

the next generation of **European Training for Manufacturing**

Innovative Approaches for Training & Qualification of Manufacturing Professionals

Session focused on presenting new qualification methodologies, like apprenticeships and recognition of prior learning RPL, that can support Professional Qualification and training

18th November 2020

10.00h – 10.45h CET

Event organised in the framework of the
57th Meeting of the EWF General Assembly



Innovative Approaches for Training & Qualification of Manufacturing Professionals

Time	Topic	Moderated by
10h00	WELDONE Boosting Innovation in Welding Training <ul style="list-style-type: none">– Scope of the Project– Main purposes– Expected results	Susana Nogueira
10h10	Innovative Approaches to Training <ul style="list-style-type: none">– Work-Based Learning (WBL)– Recognition of Prior Learning (RPL)	Adelaide Almeida
10h30	EWf Modular System <ul style="list-style-type: none">– EWf Methodological Approach– Main advantages for ATBs	Susana Nogueira





WELDONE | Boosting Innovation in Welding Training

Session focused on presenting WELDONE project, designed to capacitate Teachers/Trainers from EWF Qualification System for the use of innovative pedagogical approaches

by Susana Nogueira



WELDONE | The Partnership



Partnership

WELDONE | Scope

The need for new pedagogical approaches to be used by **Teachers and Trainers from EWF Training System** and **STEM sectors** to foster learners' creativity and development of key competences for a better prepared workforce



September 2019 to January 2021

WELDONE | Main purpose

Deliver technical training in a
WELDONE way!



WELDONE | Expected Results

IO1 – ToT Curriculum

A train of trainers' course to enable trainers and teachers to deliver technical training using alternative pedagogical approaches and embedding the development of key competences in training.

Competence Units:

CU1 – Multiple Intelligences and Learning Styles

CU2 – Learner Centered Didactics: Problem-based learning, Critical thinking and Collaborative learning

CU3 – Gamification

CU4 – Digital competences and using digital resources

CU5 – New media didactics: The use of social media and micro-learning

CU6 – Personal, social and learning competences

CU7 – Entrepreneurship competence

Workshop Model

Innovative Pedagogical
Resources

Formative & Summative
Assessment Methods

WELDONE | Expected Results

IO2 – Conceptual Handbook

Innovative essays on the suggested methodologies and training notes on how to use WELDONE training material, published in hardcopy ISBN and eBook format.

IO3 – How to get WELDONE

“Ready-to-use” toolkit with pedagogical resources to help teachers and trainers implementing the ToT curriculum using a Workshop model.

IO4 – Assessment Methods

Set of formative and summative assessment methods, including Product-Process Oriented Projects, Art and Ditching numbers

IO5 – Pedagogical guideline for EWF Training System

Policy recommendation to promote change in EWF Training System’s pedagogical approach

WELDONE | Join us!



Check out our website for more information, at <http://weldone-project.eu/>

&

Facebook, at <https://www.facebook.com/weldone.project>





Susana Nogueira
snogueira@ewf.be

Thank you for your attention!





Innovative Approaches to Training

Session focused on presenting new qualification methodologies, like apprenticeships and recognition of prior learning RPL, that can support Professional Qualification and training

