

FutuRaM Project Management Plan

Milestone 1



Funded by
the European Union

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Acronyms

AB	Advisory Board
API	Application Programming Interface
BAT	Batteries
CRM	Critical Raw Materials
CA	Consortium Agreement
CDE	Communication, Dissemination & Exploitation
CDW	Construction & Demolition Waste
D	Deliverable
EC	European Commission
ELV	End of Life Vehicles
HaDEA	European Health and Digital Executive Agency
EU	European Union
GA	General Assembly
KER	Key Exploitable Result
KPI	Key Performance Indicator
M	Month
MINW	Mining Waste
PMT	Project Management Team
SLASH	Slags and Ashes
SRM	Secondary Raw Materials
SRM-KB	Secondary Raw Materials Knowledge Base
T	Task
UNFC	United Nations Framework Classification
WP	Work Package
WEEE	Waste of Electrical and Electronic Equipment

1 Introduction

The FutuRaM project will establish a methodology, reporting structure, and guidance to improve the raw materials knowledge base up to 2050 and facilitate the exploitation of secondary raw materials (SRMs) with a particular focus on critical raw materials (CRMs). The project will integrate SRM and CRM data to model their current stocks and flows, and consider economic, technological, geopolitical, regulatory, social and environmental factors to further develop, demonstrate and align SRM recovery projects with the United Nations Framework Classification for Resources (UNFC).

The project will address the following waste streams:

- Batteries (BAT)
- End of Life Vehicles (ELV)
- Construction & Demolition Waste (CDW)
- Mining Waste (MINW)
- Slags and Ashes (SLASH)
- Waste of Electrical and Electronic Equipment (WEEE)

FutuRaM will further develop and test the UNFC methodology through 19 case studies across the six FutuRaM waste streams.

FutuRaM research into the future availability of raw materials will contribute to a transition to climate-neutral, circular and digitised economy; develop an understanding of anthropogenic resources; develop the necessary criteria to establish a resource classification approach; combine new & existing data and present it in a UNFC format; develop a proposal for EU statistics for SRMs; and contribute to raising awareness of raw materials supply challenges in the EU and the possible solutions.

2 Purpose of the Deliverable

This document presents the FutuRaM Project Management Plan. It is related to Work Package 8 of the project and includes a detailed implementation plan for the four-year duration of the project (1st June 2022 – 31st May 2025). It addresses the management structure, role of partners, timelines, financial and risk management of the project.

Its purpose is as a practical document that enables project participants to understand the approach and to quickly reference project management structures that they need to implement when delivering the work.

3 Partners in the Project

3.1 Consortium

The FutuRaM Consortium comprises 19 Beneficiaries, 7 Associated Partners and 2 Affiliated Entities. Beneficiaries are those organisations that will receive a grant from European Commission (EC), through the European Health and Digital Executive Agency (HaDEA); Associated Partners either receive funding from their own state government or do not receive funding at all; and Affiliated Entities are organisations that are linked to Beneficiaries and receive funding from the EC via the Beneficiary they are linked to - in this case both Affiliated Entities are linked to the WEEE Forum.

Organisations within the Consortium are key European experts and stakeholders in the value chain of primary and secondary raw materials in the waste streams covered by the project. Consortium members are also experts in the development and implementation of the UNFC for Resources as applied to SRM recovery projects.

Within the Consortium are universities, research institutes, geological surveys, industry, industry associations and producer responsibility organisations. They will implement 6 central research work packages alongside interrelated work packages covering communication, dissemination and exploitation, and project management. The involvement of the organisations in FutuRaM ranges from 1.5 person months for three organisations involved in a single case study each, to 134 person months for the lead research organisation, UNITAR, which also acts as Scientific Coordinator.

Table 1 List of FutuRaM Consortium Members

#	Name of Organisation	Status	Country	Primary Contact	Total Person Months
1	WEEE Forum	Beneficiary	Belgium	James Horne	65.5
1.1	Ecosystem	Affiliated Entity	France	Alice Bizouard	13
1.2	Erion	Affiliated Entity	Italy	Filippo Stringa	14
2	UNITAR	Beneficiary	Switzerland	Kees Baldé	134
3	BGR	Beneficiary	Germany	Antje Wittenberg	14
4	Boliden	Beneficiary	Sweden	Erik Ronne	13
5	BRGM	Beneficiary	France	Daniel Monfort	94.5
6	Chalmers University	Beneficiary	Sweden	Maria Ljunggren	39
7	GeoZS	Beneficiary	Slovenia	Gorazd Žibret	43
8	GTK	Beneficiary	Finland	Teemu Karlsson	36
9	Kushnir	Beneficiary	Sweden	Duncan Kushnir	6
10	LMU	Beneficiary	Germany	Soraya Heuss	126
11	Lovisagruvan	Beneficiary	Sweden	Teemu Karlsson	13
12	RECHARGE	Beneficiary	Belgium	Claude Chanson	5
13	SGU	Beneficiary	Sweden	Ronald Arvidsson	56

#	Name of Organisation	Status	Country	Primary Contact	Total Person Months
14	SPI	Beneficiary	Portugal	Susana Seabra	45
15	TUB	Beneficiary	Germany	Susanne Rotter	135
16	Belgrade University	Beneficiary	Serbia	Ivica Ristovic	10
17	University of Leiden	Beneficiary	Netherlands	José Mogollon	119
18	VITO	Beneficiary	Belgium	Dirk Nelen	57
19	WEEECycling	Beneficiary	France	Serge Kimbel	13
20	MACE	Associated Partner	UK	Caroline Cochrane	1.5
21	Empa	Associated Partner	Switzerland	Patrick Wäger	84
22	Otanmaki	Associated Partner	Finland	Jouko Jylanki	1.5
23	GRS	Associated Partner	Germany	Nils Wieczorek	3.5
24	EMR	Associated Partner	UK	Alexander Thompson	1.5
25	REPIC	Associated Partner	UK	Sarah Downes	14
26	UCL	Associated Partner	UK	Julia Stegemann	86.5

3.2 Advisory Board

Members of the Advisory Board (AB) have been drawn from the different sectors that are relevant to the project and from across the value chains of those sectors. The purpose of the AB is to widen the network and support the consortium and the project by providing their counsel and recommendations, and to assist the partners with operational know-how, communication, dissemination and exploitation.

Table 2 List of FutuRaM Advisory Board Members

Name	Organisation
Ignacio Calleja	EIT
Karen Hanghoj	BGS
Paolo Falcioni	APPLiA
Mark Saxon	Medallion Resources
Nedal Nasser	USGS
Mathias Schluep	WRFA
Sigurd Heiberg	UNECE
Slavko Solar	UNECE
Alessandra Hool	Entwicklungsfonds Seltene Metalle
Amy Peace	Innovate UK
Bernd Wagner	Universität Augsburg
Christer Forsgren	Stena Recycling
Constantin Herrmann	Sphera
Ekaterina Poleshchuk	UNEP
Hildevig Svaizer	Northvolt
Nabeel Mancheri	REIA
Aurela Shtiza	IMA
Mark Mistry	Nickel Institute
Georgios Kalogeropoulos	Hellenic Copper Mines Ltd
Mattheüs van de Pol	Ministerie Economische Zaken en Klimaat, the Netherlands
Kamila Slupek	Eurometaux
Robert Holnsteiner	Bundesministerium für Wissenschaft, Forschung und Wirtschaft
Peer Hoth	BMWK, Germany
Julie Hollis	EuroGeoSurvey
Mario Schmidt	Hochschule Pforzheim, Environmental Management
Reinhardt Smit	Closing the Loop
Julie-Ann Adams	EERA
Gijsbert Wierink	Plutonic Raw Materials Advisory
René Eijsbouts	Stichting OPEN

4 Governance and Operational Structure

FutuRaM is led by the Project Coordinator, WEEE Forum, and the Scientific Coordinator, UNITAR. The General Assembly (GA) comprises the Beneficiaries and Associated Partners as noted in Table 1 above, and the Project Management Team (PMT) comprises the Work Package (WP) leaders. The Consortium Agreement (CA) provides full details of the Governance structure and procedures that the project abides by.

Outside of the governance, but forming part of the operational structure, the project is split into 8 WPs, each with an appointed lead organisation. The AB also feeds knowledge and experience into the GA and PMT. In addition, lead organisations have been appointed for each of the waste streams covered by the project to ensure they are represented across each WP.

