

Entwicklungsprojekt **1.5.308**

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## **EURIAC – European Class in Industrial Automation**

Abschlussbericht

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### Abstract

Das Projekt EURIAC wurde im Rahmen des Europäischen Programms für Lebenslanges Lernen als Innovationstransfer-Projekt über die schwedische Nationale Agentur gefördert. Es war das erste schwedische Projekt, das sich im Schwerpunkt mit der Anwendung von ECVET zu Mobilitätszwecken beschäftigt hat.

Ziel des Projektes war der Aufbau einer „europäischen Klasse“ im Bereich Mechatronik, d.h. eines Verbundes von beruflichen Schulen, die Schüler/Auszubildende zur Absolvierung von Ausbildungsinhalten an die Partnereinrichtungen entsenden. Im Ergebnis des Projektes wurden vier Lernergebniseinheiten konstruiert, die in jeweils zweiwöchigen Mobilitätsmaßnahmen erprobt wurden. Jeder der beteiligten Praxispartner war für die Durchführung einer Lernergebniseinheit zuständig. An den Lernergebniseinheiten nahmen zur gleichen Zeit Lernende aus allen beteiligten Partnereinrichtungen teil. Die Lernergebniseinheiten wurden vor Ort überprüft und als Teil der Ausbildung im Heimatland anerkannt.

Das BIBB hat am Projekt in beratender Funktion mitgearbeitet und war für die Durchführung des Arbeitspaketes „Qualitätssicherung / kooperative Evaluation“ zuständig. Der vorliegende Abschlussbericht nimmt die Perspektive der Begleitung und Evaluation ein; im Anhang findet sich der komplette Evaluationsbericht des BIBB.

## 1 Ausgangslage/Problemdarstellung

### 1.1 Das Projekt

Das Projekt EURIAC war darauf ausgerichtet, Informationen und Erkenntnisse zu liefern, die sich als relevant für den Umsetzungsprozess der ECVET-Empfehlung des Europäischen Parlaments und des Rates vom 18.09.2009 zur Einrichtung eines Europäischen Leistungspunktesystems (ECVET) erweisen. Diese Informationen und Erkenntnisse sollten speziell für den Bereich der industriellen Automation gewonnen werden.

### **1.1.1 Rahmendaten des Projektes**

EURIAC wurde als „Innovationstransfer-Projekt“ im Programm Lebenslanges Lernen der Europäischen Kommission gefördert. Es wurde in Schweden beantragt; die Konsortialführung übernahm die Gemeinde Kungsbacka in Zusammenarbeit mit dem Elov-Lyndälv-Gymnasium, einer berufsbildenden Schule.

Förderzeitraum: Oktober 2011 – September 2013.

Projektpartner waren:

- Gemeinde Kungsbacka, Schweden
- Elov-Lindälv-Gymnasium Kungsbacka, Schweden
- Die Schwedische Instandhaltungsgesellschaft UTEK
- Wear Management, Schweiz
- Optima Samkomun, Finnland
- Politeknika Ikastegia Txorierrri, Spanien
- ROC West Brabant, Niederlande
- Bundesinstitut für Berufsbildung, Deutschland

### **1.1.2 Rolle und Auftrag des BIBB im Projekt**

Das BIBB wurde vom schwedischen Antragsteller um seine Mitarbeit angefragt. Eine Befassung mit der Projektidee seitens des BIBB erfolgte vor dem Hintergrund, dass das Projekt es ermöglichen würde, „Monitoring und Benchmarking“ von europäischer Bildungspolitik (hier konkret ECVET) zu betreiben und damit den Arbeitsauftrag von 1.1 weiter zu konkretisieren und fortzuführen. Zwei Aspekte waren hierbei von besonderem Interesse:

- Die Partnerschaft bestand aus Ländern, die sich bisher wenig mit ECVET beschäftigt haben (Schweden, Niederlande, Spanien, Schweiz) sowie mit Finnland, das (ebenso wie Deutschland) eine nationale Initiative an ECVET geknüpft hat. Insofern versprach die Partnerschaft **neue Erkenntnisse im Hinblick auf die Nutzung und Einführung von ECVET in den beteiligten Ländern.**
- Die Mitarbeit im Projekt sicherte dem BIBB einen Einblick in die ECVET-Befassung gerade auch der skandinavischen Länder. Dies ist aus deutscher Perspektive von großem Interesse, da die Berufsbildung dieser Länder sich, ebenso wie Deutschland, durch einen **hohen Grad an Sozialpartnerschaft** auszeichnet.

Die Aufgabe des BIBB bestand darin, das Projekt zu begleiten, die Mobilitäten zu evaluieren und die Arbeit mit dem europäischen ECVET-Instrumentarium zu unterstützen und zu reflektieren.

## **2 Projektziele**

Ziel des Projektes war die Etablierung eines europäischen Rahmens für die Automationstechnik, der Mobilität, Personalentwicklung und Beschäftigungsfähigkeit von Lernenden unterstützen und auf den ECVET-Prinzipien (Lernergebnisse, Units, Assessment, Credits, Validierung, Instruments) aufbauen sollte. Auslandsaufenthalte zur Erprobung des Konzeptes waren für die Länder Schweden, Finnland, Spanien und die Niederlande vorgesehen. Eine Verankerung der Projektergebnisse sollte durch die Einbeziehung von Partnern aus der Industrie (Branchenorganisationen), der (lokalen) Verwaltung und durch die schulischen Lernorte hergestellt werden.

Die Projektziele bestanden darin, die technischen Spezifikationen des europäischen Instrumentes ECVET für einen ausgewählten Bereich der beruflichen Bildung anzuwenden und zu erproben. Dem Aufruf der Kommission folgend wurden diese Ziele im Projekt EURIAC wie folgt umgesetzt:

- a. Lernergebnisse, die in den unterschiedlichen nationalen Qualifikationen im Bereich der industriellen Automatisierung enthalten sind, wurden beschrieben.
- b. Vier Lernergebniseinheiten wurden bestimmt.
- c. Verfahren zur Überprüfung von Lernergebnissen, Vorschläge für die Validierung und Anrechnung von Lernergebnissen wurden entwickelt
- d. Methoden zur Ermittlung und Zuordnung von Leistungspunkten unter Berücksichtigung der unterschiedlichen Gewichtung in verschiedenen Kontexten einschließlich Erprobung an den ausgewählten Qualifikationen wurden diskutiert (und für den jetzigen Zeitpunkt verworfen),
- e. Mobilitätsphasen für Lernende im Verbund wurden geplant, durchgeführt, nachbereitet und im Hinblick auf eine nachhaltige Nutzung von ECVET analysiert.

### 3 Methodische Vorgehensweise

Das Arbeitspaket „Qualitätssicherung, kooperative Evaluation“, für dessen Umsetzung das BIBB zuständig war, umfasste ein kontinuierliches Monitoring des Projektverlaufs, die Evaluation der Mobilitäten und beratende Aufgaben im Zusammenhang mit ECVET. Alle diese Aufgaben wurden in enger Zusammenarbeit mit den Projektpartnern wahrgenommen. Im Mittelpunkt der Betrachtung standen drei Ebenen:

- 1) Der Arbeitsprozess
- 2) Die vier Mobilitätsmaßnahmen (Vorbereitung, Durchführung, Nachbereitung) und
- 3) Die ECVET-Anwendung innerhalb der Partnerschaft

Zur Bearbeitung dieser drei Ebenen wurden mehrere Instrumente in die Projektumsetzung einbezogen (siehe hierzu mehr in der Evaluation im Anhang dieses Berichtes):

Zielorientierte Projektplanungsvorlagen, Bewertungsbögen für Projekttreffen und regelmäßige Interviews mit den Verantwortlichen der Arbeitspakete wurden eingesetzt, um sowohl den Projektfortschritt, als auch die Auseinandersetzung mit dem ECVET-Konzept zu dokumentieren und zu reflektieren. Der Arbeitsprozess wurde darüber hinaus durch die Entwicklung und Strukturierung von Übersichten („Den Kontext des Anderen kennenlernen“: ECVET Map) und Vorlagen (Feedback-Bögen Units of Learning Outcomes) unterstützt. Die Mobilitäten wurden anhand von Fragebögen für die Auszubildenden und Fragbögen für die aufnehmende Institution evaluiert. Sie wurden von Leitfragen für eine Gruppendiskussion von Lehrkräften und Auszubildenden (nach Rückkehr aus dem Ausland) und einem moderierten Gespräch mit allen Lehrkräften aus den beteiligten Ländern flankiert. Möglichkeiten, Grenzen, Schwierigkeiten und Optionen der ECVET-Anwendung wurden aus den Interviews mit den Projektverantwortlichen, als auch aus den Äußerungen, die bei den Projekttreffen dokumentiert wurden, zusammengefasst und analysiert.

