



**NEXT GENERATION OF MULTIFUNCTIONAL,
MODULAR AND SCALABLE SOLID STATE
BATTERIES SYSTEM**

D10.1 Management Handbook



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Glossary and Abbreviations	
SC	Steering Committee
PC	Project Coordinator
WP	Work Package
WPL	Work Package Leader
CA	Consortium Agreement
DM	Dissemination Manager
EC	European Commission
GA	Grant Agreement

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Executive Summary

The Management Handbook is a comprehensive resource designed to facilitate effective and efficient administrative and financial management of the project, while ensuring the delivery of high-quality outcomes and sets out key responsibilities for partners. It provides clear procedures, well-defined structures, and effective coordination mechanisms to guide project implementation.

The following principles are crucial for successful project management within the EXTENDED project:

- ❖ **Foster Open Communication:** Establishing and maintaining strong communication channels between project partners is of utmost importance. Encourage regular and transparent information sharing, ensuring that all relevant stakeholders are well-informed about the progress and developments in specific tasks. Good communication between partners will be paramount to the success of the project.
- ❖ **Shared Awareness:** ensure that more than one person within each partner is aware of the ongoing activities and progress in each specific task. This prevents any single point of failure and facilitates smoother transitions in case of personnel changes.
- ❖ **Timely Drafts and Deliverables:** submitting drafts and deliverables on time preferably before the deadlines and follow up of all the deliverables. Implement a robust follow-up mechanism to monitor progress and ensure compliance with project schedules. Timely completion of milestones and deliverables is crucial for the overall project timeline.
- ❖ **Flexibility and Adaptability:** acknowledge the dynamic nature of project workloads and encourage flexible assignments and parallel task management. Having dedicated personnel who can adapt quickly to changes in project requirements helps maintain productivity and meet evolving project demands.
- ❖ **Stakeholder Engagement:** actively promote the project and its objectives to relevant stakeholders. Identify and engage the right stakeholders early on to initiate collaborations and secure easier access to valuable information and resources. This proactive approach strengthens project outcomes and increases support for project activities.

The Management Handbook should be considered a living document that evolves alongside the project. Regular updates and revisions should be made to reflect changes in procedures, project progress, and emerging best practices. This ensures that the Handbook remains relevant, up-to-date, and continues to provide valuable guidance throughout the project's lifespan. By incorporating these improvements, the Management Handbook will serve as an invaluable tool to support effective project management, successful collaboration among partners, and the achievement of project objectives in a timely manner.

1. Key Project References

The fundamental binding rules that apply to the EXTENDED project are set out in the following documents, signed by all consortium partners:

- Grant Agreement (and its Annexes);
- Consortium Agreement.

1.1 Grant Agreement

A Grant Agreement (GA) was prepared to be signed between the Project Coordinator (PC) and the European Commission (EC), and by project partners through the Accession Form A. The GA is the legal document through which partners are made legally liable for carrying out the activities described in Annex I of the GA, also called Description of the Action.

The GA includes of the following parts:

- ❖ **Terms and Conditions:** contains specific information like the subject of the agreement, start date, project duration, grant and budget, rights and obligations of the parties, division of beneficiary's roles and responsibilities, among others. *It is strongly recommended that partners read this document carefully.*
- ❖ **Annex 1 (includes Part A and B):** also called Description of the Action, is the main reference document for carrying out the agreed work. It is based on information from Part B of the original proposal, and it is specific for every project. *It is strongly recommended that partners read this document carefully to understand the overall work programme and their specific role in the project.*
- ❖ **Annex 2:** Estimated budget for the action, including some additional information on the estimated budget, namely some specific unit's costs calculations. *For your information.*
- ❖ **Annex 2a:** Additional information on unit costs and contributions (*For your information.*
- ❖ **Annex 3:** Accession Form for Beneficiaries to the Grant Agreement, signed by partners. *For your information.*
- ❖ **Annex 3a** Declaration on joint and several liability of affiliated entities
- ❖ **Annex 4:** Model for Financial Statements. *For your information.*
- ❖ **Annex 5:** Specific rules (if applicable). *Not expected to be used.*

1.2 Consortium Agreement

The Consortium Agreement (CA) is based on the latest version of the DESCA (Development of a Simplified Consortium Agreement) model, which offers a simplified and comprehensive framework stripped of all unnecessary complexity in both content and language. The CA is designed to establish clear rules governing the relationships between partners involved in the project. It covers various aspects such as project management structures, decision-making processes, distribution of the Community financial contribution, rules regarding dissemination, use and access rights, as well as procedures for resolving internal disputes.

The CA is a legally binding document that requires the signature of all project partners. The European Commission is not a contracting partner to the CA. Instead, the legal provisions governing the EC's relations with the project coordinator and

partners are outlined in the Grant Agreement (GA). In case of any conflicts or discrepancies, the regulations stated in the GA take precedence over those in the Consortium Agreement.

Throughout the project, the CA may be subject to amendments or changes by mutual agreement among all partners. These modifications may be necessary to accommodate shifts in the project structure or to introduce additional rules related to the exploitation or protection of generated knowledge, etc. Final decisions regarding the CA are made by the Steering Committee, as described in section 2 of the present document.

The CA for EXTENDED came into effect on June 1, 2023 (the Effective start date) and will remain valid for the entire duration of the GA, spanning from June 1, 2023, to May 31, 2026. It is highly recommended that all partners carefully review this document and adhere to the agreed-upon rules and guidelines.

2. Project Management Structure

The management structure of the EXTENDED project (Figure 1) has been carefully developed to promote collaboration and foster the exchange of expertise among the partnering organizations, stakeholders, and countries involved. The structure aims to establish strong connections and facilitate the transfer of complementary knowledge and skills.

