



D5.1 – Project Management Plan









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Document Number	D5.1
Document Title	Project Management Plan
Version	1.1
Status	final
Work Package	WP 5
Deliverable Type	Report
Contractual Date of Delivery	01.04.2020
Actual Date of Delivery	02.04.2020
Responsible Unit	DBL
Contributors	Alessandra Tedeschi, Francesca Margiotta, C. Abate, K. Sutopo
Keyword List	Project Management
Dissemination level	PU



CLIMOP Consortium

CLIMOP Consortium consists of a well-balanced set of partners that cover all the needed competencies and the whole value chain from research to operations. ClimOp Consortium includes representatives from aviation industry (IATA, SEA), academic and research institutes (NLR, DLR, TU-Delft, ITU) and SMEs (DBL, AMIGO).

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Document change record

Version	Date	Status	Author (Unit)	Description
0.1	20/03/2020	Draft	A. Tedeschi (DBL)	Draft
1.0	31/03/2020	Draft	A. Tedeschi (DBL)	Ready for final revision
1.1	01/04/2020	Closed	A. Tedeschi (DBL)	Final version

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Executive summary

This document presents the Project Management Plan (PMP) of the ClimOp project.

The PMP complements the project information provided in the Grant Agreement Description of Action and in the Consortium Agreement and serves two purposes: on the one hand, it establishes a framework for the project coordination team to effectively carry out all quality activities and monitor the project for actual and potential risks in order to avoid negative effects; and on the other hand, it is intended to serve as a handbook for every member of the project consortium in conducting their contractual project activities and facilitating their collaborative work.

This document is divided in eight sections and constitutes a Project Management guide for the consortium. It describes the consortium structure as well as the roles and responsibilities of each consortium body. A Gantt chart with the project's milestones, activities, and deliverables with estimations in terms of resource allocation, duration and main meetings is provided for a sound project management. The last sections describe the project management procedures, the possible risks that may arise during the project's lifetime as well as the ethics requirements of the ClimOp project.

The Grant Agreement Annex 1 Description of Action will remain the contractual reference; the PMP provides additional details but never contradicts the Grant Agreement.

1. Introduction

The main objective of this document is to make the cooperation among ClimOp' partners easier and more efficient. This document presents complete guidelines with all information, rules and procedures so that the ClimOp' scientific outcomes comply with the project's work plan and contractual obligations. In addition, the aim of these guidelines is to ensure that the results fulfil the technical requirements set by the ClimOp' consortium for effective progress toward the achievement of the project goals.

In this document, an organisational structure and related procedures are defined for decision-making, reporting, delivery of intermediate results, control of information, as well as for quality assurance. They basically serve the purpose of ensuring that each Partner follows the same guidelines.

The ClimOp management is based on several principles that are important in inter-organisational collaboration:

1. An effective Project Management relies on the collaboration and cooperation amongst the partners. The ClimOp participants are collaborating to achieve a common objective, share experience and know-how, and develop results with complementary skills;
2. Work must be organised and planned in a result-driven way. Whilst the internal organisation of each partner's work depends on him/her (as long as he meets his/her commitments), the interactions between partners working at distance must be based on the flow of results. Common planning must hence be a reference for everybody and must always be up-to-date;
3. The collaboration between participants is based on consensus and joint decision-making, involving different levels of decision-makers in different domains (strategic, technical, financial, and administrative). The decisions will be achieved by "rough consensus and running code (or experiments)", using formal procedures such as voting only when essential. The rules for such decision-making need to be clear;
4. The effectiveness of meetings between the partners is absolutely critical to the progress of work. An inconclusive meeting can cause serious delays, risks and costs;
5. Effective collaboration requires central coordination and logistics support. The coordination mechanisms, communication flow inside and outside the project are supported by the ClimOp management structure;
6. Resource control will be achieved by assessing "Earned Value" through the assessment of intermediate level of completion of deliverable.

This document has been prepared to describe the implementation of the above principles. The recommendations in these guidelines, if used with some discipline, will reduce project overhead, ease the work of the ClimOp management for all Partners and increase the efficiency and quality of the work carried out in the Project. It is thus imperative that all ClimOp Partners understand and use the rules, suggestions and standards as specified in these guidelines.

1.1 Deliverable Structure

This document is divided in eight different sections.

Section 2 defines the scope and purpose of the document, the communication procedures, both inside the consortium and outside towards stakeholders. Specific attention is dedicated to the dissemination activities. Section 3 provides an overview of the project organisation and main bodies, in order to clarify the decision-making structure and to precisely identify roles and responsibilities of each consortium body. Section 4 provides the Gantt Chart that lists the project's milestones, activities, and deliverables with estimations in terms of resource allocation, duration and main meetings. Section 5 explains the Management procedures. This section is very important as it establishes the steps to be followed in order to prepare effective and high-quality documents, with a specific attention on the official deliverables. The project meetings, the communication and collaboration tools as well as the reporting mechanisms are described and detailed. Section 6 analyses the different risks related to the project development and identifies the necessary steps to minimise the impact of the risks on the achievement of the ClimOp project goals. The innovation management is also briefly described. Section 7 describes the implementation of ethical requirements. Section 8 collects the references.

2. The ClimOp Project

ClimOp aims at supporting the on-going effort within the Aviation industry to reduce the impact of the Aviation sector on climate, and to provide EU policy makers with a well-reasoned set of recommendations and sound mitigation strategies to be implemented by Aviation stakeholders at all levels. This objective will be met through four main strands of activity, here recalled to describe and motivate the structure and organization of the project:

- Identify a set of most-promising Operational Improvements (OIs) that will significantly reduce the climate impact of Aviation, considering both CO₂ and non-CO₂ emissions, and a corresponding set of Key Performance Indicators (KPIs). Identify a distinct set of KPIs that measure the impact of the OIs on the aviation stakeholders.
- With the selected KPIs, quantify the impact on the climate of individual OIs, or various combinations of OIs, using several modelling tools to calculate the response of the climate to these OIs. In addition, quantify the impact of such OIs on the relevant aviation stakeholders.
- Analyse and propose harmonized mitigation strategies that foster the implementation of these OIs within the Aviation sector.
- Validate the proposed mitigations strategies with key Aviation stakeholders and elaborate recommendations (in terms of policy actions and supporting measures) to ease the implementation of the selected mitigation strategies.

