

# CHROMAFOR

Skills and competencies for a Circular Human Resources Management in the Foundry sector

## **TRAINING PROGRAMME FOR A CIRCULAR HUMAN RESOURCES MANAGEMENT IN THE FOUNDRY SECTOR**

**CHROMAFOR GUIDELINES FOR COLLABORATIVE TRAINING ACTIVITIES**

### **MENTOR'S GUIDE**

The European Commission support for the production of this publication does not constitute an endorsement of the contents, which reflects the views only of the authors, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.



Co-funded by the  
Erasmus+ Programme  
of the European Union



## INDEX

INDEX	2
1.-INTRODUCTION	3
2.- AIM OF THE GUIDELINES	5
3.- TRAINING MODULES STRUCTURE	6
4.- COLLABORATIVE LEARNING ACTIVITIES DESCRIPTION	7

## 1.-INTRODUCTION

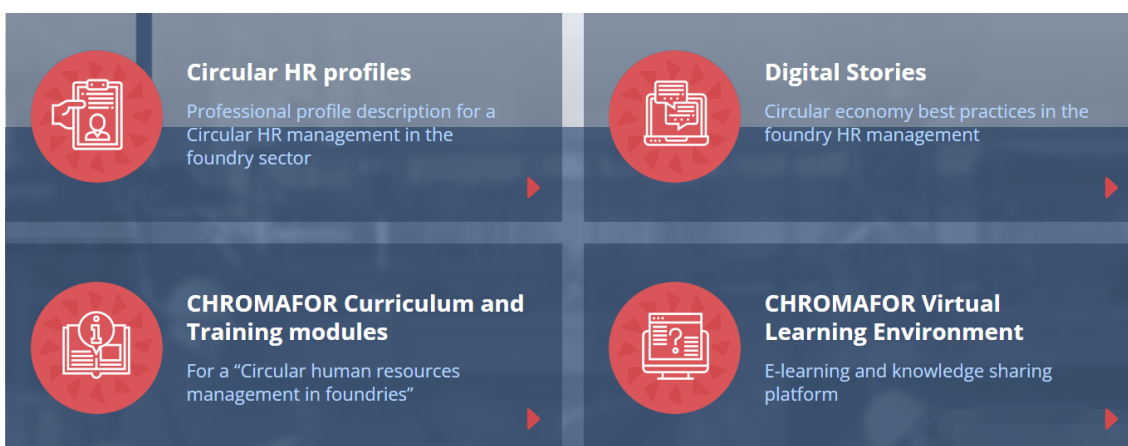
These guidelines for the training modules that we introduce here, are part of the CHROMAFOR project - Skills and competencies for a Circular Human Resources Management in the Foundry sector (2020-1-ES01-KA202-081908) - that aims at supporting the transition of European foundries, from a lineal and traditional human resources management model to a Circular Human Resources management model.

The CHROMAFOR project is aimed at the collective of:

- European Foundries HH.RR. Managers
- Foundries and Industrial companies
- Education and training providers (VET centers and Universities)
- Other Education and Training providers (C-VET and HE providers)

Within the CHROMAFOR project 4 results have been developed (<https://chromafor.eu/>):

1. Circular HR profiles
2. Digital stories
3. Curriculum and training modules
4. CHROMAFOR Virtual learning environment



These guidelines are part of the third result "Curriculum and training modules". The CHROMAFOR training modules will have the expected impact on the main target groups:



The European Foundries HH.RR. Managers will:

- have the required professional profile which will enhance the circular economy in foundries;
- provide the same competences, so the mobility of workers within Europe will be enhanced, the access to the labour market of unemployed people will increase and the competences of the workers will be improved.

The Education and training providers (VET and HE centers) will:

- have a highly innovative and targeted curricula and cost-sharing that will stimulate students' circular economy knowledge and skills;
- be able to anticipate to the changes in the required competences (avoiding mismatches between labor supply and demand), providing the learner the technical support and the opportunity to apply the knowledge and required tools to give an appropriate answer to the actual demands of the foundry, by increasing labour market relevance of VET;
- have the chance to reinforce cooperation with other VET providers, the market and other stakeholders;
- validate the training programme in a transparent manner that will be recognised across borders.

The Industrial companies will:

- develop their capacity to adapt and innovate, achieving higher added value products (developing business related to circular economy).