Within the EXTENDED Consortium, each participant is expected to play an active role in ensuring the successful execution of the project. This includes cooperating closely with other partners, carrying out assigned tasks efficiently, and fulfilling all obligations outlined in the Grant Agreement (GA). It is crucial that all participants promptly and consistently meet their responsibilities as specified in the GA.

The management structure serves as a foundation for productive collaboration, enabling partners to leverage their individual strengths and contribute to the project's overall success.

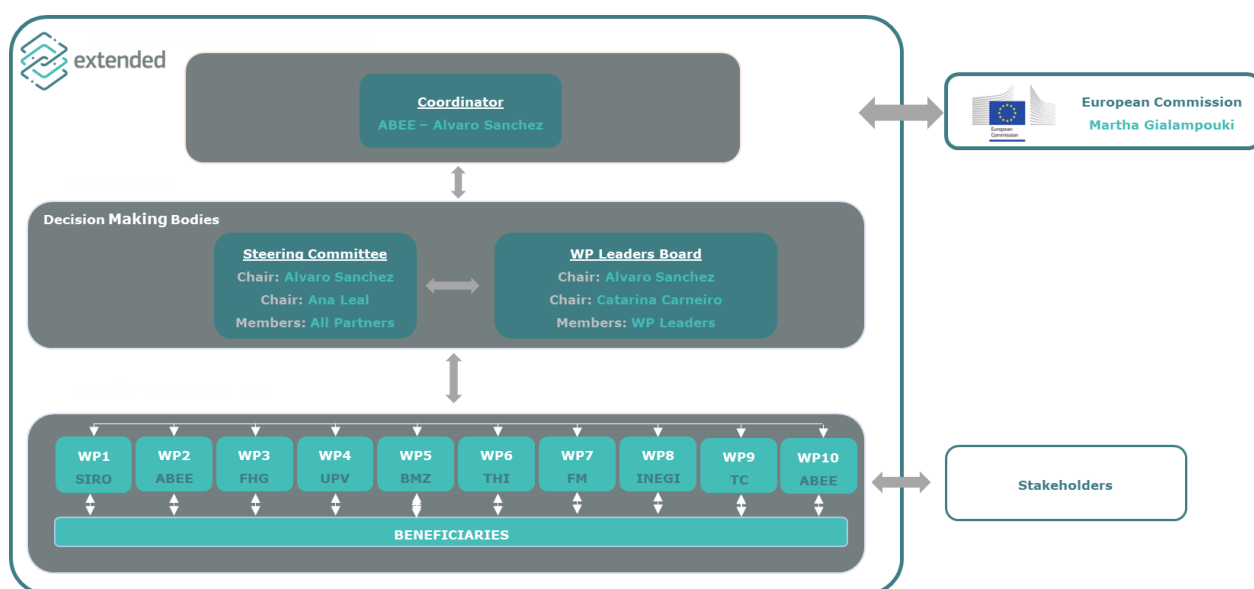


Figure 1 – EXTENDED Management Structure

2.1 Steering Committee

The Steering Committee (SC) is composed of one representative from each partner organization and serves as the official decision-making body for the project. The SC is responsible for making key strategic decisions regarding the project's direction and overall management. Individually, SC members have the duty to ensure that their respective partners deliver results in a timely manner. They are accountable for the quality of the work carried out, monitoring both the budgetary and technical aspects of the project. Additionally, they gather relevant input for internal and external reporting and documentation purposes.

Furthermore, the SC plays a crucial role in coordinating and managing matters that affect the contractual terms with the European Commission (EC), ensuring compliance with the terms and conditions outlined in the Grant Agreement (GA).

To facilitate communication and collaboration, virtual meetings of the SC will be scheduled on a year basis, specifically in months 12, 24 and 36. These meetings serve as follow-ups to discuss project progress, address any issues that may have arisen, and provide an opportunity for partners to share updates and concerns if required.

Table 1 – Members of the Steering Committee

Partner	Partner Representative (First and Last Name)
ABEE	Álvaro Anquela
ABEE-MK	Noshin Omar
GVS	Roberto Conti
Fraunhofer	Radu Schwarz
ESP-MU	Borja Erice
TC	Willar Vonk
BMZ	Felix Weidmann
UPV	Antonio García
BOZ	Asli Elidemir
INEGI	Emanuel Lourenço
THI	Mar Gomez
CEA	Vincent HEIRIES
FM	Mohsen Akbarzadeh
IKL	Jon Gastelurrutia
AKS	Ahmet Aksoz
LUM	Abdellah Touhafi
SIRO	Çağla Özer
INOVA	Ana Leal
SOL	Julius Denafas

2.2 Work Package Leaders

Each work package (WP) has a designated leader responsible for overseeing its progress and performance in alignment with the overall work plan. The work package leader (WPL) will assess the progress reports submitted by participants within their respective work package to ensure the successful achievement of objectives and tasks. These leaders have been selected by the partners based on their expertise and management capabilities relevant to the specific work packages and together they form the Work package Leaders Board.

The main objective of Work Package Leaders (WPL) is to ensure a high quality of work carried out within their WP. The WPLs are assigned several key responsibilities, which include:

- ❖ Resolving day-to-day administrative, technical, and resource-related issues that may arise within their WP. This involves promptly addressing any problems that could hinder progress or impact the successful execution of tasks.
- ❖ Disseminating relevant information regarding all aspects of the work to the other WPLs. This facilitates smooth coordination and collaboration among different WP, ensuring that activities align with the overall project objectives.
- ❖ Reporting to the upper levels of project management, specifically the Project Coordinator (PC) and the Steering Committee (SC). The WPLs provide

updates on the progress and status of their respective work packages, sharing important insights and raising any significant concerns or issues that require attention.