by Adelaide Almeida



This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No 768775

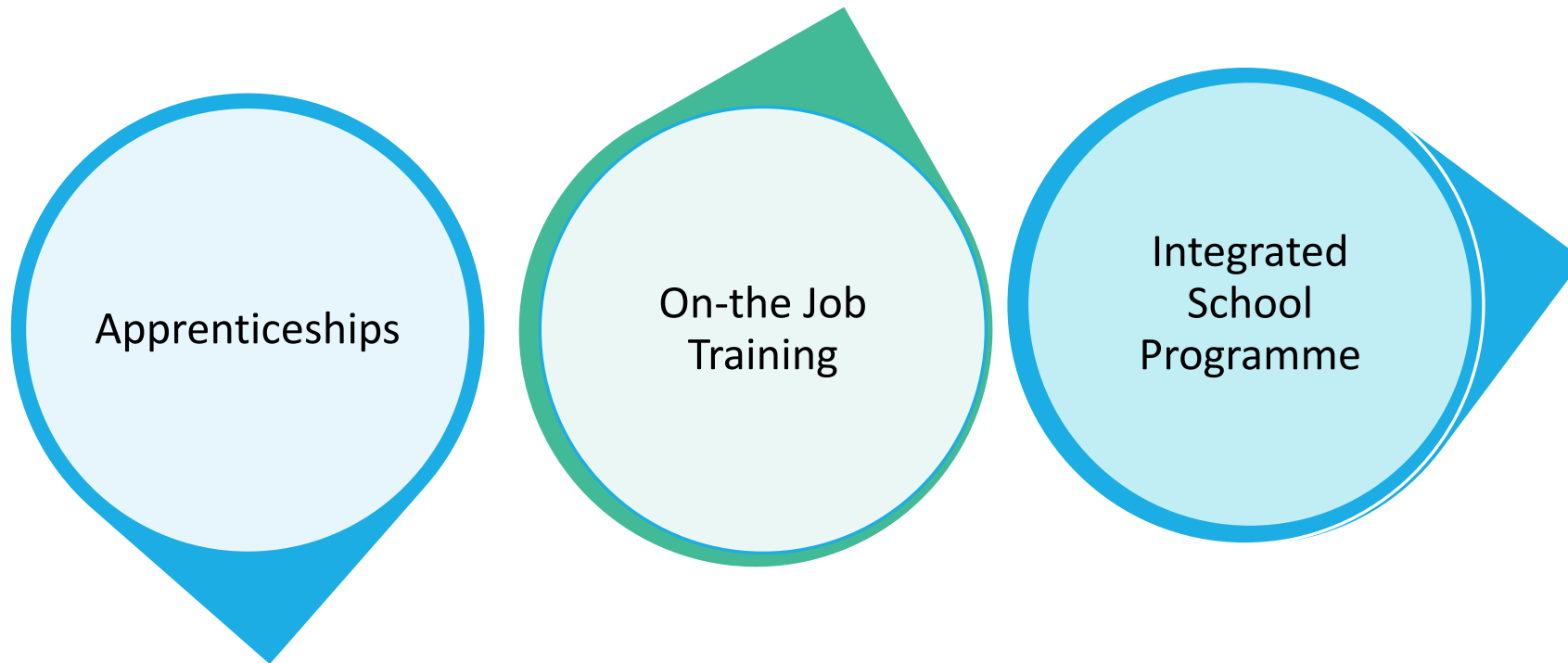
Introduction

1. Work-Based Learning
2. Recognition of Prior Learning

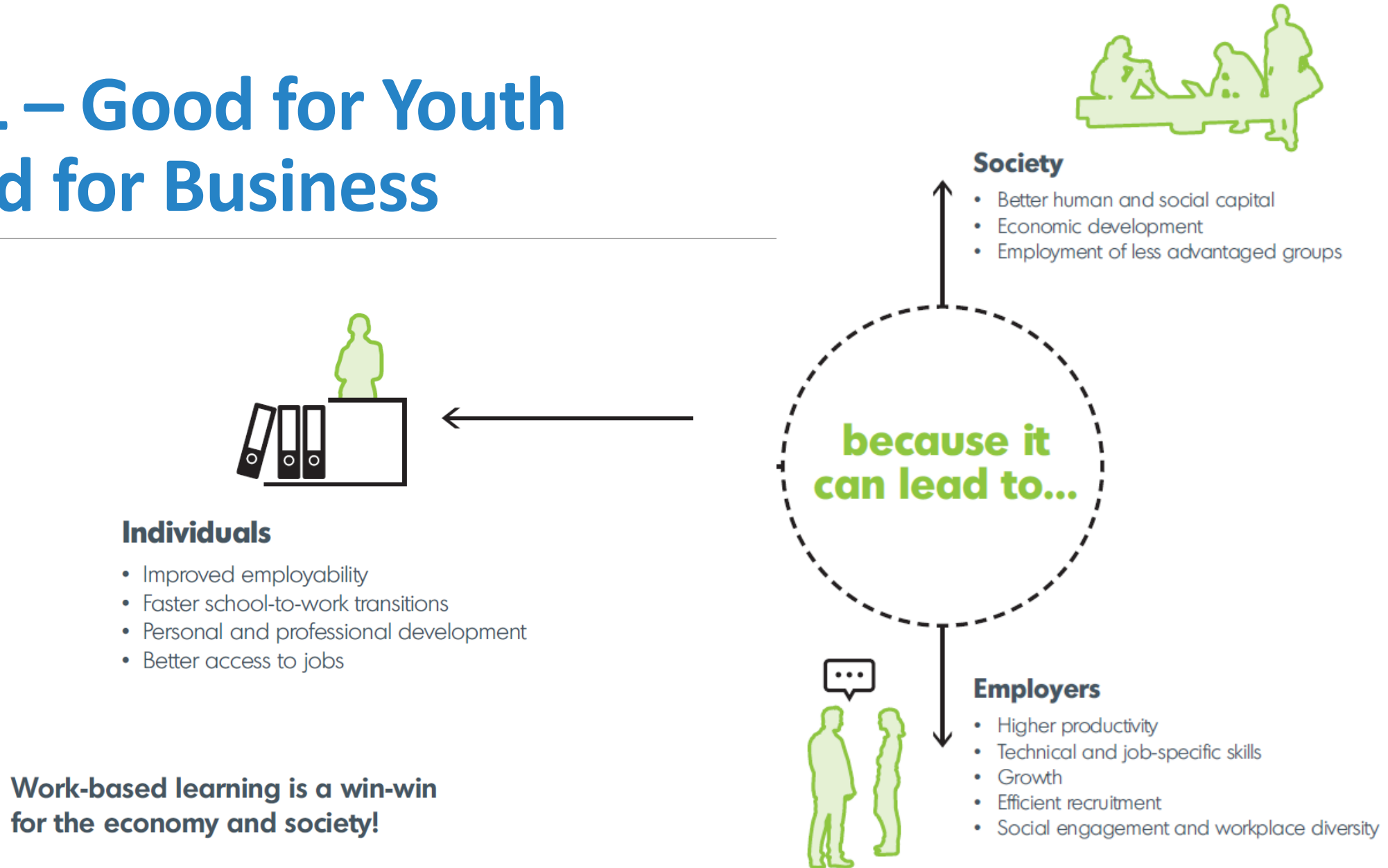


Work-Based Learning (WBL)

Work –based learning - “Acquisition of knowledge and skills through carrying out – and reflecting on – tasks in a vocational context, either at the workplace (such as alternance training) or in a VET institution.” (CEDEFOP, 2011)



WBL – Good for Youth Good for Business



Advantages of WBL in Welding Sector



Explore a real industrial environment



Training programme aligned with industry standards



Lower costs in recruitment and certification

WBL | Advantages



Apprenticeships | How to implement?

1 Roles in the WBL qualification path



Authorised Nominated Body (ANB)

Upon authorisation from the ANB, ATB/Training Centre must put in place a procedure to manage and assess work-based learning (WBL), according to WOW Quality Assurance Guideline for the recognition of work-based learning.



Authorised Training Body (ATB)

