TrainERGY project

IO Number: 1

Energy Efficient Operations Training Needs Specialization

Skill matrix ENG

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1. Introduction

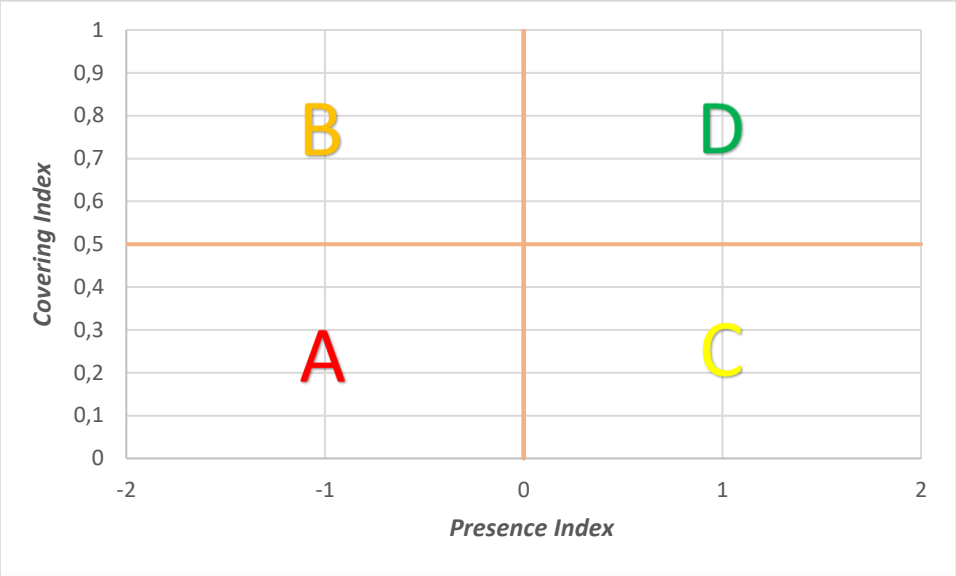
This document provides the final results of the Training Needs Specialization process and the ***Skill Matrix***, which is the core intellectual output of Work Package 2.
The remainder of this work is organized as follows. In section 2, results derived from the application of the methodology designed are presented while section 3 is devoted to the definition of a methodological framework for supporting the curriculum development process. Then, sections 4, 5 and 6 present the results gathered from the Training Sessions organized within the project.

2. Results

In this section, the results obtained from the data analysis are shown in detail per each country of the partners involved in the project.
Referring to the methodology designed within the TNS, we calculated two indices per each skills:

- a ***Covering Index (CI),*** measuring the covering degree of the skills by the actual offer of EEO programs in EU;
- a ***Skill Presence Index (PI)***, measuring the diffusion and possession degree of the skills in SMEs.

In particular, we calculated the ***Skill Presence Index*** as the average of two separate ***Presence Indices*** measuring, respectively, the theoretical and practical knowledge of the respondents concerning the skills.
According to the values assumed by the indices, skills are classified into four categories, as shown in Fig. 1:



Class	Range	Description
A	$CI < 0{,}50 \cap PI < 0$	Slightly covered or not covered skills, not possessed/used at all
B	$CI \geq 0{,}50 \cap PI < 0$	Covered skills, but not possessed/used at all
C	$CI < 0{,}50 \cap PI \geq 0$	Slightly covered or not covered skills, but possessed/used at all
D	$CI \geq 0{,}50 \cap PI \geq 0$	Covered skills, possessed/used at all

Fig. 1 – Skills' classes definition

This classification is useful in order to identify a priority list of possible interventions able to provide a better covering and/or diffusion of the EEO skills. In fact, according to the classification proposed the most critical skills are the ones belonging to area A, while the ones belonging to area D requires less priority actions.

To this aim, we also define a ***Priority Index (PrI)*** in order to identify a set of skills needing the strongest improvement actions per each country.

We will normalize the Skill Presence Index and, then, we will define the ***Priority Index*** of the skill k as the weighted sum of the ***Covering Index (CI)*** and of the ***Normalized Presence Index (NPI)*** calculated per that skill:

$$\boldsymbol{PrI_k = w_1 * CI_k + w_2 * NPI_k}$$

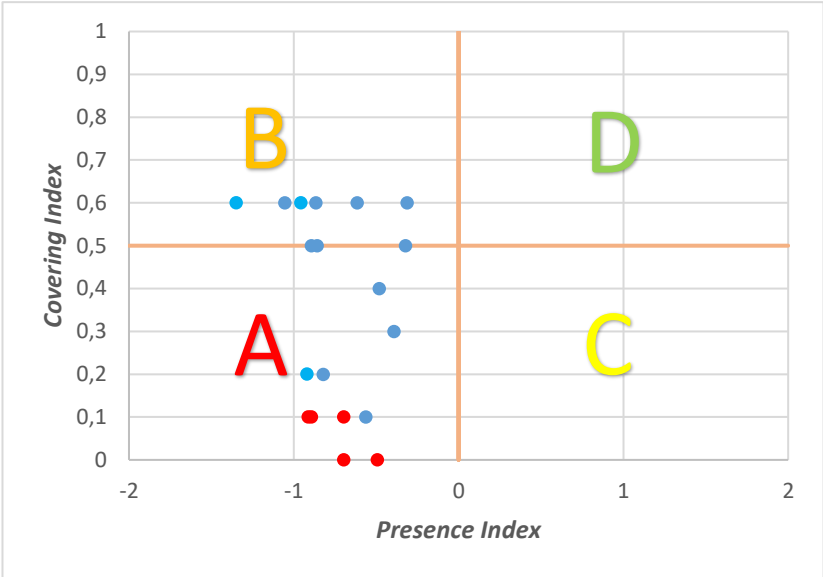
where w_1 and w_2 are the weights associated to the indices ($w_1, w_2 \geq 0$ and $w_1 + w_2 = 1$).

Weights represent the relative importance we give to our objectives (covering and presence of the skills). Therefore, the Priority Index will show the overall score of each skills, according to the importance given to both the objectives defined (we will assume $w_1 = w_2 = 0.5$).

Then, we will classify the skills in ascending order with respect to the Priority Index, identifying the ones presenting the lowest values and requiring a strong intervention.
In the following, we present, per each country, the results got from the data analysis.
Then, these results are aggregated into a single ***Skill Matrix***

2.1 Poland

Skills	CI	PI	Class
A1 Technologies for energy consumption (reducing consumption)	0,500	-0,321	B
A1 Technologies for energy consumption (renewable sources)	0,500	-0,857	B
A2 Technologies for reducing pollution	0,300	-0,393	A
A3 Technologies for reducing consumption raw materials	0,600	-0,313	B
A4 Technologies for reducing waste	0,400	-0,482	A
A5 Tools and DSS for supporting environmental decisions	0,500	-0,893	B
A6 Database management systems	0,600	-1,348	B
B7 Green innovation (new product/services development, eco-design)	0,600	-0,866	B
B8 Green purchasing	0,000	-0,491	A
B9 Green marketing	0,000	-0,696	A
C10 Green internal operations management	0,100	-0,563	A
C11 Green external operations management	0,100	-0,696	A
D12 Environmental regulatory frameworks	0,600	-0,616	B
D13 Environmental certifications	0,200	-0,821	A
D14 Auditing activities	0,100	-0,911	A
D15 Reporting activities	0,200	-0,920	A
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,600	-0,955	B
E17 Measuring EPIs	0,600	-1,054	B
E18 Interventions identification	0,100	-0,893	A



