

D8.1 Project Handbook



nExt geNeration 1200V eLectric hIGH volTage powErtrain

Horizon Europe | HORIZON-CL5-2024-D5-01

Integration and testing of next generation post-800V electric powertrains

(2ZERO Partnership)

Coordinator: Hannes Lacher (AIT Austrian Institute of Technology GmbH)



This project receives funding from the European Union's Horizon Europe research and innovation programme under grant agreement no. 101192573 (ENLIGHTEN).

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.



Project Acronym	Enlighten
Project Full title	Next Generation 1200V Electric High Voltage Powertrain
Project Start Date	01 January 2025
Project Duration	48 months
Funding Instrument	Horizon Europe / HORIZON Research and Innovation Actions
Call	CL5-2024-D5-01-02
Topic	Integration and testing of next generation post-800V electric powertrains (2ZERO Partnership)
Coordinator	Austrian Institute of Technology

DELIVERABLE INFORMATION

Deliverable No.	D8.1	
Deliverable Title	Project Handbook	
Deliverable Type	Report	
Dissemination level	Public	
Written By	Hannes Lacher (AIT)	Feb 2025
Checked by	Agata Olivato (LT)	11-03-2025
Approved by	Hannes Lacher (AIT)	25-03-2025
Status	Final	25-03-2025

REVISION HISTORY

Version	Date	Who	Change
0.1	Feb 2025	Hannes Lacher	Initial version
0.2	Mar 2025	Agata Olivato	Reviewed
1.0	25-03-2025	Hannes Lacher	Final, following incorporation of review comments



TABLE OF CONTENTS

Project information.....	1
Deliverable information.....	2
Revision history	2
Project Abstract.....	6
Partners.....	6
List of Abbreviations.....	7
Executive Summary	8
1 Introduction.....	8
2 General information	9
2.1 Legal Framework	9
2.2 Important contacts	9
2.3 Roles and responsibilities.....	10
2.3.1 Project Coordinator	10
2.3.2 Technical Project Lead.....	11
2.3.3 Project Manager	11
2.3.4 Work Package Leader.....	11
2.3.5 Project Partner	12
3 Project communication.....	12
3.1 Meetings	12
3.1.1 Meeting Agenda.....	13
3.1.2 Minutes of meetings.....	13
3.2 Emails and documents	14
3.2.1 E-Mails.....	14
3.2.2 Documents	14
4 Reporting and deliverables	15
4.1 Periodic reporting	15
4.2 Deliverables.....	16
4.3 Monitoring and review processes.....	16
4.3.1 Monitoring process.....	16
4.3.2 Review and Approval process	16
5 External communications and publications.....	17



5.1	Logo.....	17
5.2	Presentations.....	18
5.3	Rules.....	18
5.4	Procedures.....	18
6	PROJECT STRUCTURE & PLANS.....	Fehler! Textmarke nicht definiert.



TABLE OF FIGURES

Figure 1. Folder Structure in MS Teams.....	14
Figure 2. Overview of periodic reporting.....	15
Figure 3. Internal review & approval process	17
Figure 4. Enlighten Logo	17
Figure 5. Logo showing the funding of the European Union	18
Figure 6. Work Packages and Project Structure Overview.....	19