The VET learners will:

- benefit from being able to be prepared with updated professional profiles required by the circular foundries, ensuring the realization of the full potential of green technologies / processes;
- have a transnational training programme that responds to this new circular economy needs, strengthen their competences in this field and their skills which are relevant for developing this kind of curricula and scenarios.



## 2.- AIM OF THE GUIDELINES

The aim of this guidelines is to introduce the VET and HE trainers and teachers on how to implement the practical activities containing in the training modules developed in CHROMAFOR project:

- ☐ Managing basic technical and environmental concepts towards a circular HRM model
- ☐ European and national laws, regulations and certifications for the circular economy in the foundry sector
- ☐ Environmental management & sustainability in the foundries
- ☐ Encouraging a circular economy strategy in the foundry sector
- ☐ Systematizing and quantifying the circular economy in the foundry sector
- ☐ Sharing and spreading the circular economy and their values in the foundry sector

The CHROMAFOR modules are 5-hour learning hours each and they contain:

- Collaborative learning activities to be developed face to face (if the training material is developed in a classroom with a group of learners and lead by a teacher/trainer) and /or synchronous online (the group of learners are not in the same classroom but they are gathered on line).
- Self-learning and /or asynchronous online sessions, when the learner study by their self though their own computer.

These guidelines are focused on the **collaborative learning activities**, by indicating the teacher / trainer how to carry out with the learners this training material. Not all the six modules contain collaborative learning activities.



### 3.- TRAINING MODULES STRUCTURE





## 4.- COLLABORATIVE LEARNING ACTIVITIES DESCRIPTION

<b>Collaborative learning activity</b>	<b>1) Refurbishment activity</b> <b>2) Open office like foundry concepting</b> <b>3) Departments' communication activity</b> <b>4) Futuristic circular labour force decision activity</b>																				
Module associated	MODULE 1.- MANAGING BASIC TECHNICAL AND ENVIRONMENTAL CONCEPTS TOWARDS A CIRCULAR HRM MODEL																				
Unit associated	1.2. Material & Human circularity																				
Duration	120 minutes																				
How to use the training material	<p>1) Divide the whole group into small groups (4-5 person). It is recommended that the trainer select randomly and try to ensure that all groups have the opportunity to give feedback at least once during all the exercise. This exercise can be used independently or in a workshop setting (small groups of 4-5 persons). If done in small groups, perhaps due to time constraints, not all groups will be able to give feedback on each exercise. If time allows, the trainer could facilitate a discussion among all attendees after each group has given their opinion.</p> <p>-Material circularity activity (45 min):</p> <table border="1"> <thead> <tr> <th></th> <th>Waste material</th> <th>Group 1</th> <th>Group 2</th> <th>Group 3</th> </tr> </thead> <tbody> <tr> <th>Group 1</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>Group 2</th> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>Group 3</th> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>The waste material with the highest functionality of waste form will be selected from among each group member. This selection will be made entirely closed within the group. The trainer will randomly distribute the selected waste materials to other groups. The refunctioning process will be done by each group on paper (theoretical) and the waste material will be exchanged within the groups. Also, the trainer will write down her own ideas for waste on paper. The table will be filled with the application area of refunctionalized waste. The results will be compared with the trainer's suggestions and voted by the groups.</p> <p>-Human circularity</p> <p>2) (30 min) Trainer will show an open office example to groups. Groups will design an open office on paper with visibility lines. Visibility lines shows the angle of vision of each worker in that office. Office workers should be limited up to 5 persons. After that, trainer will try to describe each worker acts and influences on other worker who has the point of</p>		Waste material	Group 1	Group 2	Group 3	Group 1					Group 2					Group 3				
	Waste material	Group 1	Group 2	Group 3																	
Group 1																					
Group 2																					
Group 3																					



view on that worker. Related designer group will compare their idea with the descriptions of trainer. Below table will filled with group members after comparison to obtain highest rated open office.

Parameter	Rate
Comfort	
Personal space	
Interaction	
Inspiration	

All rates will be summed. The working equipment of highest rated office will be changed with the foundry related equipment and results will be discussed.

3) (25 min) The trainer will select 10 different terms according to foundry. The definitions of each term will be done via group. In this section attendances will be grouped according to their positions in the firm. It should be preferred that people in close positions or in the same department will be grouped. After defining the terms, each group will try to describe their definitions without telling to term, to other group (like TABOO game). The one who knows the most definitions wins.