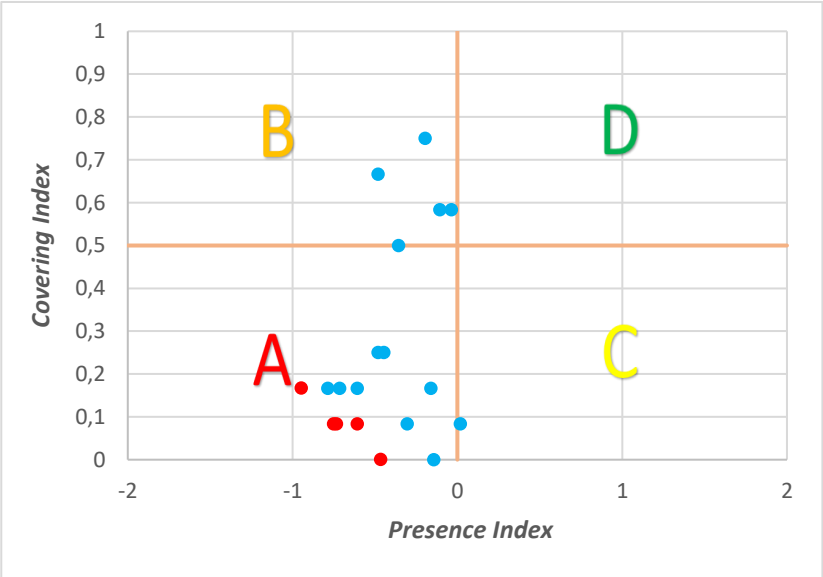
Tab.1 – Poland: Skills Classification

Skills	CI	PI	NPI	PrI
B9 Green marketing	0,000	-0,696	0,326	0,163
D14 Auditing activities	0,100	-0,911	0,272	0,186
E18 Interventions identification	0,100	-0,893	0,277	0,188
B8 Green purchasing	0,000	-0,491	0,377	0,189
C11 Green external operations management	0,100	-0,696	0,326	0,213
C10 Green internal operations management	0,100	-0,563	0,359	0,230
D15 Reporting activities	0,200	-0,920	0,270	0,235
D13 Environmental certifications	0,200	-0,821	0,295	0,247
A2 Technologies for reducing pollution	0,300	-0,393	0,402	0,351
A6 Database management systems	0,600	-1,348	0,163	0,381
A5 Tools and DSS for supporting environmental decisions	0,500	-0,893	0,277	0,388
A4 Technologies for reducing waste	0,400	-0,482	0,379	0,390
A1 Technologies for energy consumption (renewable sources)	0,500	-0,857	0,286	0,393
E17 Measuring EPIs	0,600	-1,054	0,237	0,418
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,600	-0,955	0,261	0,431
B7 Green innovation (new product/services development, eco-design)	0,600	-0,866	0,283	0,442
A1 Technologies for energy consumption (reducing consumption)	0,500	-0,321	0,420	0,460
D12 Environmental regulatory frameworks	0,600	-0,616	0,346	0,473
A3 Technologies for reducing consumption raw materials	0,600	-0,313	0,422	0,511

Tab.2 – Poland: Skills Ranking according to the PrI

2.2 Italy

Skills	CI	PI	Class
A1 Technologies for energy consumption (reducing consumption)	0,583	-0,036	B
A1 Technologies for energy consumption (renewable sources)	0,583	-0,107	B
A2 Technologies for reducing pollution	0,000	-0,143	A
A3 Technologies for reducing consumption raw materials	0,083	-0,304	A
A4 Technologies for reducing waste	0,083	0,018	C
A5 Database management systems	0,167	-0,714	A
A6 Tools and DSS for supporting environmental decisions	0,167	-0,946	A
B7 Green innovation (new product/services development, eco-design)	0,667	-0,482	B
B8 Green purchasing	0,000	-0,464	A
B9 Green marketing	0,250	-0,446	A
C10 Green internal operations management	0,500	-0,357	B
C11 Green external operations management	0,250	-0,482	A
D12 Environmental regulatory frameworks	0,750	-0,196	B
D13 Environmental certifications	0,167	-0,161	A
D14 Auditing activities	0,167	-0,607	A
D15 Reporting activities	0,083	-0,750	A
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,083	-0,607	A
E17 Measuring EPIs	0,167	-0,786	A
E18 Interventions identification	0,083	-0,732	A



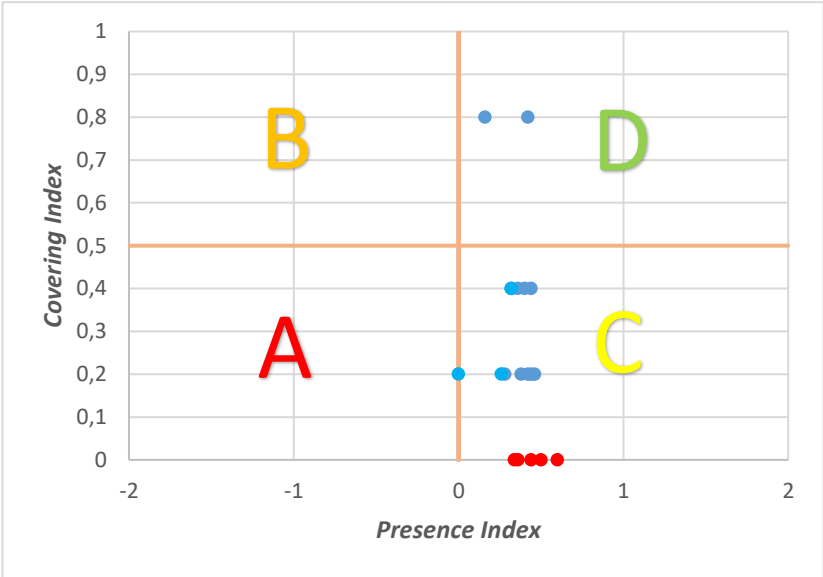
Tab.3 – Italy: Skills Classification

Skills	CI	PI	NPI	PrI
B8 Green purchasing	0,000	-0,036	0,384	0,192
D15 Reporting activities	0,083	-0,107	0,313	0,198
E18 Interventions identification	0,083	-0,143	0,317	0,200
A6 Database management systems	0,167	-0,304	0,263	0,215
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,083	0,018	0,348	0,216
A2 Technologies for reducing pollution	0,000	-0,714	0,464	0,232
E17 Measuring EPIs	0,167	-0,946	0,304	0,235
A5 Tools and DSS for supporting environmental decisions	0,167	-0,482	0,321	0,244
A3 Technologies for reducing consumption raw materials	0,083	-0,464	0,424	0,254
D14 Auditing activities	0,167	-0,446	0,348	0,257
A4 Technologies for reducing waste	0,083	-0,357	0,504	0,294
D13 Environmental certifications	0,167	-0,482	0,460	0,313
C11 Green external operations management	0,250	-0,196	0,379	0,315
B9 Green marketing	0,250	-0,161	0,388	0,319
C10 Green internal operations management	0,500	-0,607	0,411	0,455
B7 Green innovation (new product/services development, eco-design)	0,667	-0,750	0,379	0,523
A1 Technologies for energy consumption (renewable sources)	0,583	-0,607	0,473	0,528
A1 Technologies for energy consumption (reducing consumption)	0,583	-0,786	0,491	0,537
D12 Environmental regulatory frameworks	0,750	-0,732	0,451	0,600