PROJECT ABSTRACT

ENLIGHTEN aims at developing, integrating and testing a next generation post 800V electric vehicle powertrain with an indicative voltage level of 1200V. It targets a higher performing, cost optimized and more sustainable drivetrain layout that is also backwards compatible to the existing charging infrastructure with 1000V or 500V respectively. Determining exactly how high the new voltage level should be, to enable expected advantages in a systemic and systematic way is also part of the project. A new voltage level affects the entire sphere of electric mobility, both horizontally (vehicle, charging infrastructure, users, manufacturers) and vertically (OEM, tier1, tier2, single component supplier), hence a deliberate decision is required. To accomplish this an advanced electrical system architecture is presented by the ENLIGHTEN consortium in this proposal on whose basis a specific electric vehicle drivetrain will finally be developed and demonstrated in a C-segment vehicle. The at TRL5 delivered powertrain will consist of a dual voltage battery system and an integrated motor-inverter E-drive system, complemented by an intermediate DCDC converter, an AC and DC capable onboard charger and a power distribution. All power electronic devices will exploit low loss, ultra-fast switching gallium nitride (GaN) semiconductors for highest efficiency and to minimize cooling demand and component size. The dual voltage battery can be switched dynamically from one battery voltage into the other while driving. Through these and other measures, the ENLIGHTEN system delivers significant advances over the 2024 State of the Art. The ENLIGHTEN consortium includes 2 automotive companies, 1 Tier1 supplier and 2 SMEs. Their expertise is leveraged by the partnership with 2 research institutions and 4 academia/universities, constituting an ideal setup for strengthening the competitiveness of the European automotive industry.

PARTNERS

Participant no.*	Participant short name	Participant organisation name	Country
1. Coordinator	AIT	Austrian Institute of Technology GmbH	Austria
2.	EAT	Eaton	Czech Republic
3.	POLITO	Politecnico di Torino (Polito)	Italy
4.	IFP	IFP Énergies nouvelles	France
5.	AU	Aarhus University	Denmark
6.	THI	Technische Hochschule Ingolstadt	Germany
7.	MAT	Manifattura Automobili Torino	Italy
8.	CGD	Cambridge GaN Devices	United Kingdom
9.	LT	Lead Tech	Italy
10.	FMF	FPT Motorenforschung AG	Switzerland
11.	ETH	Eidgenössische Technische Hochschule Zürich	Switzerland

LIST OF ABBREVIATIONS

Acronym / Short Name	Meaning
CA	Consortium Agreement
CINEA	European Climate Infrastructure and Environment Executive Agency
EC	European Commission
EU	European Union
EU-GA	EU Grant Agreement
GA	General Assembly
M	M1, M2...project months (1, 2, etc.)
MoM	Minutes of Meeting
MS	Milestone
MS	Microsoft
PC	Project Coordinator
PO	Project Officer
RP	Reporting Period
RP	Reporting Period
WP	Work package
WPLB	Work package leader board



EXECUTIVE SUMMARY

The Project Handbook is used as a tool for all project partners to find the most important project management related information in one document. It contains an overview of the legal framework of the project, all important contacts, and a description of all relevant roles in the project. Project communication is clearly presented, and it provides an overview of the reporting process and the preparation of deliverables and reports. Finally, the project structure is briefly discussed, and the most important project plans are presented. In addition, the document is furnished with links to further documents in the ENLIGHTEN MS Teams channel to make them easier to find for all project partners. The document is used as a living document and in the case that changes occur in the process or improvement requests are made by partners, these are constantly incorporated.

1 INTRODUCTION

In order to complete a project on time, within the planned budget and with the intended quality, foresightful and clear project management is an important tool. In the ENLIGHTEN project, care is taken to do as much as necessary to fulfil the above points, while streamlining the administrative effort. By adopting this approach, complexity will be minimised, thereby ensuring that there is sufficient capacity to focus on the scientific component of the project.

The structures described below are intended to support rather than burden. Improvements that are identified during the course of the project will be implemented and applied continuously in order to create a project management that relieves and supports all partners and contributes to a positive project progress.

The aim of deliverable D8.1 is to assure that the objectives of the project ENLIGHTEN are met and that the results and deliverables of the project are of high quality, fulfilling the specifications set in the description of the work and the grant agreement. Hence D8.1 is the document defining the quality assurance procedures for the ENLIGHTEN project. The document is shared with the whole consortium and serves as the basis for all project related communication and quality related issues. Furthermore, the ENLIGHTEN project handbook is a dynamic document that is continually edited and updated e.g. during each general assembly meeting.

