



Projects involved:



Date: **20th November 2023**

Time: **14 – 18h**

Location: **Ordem dos Engenheiros,**
Av. António Augusto de Aguiar 3D,
1069-030 Lisboa

Register here:



Sustainable Futures: *Green & Digital Skills Transition* | WORKSHOP REPORT

BACKGROUND

EWF workshop “Sustainable Futures: Green and Digital Skills Transition”, a partnering event of the [European Year of Skills](#), took place on the **20th November** at **Ordem dos Engenheiros**, in Lisbon, Portugal.

The event brought together 35 participants, representing both education and industry, from several European countries, including EWF members, to discuss meaningful education practices that can support training providers, and ultimately manufacturing industry, to achieve the green and digital transition in the upcoming years.

The workshop started with an **Opening Plenary Session** introducing the background for the Green and Digital Transition within the Portuguese context, as well, as the motivation for organisations to initiate a “green stamp” recognition. The plenary was followed by several **roundtables** enabling the interaction between participants to brainstorm on the requirements for EU training organisations to become *greener*. The roundtables’ conclusions were presented in the plenary, as well as an overview on the steps for the attribution of the Green Labelling in Education and Training. The event ended with the presentation of the GREEN Maturity Self -Assessment query results that was surveyed during the event.

Further details about the workshop results are described next.



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WELCOMING & PLENARY SESSION – Part I



SUSTAINABILITY IN THE NATIONAL INDUSTRIAL CONTEXT

Topics

- Overview of global metal working activity
- Green European & national policies
- Examples of sustainable activities and technologies in the Portuguese context

Speaker: Rita Moura (*Ordem dos Engenheiros*)



GREEN LABEL FOR EUROPEAN TRAINING CENTRES

Topics

- 2023 Year of Skills
- Environmental challenges
- Demand for Digital & Green Skills
- Education: Knowledge & skills for a positive change
- Green label for European Training Centres

Speaker: Adelaide Almeida (*EFW*)

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THE USE OF WELDING SIMULATORS AS A GOOD PRACTICE FOR WELDING TRAINING

Topics

- Global shortage of Welders
- Role of Simulation
- Virtual Welding Training Systems
- Augmented reality
- Advantages of augmented training
- LEARNING MANAGEMENT SYSTEM

Speaker: Marius Karl Stadler (*Seabery*)

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OUTCOMES OF ROUNDTABLE INTERACTIONS

Three roundtables were organized to discuss and analyse within each dimension (Curriculum, training delivery methods & tools, and infrastructure), which requirements shall be considered for Education and Training Organisations to become greener. The core question raised by the moderators in the roundtables was:

“What are the requirements for EU Training Centres (VET & HE) to become Green at ... ?”

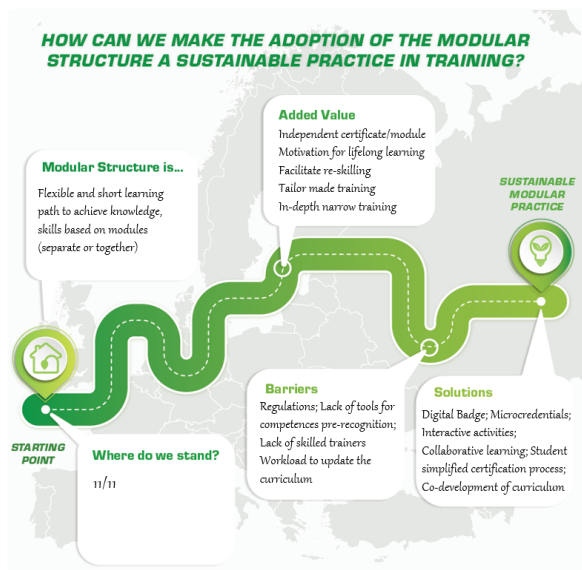
... Curriculum level

Goal: The roundtable focused on discussing the adoption of a modular structure for training, and its impact as a more sustainable practice in the future. Participants were invited to start a journey, with the same understanding and perception of the concept “modular structure” of training curricula until reaching the final destination, which is represented by a sustainable modular practice. During the path, participants mapped the added-value, barriers, and solutions towards adopting a modular structure as sustainable practice for training.

[HIMACROW](#)¹ project was presented as an example of curricula modularization to support the discussion. HIMACROW project dealt with “*Harmonized personnel training for Macroscopic and Microscopic Metallographic Examination of structural Materials*”.