By fulfilling these responsibilities, the WPLs play a crucial role in maintaining effective communication, resolving challenges, and ensuring the successful implementation of the project at both the individual work package level and the overall project management level.

Table 2 – Work Packages Leaders Board

WP	WPL Representative	Partner
WP1: Use cases, Metrics and Baseline Identification	Çağla Odabaşı Özer	SIRO
WP2: Modular & Scalable battery system	Noshin Omar	ABEE
WP3: Electrical Solutions	Radu Schwarz	Fraunhofer
WP4: Thermal Solutions	António García	UPV
WP5: Mechanical Solutions	Felix Weidmann	BMZ
WP6: Safety assessment and guidelines	Nikolas Jaroch	THI
WP7: Testing and Validation 12	Mohsen Akbarzadeh	FM
WP8: Strategies for Sustainability	Emanuel Lourenço	INEGI
WP9: Dissemination, Exploitation and Communication	Willar Vonk	TC
WP10: Project Management and Coordination	Álvaro Anquela & Catarina Carneiro	ABEE & INOVA

The Grant Agreement specifies the deliverables expected from each work package and the responsible partners for each deliverable to be developed under each of the WP, throughout the project duration.

3. Internal Communication

To facilitate effective communication among partners, different measures will be implemented to ensure consistent, regular, and efficient information sharing. Given the geographical dispersion of partners and the potential differences in time zones, multiple communication channels will be utilized. These channels include:

- i. **Mainstream electronic communication:** partners will commonly use electronic communication methods such as emails, phone calls, collaboration platforms like Microsoft Teams, and shared document repositories like SharePoint.
- ii. **Virtual and/or physical technical/management meetings:** both virtual and physical meetings will be organized to facilitate in-depth discussions, decision-making, and progress updates.
- iii. **Semester progress reporting:** Partners will provide progress reports on a semester basis to the Project Coordinator (PC). These reports serve as updates on the achievements, challenges, and plans within each work package, ensuring transparency and accountability.
- iv. **Project workshops and other events:** workshops and events will be organized to bring partners together for focused discussions, knowledge exchange, and collaborative problem-solving. These gatherings provide valuable opportunities for networking, sharing best practices, and fostering a sense of community within the project.

EXTENDED will adopt a standardised documentation for project deliverables and presentations to use for both internal and external reporting (ANNEX 1). The templates for the project deliverables and presentations are available to all partners in EXTENDED SharePoint. The project branding will be presented in D9.1 – Communication and Dissemination Plan.

3.1 Sharepoint

A dedicated online workspace has been established within Microsoft Teams (MSTeams) to facilitate communication, document management, and exchange among the partners of the EXTENDED project. This workspace, known as SharePoint, is accessible only to invited participants, and permissions and access are granted by the coordinator team members.

The SharePoint platform is organized into several folders, each serving a specific purpose. These folders include:

- ❖ **"Management"** folder: This folder is designated for storing formal and contractual documents, such as the Grant Agreement (GA) and the Consortium Agreement (CA). It serves as a centralized location for important project-related documents.
- ❖ **"Meetings"** folder: Within this folder, partners can find agendas, presentations, and minutes from all project meetings, whether they are held physically or online. This ensures that all participants have access to the relevant meeting-related materials.
- ❖ **Work Package (WP)** folders: A folder is created for each work package to organize information specific to the activities and tasks of that particular work package. This includes documentation related to deliverables, progress reports, and any other relevant information pertaining to the work package.

Naming and numbering the project documents should be made in a consistent manner so as to identify the project, document type and the version. To identify a document version, the date should be used, with the format YYYYMMDD. Name segments should be separated by “_” and the acronym of the project that identifies the project should be included. For example, the draft version of Deliverable D10.1 produced on 1st June 2023 would be: **EXTENDED_D10.1_20230601_V0.1.doc**. When sharing a revised version of the document, the partner that has provided suggestions and inputs, should include its acronym before sending the new version to the remaining partners: **EXTENDED_D10.1_20230619_V0.4_ABEE.doc**. When the document is in its final version, then the naming should be **EXTENDED_D10.1_20230630_V1.0_INOVA.doc**.

Additional folders may be created as needed during the implementation of the project to accommodate specific requirements or emerging needs.

3.2 Meetings

To facilitate face-to-face interactions and enhance collaboration, three consortium physical meetings, known as Progress face-to-face meetings, are scheduled to take place annually. The locations of these meetings will rotate whenever possible. The dates of these meetings will be communicated via email by the coordinator to the Steering Committee and Consortium members as soon as they are agreed upon. Efforts will be made to organize these meetings in conjunction with other physical events of the project, maximizing the opportunities for collaboration and knowledge exchange.

These physical meetings serve as significant milestones within the project, providing a platform for planning, exchanging information among partners, assessing project progress and success (both financial and technical), and making major decisions regarding project execution. During the meetings, project milestones outlined in Table 3 will be monitored, and risks identified in Table 4 will be assessed. If necessary, adjustment measures and planning will be decided upon to mitigate risks and ensure the smooth progression of the project.