The project handbook encompasses the description of the quality assurance procedures as well as document templates and is addressed to the project partners for the successful development of the ENLIGHTEN project, and also to the European Commission evaluators for their evaluation of the project. Hence the project handbook will guide all consortium partners, which are responsible for preparing and amending deliverables (e.g. WP leader, Task leader), the steering committee, the project and quality coordinator (which is responsible for reviewing completed or updated parts of the project handbook and to carry out its disclaiming of liability) and any responsible consortium partner for approving works to be done by third parties, in order to complete deliverables. An existing template from another project was used to create this document.

2 GENERAL INFORMATION

This section gives an overview of the main facts of the project from an administrative perspective.

2.1 LEGAL FRAMEWORK

The most important legal conditions can be found in the two relevant contracts of the project:

- Grant Agreement (GA)
- Consortium Agreement (CA)

The GA is the legal basis of the project and the agreement between the European Commission (EC) and the project partners. All the important data of the project like duration, budget, funding, eligibility of cost as well as the content framework of the project are described in the GA.

The CA is a contract solely between all partners of the consortium. The CA regulates the cooperation between the partners, and information like responsibilities, governance structure, financial provisions etc. can be found there. The EC is not included in the CA.

Both agreements are available for all partners in the joint MS Teams Channel of the consortium for this Project.

2.2 IMPORTANT CONTACTS

Table 1 Important Contacts

Important project contacts		
Project Coordinator PC	Project coordination, communication, controlling, interfacing with the funding agency (project officer), reporting, contract and financial management. Chair the Work Package Leader Board and General Assembly meetings. Further details are given in section 6 of the Consortium Agreement (CA).	AIT / Hannes LACHER hannes.lacher@ait.ac.at
Technical Project Lead	Technical project coordination, technical communication with the consortium.	AIT / Hannes LACHER hannes.lacher@ait.ac.at
Project Manager	Administrative project management, communication, monitoring and reporting.	AIT / Hannes LACHER hannes.lacher@ait.ac.at
Grant Application Expert	Contracts & Payments.	AIT / Elisabeth DÖRR elisabeth.doerr@ait.ac.at

WP1 Leader	Technical Lead, Coordination of WP1, Communication with Partners involved, WP-related Deliverables & Reporting.	MAT / Luca MARTINO luca.martino@manifatturaautomobilitorino.com
WP2 Leader	Technical Lead, Coordination of WP2, Communication with Partners involved, WP2-related Deliverables & Reporting.	POLITO / Radu BOJOI radu.bojoi@polito.it
WP3 Leader	Technical Lead, Coordination of WP3, Communication with Partners involved, WP3-related Deliverables & Reporting.	IFP / Fabien VIDAL NAQUET fabien.vidal-naquet@ifpen.fr
WP4 Leader	Technical Lead, Coordination of WP4, Communication with Partners involved, WP4-related Deliverables & Reporting.	FMF / Abdelhadi BESRI abdelhadi.besri@ivecogroup.com
WP5 Leader	Technical Lead, Coordination of WP5, Communication with Partners involved, WP5-related Deliverables & Reporting	AIT / Hannes LACHER hannes.lacher@ait.ac.at
WP6 Leader	Technical Lead, Coordination of WP6, Communication with Partners involved, WP6-related Deliverables & Reporting.	THI / Yash Kotak yash.kotak@carissma.eu
WP7 Leader	Technical Lead, Coordination of WP7, Communication with Partners involved, WP7-related Deliverables & Reporting.	LT / Agata Olivato agata.olivato@leadtech.it
WP8 Leader	Technical Lead, Coordination of WP8, Communication with Partners involved, WP8-related Deliverables & Reporting.	AIT / Hannes LACHER hannes.lacher@ait.ac.at

In addition to the list above with all WP-Leaders, a [Contact List](#) of all members of the consortium is available in the MS Teams channel of the consortium and can be found directly in the “General” folder.

2.3 ROLES AND RESPONSIBILITIES

The list of important contacts in section 2.2 (Table 1) already contains a brief overview of the roles and responsibilities. The following sub-sections give a more detailed overview of the responsibilities of each role in the project.