EURIAC Rückmeldebogen				
<p>Bitte sehen Sie sich die Lernergebniseinheiten A - D im Anhang an. Sie wurden im Rahmen des Projektes EURIAC (<a href="http://www.euriac.eu">www.euriac.eu</a>) entwickelt und dienen dazu, Mobilitätsphasen von derzeit 2 Wochen (geplant ist eine Verlängerung auf 3 Wochen im nächsten Jahr) im Ausland inhaltlich abzusichern und zu gestalten.</p> <p>EURIAC wird im Rahmen des Programms Lebenslanges Lernen durch die schwedische Nationale Agentur gefördert und hat zum Ziel, das Europäische Instrument ECVET zu erproben.</p> <p>Deutschland war weder an der Entwicklung, noch an einer ersten Erprobung beteiligt. Da ECVET aber darauf ausgerichtet ist, in verschiedenen Bildungssystemen und von Lernorten unabhängig lesbar und verständlich zu sein, interessiert uns Ihre Meinung!</p>				
	<p><b>A</b> Arbeiten mit flexiblen Fertigungssystemen  (Durchführungsort: Spain (Bilbao)) EQF: 5</p>	<p><b>B</b> Arbeiten mit Motorsteuerungen  (Durchführungsort: The Netherlands (Breda)) EQF: 4</p>	<p><b>C</b> Arbeiten mit Analogsignalen (Durchführungsort: Finland (Jakobstad)) EQF: 4</p>	<p><b>D</b> Arbeiten mit Sicherheitssystemen  Durchführungsort: Sweden (Kungsbacka) EQF: 4</p>
Verstehen Sie, welche Inhalte über die Lernergebniseinheit vermittelt werden sollen?				

Auszug: Feedback-Bogen „Units of Learning Outcomes“

## 4 Ergebnisse

Folgende Ergebnisse wurden aus den einzelnen Arbeitspaketen erbracht:

<b>Arbeitspaket 1:</b> Projektmanagement und Koordination	Zwischenbericht Endbericht Berichte der Arbeitstreffen 1 bis 4 Vorlagen für die Finanzkontrolle und die Durchführung des Projektes Abschlusskonferenz in Kungsbacka
<b>Arbeitspaket 2:</b> Marktanalyse	Fragebogen für Unternehmen Marktanalyse und kurzer Bericht
<b>Arbeitspaket 3:</b> Mutual trust process	Memorandum of Understanding Lernvereinbarung Hinweise zur Verwendung des EUROPASS in EURIAC
<b>Arbeitspaket 4:</b> Planung und Organisation von Mobilität	Checklisten zur Vorbereitung Handreichungen für Lernende und Lehrende zur Mobilität Ablaufplan zur Organisation von Mobilitäten
<b>Arbeitspaket 5:</b> Technical modules	Entwicklung von vier Lernergebniseinheiten Erarbeitung von Bewertungskriterien und einheitlicher Bewertungsbögen
<b>Arbeitspaket 6:</b> Anerkennungsprozess	Rahmenwerk (Vereinbarung) zur EURIAC Nutzung Erweiterte ValidMaint-Datenbank als Instrument der Bewertung
<b>Arbeitspaket 7:</b> Cooperative evaluation / QA	Fragebogen für Lernende Fragebogen für aufnehmende Institution Bewertungsbogen Projekttreffen ZOPP-Vorlage (Road map)

	Interviewauswertung mit Arbeitspaketverantwortlichen Rückmeldebögen Lernergebniseinheiten Evaluationsstudie: The EURIAC story” Vorlage “ECVET glossary” Vorlage “recognition process”
<b>Arbeitspaket 8:</b> Valorisierung / Verbreitung	Website und facebook group Broschüren, tagline, logotype 4 Newsletter Role ups Teilnahme an und Unterstützung bei Konferenzen und Ta- gungen

## 5 Zielerreichung: Qualitätssicherung und kooperative Evaluation

### Overall objective:

The project life cycle is monitored continuously by using 3-5 specific QA-tools. The EURIAC approach towards mobility and towards ECVET is evaluated in a qualitative manner. QA and evaluation in EURIAC serve as a tool for WP 1 (management) in order to support writing the intermediate and final report and with regard to the transfer of project results on national and European level.

Step 1	prerequisites	Product / results	deadline	Achievement of objectives
Template for the road maps is developed	EURIAC application	Draft of road map	11.10.2011	100 %
Template is discussed at the kick off meeting in Breda, the participants agree on the tool	Commitment of the partners		12.10.2011	100 %
Template is discussed in WP 7 and adopted according to the discussion in Breda	Feedback of partners	Final version of road map	26.10.2011	100 %
Final version of template is put on FRONTER		Empty roadmaps for each work package	27.10.2011	100 %
Step 2	prerequisites	Product / results	deadline	Achievement of objectives
Guidelines for QA are developed	Tools are discussed within WP 7	Guidelines	03.11.2011	100 %
Guidelines are disseminated within the project team		Guidelines are put on FRONTER	08.11.2011	100 %

<b>Step 3</b>	<b>prerequisites</b>	<b>Product / results</b>	<b>deadline</b>	<b>Achievement of objectives</b>
Evaluation sheets are developed and introduced to the partners at the kick off meeting. The sheets serve as a feedback regarding the project meetings	Own concept	Evaluation sheets	14.10.2011	100 %
The sheets are used at each project meeting (Breda, Jakobstad, Bilbao, Bonn, Kungsbacka). After the meetings they are summed up and the results are delivered to WP 1 4 weeks before the next project meeting.	Each partner gives feedback on the sheets	Short written summary on the most important issues	4 weeks before next project meeting	100%
				100 %
<b>Step 4</b>	<b>Prerequisites</b>	<b>Product / results</b>	<b>Deadline</b>	<b>Achievement of objectives</b>
The project life cycle is monitored continuously by reflecting the road maps and by interviewing the WP leaders at each project meeting	- central topics of the project meetings discussions are identified	Written QA-report as part of the intermediate report to the NA	Summer 2012	100 %
	- road maps are completed by all partners	Written QA report as part of the final report to the NA	Summer 2013	100 %
	- willingness of WP leaders to be interviewed and to deliver information on the process of work			
Interview questions and concept for the analysis are developed	Own concept	Interview guidelines	End of February 2012	100 %
		Structure for reports		
Concept is discussed with the project partners at the Jakobstad meeting	Time on the meeting's agenda	Concept	March 2012	100 %
	Commitment of all partners			

<b>Step 5</b>	<b>Prerequisites</b>	<b>Product / results</b>	<b>Deadline</b>	<b>Achievement of objectives</b>
<b>The mobility of students is evaluated. The mobility periods and the use of ECVET related tools are reflected by interviewing the students, the teachers and the training providers from each participating country.</b>	<ul style="list-style-type: none"> <li>-students and teachers are informed on the interviews</li> <li>-the mobility takes place</li> <li>-the language problem is solved</li> <li>-students &amp; teachers agree on being interviewed</li> </ul>	Written report	Summer 2013	100 %
<b>Interview guidelines are elaborated and presented to the EURIAC partners</b>	<ul style="list-style-type: none"> <li>Own concept</li> <li>Time on the agenda during the Bilbao-meeting</li> </ul>	Interview guidelines	Summer 2012	100 %
<b>The conducting of the interviews is discussed with all partners, the work flow is arranged</b>	<ul style="list-style-type: none"> <li>Discussion, commitment and cooperation with the respective project partners</li> </ul>	Work flow	Autumn 2012	100 %
<b>Step 6</b>	<b>Prerequisites</b>	<b>Products / results</b>	<b>Deadline</b>	<b>Achievement of objectives</b>
<b>EURIAC is reflected towards the ongoing ECVET discussion on implementation strategies</b>	<ul style="list-style-type: none"> <li>-road maps</li> <li>-willingness to discuss ECVET continuously at the project meetings ( by answering questions in interviews and at meetings)</li> </ul>	Part of the QA-report (intermediate and final report)	<ul style="list-style-type: none"> <li>Summer 2012</li> <li>Summer 2013</li> </ul>	100 %
<b>An overview on the VET-systems of the participating countries with regard to ECVET is developed</b>	<ul style="list-style-type: none"> <li>-willingness to answer questions</li> </ul>	Synopsis / overview	Spring 2013	100 %
<b>The project life cycle is monitored towards the handling of the ECVET specifications. The results are presented at the Bonn-meeting</b>	<ul style="list-style-type: none"> <li>-road maps, interviews, overview</li> <li>-participation at the project meetings</li> </ul>	Written report (part of the QA-report)	Summer 2013	100 %