Table 3 –EXTENDED Project Milestones

No	Milestone name	WP No	Partner	Means of verification	Due date (month)
1	Report about use case, safety, and security requirements	WP1	SIRO	D1.1 delivered and accepted by internal reviewers (M3 and M10)	3
2	A final modular battery system concept for the different use cases	WP2	ABEE	The final battery system design is fixed, and this is through the delivery of D2.1	12
3	Final requirements regarding the component level	WP2	ABEE	The final components requirements based on D2.1 are defined and transferred to WP3, WP4, WP5	12
4	BMS architecture defined	WP3	Fraunhofer	The BMS architecture has been fixed and the corresponding requirements are defined	14

No	Milestone name	WP No	Partner	Means of verification	Due date (month)
5	First internal BMS prototype available	WP3	Fraunhofer	The first BMS prototype has been delivered and validated	30
6	Final thermal design PDR of the bTMS	WP4	ABEE	The thermal management design is fixed and defined through the delivery of D4.1	24
7	Review and selection of final design concepts	WP5	IKL	Based on D5.1, concepts for the final design phase will be selected	9
8	Prototype manufacture	WP5	BMZ	Prototypes have been prototyped and ready for testing and validation	24
9	Battery modules ready for testing	WP7	FM	Battery modules have been received by the testing partners	30
10	Sustainability assessment	WP8	INOVA	D8.1 delivered and accepted by internal reviewers	36
11	Website delivered and published	WP9	ABEE	Website online	3
12	Final Design of mechanical solutions	WP5	IKL	The final mechanical design is completed and presented in D5.2	18

Table 4 –EXTENDED Project Risks

No	Risk description	WP No	Proposed Mitigation Measures
1	TR1: The final concept battery system design will not fill the requirements (Likelihood: M Severity: H)	WP2	Evaluate accordingly by another battery cell technology or another battery system conceptual design.
2	TR2: BMS does not meet the desired requirements (Likelihood: M Severity: M)	WP3	The BMS concept and state functions will be adapted iteratively so that the requirements can be met.
3	TR3: The proposed thermal management system does not meet the requirements to be easily integrated with the final mechanical compression solution. (Likelihood: M Severity:H)	WP4	Several conceptual designs will be analysed and considered in early stage dealing with the mechanical and thermal integration. It will be evaluated different scenarios and solutions by proper sizing/slightly modification of the battery system concept so that it can better meet the predefined requirements and specifications. The easiest to use mechanical solution will be selected to facilitate the manufacturing of thermal management system.
4	TR4: The mechanical solutions do not fulfil the requirements. (Likelihood: L Severity: M)	WP5	Instead of using a new polymer-based solution, will be applied a more common nonpolymeric material, such as aluminium.
5	TR5: The manufacturing of the prototype will not go as expected in terms of complexity and cost of	WP5	Other process technologies (with similar properties) will be applied to manufacture the developed solution to reach the integration and cost

No	Risk description	WP No	Proposed Mitigation Measures
	selected materials (Likelihood: M Severity: L)		targets. As the goal of the prototype is to fulfil several mechanical and thermal challenges, easy manufacturing techniques (as 3D printing in plastics or the use of metals) will be preferred.
6	TR6: The safety analysis will require major changes in the battery system concepts and components. (Likelihood: L Severity: L)	WP6	A close interaction between the safety evaluation and battery system concept will have to occur to avoid major modifications.
7	TR7: Difficulty to integrate the Battery Cells in the battery systems. (Likelihood: M Severity: H)	WP7	The design will be reconsidered from the beginning with a clear focus on integration and cost efficiency. An interface coordinator (CEA) will be involved in the technical development since the basic design to the prototyping to ensure a good integration of the modules. In addition, the design will be strongly oriented towards sustainability and easy integration through an iterative approach.
8	TR8: Lack of robustness of the data sets being used. (Likelihood: L Severity: M)	WP8	Increase effort in the uncertainty quantification by INEGI and help partners provide primary process data.
9	DR1: Dissemination activities don't reach the targeted groups. Results don't have the identity visibility. (Likelihood: L Severity: M)	WP9	The EXTENDED consortium will: (i) create a comprehensive Communication & Dissemination plan in WP9 aiming at the identification of further stakeholders and end-user, and (ii) define clear strategies to reach each target group. Alternative action plans will be established for further project visibility.
10	DR2: Exploitable results have similar prioritization levels within characterisation and assessment criteria. (Likelihood: L Severity: M)	WP9	The exploitation plan in WP9 will describe and characterise Key Exploitable Results. A second prioritisation process will be carried out considering a priority map under risk assessment: partnership, technological, market, IPR, financial, and sustainability risk factors will be considered.
11	DR3: IPR disagreement. (Likelihood: L Severity: H)	WP9	IPR management and Business plans will be developed, defining the expected results and their owners. A CA will be signed by all partners before the start of the project, establishing the rules for the management of the IPR issues.
12	MR1: Critical changes to the project's planned execution. (Likelihood: M Severity: L)	WP10	Management structure will ensure flexibility during project implementation. PTC meetings will anticipate deviations.
13	MR2: Delay in progress performance, resulting in poor delivery and project outcomes. (Likelihood: L Severity: M)	WP10	Further PM methods, tools and techniques will be included. Continuous and systematic processes to monitor & control project performance: requirements,

No	Risk description	WP No	Proposed Mitigation Measures
			changes, schedule, costs, risks, stakeholders, quality, decisions, and acceptance.
14	MR3: Results of evaluation (EC review) are not the ones expected. (Likelihood: L Severity: M)	WP10	Management structures will define corrective measures in case major failures are detected. Management procedures have been planned to implement corrective measures if needed.
15	TR9: Difficulties with recycling and dismantling. (Likelihood: M Severity: M)	WP8, WP2	Li metal contained in SSBs can cause issues during mechanical separation methods such as shredding. Li metal can react exothermically when exposed to moisture due to its inherent reactivity. This risk can be mitigated by working under dry and inert atmospheres along with suitable extraction systems. Sulphide-based SSBs are unstable when exposed to moisture as it produces toxic H ₂ S gas as a by-product. However, employing controlled atmospheres and efficient gas-collector units can substantially reduce possible safety hazards. Concerning dismantling, there are fewer risks associated compared to the recycling of the modules themselves. These are mainly associated with the remaining charge of the battery system. By effectively applying deep discharging methods to the battery system prior to shredding, the risks of undesired events are then reduced.