Tab.4 – Italy: Skills Ranking according to the PrI

2.3 Greece

Skills	CI	PI	Class
A1 Technologies for energy consumption (reducing consumption)	0,200	0,420	C
A1 Technologies for energy consumption (renewable sources)	0,200	0,460	C
A2 Technologies for reducing pollution	0,000	0,440	C
A3 Technologies for reducing consumption raw materials	0,000	0,500	C
A4 Technologies for reducing waste	0,200	0,280	C
A5 Tools and DSS for supporting environmental decisions	0,800	0,160	D
A6 Database management systems	0,200	0,000	C
B7 Green innovation (new product/services development, eco-design)	0,400	0,320	C
B8 Green purchasing	0,000	0,600	C
B9 Green marketing	0,000	0,340	C
C10 Green internal operations management	0,400	0,440	C
C11 Green external operations management	0,400	0,400	C
D12 Environmental regulatory frameworks	0,800	0,420	D
D13 Environmental certifications	0,200	0,380	C
D14 Auditing activities	0,200	0,440	C
D15 Reporting activities	0,000	0,360	C
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,400	0,320	C
E17 Measuring EPIs	0,400	0,360	C
E18 Interventions identification	0,200	0,260	C



Tab.5 – Greece: Skills Classification

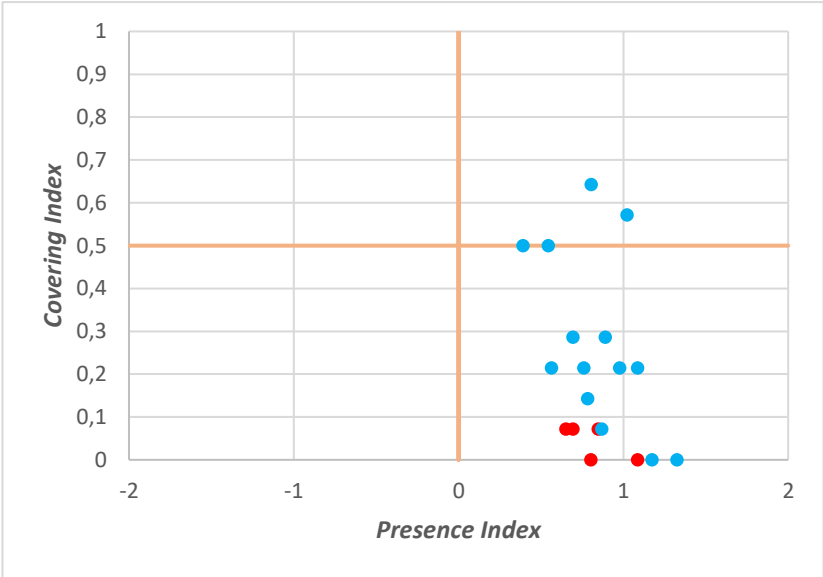
Skills	CI	PI	NPI	PrI
B9 Green marketing	0,000	0,340	0,585	0,293
D15 Reporting activities	0,000	0,360	0,590	0,295
A2 Technologies for reducing pollution	0,000	0,440	0,610	0,305
A3 Technologies for reducing consumption raw materials	0,000	0,500	0,625	0,313
B8 Green purchasing	0,000	0,600	0,650	0,325
A6 Database management systems	0,200	0,000	0,500	0,350
E18 Interventions identification	0,200	0,260	0,565	0,383
A4 Technologies for reducing waste	0,200	0,280	0,570	0,385
D13 Environmental certifications	0,200	0,380	0,595	0,398
A1 Technologies for energy consumption (reducing consumption)	0,200	0,420	0,605	0,403
D14 Auditing activities	0,200	0,440	0,610	0,405
A1 Technologies for energy consumption (renewable sources)	0,200	0,460	0,615	0,408
B7 Green innovation (new product/services development, eco-design)	0,400	0,320	0,580	0,490
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,400	0,320	0,580	0,490
E17 Measuring EPIs	0,400	0,360	0,590	0,495
C11 Green external operations management	0,400	0,400	0,600	0,500
C10 Green internal operations management	0,400	0,440	0,610	0,505
A5 Tools and DSS for supporting environmental decisions	0,800	0,160	0,540	0,670
D12 Environmental regulatory frameworks	0,800	0,420	0,605	0,703

Tab.6 – Greece: Skills Ranking according to the PrI

2.4 UK

Skills	CI	PI	Class
A1 Technologies for energy consumption (reducing consumption)	0,500	0,543	D
A1 Technologies for energy consumption (renewable sources)	0,500	0,391	D
A2 Technologies for reducing pollution	0,286	0,696	C
A3 Technologies for reducing consumption raw materials	0,214	0,565	C
A4 Technologies for reducing waste	0,071	0,652	C
A5 Tools and DSS for supporting environmental decisions	0,143	0,783	C
A6 Database management systems	0,000	1,087	C
B7 Green innovation (new product/services development, eco-design)	0,643	0,804	D
B8 Green purchasing	0,000	0,804	C
B9 Green marketing	0,071	0,696	C
C10 Green internal operations management	0,214	0,978	C
C11 Green external operations management	0,071	0,848	C
D12 Environmental regulatory frameworks	0,571	1,022	D
D13 Environmental certifications	0,000	1,326	C
D14 Auditing activities	0,214	1,087	C
D15 Reporting activities	0,071	0,870	C
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,286	0,891	C
E17 Measuring EPIs	0,214	0,761	C
E18 Interventions identification	0,000	1,174	C

Tab.7 – UK: Skills Classification



Skills	CI	PI	NPI	PrI
B8 Green purchasing	0,000	0,804	0,701	0,351
A4 Technologies for reducing waste	0,071	0,652	0,663	0,367
B9 Green marketing	0,071	0,696	0,674	0,373
A6 Database management systems	0,000	1,087	0,772	0,386
C11 Green external operations management	0,071	0,848	0,712	0,392
D15 Reporting activities	0,071	0,870	0,717	0,394
E18 Interventions identification	0,000	1,174	0,793	0,397
D13 Environmental certifications	0,000	1,326	0,832	0,416
A5 Tools and DSS for supporting environmental decisions	0,143	0,783	0,696	0,419
A3 Technologies for reducing consumption raw materials	0,214	0,565	0,641	0,428
E17 Measuring EPIs	0,214	0,761	0,690	0,452
C10 Green internal operations management	0,214	0,978	0,745	0,479
A2 Technologies for reducing pollution	0,286	0,696	0,674	0,480
D14 Auditing activities	0,214	1,087	0,772	0,493
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,286	0,891	0,723	0,504
A1 Technologies for energy consumption (renewable sources)	0,500	0,391	0,598	0,549
A1 Technologies for energy consumption (reducing consumption)	0,500	0,543	0,636	0,568
D12 Environmental regulatory frameworks	0,571	1,022	0,755	0,663
B7 Green innovation (new product/services development, eco-design)	0,643	0,804	0,701	0,672

Tab.8 – UK: Skills Ranking according to the PrI

2.5 Skill Matrix

In this section, the results gathered from the classification phase are aggregated into one skill matrix.