## **6 Empfehlungen, Transfer, Ausblick**

Im Projekt wurden die wesentlichen Grundlagen für die „Europäische Klasse Automation“ der am Projekt beteiligten Bildungseinrichtungen und für den Aufbau eines Verbundes von beruflichen Schulen gelegt. Eine Weiterarbeit zur Untersetzung der vorliegenden Ergebnisse ist naheliegend und wird vom Projektantragsteller verfolgt. Die Weiterführung des Projektes sollte in zwei Richtungen erfolgen:

- 1) Inhaltliche Untersetzung der vorliegenden Ergebnisse im Hinblick auf
  - a. eine Referenzierung zum EQF / den nationalen Qualifikationsrahmen
  - b. die Entwicklung weiterer Lernergebniseinheiten
  - c. die Überprüfung des Bewertungsrasters
- 2) Erweiterung der Partnerschaft um
  - a. Lernorte aus Ländern, die nicht an EURIAC beteiligt waren
  - b. Unternehmen, die in die Mobilitätsmaßnahmen eingebunden werden (Praktika)

Interessensbekundungen (u.a. auch aus Deutschland) liegen bereits vor. Während der Projektlaufzeit wurden die Lernergebniseinheiten im Netzwerk „Kunststoff“ mit Ausbilderinnen und Ausbildern diskutiert. Eine Zusammenarbeit und daran anknüpfende Austauschmaßnahmen mit den EURIAC-Partnern sind angestrebt.

## **Veröffentlichungen**

ÖHBERG, Pernilla / MARTENSSON, Andreas (2013): ECVET in Schweden: Auf der Suche nach dem Heiligen Gral, in: EBERHARDT, Christiane (Hrsg.): Implementing ECVET: Anrechnung, Anerkennung und Transfer von Lernergebnissen zwischen europäischer Zielvorgabe und nationalen Systembedingungen, BIBB Wissenschaftliche Diskussionspapiere Heft 145, S. 136-153.



# EURIAC

## Quality assurance and collaborative evaluation (WP 7): approach and findings

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# CHAPTER 1: BASIC INFORMATION ON EURIAC

## DURATION, AIM AND OBJECTIVES

EURIAC was funded by the Swedish National Agency for Leonardo da Vinci as one of the Transfer of Innovation projects focussing on the experimenting and testing the European Credit System for Vocational Education and Training (ECVET). The duration of the project was 24 months, starting in October 2011 and ending in September 2013.

EURIAC aimed at creating a “European class” in industrial automation that offers students the opportunity to gain *“international knowledge, skills and competences (SKC) recognized both by the European industry and the national curriculums”* (see application, B.4) by utilizing the ECVET methods and tools – in particular by adapting results from previous projects to a new context (“European Class in Trucks Maintenance”, 133971-LLP-2007-SE-LMP and “Validation of Maintenance Technician”, 2205-SE/05(B/F/PP-161003). The project was geared to developing a concept (the “European class”) that is transferable within different branches /sectors and countries. It was stated in the application that EURIAC refers to VET in automation on EQF level 4 and 5. The aim of EURIAC was subdivided into six objectives (cf. D.3.2 in the application):

- (1) The conducting of a market investigation to identify the skills needs of electricians working on PLC programming in maintenance to ensure that the training content of EURIAC is in line with the industry skills needs.
- (2) Using the ECVET tools and methods to create an ECVET platform for EURIAC for transparency and recognition of students’ learning outcomes gained abroad and to continue experimentation with ECVET and EQF in European VET.
- (3) Adapting the validation system developed in the ValidTrainMaint project to establish students’ skill level before entering the European class and to develop methods for assessing the learning outcomes at completion.
- (4) Establishing a mutual trust consortium of European partners from industry, administration and education who will collaborate to create the VET platform on which the European class will be founded and that improves the quality and extent of cooperation among the respective actors.
- (5) Testing and evaluating the European class concept by organizing mobilities with students from Finland, Sweden, Spain and the Netherlands.
- (6) Implementing and disseminating the results of the EURIAC project to strategic stakeholders.

The intent was to design the concept of the European class *“in collaboration together with the industry as a number of work-based assignments that will be conducted in collaborative project groups”* (see D.3.3). Added-value was to be achieved by increasing actual opportunities for young people and VET teachers in industrial VET through international experience, increased cultural and linguistic competence and an expanded professional network (cf. D.3.7 in the application).

## WORK PACKAGES

The project was divided into eight work packages (WPs), each conducted by one of the partners.

WP 1: Project management and coordination

WP 2: Market analysis

WP 3: Mutual trust process

WP 4: Planning and organising the mobilities

WP 5: Technical modules

WP 6: Recognition process

WP 7: Cooperative evaluation / Quality assurance

WP 8: Valorisation

Work packages 1, 7 and 8 were geared to management, marketing and evaluation issues. Work packages 3 and 4 focussed on creating the framework for the concrete students' mobility. Whereas WP 2 was seen as an important starting point for getting to know the industry's needs, work packages 5 and 6 were targeted to the systemic level of VET and the core of ECVET: the designing of units of learning outcomes (still labelled as "technical modules" in the application) and the recognition processes.

## PARTNERSHIP:

The partnership consisted of representatives from

- (1) Regional and national authorities such as
  - Kungsbacka Kommun, (applicant organisation, P 0) and
  - The Federal Institute for Vocational Education and Training (P 1)
- (2) Voluntary bodies
  - The Swedish National Maintenance Society UTEK AB (P 6)
- (3) A private consulting firm
  - Wear Management (P 7)
- (4) Vocational schools and/or training providers
  - Elof Lindälvs Gymnasium (P 2, project coordinator)
  - Optima Samkommun (P 3)
  - Politeknika Ikastegia Txorierra (P 4) and
  - ROC West Brabant (P 5).

## CHAPTER 2: QUALITY ASSURANCE AND COLLABORATIVE EVALUATION AS AN INTEGRAL PART OF THE PROJECT

### APPROACH

Evaluation and quality assurance (WP 7) in EURIAC was understood as a cooperative work process. The approach was therefore a constructive and supportive one. Quality assurance and evaluation in EURIAC consisted of continuous project monitoring, which was realised in close cooperation with all project partners. The role of quality assurance/evaluation within EURIAC was specified at the kick-off meeting. The project partners agreed upon roles and tasks for WP 7. It was decided that quality assurance and evaluation are mainly focused on three topics/levels:

- (1) Project progress
- (2) Mobilities (preparation, realisation and follow-up)
- (3) ECVET implementation within the partnership

Although the WP 7 approach was described in the project application and presented at the kick-off meeting, not all partners believed in the collaborative evaluation approach. One person mentioned in the evaluation of PM 1 that he/she disliked BIBB's activities: *"Too ambitious in relation to the project scope – only the key facts MUST be controlled"* (evaluation sheet PM 1).

### TOOLS AND TEMPLATES

With regard to the three levels of monitoring/QA and evaluation (project, mobilities, ECVET) several tools and templates were introduced to the work process:

- (1) The road map.** The road map is an instrument that should be developed for each work package at the beginning of the project. The road map describes the objectives of the work package, including the steps that should lead to the objective in a goal-oriented and measurable manner. Objectives and steps, prerequisites to reach the objective, responsibilities, deadlines and expected products/results should be defined by all members of the work package (see example below):

Overall objective: ....				
Step 1: What has to be done to achieve the objective?	Prerequisites What is needed (from other WPs)?	Product/results What will the result be?	Deadline By when?	Responsibilities Who is responsible?
.... ....	.... ....	.... ....	... ....	.... ....
Step 2	Prerequisites	Products	Deadline	Responsibilities
...	.... ....	..... ....	... ....	..... ....