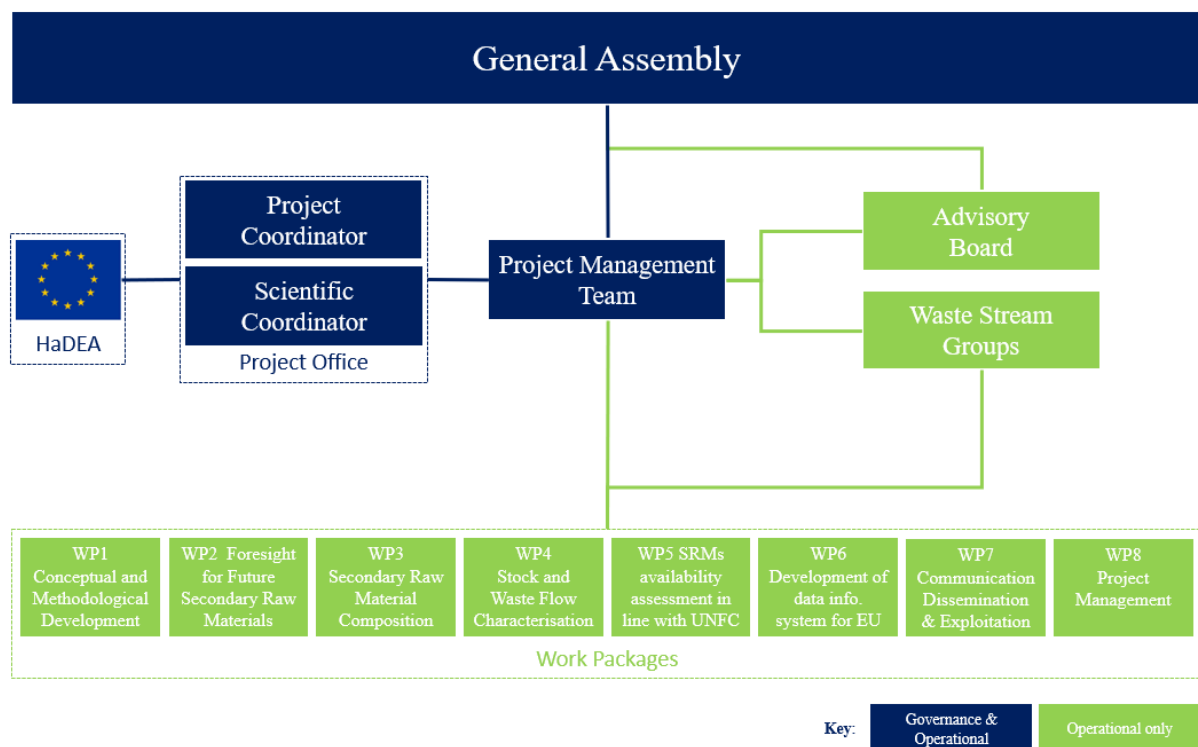


Figure 1 Governance & Operational Structure of FutuRaM

4.1 General Assembly

The GA is the highest decision-making body of the consortium. It consists of one representative of each of the Beneficiaries and Associated Partners, and each member of the GA has one vote. Affiliated Entities can attend the GA as observers but do not have a vote. The GA is chaired by the Project Coordinator (WEEE Forum).

4.2 Project Office

The Project Office comprises the Project Coordinator and the Scientific Coordinator and it is responsible for the overall management and coordination of the project.

The Project Coordinator is the main interface between the consortium and the EC (Project Officer and Financial Officer) and is responsible for the overall legal, contractual, ethical, financial and administrative management of the project. The main responsibilities of the Project Coordinator can be summarised as:

- Monitoring compliance by the Parties with their obligations under the Consortium Agreement and the Grant Agreement.
- Maintaining communication with the granting authority.
- Collecting, reviewing to verify consistency, and submitting reports, other deliverables (including financial statements and related certification) and specific requested documents to the Granting Authority.
- Preparing the meetings, proposing decisions, and preparing the agenda of General Assembly meetings, chairing the meetings, preparing the minutes of the meetings and monitoring the implementation of decisions taken at meetings.
- Transmitting promptly documents and information connected with the Project to any other Party concerned.
- Distributing the EC Financial Contribution of the Granting Authority to the Beneficiaries.
- Keeping the list of Consortium Members and other contact persons updated and available.
- Resolving disputes between Consortium Members.

The Scientific Coordinator is the interface between the consortium and the European Commission for the research of the project. The main responsibilities of the Scientific Coordinator can be summarised as:

- Ensuring that deliverables, milestones and tasks are completed effectively and on-time
- Overseeing the scientific quality of deliverables, and milestones
- Ensuring that the overall research results meet scientific standards
- Ensuring that the overall research objectives of the project are being effectively coordinated and met.
- Deal with any disputes with regards to the scientific and research direction of the project.
- Preparing the meetings, proposing decisions and preparing the agenda of General Assembly meetings, co-chairing the meetings.

4.3 Project Management Team

The PMT comprises each of the WP Leaders (see Section 4.4) plus a representative of the Project Coordinator who is not a WP Leader. The members of the PMT were formally appointed at the first meeting of the FutuRaM General Assembly on 4-5 July 2022. The PMT will meet once per month for the duration of the project with the leads of the Waste Stream Groups (see Section 4.6) joining the meeting once per quarter. The PMT ensures the integration of research efforts, reports regularly on progress (by WP and waste stream) and takes action on issues. The PMT assists and facilitates the work of the

General Assembly and aids the Project Coordinator in executing the decisions of the General Assembly. It is responsible for the day-to-day management of the Project.

4.4 Work Package Leaders

The WP leaders are responsible for the successful completion of their work packages within the time, quality and cost limits. They support the Project Coordinator to achieve the overall project goal. They are responsible for the day-to-day management of their work package and the following tasks:

- Accomplishment of the technical objectives of the WP.
- Monitoring WP progress.
- Coordination of tasks.
- Following up milestones and deliverables.
- Ensuring high quality results.
- Planning of WP meetings and conference calls.
- Risk management within their WP.
- Work package documentation and information management.

4.5 Advisory Board

The AB assists and provides counsel to the consortium and its constituent bodies throughout the project. The AB will guarantee that a wide network of change agents provides important input, other relevant actors are identified, and the network is maintained and extended. The AB will meet twice per annum, once online and once face to face. Face to face meetings will be combined with in-person FutuRaM events. At other times contact will be made when input is required to a specific task of the project. The mechanisms for AB engagement are outlined in the Terms of Reference. The FutuRaM GA has mandated that the WEEE Forum acts to invite individuals nominated by the Consortium to join the AB. The Scientific Coordinator will chair the meetings of the AB.

4.6 Waste Stream Groups

Thematic groups around the six waste streams of the project have been created to ensure consistency across the WPs. WP1 Conceptual and Methodological Development plays a central role for ensuring input from all waste streams. The lead organisation of each waste stream will be represented at the PMT meetings once every quarter. The waste stream groups are:

- Batteries led by TUB and supported by RECHARGE, UNITAR and Empa.
- End of Life Vehicles led by Chalmers, supported by Empa.
- Construction & Demolition Waste jointly led by UCL and ULEI, supported by BRGM and TUB
- Mining Waste led by SGU and supported by GTK, GeoZS, BRGM, UB, LMU and BGR
- Slags and Ashes led by VITO and supported by BRGM, UCL, LMU and GeoZS
- Waste of Electrical and Electronic Equipment led by UNITAR with the support of Empa, TUB and WEEE Forum.

5 Detailed Work Plan

Detailed work plans for each work package are provided in Annex 1, page 25.

6 Quality Management

Quality management is the process of defining the strategy and methods the project will deploy to ensure the project's outputs, i.e. reports and results, in the form of deliverables, milestones or other documents, are of acceptable quality before they are submitted or circulated.

Quality management is fundamental to the success of the project, and the project adopts a methodology with two separated processes:

- Quality assurance - the execution of processes and procedures to ensure the achievement of quality, to assure that the project satisfies the needs for which it was undertaken.
- Quality control - verifies and assesses the output.

6.1 Quality assurance procedure

The quality assurance procedure defines working method, processes review, templates and responsibilities that are applied to the project. Quality assurance in FutuRaM aims to ensure that the outputs of the project are of a high quality and describes the process the project will employ to achieve this.

The Project Coordinator is ultimately responsible for delivering quality in FutuRaM but the management structure in the project means that others take responsibility at different stages; these being:

- Scientific Coordinator – which has the responsibility for overseeing the research elements of the whole project. It is responsible for ensuring the research activities achieve the required standards.
- Work Package leaders – responsible for the delivery of the research and outputs for their WP.
- Task Leaders – have the responsibility for ensuring the tasks they oversee are delivered effectively and are of sufficient quality.
- Partners – all partners should aim to achieve the highest standards in the contribution they make to the project.

The European Commission does not have responsibility for achieving quality within the project, but it will review submitted reports and provide feedback on these and on any other aspects of the project. Advice may be sought from the EC Project Officer, through the Project Coordinator, on quality issues at any time in the project.

The Project Coordinator is responsible for ensuring that all outputs are structured, harmonised and organised to ensure that they are timely, exhaustive, clear and effective.

During the project, many outputs will be produced, and it is important that a process is in place for creating, reviewing and approving them. Reports will be produced as milestones, as Deliverables and for external bodies (as non-milestone and non-Deliverable reports).

A report template has been produced for the project that should be used for all reports. This contains the following parts:

- Front page with general data about the document, the FutuRaM logo and the EC logo.
- Version history
- Review/quality sign off
- Contents
- A list of figures and a list of tables
- Acronyms
- Executive summary (if required)
- Introduction including the scope of the document
- Chapters constituting the body of the document
- Annexes
- A footer containing the name of the document and the number of pages using the format "Page X of Y"

The different actors involved in the production of documents are:

- Document leader - the organisation noted in the GA as the lead for the Deliverable or Milestone; or the organisation that it is agreed within the project will lead on an external report that is not a Deliverable or Milestone.
- Task Leader – the leader of the task to which the document relates, if not already the above.
- Work Package Leader – the leader of the WP to which the document relates, if not already one of the above.
- Other contributors - the partners involved in the activities related to the document and involved in producing the document.
- Scientific Coordinator - if not already one of the above.
- Project Coordinator - if not already one of the above.

When producing a document, the file should be stored on the FutuRaM shared drive and, where possible, contributors should use software that enables multiple users to work on the document at the same time. Edits should be tracked and only be accepted by the document leader. Where an individual wishes to work on a document offline, this should be communicated to all contributors and a time period agreed where the online copy will not be edited.

The document leader is the person in charge of the production of a document. The process of producing, reviewing a document is described in Figure 2 below.



Figure 2 Document Quality Assurance Process

Deliverables are generated under the responsibility of the WP Leader, who will ensure that all deliverables within their WP are prepared correctly and on time.