2.1. The ClimOp Work-Packages

Besides the Project Management work package (WP5), the project is structured in four technical work packages:

- WP1: Operational Improvements and KPIs/Metrics,
- WP2: Climate Impact Assessment including non-CO₂ effects,
- WP3: Selection and recommendation for the implementation of mitigation strategies,
- WP4: Stakeholders' Consultation, Communication, Dissemination & Exploitation.

WP1, led by TUD, will set the basis of the project and allow for the drafting of the inventory of operational improvements and the definition of the KPIs.

WP2, led by DLR, will be devoted to the climate impact assessment while WP3, led by NLR, will aim at deriving recommendations in terms of policy actions and supporting measures and at developing mitigation strategies for target stakeholders. Finally, WP4 will take care of communication, dissemination and exploitation and will be in charge of DBL.

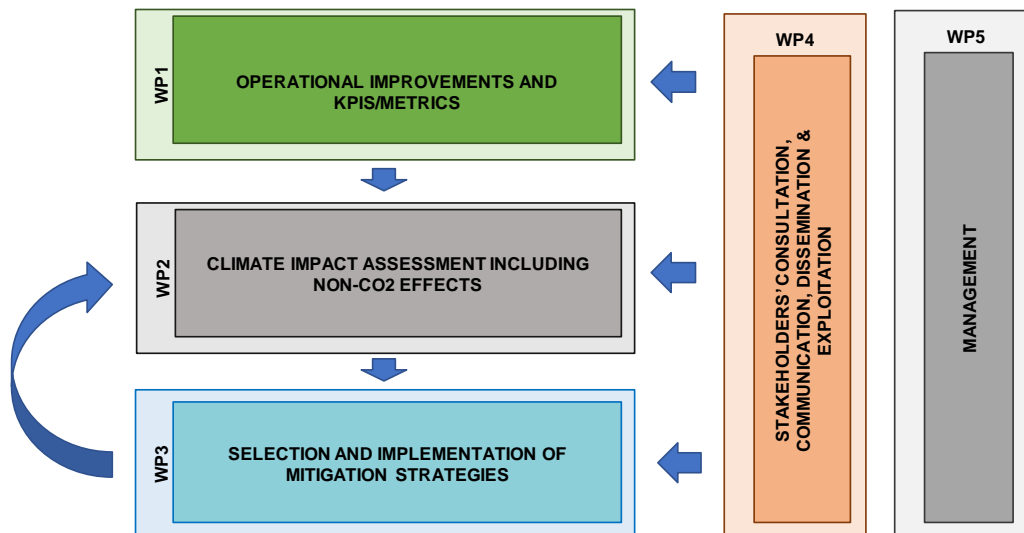


Figure 1. ClimOp WP Structure

3. ClimOp Organisation

The information included in this Section and in the following ones is partly taken from the Grant Agreement [1] and from the Consortium Agreement [2] and developed in line with the H2020 User Manual [5]. ClimOp Grant Agreement has been developed on the basis of the H2020 Annotated Model Grant Agreement [4].

3.1. Consortium Members

Below the full List of the ClimOp partners.

Participant No. *	Participant organisation name	Country
1 (Coordinator)	Deep Blue srl (DBL)	IT
2	Stichting Nationaal Lucht- en Ruimtevaartlaboratorium (NLR)	NL
3	Technische Universiteit Delft (TUD)	NL
4	Deutsches Zentrum, fuer Luft und Raumfahrt ev (DLR)	DE
5	AMIGO srl (AMIGO)	IT
6	Istanbul Teknik Universitesi (ITU)	TR
7	IATA Espana sl Sociedad Unipersonal (IATA)	ES
8	SEA Milan	IT

Table 1. List of ClimOp partners

3.2. Management Structure and Procedures

This section describes the management structure for ClimOp. The ClimOp management structure has been designed to ensure that the project components are properly coordinated, the processes are carefully followed and the project achieves the expected results. The management activity will deal with:

- The definition, release, management and control of the work packages, including check of their activities and partners' contribution;
- The initiation and implementation of corrective actions, in case of deviation from expected achievements, and risk management and implementation of mitigation strategies;
- The Organisation of progress meetings and reviews;
- The communication with EC project officer;
- The compliance with legal, ethical, financial and administrative regulations (including cost/schedule planning & control);
- The quality check of internal and external deliverables and communication products.

During the project, periodic comparisons between the estimated and the actual schedules, resources, progress of the work will be performed to monitor the status of the project and quickly decide upon actions to be performed to resolve potential deviations. To ensure quality of

coordination and achievement of the expected results, a clear organisational structure for ClimOp governance and decision making has been defined and is presented in the following sections.

3.3. Management Bodies

The Project Management structure is explained hereafter.

The **Project Coordinator (PC)** will be responsible for the proper use of the funding by the recipients and will ensure that they comply with certain obligations under the GA through control measures and corrective actions. During the project's life, a financial/administrative manager will be appointed. He/she will be in charge of the administrative rules and procedures and will clarify the obligations agreed by the beneficiaries in the Grant Agreement.

The **Steering Committee (SC)** will be the main decision-making body which holds the highest level of authority in the project, being the responsible to ensure agile and effective decision process and project completion. It consists of one representative from each partner, having one vote. The SC will meet in face-to-face meetings. The SC will discuss and decide on strategic project orientation, updated work programmes, approval of Periodic Reports and Deliverables, resource allocation. Finally, the SC will act as the highest conflict resolution body within the project.

The **Project Management Team (PMT)** will consist of all Work Package leaders and it is chaired by the project coordinator. The PMT supports the coordinator on the technical and scientific work by ensuring and supervising the quality of the project's results through the revision of each deliverable. This includes planning and control of the activities within the WPs, the preparation of deliverables and the collection of the contributions from other partners participating in each WP for internal and external report. The PMT can raise important issues and propose solutions to the SC, but does not have a decision-making capacity. Finally, the PMT with the coordinator will ensure an effective knowledge transfer with external bodies and initiatives through the AB. The PMT will convene face-to-face at least every 6 months (when possible combined with other meetings, such as Steering Committees) and will keep periodic communication to provide a proper overview of project progress.