TR: technical risk; MR: medium risk; L: low; M: medium; H: high.

In addition to the physical meetings, at least Monthly Monitoring Online Meetings will be conducted with the Work Package Leaders (WPLs) to closely monitor and verify the progress made in each of the work packages and tasks.

During these meetings, the WPLs will present updates on the progress of their respective work packages and tasks, allowing for a comprehensive understanding of the overall project advancement. This ensures that any issues or challenges can be addressed promptly, and appropriate actions can be taken to keep the project on track.

Following each meeting, written minutes will be prepared to capture the discussions and decisions made during the session. These minutes will be circulated among the partners, providing them with a record of the discussions held and information about the next steps to be taken in the project. This helps to maintain transparency, ensure alignment, and facilitate effective communication among the project team.

3.3 E-mail Communication

To enhance the organization and recognition of electronic messages related to the project, a standard subject title format is proposed. The suggested format consists of the project acronym followed by a subject description, such as "[EXTENDED] Meeting Notes".

Partners are encouraged to utilize MTeams SharePoint as the primary platform for storing project files and documents. Instead of attaching files directly to emails, partners are encouraged to share links to the files stored in SharePoint. This promotes efficient file management, reduces email clutter, and ensures that all team members have access to the most up-to-date versions of documents.

When sending project-related emails, partners are advised to include the coordinator and management partners in the recipient list. This helps ensure that important project-related communications are shared with the relevant parties and keeps the coordinator and management partners well-informed about ongoing discussions and developments.

3.4 Reporting

To ensure proper implementation of the project, the beneficiaries are required to submit the necessary information to the Commission/Agency for verification. This includes the submission of deliverables and reports as specified in the Grant Agreement (GA). The reporting process consists of two levels, which are as follows:

3.4.1 Internal Reporting

Every six months, partners are required to report to the Project Coordinator (PC) on the progress made during that specific period. The report should cover key aspects such as main achievements, financial execution, deviations from the initial plans, and anticipated actions for the following period. This annual reporting allows for a comprehensive assessment of the project's overall performance and facilitates strategic planning for the future. The timing for this internal reporting is as follows:

- Month 1-6 – 1st Internal Report
- Month 7-12 – 2nd Internal Report
- Month 13-18 – 3rd Internal Report
- Month 19-24 – 4th Internal Report
- Month 25-30 – 5th Internal Report
- Month 31-36 – 6th Internal Report

3.4.2 External Reporting

The EXTENDED project has two official reporting periods during which a periodic report encompassing both technical and financial aspects must be submitted to the European Commission (EC) via the Funding & Tenders Portal. The reporting periods and requirements are as follows:

- M1 – M18 – Interim Report (June 2023-November 2024)
- M19 – M36 – Final Report (December 2024-May.2026)

In the preparation of the periodic reports, the Work Package Leaders (WPLs) are responsible for collecting the necessary information and progress updates from their respective work packages. This information is then provided to the Project

Coordinator (PC), who consolidates all inputs and prepares the final report for submission. Prior to submission to the EC, the report must be validated by all project partners, ensuring accuracy and consensus.

The Periodic Financial report will include the Individual financial statement (Annex 4 to the GA), an explanation on the use of resources and a Periodic summary financial statement. It will be filled in by each participant in the Funding & Tenders Portal and signed by the Financial Statement Authorised Signatory (FSIGN).

3.4.3 Conflict Resolution

The Consortium Agreement (CA) of the EXTENDED project includes conflict resolution procedures to address any disagreements or conflicts that may arise among the project partners. These procedures are aligned with the defined responsibilities within the project's organizational structure. The following steps outline the conflict resolution process:

- ❖ Resolution at the Lowest Level: Any conflicts or disagreements should first be addressed at the lowest level possible, such as within the specific task or work package (WP) where the issue arises. The parties involved are encouraged to resolve the conflict amicably through open communication and negotiation.
- ❖ Mediation by the Project Coordinator: If an agreement cannot be reached at the task or WP level, the Project Coordinator plays a mediation role. The Project Coordinator will intervene to help facilitate discussions and assist in finding a resolution that satisfies all parties involved.
- ❖ Decision by the Steering Committee: If the conflict remains unresolved even after the Project Coordinator's mediation efforts, the matter will be escalated to the Steering Committee. They will assess the situation, consider all relevant factors, and take a decision on how to resolve the conflict.
- ❖ Consensus and Independent Referee: Negotiation and decision-making by consensus are the preferred approaches to resolving conflicts. However, if consensus cannot be achieved among the parties involved and the rest of the Consortium, the Project Coordinator may appoint an independent referee. The independent referee acts as a neutral party and assists in finding a fair and impartial resolution to the conflict.

These steps follow the guidelines set forth in Article 11.8 of the Consortium Agreement.

4. Gender Equality Action Plan

The European Commission recognizes the need for specific actions to address the persisting gender gaps and inequalities in the research and innovation sector. To tackle these challenges, the Commission employs various measures:

- ❖ Framework Programme for Research and Innovation: The Commission's funding programs, such as Horizon Europe (2021-2027) and its predecessor Horizon 2020 (2014-2020), incorporate gender equality as a key objective.
- ❖ Collaboration within the European Research Area: The Commission works in collaboration with Member States, associated countries, and research stakeholders to foster gender equality in the research and innovation landscape.
- ❖ Horizon Europe is committed to gender equality in research and innovation by making it a priority and introducing strengthened provisions. The program aims to enhance the European research and innovation system, foster gender equality in working environments, and integrate the gender dimension into projects for improved research quality and societal relevance.