2.3.1 Project Coordinator

The Project Coordinator is responsible for the efficient communication and coordination between all project partners and the European Commission and is the unique interface to the Project Officer (PO). The main tasks of the Project Coordinator are:

- Technical overview of the overall project.
- Interface between partners and EC.
- Communication with stakeholders of the project.
- Information flow between WPs, including technical information.
- Chair of the General Assembly.
- Review of deliverables.

The Project Coordinator is supported by the Technical Project Lead, the Project Manager, and the Grant Application Expert.

2.3.2 Technical Project Lead

The Technical Project Lead is responsible for the technical communication and coordination between WP-Leaders. The main tasks of the Technical Project Lead are:

- Coordination between WP-Leaders.
- Supporting the technical information flow between partners.
- Co-review of deliverables.

The Technical Project Leader is supported by the Project Coordinator and the Project Manager.

2.3.3 Project Manager

The Project Manager supports the Project Coordinator and the project partners with all administrative and organizational activities. The main tasks of the Project Manager are:

- Organization and preparation of consortium meetings (Plenary & General Assembly Meetings)
- Preparation and submission of administrative documents
- Administrative coordination of deliverables
- Information and reminders about due dates
- Implementation of tools for improving communication and workflows
- Provision of data storage and tools for collaboration between partners on joint documents and communication

The Project Manager is supported by the Grant Application Expert.

2.3.4 Work Package Leader

The Work Package Leaders are responsible for the coordination of partners and tasks according to the work plan of their WP. The main tasks of the WP-Leaders are:

- Contributing and taking part in Plenary- and General Assembly meetings.
- Coordination and communication between all partners involved in the WP.
- Coordination and preparation of deliverables and milestones of their WP.
- Coordination and review of the technical activities of the partners in the WP.
- Implementation and documentation of regular WP-Meetings.
- Reporting of any issues, new risks, or changes in risks to the coordinator as soon as they arise.
- Contribution to the periodic reporting for the EC.

2.3.5 Project Partner

All Project Partners are responsible for the contribution of their knowledge and resources agreed in the Grant Agreement. Main tasks of all Project Partners:

- Taking part in WP- and General Assembly meetings.
- Contributing to the project according to the tasks agreed in the workplan of the project.
- Providing requested information to WP-Leaders and the Project Coordinator.
- Contributing to the periodic reporting.

3 PROJECT COMMUNICATION

Project communication is a key element for a well-running project. Emphasis is given to efficient and respectful communication within the project. The meeting structure and the tools used for joint communication are described in more detail below.

3.1 MEETINGS

In order to make communication as efficient as possible, special attention was given to the frequency of meetings. The following table describes the types of meetings, their purpose and frequency.

Table 2 Meeting Structure

Type of Meeting	Purpose	Frequency
General Assembly Meetings	<p>The General Assembly meeting is intended to enable joint decisions for the project and to give an overview of the progress of the project for all project partners.</p> <p>Participants: all Project Partners max 2 persons travelling to the meeting site unless there is a reason that justifies it.</p>	Every 6 months
Plenary Meetings	<p>The regular Plenary Meetings give an update to the coordinator about the current status of the WPs. Topics which address several WPs may be discussed in this setting. If challenges or risks arise, the plenary meeting is a tool to communicate at a very early stage to the coordinator and/or other involved WP-Leaders and discuss options and solutions.</p> <p>Participants: all Project Partners, mandatory for WP-Leaders</p>	Every 6 weeks
WP-Meetings	<p>Regular WP-Meetings support WP-Leaders to stay in touch with all partners involved in their WP. A dynamic, technical exchange about the current</p>	As required, depending on the WP-Leader on a regular basis.

	work, including progress reports, should take place here. Participants: all partners involved in the WP and the Project Coordinator/Technical Project Leader	
Other Meetings	Meetings as needed between coordinator and partners or other initiatives to move the project forward.	As required

3.1.1 Meeting Agenda

For all regular meetings, a meeting agenda is mandatory. At minimum, a draft agenda should be sent out no later than 14 calendar days before the meeting.