4) (20 min) Talent and diversity. Each group will act like HR centre of firm and fill below table:

Departments	Current skills	Expected skills	Futuristic skills

Each group will fill the table according to labour skills of related department. Also, current needs and future expectations will be listed. Each group will present only 1 table to trainer. Trainer will mark up similar skills and generate general expectations. After that, unselected skills show the diversity and expected skills shows the talents. More





environment related skills show the tendency for building up an eco-friendly organization.

\*Expected skills differentiate from futuristic skills because of being amenable mostly for short-range needs. For example, foreign language knowledge is an expected skill but understanding of a communication between high technological devices such as IoT principles, is futuristic skills.



Collaborative learning activity	Group Studies on Circular HR Management in Metal Casting Industry
Module associated	MODULE 3.- ENVIRONMENTAL MANAGEMENT & SUSTAINABILITY IN THE FOUNDRIES
Unit associated	3.1. Learning to learn, learning from the experience: Group Studies on Circular HR Management in Metal Casting Industry
Duration	60 minutes
How to use the training material	<p>Good practices from the sector, role model films prepared within the scope of CHROMAFOR-IO2 will be reviewed and then group studies will be started.</p> <ol style="list-style-type: none"> <li>1) Participants will be encouraged to develop new strategies and mechanisms by using the principles they learned in the previous units, in a way to take an active role in the group studies that including questions related with role model films. Participants will present the ideas and models they developed within the given time to all participants in the next section and brainstorming sessions will be done.</li> <li>2) In this section, participants are expected to achieve a certain level of success from the questions to be asked about the environment, sustainability, workforce analysis, circular human resources approach, sustainability strategies in human resources, new practices and group work, and strategy formation parts that they will see throughout the module.</li> <li>3) The activity leader should use the training materials and external resources prepared within the scope of the module to the participants in the most effective way possible, ensure that the participants engage with their active participation, and try to create an interactive learning environment. To increase the success of group studies, the activity leader should feed the narrative with dynamic and interesting examples to motivate the participants, allowing participants to exchange ideas, ask questions in real time, and get feedback instantly in the most appropriate way to improve their perception.</li> <li>4) This exercise can be used independently or in a workshop setting (small groups of 3-4 persons). It is recommended that the trainer select randomly and try to ensure that all participants can give feedback at least once during all the exercise. If done in small groups, perhaps due to time constraints, not all groups will be able to give feedback on each exercise. If time allows, the trainer could facilitate a discussion among all attendees after each group has given their opinion.</li> </ol>



<b>Collaborative learning activity</b>	<b>Identify circular capabilities</b>																																													
Module associated	MODULE 4.- ENCOURAGING A CIRCULAR ECONOMY STRATEGY IN THE FOUNDRY SECTOR																																													
Unit associated	4.2 Promoting circular initiatives																																													
Duration	60 minutes																																													
How to use the training material	<p>1) Divide the whole group into small groups (3-4 people). It is recommended that the trainer select randomly and try to ensure that all groups have the opportunity to give feedback at least once during all the exercise. This exercise can be used independently or in a workshop setting (small groups of 3-4 persons). If done in small groups, perhaps due to time constraints, not all groups will be able to give feedback on each exercise. If time allows, the trainer could facilitate a discussion among all attendees after each group has given their opinion.</p> <p>2) Provide the template <b>KEY ACTIVITIES</b> (annex1: <i>Circular initiative template</i>) to the groups and ask them to identify a circular initiative that has been launched in their companies or that may be launched in the future and identify the key steps of this circular initiative, by adding them to the top of the template. (20 min)</p> <table border="1"> <thead> <tr> <th>KEY ACTIVITY STEPS (Name)</th> <th>STEP 1:</th> <th>STEP 2:</th> <th>STEP 3:</th> <th>STEP4:</th> </tr> </thead> <tbody> <tr> <td>Capability</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Critical resources needed:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Capability</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Critical resources needed:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Capability</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Critical resources needed:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Capability</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Critical resources needed:</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	KEY ACTIVITY STEPS (Name)	STEP 1:	STEP 2:	STEP 3:	STEP4:	Capability					Critical resources needed:					Capability					Critical resources needed:					Capability					Critical resources needed:					Capability					Critical resources needed:				
KEY ACTIVITY STEPS (Name)	STEP 1:	STEP 2:	STEP 3:	STEP4:																																										
Capability																																														
Critical resources needed:																																														
Capability																																														
Critical resources needed:																																														
Capability																																														
Critical resources needed:																																														
Capability																																														
Critical resources needed:																																														