Based on such a procedure, ATBs /Training Centre select the company(s) where trainees can attend the work-based learning approach and monitors the progress of the trainee. The selection shall be based on the specific requirements. ATBs should also supervise companies and trainees throughout the process. **Tutors** will be assigned by ATBs to trainees to assist them during the WBL process.



Host-company

Within the host-company, a **Mentor** shall be identified, who is responsible of the training performed in the host-company; based on the specific needs, **in-company-trainers** may be used to train the trainee on specific subjects.

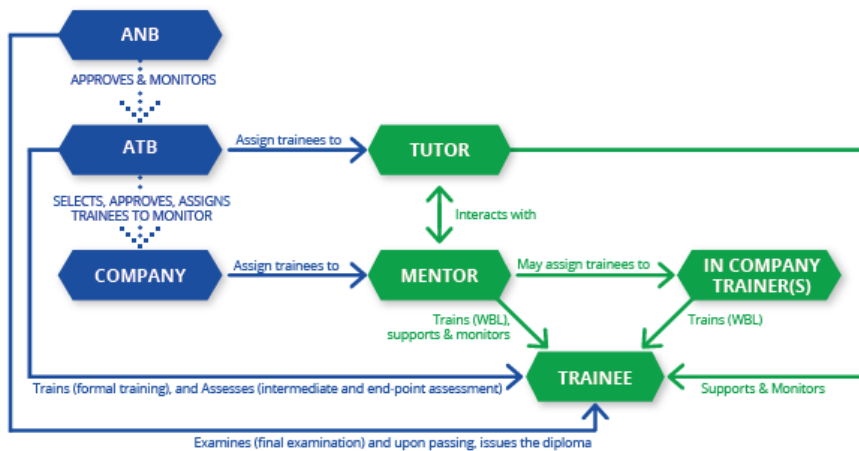


Diagram 1 - Roles in WBL in the welding sector

Guideline on partnership quality

The WBL training path is composed of the following*:

- 01 Formal training performed according to the applicable revision of the EWF Guideline doc EWF-IAB 252;
- 02 Work-based learning performed at the host-company according to Quality Assurance Guideline for the recognition of work-based learning;
- 03 End-point assessment to evaluate the WBL process.

