



## Stakeholder Consultation Meeting

### 22 October 2019, Geneva, Switzerland

Chair: Mathias Schluep

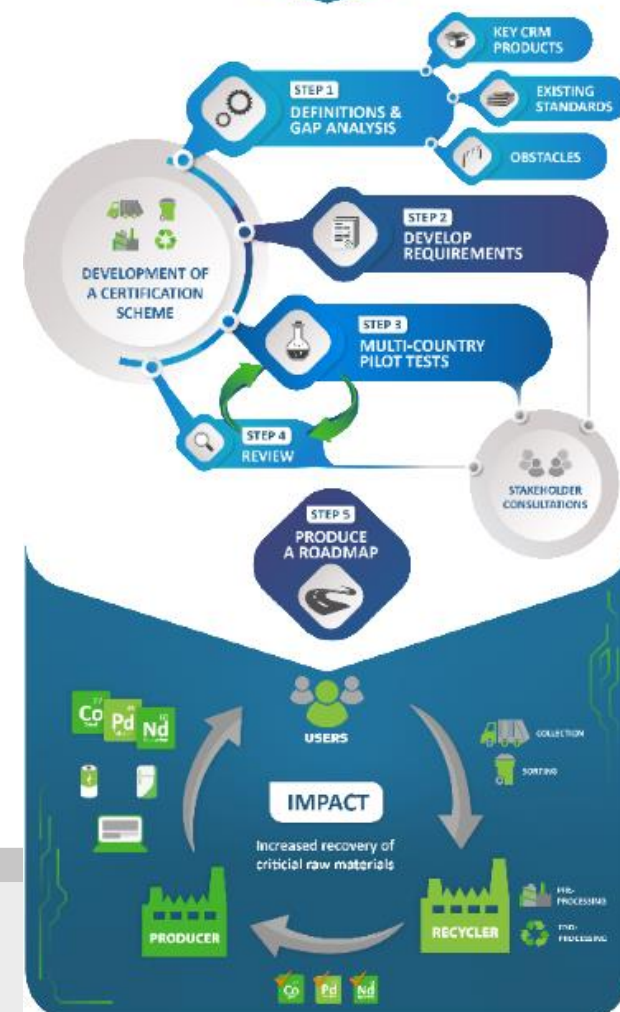
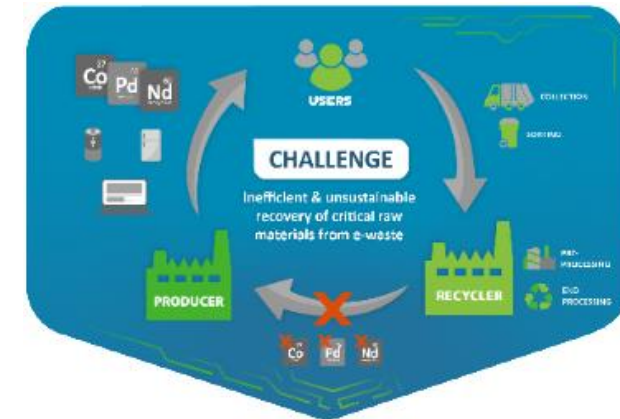
World Resources Forum Association

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 820859



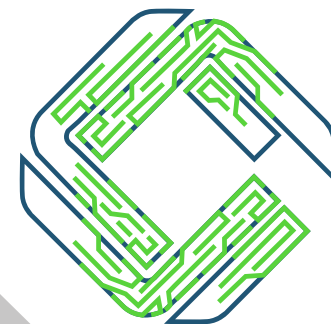
# Main Objective of the CEWASTE project

The project “Voluntary Certification Scheme for Waste Treatment” (CEWASTE) aims to **develop and validate a voluntary certification scheme** for collection, transport and treatment facilities of key types of waste containing significant amounts of **valuable and critical raw materials (CRMs)**.



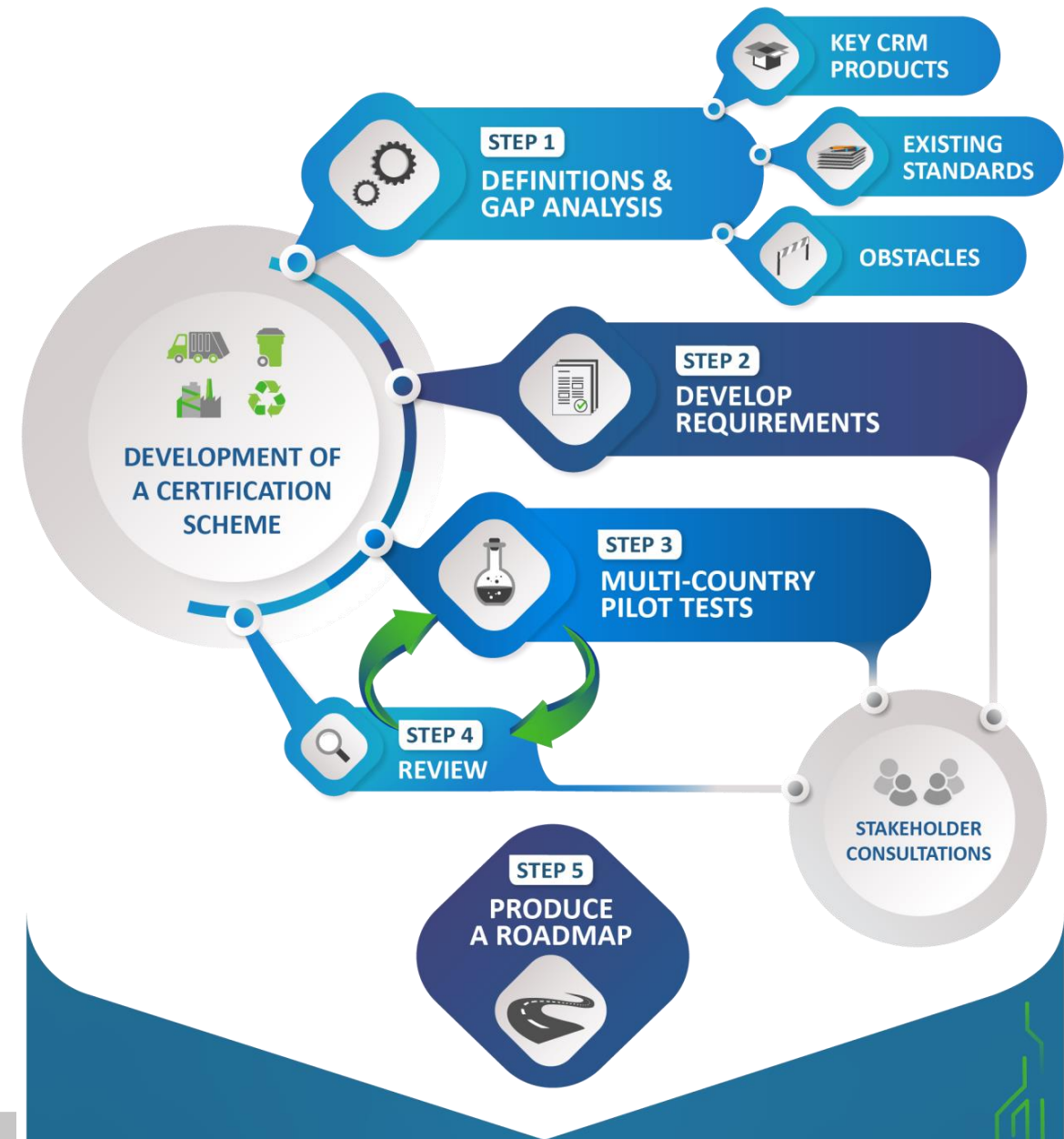
## Response to which challenges?

- Need for sustainable access to valuable and critical raw materials (CRMs) for the EU economy,
- CRMs not circular in Europe
- Issue of illegal trade of waste
- Need for standardization activities in support of policy actions
- Need to support the development of environmentally and socially sound recycling systems globally.



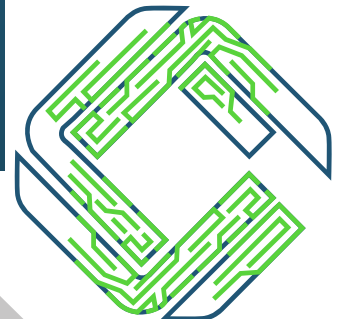
# Approach

- Understand existing recovery practices, standards and verification schemes related to valuable and critical raw materials.
- Leverage existing normative requirements to **develop new requirements for CRM recycling**.
- Develop an **assurance system and related verification procedures**.
- Validate the new voluntary scheme through **pilots**.
- Ensure long term sustainability of the scheme, resulting in a **roadmap**.
- Ensure a **transparent stakeholder process** that allows for broad acceptance and dissemination of the essentials of the scheme.