3) For each step they should have to identify the capabilities required (annex 2: *List of capabilities*). They have to write the capacities on the colored post it or pens (red, yellow, green, for example) to indicate the degree of development of each capacity. For example: (10 min)

- **Red** – capability does not exist and cannot be easily acquired
- **Yellow** – capability exists or can be acquired but will need to be developed
- **Green** – capability exists or can be easily acquired

<b>CIRCULAR CAPABILITIES LIST</b>	
<b>OPERATING CAPABILITIES</b>	<b>SUPPORTING CAPABILITIES</b>
Supporting capabilities	Management of distribution channels
Assessment and/or inspection of materials	Effective platform management
Inventory management	Service subscription and/or service contract management
Management of innovative packaging/repacking products	Matching supply/demand real time assessment
Asset management and tracking/remote monitoring	Supplier management
Management of product cleaning and refill processes	Customer relationship management
Management of remanufacturing, refurbishment and recondition of products	Circular supply chain management
Understanding new product uses and applications	Circular lifecycle planning
Management of circular production processes	Forecasting and monitoring market prices
Understand utilisation of products	Management of circular procurement processes
Manage R&D processes	Management of partnerships
Management of sustainable sourcing	Conducting market analysis
Design of products for disassembly, recovery, end of life and life extension	Management of legal processes
Product condition assessment/inspection of products/ conducting product fault analysis	Contract management including outsourcing contracts
Collection of waste	Management of financial incentives schemes for recovered parts
-----	-----
-----	-----

4) Then, identify the critical resources (key or scarce) that will be needed for those capabilities. Consider skills, facilities or equipment, information, technology and relationships.... (10 min)



5) Finally, each group will show the results to the rest of the group.(20 min.)



<b>Collaborative learning activity</b>	<b>Identify circular business opportunities within the foundry</b>
Module associated	MODULE 4.- ENCOURAGING A CIRCULAR ECONOMY STRATEGY IN THE FOUNDRY SECTOR
Unit associated	4.3 Solutions to face the Circular Economy
Duration	150 minutes
How to use the training material	<p>Divide the whole group into small groups (3-4 people). It is recommended that the trainer select randomly and try to ensure that all groups have the opportunity to give feedback at least once during all the exercise. This exercise can be used independently or in a workshop setting (small groups of 3-4 persons). If done in small groups, perhaps due to time constraints, not all groups will be able to give feedback on each exercise. If time allows, the trainer could facilitate a discussion among all attendees after each group has given their opinion.</p> <p>This activity has three steps:</p> <ol style="list-style-type: none"> <li>Define the existing value stream map in the company</li> <li>Identify where value is lost and value at risk</li> <li>Identify circular value opportunities</li> </ol> <p><b>A. Define the existing value stream map in the company (45 min)</b></p> <p>Objective: Identify the existing flow of value within the foundry.</p> <p>Key questions to reflect on:</p> <ul style="list-style-type: none"> <li>• What value do I provide? What kind of value?</li> <li>• What part of the value chain do I manage?</li> </ul> <p>1 Encourage the attendees to use post-its to identify the key stages of the value system/process they are considering (e.g. from resource extraction, manufacturing, distribution, sales, use, end of life disposal). They should place the post-its in a circle and write down with any critical aspects of the value creation process. (15 min)</p> <p>2 Indicate the attendees to map how value flows across the chain at each of these stages. They have to separate the value they control and manage on the inside of the circle, and value they don't manage on the outside (such as value that is managed by a supplier or partner). (10 min)</p>





3 They should consider the four **TYPES OF TANGIBLE VALUE** and how these exist within their company (*annex1: supporting concept - Define the existing value stream map in the company*). (20 min)

TANGIBLE/EXPLICIT VALUE: Tangible/explicit value is value that can be capitalised upon			
Resource value	Consumer value	Data value	Relationship value
Product, materials, energy, people, space, processes, waste streams.	Benefits provided to the change to consumer through the product or service.	Data collected from your product or services, patents innovation.	Value of networks and partnerships, consumer loyalty, consumer lifetime value Within CE and sustainability systems, it is also important that a multi-stakeholder perspective is considered
INTANGIBLE/IMPLICIT VALUE: Value that is generated as a result of circular systems			
Stability and control, symbiosis	Positive social impact	Altruism	Behaviour change

**B. Identify where value is lost and value at risk (45 min)**

Objective: Identify where the lost value is within the system and what value is potentially at risk in the future.