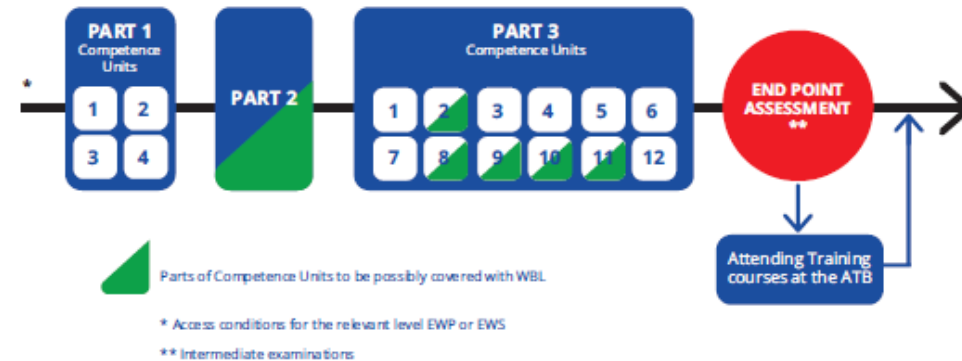


Diagram 2 - WBL learning path diagram with contents covered (one or several subjects to be selected)

Part 2 - Practical Education

- Oxygen welding and cutting
- MMA/TIG
- MIG/MAG + Flux Cored Arc Welding
- Other Welding Process

Part 3 - Competence units (CU)

- CU 2 Welding and cutting conventional processes
- CU 8 Design for welding & brazing
- CU 9 General features for quality management
- CU 10 Quality assurance, quality control on welded joints
- CU 11 Tests used for the quality control of welded joints

Apprenticeships | How to implement?

The image displays three documents from the WOW (Work-based Learning Opportunities in WPLD) project. The top document is the 'Apprenticeship WBL Agreement and Commitment Statement', which includes fields for the trainee's name, company name, and a declaration of commitment. The middle document is the 'Apprenticeship Declaration', which features the WOW logo and a section for the 'NAME OF THE TRAINEE'. The bottom document is the 'Apprenticeship Individual Training Plan', which includes a table for 'Learning Objectives' and a section for 'Company Training'.

Full versions are available online at the project website: woweldingproject.eu

- ✓ Create individual learning paths
- ✓ Monitor trainees' progress
- ✓ Repository of resources
- ✓ Assess sustainability of in-company training partnership
- ✓ Platform tutorials for each user



Apprenticeships | Factors to succeed

1

Clear arrangements

Rights and obligations of each intervenient (tutor, mentor and trainee) should be clearly understood and communicated since the beginning of the WBL experience;

2

Agreed WBL training programme

Learning Outcomes selected for the WBL experience must be decided by the training centre, host-company and trainee; and include a short introduction to the host-company (e.g. Structure, environment health and safety. In the case of welding, WBL learning path addresses specific parts and competence units of EWF Guideline 252 (refer to diagram 2);

3

Continuous pedagogical support

Time devoted to practical learning in the host-company should be flexible, although it should be maximised to benefit both trainees and companies (recommended time goes from 30 to 40 hours);

4

Empowerment of the intervenients

Adequate coaching of the tutors, mentors and trainees should be provided before enrolling in WBL (e.g. regarding the use of the platform, using a demo-version in this sessions); in-company trainers/mentors should have be prepared to have the proper soft and pedagogical skills to deliver to in-company training;

5

Effective platform

A user-friendly and accessible platform should be used for continuous communication and monitoring of the WBL experience;

6

Companies requirements

Certification of companies should not to be a condition for hosting WBL, although WBL could be envisaged as the 1st step for companies to become certified according to ISO 3834-2 or 3834-3;

7

Accurate quality assurance model

Work-based learning assessment must rely on clear criteria and focus on the overall quality of WBL as well as in the partnership relation.

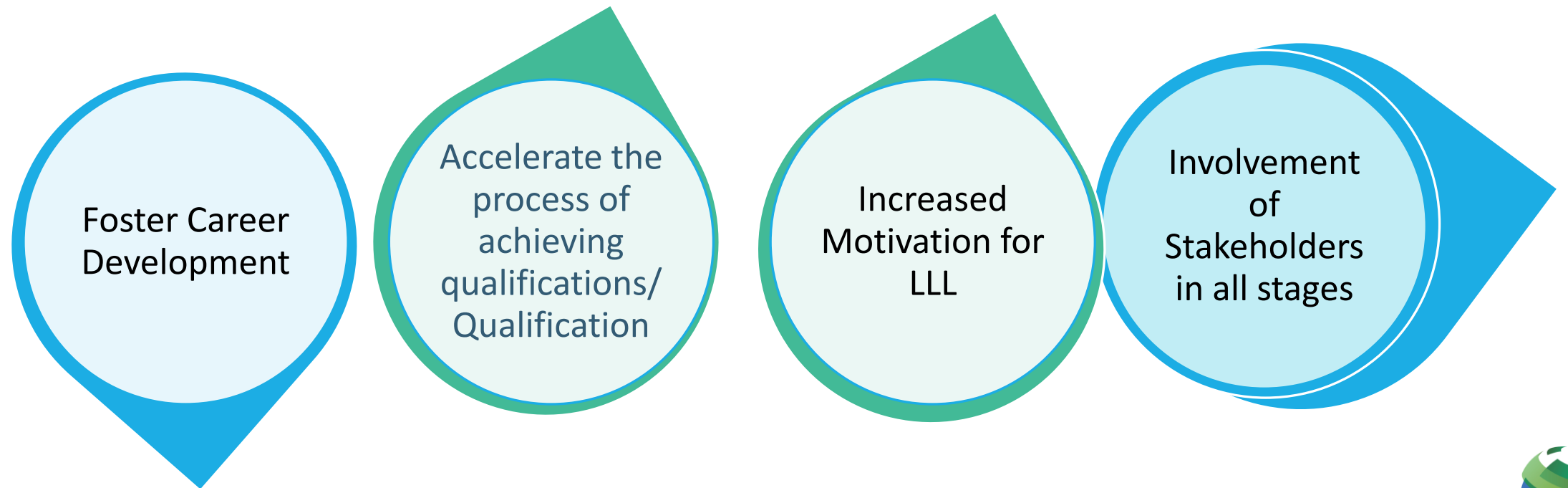
Recognition of Prior Learning | Validation