	Country			
Skills	***Italy***	***Poland***	***Greece***	***UK***
A1 Technologies for energy consumption (reducing consumption)	**B**	**B**	**C**	**D**
A1 Technologies for energy consumption (renewable sources)	**B**	**B**	**C**	**D**
A2 Technologies for reducing pollution	**A**	**A**	**C**	**C**
A3 Technologies for reducing consumption raw materials	**A**	**B**	**C**	**C**
A4 Technologies for reducing waste	**C**	**A**	**C**	**C**
A5 Tools and DSS for supporting environmental decisions	**A**	**B**	**D**	**C**
A6 Database management systems	**A**	**B**	**C**	**C**
B7 Green innovation (new product/services development, eco-design)	**B**	**B**	**C**	**D**
B8 Green purchasing	**A**	**A**	**C**	**C**
B9 Green marketing	**A**	**A**	**C**	**C**
C10 Green internal operations management	**B**	**A**	**C**	**C**
C11 Green external operations management	**A**	**A**	**C**	**C**
D12 Environmental regulatory frameworks	**B**	**B**	**D**	**D**
D13 Environmental certifications	**A**	**A**	**C**	**C**
D14 Auditing activities	**A**	**A**	**C**	**C**
D15 Reporting activities	**A**	**A**	**C**	**C**
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	**A**	**B**	**C**	**C**
E17 Measuring EPIs	**A**	**B**	**C**	**C**
E18 Interventions identification	**A**	**A**	**C**	**C**

Tab. 9 – Final Skill Matrix

3. A methodological framework supporting the curriculum development process

This section is devoted to the presentation of a methodology able to support the curriculum development process, based on the results previously showed.

Indeed, both the skills' classification and ranking has to be intended as the starting point for the organization of three pilot sessions involving a transnational group of trainees during which different modules of the EEO curriculum has to be tested.

The findings coming from the participants will be used to update the Skill Matrix in order to define new topics to be addressed in the next training sessions and to monitor the effects of the EEO Curriculum to be completely designed at the end of the project.

The methodological framework behind the curriculum development is intended as a dynamic and iterative process comprising the following phases:

- **Topics selection:** identification of three topics to be addressed in each training sessions, by matching the skills' priority index and the academic partners' competences;
- **Pre/Post-pilot assessment:** self-evaluation made by trainees regarding their own knowledge on topics addressed during the training session attended;
- **Skill Matrix Updating:** application of the methodology designed for skills' rating and ranking, based on the results of the previous phase.

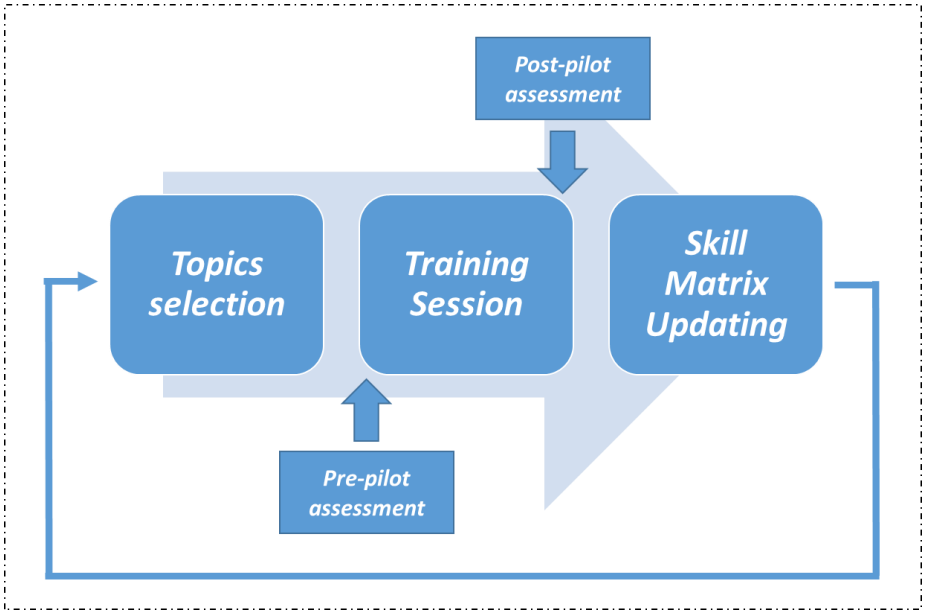


Fig. 2 – Curriculum Development Framework

In the following, those phases are presented in details.

3.1 Topics selection

The three topics to be addressed in each training session has to be selected among the top priority ones identified through the proposed methodology. Considering that the current expertise of the partners could reasonably not match the wide spectrum of topics considered in the analysis, we introduce a ***coverage matrix*** in order to individuate those topics that are better covered by the academic partners of the TrainERGY consortium.

First of all, with respect to all the EEO skills identified every academic partner will assess its "covering ability" by indicating with a value in the following scale range (Tab.10) how much those skills fall within its competence domain.

Value	*Description*
1	I do not cover this topic and I have never taught it in the past
2	I slightly cover this topic but I'd never taught it
3	I cover this topic but I have never taught it
4	I cover this topic and I have taught occasionally it in the past
5	I cover this topic and I teach it on a regular base

Tab. 10 - Covering ability assessment: Scale Range

The results gathered from the above assessment will be used to produce three Coverage Matrices, one per each training sessions. We will indicate with A^k $(k = UK, GR, IT)$ the coverage matrix for the training sessions to be held in country *k*.

The coverage matrix will have the top five priority skills on the rows (in ascendant order with respect to the PrI) and the partners on the columns.

The generic element a_{ij}^k of the Matrix A^k will be the score assigned (i.e. the covering ability) by the partner *j* to skill *i*.

Skills	*UoL*	*TUoS*	*UNINA*	*SEERC*
B8 Green purchasing				
A4 Technologies for reducing waste				
B9 Green marketing				
A6 Database management systems				
C11 Green external operations management				

Tab. 11 – Coverage Matrix for the 1st training session, A^{UK}

The selection of the topics for the training session will be done by scrolling the skills list from the top to the bottom and assigning the topics in order to maximize the Covering Ability of the partners.

This way, it would be possible to address in each training session the topics requiring priority interventions that are effectively covered by the academic partners of the project.

The results of the covering assessment are presented in Table 12.

	SEERC	UoL	TUoS	UNINA
A1 Technologies for energy consumption (reducing consumption)	5	1	1	1
A1 Technologies for energy consumption (renewable sources)	2	1	1	1
A2 Technologies for reducing pollution	4	1	1	1
A3 Technologies for reducing consumption raw materials	5	1	1	1
A4 Technologies for reducing waste	5	1	5	1
A5 Tools and DSS for supporting environmental decisions	5	3	5	3
A6 Database management systems	5	3	1	3
B7 Green innovation (new product/services development, eco-design)	2	4	1	1
B8 Green purchasing	3	5	1	1
B9 Green marketing	1	5	1	1
C10 Green internal operations management	1	4	4	5
C11 Green external operations management	3	4	5	5
D12 Environmental regulatory frameworks	5	5	1	1
D13 Environmental certifications	5	5	1	1
D14 Auditing activities	1	5	1	1
D15 Reporting activities	1	4	1	2
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	4	4	1	5
E17 Measuring EPIs	4	4	1	4
E18 Interventions identification	4	4	1	4

Tab. 12 – Covering Assessment

3.2 Pre/Post - Pilot Assessment

Trainees that will join the training sessions will be asked to fill-in two separate questionnaires, one at the beginning of the training activities and one at the end. The questionnaires will be mainly based on the already developed survey and will be oriented to assess trainees' knowledge about the topics covered in the attended session.