Road map, Source: Eberhardt, EURIAC 2011

Road maps were developed by the work package teams for only three out of eight work packages. There could be various reasons for this, most likely the participants did not see any benefit in working with a road map at the time it was introduced. Subsequent evaluation of the kick-off meeting did reveal the need for detailed planning, however. One participant mentioned: *“Additional detailed planning is needed for some of the remaining WPs before the next meeting. The application text is only a guideline for the coming work”*, Evaluation PM 1.

**(2) Evaluation sheets / project meetings.** Each project meeting was assessed by the participants using an evaluation sheet. Advantages of this tool: The evaluation sheets are easy to handle and project partners can complete them quickly. The evaluation sheets were distributed on the last day of the project meeting. The participants’ feedback was summarised by WP 7, the results were delivered to WP 1 (management and coordination) immediately.

The road map and the evaluation sheet are tools that support the **work process** in a project. Whereas the road maps are geared to the necessary **planning processes** of a work package, the evaluation sheets focused on the project meetings and the **execution** of the project.

EURIAC mobility was evaluated from various perspectives (results see Chapter 4): from the students’ perspective (**template: questions for students who go abroad**), from an institutional perspective (**template: question for receiving institutions**) and from a pedagogical one. During the first mobility to Spain, it became apparent that the questions and the ranking scheme in the template for students were not clear and understandable enough. The templates were then revised.

The pedagogical perspective was in the focus of the **group discussion** (teachers and students discuss their experiences). The group discussions took place at the home institution after the mobility cycle had finished. The teachers received some guiding questions beforehand and were asked to briefly sum up the discussion and to present it at PM 4 in spring 2013.

One of the core tasks of WP 7 was to explain the project expectations of the partners to the ECVET principles and vice versa. The task was carried out in a qualitative manner by conducting interviews with the WP leader.

**(3) Interviews.** In order to avoid additional paper work for the work package leaders, the WP 7 team held informal talks at each project meeting with at least one person from the respective WP team. The interviews were taped. They were based on four to eight guiding questions focusing on the work progress and understanding of ECVET (see the example of the Bilbao Guidelines from September 2012, page 8). The interviews were the source of many insights into the “inner world” of the project. “Hidden agendas” of the institutions, the understanding of ECVET and personal drivers became visible.



Interview questions WP leaders  
Derio / Spain September 2012

- (1) What was your task and your responsibility from the Finland meeting until now?
- (2) What have you done so far in your WP?
- (3) Where do you see problems in your work package / in the whole project?
- (4) How do/did you cope with these problems?
- (5) What was successful so far?
- (6) What do we still need to work on in the project? What can be improved?
- (7) Did your understanding of ECVET changed from the project start until now? How would you explain ECVET in a few sentences to others who are not familiar with it?
- (8) Tell me about the vision you have with the project – what could be achieved in a mid-term or in a long term?

Interview questions (example), source: EURIAC, Eberhardt/Weigel 2011

Expectations and challenges as well as the role of ECVET in a national or systemic perspective differ broadly from country to country or with regard to the type of partner (social partner, practitioner, VET school, company, politician ...). On the other hand, ECVET itself is quite clearly defined in the ECVET recommendation: It is based on five technical principles (designing units of learning outcomes, developing methods and procedures of assessing them, agreeing upon documents and tools to be used for mobility, allocating points to the units and assuring a validation process) which together shape the ECVET. During the kick-off meeting, the partnership formulated the expectation that WP 7 should not only reflect on the ECVET process, but should also actively support it and share experiences. This was accomplished by introducing two templates:

- (4) **ECVET map.** The “ECVET map” was introduced at PM 2 in spring 2012 when it became apparent that the national VET systems and framework have to be taken into account when working with ECVET. The “ECVET map” is a tool by means of which the VET principles of the participating countries are mirrored in the “European language” and the understanding of ECVET. Reflecting the ECVET principles (learning outcomes, units, competent bodies, recognition, assessment and validation) in the context of all participating partner countries brings to light barriers and obstacles for ECVET implementation also reveals options for a common “ECVET strategy” within the partnership.

Terminology used in the ECVET recommendation (Annex 1)	Germany	Finland	Spain	Sweden	Netherlands
Qualification means a formal outcome of an assessment and validation process which is obtained when a competent institution determines that an individual has achieved learning outcomes to given standards,	Qualification in Germany is seen as the achieving of a "vocation" (a full qualification based on training regulations). At the end of training the student achieves a journeyman's certificate. Partial qualifications are not foreseen in the German context, i.e. students enter the labour market with the entitlement of a journeyman with a certain societal status. Salaries are based on the journeymans certificate and not on gained experiences in the job. The achieved learning outcomes are assessed by the competent institutions in final examinations after three (3,5) years of training.	The qualifications are placed in the national framework according to the learning outcomes required by the different qualifications. Although a qualification may contain elements from several levels, it is placed on the level it suits best as a whole. Qualifications that are placed on the same level might emphasize different dimensions of learning. The same types of qualifications are primarily placed on the same level.	A professional VET qualification is the blends of professional and academic competences, which can be achieved through module based training and other types of training, as well as through work experience. A person is "qualified" when they achieve certain expected results in the development of their studies. In Spain, achieved learning outcomes are assessed by the competent institution throughout the 2 years of training which includes 360-385 hours (corresponding to one unit of competence) of work place based learning.	A student who completes an upper secondary programme receives a diploma. Each programme has its own diploma goals. The achieved learning is assessed by the competent institution, i.e. the VET school.	
Accreditation of a training programme or a training provider	The training regulations are binding in whole Germany – they are "accredited" in the moment when they are published by the ministry of economics. The company where training takes place is	The FNBE decides on the objectives and core contents of the subjects and study modules for both general upper secondary education and vocational upper secondary education and	VET in Spain is based around qualifications. The National Qualifications Institute, INCUAL (Instituto Nacional de Cualificaciones) elaborates the qualification	There is no system of accreditation in Sweden. The Swedish school system is a goal based system with a high degree of local responsibility. The	

"ECVET Glossary/Map" (detail), source: EURIAC Eberhardt 2012

**(5) Feedback templates:** The templates were developed for obtaining structured and documented feedback from persons who did not take part in designing the units of learning outcomes. Four aspects were of special interest:

- a. Are the units understandable in different countries?
- b. Do the units cover parts of qualifications from other countries as well (e.g. from Germany)?
- c. Are the learning outcomes adequately described with regard to the referenced competence levels/EQF level?
- d. Is there enough information in order to send students/apprentices to future EURIAC mobilities?

The templates were translated into Swedish, German and Spanish and disseminated to company representatives, training providers and VET experts. The feedback played an important role in assuring and improving the quality of the units and attracting new partners for future projects.

## CHAPTER 3. THE WORK PROCESS

In the application, the EURIAC work process was divided into four different phases:

- (1) Planning and preparation (October 2011 until June 2012).
- (2) Test and implementation (September 2012 to April 2013)
- (3) Evaluation of test and implementation (September 2012 until April 2013)
- (4) Completion (August to October 2013)

Five project meetings were held during the project and a final conference took place in Kungsbacka at the end of the project term.