Validation is about making the diverse and rich learning of individuals visible and to attribute value to that learning, regardless of the context in which the learning took place.

- ✓ The validation allows **showing evidence** and **demonstrating formal** (happening in an organized learning environment - education or training institution or job), **informal** (happening in a non-structured environment – daily activities related to work, family or leisure) **and non-formal learning** (happening in planned activities not explicitly designated as learning, which are developed by Trade Union, social groups or movements), previously acquired in the different contexts of a person's life, having as reference a specific standard of professional competences.
- ✓ **Enables individuals who may already have experience of the job function** at a particular level without holding the appropriate **qualification diploma**. These individuals can **demonstrate their capability** to proceed to examination either directly without compulsory attendance of an approved training course or by attending only part of such a course.



RPL | Advantages



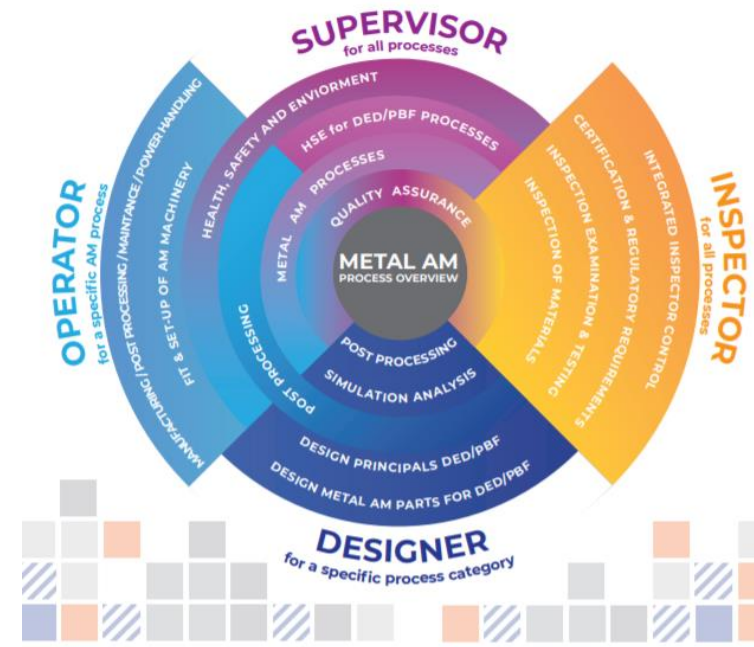
RPL Schemes

Welding



Support training and validation of skills at the
I/EWP Level

Additive Manufacturing



Support training and validation of skills for AM
Operators – Designers – Inspectors - Supervisors

RPL | Validation of Prior Learning

WELDING
SKILLS

Additive
Manufacturing
Skills

CONDITIONS TO START

MINIMUM EXPERIENCE

**3
years**

Min. experience as
Welder (plate or tube)
in the industry

**1
year**

Min. experience in the job
function as Welding
Practitioner in the
industry, namely in
coordinating welding
personnel

**2
years**

Experience as AM Operator /AM Designer /AM Inspector
/AM Supervisor in the industry

Min. 2 year job function as AM Practitioner/Metal
Practitioner/ Metal Designer /FEA Calculator/Simulator /
Metal Supervisor /Metal Inspector /testing _analysis
Performer **in the industry, namely in coordinating AM
personnel and tasks** (Am processes and costs- Supervisor)