Once a final draft is produced it will be reviewed (at Review 2) by the Project Coordinator, the Scientific Coordinator, and all WP Leaders that are not the document leader.

All reviewers will review all aspects of a document, with the Scientific Coordinator having overall responsibility for ensuring the scientific content is of the required standard.

The document leader is responsible for the update of a document after internal review. The document leader receives the comments from the reviewers, must give an answer to all the comments and take into account the accepted ones. The Task Leader should be in copy of documents, comments and answers.

The quality control process for documents requires that the document and reviewers ensure that they adhere to the following quality aspects:

- The contribution of the document to the WP and the overall goals of FutuRaM should be clearly stated.
- The objectives of the document should be clearly expressed.
- The document should be clearly related to previous and future documents in the WP and – if applicable – to documents from other WPs.
- The relation / additions / differences to previous documents in the same WP should be clearly stated.
- The document should be self-contained, which can be understood without knowledge of the DoA (or previous documents).
- The document contents should be consistent with its description in the DoA; if not, the deviation should be explained.
- The document should be clear, cohesive and concise.
- The document should not contain any claims that are not proven or supported by references.

7 Milestones

The Milestones for FutuRaM are listed in Table 3 below.

Table 3 FutuRaM Milestones

M#	Milestone name	W P	Due date (M)	Partner Responsible	Means of verification
1	Project Management Plan	8	3	WEEE Forum	Project Management Plan circulated to the Consortium
2	Advisory Board Terms of Reference signed	8	3	WEEE Forum	Signed AB Terms of Reference available
3	Public Website	7	4	WEEE Forum	Public website live.
4	Co-creation workshops for the identification of end-user needs	7	5,18,24, 30,40,44	SPI	Workshops are organised and held. WP5 (M5, M18 and M30. Capacity building (M40). Business modelling (M24, M44). 3 Co-creation workshops around M18, one Internal M5
5	Scientific management meetings held	8	6,12,18,24 ,30,36,42	UNITAR	Meetings held and minutes produced
6	FutuRaM conceptual and methodological framework	1	12	Empa	Internal report is available
7	Composition data templates for SRMs assessment for each waste stream	3	12	TUB	Templates on material composition WP3 are available for Project partners
8	Database modelling and harvesting implementation	6	12	BRGM	Report is available that covers SRM-KB data model for all the waste streams.
9	Policy Working Group meetings held	7	12,18,24,3 0,36,42,40	SPI	Policy meeting held and minutes produced
10	FutuRaM events including final event	7	12, 24, 36, 48	WEEE Forum	Meetings held and minutes produced
11	Mapping of published scenarios and Storyline/scenario description	2	18	ULEI	Dataset on available scenarios is fed into D1.1 and qualitative descriptions of 3 futures for the six waste streams are circulated
12	Consolidated dataset on composition data for SRMs	3	18	UNITAR	Datasets on consolidated composition data for SRMs potential assessment ready for T4.3
13	Concept of UNFC methodology	5	18	LMU	Report that covers literature review, stakeholder consultation and concept for methodology

M#	Milestone name	W P	Due date (M)	Partner Responsible	Means of verification
14	Periodic Technical Report	8	18, 36, 48	WEEE Forum	Formal report to the EC for each project period
15	Updated version of the CDE plan	7	18, 30, 42	SPI	Revised versions of the CDE plan produced and circulated to consortium
16	Updated stakeholder mapping	7	18, 30, 42	WEEE Forum	Revised versions of stakeholder mapping report produced and circulated to consortium
17	Mapping of future technologies for each sector	2	20	ULEI	Dataset covering sector-specific current and emerging technologies in both the production of products and their end-of-life treatment made available to WP1 Lead and consortium members, including quantitative descriptions of future product market shares related to 6 waste streams
18	Consolidated dataset on stocks and flows	4	18	UNITAR	Dataset on stocks and flows for all six waste streams ready for the T4.3
19	Roadmap for the market introduction of KERs	7	30	SPI	Roadmap document produced and provided to the Consortium
20	Integration of social, environmental, and economic assessments	2	36	ULEI	Social, environmental, and economic impacts of SRM recovery have been quantified for each scenario and waste stream. Information delivered to the consortium.
21	API and web-services specifications and protocol for database updating	6	36	BRGM	API and web services are ready to be used in the task 6.3. Technical guidelines are revised.
22	Guidelines for utilising the SRM-KB platform	7	42	BRGM	Guidelines document available

8 Risk Management

Five main areas of risk have been identified in FutuRaM and these are used to categorise risks in the 'Risk Register', Deliverable 8.1, which has been produced and will be maintained by the Scientific Coordinator, with input from the WP Leaders.

- Administrative – focussing on the partners and their contributions
- Financial – concerning lack of budget and bankruptcy of partners
- Technical & operational – where GA targets are not achieved, or factors affect how the project operates e.g. COVID-19
- Exploitation, dissemination & communication - those affecting the volume and appropriateness of the audience and commercial aspects such as IPR.
- Research – risks that affect research, such as lack of data making proposed outputs unachievable.

The risk register includes information regarding who owns the risk, a grading of the level of the risk, the response approach that the project will take and the details of how the risk will be mitigated.

The risk register will be monitored via meetings of the PMT and Consortium and will be updated if new risks are identified or as circumstances change regarding the risks already identified. It will be updated formally as part of the periodic report submitted at the end of each reporting period. In all cases, the identification and resolution of problems rests with the WP Leaders and the Project Coordinator and will be resolved using the relevant members of the consortium and of the AB, as well as other external organisations including the EC.

The main cornerstones of the FutuRaM risk management strategy are:

- Methods to identify, report and respond to risks have been established.
- Responsibilities for monitoring risks are clear.
- Active management and prioritisation of risks.
- Sharing of information related to risks at the earliest opportunity.
- Risk management is a standing item at PMT meetings.

9 Financial Management

The objective of applying financial management is to ensure that the project is completed within budget. Financial Management refers to the process of gathering information on, tracking and managing the financial resources throughout the project. The Project Coordinator is responsible for Financial Management. The process relies on partners maintaining, and providing on time, financial information for the project. Having quality input data is the key to obtaining reliable cost information for managing resources and making decisions.

The FutuRaM budget was produced in the proposal phase of the project and is provided at high level in the GA. A breakdown of these high-level costs per partner has been provided to the Consortium and continues to be available via the FutuRaM shared drive. The project budget reflects the whole estimated eligible costs that FutuRaM partners need for executing the project activities.

To keep track of the budget for the whole project and per partner, all Partners receiving a grant (from the EC or another body) will submit an internal financial report every 6 months, where Personnel costs, Purchase Costs, Subcontracting Costs and Indirect Costs during the period will be indicated at task level. In addition, the reporting will include details on the time spent working on the project to ensure that time budget can also be monitored, as well as a short overview of the work undertaken by the partner during the period covered. Those partners not receiving a grant will be required to submit time information and details of work undertaken. Each partner is responsible for managing their own budget for FutuRaM in accordance with their own accounting and management principles and practices and in line with the requirements of the GA.

Based on the financial reports, the Project Coordinator will prepare a status update every 6 months and report to the PMT and the Consortium. This will assess actual versus planned costs for the whole project, for all WPs and to WP level for each partner. Issues identified by the update will be addressed immediately with the relevant partner(s) and mitigating action taken if necessary.

Formal financial reports will be submitted to the EC during the project. There are three reporting periods and financial reports will need to be submitted by each Beneficiary via the EC Funding & Tenders Portal within 60 days of the end of the reporting period. The formal reporting periods for FutuRaM are:

- June 2022 (Month 1) to November 2023 (Month 18)
- December 2023 (Month 19) to May 2025 (Month 36)
- June 2025 (Month 37) to May 2026 (Month 48)

The Project Coordinator will ensure that the project costs are monitored continuously, and that regular information is provided to the Consortium. The project's allocated Financial Officer and Project Officer will be informed of any deviations that warrant their intervention.

Details on budgets and distribution of grant funding are covered in the Grant Agreement and the Consortium Agreement.

Table 4 FutuRaM Reporting Periods

Internal Reporting	Formal Reporting to the EC
For the 6-month period ending at:	For the period ending at:
November 2022	
May 2023	
November 2023	November 2023 (Month 18)
May 2024	
November 2024	
May 2025	May 2025 (Month 36)
November 2025	
May 2026	May 2026 (Month 48)

10 Internal Communication

There are 28 partners in FutuRaM and, at the time of writing, 116 individuals on the project contact list. Internal communication methods need to be effective to ensure all relevant partners are kept informed on the elements of the project relevant to them.

The internal contact list of the project is maintained by the Project Coordinator and all partners are expected to update this as changes occur in their own organisation. The contact list includes names, organisations, email addresses, an indication of who is responsible for financial and for legal matters, which WPs individuals will contribute to, and an indication of which waste stream they have expertise in and if they will contribute to UNFC activities. It is available to all partners on the FutuRaM shared drive.

FutuRaM uses several mechanisms for ensuring open and frequent communications with the Consortium, at multilateral and bilateral levels:

- Email
- Other electronic methods e.g. Skype, WhatsApp
- Conference calls
- Face-to-face meetings

The following principles should ensure the suitable use of the e-mail communication between project participants:

- Address information only to involved parties in communication: do not systematically copy all contacts into communications, or, if replying to a specific individual, use 'reply' in preference to 'reply all'.
- Use an explicit subject title that begins 'FutuRaM:'.
- When sharing files via email, upload the file to the FutuRaM shared drive and provide a link in the email to the location of the file.