In cases where the person responsible for the meeting expects partners to prepare a contribution for that meeting, the information and requirements of the contribution must be sent to the partner(s) early enough in advance, thereby giving the partner(s) sufficient time to prepare the required contribution. This should be considered for both regular and non-regular meetings.

The meeting agenda must contain at least:

- Date and location.
- Tentative timetable.
- Information about contributions that need to be prepared in advance.

3.1.2 Minutes of Meetings

Each meeting must be documented in a form that is comprehensible for all relevant partners, but particularly for the coordinator.

The form of documentation can be decided by the person responsible for the meeting. However, it must be possible to trace all important information about the meeting and all decisions.

This can appear in the following formats:

- Meeting minutes (MoM)
- Joint minutes
- Presentations

In addition to meeting minutes, presentations that have been held during a meeting must be stored in the respective folder (e.g. WP-Folder for WP-Meetings). MoM shall be presented to the consortium within 10 days. The minutes will be accepted if within 15days from receipt no party sends an objection or supplement to the author. This is a link directly to the [ENLIGHTEN MoM Template](#).

3.2 EMAILS AND DOCUMENTS

The main communication channel is the MS Teams Channel for the ENLIGHTEN project. Both fully online and hybrid meetings must be conducted using MS Teams. Project related documents can be found there and quick text messages to the consortium can also be sent using the platform. The following sub-sections describe the rules for communication (apart from meetings) and documentation within the project.

3.2.1 E-Mails

E-mail communication can be used to inform about meetings, and to exchange information to specific or all partners of the consortium. To make e-mail communication for the project easier to identify, the subject of each e-mail related to the project must start with Enl, ENL or Enlighten followed by a clear brief information about the topic of the e-mail (e.g.: ENL: Plenary Meeting Agenda)

3.2.2 Documents

All documents that must be available to the whole consortium are stored in the MS Teams Channel. The Channel is well structured, so it is easy to find all documents. There are different folders for each topic:

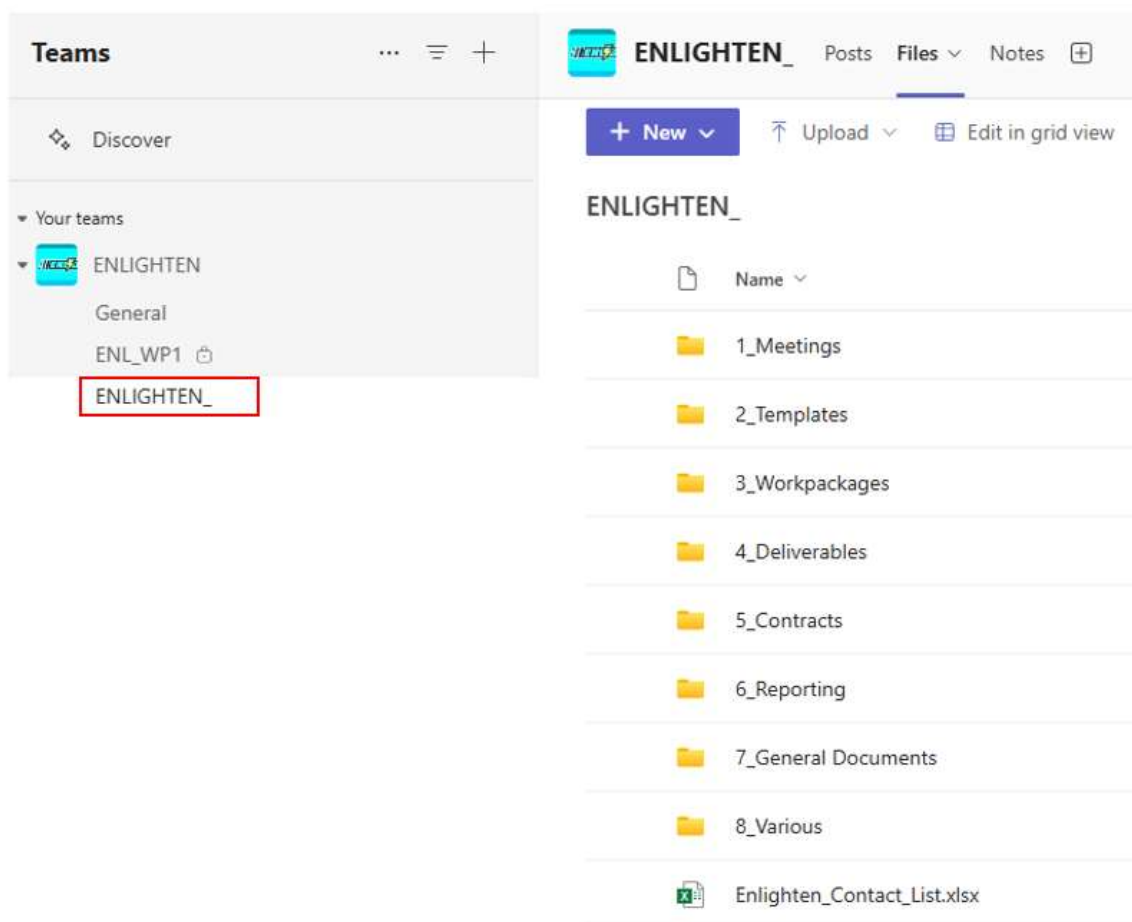


Figure 1. Folder Structure in MS Teams

The storage on MS Teams enables several partners, persons, or institutions to work together on one document. Most of the folders are self-explanatory. Presentations and general documents shall be transmitted using the MS Teams file structure. This system is administered and maintained by the PC. After an invitation by the PC, the storage location can be accessed via the following URL:

<https://aitonline.sharepoint.com/:f:/r/sites/ENLIGHTEN/Shared%20Documents/ENLIGHTEN?csf=1&web=1&e=0RVZC5>

The WP-Leaders are responsible for the structure of their WP-Folder and have freedom in deciding how it should be organized.

4 REPORTING AND DELIVERABLES

Within the runtime of the project, several deliverables and three reports must be drafted and submitted by the consortium. In order to be able to assure the quality of the documents created in a consistent form, certain rules must be observed when creating and reviewing the documents. This section gives an overview of the most important information for reporting, deliverables, and the corresponding monitoring/review process.

4.1 PERIODIC REPORTING

According to the GA, three reports need to be written by the consortium, followed by a review meeting by the EC. The reports need to include the technical and financial progress. Reports will be created by the coordinator with the support of all WP leaders. The first two reports need to be submitted within 60 days after the first reporting period (RP1) and the second reporting period (RP2) and the review meeting takes place within one month after the submission of the report. The final report needs to be submitted and the review meeting needs to take place within 60 days after the end of the project. The following figure gives an overview of the reporting periods and report submissions.



Figure 2. Overview of periodic reporting

4.2 DELIVERABLES

Throughout the runtime of the project, several deliverables must be submitted. For the overview of all deliverables including due dates, dissemination level, WP, description, lead beneficiary and type, a list of [Deliverables](#) is available for all partners in the MS Teams channel.

To ensure a standardized form and provide a straightforward structure, a deliverable [Template](#) was created and made available to all partners. This can also be found in the MS Teams channel.

The following guidelines need to be considered for each deliverable:

- Deliverables are usually a report on how the objectives have been achieved.
- Submit the deliverable in time. If a delay is expected, communicate, and justify as soon as possible to the coordinator.
- The deliverable must comply with the GA.
- Public deliverables are automatically published by the EC, so special care of confidential data needs to be taken.
- The deliverables should be concise, but also present the information in an understandable form.
- All mandatory parts (Name, date, acknowledgement etc.) are already correctly set up in the template and should not be deleted.
- Follow the rules of the DMP and the communication plan.

A folder to store the deliverables can be found in the MS Teams channel.

4.3 MONITORING AND REVIEW PROCESSES

For quality assurance over the runtime of the project, there are several tools that can be implemented. The aim of the quality assurance measures is to ensure that the objectives are achieved, to manage risks and to recognize and find solutions at an early stage in the case of possible inability to achieve a project objective.