# Project's Resources

- A two-year project funded by the European Union's Horizon 2020 research and innovation programme
- Strong Consortium Partners, Linked Third Parties and Advisory Board



# Project's Resources

## ADVISORY BOARD

Agence de l'Environnement et de la Maitrise de l'Energie (ADEME)

Aluminium Stewardship Initiative (ASI)

CENELEC TC111x Environmental Standards (CENELEC)

Colombian Institute of Technical Standards and Certification (ICONTEC)

International Union for Conservation of Nature (IUCN)

DG Joint Research Center (JRC)

Public Waste Agency of Flanders (OVAM)

Regional Environmental Center (REC Turkey)

Southern African e-Waste Alliance (SAEWA)

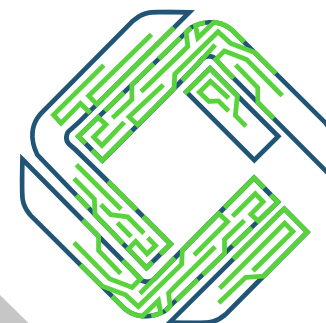
Swiss Federal Institute for Materials Science and Technology (Empa)

Umwelt Bundesamt (UBA)

WEEELABEX

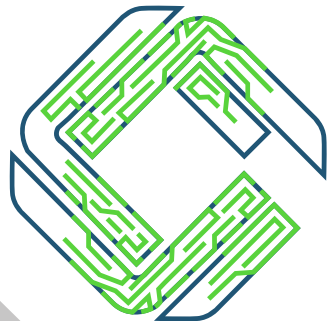
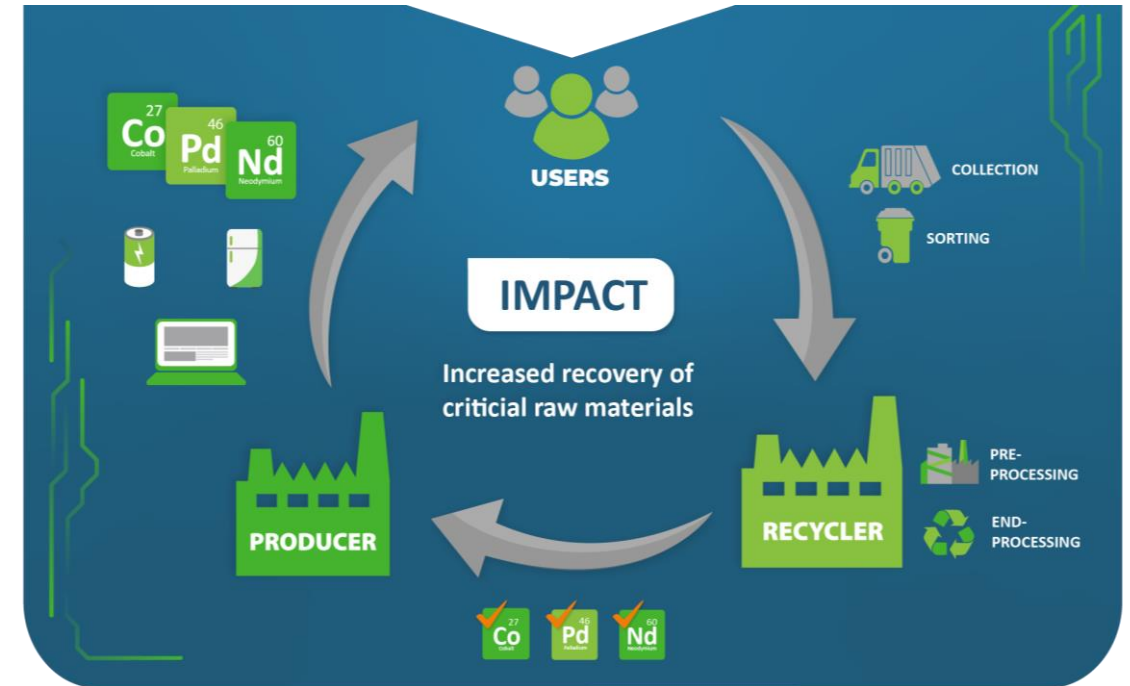
Eurometaux

Basel Convention



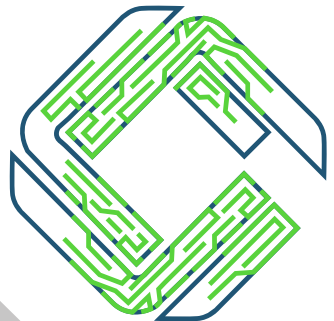
## Expected Impact

- Increased recovery rates of valuable and critical raw materials from key types of waste in the EU,
- More environmentally and socially sound recycling systems for CRM recycling are developed globally,
- Framework conditions for the sustainable development of and investment in innovative solutions in the EU are improved,



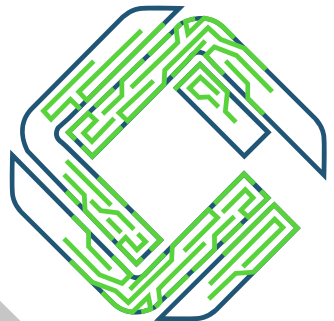
# Objective of this Consultation Meeting

- Present and disseminate the CEWASTE requirements of the project,
- Ensure a transparent stakeholder process, allow a broad acceptance of the essentials of this scheme and strengthen its credibility,
- Engage with relevant stakeholders and experts coming from different sectors of the value chain and create opportunities for them to contribute to the design, content and refinement of the key elements of the CEWASTE certification scheme.



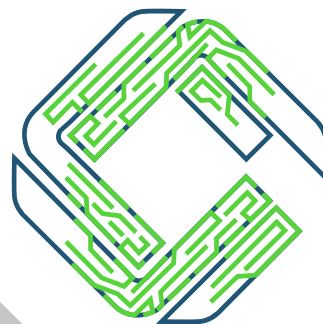
# What will happen to your feedback?

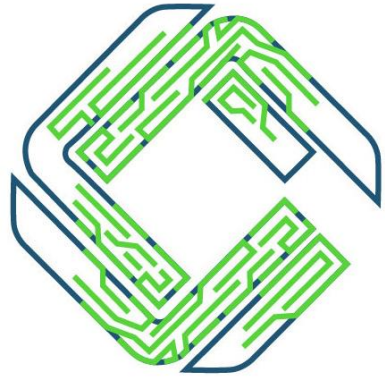
- Your feedback will be reviewed, assessed and depending on the relevance will be integrated into the revised version of the CEWASTE requirements,
- To ensure transparency, comments received will be compiled with the feedbacks received during the online consultation and be made publicly available,
- The General Data Protection Rules (GDPR) will be respected when publishing the feedbacks (no names will be disclosed unless previously confirmed),



# Today's Programme

TUESDAY, 22 Oct. 2019		
12:00 – 13:00	Reception and registration (with light sandwich lunch)	
13:00 – 13:10	Opening and Welcome	Mathias Schluep (WRFA)
13:10 – 13:30	Mapping the room Introduction of participants	Mathias Schluep (WRFA)
13:30 – 13:45	Introduction to the CEWASTE Project Where are we standing now?	Shahrzad Manoochehri (WRFA)
13:45 – 15:30	Group discussions on key elements of the CEWASTE normative requirements following the value chain stages	
13:45 – 14:05	Introduction and instructions for the group work	Sonia Valdivia (WRFA)
14:05 – 15:30	Moderated & interactive group work	All participants
15:30 – 16:00	Coffee Break	
16:00 – 16:50	Reporting Back to Plenary	Groups Facilitators
16:50 – 17:15	Plenary Discussion Motivation and challenges associated with implementing the CEWASTE certification scheme	Mathias Schluep (WRFA)
17:15 – 17:35	Wrap up and Next Steps Online Consultation Pilot Tests	Mathias Schluep (WRFA) Arthur Haarman (Sofies)
17:35 – 17:40	Closing	Mathias Schluep (WRFA)
18:00 – 19:00	Networking Aperio - Location: CICG	
19:30 – 22:00	Group Dinner (shared cost) – Restaurant La Romana	





# CEWASTE

Voluntary certification  
scheme for waste treatment

## Mapping the Room

### Introduction of Participants

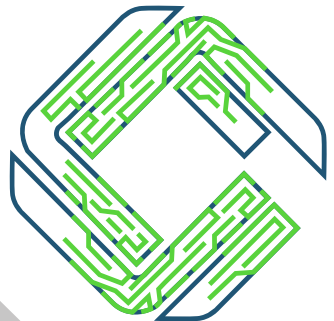
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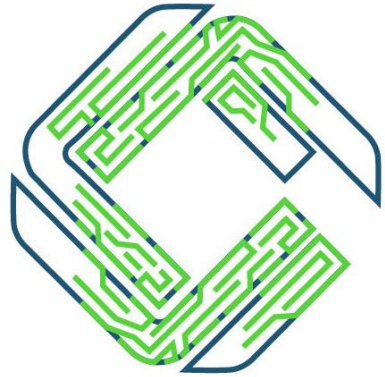


# Mapping the Room

Please indicate your:

- Name
- Affiliation
- Country
- Relation to the topic





# CEWASTE

Voluntary certification  
scheme for waste treatment

## CEWASTE Project

**Where are we standing now? What will happen next?**

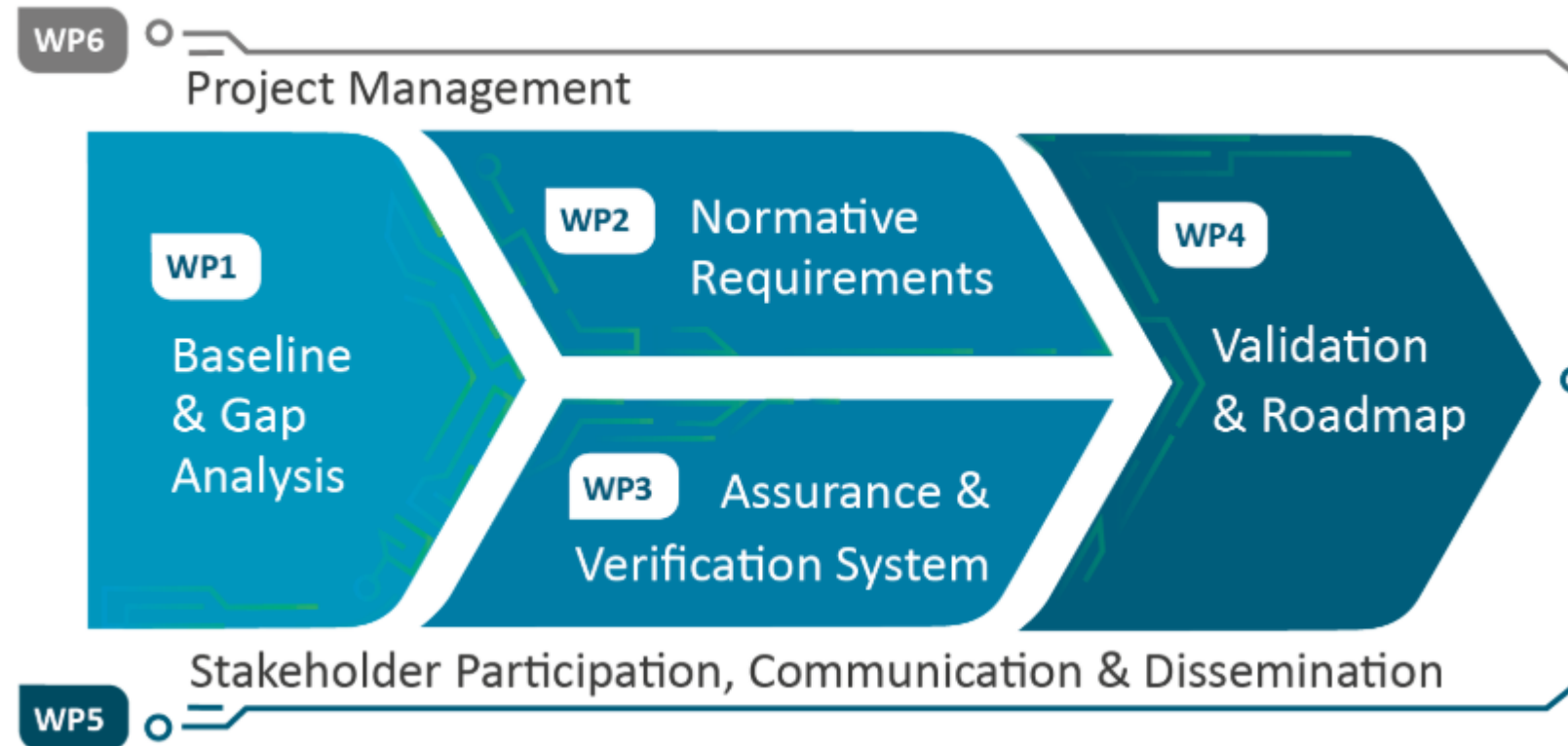
Shahrzad Manoochehri

World Resources Forum Association

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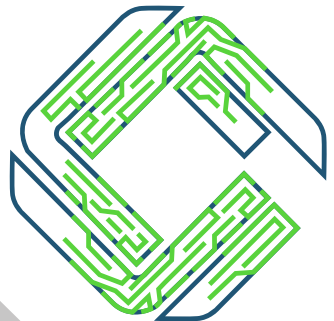
# Project Structure and Timeline



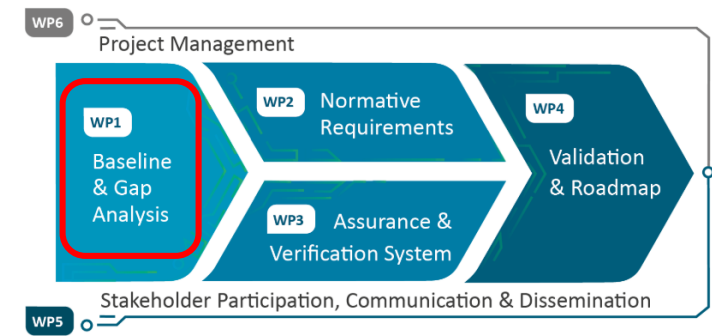
Start: Nov. 2018

TODAY

End: Nov. 2020



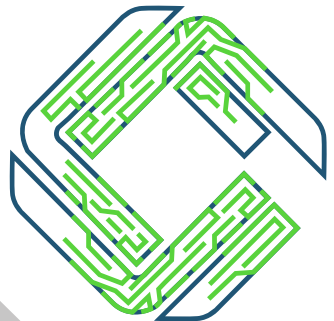
# WP1: Baseline Analysis



1.1. Identification of Key CRM Equipment

1.2. Mapping of existing normative requirements and verification schemes

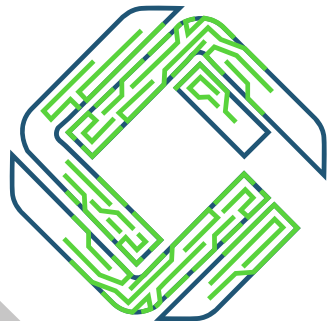
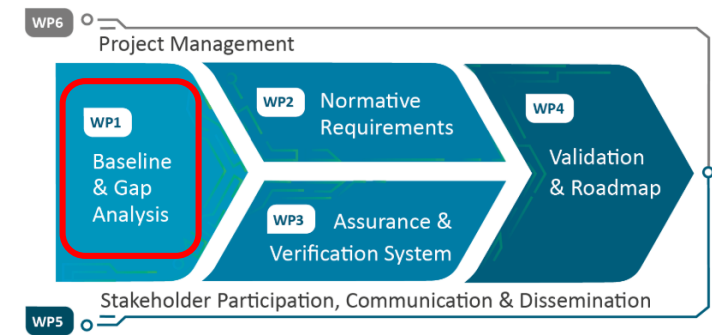
1.3. Gap and obstacle analysis



# WP1: Identification of Key CRM Equipment

## Scope

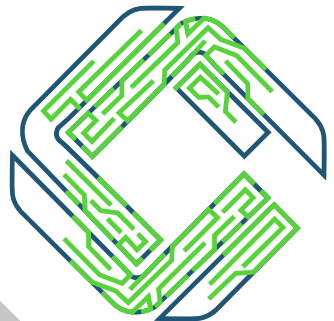
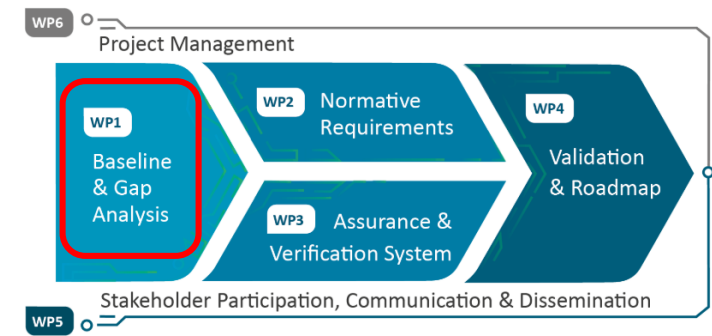
- Product Scope:
  - WEEE
  - Waste Batteries from WEEE and ELVs (End-of-Life Vehicles)
- Value Chain scope:
  - Collection,
  - Logistics,
  - Treatment (pre-treatment and final treatment)



# WP1: Identification of Key CRM Equipment

## Criteria used for selection:

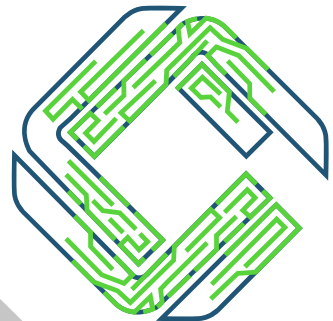
- Final treatment technology is industrially available or foreseeable (but possibly not practiced, TRL7\*)
- Pre-treatment is technically capable to deliver input required for final treatment
- Economic feasibility under current economic framework not necessary
- CRM concentration within “reasonable limits” (at least higher than the min. technical threshold concentration)
- CRM recycling process is not conflicting with Precious Metal (PM)/Platinum Group Metals (PGM) recycling



# WP1: Key CRM Equipment (KCE)

Source Comp.	Key CRM Equipment	Waste Type	CRMs	Required/Viable Input for End-processing	Current Economic Feasibility	
Fluorescent powders	Fluorescent lamps	WEEE	Eu, Tb, Y, Ce, La	Fluorescent powder	No*	
	CRT monitors and TVs		Y, Tb, Eu, Gd, La, Ce	Fluorescent powder		
Nd-magnets	Temperature exchange equipment (engine, compressor)	WEEE	Nd (+ Dy, Gd, Pr, Tb)	Magnets	No	
	Household appliances other than temperature exchange equipment (motors/drives)					
	Laptops (HDD)					
	Desktop Computers, prof. IT (HDD)					
	BEV, (P)HEV (electro engine)	ELV				
Printed Circuit Board	Desktop computers, prof. IT	WEEE	Au, Ag, Bi, Pd, Sb	Entire devices w/o battery (mobile phones), PCBs (shredded, unshredded), CuPM granulate	Yes	
	Laptops					
	Mobile phones					
	Tablets					
	External CDDs, ODDs, devices with internal CDDs/ODDs					
Li-ion batteries	Laptops	WEEE	Co	Batteries	Yes	
	Mobile phones					
	Tablets					
	Li-ion batteries in other WEEE					
	BEV, (P)HEV	ELV				
NiMH battery	NiMH batteries in WEEE	WEEE	Co, Ce, La, Nd, Pr	Batteries	Yes (Co)	No (REEs)
	HEV	ELV				
Lead acid batteries	Lead-acid batteries	WEEE	Sb	Batteries	Yes	
		ELV				

\*Recent developments in countries outside the EU have been reported but detailed information about the economic feasibility is not yet available.