The schedule of meetings and events for FutuRaM is shown in Table 5 below. The schedule for the Consortium meetings may change by a month either side of the dates shown, it is the same for the FutuRaM annual events (except for those scheduled for May 2026, which cannot be held at a later date than this). As well as being hosted by the WEEE Forum (Brussels, Belgium), one Consortium meeting will also be hosted by each of UNITAR (Bonn, Germany), BRGM (Orleans, France), TU Berlin (Berlin, Germany) and SPI (Porto, Portugal). The remaining Consortium meetings will either take place in Brussels or in the location of another partner. The FutuRaM annual events are likely to be held in Brussels but could be moved to another location to be part of a wider conference where more stakeholders might be attracted.

Table 5 Schedule of meetings and events

Meeting/Participants	Type of Meeting	Timing	Location
Consortium	In-person	July 2022	Brussels, Belgium
		November 2022	Partner hosts
		May 2023	Partner hosts
		November 2023	Partner hosts
		May 2024	Partner hosts
		November 2024	Partner hosts
		May 2025	Partner hosts
		November 2025	Partner hosts
		May 2026	Brussels, Belgium
Project Management Team: Project Coordinator, Scientific Coordinator, WP Leaders, Waste Stream Leaders (will attend once per quarter)	Conference call	Monthly, scheduled for the third Thursday of each month	Online
Advisory Board	Conference call or in-person	One conference call and one in-person meeting per annum.	Online in-person to coincide with a Consortium meeting
Work Package Teams	Conference call or in-person	Based on internal arrangements between the partners involved	Online Physical tbc
Waste Stream Teams	Conference call or in-person	Based on internal arrangements between the partners involved	Online Physical tbc
External stakeholders	In-person	At points in the project where consultation or clustering events are required.	Physical – venue tbc

Meeting/Participants	Type of Meeting	Timing	Location
		Consultation commences at M5.	
FutuRaM annual event: External stakeholders	In-person	May 2023 May 2024 May 2025 May 2026	Brussels
Project Review Meetings European Commission, Project Coordinator, Scientific Coordinator, WP Leaders	In-person	Approximately: January 2024 July 2025 July 2026	Brussels

10.1 Shared document filing

A platform for sharing and storing files associated with the project has been established using Microsoft SharePoint. This is the primary file sharing system for the project and should not be replaced by other facilities for the storage of files. Where files have restricted access e.g. they contain confidential information, more local arrangements can be made in adherence with the Data Management Plan (Deliverable 8.2).

A filing system has been established within the FutuRaM SharePoint site to enable efficient access to documents. The Project Coordinator is responsible for maintenance of the filing system, with WP Leaders responsible for maintaining the system within their own WP folder.

The protocol for naming directories and files should be:

Directories

Consortium members are requested to structure their folders to correspond with the project structure (Work Packages) and Tasks, and to how the files/records were generated.

Files

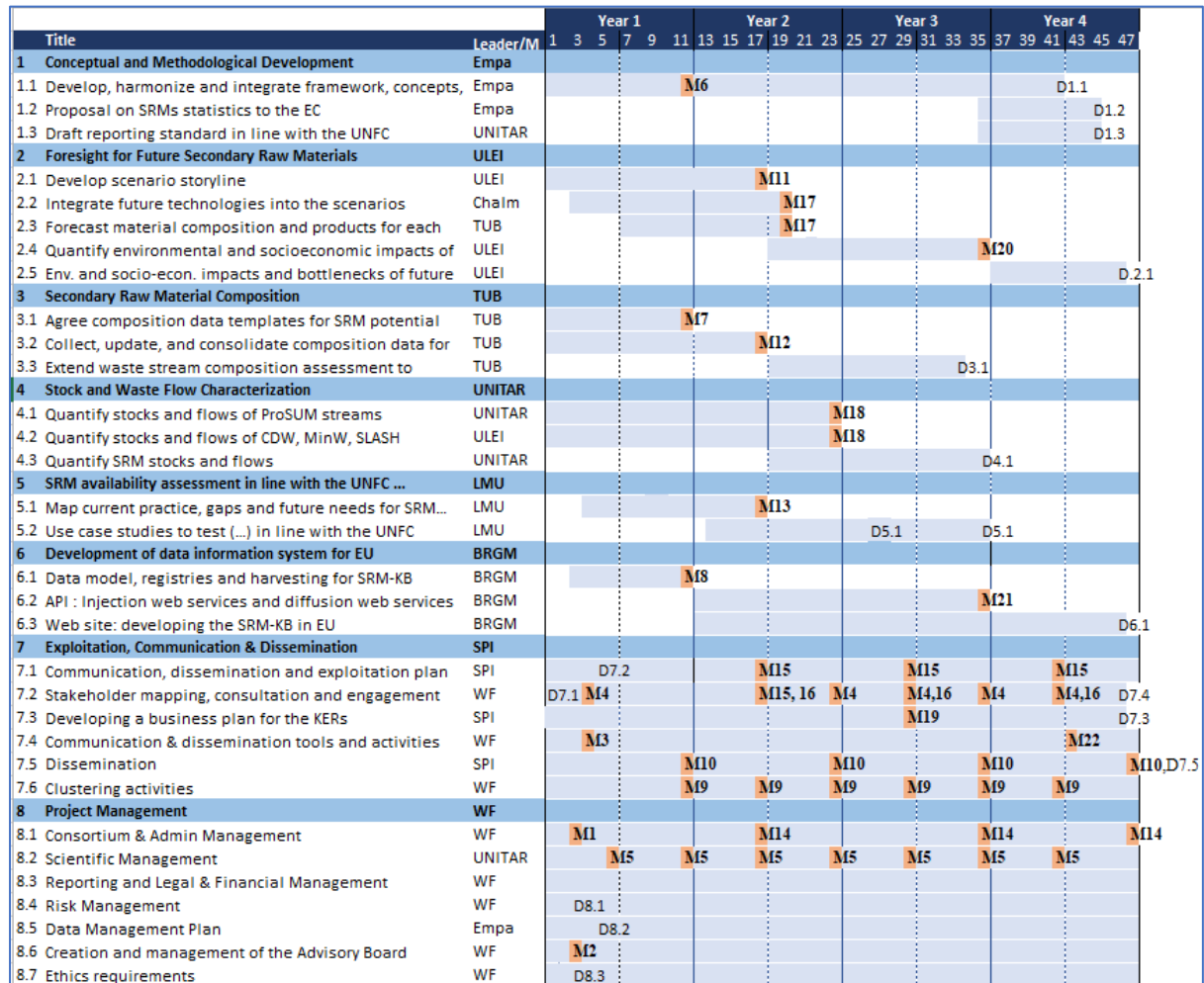
- Use a version number (e.g. “v01” or “v02”)
- Use the version date YYMMDD
- Use dashes (-), underscores (_), or capitalize the first letter of each word in the filename
 - Dashes: file-name.xxx
 - Underscores: file_name.xxx
 - No separation: filename.xxx
 - Camel case (the first letter of each section of text is capitalized): FileName.xxx

- Avoid special characters, such as: ~ ! @ # \$ % ^ & * () ` ; : < > ? . , [] { } ' " |

11 Project Schedule

The project schedule is shown in Figure 3 below.

Figure 3 Project schedule (Gantt Chart)



Annex 1 Detailed Work Plans

Work Package 1 – Conceptual and Methodological Development

WP Leader: Empa. Duration: M1-M45

The overall objective of WP1 is to support the development, harmonisation and integration of the concepts, methods, models and procedures required to reach the goals of the FutuRaM project.

WP	Task	Sub Task	Sub Task Name	Waste Group	Step (Optional)	Description Sub Task/Step	Start Month	End Month	Contributors
1	1.1	1.1.1	Waste streams	Cross Cutting		Organize waste streams in WP1	3	4	UNITAR, Chalmers, GeoZS, SGU, TUB, VITO, Empa, UCL
1	1.1	1.1.1	UNFC	Cross Cutting		Understand case studies and how to apply the UNFC approach	6	12	LMU
1	1.1	1.1.1	Waste streams	Cross Cutting	Data Model	Discuss, harmonise and integrate data models for the waste streams	5	6	Empa
1	1.1	1.1.1	Waste streams	Cross Cutting	Data collection	Waste streams collect data. The results are discussed during the WP1 decision meetings and knowledge meetings, this leads to consolidated FutuRaM concepts, methods, models and procedures	6	12	UNITAR, Chalmers, GeoZS, SGU, TUB, VITO, Empa, UCL
1	1.1	1.1.1	Waste streams	Cross Cutting	Synergies	Identify synergies and interlinkage between waste streams The results are discussed during the WP1 decision meetings and knowledge meetings, this leads to consolidated FutuRaM concepts, methods, models and procedures	6	12	UNITAR, Chalmers, GeoZS, SGU, TUB, VITO, Empa, UCL
1	1.1	1.1.1	Waste streams	Cross Cutting	Fore-ground	Identify status quo for each waste stream. Identify gaps and synergies The data needs to be documented in an organized and easy to access manner	4	5	UNITAR, Chalmers, GeoZS, SGU, TUB, VITO, Empa, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Step (Optional)	Description Sub Task/Step	Start Month	End Month	Contributors
1	1.1	1.1.2	Terminology	Cross Cutting		Set starting point for terminology definition. Decide on the documentation of knowledge. Establish routine to encourage further discussion during the project. Establish rules who will be able to edit etc.	4	5	UNITAR, Chalmers, SGU, Empa
1	1.1	1.1.3	Scenarios	Cross Cutting		Mapping of currently used scenarios has been finished and a discussion to agree on a FutuRaM approach is carried out	5	6	Leiden, Empa
1	1.1	1.1.3	Scenarios	Cross Cutting		First results of FutuRaM approach is presented, discussed, harmonized and integrated	6	8	Leiden, Empa
1	1.1	1.1.4	Discussion	Cross Cutting		Identify to-dos and discuss	1	42	WEEE Forum, UNITAR, BGR, BRGM, Chalmers, GeoZS, GTK, LMU, SGU, SPI, TUB, Leiden, VITO, Empa, UCL
1	1.1	1.1.5	Stakeholder	Cross Cutting		Include stakeholder view	5	42	WEEE Forum, SPI, Empa
1	1.1	1.1.6	Organization	Cross Cutting	Structure	Define meeting process and structure, communicate to partners and implement	2	4	WEEE Forum, UNITAR, BGR, BRGM, Chalmers, GeoZS, GTK, LMU, SGU, SPI, TUB, Leiden, VITO, Empa, UCL
1	1.1	1.1.6	Organization	Cross Cutting	Milestone	Write Milestone report	10	12	WEEE Forum, UNITAR, BGR, BRGM, Chalmers, GeoZS, GTK, LMU, SGU, SPI, TUB, Leiden, VITO, Empa, UCL
1	1.1	1.1.6	Organization	Cross Cutting	Deliverable	D1.1 Consolidated and harmonised FutuRaM concepts, methods, models, procedures and recommendations (M42)	40	42	WEEE Forum, UNITAR, BGR, BRGM, Chalmers, GeoZS, GTK, LMU, SGU, SPI, TUB, Leiden, VITO, Empa, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Step (Optional)	Description Sub Task/Step	Start Month	End Month	Contributors
1	1.2	-	Organization	-	Deliverable	D1.2 Proposal on SRMs statistics to the EC (M45)	43	45	BGR, GeoZS, GTK, LMU, SGU, TUB, VITO, Empa, UCL
1	1.3	-	Organization	-	Deliverable	D1.3 Draft reporting standard in line with the UNFC (M45)	43	45	BGR, GeoZS, GTK, LMU, SGU, TUB, VITO, Empa, UCL