The **Innovation Management Team (IMT)**, led by DBL and including AMIGO, IATA and SEA, will be in charge of the identification of commercially exploitable ideas and results generated within the project. Furthermore, it will support the PC in understanding scientific/technical, market and social problems during the lifecycle of the project. Finally, it will be responsible for the close involvement of stakeholders and potential users of the project outputs, for protecting and managing Intellectual Property Rights (IPR), for exploring market opportunities and for prototyping scenarios and responsive business models.

An **Advisory Board (AB)** will support the definition of project strategic goals and will steer project progresses. The AB will provide feedback and valuable knowledge stream based on their own experience and information during workshops or remote requests for support (such as participating to interviews or surveys). Additionally, it will facilitate the dissemination of the project results among its network.

3.4. Project Planning and Control

The Project Management and Quality Plan (PMQP) describes the approach, resourcing, planning, risks, and deliverables for execution of the projects tasks. The document is also intended to provide baseline information for the Advisory Board and other readers to understand the project in depth by explaining its purpose, scope, milestones and deliverables, project breakdown, organisation, resources, constraints and dependencies, and risks and mitigations thereof. The first



version of the PMQP shall be agreed with the partners and the European Commission before further work will be authorized to start. Regular updates of the PMQP will be performed during the project to reflect changes in the tasks or in the project resources.

Milestones are used by the PMB for a more effective management and control of the project activities, to chart progress and take corrective actions if needed. ClimOp milestones are shown in the next Section.

4. GANTT Chart

The schedule listing the project's milestones, activities, and deliverables with estimations in terms of resource allocation, duration and main meetings are shown in the Gantt chart below.

The Coordinator monitors and coordinates the work plan, especially the milestone achievement. The WP leader is responsible for the schedule within his/her WP. The WP leader must communicate with the Coordinator in case any problems or delays rise during the project timeline.

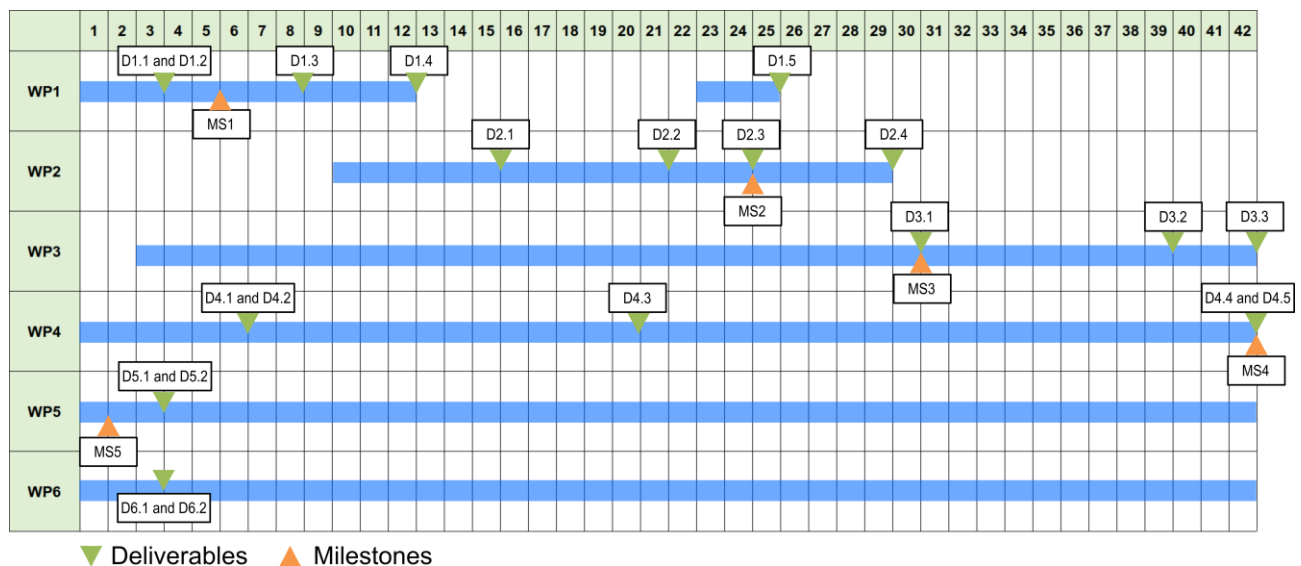


Figure 2: ClimOp GANTT

Below the list of Milestones against with project progresses are monitored.

Milestone number	Milestone name	Related work package(s)	Due date (in month)	Means of verification
MS1	Definition of Environmental Performance Assessment Indicators	WP1	5	T1.1 finalised and D1.1 duly delivered.
MS2	Operational Improvements Climate Impact Assessment	WP2	24	W2 finalised and D2.3 duly delivered.
MS3	Most promising potential mitigation strategies identified and validated	WP3	30	Inventory of the most promising mitigation strategies per operational improvements defined and validated with AB experts.
MS4	Relevant stakeholders involved in ClimOp activities through the entire project life cycle.	WP4	42	All the dissemination activities and the Final Event have been carried out.
MS5	Official launch of the project	WP5-ALL	1	Kick Off Meeting successfully carried out will the active participation of all partners.

Table 2. List of ClimOp Milestones and due dates.

5. Management Plan

In this Section, we provide a detailed description of the management procedures. Part of the information is taken from Grant Agreement Annex I – DoA [1], while additional information was created ad hoc for this document. The content of this Section has been discussed and refined during the project Kick Off Meeting [3].

5.1. Legal, Financial and Administrative Management

The coordinator manages the legal, financial and administrative aspects of the project following the contractual rules.

The Consortium Agreement (CA), prepared before the signature of the Grant Agreement, provides measures on the arrangement of IPR, exploitation rights, confidentiality, decision and change-procedures, cooperation after the end of the project, and negotiations with third parties [1][2].

5.1.1. Decision procedures

The general principle will be to try to achieve decisions by informal means and consensus, using formal procedures such as voting only when essential. All decisions that can have an impact on project progress (whether reached formally or not) will be documented for clarity and common understanding within the Consortium.

The ClimOp Consortium recognises that the resolution of problems and conflicts must be handled systematically. Establishing a good working relationship and fruitful collaborations among project team members will be a pre-requisite for the quick resolution of problems and issues.