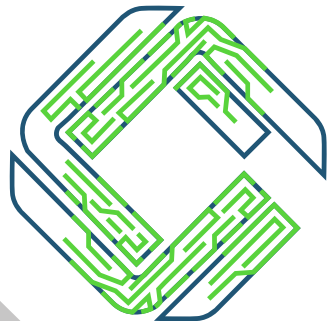
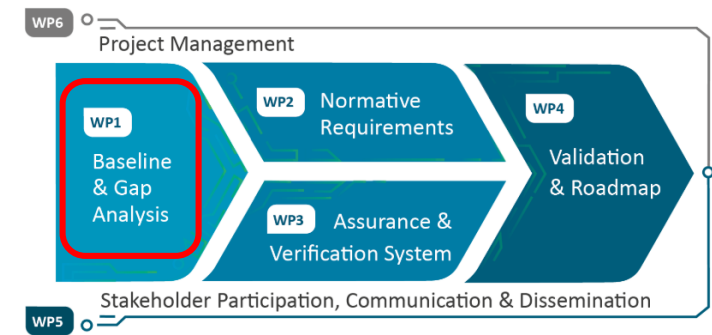


# WP1: Mapping of Existing Normative Requirements

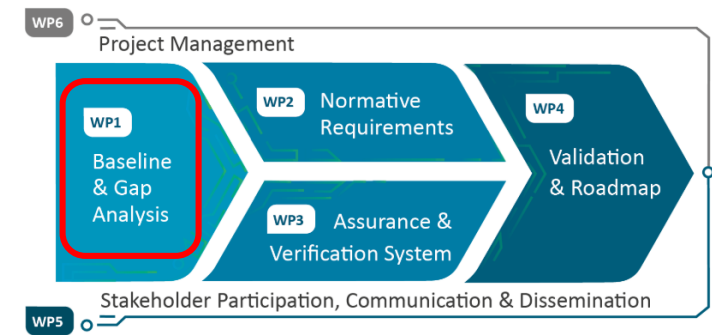
## Approach:

Analysis of more than 60 normative requirements with relevance to the identified Key CRM Equipment. These were embedded in:

- Legislation,
- Standards,
- Certification schemes and guidelines,
- International and EU waste management and shipment regulations.

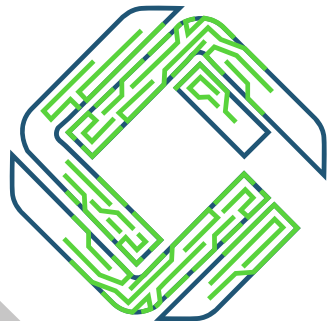


# WP1: Mapping of Existing Normative Requirements



## Key Findings:

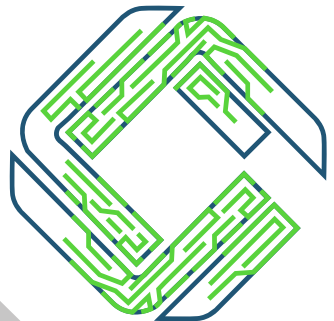
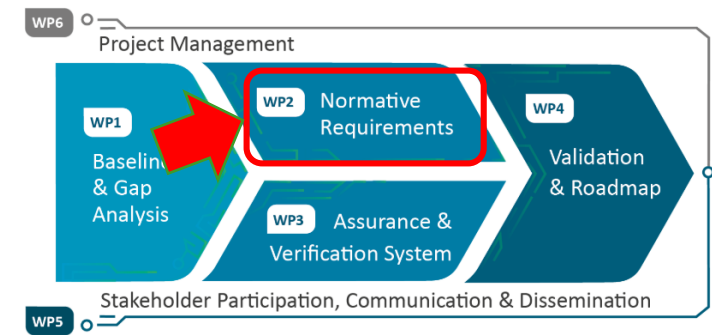
- Generally relevant non-technical requirements were identified (EHS, documentation, ...),
- Very few CRM-specific non-technical requirements,
- Very few technical requirements for Key CRM Equipment (removal of PCBs, batteries, ...)
- Hardly any technical requirements specifically for CRM recycling
- **The most relevant standard for the CEWASTE objective: EN 50625-series**



## WP2: Approach for developing requirements

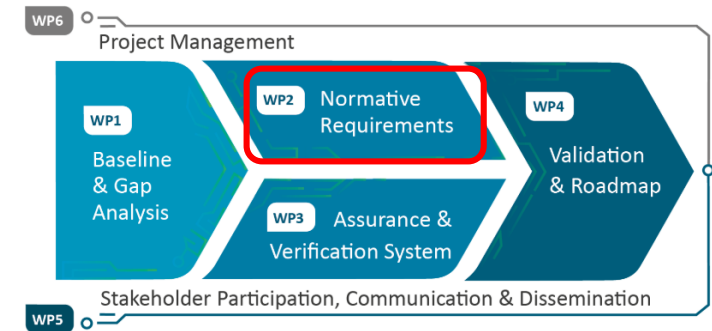
### Based on the results of the baseline analysis:

- EN 50625-series was adopted as general reference
- If 50625 was not sufficient, references to other standards
- Development of new requirements if no appropriate references were available
- **CRM-specific technical requirements are developed by the CEWASTE consortium**

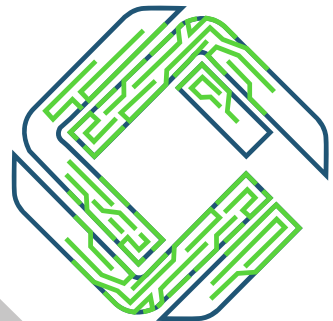


## WP2: Main Outcome

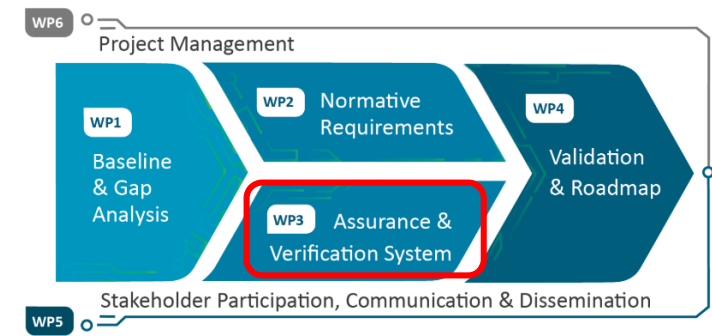
- A new set of normative requirements for improving CRM recycling from WEEE and waste batteries,
- These include management, sustainability and technical requirements for collection, logistics and treatment facilities,
- Recommendations on traceability and on few other specific issues are also included.



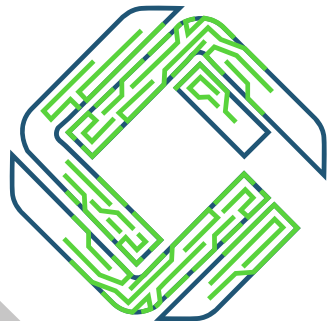
This document will be the topic of this consultation meeting. More details will be presented by Sonia



## WP3: Main Objective



Develop an effective assurance system and the related verification mechanisms to ensure that the operators in the value chain reliably comply with the CEWASTE requirements.



## WP3: Approach & Key Outcomes

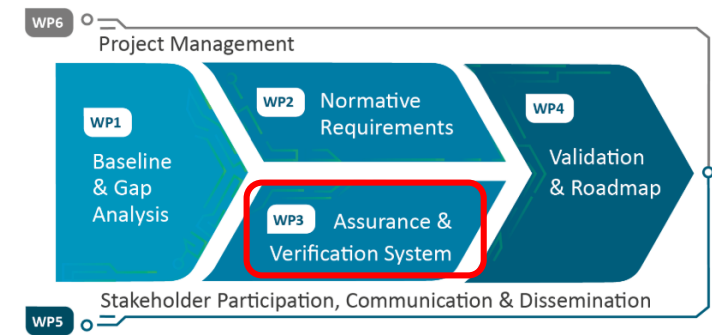
### 3.1. Develop an effective assurance system

- General rules
- Rules for the audits
- Rules for the Certification Bodies
- Terms and conditions for certification
- CEWASTE Certificate template

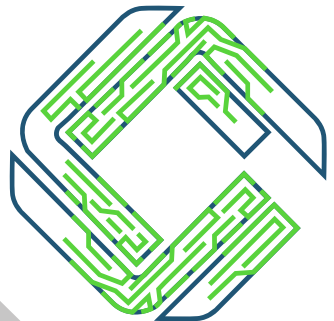
### 3.2. Specify verification procedures

- CEWASTE Application template
- CEWASTE Audit Plan template
- Auditing checklist
- CEWASTE audit report template
- CEWASTE auditor guidance
- CEWASTE CB Assessment guidance

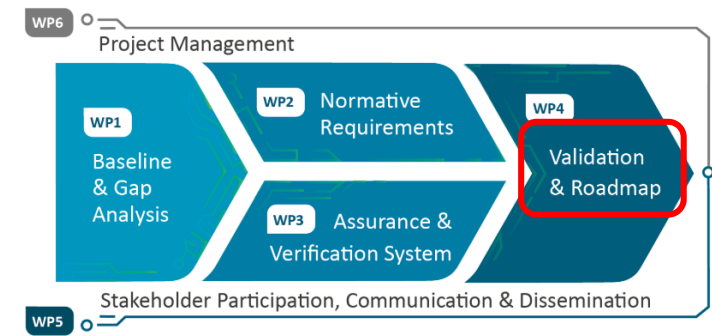
### 3.3. Develop assurance and verification manuals