RPL | Hosting and Documentation

STAGE 1



INFORMATION

RPL PROCESS
EWF QUALIFICATIONS
REQUIREMENTS



PREPARATION OF PORTFOLIO

GATHERING EVIDENCES

RPL | Recognition

CHECK IF CANDIDATE HAS CONDITIONS TO ENROLL IN THE PROCESS

STAGE 2



SELF-ASSESSMENT GRID



PORTFOLIO
CHECKLIST

RPL | Assessment and Validation

STAGE 3



KNOWLEDGE + SKILLS

VS



**QUALIFICATION
STANDARDS**

THROUGH:



TECHNICAL INTERVIEW

DOCUMENTATION REVIEW



RPL | Assessment and Validation

YES



MOVE ON TO THEORETICAL
AND PRACTICAL
EXAMINATION

STAGE 3

NO



MOVE ON TO
REQUIRED TRAINING

Diploma Awarding

STAGE 4



FULL DIPLOMA

QUALIFICATION



PARTIAL DIPLOMA

COMPETENCE UNIT- RECORD OF ACHIEVEMENT



Adelaide Almeida
madealmeida@ewf.be

Thank you for your attention!





EWF Modular System

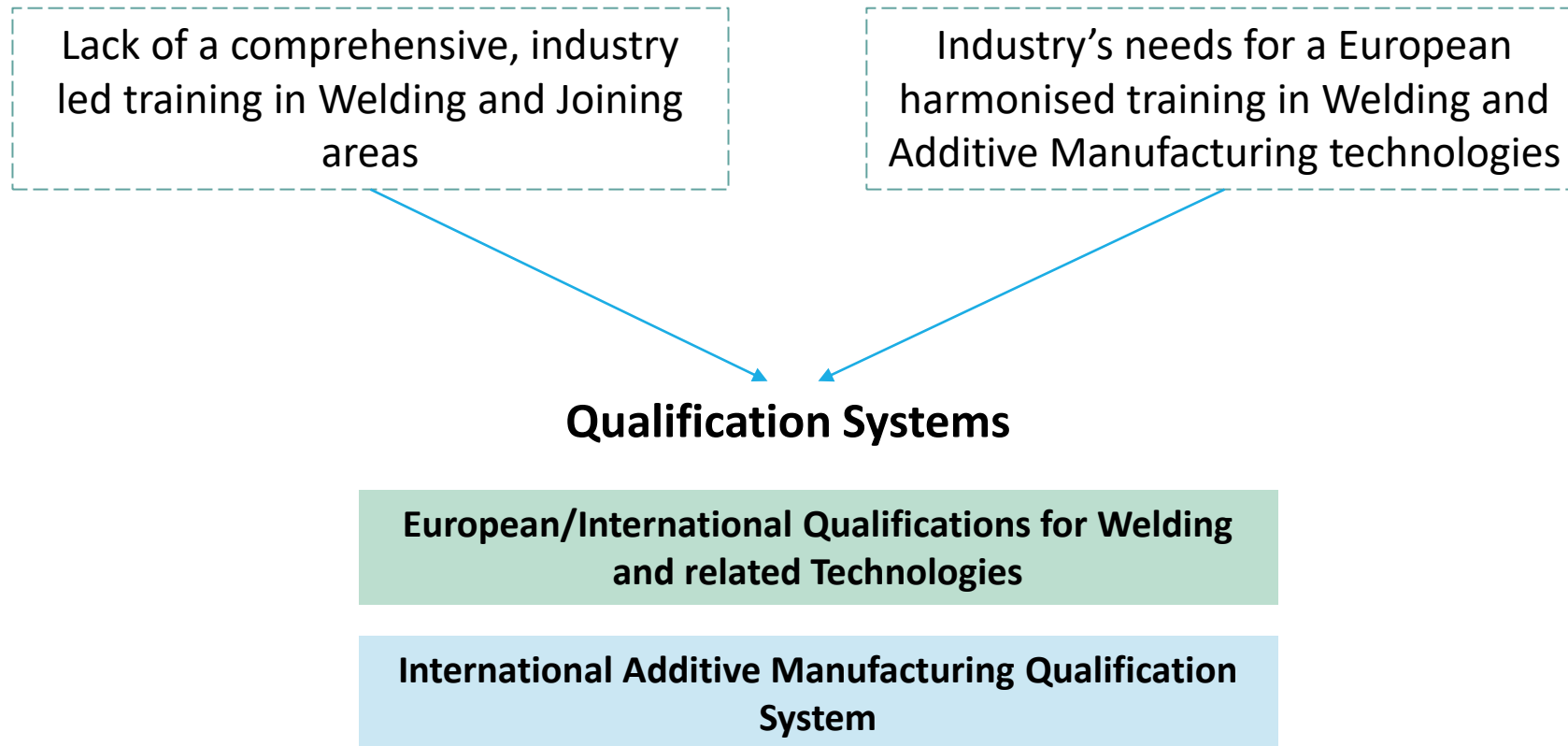
Session focused on presenting EWF Modular System as part of its methodological approach for designing/developing Qualifications, and its main advantages for ATBs

by Susana Nogueira



This project has received funding from the Industrial Technologies Advanced Materials and Nanotechnologies under the European Union's Horizon 2020 innovation programme under the grand agreement number 814552.