Conflicts will have to be resolved at the lowest possible level; those that cannot be solved will be taken through a “principled negotiation” process that is focused on optimising outcomes and maximising the benefits of all parties involved. Additionally, specific decision and corresponding voting procedures are defined in the Consortium Agreement.

5.1.2. Financial provisions

During the whole project life, the Project Coordinator will provide the overall accounting management, including the allocation of budget and the transfer of funds in accordance with the EC deadlines and rules. He will ensure that certificating institutions will be contacted in reasonable time to carry out the required financial audits, and will also verify if minor rescheduling is needed in order to keep the overall project work on schedule or, where this is not possible, he will involve the appropriate decision-making bodies.

Payments to Parties are the exclusive tasks of the Coordinator.

In particular, the Coordinator shall:

- Notify the Party concerned promptly of the date and composition of the amount transferred to its bank account, giving the relevant references;
- Perform diligently its tasks in the proper administration of any funds and in maintaining financial accounts.

Each partner will use the procedures that already exist within their organisation and that are normally used for the H2020 projects in which they are involved.

As projects may be subject to audits by EC, all costs will be auditable: all partners, in accordance with their own usual accounting and management principles and practices, will be able to provide records of effort spent together with all receipts for travels and other expenses.

5.2. Collaboration and Communication management

5.2.1. Cooperative Working Environment

In the ClimOp project we will use **Seafile** as collaborative platform procured and administered by DBL.

Seafile contains functionalities for sharing files and collaborative authoring of documents, with file versioning. Using Seafile enables secure storage for project assets during the entire project.

By reducing dependency on email for communication, active use of Seafile will ensure that project history is accessible to any future project members, whenever they may be introduced to the project.

A default repository structure has been already created for ClimOp, based mainly in the WP structure of the project as defined by the DoA.

WP folders follow a common structure:

- Deliverables: folder containing the working and final versions of the deliverables of the WP;
- Working material: folder storing other sub-folders containing working documents in the WP.

5.2.2. Public Website

The ClimOp website (www.climop-h2020.eu) will have an essential role in the project dissemination. It is still under construction, even if already functioning as an informative page with the project's basic data. The fully functional website, in Month 6, will be the principal means of communication of the project objectives, activities and results, also providing information on the structure of the Consortium. The website will offer a range of functionalities, including document download, links to other relevant projects' websites and contact information.

The public website will facilitate communication and interaction within ClimOp and will also improve dissemination to specialists, potential users, politicians and public funding authorities, as well as the general public. It will be updated on a regular basis with public information about ClimOp progress, status of the activities, dissemination events organised, news and any other relevant communication. Particular attention will be given to the usability and simplicity of the website in order to facilitate the users in the information search and the contents' comprehension. The information provided by the website will be categorized in a logical and significant way, and the pages will be organized in a simple layout with clear sections and texts.

Deep Blue is responsible for the graphical layout, the information architecture and technical implementation of the website. The partners of the consortium will contribute to the website by providing information, documents, news, or any other material that they consider useful to disseminate the progresses of the project. All the contents must be approved by the Project Manager before being published. To monitor the website usage and access an analysis tool will be used, Google Analytics. It provides any kinds of information about the website: visitors, traffic sources, most viewed contents, etc. It is a helpful means to identify possible problems, to increase the website's efficiency, and to evaluate the website impact and effectiveness.

5.2.3. H2020 Participant Portal

It is the official EC Portal for the submission of deliverables, technical and financial reporting, ethical requirements and amendments [6], specifically:

- Submission of project deliverables;
- Periodic Technical & Financial Reporting;
- Final Technical & Financial Reporting;
- Risk & Issues Management;
- Requests for Amendments;
- Implementation of Ethics Requirements;
- Submission of Final Project Results Report.

5.2.4. Communication Tools

The Coordinator will set up a communication system to facilitate the cooperation.

Electronic Mail (e-mail) will be the principal means of interpersonal communication. It is informal, fairly rapid, but best suited for non-critical information. A project mailing lists have been created: climop@dblue.it. If needed, more ad hoc mailing lists will be created (i.e., for administrative purposes only). For a suitable use of the e-mail, here are some rules to be followed by ClimOp members:

- Use the official mailing lists;
- It is recommended that each project participant looks at his/her e-mail at least once a day to see if there is any mail awaiting attention;
- If you do not use the mailing list, address information ONLY to involved parties in communication: do not systematically put everyone in copy.
- Use explicit Subject title:
 - An identifier appended in front of the subject line, like [ClimOp];
 - An identifier of the WP, like [WP2]
 - A clear indication of the content (for instance, "Meeting minutes 2019-03-23").
- Mailing lists have a limit on the size of messages, so attachments should be avoided, in favour of document storage on the Seafile repository. The Seafile link to a particular file can be shown in the e-mail message instead of attaching a document.

Another means of communication can be teleconferencing, a powerful tool for organising short meetings. They can be organised with short notice; participants only need a telephone line or an Internet connection set to participate and do not need to spend time travelling. DBL will make available its WebEx facility, while NLR and SEA will make available Skype for Business teleconferencing tool. Both tools will be used according to partners preferences and constraints.

5.2.5. Project Meetings

Interactive management meetings and technical meetings play an important role in the project. ClimOp meetings will include the following:

Type of meeting	When	Who	What	How
Progress meetings	Every 6 months	All the partners	Coordinate and monitor work	Face2Face or phone conf.
WP/Task meetings	Bi-weekly	WP/Task participants	Coordinate and monitor work	Face2Face or phone conf.
Ad-hoc meetings / Roundtables	Whenever needed in WP2/ WP3/ WP4	WP/Task participants, Selected Advisory Board Members	Data collection from experts (top-down approach)	Face2Face
Project review meeting	Once per year	All the partners + European Commission	Project review, collection of feedback on project activities, risk management and identification of corrective actions	Face2Face
ClimOp Workshops	Three during the project lifetime	All the partners + Advisory Board + external stakeholders	Data collection from experts (bottom-up approach)	Face2Face
Final ClimOp Dissemination event	M42	All the partners Advisory Board, general public and external experts	External dissemination of project results	Face2Face

Table 3. ClimOp planned Project meetings

5.2.6. Organisation of the Meetings

In the paragraphs below, best practices for the organisation of the ClimOp meetings are described.