Number of project meeting	1: Breda	2: Jakobstad	3: Bilbao	4: Bonn	5: Kungsbacka (Final conference)
Date	12/10/2011 - 14/10/2011	27/03/2012 29/03/2012	26/09/2012 28/09/2012	24/04/2013 26/04/2013	19/10/2013 20/10/2013
Number of participants	N = 14	N = 11	N = 11	N = 8	N = 10

Project meetings EURIAC, Hensen 2013

The interviews with the work package leaders conducted in spring 2012 revealed the various reasons why the partners joined the EURIAC project:

- **“Transfer”**: some of the partners saw EURIAC as a frame for transferring the results achieved in previous projects (*“VOCTRAINMAINT is finished and the results of that project are now being used for EURIAC”*)
- **“Cooperation”**: For some of the partners, just taking part in European projects is added value in itself (*“The management is somehow convinced of the added value of such a cooperation for the school” / “Mobility increases the reputation of schools and the knowledge that comes with the project is also a competitive factor.”*)
- **“Experimentation”**: For some institutions, EURIAC offered the opportunity to work with the ECVET (*“We want to learn more about this ECVET”, “ECVET is expected to be an excellent tool to work with mobilities in the long run” / “We want to be a part of the future” / “There are some other projects in my country related to ECVET and the topic is therefore very important for my institution. It will be easier for us to form our own opinion on the ECVET principles afterwards”*)
- **“Strategy”**: For some of the partners, working with ECVET is connected with establishing either a locational or a knowledge advantage in the home country (*“EURIAC is one of the pilots to test ECVET and this is the basis for me to involve national discussions” / “The institution is interested in working with ECVET and in working with mobility, because it is definitely added value for our school’s programmes. It’s a competitive market!” / “We also want to pick up the available money from the EU”*)

Due to these “hidden agendas”, different visions (and purposes) were associated with EURIAC: Most of the partners were interested in the **mobility aspects** of the project (“*My vision is that VET schools could move students as easily as universities*” / “*Mobility for students in automation – I would keep the vision as simple as this*”). **VET aspects** were only mentioned twice: “*We could include mobility into education and offer it to completely new target groups from wherever*” / “*We need the same standards in all of Europe based on validation and on the same questions. All standards have to be rewritten.*”)

The different visions and interests linked to EURIAC became evident when expectations and concerns were compiled at each project meeting. They were all geared towards

- European cooperation / project management
- Mobility
- Automation
- ECVET

It is obvious that expectations shifted from the concrete field of application (automation) to the ECVET implementation during the work process. There could be two reasons for that:

- (1) While working on the project, the ECVET concept became more and more explicit. One of the interviews conducted at PM 2 highlighted an underlying problem: “*It’s difficult even though documents were sent out in the application phase to provide information about the ECVET tool. Most of the partners have no understanding of ECVET*” (Interview PM 2). At PM 2, it became evident that automation had to be linked to ECVET in order to achieve the EURIAC goals. Some minor tension arose among the representatives of the world of education (ECVET) and automation (industry):
  - a. “*Everything will be assessed by the mobilities that will take place in schools and within the programmes and the paramount project objective (= maintenance technician level 4 and 5) will be forgotten*” (Interview PM 2) or
  - b. “*The people from the industry are not aware of how difficult it is for a VET school to change programmes*” (Interview PM 2).
- (2) Increased knowledge and understanding formed the basis for adapting the ECVET specifications (learning outcomes, units, assessment) to that what were known as “technical modules” at the start of the project. “*The application was written based on the ECT project and it is difficult to understand the text. But now we have a different picture of the project.*” (Interview PM 3). Based on the interviews with the work package leader, one might say that the work tasks and learning outcomes were the key to this “better understanding”: “*Once you have the work tasks, it’s clear that you have the same skills here and in Sweden or in Spain*” (Interview PM 2). The formulated expectations also showed that the partnership’s sense of self-confidence increased from meeting to meeting (“*we will create a model of good practice*”). This is also evident in the fact that the expectations shifted from general statements regarding European cooperation to concrete requirements regarding the management of the project (“*Clear answer to the questions: who does what exactly?*” Interview PM 2).

		European cooperation/ project management	Mobility	automation	ECVET
Expectations	Kick-off	Get experience and good knowledge from partners  Improved European networks and contacts  That we will develop something sustainable  To learn more about the partner countries	To give our students the opportunity to study abroad  Mobility for VET students, not only internship  Great experience for the students and staff who participate	A way to make our industrial education a highly qualified educational programme  Maintenance technician level 4 and 5  Promotion of the field of maintenance	Gaining knowledge about ECVET  Increased attractiveness of ECVET  To evaluate how to use ECVET in the automotive sector
	PM 2	Get more understanding and information about the project  Clear answer to the question: who does what exactly?  Clear work programme, defined tasks and responsibilities	Organise and plan mobility  International student exchange  Learning agreement and MoU will get finalised		Linking ECVET (the concept) to the EURIAC course  Defined learning outcomes
	PM 3	That we will create a best practice project  Continued good cooperation  We will work hard and really move forward  Solve budget issues	That we will continue the mobility scheme after the completion of the project  To see how teachers work in other countries		That we will take more steps towards developing mobility and ECVET  Try out the LO

EURIAC was based on a “bottom-up” approach in which each partner had the responsibility for carrying out of at least one work package. At the kick-off meeting, it became apparent that the project members had difficulties carrying out the work packages independently. Reasons for that could be:

- a) In some of the partner institutions, the necessary **decision-taking processes** took place after the project was selected. Some of the project members therefore joined the project after it officially started (“*I was new in the project so it was like “Do the most difficult thing, here you go!”*”, Interview PM 3).
- b) The project partners felt that **a connection between the various work packages** in order to get a vision of the project as a whole was lacking (“*I feel there is a lack of a clear structure where all the parts come together – sometimes it feels a bit overwhelming with all the different partners*”, Interview PM 2).

This is evident in the concerns mentioned. They touch on communication (language / missing of information), project management (keeping the budget / bureaucracy) and cooperation (“that we get confused” / “need for consensus”) as well as the achieving of the project objectives (levels, learning outcomes, ECVET points).

Concerns	Kick-off	Is my English good enough?  Keeping the budget  Coordination of the European class in each center  Each partner have their own definition of levels  Work implications	To get students interested in mobility	Too much of school thinking in the work  Does ECVET fit into the new standards of education?	National recognition of our modules  EQF – different understanding and not the same view of the levels  ECVET and how we should use it  Levels!
	PM 2	That we get confused  Does everybody feel comfortable in the project?  Too much bureaucracy  Too many people, no consensus and different pictures	Mobilities with learning outcomes that fit in program  About the mobility of students	Not able to find common “European” vocational courses in automation	ECVET, Bologna points  Focus on input instead on output  Disagreement on learning outcomes
	PM 3	We will miss the information from the other workshop because we are working in parallel  Much effort and time needed to get the reporting  We talk too much about dissemination without describing the content  We will fulfil the obligations of the application	Final agreements on mobility: agendas and procedures  The budget restricts mobility  Feeling that we are in a way finished, need to keep up to work until the end  Other students on the mobility		VET teachers feel at ease with the implementation of the units  Agreements on allocation of ECVET points  How to apply ECVET? Overdoing the assessment  Building of models for handing: education models, credit points, def. of competence, implementation of industry

After PM 2, the project partner asked for more steering from the management side of the project (“A kick-off meeting should raise awareness how work packages are linked to each other” Interview PM 2). The work package “management and coordination” then took on more tasks with regard to the project content.

The project partners assessed the meetings as follows (see PM evaluation sheets):

The FIRST PROJECT MEETING IN BREDA revealed that the project members had many expectations and concerns, mainly about ECVET and how to organise the European Class, the levels of EQF and NQF, financial measures and how they will work together. Not all questions were answered during the kick-off meeting, for example how to use ECVET and the term “European Class”. But all partners were satisfied with the meeting as a whole; they found that the presentations were relevant and that the cooperation between the partners started positively. Everyone confirmed that they had learnt from one another.

The SECOND PROJECT MEETING (JAKOBSTAD) was assessed as being successful as well. The meeting did address the relevant questions and all partners felt the project was on the right track. Expectations dealt with the organisation of mobilities, the learning agreement, the good cooperation and understanding of each other's needs and how to link ECVET with the units of learning outcomes. Partners were concerned about funding for the students' mobility and in particular about ECVET as well. Individual aspects of the meeting were assessed very positively and the team atmosphere was evaluated as very good. Nevertheless, some questions still remained open for the partners, e.g. regarding ECVET points, while further steps are regarded as being necessary in completing the units of learning outcomes.