- Considering the existing assurance systems for raw materials and facilities (e.g. SIWCO and WEEELABEX)
- In line with ISEAL Assurance Code of Good Practice and ISO 17000 series

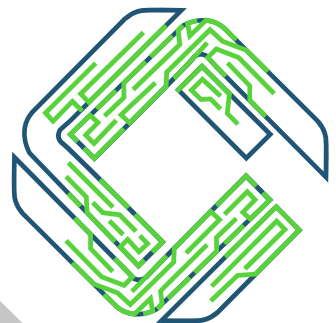


## WP4: Validation and Roadmap



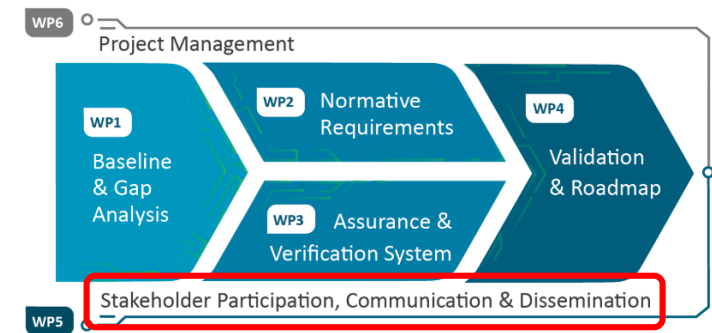
- Validate the CEWASTE normative requirements and its assurance system through targeted pilots
- Analyse the outcomes of the pilots and improve the voluntary scheme according to the recommendations and feedback received
- Develop a roadmap for long term sustainability of the CEWASTE certification scheme

Plan for the pilot tests will be presented later today by Arthur Haarman, Sofies



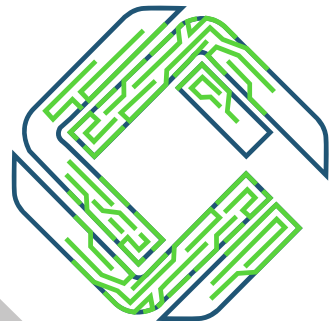
## WP5 - Stakeholder Participation

- Identified and invited relevant experts and stakeholders to join the CEWASTE Network



113 stakeholders already registered

To join our network visit: <https://cewaste.eu/get-involved/>



## WP5 - Stakeholder Participation

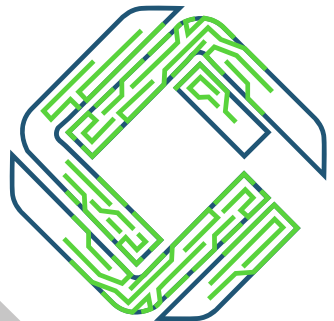
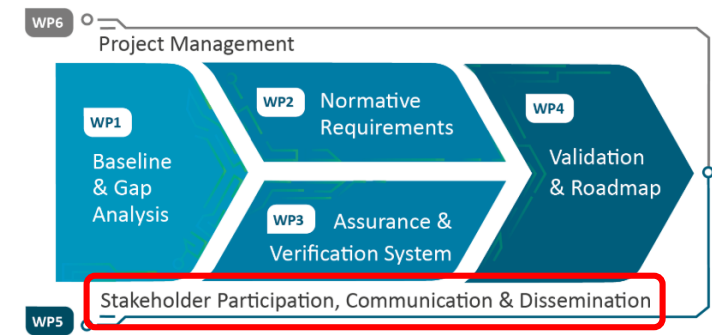
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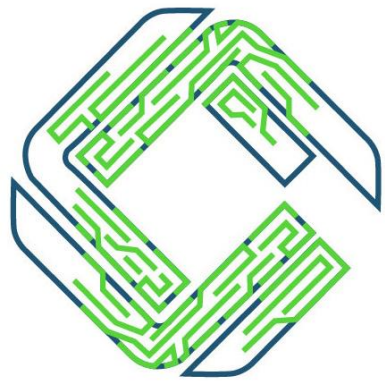


- Face-to-face consultation process: Today's meeting



- Online stakeholder consultation:
  - Two rounds
  - Process will be in compliance with the ISEAL Code of Good of Practice for developing standards





# CEWASTE

Voluntary certification  
scheme for waste treatment

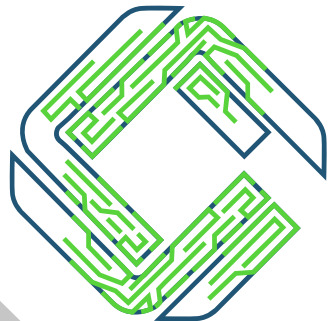
## Housekeeping Points

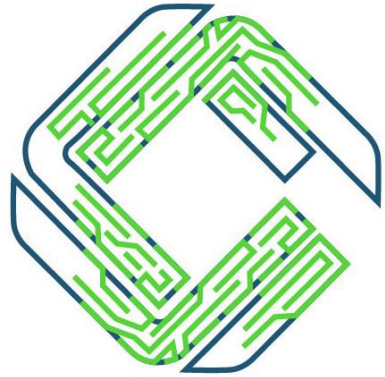
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## Housekeeping Points

- We have designed today's agenda to allow ample time for discussion, therefore **your comments and questions are encouraged and appreciated**,
- **Exemplar** (Full-fledged document), with text from the EN 50625 series, is provided only **for the purpose of this meeting**,
- Attendance list:
  - Agreement to list the **name of your organization** in reports and documents related to this meeting,
  - Agreement to take **pictures** for the project's social media, website or publication
- Put **cell phones on mute** or turn them off.





# CEWASTE

Voluntary certification  
scheme for waste treatment

## Work Package 2: Normative Requirements

Sonia Valdivia

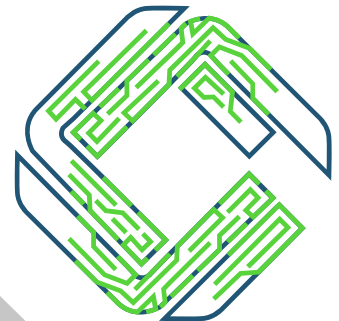
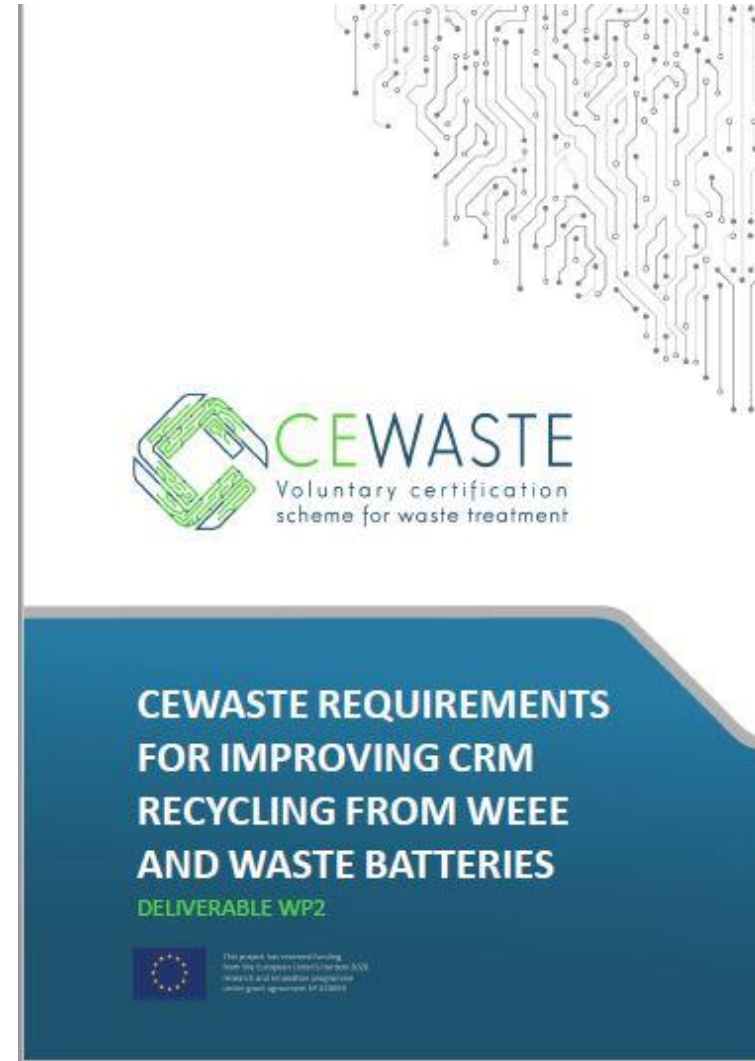
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# Main Outcome

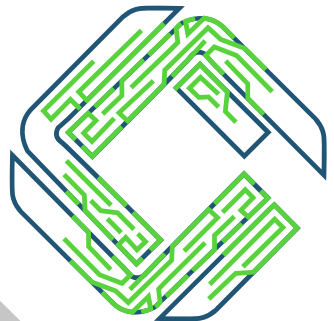
- A new set of normative requirements for improving CRM recycling from WEEE and waste batteries,
- These include management, sustainability and technical requirements for collection, logistics and treatment facilities.
- Recommendations on traceability and on few other specific issues are also included



# General Approach

Based on the results of the baseline analysis:

- EN 50625-series was adopted as general reference. Starting point
- If 50625 was not sufficient, references to other standards or international references
- Development of new texts if no appropriate references were available
- **CRM-specific technical requirements are developed by the CEWASTE consortium**