Types of meetings

There are three types of meetings: (i) face-to-face, (ii) video conference, and (iii) conference call.

The consortium has planned to physically meet face-to-face at least two times a year, where progress periodic meetings and PMB meetings will be co-located over a period of 1.5-2 days, at the premises of the project partners (chosen randomly giving equal opportunity to each partner to host meetings). If possible, project meetings can be organized in conjunction with key events that ClimOp partners plan or may have an interest to participate.

The consortium partners are located in nine different European countries. For the face-to-face meetings it is important to consider:

- If another face-to-face meeting is scheduled at the same time. Verify if it's possible to jointly conduct the two meetings in order to optimize the cost;
- Evaluate the time and, if it's possible, avoid critical timing (e.g., holidays, international events, etc.);
- Evaluate how easy it is to reach the place and city of choice;
- Consider the precedent location of the face-to-face meeting giving equal opportunity to each partner to host meetings.

Conference call meetings are foreseen to facilitate partners' collaboration and the organisation of additional meetings. These meetings enjoy the same rules as the other standard meetings, and will be used for progress meetings and WP meetings, whenever it is necessary.

Responsibilities of partners

The hosting partner should give information related to arrival and departure times and, where appropriate, requirements for hotels. The hosting partner is responsible for the coffee breaks, lunches and dinners' organisation taking into account special meals, if needed.

A call bridge should be created to facilitate the participation of people who cannot join (ClimOp members or EC representative).

Agendas and minutes will be prepared and shared by the chairperson of the meeting and shall be made available to all consortium members on the Seafire repository.

Each Partner:

- Should be present or represented at any meeting;
- May appoint a substitute or a proxy to attend and vote at any meeting; and
- Shall participate in a cooperative manner in the meetings.

Each participant to a meeting should contribute to the meeting preparation by providing in advance to the meeting:

- Contributions to the agenda;
- Preparation of presentations;
- Working documents: normally the main subjects discussed during a meeting will be documented by discussion papers or presentations. As far as possible, these means should be distributed in advance and not during the meeting itself, since otherwise the participants will be unable to prepare for the meeting;
- Feedback on the minutes in case of disagreement;
- Execution of actions and respect of decisions.

The Coordinator will have the special responsibility of contributing to the definition of meeting objectives, and the preparation of decisions, agenda and minutes.

The Coordinator for plenary meetings or the WP leader for the WP meetings will be the chairperson, unless decided otherwise.

Agenda of the meetings

Each meeting must have an agenda. The draft agenda should be distributed in advance (10 days), to inform the participants about the topics to be discussed and to give them the opportunity to suggest changes to the agenda which must then be re-circulated. Comments and integration can be done before sharing the final agenda (5 days before the meeting). The agenda lists the subjects which are planned to be discussed. It is an instrument to assist the facilitator in monitoring the meeting. Secretarial work is also minimised by a well-structured agenda.

Each agenda contains some standard subjects with the following structure:

- type of meeting
- list of participants
- <place>
- <date>
- <time> Opening and welcome.
- <time> Objectives of the meeting and agreement about the agenda.
- <time> Remarks on previous minutes (only if applicable).
- <time> Action points (only if applicable).
- <time> Meeting specific subjects.
- Explanation of subject (issues to decide upon, actions to decide, etc.)
-
- <time> Sum up and closing:
 - Date and place of next meeting(s) (only if applicable)
 - Define list of open issues.
 - Summarise decisions and actions list.

<place> is the location of the meeting, <date> is the day for which the agenda is valid; multiple-day meetings have an agenda for each day. <time> defines the planned time to start discussion on a topic.

If breaks, lunch and dinner are planned, these events should be included in the agenda.

During a meeting this agenda can be modified by adding items if it's necessary.

Minutes

Particular attention must be given to the follow-ups of the meeting; send the minutes quickly, check commitment on decisions and actions with absent Partners, ensure that decisions are respected and actions executed.

The Coordinator for general meetings or the WP leader in charge of the agenda is in charge of the minutes. S/he can appoint a person to produce written minutes, which shall be the formal record of what was discussed during the meeting. The minutes shall be sent to all project members (preferably within 10 calendar days of the meeting). The minutes shall be considered as accepted if no one sends an objection (within 7 calendar days from receiving them).

The minutes will therefore constitute a sort of "pocket handbook" with all the data that each of the participants will always have to keep an eye on.

The minutes will reflect major issues that have been discussed. All minutes of periodic meetings will have the same structure. Minutes should contain the following information:

- meeting date;
- location;
- author;
- participants;
- objective of the meeting (brief);
- actual agenda;
- list of documents distributed during the meeting with reference to the author (if applicable);
- and for each point addressed as part of the agenda:
 - summary of discussion (if relevant);
 - decision;
 - open issues;
 - action;
 - supporting information (if relevant).
- summary of the action list;
- place and date of the next meeting (if applicable).

Minutes of meetings involving the EC shall also be distributed via email for review by the EC officer. Action updates should be regularly (monthly) be sent to the EC. For all meetings involving the EC, the EC shall be asked to review the minutes before their approval.

5.3. Deliverable Production

The list of ClimOp deliverables is reported in the following table (see Gantt Chart, Section 4).

Deliv. ID	Deliverable name	WP	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
D1.1	Definition of climate and performance metrics	WP1	TUD	R	PU	4
D1.2	Inventory of operational improvement options	WP1	IGA	R	PU	4

Deliv. ID	Deliverable name	WP	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
D1.3	Report on the assessment of operational improvements against identified KPIs	WP1	TUD	R	PU	8
D1.4	Report on the selection and review of operational improvements to be investigated	WP1	IGA	R	PU	12
D1.5	Report on the second iteration for the identification, assessment and selection of operational improvements	WP1	TUD	R	PU	25
D2.1	Definition of reference scenario including technological and operational boundary conditions and air traffic sample	WP2	DLR	R	PU	15
D2.2	Documentation of adaptation of the combined air traffic and climate impact simulation and modelling of operational improvements	WP2	DLR	R	PU	21
D2.3	Report on the climate impact of the first set of operational improvement options	WP2	DLR	R	PU	24
D2.4	Report on the climate impact of the second set of operational improvement options	WP2	AMIGO	R	PU	29
D3.1	Inventory of most-promising regulations and policies	WP3	NLR	R	PU	30