EWF Qualification Systems | Why?



EWF Qualification Systems | What?

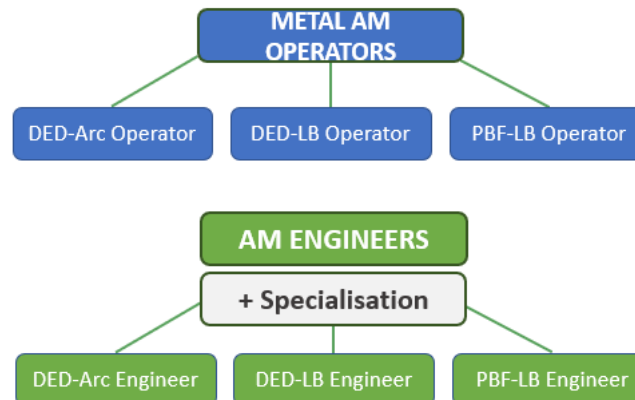
European/International Qualifications for Welding and related Technologies

- ✓ Welding Coordination (EN ISO 14731)
- ✓ Welding Inspector
- ✓ Welders (Processes and Materials)
- ✓ Adhesives
- ✓ Welding Resistance Process
- ✓ Laser Processing
- ✓ Mechanized Welding/Orbital Welding/Robot Welding
- ✓ Thermal Spraying
- ✓ Railways
- ✓ Dedicated Knowledge for Personnel with Responsibility for Welding Coordination to comply with EN 1090-2 & European Welding Fabrication Risk Manager Qualification
- ✓ Special courses (incl. Heat Treatment, Reinforcing Bars, Macro and Microscopic Evaluation, Welding Imperfections, Diver welder-MMA, Laser Safety Officer)



Proficiency Levels
Elementary to Expert

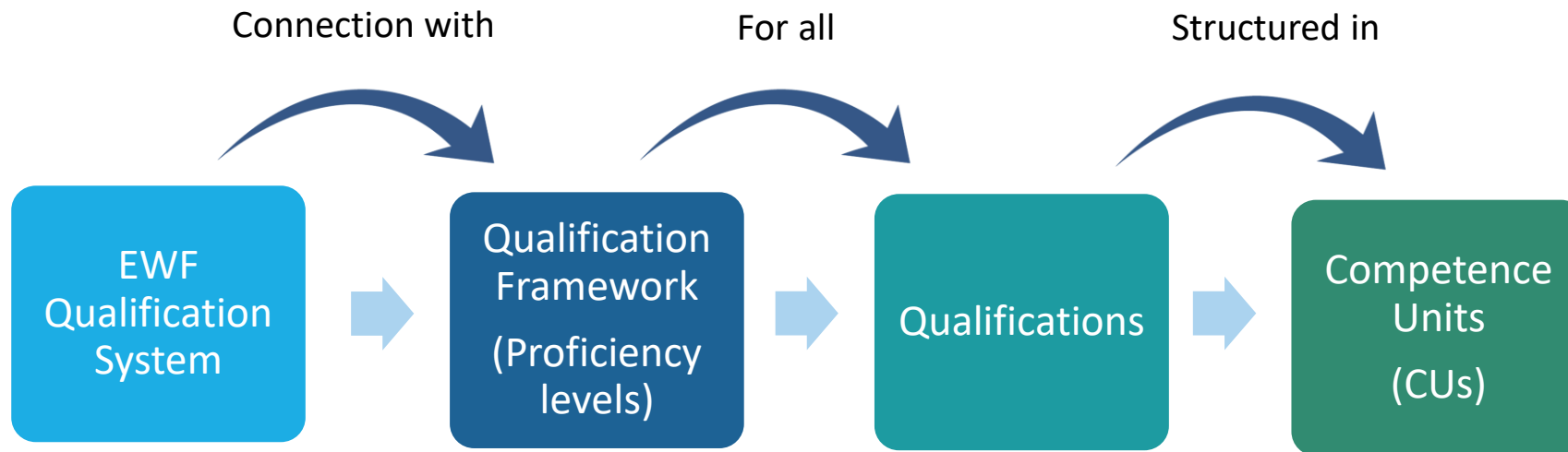
International Additive Manufacturing Qualification System



Proficiency Levels
Independent to Expert

EWF Qualifications' Design

EWF Education, Training & Qualification System



EWF Qualifications' Design | How?