Work Package 2 Foresight for Future Secondary Raw Materials

WP Leader: ULEI. Duration: M1-M47

WP2 will conduct foresight studies for materials critical to the EU economy, or materials that have significant impacts on EU sustainability because of their large volumes. WP2 will develop a set of coherent scenarios for material use and waste/recovery over time in various sectors in the EU: WEEE, ELV, BAT, CDW, MINW, SLASH.

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
2	2.1	2.1.1	Scenario mapping	Cross Cutting	Map various studies from the academic, policy, and grey literature for future scenarios and assess the applicability within FutuRaM	M01	M05	WEEE Forum, UNITAR, BRGM, Chalmers, GTK, LMU, RECHARGE, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.1	2.1.2	Scenario methods	Cross Cutting	Compile various methodologies for scenario development and assess their applicability for developing scenarios on material recovery and circular economy for Europe	M02	M05	WEEE Forum, UNITAR, BRGM, Chalmers, GTK, LMU, RECHARGE, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.1	2.1.3	Scenario storylines	Cross Cutting	Flesh out the storylines of the 3 main scenarios	M05	M08	UNITAR, Chalmers, TUB, Leiden Uni
2	2.1	2.1.4	Qualitative scenario development	Cross Cutting	Use the chosen methods and qualitative methods to develop the three main scenarios to be used in FutuRaM (e.g. BAU, increased material recovery, and full circular economy)	M07	M11	UNITAR, Chalmers, SGU, Leiden Uni, VITO, UCL
2	2.2	2.2.1	Emerging technology assessment for future material use	Cross Cutting	Compile information on emerging technologies for sectors associated with waste streams, including changing material use	M03	M10	WEEE Forum, UNITAR, BRGM, Chalmers, GTK, LMU, RECHARGE, SGU, TUB, Leiden Uni, VITO, Empa, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
2	2.2	2.2.2	Emerging technology assessment for recovery	Cross Cutting	Compile information on emerging technologies for sectors associated with waste streams, including changing material use	M07	M11	WEEE Forum, UNITAR, BRGM, Chalmers, GTK, LMU, RECHARGE, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2	2.2.3	Technology quantification	Cross Cutting	Develop methods for a quantified assessment of technology implementation (e.g. market share)	M11	M16	UNITAR, Chalmers, Leiden Uni
2	2.2	2.2.4	Technology integration	Cross Cutting	Quantitatively integrate future technologies into the scenarios	M16	M20	UNITAR, Chalmers, Leiden Uni
2	2.2	2.2.5	Technology integration	Cross Cutting	Quantitatively integrate future technologies into the scenarios with Tasks 4.1 and 4.2	M14	M20	UNITAR, Chalmers, Leiden Uni
2	2.3	2.3.1	Future product/resource material composition	Cross Cutting	Compile (and possibly harmonize) present and future material use based on emerging technology assessment (Subtask 2.2.1)	M06	M18	UNITAR, BRGM, Chalmers, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.3	2.3.2	Methods for data gaps in future compositions	Cross Cutting	Identify methods for imputing missing composition data	M14	M20	UNITAR, TUB, Leiden Uni
2	2.3	2.3.3	Create database of future waste stream compositions	Cross Cutting	Create database of material compositions for future products/waste streams for each scenario in combination with WP3	M18	M20	UNITAR, TUB, Leiden Uni
2	2.4	2.4.1	Harmonization of future material waste stream material recovery	Cross Cutting	Compile preliminary results from Tasks 4.1 and 4.2 and WP3, and harmonize initial waste stream results, feeding back to these tasks	M18	M21	UNITAR, BRGM, Chalmers, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.4	2.4.2	Develop methods for environmental and social and economic assessments	Cross Cutting	Evaluate the use of S-LCA, technoeconomic assessments, cost-benefit analysis, multi-criteria analysis using information from both the waste stream models and the UNFC case studies	M18	M30	BRGM, Chalmers, LMU, Leiden Uni

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
2	2.4	2.4.3	Perform social, economic and environmental assessments	Cross Cutting	Implement methods chosen from subtask 2.4.2 to assess the social, economic, and environmental impacts for each scenario (thus quantify environmental and socioeconomic impacts of SRM recovery under each scenario)	M30	M36	BRGM, Chalmers, LMU, Leiden Uni
2	2.4	2.4.4	Feedback with UNFC methodology	Cross Cutting	Adapt/modify/streamline the methodology for application within the context of the UNFC	M24	M36	UNITAR, LMU, SGU, Leiden Uni, VITO, Empa, UCL
2	2.5	2.5.1	Compile information for the report	Cross Cutting	Compile all the modelling and case study information thus far and prepare for report writing	M37	M43	WEEE Forum, UNITAR, BRGM, Chalmers, GTK, LMU, RECHARGE, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.5	2.5.2	Report writing	Cross Cutting	Write the report on the bottlenecks, environmental, and socioeconomic impacts of secondary material recovery	M44	M45	WEEE Forum, UNITAR, BRGM, Chalmers, LMU, SGU, TUB, Leiden Uni, VITO, Empa, UCL
2	2.5	2.5.3	Report reviewing	Cross Cutting	Report review by stakeholders and partners	M46	M46	WEEE Forum, UNITAR, Leiden Uni
2	2.5	2.5.4	Report revising	Cross Cutting	Revise report based on recommendations	M47	M47	WEEE Forum, UNITAR, Leiden Uni
2	2.5	2.5.5	Report delivery	Cross Cutting	Deliver final report	M48	M48	Leiden Uni

Work Package 3 Secondary Raw Material Composition

WP Leader: TUB. Duration: M1-M36

The central objective of WP3 is to provide harmonised and consolidated data sets on current and future product and waste compositions of WEEE, BAT, ELV, CDW, MINW, SLASH, and to suggest a framework for future product and waste composition forecast and monitoring to be harmonised and extended with the requirements of UNFC.

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
3	3.1	3.1.1	revise existing ProSUM templates for composition data	BATT, ELV, WEEE	review, check, and adapt existing PROSUM templates for composition data for BATT, ELV, WEEE	M01	M08	WEEE Forum, Ecosystem, ERION, UNITAR, Chalmers, TUB, Leiden Uni, Empa, REPIC
3	3.1	3.1.2	develop data templates for CDW, MIN, SLASH	CDW, MIN, SLASH	develop new data templates for composition data in CDW, MIN, SLASH, based on existing ProSUM templates	M01	M08	BGR, BRGM, GeoZS, GTK, SGU, TUB, Leiden Uni, VITO, UCL
3	3.1	3.1.3	definition of data demand for UNFC assessment	Cross cutting	define data demand for UNFC assessment of SRM with regard to composition data in collaboration with WP5	M05	M08	UNITAR, LMU, TUB, Empa
3	3.1	3.1.4	harmonize and consolidate FutuRaM data templates for composition data	Cross cutting	review, harmonize, and consolidate FutuRaM templates for composition data of SRM for all waste streams; finalize templates for data collection	M08	M12	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.2	3.2.1	overview existing data	Cross cutting	compile/map an overview over existing data (sources) for compositional data for all waste streams	M03	M08	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.2	3.2.2	check data availability	Cross cutting	check data availability of composition data with regard to access and completeness for data templates	M03	M08	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
3	3.2	3.2.3	collect and compile data	Cross cutting	data collection for composition data from scientific, policy, industry, grey literature/reporting	M06	M15	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.2	3.2.4	consolidate data sets	Cross cutting	generated data sets will be consolidated based on stakeholder interactions	M15	M18	*WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.3	3.3.1	planning and coordination of activities to extend waste stream composition assessment	Cross cutting	based on generated data sets, activities are prospected, planned, and coordinated, such as statistical data analysis, literature research, waste stream-specific recovery trials, extended batch tests, and stakeholder workshops	M19	M24	*WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.3	3.3.2	execution of activities	Cross cutting	statistical data analysis, literature research, waste stream-specific recovery trials, extended batch tests, and stakeholder workshops to collect data and information to enable assessment of SRM recoverability	M24	M30	*WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL
3	3.3	3.3.3	evaluation of results from activities	Cross cutting	evaluation of results and information from statistical data analysis, literature research, waste stream-specific recovery trials, extended batch tests, and stakeholder workshops, which feeds into the existing FutuRaM composition data templates for future use and SRM recoverability assessment	M31	M33	*WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, Leiden Uni, VITO, Empa, GRS Batterien, REPIC, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
3	3.3	3.3.4	finalize D3.1	Cross cutting	draft and finalize deliverable D3.1 'Extended waste stream composition assessment to enable SRM assessment, which summarizes per waste stream how composition influences factors of recoverability and suggests methodologies for consistent waste characterisation and product composition reporting	M32	M36	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, BRGM, Chalmers, GTK, TUB, VITO, Empa, REPIC, UCL

*not clear yet, which partners will be involved.