Similar to the meeting in Jakobstad, the THIRD PROJECT MEETING IN BILBAO was also assessed as being successful, although questions concerning ECVET were still not answered. Expectations were based on the good cooperation, the learning outcomes, the developing and carrying out of mobilities and ECVET. Concerns were formulated about ECVET, the improvement of communication between VET teachers, the assessment, building models of handling - education models, credit models, definition of competence, implementation in industry - and the implementation of the units of learning outcomes. With respect to the expectations and concerns, the project meeting mostly addressed the relevant questions and the project was seen to be still on the right track. Similar to the former project meeting individual aspects were assessed very positively. In particular the discussions were relevant for the project and the team atmosphere was very good. The majority of participants assessed the ability to learn from each other, the materials used during the meeting, the expectations and the way the project is coping with difficulties were assessed as especially positive. Remaining questions dealt with the adaptation of the results to industrial needs and still with ECVET.

As in previous meetings, individual aspects of the FOURTH PROJECT MEETING IN BONN were assessed very positively. It is worthy of note that everyone felt that the cooperation between all partners was very enjoyable and the organisation was seen as professional. The discussions and presentations were assessed as relevant for the project. Once again, the team atmosphere and on-going work were evaluated as very good. Only one questions regarding how to proceed with future mobilities and new partners remained open. Compared to the previous meeting, the rating of the last project meeting is almost the same with respect to the quality, the communication and cooperation between the partners and the atmosphere. Nevertheless, some questions remained open, mainly with regard to the future:

- the new funding
- a work model, simplified and adapted for quick understanding
- "we do not currently know how to continue developing the project"
- "talks with business factories"

Only one statement focused on dislike of the meeting: *"Too much concentration on school training - the next project must include the industry."*

Overall, every project meeting was assessed as successful by the participants. Problems and questions were always discussed in the group as a whole and for the most part resolved immediately following the meeting. The teachers mentioned that the additional meeting in Bilbao was very important to them in designing the units of learning outcomes. So this meeting was also important for the whole project and especially for the mobilities and the assessment.

## CHAPTER 4: THE MOBILITIES

### ORGANISATION, TOOLS AND TEMPLATES:

The evaluation of the mobilities is divided into two parts - the students' perspective and the receiving organisation's perspective or teachers' perspective. Immediately after the mobility had taken place, both groups (students and receiving organisations) had to fill in a questionnaire, adapted to the particular target group, to capture their impressions about the units of learning outcomes and the European class.

The questionnaire for the students and the receiving organisation was divided into four parts with additional information concerning structural data:

#### **Questionnaire students:**

1. Questions concerning the preparation of mobility (preparation of mobility)
2. Questions concerning the mobility/the stay (expectations, learning, teaching)
3. Questions concerning the assessment (VALIDMAINT)
4. Questions concerning organisation/accommodation

#### **Questionnaire receiving organizations:**

1. Questions concerning the preparation of mobility (communication between the organisations, knowledge-skills-competences of students)
2. Questions concerning the mobility/the stay (communication during the mobility, concept of a European Class, staff capacity for further mobility)
3. Questions concerning the assessment (the unit, the assessment tool VALIDMAINT)
4. Questions concerning organisation, accommodation

Both groups (students and receiving organisations) were asked to answer using a five-point rating scale: *1: very poor - 2: poor - 3: adequate - 4: good - 5: very good*. They were also given the opportunity to write additional comments.

### THE STUDENTS' PERSPECTIVE

From an overall perspective, the students' mobility is regarded as very positive and the evaluation pointed out that the mobility gave them the chance to gain new experiences and expand their knowledge, skills and competences. The number of students participating in the survey differs with respect to the mobilities.

Number of Mobility /Country	Mobility 1 - Spain	Mobility 2 - Netherlands	Mobility 3 -Finland	Mobility 4 -Sweden
Number of questionnaires/feedbacks	6	6	10	5

Table 1: Number of participating students, EURIAC Hensen 2013



All of the following tables indicate the most frequently named answer for the different parts of the questionnaire with respect to the rating scale.

In general, the students felt well informed before the mobilities started. The majority rated preparation for the stay as 'adequate' or 'good' (see Table 2). In this project, a "Welcome Brochure" provided basic information about travel, the host institution and the foreign country. The students have to be aware that they are also expected to gather information on their own. This is the first step to improve personality and confidence, as well as knowledge concerning the occupation and in general. But teachers could give students more specific information to improve the mobility process and preparation for it.

	Mobility 1	Mobility 2	Mobility 3	Mobility 4
<b>Question/Rating</b>				
1. The preparation at home for the stay abroad was really suitable.	4	4	3	4
2. You really felt prepared when being in the host country.	3	3	4; 5	4
3. You really knew what would happen in the host country when signing the learning agreement.	3	4	4	3

1: very poor - 2: poor - 3: adequate - 4: good - 5: very good.

**Table 2: Most named answers - Part A 'Preparation for the Mobility', EURIAC Hensen 2013**

All students learned something new during the mobilities and solved problems that came up, for example the language problem and the way of learning. Working in mixed groups with foreign students was seen as very positive; the students supported each other, learned from each other, solved problems together and improved their English language skills as well as their social skills.

	Mobility 1	Mobility 2	Mobility 3	Mobility 4
<b>Question/Rating</b>				
1. The stay met your expectations in general.	4; 5	4	5	5
With regard to:				
teaching	5	5	5	4
host institution	3	5	5	4
language matters	4	5	4; 5	4; 5
group	5	5	5	5
fun	5	5	5	5
2. You really learned something new.	4	4	5	5
3. There were no differences between the way of learning and teaching at home in the host country.	3; 5	4	4	3
4. The most challenging for you was:				
- the way of teaching	3	4	3; 4	2
- the way of learning	3	4	4; 5	2
- the language problem	4	3; 5	5	1
- the facilities/environment	2	3; 4	3	2
- the learning group/the others	2	4; 5	3	1
- the assessment	2	3	5	2; 4

1: very poor - 2: poor - 3: adequate - 4: good - 5: very good.

**Table 3: Most named answers - Part B 'During the Mobility', EURIAC Hensen 2013**

Mostly the students had no problems with the assessment tool - teachers' observations and theoretical test. Moreover, most of them thought that they could have shown what they learned by using the assessment tool. Only the assessment process during the first mobility shows a different result. This may be because of the lack of experience during the first assessment process. It should be clear, however, that it is only possible to assess knowledge, not learning outcomes related to skills and competences via VALIDMAINT, one teacher noted.

		Mobility 1				
<b>Question/Rating</b>						
		yes		no		
1. Where there any problems with the assessment tool?		1		3		
2. Do you think you have shown what you have learned by using the assessment tool?		3		2		
		Mobility 2				
<b>Question/Rating</b>						
		yes		no		
1. Where there any problems with the assessment tool?		0		5		
2. Do you think you have shown what you have learned by using the assessment tool?		4		0		
		Mobility 3				
<b>Question/Rating</b>						
		yes		no		
1. Where there any problems with the assessment tool?		0		10		
2. Do you think you have shown what you have learned by using the assessment tool?		7		0		
		Mobility 4				
<b>Question/Rating</b>						
		yes		no		
1. Where there any problems with the assessment tool?		0		5		
2. Do you think you have shown what you have learned by using the assessment tool?		5		0		

**Table 4: Answers of the students - Part C 'Assessment'. EURIAC, Hensen 2013**

Most of the students felt very comfortable in the host country and the European Class during their stay - the different types and categories of accommodation (living with a host family, living in a hostel/hotel) in the countries were suitable for the specific situation.

		Mobility 1	Mobility 2	Mobility 3	Mobility 4
<b>Question/Rating</b>					
1. You really felt comfortable in the host country.		4; 5	5	5	5
2. You really felt comfortable in the European class.		5	5	5	5

**Table 5: A Most named answers - Part D 'Organisation, accommodation'. EURIAC Hensen 2013.**

From an overall perspective, the students' mobilities were successful with regard to learning outcomes. The students learned a lot in the European Class, they improved their knowledge, skills and competences with regard to their occupation and their social behaviour. It was a great experience for all of them on an intercultural level; they solved technical as well as cultural problems together. As a result, the students who participated in the mobilities can bring their additional knowledge, skills and competences into companies with them.

## THE TEACHERS' PERSPECTIVE

From the teachers' perspective, preparation for the mobilities was sufficient. In particular the communication between the sending organisation and the hosting organisation was reviewed as 'good' or 'very good' from all participating institutions and teachers. The rating of the knowledge, skills and competence level of the students sufficient for achieving the learning outcomes varied; the range extend from 5 'very good' after the first mobility to 3 'poor' after the last mobility. One teacher noted that English language skills should be improved for some students before the mobilities take place.