Key questions to reflect on:

- Where is this value being lost?
- Where are there broken or incomplete loops?
- Why is it not addressed and fixed?
- What future customer, supply or policy changes may put current value creation at risk?

1 The attendees, looking at their previous “value map” (step A), should identify where any types of value might be lost because of linear flows or broken loops (*annex2: supporting concept- Identify where value is lost and value at risk*). (15 min)

The power of the inner circle	The power of circling longer	The power of cascaded use	The power of pure circles
Materials and resources are reused, refurbished or remanufactured through concepts such as modularity and second hand markets.  This involves minimising the materials and resources required for reusing, refurbishing or remanufacturing.	The products, components or materials are designed to last longer, be more durable and easier to repair.  This looks at ways to extend the life of products through innovation and technology, minimising the resources required	Product and materials have secondary and tertiary uses rather than disposal.  This business model optimises the use of the product from delivering its primary purpose, to secondary use after this, and then tertiary use etc.	Closed loops are created where waste materials and disassembled products and components can be used as feedstock for new products.  Products within this concept of value creation are created from pure, raw materials. When they are redistributed, the



for full product or component creation.

quality is maintained, extending product longevity.

- 2 Encourage them to identify what value within the system might be a risk due to future changes such as resource security, climate change, regulation etc. (10 min)
- 3 They have to consider how much value is being lost or is at risk, and why (e.g. existing industry structure, competitive forces and technical barriers). (10 min)
- 4 Finally, they should list out and prioritise value risk areas based on the importance and impact to their business. (10 min)

**C. Identify circular value opportunities (60 min)**

Objective: Identify opportunities to create or close loops to recover lost value, maximize existing value, or preserve value at risk.

Key questions to reflect on:

- What opportunities are there to close loops?
- Where could you implement typical circular business models?
- Who benefits from this value?

1 Using the list of value lost or at risk (developed in step B) and looking at the looping concepts and circular business models (*annex3: supporting concept- Identify circular value opportunities*) as inspiration, they should consider for each item identified in step B, how to create and close loops to recover or conserve value. (30 min)

Sharing platforms	Product-as-a-service	Product life extension	Resource recovery	Circular supplies
Enable increased utilisation of a product by enabling shared use/access/ownership, often allowing consumers to access products more cheaply.	Products are no longer owned but accessed by one or many customers through lease or pay-for-use agreement.	Extending the working life of a product to ensure it can be valuable in its current form for as long as possible.	Recovering energy and materials used in the creation and use of products to ensure they can be used again.	Minimising the natural and renewable resources used, and designing these to be re-used or recycled.

2 Capture the ideas to identify what kind of value is generated and who benefits from it. (*annex4: worksheet- Identify circular value opportunities*) (30 min)

Value that is lost or at risk:	Value that is lost or at risk:	Value that is lost or at risk:	Value that is lost or at risk:
Idea description-circular solution:	Idea description-circular solution:	Idea description-circular solution:	Idea description-circular solution:





	Type of value generated & who benefits:	Type of value generated & who benefits:	Type of value generated & who benefits:	Type of value generated & who benefits:



Collaborative learning activity	Brand reputation and green marketing – Identification of targets and stakeholders – Tools and channels
Module associated	MODULE 6.- SHARING AND SPREADING THE CIRCULAR ECONOMY AND THEIR VALUES IN THE FOUNDRY SECTOR
Unit associated	6.1 Green Communication
Duration	3 hours
How to use the training material	<p>We recommend the trainer to send documentation, links and other materials suggested in the curriculum to the trainees at least 10 days before.</p> <p>This would allow trainees to read them and have an idea of the issues and topics that will be discussed. (time of reading of the documentation: 1 hour)</p> <p>This unit foresees 2 hours of collaborative learning activities ( in presence or online)</p> <p>In general, we suggest to start every time favouring direct trainees work and reflection and, at the end of proposed exercises, synthetizing, schematizing, clarifying.</p> <p>Instructions for the trainer:</p> <p>Split the whole group into smaller ones (3 to 5 people). It is recommended that the trainer select randomly and try to ensure that all groups have the opportunity to give feedback at least once during all the exercise.</p> <p>Exercises can be used independently or in a workshop setting (small groups of 3-5 persons).</p> <p>The unit focuses on 3 topics:</p> <ul style="list-style-type: none"> <li>- Brand reputation and green marketing</li> <li>- Identification of targets and stakeholders</li> <li>- Tools and channels</li> </ul> <p>Trainees read documentation before collaborative learning, so they already have a basic knowledge of topics proposed. That’s why the idea is starting from participants, simulating their intuitions, collaborations and thinking.</p> <p>On each topic the trainer provides best cases to be analysed, gathering observations and elaborating and commenting them.</p> <p>Each working group will start analysing an example of green brand communication</p> <p>They will have to focus on those questions:</p> <ul style="list-style-type: none"> <li>- Which green values do you notice in communication?</li> <li>- to what extent evidence you have knowledge could confirm / disconfirm them?</li> </ul>