Work Package 4 Stock and Waste Flow Characterisation

WP Leader: UNITAR. Duration: M1-M36

WP4 will create a consistent dataset of stocks and flows of SRMs with an attention to CRMs found in the WEEE, BAT, ELV, CDW, MINW, SLASH at MS level for the EU, and other countries. The planning for Task 4.1 and T4.2 have been added to the planning on 14/09

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.1	4.1.1	Calculations	WEEE	4.1.1.1	Update WEEE flows for WEEE Directive to 2021: Conduct literature review for WEEE Flows for 2021. WEEE Forum members, etc. Make projections for various futures	M01	M05	WEEE Forum, UNITAR
4	4.1	4.1.1	Calculations	WEEE	4.1.1.2	Update POM Stocks and WEEE flows for WEEE Directive to 2020 for EU (and for world?): Use present 54 UNU-KEYs. Use data after the 2022 DG ENV revision. Calculate EEE POM and WEEE Generated through apparent consumption from 1990 to 2020.	M06	M12	UNITAR
4	4.1	4.1.1	Calculations	WEEE	4.1.1.3	Update POM Stocks and WEEE flows for WEEE Directive to 2050 for EU: Use present 54 UNU-KEYs. Calculate EEE POM and WEEE Generated through apparent consumption from 2020 to 2050 based on models for circularity and future scenarios.	M09	M15	UNITAR
4	4.1	4.1.1	Calculations	WEEE	4.1.1.4	Update POM Stocks and WEEE flows for WEEE Directive to 2050 for EU: Use new UNU-KEYs from novel EEE/digitization. Calculate EEE POM and WEEE Generated through apparent consumption from 2020 to 2050 based on models for circularity and future scenarios.	M14	M18	UNITAR

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.1	4.1.2	Research	WEEE	4.1.2.1	Novel EEE Demand 2020-2050 Independent of the scenarios, the novel EEE demand will be considering smartification of existing UNU-Keys, the role of digitization (Data centres, sensors, IoT etc), changes in weight/size and composition (to be aligned with WP3) and adoption/possession rate or market penetration. For this, we need to make an inventory of UNU-Keys and identification of main components that allow these products to become smart (via experts/literature). Additionally, checking if new UNU-keys are needed to account for these novel products.	M07	M15	WEEE Forum, Ecosystem, ERION, UNITAR, TUB
4	4.1	4.1.1	Calculations	WEEE	4.1.1.5	Data quality assessment Incorporation of data quality assessment + metadata in the calculation routine	M10	M16	UNITAR, Empa
4	4.1	4.1.3	Method	WEEE + ELV	4.1.3.2	WEEE in Vehicles			Empa
4	4.1	4.1.3	Method	Cross Cutting	4.1.3.3	Methodological crosslinks (BAT. Port bat and WEEE, etc)	M04	M09	UNITAR, TUB, Empa
4	4.1	4.1.1	Calculations	WEEE	4.1.1.6	Mass balance for EU and World. Each country, WEEE waste stream (Sankey diagram)	M18	M20	WEEE Forum, UNITAR
4	4.1	4.1.4	Intermediate output	WEEE	4.1.4.1	Preliminary dataset on present WEEE stocks and flows (2010 - 2021) : should be consolidated but can be improved later	M12	M12	UNITAR
4	4.1	4.1.4	Intermediate output	WEEE	4.1.4.2	Preliminary dataset on future WEEE stocks and flows (2021 - 2050) : should be consolidated but can be improved later	M18	M18	UNITAR
4	4.1	4.1.5	Milestone	WEEE	4.1.5.1	Draft Milestone (complete dataset + metadata + explanatory text on methodology and sources)	M20	M22	WEEE Forum, UNITAR, Chalmers,

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
									Kushnir, RECHARGE, TUB, Empa
4	4.1	4.1.5	Milestone	WEEE	4.1.5.2	Review Milestone	M22	M23	WEEE Forum, UNITAR, Chalmers, Kushnir, TUB, Empa
4	4.1	4.1.5	Milestone	WEEE	4.1.5.3	Submission Milestone 18 - Consolidated dataset on stocks and flows	M24	M24	WEEE Forum, UNITAR, Chalmers, Kushnir, TUB, Empa
4	4.3	4.3.1	Calculations	WEEE	4.3.1.1	Get dataset on WEEE composition from WP3	M15	M15	WEEE Forum, UNITAR, TUB
4	4.3	4.3.1	Calculations	WEEE	4.3.1.2	Estimate SRM/CRM availability in WEEE flows : multiply dataset from Task 4.1 on stocks and flows by WEEE composition data from WP3 to get an estimation on the amount of SRM/CRM potential availability in WEEE stocks and flows	M15	M18	UNITAR
4	4.3	4.3.2	Intermediate output	WEEE	4.3.2.1	Preliminary dataset on SRM/CRM availability in WEEE flows (2010-2050) : it is preliminary and will be improved later gradually	M18	M18	UNITAR
4	4.1	4.1.3	Method	BAT	4.1.3.1	Update actual PROSUM database with POM BAT up to 2020-2021: - update the battery subkeys in line with PROSUM - Update applications according to the new regulation: add LMT BATT (light means of transport) in line with ProSUM - collect Data from Avicenne, Recharge for worldwide POM BATT + market share for EU - collect data from EPBA for market share per country - update the BATT composition	M04	M09	RECHARGE, TUB
4	4.1	4.1.3	Method	BAT	4.1.3.2	investigate whether BATT for heavy duty vehicles can be added (trucks, buses). If feasible, add!	M04	M09	Chalmers, TUB
4	4.1	4.1.3	Method	BAT	4.1.3.3	Update collected BATT waste up to 2021 (GRS, Eurostat, EPBA...).	M04	M09	RECHARGE, TUB

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.1	4.1.3	Method	BAT	4.1.3.4	Update the stock and flow parameters (Weibull parameters based on sampling study and Recharge assumptions) - check new sampling studies from EUCOBAT or other sources - update the lifespan of BATT for each type of BATT and each application - update the shape and scale parameters for the Weibull distribution	M04	M09	RECHARGE, TUB
4	4.1	4.1.3	Method	BAT	4.1.3.5	Check data consistency between POM BAT in EEE and EEE, as well as POM BATT in vehicles and vehicles.	M04	M09	UNITAR, Chalmers, RECHARGE, TUB
4	4.1	4.1.3	Calculations	BAT	4.1.3.6	Update the stock and Flow model up to 2021 in an iterative process - Build the model with R or python based on the PROSUM model with excel - calculate the stocks and Flows up to 2021	M09	M15	UNITAR, TUB
4	4.1	4.1.3	Calculations	BAT	4.1.3.7	Update the stock and flow model up to 2050 - foresight POM BATT - foresight BATT composition and lifespan - foresight collection capacity	M15	M18	Chalmers, TUB, Empa
4	4.1	4.1.3	Calculations	BAT	4.1.3.8	Mass balance for EU and World. Each country, BAT waste stream (Sankey diagram)	M18	M20	UNITAR, TUB
4	4.1	4.1.3	Report	BAT	4.1.3.9	Draft Milestone (complete dataset + metadata + explanatory text on methodology and sources)	M20	M22	UNITAR, Chalmers, RECHARGE, TUB, Empa
4	4.1	4.1.4	Milestone	BAT	4.1.3.10	Review Milestone	M22	M23	UNITAR, Chalmers, RECHARGE, TUB, Empa
4	4.1	4.1.3	Report	BAT	4.1.3.11	Submission Milestone	M24	M24	UNITAR