Methodological Approach

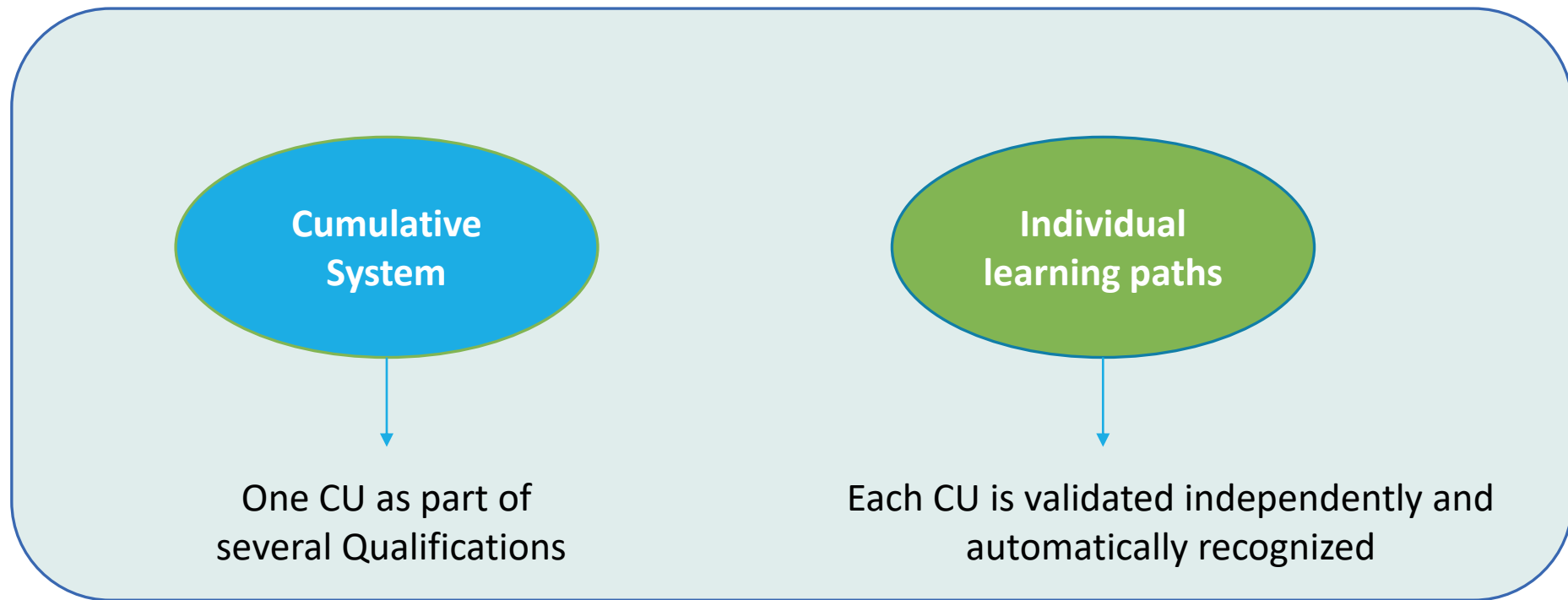
- ✓ Use of a **common terminology** to all Qualifications;
- ✓ Developed based on a **Modular System**, in which each Qualification is composed of a set of **Competence Units**, written in **Learning Outcomes**;
- ✓ Applies either in the **definition of new Qualifications** or in the **redefinition of existing Qualifications**.



EWF Qualifications' Design | Structure

What...	is the general description of this professional occupation?	Professional profile
	job functions respond to the general description?	Major functions
	are the necessary activities to comply with each job function?	Basic functions
	is the required knowledge and skills to perform these activities?	Learning outcomes

EWF Qualifications' Design | Modular System



The Trainee can progress within the System, and can access to different/higher Qualification levels

EWF Qualifications' Design | Modular System

Qualification Guideline

Description of Professional Profile

Routes to Qualification

Access Conditions

Qualification overview – Mandatory &
Optional Competence Units

Competence Units Guidelines

Education and Training – Learning
Outcomes

Detailed knowledge Competence Units

Examination procedures

Written, oral and practical examination

EWF Modular System | Main Advantages for ATBs

Allows upskilling pathways within the same field of activity or among different specializations



In line with Industry's requirements and replying to Industry's skills needs

Greater capacity to reply to specific and immediate Industry needs

Possibility to include CUs in the training offer, according to own resources

Flexibility for the implementation of CUs, allowing companies and professionals to attend tailored training, recognized within EWF Qualification Systems



Susana Nogueira
snogueira@ewf.be

Thank you for your attention!