4.3.1 Monitoring process

The formal process is the Plenary Meeting, which is held every 6 weeks. All WP-Leaders are asked to prepare a short presentation (1-2 slides) with the current status of their work per task in their WP. This measure enables continuous and close monitoring of progress with the least possible preparation effort for the partners. The presentations also serve as the basis for the two reports to the EC and reduce the effort involved in preparing the reports.

4.3.2 Review and Approval process

An internal review and approval process is particularly important for outgoing documents like the deliverables and the reports to the EC. It ensures the quality and the use of the guidelines for all documents.

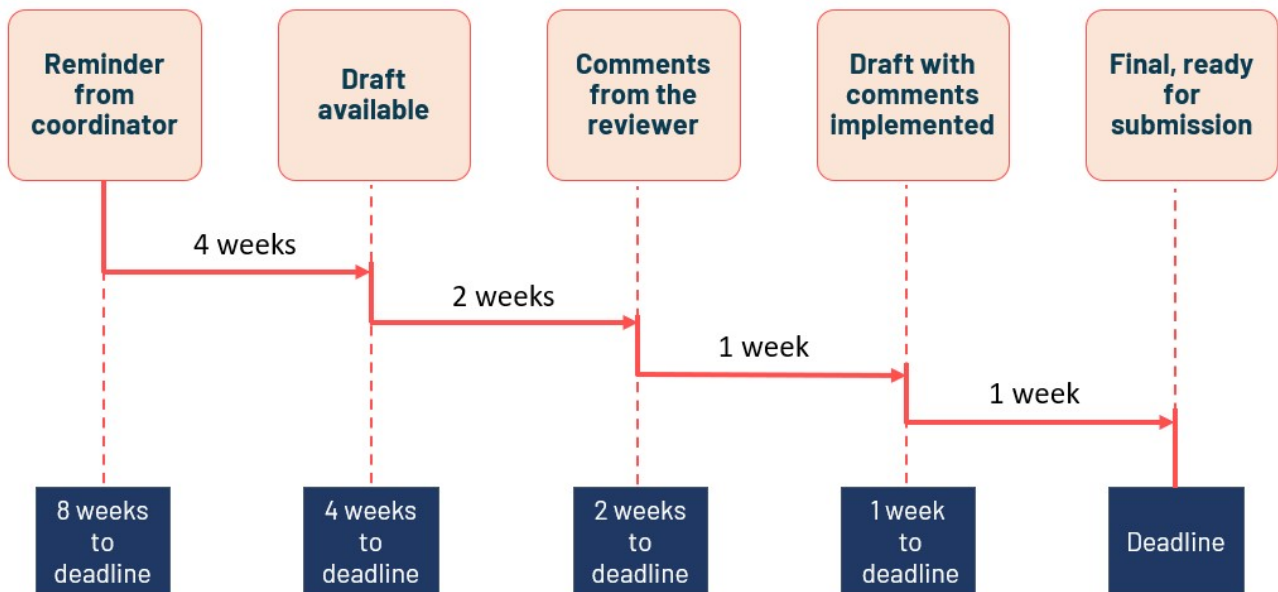


Figure 3. Internal review & approval process

Reviewers will be nominated for each deliverable separately. The selection of reviewers needs to follow these fundamental guidelines:

- Not involved in document creation
- Not part of coordinator

5 EXTERNAL COMMUNICATIONS AND PUBLICATIONS

5.1 LOGO

Figure 4 shows the official ENLIGHTEN project logo. This logo has been approved by the GA during the Kick-off meeting. On external and internal publications, the use of the official project logo is required. The project logo is located on the project MS Teams storage repository [LOGO-ENLIGHTEN](#).



Figure 4. Enlighten Logo

5.2 PRESENTATIONS

To ensure that presented contents are clearly connected to ENLIGHTEN and to create a recognition factor of the project itself, the usage of the official project presentation template is required for all official project presentations. This is especially the case for external presentations of project contents. The template document can be found on the MS Teams storage repository [ENLIGHTEN Template](#).