Deliv. ID	Deliverable name	WP	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
D3.2	Development of most-promising mitigation strategies	WP3	NLR	R	PU	39
D3.3	Recommendations	WP3	NLR	R	PU	42
D4.1	Communication, Dissemination and Exploitation Plan	WP4	DBL	R	PU	6
D4.2	ClimOp website	WP4	DBL	OTHER	PU	6
D4.3	First report on Communication and Dissemination activities	WP4	DBL	R	PU	20
D4.4	Final report on Communication, Dissemination and Exploitation activities	WP4	DBL	R	PU	42
D4.5	Report on stakeholders' Validation	WP4	DBL	R	PU	42
D5.1	Project Management Plan	WP5	DBL	R	PU	3
D5.2	Data Management Plan	WP5	DBL	R	PU	3
D6.1	POPD	WP6	DBL	E	CO	3
D6.2	NEC	WP6	DBL	E	CO	3

Table 4. List of ClimOp deliverables

All deliverables will be written with contributions from several partners. In order to minimise the effort for handling such documents, it is hence important to agree on standards for formats and tools to be used in document editing and exchange following an agreed delivery process in order to ensure their consistency and quality, and minimise the risk that deliverables will be rejected by EC. The H2020 word template and the H2020 power point template will be the "standard templates", respectively, for all project deliverables and for all official project presentations (presentations involving EC or external audience).

The right size for a given deliverable depends largely on the topic, the purpose, etc., but very long deliverables create several problems:

- It takes longer to write and revise them;
- They are not easily readable and prone to lose the focus.

Therefore, we must design deliverables to be clear about the objective, and then be very concise about the content to include in the documents. The focus must be clear and specific. It must also avoid repeating content from other documents (always use references for that).

It is of utmost importance to have a clear Executive Summary, an Introduction containing the objectives and the structure of the document, as well as a Conclusions section. All the project official documents will be produced according to the templates and guidelines supplied by the EC at the beginning of the project.

The official editing tool for deliverables will be: Microsoft Word 2010 or newer. Other editing suite tools can be used under the following conditions:

- Deliverable editor must agree with contributors in advance;
- Deliverable editor must provide the template for the new format that must match with the official template provided by the EC;
- If a contributor does not use the selected editing tool/format, the deliverable editor is responsible for integrating these contributions in the official editing format/tool.

5.3.1. Deliverable and File naming convention

All the project's documents will be managed with Seafile Online, the collaborative tool provided by DBL, accessible to ClimOp members (see Section 5.2.1).

This will reduce the exchange of the documents via email. The documentation that does not have to be edited, e.g., the documentation that has to be distributed externally to the Consortium, will have to be saved/converted/distributed in Portable Document Format (PDF).

Interim deliverable versions and the final version should be kept in the project repository, in the corresponding deliverable folder for availability of the consortium members. The final version will be also saved as a pdf file and submitted through the Participant Portal to the EC. Public deliverables (once approved by the EC) will be available on the ClimOp website. All the project deliverables will be archived for at least 5 years, as per H2020 requirements.

5.3.2. Roles

Each deliverable tackles a specific subject, and the WP leader should produce the document and co-ordinate the work of the partners involved. The following are the roles of participants in the process of production of deliverables:

- **Deliverable leader:** is the main editor and leads the deliverable production process. The leader is responsible for the submission of a high quality deliverable in due time and is also the main contact point with the other roles, being in charge of uploading the document to the right location in the project repository and of notifying the peer reviewer, the quality manager and the Project Coordinator for the final approval whenever the document is ready for the next step in the deliverable production process.
- **Deliverable contributor:** participates in the production of the deliverable by contributing with content and supporting the leader in producing a high-quality deliverable, addressing reviewers' comments and requests.

- **Deliverable peer reviewer:** will be appointed in advance and should not be a direct contributor to the deliverable. S/he is responsible for carefully reviewing the content of the deliverable, ensuring the deliverable objectives are met from a scientific/technical point of view. A proof-reading is expected by the peer reviewer as well. Comments can be provided in the document using MS Word features such as track-changes or review comments. The peer reviewer must upload the deliverable document (with comments) and the review report to the project repository and notify the deliverable leader accordingly.
- **Deliverable quality manager:** this task is assigned to DBL as Project Coordinator. The Project Manager will perform a last round of proof-reading, to find and correct typographical errors and mistakes in grammar, style, spelling and layout.

The project coordinator will formally hand-over to the EC the finalized deliverables for a quality assessment prior to their approval.

5.3.3. Review Process

The responsible for each deliverable is the one assigned within the Work Package. The leader as well as all the contributors and peer reviewers are responsible for the quality and correctness of the deliverable's content.

The deliverable elaboration process can be divided in 4 phases:

- The first phase is the preparation of an initial version by the partner officially responsible of the deliverable, based on the template provided by the Project Coordinator.
- The second phase is the completion of the draft by all contributors involved according to the work plan. The deliverable drafting should be finalised at least 2 weeks before the deliverable deadline in order to be reviewed.
- During the third phase, the deliverable will be checked by the peer reviewer and all the comments will be included for a forward clarification. This phase should end at least 1 week before the deliverable deadline.
- As a last step, the partner responsible for completing the deliverable will integrate the comments and recommendations in order to obtain the final version. This final document will be sent to the Project Coordinator for a final review and for sending the deliverable to the European Commission.

5.3.4. Deliverable and File naming convention

All the documents elaborated within the ClimOp project should follow a general naming convention for file names:

Dx.y Title_vz.w, where:

- Dx.y - represents the deliverable number (where 'x' represents the WP number and 'y' the deliverable number within that WP)
- Title - corresponds to the deliverable title
- 'z.w' - corresponds to the version number of the deliverable, starting at 0.1 and the first delivery to EC being 1.0.

e.g. D1.1_Project-management-plan_draft_v0.1

5.4. Progress Reporting

The action is divided into the following Reporting Periods [1]:

- RP1: from month 1 to month 18;
- RP2: from month 19 to month 30;
- RP3: from month 31 to 42.

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

Each WP leader should submit a WP Report to the Project Coordinator, who assembles the parts and elaborates the Progress Report.