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.1	4.1.5	Method	ELV	4.1.5.1	Vehicles: review vehicles update from 2021	M04	M08	UNITAR
4	4.1	4.1.5	Calculations	ELV	4.1.5.2	Vehicles: include updates if newly published data from known data sources	M06	M12	UNITAR
4	4.1	4.1.5	Method	ELV	4.1.5.3	Vehicles: deciding on the scope for EV batteries: what is modelled with the vehicle model, what is modelled with the BAT model. (this means that the potential adding of heavy duty vehicles is less prioritised)	M06	M09	UNITAR, TUB, Empa
4	4.1	4.1.5	Calculations	ELV	4.1.5.4	Vehicles: if feasible, add heavy duty vehicles (trucks, buses)	M09	M12	UNITAR
4	4.1	4.1.5	Method	ELV	4.1.5.5	Vehicles: review recent work on vehicles of unknown whereabouts	M09	M12	UNITAR
4	4.1	4.1.5	Calculations	ELV	4.1.5.6	Vehicles: calculate POM, stock, leaving stock, waste generated, export for reuse, recycled, unknown	M12	M15	UNITAR, TUB
4	4.1	4.1.5	Method	ELV	4.1.5.7	Vehicles: review recent data base structure and adapt if needed	M04	M09	UNITAR, TUB
4	4.3	4.3.1	Method	ELV	4.3.1.1	Vehicles: add future technologies from T2.2	M20	M24	UNITAR
4	4.3	4.3.1	Calculations	ELV	4.3.1.2	Vehicles: add composition of future technologies from T2.3	M20	M24	UNITAR, TUB
4	4.3	4.3.1	Modelling	ELV	4.3.1.3	Vehicles: integrate new modelling approach for scenarios		M30	UNITAR
4	4.3	4.3.1	Calculations	ELV	4.3.1.4	Vehicles: calculate future scenarios to 2050		M32	UNITAR
4	4.3	4.3.1	Method	ELV	4.3.1.5	Vehicles: contribution to deliverable D4.1		M36	UNITAR, TUB
4	4.2	4.2.1	Concept development	MinW		Assess (modelling) work done in EDGI and by various geological surveys in terms of MinW for possible implementation or data access within FutuRaM.	M01	M04	tbc
4	4.2	4.2.1	Material scope	MinW		Provide an initial estimate on the number of materials/elements that will be modelled within the FutuRaM	M04	M05	tbc

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.2	4.2.1	Model choice	MinW		Choose the implementation and/or harvest dataset that will serve the baseline model for MinW	M05	M05	tbc
4	4.2	4.2.1	Model codes	MinW		Determine the waste stream codes to be used in the project	M04	M05	tbc
4	4.2	4.2.2	Calculations past to present	MinW		Run models for past and contemporary flows	M05	M20	tbc
4	4.2	4.2.2	Calculations future	MinW		Run models for scenarios	M18	M24	tbc
4	4.2	4.2.1	Concept development	SLASH		Assess (modelling) work done at VITO and other partners in terms of SLASH for possible implementation or data access within FutuRaM.	M01	M04	tbc
4	4.2	4.2.1	Material scope	SLASH		Provide an initial estimate on the number of materials/elements that will be modelled within the FutuRaM	M04	M05	tbc
4	4.2	4.2.1	Model choice	SLASH		Choose the implementation and/or harvest dataset that will serve the baseline model for SLASH	M05	M05	tbc
4	4.2	4.2.1	Model codes	SLASH		Determine the waste stream codes to be used in the FutuRaM project	M04	M05	tbc
4	4.2	4.2.2	Calculations past to present	SLASH		Run models for past and contemporary flows	M05	M20	tbc
4	4.2	4.2.2	Calculations future	SLASH		Run models for scenarios	M18	M24	tbc
4	4.2	4.2.1	Concept development	C&D		Assess Eurostat waste codes availability/granularity and potential use in FutuRaM.	M01	M04	tbc
4	4.2	4.2.1	Concept development	C&D		Harmonize modelling approach	M01	M04	BRGM, TUB, Leiden Uni, REPIC

WP	Task	Sub Task	Sub Task Name	Waste Group	Step	Description Sub Task/Step	Start Month	End Month	Contributors
4	4.2	4.2.1	Material scope	C&D		Provide an initial estimate on the number of materials/elements that will be modelled within the FutuRaM	M04	M10	tbc
4	4.2	4.2.1	Model choice	C&D		Compile harmonized CDW dataset	M05	M18	BRGM, Leiden Uni, UCL
4	4.2	4.2.1	Model codes	C&D		Determine the waste stream codes to be used in the FutuRaM project	M04	M05	BRGM, Leiden Uni, TUB, UCL
4	4.2	4.2.2	Calculations past to present	C&D		Run models for past and contemporary flows	M05	M23	Leiden Uni
4	4.2	4.2.2	Calculations future	C&D		Run models for scenarios	M18	M24	Leiden Uni
4				C&D		Scaling up national data to European level (e.g. Eurostat or other sources)	M01	M05	UCL

Work Package 5 SRMs availability assessment in line with the UNFC

WP Leader: LMU. Duration: M3-M36

Development of a methodology to assess the recoverability of SRMs and demonstrate its application to the six waste streams at different scales (e.g. project or regional).

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
5	5.1	5.1.1	State of the art	Cross cutting	Compilation of Resource availability assessments, classification and reporting: Current practices and future needs	3	18	GTK, LMU, SGU, VITO, Empa, UCL
5	5.1	5.1.3	Stakeholder consultation	Cross cutting	Prepare the thematic workshops/questionnaires to assess the requirements of each stakeholder regarding each dimension for the development of an initial proposal for the factors, indicators and methods	3	15	GTK, LMU, SGU, VITO, Empa, UCL
5	5.1	5.1.4	pilot case study (site specific)	Cross cutting	Development of a case study as a site-specific pilot project	3	18	Boliden, LMU, SGU, TUB, WEEECycling, Empa, UCL
5	5.1	5.1.5	pilot case study (national)	Cross cutting	Development of a case study as a national pilot project	6	18	GTK, LMU, TUB WEEECycling, Empa, UCL
5	5.1	5.1.6	Draft framework for the assessment	Cross cutting	Development of Framework and methodologies to assess the availability of resources for the future production of secondary raw materials	3	13	GTK, LMU, TUB, WEEECycling, Empa, UCL
5	5.2	5.2.1	site-specific case studies	Cross cutting	Development of the site-specific case studies for the 5 waste streams with respect to the viability of resource recovery (prospective, non-viable, potentially viable, viable) taking into account the stakeholder perspective	14	32	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, TUB, Belgrade Uni, Leiden Uni, WEEECycling, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
5	5.2	5.2.2	national case studies	Cross cutting	Development of regional/national case studies for the 5 waste streams with focus on the factors needed for a national accounting	14	32	UNITAR, Boliden, GeoZS, VITO, WEEECycling, Mace, Empa, UCL
5	5.2	5.2.3	relevant factors	Cross cutting	Identification of factors that determine the viability status, with focus on enablers and barriers to change the viability status	28	34	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, TUB, Belgrade Uni, Leiden Uni, VITO, WEEECycling, Mace, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL
5			resource reporting	Cross cutting	Compilation of information in view of resource reporting	32	36	GTK, LMU, SGU, VITO, UCL

Work Package 6 Development of data information system for EU

WP Leader: BRGM. Duration M3-M47

The main objectives are to structure, ensure the consistency (EarthResourceML compliance) of datasets in other WP2-5 and build an API to disseminate final datasets of the project using INSPIRE-compliant web-services.

WP	Task	Sub Task	Sub Task Name	Waste Group	Step (Optional)	Description Sub Task/Step	Start Month	End Month	Contributors
6	6.1	6.1.1	Data model and registries assessment	Cross Cutting	Data Model	In ProSUM a data model was developed for ELV, WEEE, MINW and BAT. In EGDI there is a specific data model for MINW. However, new waste streams will be covered in FutuRaM and new data models would be required. Additionally, UNFC classification would need probably the addition of new items in data models based on WP4 of Mintell4EU project.	3	47	UNITAR, BRGM, GeoZS, GTK, LMU, SGU, TUB, VITO, Empa
6	6.1	6.1.2	Data model and registries design	Cross Cutting	Data Model	Design of the complete model including UNFC	6	47	UNITAR, BRGM, GeoZS, GTK, LMU, SGU, TUB, VITO, Empa
6	6.1	6.1.3	Data harvesting	Cross Cutting	Data Model	Existing data harvesting and delivering of a generic import system to partners.	12	47	UNITAR, BRGM, GeoZS, GTK, LMU, SGU, TUB, VITO, Empa
6	6.2	6.2.1	API requirements	Cross Cutting	API	This task will handle the requirements specifications and the development of INSPIRE-compliant web services to be able to inject data and registries, and to diffuse data. The compliance of these services will make the use of SRM-KB possible for external diffusion platforms (such as EGDI), and will let third parties use these data.	3	47	BRGM, GeoZS

WP	Task	Sub Task	Sub Task Name	Waste Group	Step (Optional)	Description Sub Task/Step	Start Month	End Month	Contributors
6	6.2	6.2.2	Injection services	Cross Cutting	API	Services definition and implementation	10	47	BRGM, GeoZS
1	6.2	6.2.3	Diffusion services	Cross Cutting	API	Services definition and implementation	10	47	BRGM, GeoZS
1	6.3	6.3.1	Web site requirements	Cross Cutting	Web site	This task will be related to T7.2 from WP7 and will identify the needs for FutuRaM dissemination portal coming from different stakeholders' categories. These needs will be converted into specifications for the architecture of FutuRaM portal. The website will be a stand-alone application, but it will be also an example of the use of injection and diffusion web-services designed in T6.2	3	47	WEEE Forum, UNITAR, BRGM, LMU, SPI
1	6.3	6.3.2	First implementation	Cross Cutting	Web site	Initial implementation and consortium review	12	24	WEEE Forum, UNITAR, BRGM, LMU, SPI
1	6.3	6.3.3	Update	Cross Cutting	Web site	Final implementation	24	47	WEEE Forum, UNITAR, BRGM, LMU, SPI

Work Package 7 Communication, Dissemination & Exploitation

WP Leader: SPI. Duration: M1-M48

To ensure that FutuRaM activities and results are widely known by stakeholders, to secure and build interest in the research and results, and develop a plan to ensure the longevity of the outputs.