Question three 'Was the study group as a whole on the same level of knowledge skills competences when they started with the unit?' of part A 'Preparation of mobility' of the questionnaire shows a similar result (see table 6).

Question					
1.	How do you assess the communication between you and the sending organisations before the mobility (eMail, post, telephone contact)	<b>Score(1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).</b>			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		4	4	5	5
2.	Were the knowledge skills competences of the students adequate / sufficient in order to achieve the learning outcomes?	<b>Score(1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).</b>			
		M1 - Spain	M 2 - Netherlands	M3 -Finland	M4 -Sweden
		5	4	4	3
3.	Was the study group as a whole on the same level of knowledge skills competences when they started with the unit?	<b>Score (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).</b>			
		M 1 - Spain	M 2 Netherlands	M3 -Finland	M 4 -Sweden
		5	3	5	3

**Table 6: Answers by the teachers - Part A 'Preparation of mobility', EURIAC Hensen 2013**

Some problems arose during the mobility process, differing for each institution and country. The first hosting institution pointed out that it would be difficult to integrate the concept of the European Class into the normal course of education and training. The second mobility revealed that there is not enough staff capacity in the (second) hosting institution to provide the EURIAC unit with further mobilities after this project. As a result of the third mobility, more support for the teachers during the mobility process is important. In addition, there are problems with respect to the usual running of school and the ability to integrate the concept of the European Class into the normal course of education and training.

Question					
1.	How was the usual running of school managed during the mobility?	<b>Score(1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)</b>			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		5	3-4	5	3
2.	How would you assess your ability to insert the concept of a European class to normal course of education and training?	<b>Score(1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)</b>			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		3	2-3	5	3

3.	How do you assess the communication with the sending organization during the mobility?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)			
		M 1 - Spain	M2 - Netherlands	M3 -Finland	M 4 -Sweden
		5	4	5	5
4.	How do you assess your staff capacity in providing the EURIAC unit for further mobility of students?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).			
		M1 - Spain	M2 - Netherlands	M3 -Finland	M 4 -Sweden
		4	2	4	5

**Table 7: Answers by the teachers - Part B 'Mobility'**

The assessment process was mostly seen as 'good' and 'very good', apart from the use of the program VALIDMAINT; the program was not used at all during the second mobility. The teachers noticed that the program is very simple, it is only possible to assess knowledge and not the learning outcomes related to skills and competences.

	<b>Question</b>				
1.	Are you satisfied with the unit of learning outcome offered by your institution?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		5	3-4	5	5
2.	Could you imagine offering the unit in your institution in a long term (independently from the EURIAC European class)?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		5	4	5	5
3.	How do you evaluate the VALIDMAINT for assessment purposes?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good).			
		M1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		4	-	2	5

**Table 8: Answers by the teachers - Part C 'Assessment'**

The organisation of the accommodation and the cultural program also differs for each country and mobility. Overall, everything was managed correctly with only a few difficulties; especially financing measures for the first hosting institution and time-related problems for the second hosting institution. As a result, it is very important to be aware that there are different conditions for each country which do not make the mobility process easy. This should be taken into consideration at the beginning of the planning process.

Question					
1.	How did you manage to provide accommodation?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M4 -Sweden
		4	4	5	3
2.	How would you assess your ability to provide supplementary (cultural program)?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)			
		M1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		5	3	4	3
3.	After this experience would you take part of EURIAC mobility in future again?	<b>Score</b> (1: very poor - 2: poor - 3: adequate - 4: good - 5: very good)			
		M 1 - Spain	M 2 - Netherlands	M 3 -Finland	M 4 -Sweden
		5	3	5	5

Table 9: Answers by the teachers - Part D 'Organisation, accommodation'

From the overall teachers' perspective, the mobility process was sufficient organized although some country-specific problems did make the mobility process a bit difficult. But if the mobilities continue in the context of another new project, the process will be improved and the problems will be solved with more practical experience.

#### THE PEDAGOGICAL ASPECTS OF MOBILITY

At PM 4, the project partners highlighted the pedagogical aspects of the mobilities based on the group discussions (see chapter 2) that were conducted after the mobility cycle at the home institutions. The most important aspects regarded as

- teaching and learning
- assessment
- implementing the units into the routines of the schools
- challenges and added value

##### (1) Teaching and learning:

All the teachers mentioned that there was a big difference in learning. Whereas the students in Spain are not used to working on their own very much, the Swedish students expected to be allowed to experiment and have certain freedoms in solving given tasks. The Swedish teacher described the situation as follows: *"It was a big challenge for the foreign students. They got a lot of equipment and then: "Okay, make it function". The students just sat there looking at each other. What I tried to do*

was putting them into small groups with only two persons and then four Swedish students backed them up. There was a lot of communication and helping each other” (Report Mobility in Sweden, PM 4). The Spanish report pointed out that teaching was “more than a challenge” for the Spanish teacher: “it was a lesson to see that in front of them were students who expected to work independently. (...) The fact that the Spanish teacher made the experiences that in other countries the students see this as a valuable way of learning was really helpful. And it is that the Spanish students experienced it. It showed how it can be and gives hope that it works also in Spain” (report Mobility Spain, PM 4). The Finish teacher reported self-critically that perhaps he taught too rigidly “But I wanted to assure that everyone knew about the task and what is expected from him and from her. But then I heard: “Aren’t we allowed to think by ourselves?”” (Report Mobility Finland, PM 4). The Dutch teacher emphasized the challenge of teaching in a heterogeneous group: “The Swedish student said: OK, we will do it, you don’t have to say anything, whereas the Spanish students wanted explanations for all kind of things” (Report Mobility Netherlands, PM 4). All the teachers highlighted that providing the unit for foreign students put stress on them (teaching in English and not knowing whether all students are on the same level). However, all the teachers stated that despite the differences, all the students managed to solve the given tasks by themselves or with the help of others.

## **(2) Assessment**

Before the mobilities started, the teachers agreed on work tasks to be solved during the mobility and to be tested at the end of the placement. In order to define the necessary commitments and elaborate the work tasks and principles of assessment collaboratively, an extra meeting was held in Bilbao in June 2012 (“If we hadn’t come together in June we would not have been able to finalize the units”, Interview PM 3). It was mentioned by the Finish teacher that what had been done until the first mobility was carried out might not have been enough. He suggested that it would have been much better to check the work process and to implement observations as an additional assessment tool into the EURIAC approach. All the teachers assessed the existing VALIDMAINT tool as an add-on but as insufficient when working with the ECVET principles: “In VALIDMAINT you can only test theoretical knowledge; skills and competences are more complicated to assess” (Report PM 4). All the teachers agreed on the following statement: “Students should show that they can manage a task – that is the best way to assess after two weeks” (Report PM 4). Although all teachers committed to the same principles of assessing learning outcomes, mutual trust had to be established.

## **(3) Implementing the units**

The framework conditions to implement the units into the daily routines of the VET providers were assessed differently. Whereas the Swedish partners saw opportunities to offer the units to new partners as well, the Dutch colleagues stressed that the Dutch VET system is not “unitized”. This means that in fact the learning outcomes of a EURIAC unit are part of the Dutch curriculum, but not an “isolated block”: “If we take the unit just as a unit - this is the unit, this is the equipment, just do it – then it is no problem. But integrating it into our curriculum is a big problem because it does not match with the Dutch way of training. It is an organizational problem, because if the unit has to be provided by a teacher, extra-staff is needed” (Report PM 4). Similar problems were seen in Finland: “It is not possible to integrate the units into our normal classes because then they are too big and we will not even have enough chairs for students to sit on. But it is possible to plan the mobilities for the foreign students in the period when the Finish students are at their work placements” (Report PM 4).

#### (4) Challenges and added value

Most of the challenges the teachers mentioned were linked to the institutional and/or personal framework conditions at their institution (the Dutch teacher had to provide the unit in addition to his normal classes, all had to teach in English, in Spain there was no canteen and the husband of a teacher had to cook for the students) and to pedagogical questions (How advanced are the students? How big is the difference between them?). After the mobility cycle, all teachers emphasized that trust among the institutions had been established and that they want to continue with new EURIAC classes. The increasing of the students' language and social competences was regarded as added value.