The coordinator must submit to the EC the technical and financial reports, including when needed the requests for payment and must be drawn up using the forms and templates provided by the EC.

5.4.1. Periodic Technical and Financial Reporting

A Periodic Technical and Financial Progress Report shall be submitted via the H2020 Participant Portal every six months within 60 working days following the end of the Reporting Period.

The content of the Technical and Financial Progress Reports is detailed in the H2020 User Manual. An extract is provided below; however, the latest version of the H2020 User Manual remains the reference.

Periodic Technical Report

A Technical Progress Report shall provide a qualitative summary of the work performed according to H2020 guidelines. It consists of **Part A** and **Part B**:

Part A contains:

1. the cover page
2. a publishable summary, including:
 - An executive statement on the progress made and key issues;
 - Achievements made in the last reporting period, i.e. milestones, meetings, and tasks key data;
 - Main targets and events over the next reporting period.
3. Tables covering issues related to the project implementation (e.g., Work Packages, Deliverables, Milestones, etc.) which includes:
 - Deliverables (indicating the % completion of deliverables);
 - Milestones;
 - Ethical Issues (if applicable);
 - Critical implementation risks and mitigation measures;
 - Dissemination & exploitation of results;
 - Impact on SMEs (if applicable);
 - Open Research Data (if applicable);

- Gender.
4. The answers to the questionnaire covering issues related to the project implementation and the economic and social impact, notably in the context of the Horizon 2020 key performance indicators and the Horizon 2020 monitoring requirements.

Part A is generated via the Participant Portal based on the information entered by the participants through the periodic report and continuous reporting modules. The participants can update the information in the continuous reporting module at any time during the life of the project.

Part B of the periodic technical report provides the narrative part that includes explanations of the work carried out by the beneficiaries during the reporting period. It will include:

1. Explanations of the work carried out by all beneficiaries and linked third parties during the reporting period;
2. An overview of the progress towards the project objectives, justifying the differences between work expected under Annex I and work actually performed, if any;
3. An update on Risks and Issues.

Part B needs to be uploaded as a PDF document. It must be consistent with the template of Part B Periodic Technical report.

Periodic Financial Report

A Financial Progress Report shall be submitted every six months via the H2020 Participant jointly with the Technical Progress Report.

The periodic financial report consists of:

1. Individual financial statements (Annex 4 to the GA) for each beneficiary;
2. Explanation of the use of resources and the information on subcontracting and in-kind contributions provided by third parties from each beneficiary for the reporting period concerned;
3. A periodic summary financial statement including the request for interim payment.

Final Periodic Technical/Financial Report

The Final Report covers the whole project and is composed of a Final Technical and a Final Financial part. It is delivered within 60 days from the completion of the Action.

In case not all deliverables have been submitted in time before the completion of the Action, the Project may ask for an extension, as an exception, using the Amendment procedure.

Final Periodic Technical Report

The Final Periodic Technical Report is a publishable summary of the entire project. It provides:

1. An overview of the project scope and objectives;
2. The achieved results and main conclusions, including a self-assessment of the TRL (Technology Readiness Level) achieved at the end of the project based on the criteria defined by EC supporting the claimed project readiness to transfer its results to the next R&I phase;
3. The performed communication and dissemination actions;
4. The Exploitation and follow-up activities proposed for the next stage of the R&I lifecycle;

5. The socio-economic impact of the project;
6. An up-to-date link to the project website;
7. Project logos, diagrams, photographs and videos illustrating its work (if available).

The final summary must be written in a style understandable for a non-specialist audience. The coordinator must ensure that none of the material submitted for publication includes confidential or 'EU classified' information.

Final Periodic Financial Report

The Final Periodic Financial Report includes:

1. The final summary financial statement that is automatically created by the system (consolidating the data from all individual financial statements for all beneficiaries and linked third parties, for all reporting periods) and that constitutes the request for payment of the balance;
2. In some cases (and for some beneficiaries/linked third parties) it must be accompanied by a certificate on the financial statements – CFS (one certificate per beneficiary/linked third party).

6. Risk and Issues Management Plan

Critical risks are probabilities or threats of negative occurrence relating to project implementation that is caused by external or internal vulnerabilities that may affect project's objectives and that may be avoided through pre-emptive actions.

Issues and opportunities are developments that make changes to the project's planned course desirable and/or necessary. If issues arise in the course of the project, they will be discussed with the Project Officer and identified/updated in the progress reports.

The management of project Risks and Issues will be done through the Periodic Reporting via the H2020 Participant Portal. This process includes defining and implementing actions to mitigate the Risks [5].

The top Risks will be reported in the Technical Progress Reports in order of criticality and/or priority, together with their impact, status and corrective actions.

6.1. Risk Management

Measures for managing risks related to financial, legal, administrative and technical coordination will be established from the beginning of the project. A contingency plan will be done at the beginning of the project and will be immediately at disposal to be launched when necessary and updated along the project execution. The management structures will:

- manage partners and resources to reach the general goals and objectives of the project on schedule and within budget;
- follow the regulations and serve as contact point for the project with the project officer;
- monitor adherence to EU policies for key issues such as open data access, ethical and security issues, gender-balanced research;
- maintain responsibility for the identified deliverables and supervise the quality control mechanisms;
- monitor and mitigate risks;
- provide equitable and effective mechanisms for the prevention of conflicts and resolution of disputes.
- establish and maintain mechanisms for reliable communication between partners, expert panel members and study participant.

Regarding conflict resolution, the PC will try to minimize conflict and should it arise, act to minimize its effect through arbitration with the involved partners. As soon as a risk has been identified and needs to be addressed, the PC will be responsible for:

- the definition of new project activities necessary to ensure the mitigation of risk;
- the assignment of the priority level of activity in mitigating the risk index and status of the project;
- the allocation of human resources required to perform the activities of risk mitigation.