- What the role of internal and external stakeholders for foundries?

Trainees will list emerging values and sketch a SWOT matrix of the communication strategy; discuss consistency between communication strategy and actual company behaviours attendees have knowledge. The trainer will encourage attendees to check company's production characteristics, previous values, supply chain and distribution patterns, etc.

The trainer will afterwards summarize and broaden concepts, using slides.

Starting from those observations, trainees will later work on the identification of a list of targets and stakeholders of the communication strategy. They will be stimulated to enlarge it having a look to general communication of the company

Key questions to reflect on:

- Who are my stakeholders?
- Specifically thinking to foundries, which stakeholders can be „dangerous“ and damage a company's reputation and green communication?

The trainer gathers all the lists discussed and described by working groups and systematizes them according to slides.

Last step of this unit will support trainees to identify and systematize communication tools and channels.

Work divided into the same groups, starting from the matrix elaborated in previous exercise, trainees list tools and channels commonly used. The trainer gathers different groups work and rielaborate them, according to slides



<b>Collaborative learning activity</b>	<b>Work on best practises – Green people management and green engagement – Best tools, channels and tips</b>
Module associated	MODULE 6.- SHARING AND SPREADING THE CIRCULAR ECONOMY AND THEIR VALUES IN THE FOUNDRY SECTOR
Unit associated	6.2 Green visibility
Duration	2 hours
How to use the training material	<p>We recommend the trainer to send documentation, links and other materials suggested in the curriculum to the trainees at least 10 days before.</p> <p>This would allow trainees to read them and have an idea of the issues and topics that will be discussed. (time of reading of the documentation: 30 minutes)</p> <p>In general, we suggest to start every time favouring direct trainees work and reflection and, at the end of proposed exercises, synthetizing, schematizing, clarifying.</p> <p>Instructions for the trainer:</p> <p>Split the whole group into smaller ones (3 to 5 people). It is recommended that the trainer select randomly and try to ensure that all groups have the opportunity to give feedback at least once during all the exercise.</p> <p>Exercises can be used independently or in a workshop setting (small groups of 3-5 persons).</p> <p>The unit focuses on 3 topics:</p> <ul style="list-style-type: none"> <li>- Best practises</li> <li>- Green people management and green engagement</li> <li>- Best tools, channels and tips</li> </ul> <p>Trainees read documentation before collaborative learning, so they already have a basic knowledge of topics proposed. That’s why the idea is starting from participants, simulating their intuitions, collaborations and thinking.</p> <p>The trainer starts with a list of companies’s best cases, inviting work groups to consider and analyse them.</p> <p>Key questions to reflect on:</p> <ul style="list-style-type: none"> <li>• What seems working better in those cases?</li> <li>• Which challenges/activities were proposed? What the results?</li> </ul> <p>The trainer starts from previous exercise and summarize concepts emerged, observations and suggestions, thus defining concept of green people management and green engagement.</p> <p>For the second topic, the activity proposed is brainstorming, the trainer asks trainees to list a series of factors that can facilitate green engagement in a company</p>



Description: Trainees identify activities favouring engagement, the trainer stimulates discussion, gives suggestions, summarize on a flipchart (or on the screen if online)

For the third topic the activity proposed is brainstorming, the trainer asks trainees to list a series of channels that can be used for company internal communication.

Description: Trainees identify channels that can be used for internal communication favouring engagement, the trainer stimulates discussion, gives suggestions, summarize afterwards on a flipchart (or on the screen if online) – on slides provided , there is a possible list of channels, pros, cons and aims