bring to bear</i>
<b>Pathway purpose</b>	<i>Sector focus, Skills gap detected by BUGS software, employer engagement, occupational targets, skill shortage context</i>	<i>What need in the economy is the training pathway to address</i>
<b>Pathway design</b>	<i>Starting skill levels, course/credential/certificate sequencing, curriculum design, multiple entry/exit points, alignment across settings</i>	<i>Who is the pathway intended to serve and how will it do so?</i>
<b>Pathway instructional delivery</b>	<i>Participant-focussed and evidence based practices, competence-based instruction, work based learning</i>	<i>Which specific instructional measures or innovations will be implemented in the pathway to improve results?</i>
<b>Pathway participant supports</b>	<i>Participant assessment, supportive services, special advising</i>	<i>How will the pathway address the curricular and non-curricular needs of participants to improve results</i>
<b>Pathway measurement</b>	<i>Shared measurement and accountability, continuous improvement, closing achievement gaps</i>	<i>How will success for the pathway be defined and how will data be assembled to determine success</i>

Table1 : Checklist for general pathway definition

## Core elements for the specific profession group pathway selection and train-the-trainers module of the pathway

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Table 2 is providing the checklist for the elaboration of the profession group selection and the “train the trainers” part of the pathway. The table is acting as a guideline, containing the core elements, key components and key questions for a proper organization of the module. The checklist can be applied to any of the profession groups defined in the good practice collection. The profession groups are:

- Building planning and construction supervision
- Building construction
- Heating, ventilation, air conditioning (HVAC)
- Electric building components

Core element	Key components	Key questions
<b>Purpose of training:</b>	<i>Skill-gaps detected by BUGS software; upcoming deadlines of compulsory European regulations and directives as well as national regulations on energy efficiency in the building sector. Changes in workforce demand, changes in qualification demand</i>	<i>Introduction into framework and framework conditions, information on impacts of framework</i>
<b>Definition of target groups of training:</b>	<i>Curriculum and contents by “profession groups” in the building sector. (Building planning, construction, HVAC etc).</i>	<i>For which profession group will the trainers be trained? Is the training’s target a cross cutting knowlegde for all groups?</i>
<b>Differentiation of skill levels:</b>	<i>Clear definition of training entrance skill level of trainees and training exit skill level</i>	<i>which skill level is targetted? low-intermediate-high, classified also by profession group?</i>
<b>Core components of training:</b>	<i>profession specific and/or cross cutting knowledge</i>	<i>Which curriculum has to be elaborated for target group and skill level training</i>
<b>Chosen didactics for training:</b>	<i>how to communicate contents and skills to trainees</i>	<i>Which didactic models, which soft skills</i>

Table 2: Checklist for profession group pathway

Table 3 is providing the checklist for the actual pathway for upskilling of trainees. On this level, detected skill gaps shall be closed by relevant contents, starting at defined skill levels. The checklist contains the main parameters of the training and its targets according to the curriculum (to be elaborated for the target group).

### Title/Subject of the training path:

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Participants target of the training path:					
Gaps arisen from the BUGS software analysis:					
Goals of the training path:					
Skill-level of target participants:					
Session(s)/Content(s)	H.	Knowledge, Competences and skills to be achieved	Type of Training (e-learning, blended learning, etc.)	N. of Participants	Training Goals
<b>Title of Session 1:</b> .....					
<b>Content(s):</b>					
<b>Title of Session 2:</b> .....					
<b>Content(s):</b>					
<b>Title of Session 3:</b> .....					
<b>Content(s):</b>					
<b>Total Hours</b>	<b>0</b>				

Table 3: Checklist for pathway of trainee upskilling

The complete training pathway for the implementation of the pilot trainings is sketched out in figure 4. The checklists for the pathway definition are designed in a

way, that either existing green skills trainings can be integrated in a general pathway (bottom up) or the whole pathway can be designed from the framework construction down to the actual green skills trainings (top down).