Gender equality in Horizon Europe is addressed at three levels:

- ❖ Gender Equality Plan (GEP): Having a GEP is now an eligibility criterion for certain legal entities, both from EU and non-EU countries associated with Horizon Europe.
- ❖ Integration of the Gender Dimension: The program emphasizes the integration of a gender dimension into research and innovation content, which is evaluated under the excellence criterion unless explicitly specified otherwise in the topic description.
- ❖ Gender Balance: Horizon Europe aims to increase gender balance throughout the program by setting targets, including a goal of 50% women representation in Horizon Europe boards, expert groups, and evaluation committees.
- ❖ Specific funding is allocated to initiatives such as gender and intersectional research, developing inclusive gender equality policies, and empowering women innovators. These efforts are supported through various parts of Horizon Europe, including the Culture, Creativity and Inclusive Society cluster, the Widening Participation and Strengthening the European Research Area program, and the European Innovation Council.

For more details, the [Factsheet on Gender Equality in Horizon Europe](#) provides a concise overview of the key provisions and requirements, with a particular focus on the new Gender Equality Plan eligibility criterion.

4.1 Grant Agreement Specifications

The EXTENDED Grant Agreement clearly mentions Gender Equality balance. Annex5 (Gender mainstreaming) mentions: "The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action and, where applicable, in line with the gender equality plan. They must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level."

To ensure compliance with the gender equality requirements, the EXTENDED project will implement a range of measures outlined in the project proposal. The

following section provides an explanation of these measures and their derivation from the proposal. These measures aim to promote gender equality and inclusion within the project.

The EXTENDED project adheres to the principle of equal pay for equal work, in line with European and Belgian legislation. Discrimination based on gender is prohibited, and the project ensures that employees receive equal wages for work of equal value.

To promote gender equality, the project has implemented a gender approach that includes gender indicators and a monitoring system. The project is committed to maintaining gender balance throughout its duration and encourages the participation of both men and women in project activities.

The gender balance promotion actions in the project include:

- ❖ Implementing an equal opportunity policy.
- ❖ Taking specific actions to promote gender equality.
- ❖ Setting targets for achieving gender balance in the workforce.
- ❖ Improving work-life balance for all participants.
- ❖ Setting up gender indicators and establishing a system for monitoring gender equality.
- ❖ Supervise and measure the progress toward gender equality.
- ❖ Promote and encourage gender equality within partnerships to ensure both male and female representatives take part in the project activities (such as dissemination events or industry workshops).

4.2 Strategy for Gender Equality

EXTENDED project aims to create an inclusive and supportive environment where all participants can thrive and contribute to research and innovation regardless of their gender, for that the subsequent Gender Equality Strategy will follow:

- ❖ Promotion of Equal Opportunities: The consortium members are committed to promoting an environment that supports equal opportunities for all participants, regardless of gender. This includes ensuring equal access to resources, opportunities for career development, and fair representation in decision-making processes.
- ❖ Elimination of Gender Bias: The consortium members will actively work towards eliminating gender bias in all aspects of its activities. This includes ensuring gender-neutral language in project documents, addressing unconscious biases in recruitment and evaluation processes, and promoting gender-inclusive research practices.
- ❖ Setting Gender Balance mindset: The project aims to achieve a gender balance in its workforce and participation. Efforts will be made to ensure equal representation of men and women in research teams, committees, and leadership positions and to build a gender-sensitive management and a professional culture.
- ❖ Implementation of Gender Mainstreaming: The project will integrate a gender perspective into all research and innovation activities. This involves considering the gender dimension in project design, data collection and analysis, and ensuring the relevance of research outcomes for both men and women.
- ❖ Supporting Work-Life Balance: The project recognizes the importance of work-life balance for all participants. Measures will be taken to support

flexible working arrangements, parental leave, and other policies that promote a healthy work-life balance for both men and women.

- ❖ Monitoring and Evaluation: The project will establish a monitoring and evaluation framework to assess the progress and effectiveness of the gender equality strategy. Regular reviews will be conducted to identify areas for improvement and implement corrective actions.

4.2.1 Gender Equality Actions

The EXTENDED consortium is committed to implementing the following actions as part of the gender equality plan:

- i. Equal Opportunities Dimension:
 - ❖ Survey the Gender Equality Plan (GEP) through scheduled meetings to discuss balance issues and identify potential inequalities.
 - ❖ Encourage women to report abuses, ensuring their protection and guaranteeing the confidentiality of the reporter.
 - ❖ Evaluate performance management and address gender-based inequalities if identified.
 - ❖ Incorporate gender considerations in personnel planning.
 - ❖ Foster a balance between work and private life for all project participants.
- ii. Balanced Participation and Representation:
 - ❖ Provide equal recognition of merit for both women and men.
 - ❖ Ensure equal opportunities and representation in various positions and work packages.
 - ❖ Ensure gender balance in leadership and decision-making positions within leading scientific and administrative boards, recruitment and promotion committees, and evaluation panels.
 - ❖ Strive for a balanced representation of genders in project meetings.
 - ❖ Implement tools to raise awareness about gender equality and enhance the capacity of consortium members to address gender-related issues.
- iii. Equal Access and Opportunity:
 - ❖ Guarantee that candidates are evaluated based on qualifications, regardless of gender, age, or disability.
- iv. Engagement of Both Genders:
 - ❖ Encourage active involvement of both male and female representatives in project activities, such as workshops and dissemination events.
 - ❖ Regular Evaluation and Improvement: Conduct regular evaluations to assess the effectiveness of gender equality actions and make necessary adjustments.
- v. Work-Life Balance:
 - ❖ Implement measures to support a gender-responsive work-life balance, taking into account the specific needs and challenges faced by both men and women.
 - ❖ Offer flexible working arrangements that accommodate diverse personal responsibilities and allow for a better balance between work and private life.
 - ❖ Promote awareness and understanding of work-life balance challenges and their impact on gender equality among project participants.
 - ❖ Foster an inclusive environment where team members, regardless of gender, feel comfortable sharing their professional and personal concerns related to work-life balance.