# General Approach

- Major gaps identified

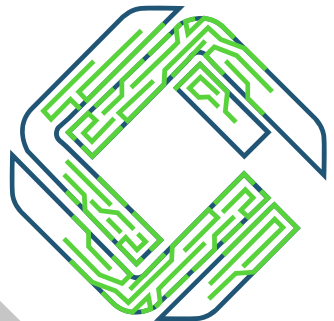
Batteries

Magnets

Fluorescent  
powders

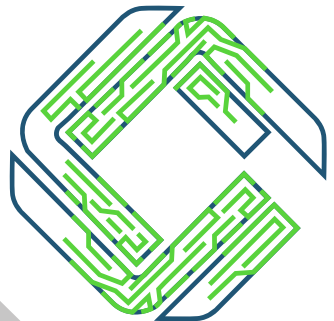
Traceability

Sustainability



# Key CRM Equipment

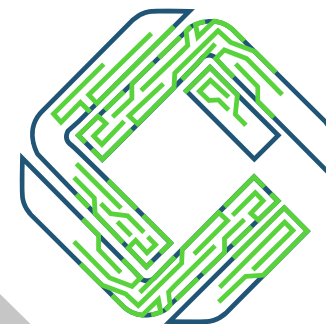
- Fluorescent lamps
- CRT monitors and TVs
- Temperature exchange equipment (TEE) (engine, compressor)
- Household appliances other than TEE (motors/drives)
- Laptops (hard disk drive - HDD)
- Desktop Computers (HDD)
- Mobile phones
- Tablets
- Electro engines from electric vehicle (BEV) and (plug-in) hybrid electric vehicle (P)HEV
- Batteries from electric vehicle (BEV) and (plug-in) hybrid electric vehicle (P)HEV
- External CDDs, ODDs, devices with internal CDDs/ODDs
- Li-ion batteries
- NiMH batteries of hybrid electro vehicle (HEV)
- Lead-acid batteries



## Scope



Logistics



# Structure

Notes to the reader

Introduction

1. **Scope**

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2. Normative references

3. Definitions

4. Management requirements

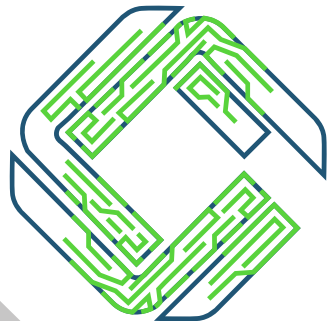
5. Technical requirements

6. De-pollution Monitoring

Annexes

1.1 Products and Materials  
Within the Scope

1.2 Value chain in the scope: End-  
of-Life



# Structure

Notes to the reader

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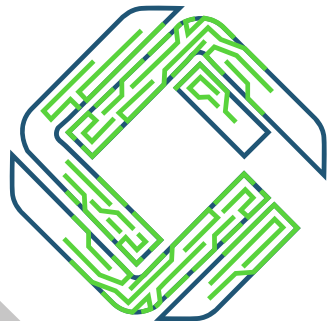
4. Management requirements

5. Technical requirements

6. De-pollution Monitoring

Annexes

- CENELEC
- EC
- OSHA
- ISO
- International organizations



# Structure

Notes to the reader

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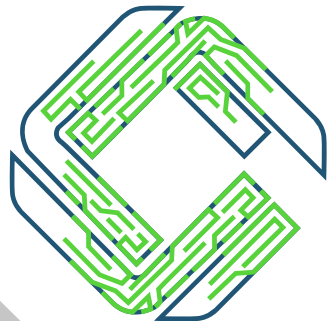
4. Management requirements

5. Technical requirements

6. De-pollution Monitoring

Annexes

- 4.1 Management Principles
- 4.2 Compliance with national and local regulations
- 4.3 Management system
- 4.4 Risk management
- 4.5 Continuous improvement
- 4.6 Monitoring
- 4.7 Documentation
- 4.8 Communication and awareness raising
- 4.9 Personnel Management
- 4.10 Sustainability requirements

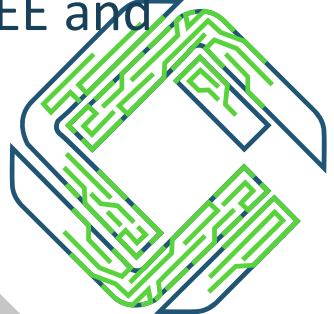


# Risk Management

Identifying, monitoring and managing potential risks of handling WEEE and waste batteries in order to minimize negative impacts. Risks relate to health and safety, **materials quality**, CRM losses and environmental damage.

## Material Quality Factors:

- CRM metals contained
- Levels of purity of CRM metals
- Existing alloys that may hinder the recovery
- Presence of hazardous substances
- Feasibility of subsequent steps and level of effort required
- Minimum amounts to be processed (typically, larger amounts of identical WEEE and waste batteries increase the recycling yield)



# Structure

Notes to the reader

Introduction

1. Scope

2. Normative references

3. Definitions

4. Management requirements

5. Technical requirements

6. De-pollution Monitoring

Annexes

- 4.1 Management Principles
- 4.2 Compliance with national and local regulations
- 4.3 Management system
- 4.4 Risk management
- 4.5 Continuous improvement
- 4.6 Monitoring
- 4.7 Documentation
- 4.8 Communication and awareness raising
- 4.9 Personnel Management
- 4.10 Sustainability requirements

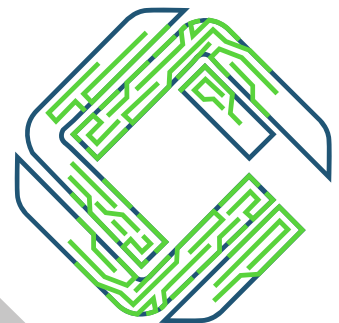
Traceability. **Voluntary**

Upstream, CoC

Employees & stakeholders

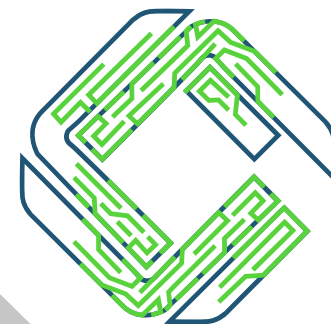
Environment & Local community

Sustainability.



# Monitoring and Control of Environmental and Health Issues – Examples of Pollution / Exposure to Hazardous Substances

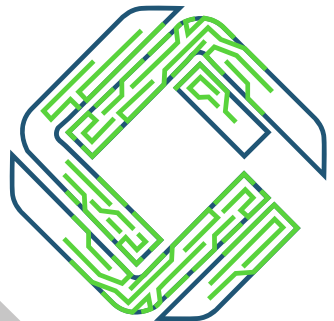
- Contaminated process waste (& by-products)
- Polluted process water/effluent e.g. COD, POPs, heavy metals, F, P
- Acids in hydrometallurgy recycling
- Air quality risks e.g. volatile organic compounds
- Fire hazard



## Traceability & Compliance Claims - Recommended

**CEWASTE encourages ensuring the accuracy and verifiability of various aspects throughout the value chain e.g. records of material inputs and outputs**

- Due diligence and chain-of-custody procedures (documentation and records)
- Material accounting model of mass balance
- Documented agreement regarding the implementation of the CEWASTE standard throughout the supply chain.



# Structure

Notes to the reader

Introduction

1. Scope

2. Normative references

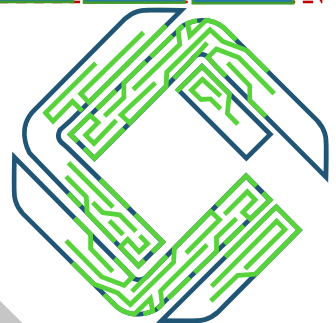
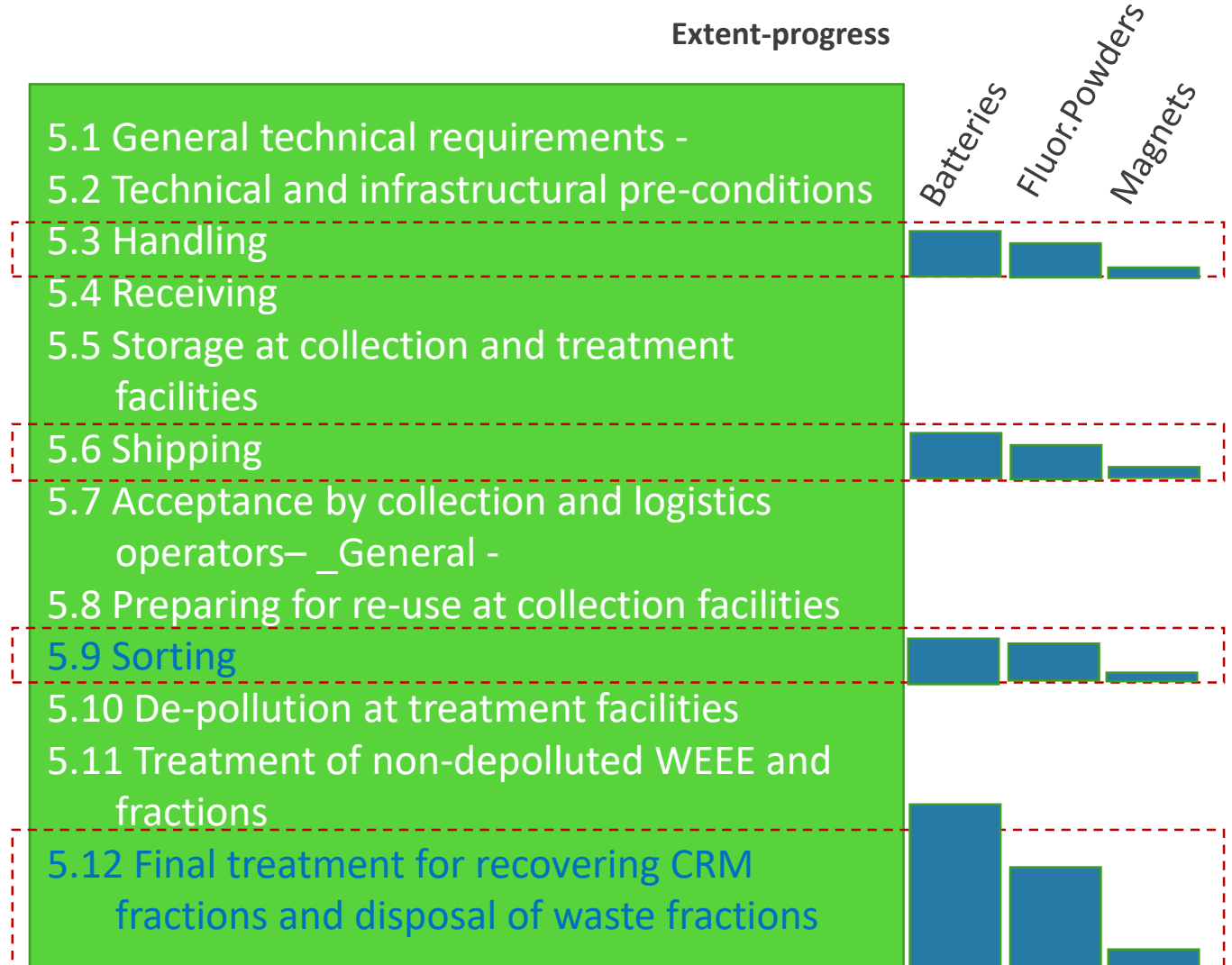
3. Definitions