Results:

- ✓ Participants had already a notion about the “modular structure” concept, either from their **experience** as trainers, designers of training programmes and/or trainees.
- ✓ Therefore a common definition for “**Modular structure**” was easily reached as: “flexible and short learning path to achieve knowledge and skills based on modules (separate or together)”.



- ✓ The **main advantages** appointed by the participants are linked with the possibility of independent certification/assessment for each module; motivation for lifelong learning; facilitator for up-skilling; enabler for tailored training; opportunities for in-depth / narrow training (building from what the trainees already know, avoiding repetition).
- ✓ The main **barriers** identified are lack of regulation; lack of tools to enable the skills/competences recognition; lack of skilled trainers; (heavy) workload (and time consuming) process to update existing the curricula.
- ✓ In terms of **solutions** to overcome the barriers, the following were suggested: Digital badges / micro-credentials; collaborative approach (learning with and from others) and co-development of curriculum.

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Conclusion: results reveal a balance between advantages and disadvantages, which indicates that there is still room for improvement and a call for action is needed so that the Modular structure can be a sustainable practice in education.



... Training delivery methods & Tools

Goal: The Roundtable aimed to reflect and share good practices on the process of conducting and delivering a greener training. After sharing examples of good practices in training, the participants did a self-assessment exercise, to find the level of utilisation of green training tools and methodologies.

The participants were firstly inquired: ***How to successfully introduce green practices into training guidelines?***

To promote the discussions around the thematic, the results from several European Projects dealing with such aspects were presented, namely: **DIGIGREEN**, **D-EWI** & **AREOLA** as well as **Seabery Soldamatic** best practice.

DIGIGREEN focus on supporting the **digital and green transition in manufacturing**. The project developed a set of competence units on digital transformation in fabrication and logistics, on green fabrication and on transversal and soft skills. The competence units target blue and white collar workers and were prepared having in mind the needs, constrains and opportunities identified in a consultation process to industry. In addition, the DIGIGREEN project prepared also digital training materials to support this transition.

D-EWI scope is a project in the field of digital training for **European Welding Inspectors (EWI)**, addressing the growing demand for digital education to allow training centres to adapt to this trend, as well as to support the shortage of lecturers experienced in e-learning. The digital training materials developed in the framework of D-EWI, were presented and showcased as an example of a good practice in this context, as well as the guide for teachers and trainers.

AREOLA project is a good example of how to include innovation and technology into training to become greener. The project tackles the training of **PBF-LB Operators** in the aerospace sector. During the project implementation, new digital training materials were created targeting the mentioned profile and sector. Also, a set of scenarios was prepared for the practical training, using Virtual Reality technology. The scenarios were prepared and tested in real training.

Seabery Soldamatic, invited speaker of the event, showcased their solutions to train future welders, avoiding the risks, the time-consuming and the waste from conventional welding training, by the use of simulators in training. According to Seabery Soldamatic, the reduction of CO₂ emissions is 99% and the accidents in training decreased in 84%.



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Results:

The results of the assessment exercise developed along with the participants are:

- ✓ the majority of participants noted that the level of use of green tools and methodologies is already installed in their organisations, but there are still more opportunities to improve this level and they can identify some examples of what can be changed or improved.
- ✓ Organisations are making an effort to incorporate greener practices.
- ✓ Training is one of the key-factors to support companies in this challenge.

Conclusion: the roundtable successfully achieved its objective of reflecting on and sharing good practices related to the implementation of more environmentally friendly training practices.



The impact of distance learning on the environment was highlighted, with statistics underscoring the potential reduction of carbon emissions and waste.

Participants actively engaged in mapping out examples of green training delivery practices, emphasizing the utilization of technology and raising awareness through conferences. The self-assessment exercise revealed that while many organizations have integrated green tools and methodologies, there is still room for improvement.

The presented projects and initiatives, DIGIGREEN, D-EWI, AREOLA, and Seabery Soldamatic, showcased innovative approaches to introduce green practices into training delivery. These initiatives not only demonstrate the integration of technology but also underscored the importance of aligning training with environmental sustainability. Overall, the Roundtable discussions highlighted the critical role of training in supporting companies' efforts to adopt greener practices and provided valuable insights into successful strategies to incorporate sustainability into training methodologies.



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... Infrastructure level

Goal: The Roundtable aimed to be a creative exercise for participants to design, in terms of infrastructure the “**Ideal green training centre**”. Within this ideal scenario, some choices had to be made regarding training topic; building, equipment, and materials as well as the entire associated value chain of human resources, and linked accreditation and/or certification aspects. In parallel the roundtable intended to understand and extract conclusion about: the degree of implementation of these practices; Motivation for transition (change trigger); physical context for training; formats of training available, among others.