4.3 Gender Equality Audit

Focusing on the gender balance within EXTENDED project, Table provides an overview of the representation of men and women within each consortium partner. It is important to note that maintaining a gender balance is a key objective of the project, and efforts will be made to promote equal opportunities and participation for both men and women throughout the project's duration.

Table 5 – Gender distribution among EXTENDED team

Partner	Collection Date	No of Women	No of Men	Role (Women)			Role (Men)		
				Management	Technical	Other	Management	Technical	Other
ABEE	27/06/2023	2	6	0	2	0	2	4	0
ABEE-MK	27/06/2023	1	1	0	1	0	0	1	0
GVS	27/06/2023	2	2	2	0	0	1	1	0
Fraunhofer	27/06/2023	0	5	0	0	0	1	2	2
ESP-MU	27/06/2023	0	7	0	0	0	1	6	0
TC	27/06/2023	0	2	0	0	0	0	2	0
BMZ	27/06/2023	1	5	1	0	0	2	2	1
UPV	27/06/2023	0	8	0	0	0	1	7	0
BOZ	27/06/2023	2	3	1	1	0	0	3	0
INEGI	27/06/2023	1	4	0	1	0	1	3	0
THI	27/06/2023	1	3	0.5	0.5	0	1	1	1
CEA	27/06/2023	0	2	0	0	0	0	2	0
FM	27/06/2023	0	2	0	0	0	1	1	0
IKL	27/06/2023	2	5	0	2	0	2	3	0
AKS	27/06/2023	2	3	0	2	0	2	1	0
LUM	27/06/2023	1	1	1	0	0	0	1	0
SIRO	27/06/2023	4	8	1	3	0	0	8	0
INOVA	27/06/2023	3	1	2	0	1	1	0	0
SOL	27/06/2023	1	2	0.5	0.5	0	1	1	0