In particular, considering the format of the training sessions and the nature of the teaching activities, the evaluation questionnaires will focus only on the theoretical knowledge possessed by the participants.

3.3 Skill Matrix Updating

The result of both the pre-pilot assessment and post-pilot assessment will be used to calculate the Presence Index (only the one referred to the Theoretical Knowledge) of these skills among the trainees who joined the training session.

This way, it could be possible to define an "improving/worsening rate" of the theoretical knowledge of these topics among the trainees due to the teaching activities delivered in the pilot, given by the difference between the Theoretical Presence Indexes (*TPI*), referred to the pre-pilot and post-pilot assessments. In details, the "improving/worsening rate" of the theoretical knowledge of the skill *k* in country *i*, could be defined as:

$$\Delta_{ik} = TPI_{ik,Post} - TPI_{ik,Pre}$$

Assuming that the same effects could be obtained on every sample of trainees, we will proceed to recalculate the Presence Index of the skill *k*, in country *i*, by the following formula:

$$PI_{ik,Post} = PI_{ik,Pre} + \Delta_{ik}/2$$

The above expression is justified by the fact that, as explained in the designed methodology, the Presence Index is computed as the average of both the Theoretical and Practical dimensions.
Then, we will proceed to produce an updated version of the skills' rating and Skill Matrix. In particular, the updated ranking, based on the new Priority Indexes, will represent the main input to select new topics to be addressed in the next training session.
In the following section, the described methodological framework is applied in the context of the first training session in UK.

4. Application and result: the 1st Training Session in UK

This section presents the results retrieved from the application of the methodological framework proposed in Section 3 to the case of the first training session in UK.

4.1 Topics selection

The selection of the topics to be addressed in the first training session has been performed by realizing a covering matrix matching the top priority skills in UK (see Table 8) and the covering ability declared by each partner in the assessment form, as it is showed in the following Table:

Skills	***UoL***	***TUoS***	***UNINA***	***SEERC***
B8 Green purchasing	**5**	**1**	***1***	**3**
A4 Technologies for reducing waste	**1**	**5**	***1***	**5**
B9 Green marketing	**5**	**1**	***1***	**1**
A6 Database management systems	**3**	**1**	***3***	**5**
C11 Green external operations management	**4**	**5**	***5***	**3**

Tab. 13 – Coverage Matrix for the 1st training session, A^{UK}

Therefore, in order to maximize the global covering degree of all the partners, the following topics have been selected:

B8 Green purchasing, under responsibility of ***UoL***;

A4 Technologies for reducing waste, under responsibility of ***TUoS***;

C11 Green external operation management, under responsibility of ***UNINA***.

4.2 Pre/Post – Pilot Assessment

In the following Table, the results emerged from the Pre-pilot and Post-pilot assessment are reported.

Skills		*UK*	*IT*	*PL*	*GR*
B8 Green purchasing	$TPI_{ik,Pre}$	0,00	-1,06	-0,63	0,1
	$TPI_{ik,Post}$	0,25	0,17	0,50	0,88
	Δ_{ik}	**0,25**	**1,23**	**1,13**	**0,78**
A4 Technologies for reducing waste	$TPI_{ik,Pre}$	-0,67	-1,25	-1,00	-0,60
	$TPI_{ik,Post}$	-0,25	-0,33	0,00	0,13
	Δ_{ik}	**0,42**	**0,922**	**1,00**	**0,73**
C11 Green external operations management	$TPI_{ik,Pre}$	-0,56	-0,81	-0,25	-0,40
	$TPI_{ik,Post}$	0,00	0,00	0,00	0,63
	Δ_{ik}	**0,56**	**0,81**	**0,25**	**1,03**

Tab. 14 – Results from the assessment

As it is showed in the Table, Δ_{ik} are all non-negative values. This seems to confirm that the training activities had positive effects in improving the theoretical knowledge of the trainees.

4.3 Skill Matrix Updating

This section is dedicated to the presentation of the results gathered, in terms of skills rating and ranking, on the basis of the results coming from the assessment.

The following Table shows the updated version of the Skill Matrix. In particular, as regards the topics addressed in the pilot, it is possible to highlight that, making a comparison with the first skills' classification (see Table 9):

- Skill A4 passes from class A to class C in Poland;
- Skill B8 passes from class A to C both in Italy and Poland.
- Skill C11 is still classified as belonging to class A both in Italy and Poland.

	Country			
Skills	**Italy**	**Poland**	**Greece**	**UK**
A1 Technologies for energy consumption (reducing consumption)	B	B	C	D
A1 Technologies for energy consumption (renewable sources)	B	B	C	D
A2 Technologies for reducing pollution	A	A	C	C
A3 Technologies for reducing consumption raw materials	A	B	C	C
A4 Technologies for reducing waste	C	C	C	C
A5 Tools and DSS for supporting environmental decisions	A	B	D	C
A6 Database management systems	A	B	C	C
B7 Green innovation (new product/services development, eco-design)	B	B	C	D
B8 Green purchasing	C	C	C	C
B9 Green marketing	A	A	C	C
C10 Green internal operations management	B	A	C	C
C11 Green external operations management	A	A	C	C
D12 Environmental regulatory frameworks	B	B	D	D
D13 Environmental certifications	A	A	C	C
D14 Auditing activities	A	A	C	C
D15 Reporting activities	A	A	C	C
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	A	B	C	C
E17 Measuring EPIs	A	B	C	C
E18 Interventions identification	A	A	C	C

Table 15 – Skill Matrix: Updated version

Furthermore, we also present the new skills' rankings per country, obtained by recalculating the Priority Indexes (*PrI*).

4.3.1 Poland

Skills	Covering Index	Normalized PI	PrI
B9 Green marketing	0,000	0,326	0,163
D14 Auditing activities	0,100	0,272	0,186
E18 Interventions identification	0,100	0,277	0,188
C11 Green external operations management	0,100	0,357	0,229
C10 Green internal operations management	0,100	0,359	0,230
D15 Reporting activities	0,200	0,270	0,235
D13 Environmental certifications	0,200	0,295	0,247
B8 Green purchasing	0,000	0,518	0,259
A2 Technologies for reducing pollution	0,300	0,402	0,351
A6 Database management systems	0,600	0,163	0,381
A5 Tools and DSS for supporting environmental decisions	0,500	0,277	0,388
A1 Technologies for energy consumption (renewable sources)	0,500	0,286	0,393
E17 Measuring EPIs	0,600	0,237	0,418
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,600	0,261	0,431
B7 Green innovation (new product/services development, eco-design)	0,600	0,283	0,442
A4 Technologies for reducing waste	0,400	0,504	0,452
A1 Technologies for energy consumption (reducing consumption)	0,500	0,420	0,460
D12 Environmental regulatory frameworks	0,600	0,346	0,473
A3 Technologies for reducing consumption raw materials	0,600	0,422	0,511