This roundtable was inspired by a reference standard ISO 14001 for the certification of environmental management systems. This standard is an essential tool for organizations that wish to achieve increased trust among customers, employees, the surrounding community, and society, through demonstrating voluntary commitment for continuous improvement towards its environmental performance



Results: These were the main results and conclusions of the infrastructure level workshop that focused on a case study of a training centre for the railway industry located in Southern France. The centre has implemented a comprehensive strategy to reduce its environmental impact and improve its overall sustainability.

ENERGY EFFICIENCY AND RENEWABLES

- The building utilizes a water-cooling system to conserve energy and reduce heat gain.
- Photovoltaic panels generate electricity to supplement the centre’s power needs.
- An air purifying system incorporating plants promotes indoor air quality.
- Grey and blue water systems are employed for water recirculation and reuse.

SUSTAINABLE WASTE MANAGEMENT

- Industrial symbiosis is practiced by selling welding scraps from training to other industries.
- Composting is employed to transform food waste into nutrient-rich soil amendments.
- Bicycles and rickshaws are encouraged for transportation on-site, reducing reliance on fossil fuels.

SUSTAINABLE FOOD PRACTICES

- A farm-to-table approach ensures the centre sources its food locally and sustainably.
- Green certificates from suppliers verify the eco-friendly practices of providers.

TRAINING INNOVATION

- Simulators, games, and augmented reality (AR) are utilized for engaging and effective training programs.
- Paperless communication and operations minimize the use of paper and its environmental impact.

RESOURCE OPTIMIZATION AND REPURPOSING

- End-of-life equipment is repurposed whenever possible, extending its lifespan and reducing waste; Shopfloor rearrangements enhance energy efficiency and reduce unnecessary energy consumption.
- Smart grid systems optimize energy usage and ensure efficient demand response capability.
- An integrated resource management IoT platform collects and analyses data to further optimize resource allocation.

CONSUMABLES AND COMMUNITY OUTREACH

- Eco-friendly whiteboards, green label products, and seasonal and local supplies are prioritized for purchases.
- Packaging is minimized to reduce waste and protect the environment.
- The centre actively engages with the community by hosting events and promoting sustainable practices.

PLENARY SESSION – Part II



STEP BY STEP APPROACH TO BECOME A GREEN TRAINING CENTRE

Topics

- Application
- Scenarios for application
- Authorization
- Implementation: Green label for European Training Centre
- Renew the authorizations

Speaker: Pedro Catarino (EWF)

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LET'S PILOT THE GREEN TRANSITION! GREEN PROJECT OPEN CALL

Topics

- GREEN project & the European VET NETWORK
- Added value of the Green Label: Recognition, Excellence & Sustainability
- Criteria for Green labelling
- Launching the Open call

Speaker: Marina Baptista & Rafael Afonso (EWF)

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CLOSURE

The event closed with the presentation of the "GREEN Maturity Self -Assessment" results. Participants were asked to reply to a short query of six questions by rating their own organizations from 1 to 5 (being 1 the lowest score and 5 the highest score) in terms of maturity towards the green transition. The questions and results are the following:

Green Maturity Self-assessment topics	Maturity Level	Average Rating	Rating
Promotion of actions covering green concepts	Fair	3.67	★ ★ ★ ★ ☆ 11% 0% 33% 22% 33%
Promotion of raise awareness actions for more sustainable practices	Good	4.33	★ ★ ★ ★ ☆ 0% 11% 0% 33% 55%
Holding the right skillset	Fair	3.67	★ ★ ★ ★ ☆ 11% 0% 33% 22% 33%
Priority given to the green transition	Good	4.11	★ ★ ★ ★ ☆ 0% 11% 0% 55% 33%
Level of preparation in terms of infrastructure	Fair	3.56	★ ★ ★ ★ ☆ 11% 0% 33% 33% 22%
Level of preparation for making the necessary investments	Fair	3.56	★ ★ ★ ★ ☆ 11% 11% 22% 22% 33%

Conclusion: In average all organisations have a perception of a fair maturity level (with all topics rated above 3.5); The promotion of raise awareness actions towards sustainability is the topic with highest score (4.33), meaning that this one of the most implemented actions being taken by companies. Also, the perception of the green transition as priority, has received a good rating, which show that for the majority of the organisations this is a priority topic.