## CHAPTER 5: THE ECVET PROCESS

From an ECVET point of view, the development of EURIAC can be clustered into three phases:

Phase 1:	Kick-off meeting	Confusion
Phase 2:	PM Jakobstad, extra meeting and PM Bilbao	Seeing ECVET as a creative process
Phase 3:	PM Bonn and final conference Kungsbacka	Discovering new perspectives

**PHASE 1: CONFUSION:** *"The problem is getting people to understand what it is all about"* (Interview PM 2)

EURIAC was funded in the frame of a "transfer of innovation". At the core was the transfer of existing products developed during previous projects, such as "technical modules" and a validation tool and using them to establish a "European class". The work was divided into eight work packages that were described independently by the persons responsible for the work package. The idea behind this approach was that *"allocating work packages to each partner and letting them write their work packages creates responsibility, ownership and engagement"* (Interview PM 2). Nevertheless, this approach created some problems:

- Some of the work package leader had not taken part in the previous projects and therefore did not know what to transfer
- Some of the partners were not very familiar with the ECVET principles and put more emphasis on transferring of the existing products instead of making them ECVET-compatible
- The products and results that had to be transferred were not "ECVET-ready" (the technical units were not designed in terms of learning outcomes, the validation tool was not geared to validation but to assessment and it focused on the assessment of knowledge, neither on competences nor on skills).
- "Hidden agendas" and expectations of the project partner were quite different: whereas some of the partners considered ECVET to be just a tool for supporting mobility (*"My vision of the project? Mobility for students in automation – I would keep it as simple as that!"* Interview PM 2) others thought far ahead: *"We need the same standards in all Europe based on validation and on the same questions – VALIDMAINT. Guidelines for schools have to be written. All standards in Europe have to be rewritten"* (Interview PM 2).

The different approaches to the project became visible in the concerns that were formulated during the kick-off meeting: Whereas some of the partners reflected on “levels” and “*ECVET and how we should use it*”, others took the modules and validation tool as a starting point. They reflected on “*national recognition of our modules*” and whether “*ECVET will fit in with the new standards of education*” (see concerns mentioned in the action plan after PM 1).

**PHASE 2: TAKING ECVET AS A CREATIVE PROCESS:** “*The big game is the learning outcome approach*” (Interview PM 4)

Work packages that did not touch directly on the VET systems (such as “dissemination”, “market analysis” or “mutual trust”) had no problems in reaching their objectives. The ECVET tools such as MoU and the learning agreement were developed in time. All three work packages went through the agenda described in the application without any delays: “*There were no problems in doing that. We are quite used to mobility projects*”, “*The application was developed collaboratively so it was our idea to help with these practical parts of mobility. The tasks now are not surprising*” (Interview PM 3) and “*My task is to assure that we do the right thing in dissemination and that we do what is in the application*” (Interview PM 4).

This worked out differently for the WPs that had to be linked to the national VET systems (esp. WP 5 “technical modules” and WP 6 “recognition process”). In both cases, a key was needed in order to solve the tasks. After PM 2, the project members developed an “ECVET map/glossary” (see chapter 2) in which they translated the ECVET principles into their VET conditions and systems at home. One might assume that this exercise helped in understanding the ECVET concept:

- “*I learnt more thanks to the ECVET glossary*” (Interview PM 3)
- “*Our knowledge has changed a lot*” (Interview 3)
- “*I understand the European Agenda why we should use ECVET. But now after people described their national system, I see that this is really difficult*” (Interview PM 2) and “*we got to know our own settings*” (Interview PM 2).

While the systemic level of ECVET became explicit by working with the “ECVET map”, the designing of units of learning outcomes remained a challenge for the WP team: “*The work with the units started three weeks before PM 2. The units weren’t there, because we were supposed to wait for the outcome of the market analysis. And then the framework wasn’t clear: Was it the market analysis or the training programmes?*” (Interview PM 2). Due to the fact that the VET teachers worked together in WP 5, the decision was taken to use the training programmes as the starting point for designing units. The work was described as follows: “*We changed the units around using the topics of the market analysis, trying to put each topic into a unit – but then with a different heading. The technical modules they already had were deleted and they (the VET teachers) find the new ones much better – with integrated work tasks and with the description of what the students have to know before doing the units. (...)* Once you have the work tasks, it’s clear that you have the same skills here and in Sweden or in Holland or in Spain” (Interview PM 2). The work was supported by WP 1: “*I supported the development of units by helping to find the right verbs to use, I found also some guidelines how to formulate KSC – I tried to allocate people with them to work. It was really intense*” (Interview PM 3). Although the learning outcome approach was assessed by the work package leaders as the most important key for



the designing of units (see Interviews), time was needed in order to formulate and describe them. An extra meeting was therefore held in June 2012 (*“There was an extra meeting in June and everything was finished in time because sitting together was so productive. I was there to make sure that everything the teachers said was put into the right place in the units and to make sure that what they were saying was written in the right language, using the right verbs. When we actually got together it went really quick”* (Interview PM 3)).

Working with learning outcomes and the common designing of units created a platform among the partners for establishing of mutual trust. “Mutual trust” cannot be prescribed or organised in a WP – the interviews show instead that mutual trust has to grow among the partners: *“Recognition and trust in each other was a problem: “If my students go to Holland and then come back to me I give them a little test in order to see what they have done there”. That was the point where I said: “No, you shouldn’t. You should trust”. Teachers are known as control freaks. So they decided to do everything together: the designing of the units, the assessment, everything, in order to know what and how everyone is doing at home”* (Interview PM 3).

Based on that, the development of assessment and validation/recognition procedures were easy to handle. Committing to learning outcomes also bridged the gap between VET school and industry representatives – both “factions” were impressed with the approach: *“Concentrating on the learning outcomes was a success, forget all the other things! They’ll come automatically if one concentrated on learning outcomes”* (Interview PM 4), *“We should focus on learning outcomes because they are the key to validation and implementation of training”* (Interview PM 4) and *“For the labour market it’s important to have a common language to assess the students”* (Interview PM 3).

### PHASE 3: DISCOVERING NEW PERSPECTIVES (*“I can see more possibilities and I got more visions regarding ECVET”* (Interview PM 3))

After the mobilities had taken place, the project partner met for PM 4. The meeting was characterized by a great feeling of relief although some questions remained open at the start. Understanding the ECVET principles and adapting them to the EURIAC needs led to new self-esteem in the partnership: *“Everything was successful – we are ready and want to continue”* (Interview PM 4), *“It’s good to see the students enthusiasm – that’s really rewarding”* (Interview PM3).

Based on feedback templates, the EURIAC units were checked and commented on by experts from companies, training providers and the VET system from different countries. In general the feedback was positive, confirming that the units are understandable and adaptable in various VET contexts. Mobility experiences and feedbacks showed that EURIAC was on the “right track”. At the same time, PM 1 was asked to present the EURIAC approach at various conferences and workshops (*“They want to have our experiences with working with ECVET”*, Interview PM 4). EURIAC became more and more a model of good practice for others (*“It was a nice experience being in the focus and that people feel that the results are interesting”*, Interview PM 4), *“We received a lot of interest from new partners who want to join in the partnership”* (Interview PM 4)).

Working with ECVET enabled the project partners to gain a lot of ECVET expertise (*“At the beginning, ECVET did not mean much to me. But now after working with it and designing the units I understand that ECVET isn’t just about allocating points to units. There is so much more to it”* (Interview PM 3)).

It also opened up new perspectives on how to continue with EURIAC. The project partners came up with a lot of ideas:

- prolonging the mobility periods and combining them with in-company placements
- providing the units to students from new countries,
- spreading the idea of international mobility to other schools in the region and in the country
- “unitizing” the domestic curricula in order to make them “ECVET-ready”

Seen from a monitoring and evaluation perspective, it can be stated that

- four units of learning outcomes are designed in terms of knowledge, skills and competences,
- the units are readable and understandable in various country and VET –contexts,
- assessment and recognition procedures are developed and agreed upon
- mutual trust has been achieved within the partnership

ECVET had been adapted to a clearly defined purposes (“EURIAC class”) and new perspectives arose during the accompanying work process. Taking that all into account, the EURIAC approach has to be considered a model of good practice.