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5. Technical requirements

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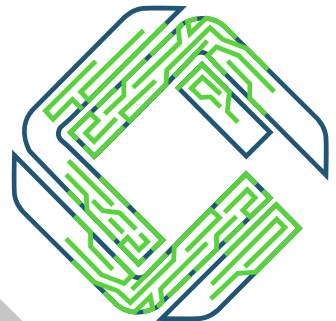
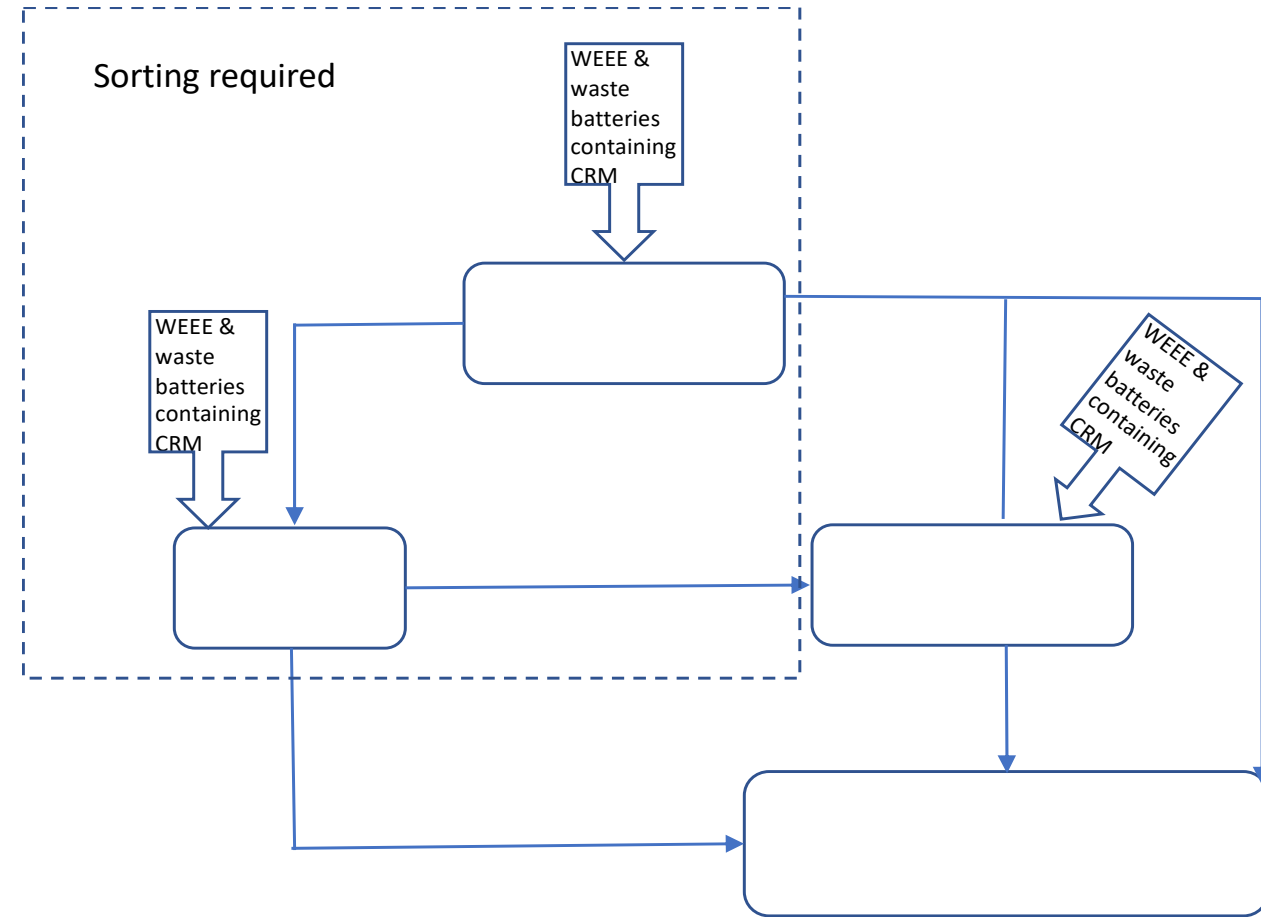
Annexes



# Collection, Logistics & Sorting

WEEE suitable for (preparation for) reuse are also separated, not destined for recycling

Sorting is crucial in collection points or collection facilities in separate waste streams



# Structure

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Introduction

1. Scope
2. Normative references
3. Definitions
4. Management requirements
5. Technical requirements
6. De-pollution Monitoring

## Annexes

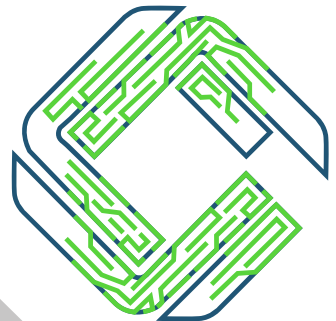
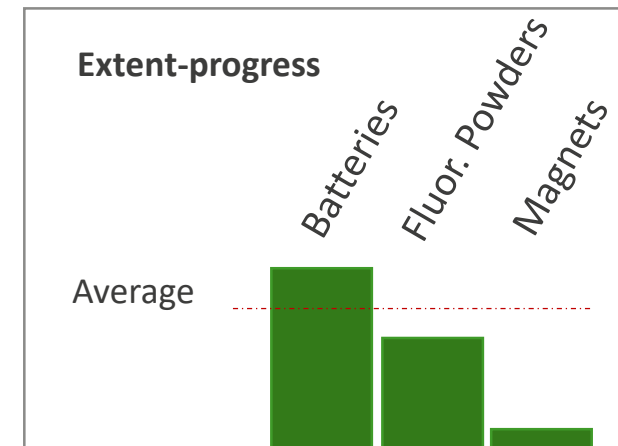
Annex I – Critical raw materials CRM, products and components targeted

Annex II –Monitoring & evaluation plan, performance indicators and targets - example

Annex III –Final treatment of fluorescent powders

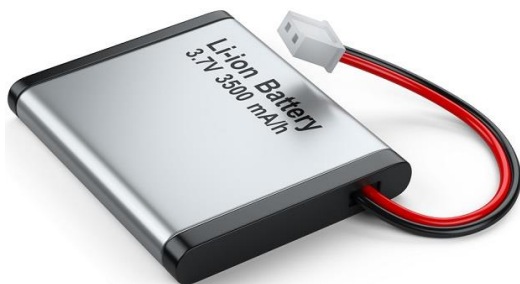
Annex IV – Final treatment of lithium-ion waste batteries

Annex V –Final treatment of waste magnets

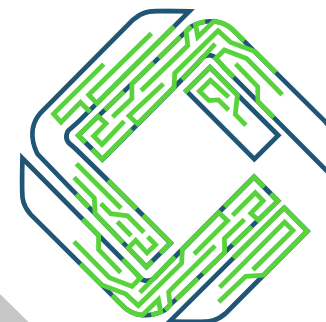
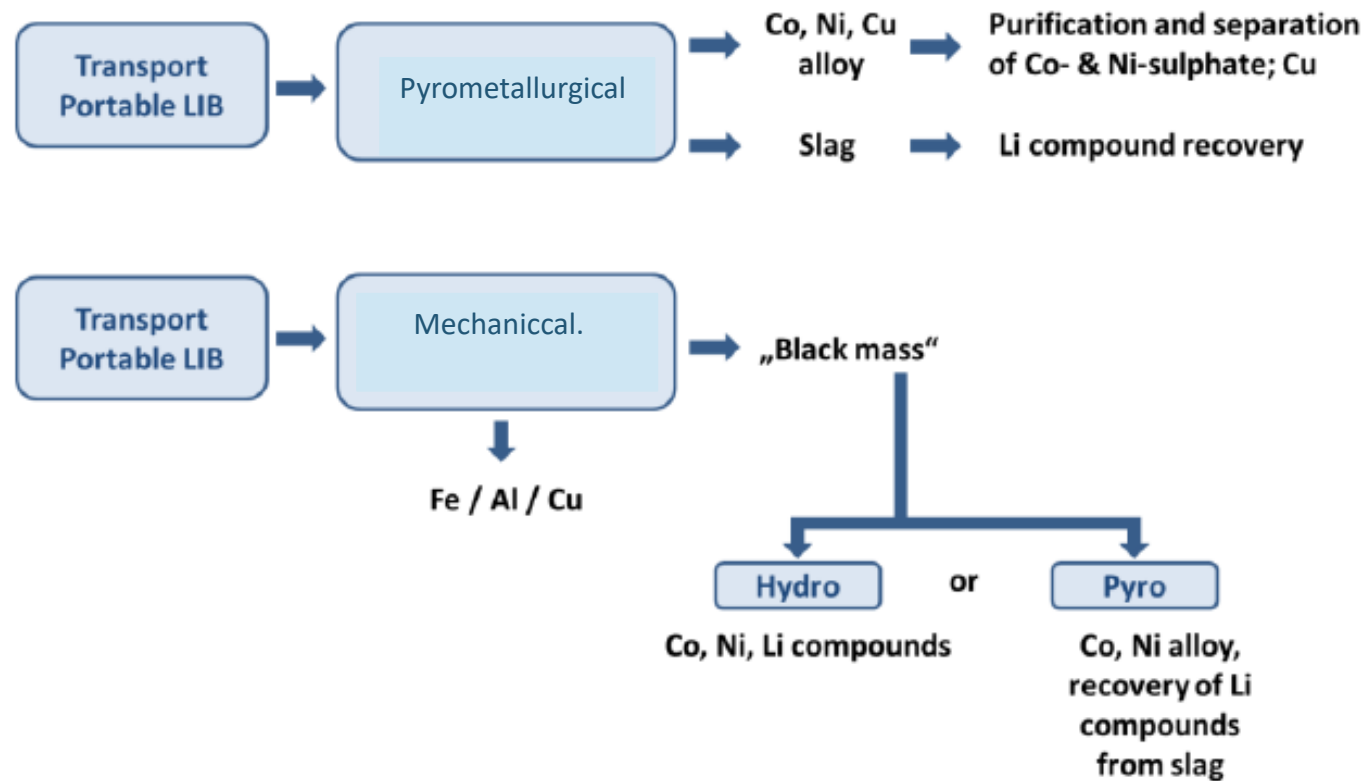


# Batteries Treatment & Recycling Methods

- Lithium-ion (LIB) batteries



- Lead-acid





## Interactive Group Discussion

Sonia Valdivia

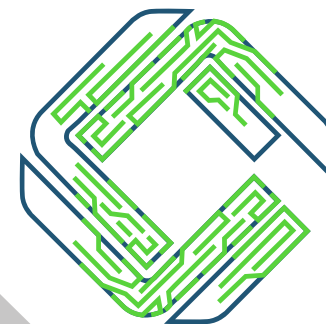
World Resources Forum Association

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 820859



# Interactive Group Discussion

	Groups		
	Collection, sorting and logistics	Pre-treatment	Final Treatment
Sub-topics	Sustainability		
	Traceability		
	Batteries		
	Fluorescent powders		





## NEXT STEPS

### VALIDATION & ROADMAP

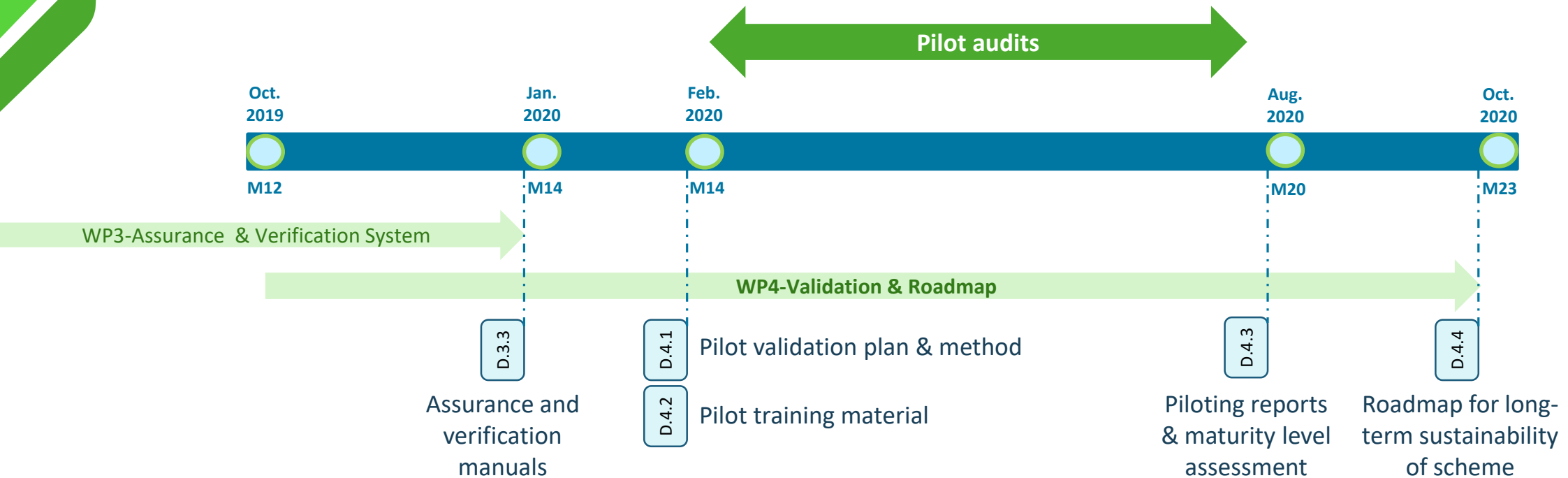
Arthur Haarman

Sofies

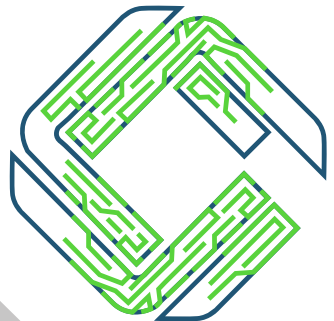
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 820859



# WP4 Timeline & Objectives



- ✓ Normative **requirements** (WP2) and **assurance system** (WP3) **validated** through targeted pilots
- ✓ **Outcomes of pilots analysed** and used to improve the voluntary scheme
- ✓ **Roadmap for roll-out and long-term sustainability** of the scheme **developed**
- ✓ **Environmental and social benefits** of implementing the scheme **evaluated**



# Piloting plan

Nov-Dec 2019

Open call + selection  
within consortium

Selection of  
auditors

Selection of  
auditees

Short-listing of companies  
(+ open call?)

Nov-Dec 2019

Feb-Mar 2020

Online webinar  
(2x0.5day?)

Training of  
auditors

Training of  
auditees

Online webinar  
(0.5 day?)

Feb-Mar 2020

Pilot audits (EU: 17, nonEU: 3)

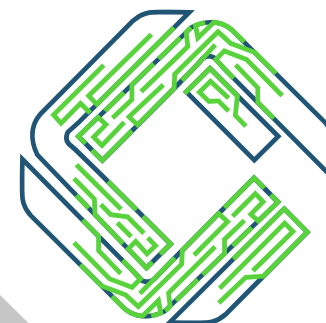
Feb-Jun 2020

Collection

Logistics

Pre-  
treatment

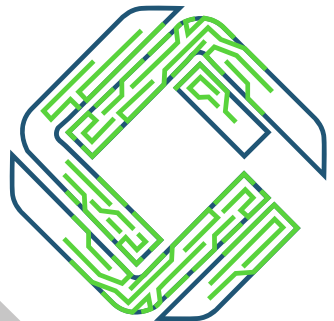
Final  
treatment



# Selection of Auditees

- Short-listing based on consortium network, to identify **relevant and committed companies** (+ open call?)
- **Criteria** for selection:
  - Handling of key CRM-components
  - Experience with implementing CRM recovery measures (except for nonEU)
  - Others?
- **Focus** on pre-treatment & final treatment companies, selection of collection and transport partners in function

→ **Selection** by end of December 2019



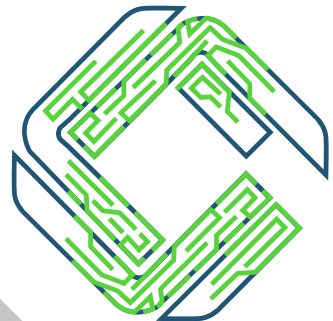
# Selection of Auditors

- Open call for **external** auditors + selection of **consortium members**
- Selection criteria (**for pilots**):
  - A. **Professional** qualifications (auditing experience, familiarity with CRM)
  - B. **Personal** qualifications (judgement, communication, assertion)
  - C. **Language** skills (English, other relevant languages)
- **No financial compensation** for external auditors



→ **Application** deadline: end of November 2019

→ **Selection** by end of December 2019



## Next steps

- Call for auditors (Nov 2019)
- Selection of auditees and auditors (Dec 2019)
- Planning of audits & preparation of training materials (Jan-Feb 2020)
- Finalization of audit plan & conduction of training sessions (Feb-March 2020)
- Conduction of pilot audits (Feb – Jun 2020)