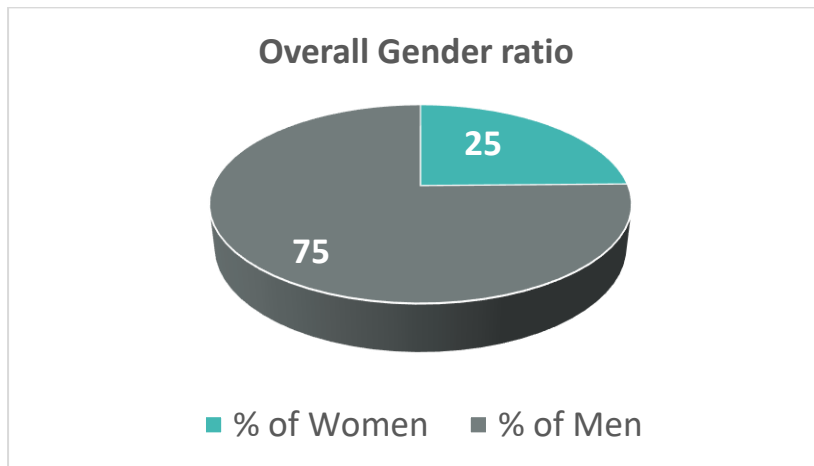


Figure 2 – EXTENDED Overall gender ratio

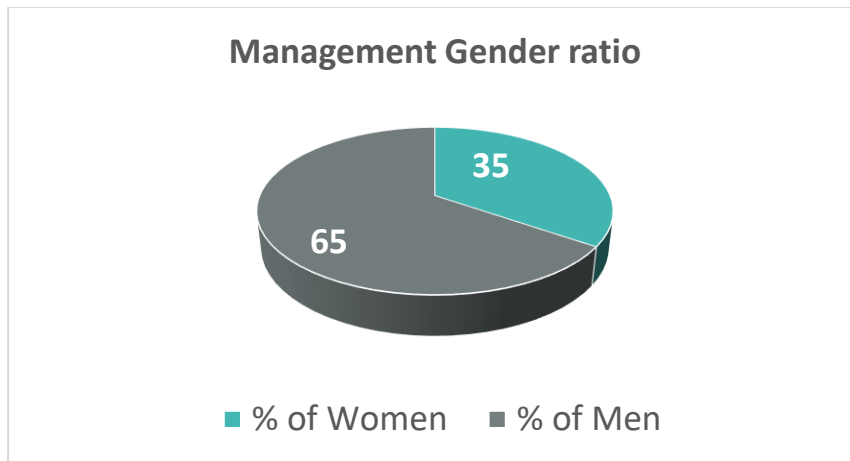


Figure 3 – EXTENDED Management position gender ratio

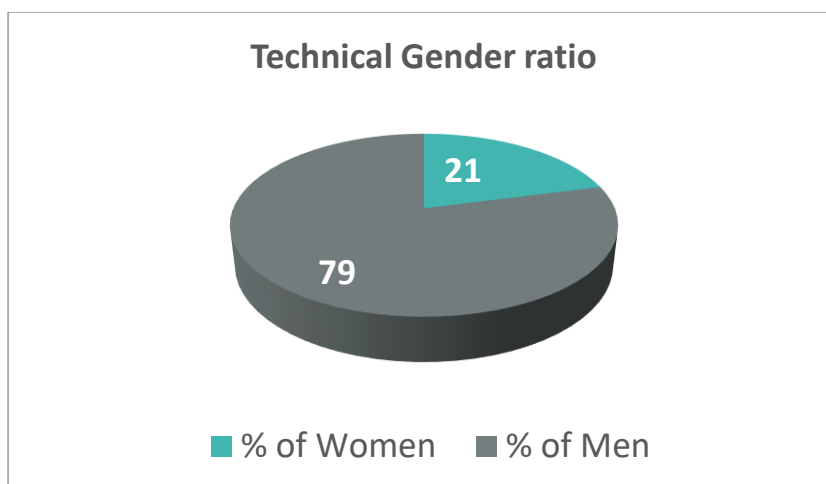


Figure 4 – EXTENDED Technical position gender ratio

EXTENDED project gender ratio analysis shows an existing gender imbalance favouring men. To address this, consortium members are committed to follow the present gender plan aiming to achieve gender balance throughout the project. In addition, an annual assessment will be conducted and documented. This assessment will include:

- ❖ The percentage of successful female applications to the EXTENDED project's open calls. The percentage of successful female
- ❖ The percentage of women in senior-level positions.
- ❖ Overall gender ratio
- ❖ Management gender ratio
- ❖ Technical gender ratio
- ❖ Promoting gender-balanced participation in internal meetings, workshops, external conferences, and exhibitions.
- ❖ Monitoring gender policies and actions

5. Conclusion

The Management Handbook serves as an indispensable guide for navigating the intricacies of a successful project and steering the EXTENDED project towards its envisaged goals. It lays a strong foundation for a collaborative and effective project environment by emphasizing key principles like open communication, shared awareness, and timely deliverables. Diligently following the principles, strategies, and insights outlined in this handbook allows the consortium to be equipped with the necessary and well-defined tools to successfully handle administrative and financial subjects, effective communication, and set an inclusive and supportive environment, while ensuring the delivery of high-quality outcomes.

EXTENDED has implemented a gender equality action plan committed to set and maintain a gender balance throughout its duration and encourage gender balance participation in project activities. This handbook stands as a testament to our commitment to excellence in EXTENDED project, providing a guideline for project procedures, structures, and coordination mechanisms to support with effective project management, successful collaboration between partners, and achievement of project objectives respecting time, quality and budget.

The guidelines presented herein are designed to instil a culture of adaptability and proactive stakeholder engagement, essential attributes for the success of any modern project.

As we move forward, it is crucial for all project partners to internalize these principles and actively contribute to a robust project management ecosystem. The road ahead may bring new challenges; however, equipped with this handbook, we are better prepared to navigate those challenges and transform them into opportunities for growth and improvement.

By adhering to the procedures and practices outlined in this handbook, we set the stage for the successful completion of EXTENDED. It is our collective responsibility to ensure that the principles and guidelines in this handbook are implemented rigorously, thereby ensuring the high quality and timely delivery of all project results.

Figure 1 illustrates three extended data models, each with a table of 1000 rows and 4 columns. The models are compared based on their hierarchical structure and the number of levels.

(a) Single-level model: This model has a flat table structure. The columns are labeled 'Column1', 'Column2', 'Column3', and 'Column4'. The data is represented as a single table with 1000 rows.

(b) Two-level model: This model has a hierarchical structure. The columns are labeled 'Column1', 'Column2', 'Column3', and 'Column4'. The data is represented as a table with 1000 rows, where the first column is a hierarchical index (e.g., 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20, 1.21, 1.22, 1.23, 1.24, 1.25, 1.26, 1.27, 1.28, 1.29, 1.30, 1.31, 1.32, 1.33, 1.34, 1.35, 1.36, 1.37, 1.38, 1.39, 1.40, 1.41, 1.42, 1.43, 1.44, 1.45, 1.46, 1.47, 1.48, 1.49, 1.50, 1.51, 1.52, 1.53, 1.54, 1.55, 1.56, 1.57, 1.58, 1.59, 1.60, 1.61, 1.62, 1.63, 1.64, 1.65, 1.66, 1.67, 1.68, 1.69, 1.70, 1.71, 1.72, 1.73, 1.74, 1.75, 1.76, 1.77, 1.78, 1.79, 1.80, 1.81, 1.82, 1.83, 1.84, 1.85, 1.86, 1.87, 1.88, 1.89, 1.90, 1.91, 1.92, 1.93, 1.94, 1.95, 1.96, 1.97, 1.98, 1.99, 1.100).

(c) Three-level model: This model has a hierarchical structure. The columns are labeled 'Column1', 'Column2', 'Column3', and 'Column4'. The data is represented as a table with 1000 rows, where the first column is a hierarchical index (e.g., 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20, 1.21, 1.22, 1.23, 1.24, 1.25, 1.26, 1.27, 1.28, 1.29, 1.30, 1.31, 1.32, 1.33, 1.34, 1.35, 1.36, 1.37, 1.38, 1.39, 1.40, 1.41, 1.42, 1.43, 1.44, 1.45, 1.46, 1.47, 1.48, 1.49, 1.50, 1.51, 1.52, 1.53, 1.54, 1.55, 1.56, 1.57, 1.58, 1.59, 1.60, 1.61, 1.62, 1.63, 1.64, 1.65, 1.66, 1.67, 1.68, 1.69, 1.70, 1.71, 1.72, 1.73, 1.74, 1.75, 1.76, 1.77, 1.78, 1.79, 1.80, 1.81, 1.82, 1.83, 1.84, 1.85, 1.86, 1.87, 1.88, 1.89, 1.90, 1.91, 1.92, 1.93, 1.94, 1.95, 1.96, 1.97, 1.98, 1.99, 1.100).