Table 16 – PL: updated Skills' ranking

4.3.2. Italy

Skills	Covering Index	Normalized PI	PrI
D15 Reporting activities	0,083	0,313	0,198
E18 Interventions identification	0,083	0,317	0,200
A6 Database management systems	0,167	0,263	0,215
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,083	0,348	0,216
A2 Technologies for reducing pollution	0,000	0,464	0,232
E17 Measuring EPIs	0,167	0,304	0,235
A5 Tools and DSS for supporting environmental decisions	0,167	0,321	0,244
A3 Technologies for reducing consumption raw materials	0,083	0,424	0,254
D14 Auditing activities	0,167	0,348	0,257
B8 Green purchasing	0,000	0,538	0,269
D13 Environmental certifications	0,167	0,460	0,313
B9 Green marketing	0,250	0,388	0,319
A4 Technologies for reducing waste	0,083	0,619	0,351
C11 Green external operations management	0,250	0,481	0,366
C10 Green internal operations management	0,500	0,411	0,455
B7 Green innovation (new product/services development, eco-design)	0,667	0,379	0,523
A1 Technologies for energy consumption (renewable sources)	0,583	0,473	0,528
A1 Technologies for energy consumption (reducing consumption)	0,583	0,491	0,537
D12 Environmental regulatory frameworks	0,750	0,451	0,600

Table 17 – IT: updated Skills' ranking

4.3.3. Greece

Skills	Covering Index	Normalized PI	PrI
B9 Green marketing	0,000	0,585	0,293
D15 Reporting activities	0,000	0,590	0,295
A2 Technologies for reducing pollution	0,000	0,610	0,305
A3 Technologies for reducing consumption raw materials	0,000	0,625	0,313
A6 Database management systems	0,200	0,500	0,350
B8 Green purchasing	0,000	0,747	0,373
E18 Interventions identification	0,200	0,565	0,383
D13 Environmental certifications	0,200	0,595	0,398
A1 Technologies for energy consumption (reducing consumption)	0,200	0,605	0,403
D14 Auditing activities	0,200	0,610	0,405
A1 Technologies for energy consumption (renewable sources)	0,200	0,615	0,408
A4 Technologies for reducing waste	0,200	0,661	0,430
B7 Green innovation (new product/services development, eco-design)	0,400	0,580	0,490
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,400	0,580	0,490
E17 Measuring EPIs	0,400	0,590	0,495
C10 Green internal operations management	0,400	0,610	0,505
C11 Green external operations management	0,400	0,728	0,564
A5 Tools and DSS for supporting environmental decisions	0,800	0,540	0,670
D12 Environmental regulatory frameworks	0,800	0,605	0,703

Table 18 – GR: updated Skills' ranking

4.3.4 UK

Skills	Covering Index	Normalized PI	PrI
B8 Green purchasing	0,000	0,732	0,366
B9 Green marketing	0,071	0,674	0,373
A6 Database management systems	0,000	0,772	0,386
A4 Technologies for reducing waste	0,071	0,715	0,393
D15 Reporting activities	0,071	0,717	0,394
E18 Interventions identification	0,000	0,793	0,397
D13 Environmental certifications	0,000	0,832	0,416
A5 Tools and DSS for supporting environmental decisions	0,143	0,696	0,419
C11 Green external operations management	0,071	0,781	0,426
A3 Technologies for reducing consumption raw materials	0,214	0,641	0,428
E17 Measuring EPIs	0,214	0,690	0,452
C10 Green internal operations management	0,214	0,745	0,479
A2 Technologies for reducing pollution	0,286	0,674	0,480
D14 Auditing activities	0,214	0,772	0,493
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,286	0,723	0,504
A1 Technologies for energy consumption (renewable sources)	0,500	0,598	0,549
A1 Technologies for energy consumption (reducing consumption)	0,500	0,636	0,568
D12 Environmental regulatory frameworks	0,571	0,755	0,663
B7 Green innovation (new product/services development, eco-design)	0,643	0,701	0,672

Table 19 – UK: updated Skills' ranking

5. Application and result: the 2nd Training Session in Italy

In this section we present the result retrieved from the application of the methodological framework for organizing the second training session in Italy. This time, all the elaborations are built on the basis of the data presented in section 4.

5.1 Topics selection

The selection of the topics to be addressed in the second training session has been performed by realizing a covering matrix matching the updated list of top priority skills in Italy (see Table 17) and the covering ability declared by each partner in the assessment form, as it is showed in the following Table:

Skills	*UoL*	*TUoS*	*UNINA*	*SEERC*
D15 Reporting activities	4	1	2	1
E18 Interventions identification	4	1	4	4
A6 Database management systems	3	1	3	5
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	4	1	5	4
A2 Technologies for reducing pollution	1	1	1	4

Tab. 20 – Coverage Matrix for the 2st training session, A^{IT}

Therefore, in order to maximize the global covering degree of all the partners, the following topics have been selected:

D15 Reporting activities, under responsibility of ***UoL***;

A6 Database management systems, under responsibility of ***SEERC***;

E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs), under responsibility of ***UNINA***.

5.2 Pre/Post – Pilot Assessment

In the following Table, the results emerged from the Pre-pilot and Post-pilot assessment are reported.

Skills		***UK***	***IT***	***PL***	***GR***
A6 Database management systems	$TPI_{ik,Pre}$	1,09	-0,30	-1,34	0
	$TPI_{ik,Post}$	1,10	0,25	0,80	1,1
	Δ_{ik}	**0,01**	**0,55**	**2,15**	**1,1**
D15 Reporting activities	$TPI_{ik,Pre}$	0,87	-0,11	-0,92	0,36
	$TPI_{ik,Post}$	0,9	0,92	0,70	1,3
	Δ_{ik}	**0,03**	**1,02**	**1,62**	**0,94**
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	$TPI_{ik,Pre}$	0,89	-0,02	-0,96	0,32
	$TPI_{ik,Post}$	1,20	1,17	1	1,1
	Δ_{ik}	**0,31**	**1,15**	**1,96**	**0,78**

Tab. 21 – Results from the assessment

As it is showed in the Table, Δ_{ik} are all non-negative values. This seems to confirm that the training activities had positive effects in improving the theoretical knowledge of the trainees.

5.3 Skill Matrix Updating

This section is dedicated to the presentation of the results gathered, in terms of skills rating and ranking, on the basis of the results coming from the assessment.

The following Table shows the updated version of the Skill Matrix. In particular, as regards the topics addressed in the pilot, it is possible to underline that, making a comparison with the skill matrix coming from the first training session in UK (see Table 15) skill E16 passes from class B to class D in Poland.

Skills	Italy	Poland	Greece	UK
A1 Technologies for energy consumption (reducing consumption)	B	B	C	D
A1 Technologies for energy consumption (renewable sources)	B	B	C	D
A2 Technologies for reducing pollution	A	A	C	C
A3 Technologies for reducing consumption raw materials	A	B	C	C
A4 Technologies for reducing waste	C	C	C	C
A5 Tools and DSS for supporting environmental decisions	A	B	D	C
A6 Database management systems	A	B	C	C
B7 Green innovation (new product/services development, eco-design)	B	B	C	D
B8 Green purchasing	C	C	C	C
B9 Green marketing	A	A	C	C
C10 Green internal operations management	B	A	C	C
C11 Green external operations management	A	A	C	C
D12 Environmental regulatory frameworks	B	B	D	D
D13 Environmental certifications	A	A	C	C
D14 Auditing activities	A	A	C	C
D15 Reporting activities	A	A	C	C
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	A	D	C	C
E17 Measuring EPIs	A	B	C	C
E18 Interventions identification	A	A	C	C

Table 22 – Skill Matrix: Updated version (after the 2nd training session)

Furthermore, iterating the entire methodology already described, we also present the new skills' rankings per country, obtained by recalculating the Priority Indexes (*PrI*).

5.3.1 Poland

Skills	Covering Index	Normalized PI	PrI
B9 Green marketing	0,000	0,326	0,163
D14 Auditing activities	0,100	0,272	0,186
E18 Interventions identification	0,100	0,277	0,188
C11 Green external operations management	0,100	0,357	0,229
C10 Green internal operations management	0,100	0,359	0,230
D13 Environmental certifications	0,200	0,295	0,247
B8 Green purchasing	0,000	0,518	0,259
D15 Reporting activities	0,200	0,473	0,336
A2 Technologies for reducing pollution	0,300	0,402	0,351
A5 Tools and DSS for supporting environmental decisions	0,500	0,277	0,388
A1 Technologies for energy consumption (renewable sources)	0,500	0,286	0,393
E17 Measuring EPIs	0,600	0,237	0,418
B7 Green innovation (new product/services development, eco-design)	0,600	0,283	0,442
A4 Technologies for reducing waste	0,400	0,504	0,452
A1 Technologies for energy consumption (reducing consumption)	0,500	0,420	0,460
D12 Environmental regulatory frameworks	0,600	0,346	0,473
A3 Technologies for reducing consumption raw materials	0,600	0,422	0,511
A6 Database management systems	0,600	0,431	0,516
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,600	0,506	0,553

Table 23 – PL: updated Skills' ranking

5.3.2. Italy

Skills	Covering Index	Normalized PI	PrI
E18 Interventions identification	0,083	0,317	0,200
A2 Technologies for reducing pollution	0,000	0,464	0,232
E17 Measuring EPIs	0,167	0,304	0,235
A5 Tools and DSS for supporting environmental decisions	0,167	0,321	0,244
A6 Database management systems	0,167	0,333	0,250
A3 Technologies for reducing consumption raw materials	0,083	0,424	0,254
D14 Auditing activities	0,167	0,348	0,257
D15 Reporting activities	0,083	0,440	0,262
B8 Green purchasing	0,000	0,538	0,269
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,083	0,492	0,288
D13 Environmental certifications	0,167	0,460	0,313
B9 Green marketing	0,250	0,388	0,319
A4 Technologies for reducing waste	0,083	0,619	0,351
C11 Green external operations management	0,250	0,481	0,366
C10 Green internal operations management	0,500	0,411	0,455
B7 Green innovation (new product/services development, eco-design)	0,667	0,379	0,523
A1 Technologies for energy consumption (renewable sources)	0,583	0,473	0,528
A1 Technologies for energy consumption (reducing consumption)	0,583	0,491	0,537
D12 Environmental regulatory frameworks	0,750	0,451	0,600

Table 24 – IT: updated Skills' ranking

5.3.3. Greece

Skills	Covering Index	Normalized PI	PrI
B9 Green marketing	0,000	0,585	0,293
A2 Technologies for reducing pollution	0,000	0,610	0,305
A3 Technologies for reducing consumption raw materials	0,000	0,625	0,313
D15 Reporting activities	0,000	0,708	0,354
B8 Green purchasing	0,000	0,747	0,373
E18 Interventions identification	0,200	0,565	0,383
D13 Environmental certifications	0,200	0,595	0,398
A1 Technologies for energy consumption (reducing consumption)	0,200	0,605	0,403
D14 Auditing activities	0,200	0,610	0,405
A1 Technologies for energy consumption (renewable sources)	0,200	0,615	0,408
A6 Database management systems	0,200	0,638	0,419
A4 Technologies for reducing waste	0,200	0,661	0,430
B7 Green innovation (new product/services development, eco-design)	0,400	0,580	0,490
E17 Measuring EPIs	0,400	0,590	0,495
C10 Green internal operations management	0,400	0,610	0,505
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,400	0,678	0,539
C11 Green external operations management	0,400	0,728	0,564
A5 Tools and DSS for supporting environmental decisions	0,800	0,540	0,670
D12 Environmental regulatory frameworks	0,800	0,605	0,703

Table 25 – GR: updated Skills' ranking

5.3.4. UK

Skills	Covering Index	Normalized PI	PrI
B8 Green purchasing	0,000	0,732	0,366
B9 Green marketing	0,071	0,674	0,373
A6 Database management systems	0,000	0,773	0,387
A4 Technologies for reducing waste	0,071	0,715	0,393
D15 Reporting activities	0,071	0,721	0,396
E18 Interventions identification	0,000	0,793	0,397
D13 Environmental certifications	0,000	0,832	0,416
A5 Tools and DSS for supporting environmental decisions	0,143	0,696	0,419
C11 Green external operations management	0,071	0,781	0,426
A3 Technologies for reducing consumption raw materials	0,214	0,641	0,428
E17 Measuring EPIs	0,214	0,690	0,452
C10 Green internal operations management	0,214	0,745	0,479
A2 Technologies for reducing pollution	0,286	0,674	0,480
D14 Auditing activities	0,214	0,772	0,493
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0,286	0,761	0,524
A1 Technologies for energy consumption (renewable sources)	0,500	0,598	0,549
A1 Technologies for energy consumption (reducing consumption)	0,500	0,636	0,568
D12 Environmental regulatory frameworks	0,571	0,755	0,663
B7 Green innovation (new product/services development, eco-design)	0,643	0,701	0,672

Table 26 – UK: updated Skills' ranking

6. Application and result: the 3rd Training Session in Greece

In this section we present the result retrieved from the application of the methodological framework for organizing the second training session in Greece. This time, all the elaborations are built on the basis of the data presented in section 5.

6.1 Topics selection

The selection of the topics to be addressed in the second training session has been performed by realizing a covering matrix matching the updated list of top priority skills in Greece (see Table 25) and the covering ability declared by each partner in the assessment form, as it is showed in the following Table:

Skills	*UoL*	*TUoS*	*UNINA*	*SEERC*
B9 Green marketing	1	5	1	1
A2 Technologies for reducing pollution	4	1	1	1
A3 Technologies for reducing consumption raw materials	5	1	1	1
D15 Reporting activities	1	4	1	2
B8 Green purchasing	3	5	1	1
E18 Interventions identification	4	4	1	4

Tab. 27 – Coverage Matrix for the 2st training session, A^{GR}

Therefore, considered the topics already treated in the previous training sessions and in order to maximize the global covering degree of all the partners, the following topics have been selected:

B9 Green Marketing, under responsibility of ***UoL***;

A3 Technologies for reducing consumption raw materials, under responsibility of ***SEERC***;

E18 Interventions identification, under responsibility of ***UNINA***.

6.2 Pre/Post - Pilot Assessment

In the following Table, the results emerged from the Pre-pilot and Post-pilot assessment are reported.

Skills		***UK***	***IT***	***PL***	***GR***
A3 Technologies for reducing consumption of raw materials	$TPI_{ik,Pre}$	0,56	-0,30	-0,31	0,50
	$TPI_{ik,Post}$	0,66	1,00	1,00	1,15
	Δ_{ik}	**0,10**	**1,30**	**1,31**	**1,00**
B9 Green Marketing	$TPI_{ik,Pre}$	0,70	-0,45	-0,70	0,34
	$TPI_{ik,Post}$	0,70	0,85	1,22	1,17
	Δ_{ik}	**0,00**	**1,30**	**1,92**	**0,83**
E18 Interventions Identification	$TPI_{ik,Pre}$	1,17	-0,73	-0,89	0,26
	$TPI_{ik,Post}$	1,20	1,00	1,11	1,00
	Δ_{ik}	**0,03**	**1,73**	**2,00**	**0,74**

Tab. 28 – Results from the assessment

As it is showed in the Table, Δ_{ik} are all non-negative values. This seems to confirm that the training activities had positive effects in improving the theoretical knowledge of the trainees.

6.3 Skill Matrix Updating

This section is dedicated to the presentation of the results gathered, in terms of skills rating and ranking, on the basis of the results coming from the assessment.

The following Table shows the updated version of the Skill Matrix. In particular, as regards the topics addressed in the pilot, it is possible to underline that, making a comparison with the skill matrix coming from the second training session in Italy (see Table 22) skill A3 passes from class B to class D in Poland and from A to C in Italy. Skills B9 and E18 now both belong to class C both in Italy and Poland.

Skills	Italy	Poland	Greece	UK
A1 Technologies for energy consumption (reducing consumption)	B	B	C	D
A1 Technologies for energy consumption (renewable sources)	B	B	C	D
A2 Technologies for reducing pollution	A	A	C	C
A3 Technologies for reducing consumption raw materials	C	D	C	C
A4 Technologies for reducing waste	C	C	C	C
A5 Tools and DSS for supporting environmental decisions	A	B	D	C
A6 Database management systems	A	B	C	C
B7 Green innovation (new product/services development, eco-design)	B	B	C	D
B8 Green purchasing	C	C	C	C
B9 Green marketing	C	C	C	C
C10 Green internal operations management	B	A	C	C
C11 Green external operations management	A	A	C	C
D12 Environmental regulatory frameworks	B	B	D	D
D13 Environmental certifications	A	A	C	C
D14 Auditing activities	A	A	C	C
D15 Reporting activities	A	A	C	C
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	A	D	C	C
E17 Measuring EPIs	A	B	C	C
E18 Interventions identification	C	C	C	C

Table 29 – Skill Matrix: Updated version (after the 3rd training session)

Furthermore, iterating the entire methodology already described, we also present the new skills' rankings per country, obtained by recalculating the Priority Indexes (*PrI*).

6.3.1. Poland

Skills	Covering Index	Normalized PI	PrI
D14 Auditing activities	0.100	0.272	0.186
C11 Green external operations management	0.100	0.357	0.229
C10 Green internal operations management	0.100	0.359	0.230
D13 Environmental certifications	0.200	0.295	0.247
B8 Green purchasing	0.000	0.518	0.259
B9 Green marketing	0.000	0.566	0.283
E18 Interventions identification	0.100	0.527	0.314
D15 Reporting activities	0.200	0.473	0.336
A2 Technologies for reducing pollution	0.300	0.402	0.351
A5 Tools and DSS for supporting environmental decisions	0.500	0.277	0.388
A1 Technologies for energy consumption (renewable sources)	0.500	0.286	0.393
E17 Measuring EPIs	0.600	0.237	0.418
B7 Green innovation (new product/services development, eco-design)	0.600	0.283	0.442
A4 Technologies for reducing waste	0.400	0.504	0.452
A1 Technologies for energy consumption (reducing consumption)	0.500	0.420	0.460
D12 Environmental regulatory frameworks	0.600	0.346	0.473
A6 Database management systems	0.600	0.431	0.516
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0.600	0.506	0.553
A3 Technologies for reducing consumption raw materials	0.600	0.586	0.593

Table 30 – Poland: updated Skills' ranking

6.3.2. Italy

Skills	Covering Index	Normalized PI	PrI
A2 Technologies for reducing pollution	0.000	0.464	0.232
E17 Measuring EPIs	0.167	0.304	0.235
A5 Tools and DSS for supporting environmental decisions	0.167	0.321	0.244
A6 Database management systems	0.167	0.333	0.250
D14 Auditing activities	0.167	0.348	0.257
D15 Reporting activities	0.083	0.440	0.262
B8 Green purchasing	0.000	0.538	0.269
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0.083	0.492	0.288
E18 Interventions identification	0.083	0.533	0.308
D13 Environmental certifications	0.167	0.460	0.313
A3 Technologies for reducing consumption raw materials	0.083	0.587	0.335
A4 Technologies for reducing waste	0.083	0.619	0.351
C11 Green external operations management	0.250	0.481	0.366
B9 Green marketing	0.250	0.550	0.400
C10 Green internal operations management	0.500	0.411	0.455
B7 Green innovation (new product/services development, eco-design)	0.667	0.379	0.523
A1 Technologies for energy consumption (renewable sources)	0.583	0.473	0.528
A1 Technologies for energy consumption (reducing consumption)	0.583	0.491	0.537
D12 Environmental regulatory frameworks	0.750	0.451	0.600

Table 31 – IT: updated Skills' ranking

6.3.3. Greece

Skills	Covering Index	Normalized PI	PrI
A2 Technologies for reducing pollution	0.000	0.610	0.305
B9 Green marketing	0.000	0.688	0.344
D15 Reporting activities	0.000	0.708	0.354
B8 Green purchasing	0.000	0.747	0.373
A3 Technologies for reducing consumption raw materials	0.000	0.750	0.375
D13 Environmental certifications	0.200	0.595	0.398
A1 Technologies for energy consumption (reducing consumption)	0.200	0.605	0.403
D14 Auditing activities	0.200	0.610	0.405
A1 Technologies for energy consumption (renewable sources)	0.200	0.615	0.408
A6 Database management systems	0.200	0.638	0.419
E18 Interventions identification	0.200	0.658	0.429
A4 Technologies for reducing waste	0.200	0.661	0.430
B7 Green innovation (new product/services development, eco-design)	0.400	0.580	0.490
E17 Measuring EPIs	0.400	0.590	0.495
C10 Green internal operations management	0.400	0.610	0.505
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0.400	0.678	0.539
C11 Green external operations management	0.400	0.728	0.564
A5 Tools and DSS for supporting environmental decisions	0.800	0.540	0.670
D12 Environmental regulatory frameworks	0.800	0.605	0.703

Table 32 – GR: updated Skills' ranking

6.3.4. UK

Skills	Covering Index	Normalized PI	PrI
B8 Green purchasing	0.000	0.732	0.366
B9 Green marketing	0.071	0.674	0.373
A6 Database management systems	0.000	0.773	0.387
A4 Technologies for reducing waste	0.071	0.715	0.393
D15 Reporting activities	0.071	0.721	0.396
E18 Interventions identification	0.000	0.793	0.397
D13 Environmental certifications	0.000	0.832	0.416
A5 Tools and DSS for supporting environmental decisions	0.143	0.696	0.419
C11 Green external operations management	0.071	0.781	0.426
A3 Technologies for reducing consumption raw materials	0.214	0.654	0.434
E17 Measuring EPIs	0.214	0.690	0.452
C10 Green internal operations management	0.214	0.745	0.479
A2 Technologies for reducing pollution	0.286	0.674	0.480
D14 Auditing activities	0.214	0.772	0.493
E16 Definition of Environmental objectives and Environmental Performance Indicators (EPIs)	0.286	0.761	0.524
A1 Technologies for energy consumption (renewable sources)	0.500	0.598	0.549
A1 Technologies for energy consumption (reducing consumption)	0.500	0.636	0.568
D12 Environmental regulatory frameworks	0.571	0.755	0.663
B7 Green innovation (new product/services development, eco-design)	0.643	0.701	0.672

Table 33 – UK: updated Skills' ranking