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
7	7.1	Communication, dissemination and exploitation plan		Cross cutting	An overview of the methods and tools for communication dissemination and Exploitation as well KPIs. The KPIs will be used to monitor and assess the planned communication	1	48	WEEE Forum, SPI
7	7.1	7.1.1	Approval of Communication, dissemination and exploitation plan	Cross cutting		1	6	WEEE Forum, UNITAR, BRGM, Chalmers, GeoZS, GTK, LMU, SPI, TUB, Leiden Uni, Empa
7	7.1	7.1.2	Update the Communication, dissemination and exploitation plan	Cross cutting	Update the CDE plan months 18, 30, 42 with C&D inputs and developments on exploitation	7	48	WEEE Forum, UNITAR, BRGM, LMU, SPI, TUB, Leiden Uni, Empa
7	7.1	7.1.3	Monitor KPI's	Cross cutting	Circulate an excel file to validate information related with KPI's	1	48	SPI
7	7.1	7.1.4	Co-creation workshop	Cross cutting	organization of co-creation workshops (internal M6 + external M18, M19, M20)	1	20	SPI
7	7.1	7.1.5	Selection of project KER's	Cross cutting	Final selection of the project KER based on partners outputs	1	18	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, SPI, TUB, Belgrade Uni, Leiden

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
								Uni, VITO, WEEECycling, Mace, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL
7	7.1	7.1.6	Exploitation Roadmap	Cross cutting	Develop the exploitation roadmap for the market introduction of KER	1	48	WEEE Forum, UNITAR, BRGM, LMU, SPI, TUB, Leiden Uni, Empa
7	7.2	7.2.1	Research and write the stakeholder mapping report (D7.1)	Cross cutting	Involve all partners in developing a list of stakeholders. Establish a plan for developing a network of stakeholders and establish the relevant paperwork for formal engagement.	1	3	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, SPI, TUB, Belgrade Uni, Leiden Uni, VITO, WEEECycling, Mace, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL
7	7.2	7.2.2	Update stakeholder mapping report	Cross cutting	Update the report every 12 months to reflect the changes in the stakeholder network.	14	15	WEEE Forum
7	7.2	7.2.3	Develop and manage the stakeholder network	Cross cutting	Establish the formal stakeholder network, manage its database and actively seek new stakeholders to sign up to the network. Assist other partners with using the network for their tasks.	1	48	WEEE Forum
7	7.2	7.2.4	Manage stakeholder consultation	Cross cutting	Coordinate for the whole project the process of consulting with stakeholders. Arrange meetings, follow up, reporting.	1	48	WEEE Forum, SPI
7	7.2	7.2.5	Advocacy report	Cross cutting	Research and write the advocacy report.	40	47	WEEE Forum, UNITAR, SPI
7	7.3	7.3.1	Business modelling interviews and sessions	Cross cutting	Apply for EC Booster services; Develop interview guides; Select group if early adopters to interview. Organize two business modelling sessions - one Exploitation Strategy Seminar	1	46	SPI

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
7	7.3	7.3.2	Interviews and Questionnaires data analysis	Cross cutting	Use the interview data to analysis all the information	1	46	SPI
7	7.3	7.3.3	First Business Model Canvas discussion	Cross cutting	Use all the relevant information and all data collected in order to produce first business model canvas / organize second business modelling session	1	42	SPI
7	7.3	7.3.4	Market analysis	Cross cutting	Market study including customer analysis	1	42	SPI
7	7.3	7.3.6	Financial Model Business Plan	Cross cutting	The project includes for extensive exploitation and business planning to ensure the key outcomes are financially sustainable and can be utilised in the long-term.	1	42	SPI
7	7.3	7.3.7	Draft of Business Plan	Cross cutting		1	42	SPI
7	7.3	7.3.8	Approval of business plan	Cross cutting			46	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, SPI, TUB, Belgrade Uni, Leiden Uni, VITO, WEEECycling, Mace, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL
7	7.4	7.4.1	Develop the branding, website, report and ppt templates	Cross cutting	Produce the branding (logo and colour scheme), website, report and ppt templates that will be used throughout the project.	1	3	WEEE Forum, SPI

WP	Task	Sub Task	Sub Task Name	Waste Group	Description Sub Task/Step	Start Month	End Month	Contributors
7	7.4	7.4.2	Produce and maintain communications materials	Cross cutting	Manage the development and production of all communication materials across the duration of the project. These being, inter alia, newsletter, news releases, videos, social media, project website (update), leaflets, event promotional material. This to be done in liaison with all partners considering the needs of the whole project.	1	48	WEEE Forum, SPI
7	7.4	7.4.3	Promote the project to stakeholders	Cross cutting	Circulate communication materials to stakeholders and maintain the social media accounts so that the project remains in the public eye.	1	48	WEEE Forum, SPI
7	7.5	7.5.1	Dissemination	Cross cutting	FutuRaM's communication and dissemination activities will be a mixture of scene-setting and presenting the results of the research.	1	48	WEEE Forum, SPI
7	7.6	7.6.1	Establish a network of relevant projects	Cross cutting	Using and building on the work in T7.2, this task will identify past, current and future projects with relevance to FutuRaM and create a network from this. The target is 10 projects and initiatives.	1	48	WEEE Forum, Ecosystem, ERION, UNITAR, BGR, Boliden, BRGM, Chalmers, GeoZS, GTK, LMU, Lovisa, RECHARGE, SGU, SPI, TUB, Belgrade Uni, Leiden Uni, VITO, WEEECycling, Mace, Empa, Otanmaki, GRS Batterien, EMR, REPIC, UCL
7	7.6	7.6.2	Clustering Meetings	Cross cutting	Organise and deliver 4 clustering events involving other projects.	1	48	WEEE Forum, UNITAR, SPI

Work Package 8 Project Management

WP Leader: WEEE Forum. Duration: M1-M48

WP8 ensures effective management and co-ordination of the project to achieve the aims defined in the project Grant Agreement through coordination of actions, monitoring of the research progress, accurate reporting, risk and quality management, and knowledge and IPR management.

WP	Task	Sub Task	Sub Task Name	Waste Stream	Description Sub Task/Step	Start Month	End Month	Contributors
8	8.1	8.1.1	Communication/ updates with consortium	Cross cutting	Emails to keep the Consortium informed of developments across the whole project; of messages from the EC; and of important dates and actions.	1	48	WEEE Forum, UNITAR
8	8.1	8.1.2	Consortium meetings	Cross cutting	Organising and delivering biannual consortium meetings	1	48	WEEE Forum, UNITAR
8	8.1	8.1.3	PMT Meetings	Cross cutting	Organising and delivering the monthly PMT meetings	1	48	WEEE Forum, UNITAR
8	8.2	8.2.1	Monitor research objectives	Cross cutting	Ensure that deliverables, milestones and tasks are completed effectively and on-time and that the overall research objectives of the project are being effectively coordinated and managed	1	48	UNITAR
8	8.3	8.3.1	Financial and time reporting	Cross cutting	Reporting financial and time budgets every six months (internally) and to the EC for each reporting period. WEEE Forum coordinates this and all partners provide reports.	1	48	All partners
8	8.3	8.3.2	Monitoring Grant Agreement	Cross cutting	Ensuring that the requirements of the Grant Agreement are being met and that any changes to the project are reflected in the Grant Agreement (Amendments). Liaising with the Commission on this.	1	48	WEEE Forum, UNITAR

WP	Task	Sub Task	Sub Task Name	Waste Stream	Description Sub Task/Step	Start Month	End Month	Contributors
8	8.3	8.3.3	Monitoring Consortium Agreement	Cross cutting	Ensuring that the Consortium Agreement is maintained and adhered to.	1	48	WEEE Forum
8	8.4	8.4.1	Create the Risk Register	Cross cutting	Create the Risk Register and write the Deliverable in which it is included.	1	48	WEEE Forum, UNITAR, BRGM, LMU, SPI, TUB, Leiden, Empa
8	8.4	8.4.2	Monitor and update the Risk Register	Cross cutting	Monitor and update the risk register as the project develops and ensure it is discussed at PMT and by the Consortium	1	48	WEEE Forum, UNITAR, BRGM, LMU, SPI, TUB, Leiden, Empa
8	8.5	8.5.1	Create the DMP	Cross cutting	Write the Data Management Plan with input from all partners. Led by Empa	1	48	All partners
8	8.5	8.5.2	Update the DMP	Cross cutting	Update the Data Management Plan for submission with each periodic report.	1	48	All partners
8	8.6	8.6.1	Create the Advisory Board	Cross cutting	Identify and invite individuals to become members of the Advisory Board. Create and agree the terms of reference with the members.	1	48	WEEE Forum, UNITAR
8	8.6	8.6.2	Advisory Board meetings	Cross cutting	Organise and deliver biannual Advisory Board meetings.	1	48	WEEE Forum, UNITAR
8	8.6	8.6.3	Communicate with Advisory Board	Cross cutting	Keep the Advisory Board up to date with developments in the project and request input when required if this is needed outside of the formal meetings.	1	48	WEEE Forum, UNITAR
8	8.7	8.7.1	Write the Ethics Requirements report	Cross cutting	Research and write the Ethics Requirements report	1	48	WEEE Forum

WP	Task	Sub Task	Sub Task Name	Waste Stream	Description Sub Task/Step	Start Month	End Month	Contributors
8	8.7	8.7.2	Monitor ethics in the project	Cross cutting	Monitor the issues highlighted in the report to ensure that the project remains compliant with ethics requirements	1	48	WEEE Forum, UNITAR, BRGM, LMU, SPI, TUB, Leiden, Empa