5.3 RULES

On all project publications, the funding by the European Union needs to be acknowledged. This includes the usage of the ENLIGHTEN project logo and the EU flag in sufficiently high resolution.



Figure 5. Logo showing the funding of the European Union

For the acknowledgement itself, the following sentence is mandatory:

This project receives funding from the European Union's Horizon Europe research and innovation programme under grant agreement no. 101192573 (ENLIGHTEN).

Additionally, dissemination documents need to bear the following disclaimer:

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them

European Union logo, acknowledgement and disclaimer are already integrated into the templates that are provided and linked in this project handbook.

5.4 PROCEDURES

Before executing any formal publication or external communication, the PC needs to be informed in advance. The PC will finally confirm the content and visual appearance. To ensure an orderly procedure, the following deadlines shall be met:

- 6 weeks before submission: Giving notification to Coordinator
- 2 weeks before submission: Summarising feedback and approval from Project Consortium

The PC regards the publication or communication as authorised, if no objection from the Project Consortium was received within the feedback period.

However, the publishing party needs to receive a written confirmation of that approval before any material can be submitted or communicated.

6 PROJECT STRUCTURE AND PLANS

ENLIGHTEN is structured in 8 WPs which are connected with each other. WPs 8 and 7 are supportive to the technical WPs 1-6.

The following figure gives an overview of the structure and how they are connected.

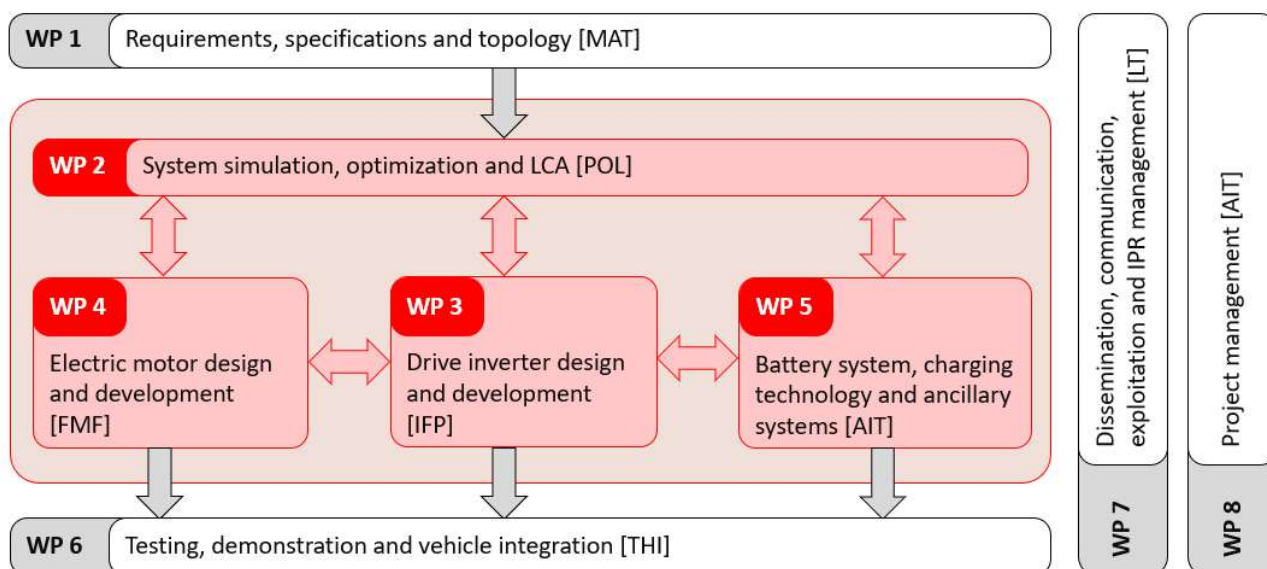


Figure 6. Work Packages and Project Structure Overview

In addition to this overview, the Gantt Chart is a very important instrument to keep track of the timeline and identify dependencies between tasks and WPs. It can be found in the [Grant Agreement](#).