6.2. Identified Top Risks

Description of risk (indicate level of likelihood: Low/Medium/High)	Work package(s) involved	Proposed risk-mitigation measures
<p>The identified Operational Improvements have too low maturity level and cannot be applied in a short timeframe nor be properly validated. Probability: Medium, Consequence: High</p>	<p>WP1</p>	<p>One of the criteria of categorization of the OIs will be their maturity level and applicability, thus they will be pre-selected also on the basis of these very relevant parameters. If some low maturity level OIs (i.e., very futuristic) OIs will be selected specific validation techniques will be adopted (e.g., envisioning techniques, serious gaming, etc.). The results of the Validation will be presented with a detailed Gap Analysis, being aware that the validation outcome could have been less reliable.</p>
<p>The proposed simulation environments and models cannot evaluate properly the climate impact assessment of the various OIs. Probability: Low, Consequence: High</p>	<p>WP2</p>	<p>The proposed simulation environment and models have been already intensively validated in previous research by project partners and will be adapted to assess specific OIs identified in Wp1. The simulation environment and models will be validated on already existing assessment and through expert judgement before being applied to the specific OIs under analysis in ClimOp.</p>
<p>Low involvement of stakeholders in drafting the mitigation strategies and the set of harmonised policies and regulations. Probability: Low, Consequence: High</p>	<p>WP3</p>	<p>Start involving the necessary stakeholders right from the beginning of the project thus avoiding their low involvement and guaranteeing the success of the project. Benefit from partners' contact networks consisting of cooperation partners in previous or current projects, active members of associations and organisations such as IATA, ACI, Eurocontrol etc.</p>

<p>Poor dissemination and exploitation of the results. Probability: Low, Consequence: High</p>	<p>WP4</p>	<p>Development of the Communication, Dissemination and Exploitation Plan approved by all the partners. Dissemination will be continuously monitored by means of Performance Indicators. Benefit from partners' own extensive communications activities and their presence at conferences and symposia.</p>
<p>Poor interest and low involvement of institutional stakeholders. Probability: Medium; Consequence: High</p>	<p>WP1-4</p>	<p>Involving the largest and most comprehensive possible array of stakeholders from across the EU and from worldwide countries to ensure International Cooperation (as requested by the specific topic).</p>
<p>Partner goes bankrupt, does not deliver or must withdraw from the project. Probability: Low-Medium, Consequence: Medium</p>	<p>WP5</p>	<p>Raise the issues urgently with management in partner organizations. In consultation with the Project Officer replace partners that are not delivering or must withdraw from the project.</p>
<p>Low quality of deliverables. Probability: Low, Consequence: Medium</p>	<p>WP5</p>	<p>Establish good QA procedures, Internal reviews for each deliverable by an equitable part.</p>
<p>Partners do not share important IP. Probability Low, Consequence: High</p>	<p>WP5</p>	<p>IP Agreement will be part of the CA signed before the project starts.</p>
<p>Partner fails to deliver work according to proposal. Probability: Low, Consequence: High</p>	<p>WP5</p>	<p>The PC will constantly monitor work undertaken vs. that planned. As needed the PMT can become involved to actively solve problems.</p>
<p>Risk of non-compliance of privacy regulation, including GDPR. Probability: Low, Consequence: High</p>	<p>ALL</p>	<p>A specific part of project management will be devoted to the management of data and the compliance with GDPR.</p>
<p>Risk of changes in key personnel. Probability: Low, Consequence: Medium</p>	<p>ALL</p>	<p>Like in all organisations and projects there is a risk of changes of personnel. Especially critical is changes of key personnel, WP leaders and the coordinator. However, in ClimOp the organisations are committed and can replace personnel with similar competences.</p>
<p>Delays/cancellation in technical activities due to the COVID-19 outbreak</p>	<p>ALL</p>	<p>Remotisation of F2F meetings as far as possible, re-planning of technical activities.</p>

Table 5. Identified top risks of the ClimOp project.

7. Implementation of Ethical Requirements

Two Ethical requirements have been identified during the proposal evaluation and grant preparation. Work Package 6 Ethics Requirements was automatically included in the Grant Agreement [1]. The following requirements have been identified by the EC:

- Protection of Personal Data (POPD) Requirement No. 1, the host institution must confirm that it has appointed a Data Protection Officer (DPO) and the contact details of the DPO are made available to all data subjects involved in the research. For host institutions not required to appoint a DPO under the GDPR a detailed data protection policy for the project must be submitted as a deliverable
- Non-EU Countries (NEC): in case activities undertaken in non-EU countries raise ethics issues, the applicants must ensure that the research conducted outside the EU is legal in at least one EU Member State. This must be specified in the grant agreement. In case personal data are transferred from the EU to a non-EU country or international organisation, confirmation that such transfers are in accordance with Chapter V of the General Data Protection Regulation 2016/679, must be submitted as a deliverable. In case personal data are transferred from a non-EU country to the EU (or another third state), confirmation that such transfers comply with the laws of the country in which the data was collected must be submitted as a deliverable. In case personal data are transferred from the EU to a non-EU country or international organisation, confirmation that such transfers are in accordance with Chapter V of the General Data Protection Regulation 2016/679, must be submitted as a deliverable. In case personal data are transferred from a non-EU country to the EU (or another third state), confirmation that such transfers comply with the laws of the country in which the data was collected must be submitted as a deliverable.

Two Ethics Deliverables namely D6.1, D6.2, are due at M4 and will be developed following the European Commission Ethics Guidance Material [8][8].

The principles of the European Convention of Human Rights, the rules of the Convention of the Council of Europe for the protection of individuals with regards to automatic processing of personal data and especially the European Directive 95/46/EC, for the protection of personal data, will be strictly followed when addressing the ethical questions of ClimOp. In case personal data are transferred from the EU to a non-EU country or international organisation, confirmation that such transfers are in accordance with Chapter V of the General Data Protection Regulation 2016/679, must be included in the corresponding deliverables.

Nothing in this project shall be deemed to require a party to breach any mandatory statutory law under which the party is operating, including any national or European regulations, rules and norms regarding ethics in conducting research.

References

- [1] ClimOp Grant Agreement
- [2] ClimOp Consortium Agreement
- [3] ClimOp Kick Off Meeting Final minutes, 2019
- [4] European Commission, H2020 Annotated Model Grant Agreement (AMGA), http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf
- [5] H2020 Manual, <https://ec.europa.eu/research/participants/portal/desktop/en/funding/guide.html>
- [6] ATM Masterplan, <https://www.atmmasterplan.eu/exec/overview/performance-ambition>
- [7] European Commission, Communication Guidance Material for H2020, http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf
- [8] European Commission, Ethics Guidance Material for H2020, http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf