
# D4.1 – Communication, Dissemination and Exploitation Plan

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## 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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# Index

# 1. Introduction

The ClimOp Plan for the Exploitation and Dissemination of Results (PEDR) follows the objectives established in the Grant Agreement for the Work Package 4 (WP4). This preliminary release will be followed by an intermediate report in M20 that will consider the project progress and include updates to the plan based on the project last achievements, the stakeholders' consultation, and other relevant changes in the communication activities and products. A final report will be delivered in June 2022.
The structure of this document entails the five main activities necessary to create the PEDR. It starts form the summarization of the general plan framework (Chapter 1). Successively, the document outlines the assumed key aspects of the communication strategy, such as the objectives, the target audience, the communication approach, and an array of measures to monitor the impact of the ongoing dissemination actions (Chapter 2). Then, the plan focusses on the implementation of the PEDR strategies, represented by communication activities and products (Chapter 3). Finally, this document includes a plan for the Stakeholders' Consultation (Chapter 4) and a preliminary exploitation strategy (Chapter 5).
Currently, the spread of the 2019 Coronavirus disease (COVID-19) is heavily affecting the aviation industry and the general population throughout Europe. As the pandemic spreads, the circulation of people is being limited, and conferences are being cancelled every day. Therefore, the schedule of the dissemination activities planned in the next months, in particular for those linked to the participation to or the organisation of events and conferences (such as the production of graphic materials, presentations, papers, etc.), will have to adapt to the evolving situation and therefore cannot be planned accurately.

# 2. The ClimOp Plan for the Exploitation and Dissemination of Results (PEDR): Overview

ClimOp is a research project, founded by the Horizon2020 programme, that partakes in the Aviation International Cooperation Flagship called "Safer and Greener Aviation in a Smaller World". The overall aim of the project is to present a series of operational improvements that can reduce the climate impact of the aviation sector, taking into account the stakeholders' perspective. The final goal of ClimOp is to provide recommendations to steer decision and policymaking in the European Union (EU) Aviation sector.

The principal activities of the 4th ClimOp work package (WP4) are to inform about the project status and disseminate ClimOp results and findings. Those activities help to pursue the maximisation of project impact. The Plan for the Exploitation and Dissemination of Results (PEDR) spans the whole duration of the project (42 months) and encompasses a series of strategical actions distributed along the full project duration. The second chapter of this document outlines the strategy for the project dissemination and communication of results.

The **communication and dissemination** strategy, described in Chapter 2, builds upon four cornerstones:

- **Dissemination goals**: identification and definition of the expected impact and the means adopted to achieve it (see Section 2.1).
- **Target audience**: description of ClimOp main stakeholders, as well as their needs and interests towards the project (see Section 2.2).
- **Communication Approach**: ad-hoc definition of the communication initiatives for the Advisory Board members, of coordination and networking with other EU-funded projects, of external dissemination and overview of the ethic and security parameters of publishable material (Section 2.3).
- **Monitoring the impact**: identification of key performance indicators to control the dissemination operations and assess their impact through time (see Section 2.4).

Chapter 3 describes the Implementation of the PEDR strategy going through the utilization of:

- **Dissemination activities** (see Section 3.1), including external and internal communication practices;
- **Dissemination products** (see Section 3.2), to support dissemination activities and to provide tools to pursue the maximization of results' impact.

Chapter 4 concerns the Stakeholders' consultation process, presenting:

- The **consultation methodology** (see Section 4.1);
- The **consultation activities** (see Section 4.2), implying a cluster of actions that goes through all the steps of the ClimOp project.

The CilmOP Exploitation Plan introduces in Chapter 5 the actions required to distinguish and exhibit the results potentially more exploitable. Three lines of action describe the approach related to this section:

- The **identification of possible exploitable outcomes** (see Section 5.1);
- The **joint exploitation activities** (see Section 5.2);
- The **individual exploitation plans** (see Section 5.3).

# 3. Communication and Dissemination

This chapter defines the communication and dissemination strategy through the determination of goals, target audience and the definition of a communication approach. The preliminary dissemination programme will also include an array of indicators employed to monitor the progress of the dissemination and measure its impact.

## 3.1 ClimOp Dissemination Goals

Overall, the dissemination activities aim to enhance awareness of the ClimOp project. In research projects, those actions are especially important to stimulate interest in a specific subject, and animate collaboration and information exchange. Finally, the dissemination tries to maximise the impact that findings have on related contexts of application.

During the whole length of the project, ClimOp will pursue the fulfilment of high-level objectives. The specific goals are strictly linked to the phase of the project and the stage of stakeholders' consultation, and consist in:

- **Raising awareness**. This objective regards the initial activities, aiming at spreading project information such as the objectives, the results, the progress and the findings of the project to all the parties potentially interested.
- **Generating understanding.** This goal regards communicating pivotal project aspects to specific stakeholders, enhancing their knowledge and comprehension about ClimOp. This phase generates follow-up discussions on the contents of the communication and requests for further information. This activity continues during the whole length of the project, ensuring constant comprehension of project progress and achievements.
- **Engaging**. Specific dissemination measures will promote the interaction of the stakeholder communities, the general public and a wider range of target audience with the project (e.g. through workshops, conferences, social media strategy, etc.). The audience engagement phase can be considered a step ahead in the communication process. The engagement is reflected in stakeholders' actions performed to increase the impact and resonance of the communication.
- **Ensuring impact.** The long-term goal of the ClimOp dissemination activities is to guarantee that the project results reach the right target audience, as policymakers. In the communication process, the latest and higher objective is to ensure that the project, through the dissemination activities outlined in the whole PEDR, has a concrete impact. The achievement of this goal is strictly linked to the ability to reach policy and decision-makers of the aviation sector. The long-term impact of ClimOp will reflect on stakeholders and regulators' research agendas. In other words, the aim of this stage is to influence the definition of policies and broad research themes, through the strategic communication of the results of the project.

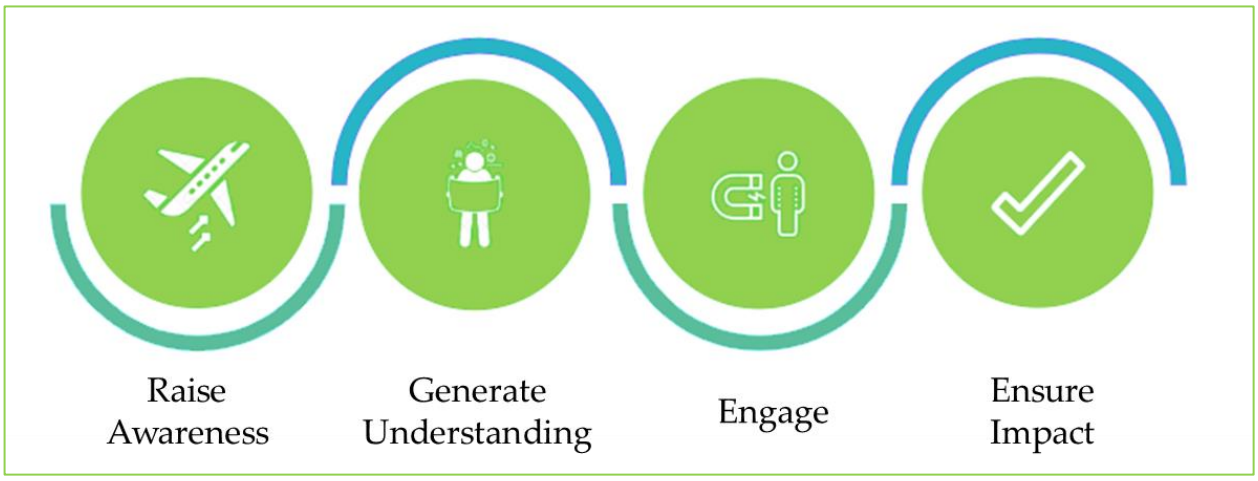


**Figure 1.** ClimOp Dissemination Goals.

### 3.2 The Target Audience

The strategic plan relies on the clarification of objectives, target audience and message before deciding on the means to transmit the message. The correct identification of audiences' characteristics and needs is fundamental to tailor the communication and hence increase the possibility to reach the dissemination goals.

The audience selected in the PEDR consists of three different clusters of potential stakeholders (see Table 1. Stakeholder Database):

1. **General Public**: this cluster includes people/groups interested in the topic in general, such as the European Passengers Federations or National consumers associations. This kind of audience recognizes the importance of the project topics and the benefits that may derive from the project research, even if it is not primarily involved in technical activities related to the topic. The project website, social media and brochures are usually the main sources of information for this audience.

2. **Specialised Audience**: this audience is composed by people who may directly use the project results in their work, study, researches, etc. This target audience can be further split into several stakeholder segments, such as:
   - *Aviation operators* (airlines, airports, ANSPs...) that may benefit in different ways from the project results, such as implementing strategies that reduce fuel consumption.
   - *Research community*, which may gain from the ClimOp lessons-learnt and findings in similar or complementary research areas. This audience includes similar research projects that are studying the climate impact of aviation (e.g. GreAT, ACACIA, ALTERNATE, etc.), for which the opportunities and results achieved in ClimOp could contribute for a better and efficient organisation of the research activity.
   - *Industrial Associations and Aviation Industries*, (e.g. ACI Europe with airports, ASD with defence industries, IATA with airlines, LEONARDO with aviation manufacturers, etc.) that will have better methods for improving new mitigation strategies in their R&D initiatives.

3. **Policy and Decision Makers**: they are responsible for aligning the end-users and researchers. Since the objectives of the ClimOp dissemination activities is to ensure the impact of the project, they are also the most important target audience. This category includes:

- *EU and other funding organisations* (e.g., SESAR, Clean-Sky, TEN-T Agency, Industry or national research programmes), that are interested in the identification of OIs for the preparation and management of future research work-programmes.
- *Policymakers institutions*, as the European Commission, EUROCONTROL, ICAO, and the National Aviation Authorities, to which ClimOp will suggest mitigations strategies to define new policies and sustainable guidelines.
- *Politicians and society decision-makers* to which ClimOp would provide an overview of the research, and the impact it is having on major policies.

ClimOp expects those three audience categories to employ the produced results in different ways. For example, we assume the general public will make a conceptual use of the new information, summing them to the one it already holds on the same topic. On the other hand, in a specialized audience, we expect an instrumental use of the project results that could be applied in their theories and studies. Finally, ClimOp assumes the policy and decision-makers will strategically employ our results to define new policies and broad research themes.
Different roles in the same organisation may require different dissemination means and activities, and the use of different languages, content and detail levels for each specific target. In such a way, the dissemination and networking strategy will ensure that the dissemination effort reaches and influences the target audiences.

| Target Audience | Stakeholder segments | Name |
|---|---|---|
| General Public | • Passengers' or Consumers' Associations | • European Passengers Federation<br>• European Consumers Union<br>• National Associations of Airline Passengers (USA) |
| Aviation operators | • Airlines | • Lufthansa<br>• KLM<br>• Ryanair<br>• AirFrance<br>• Alitalia<br>• Vueling |
| | • ANSPs | • BULATSA<br>• ENAV<br>• ENAIRE<br>• PANSA<br>• ECTL MUAC |
| | • Airports | • SEA<br>• AdR<br>• Schipol<br>• Aena |
| Research Community | • Similar research projects | • GreAT<br>• ACACIA<br>• ALTERNATE |

| | | |
|---|---|---|
| | | • ANIMA |
| Aviation Industries | • Manufacturers | • LEONARDO<br>• INDRA<br>• Airbus<br>• Boeing<br>• Embraer<br>• Thales Group<br>• Rolls-Royce<br>• MTU Engines |
| Industrial Associations | • Airports | • ACI |
| | • Airlines | • IATA |
| | • Defense | • ASD |
| | • ANSPs | • Canso |
| Funding organizations | • European | • SESAR<br>• Clean-Sky<br>• Ten-T Agency<br>• Horizon 2020<br>• INEA |
| Policymakers institutions | • National | • ENAV<br>• ENAC<br>• Ministry of Infrastructure and Water Management |
| | • European | • EuroControl<br>• HungaroControl<br>• BULATSA |
| | • International | • ICAO |

**Table 1.** Stakeholder Database

### 3.3 Communication Approach

Once the dissemination goals are defined and the target audience of the communication is recognised, the dissemination strategy starts with an accurate matching between the target audience characteristics and needs. Subsequently, it will proceed with the selection of the results to be communicated (tailored to the target needs) and the identification of the proper content, means, formats, and language style to get the desired outcomes from the target audiences. After the dissemination strategy is planned, the activity will be carried out during the project life cycle. That will allow the target of interest to enrich its knowledge with the produced results. The ClimOp

dissemination strategy also aims at defining the management and distribution of the project results after the project closure.

Following the guidelines of the grant agreement, the consortium will create a dissemination pack for internal and external communication purpose. The dissemination pack will contain the project logo, the style guides, and the documents and presentations templates.

The graphical identity is a pivotal aspect of the dissemination plan. Visual representations are always easier to process than others. Hence, a clear graphic design will assure an easy association between each activity carried out by the project. The coherence within all the communication initiatives is particularly relevant for the external dissemination.

The main steps considered in the ClimOp dissemination strategy concern:

- The analysis of interests and peculiarities of the three sub-clusters of the Target Audience (Section 2.2.). The knowledge of target's needs will help the Consortium to match the message with their characteristics and expectations. It is also necessary to prepare promotional material in various forms, to ensure that each different category of stakeholder can access them in the most suitable format. Different information means will be used, taking into account the consistency and credibility of the communication.
- The identification of the contents to promote which are related to the technical findings of the project. The contents of the dissemination will evolve during the project, as will the means supporting the communication. In the initial phases of the project, the focus will be on the project promotion, mediated by the utilization of brochures, the project website and social media profiles. When communicating technical results, the dissemination strategy will utilize more specialized supports such as scientific articles, presentations at conferences, and seminars.
- The implementation of dissemination activities is based on the status of the project and targeted on the audience. The project needs will drive the formulation of tailored dissemination messages for clusters of stakeholders. Moreover, the evolution of the project will require the use of proper communication means per each stakeholder. Communication should always be conducted at different levels and by different and appropriate means: interpersonal communication should come along with mass-media communication.

Based on these premises, the map of stakeholders can be matched with the map of products considered as the most effective for each group of stakeholders. This initial match will be updated during the project, considering the project evolution and communication needs. The most appropriate communication means for each stakeholder group are:

1. **General public**: website, social media, video, online articles, flyers and brochures and other graphic materials.
2. **Specialised Audience**:
    - *The aviation operators*: website, social media, videos, graphic material, papers, presentations and posters, workshops/conferences, public events and reports.
    - *The research community and research projects* on climate impact of aviation: website, video, flyers and brochures, fact sheet, scientific articles, presentation and posters, workshops, seminars and conferences.
    - *Industrial Associations and Aviation Industries*: website, video, flyers and brochures, presentations and posters, workshop.
3. **Decision and Policy-Makers**:
    - *EU and other funding and advisory organisations*: website, fact sheets, scientific articles, presentation and posters, workshop, seminars and conferences.

- *Politicians and society decision-makers*: website, video, online articles, flyers and brochures, presentation and posters, workshop and conferences.
- *Policymakers institutions*: website, deliverables and official reports, workshop, seminars and conferences.

ClimOp identified some indicators to evaluate the effectiveness of its dissemination activities. Section 2.4 accurately present of the selected indicators. Through the indicators, the project will assess the achievement of expected reactions from the stakeholder, concerning the dissemination activities.

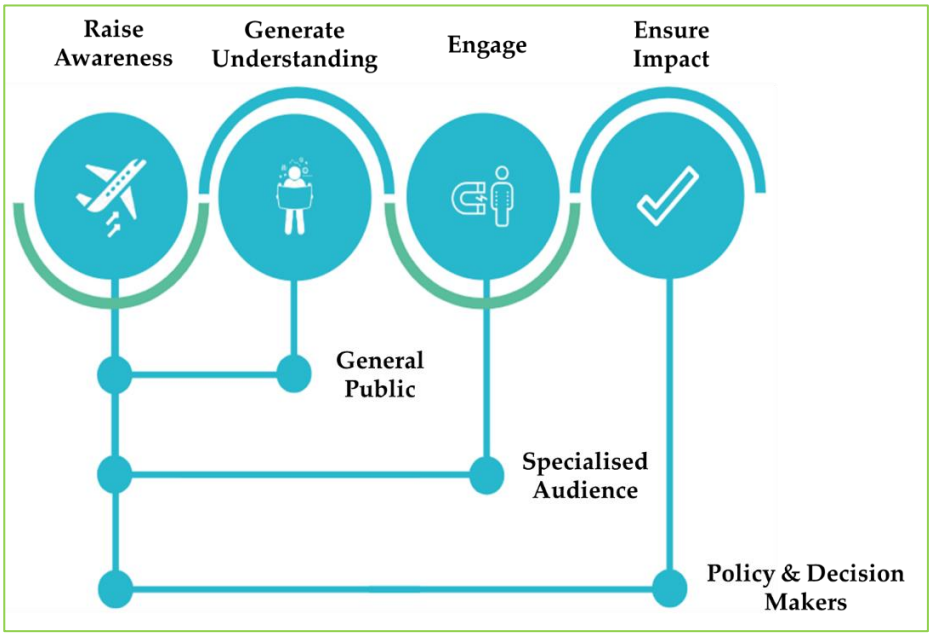


**Figure 1.** Interaction between dissemination goals and target audience

### 3.3.1 Dissemination towards the Advisory Board

The objectives of ClimOp require an active contribution from the ClimOp Advisory Board (AB). The AB consists of a group of key stakeholders (e.g., AIRBUS, ACI Europe, Eurocontrol, Lufthansa, EPF, MTU etc.) with mixed expertise in the field of study, or that will benefit from the outcomes of the coordination action. The Board will consist exclusively of external organizations. Their indirect involvement in the project will allow the AB to act as an independent body. Moreover, the Advisory Board will support the project Consortium in maximising the accuracy of the project activities and the research impact.

The constant communication with the AB is of primary importance for ClimOp. For this reason, ClimOp will regularly update the Board with the project progress and main results through face-to-face or virtual meetings, workshops and through the project website. The Advisory Board will receive the ClimOp official deliverables and annual reports.

During the project, the Advisory Board will take part in review meetings and workshops on technical activities. The Advisory Board will be part of the validation process for the project outcomes. With this purpose, the organization of additional meetings will be set after the achievement of each technical WP outcomes (mostly WP1, WP2 and WP3).

Table 1 presents the planned list of dissemination events targeting the Advisory Board. Proper dissemination materials such as posters, brochures, presentations will be produced from time to time, according to the project progress and the event's dissemination function.

| Month | Length (in days) |
|---|---|
| 12 | 1.5 |
| 24 | 1.5 |
| 36 | 2 |
| 42 | 2 |

**Table 2.** The Advisory Board meets the Consortium.

### 3.3.2 Coordination and networking with other EU-funded projects

ClimOp is part of a network composed of three similar EU-funded projects: ACACIA, GreAT and ALTERNATE. Those projects share with ClimOp the same purpose: reducing the climate impact of aviation, though each of them addresses it by focusing on different aspects of the aviation sector. The established network of projects aims to create synergies to maximize the individual impact of each project. The collaboration between projects will take place during several activities and in different ways. Possibly, sister projects will jointly participate in relevant conferences, coordinate the web presence re-posting content through social media, share paper publications, and co-organize events. Considering the spread of the 2019 coronavirus disease (Covid-19), the participation to co-organized actions will follow the new social distancing policies or be arranged in virtual mode, as for the EASN and ECATS conferences.

### 3.3.3 External Dissemination and Communication

The activities of external dissemination are directed to all the stakeholders not aware and not involved in the ClimOp project. In this case, the principal purpose of communication is raising stakeholder awareness of the project achievements. To this end, ClimOp will employ its findings to engage uninformed targets. The external communication needs the recurrence to the website and other media communication. Another way to communicate externally is via conferences or events attended by the members of the ClimOp consortium to present the project and its results. Both these actions aim at stimulating discussions and exchanging the project information. Experts will support the refinement of the topic based on the feedback received and, at the same time, the exploitation of the project results to further guide safety research activities.

### 3.3.4 Data protection and privacy aspects

Data protection and privacy are aspects of primary concern when exchanging information. As a matter of fact, this project complied with data protection through the establishment of two deliverables, D6.1 and D6.2. These deliverables aim to set standards to safeguard the rights of participants and run the data process efficiently. In case of activities undertaken in non-EU countries, ClimOp will produce deliverables with all the required authorisations.

The Consortium does not expect any particular ethical or data privacy issue to arise concerning the collection of data and the dissemination activities (e.g. workshops, focus groups, interviews, dissemination events, etc.). Any actions that require the participation of people outside the Consortium fulfil the European and national regulations in compliance with the recent General Data Protection Regulation (GDPR).

Personal, project and partner-related responsibility are behind data re-use. Responsible use and re-use of Open Data and research entail ensuring participants' rights to consent, privacy and security along all process (i.e. collection, analysis, storage, presentation, and re-use). Meanwhile, Open Data ensures openness and transparency of knowledge.

Ethical standards and guidelines of Horizon2020 application will go behind the Country in which the research will acquire its data.

Furthermore, every member of ClimOp signed the Consortium Agreement where intellectual propriety rights and commercial exploitation of produced results were regulated. An additional Exploitation Agreement will be drawn up to better detail specific cases in which any other foreground right (i.e.: Information including all kind of exploitable results generated by the project partners or 3rd parties working for them in the implementation of the research project) arise during the project ongoing.

### 3.4 Monitoring the impact

Several indicators will keep track of the progress of the dissemination and enable ClimOp to evaluate the effectiveness of ongoing communication. These standards will determine whether the dissemination strategy is achieving the expected results or not. Measures and quantitative indicators will be refined and integrated during the project evolution.

The consequence of the impact of ClimOp communication initiatives will be about the changes it produces in the research field, in the policy agenda and thus in the aviation operators. ClimOp aims to improve the mitigation actions already held in the aviation sector. With this purpose in mind, communication activities will target the decision-makers to foster a change in the policies and regulations. Hence, the real effectiveness of the PEDR will be evaluated in the long period, looking e.g. at the new operational rules in the aviation sector.

Other indirect measures of the communication effectiveness are related to the number of references to the ClimOp results in the stakeholders' official documents, for example, the citation of ClimOp or its results by Funding Bodies, other research projects or other parties (e.g. at academic conferences etc.).

Other general measures identified to monitor ClimOp impact are:

1. **Media coverage & press publications**. This is the simplest form of measurement: ClimOp will record the number of online articles and scientific articles published on national and international journals by/about ClimOp. The partners will be also requested to track and document the reached audience and to point out the evidence of debates in the media about the project and its topics. Finally, the number of references in other scientific publications should be considered in this measure.
2. **Publicity material count number.** As for the press publication, this measure consists of a count of the number of news, brochures, posters and other dissemination means during the project.
3. **Record of contacts**. The Consortium will keep track of contacts obtained during events and of the number of people asking for feedback or more information. In addition, it will record the website access, the number of people subscribed to the mailing list and the contacts gained on the social media networks.
4. **Attended events number**. ClimOp will record the number of external dissemination events attended by the partners for the promotion or presentation of the project. The dissemination leader will take records of the characteristics of the events, the dissemination products developed for the occasion (e.g. paper, poster, presentation, brochure and so on), and the feedback received from the audience. These pieces of information will give an idea of the potential audience reached.

5. **Participation in project events**. The Consortium will collect the number of people attending events and the characteristics of the audience. In addition, ClimOp will collect the feedback and comments received during and after the event.
6. **Website statistics & Search Engine performance.** Deep Blue will use Google Analytics to monitor the website number of visitors, the bounce rate and the position on the search engine. Other data collected on the project website will be the time spent on the site, the most visited pages, the traffic sources, the referral traffic and the geographical distribution of the visits.

In the following table, a series of KPI is presented to give a quantitative measure of the standards of performances that are needed to be achieved.

| KPI for Dissemination & Communication | M1-M20 | M21-M42 | Overall |
|---|---|---|---|
| N° of events organized for external audiences | 1 | 2 | 3 |
| N° of events attended representing the project | 2 | 4 | 6 |
| Meetings (incl. remote) with representatives of industry | 2 | 2 | 4 |
| N° of scientific publications in peer-reviewed journals | 1 | 2 | 3 |
| N° of scientific publication in international conferences and workshops | 2 | 3 | 5 |
| N° of general press/magazine articles published also at the local/National level | 2 | 3 | 5 |
| N° of press releases delivered to traditional media | 1 | 2 | 3 |
| Total number of unique visitors to the Website (based on Google Analytics) | 500 | 1000 | 1500 |
| Social media contacts (LinkedIn and Twitter) | 100 | 400 | 500 |
| N° of references of ClimOp in other websites | 3 | 5 | 8 |
| N° of multimedia material downloads (website) | 15 | 35 | 50 |
| Scientific publications as Open Access | 2 | 3 | 5 |

**Table 3**. Dissemination and Communication KPIs.

# 4. ClimOp Dissemination Plan

In the previous chapter, we introduced the main point of the communication plan. We discussed and presented the ClimOp goals, the target audience, the communication approach and the measures employed to monitor the impact.

The plan will work as a flexible tool, always updated with the latest dissemination actions. In the beginning, communication activities will refer to the general public. In this stage, the aim is to raise awareness with messages tailored to the characteristics of the target audience. Proceeding through the project progress, the goal of the communication will assume different values until, in the end, the dissemination effort will focus on promoting the project attainments and ensuring the impact of the project results.

The following chapter will describe a series of means needed to reach the dissemination goals. Those means will be discussed in two different sections: Dissemination Activities (Section 3.1.) and Dissemination Products (Section 3.2.). These describe two types of actions, directed to maximise the communication effectiveness and the exploitation of the project results by decision-makers. In the subsequent sections, each activity and product will be presented in detail.

## 4.1 Dissemination Activities

This section presents all the events in which the project is expected to be involved. Conference attendance aims to inform upon the ongoing activities of the project. Three sub-categories divide the dissemination events into third-party events and conferences, public events, and international dissemination.

### 4.1.1 Third-party events and conferences

Third-party events include conferences, workshops and meetings organized by stakeholders who are not directly involved in ClimOp. Participation in public events will be a relevant occasion to spread information about the purpose, results and benefits of ClimOp.

This type of activity will be particularly useful during the whole project ongoing. In fact, in an early stage, ClimOp will join these events to spread its results to a broad audience so to stimulate awareness and understanding in the project themes. Then, when the project is almost completed, the participation in third-party events will enable ClimOp to inform the general audience and policymakers about its results, hence ensuring the engagement and the impact of ClimOp main issues.

The Consortium will consider events and conferences that focus on the climate impact of aviation. The meeting's attendance will rely on their relevance and the attractiveness for potential project stakeholders. Also, through the participation in third-party events, ClimOp aims to promote the project and its goals by involving similar recently started.

Unfortunately, the spreading of COVID-19 caused the cancellation of many already planned events with the aim of slow the diffusion of the virus. From our side, we expect to attend public meetings again when the pandemic will end or when it will be under institutional control. Until that, we will continue to attend online conferences with the purpose of disseminating the results produced step by step.

Below a list of external events programmed for the following years, in which ClimOp could participate:

- ECATS Conference 2020, Göteborg 13-15th October (Online)- http://www.ecats-network.eu
- Transport Research Arena (TRA 2020) 27-30th April (Online), Helsinki - https://traconference.eu/
- European Geophysics Union (EGU) General Assembly 25-30th April 2021, n/a - https://egu2021.eu/
- Asian and Oceanic Geosciences Society 18th (AOGS), 1-6th Aug 2021, Singapore - http://www.asiaoceania.org/society/public.asp?view=up_coming
- European Meterological Society (EMS) 7-10th September, Bratislava, Slovakia - https://www.ems2020.eu/ (Cancelled due to COVID-19)
- American Geophysics Union (AGU) Fall Meeting, Washington, USA (Fall-Winter) 7-11th December San Francisco https://www.agu.org/Plan-for-a-Meeting/AGUMeetings
- SESAR Innovation Days - https://www.sesarju.eu/sesarinnovationdays
- ATAG Global Sustainable Aviation Summit
- IATA Safety & Flight Operations Conference
- ANERS Aviation Noise and Emission Reduction Symposium 2020 (Programme Committee) - https://www.aiaa.org/8th-ANERS/
- ICAO Symposium on Aviation and Climate Change - https://www.icao.int/meetings/green/Pages/default.aspx

### 4.1.2 Public Events

One of the main goals of ClimOp communication is to keep its stakeholders informed about project progresses. To this end, ClimOp will organize at least three public meetings to spread its findings and to create bonds between the project and its audience. This type of events will enable ClimOp to

share information and gather feedback from an external audience composed by field experts. A bidirectional use of communication is a need in a research project that aims to build its results on previous findings.

Chapter 4 will define a series of activities in which Stakeholders takes part in the validation of project metrics and outcomes. With this end, public events will support the dissemination and exploitation activities, together with the activities strictly linked to the technical ClimOp aspects, such as the one related to the Stakeholders' Consultation discussed in the following chapter.

### 4.1.3 International dissemination

ClimOp is an International Cooperation flagship (InCo Flagship) that aim to reduce the climate impact of aviation. To this end, the international dissemination can't be set aside when it comes to meetings and conferences. This kind of event differs from the other discussed events because they take place in a non-EU country or because they speak to an international audience. ClimOp participation in international gatherings enables to spread its results to a global audience. However, the dissemination at this level won't be pursued just by participating in international events and conferences. As a matter of fact, ClimOp intends to organize public events in which invite international experts to share results they reached in other research projects.

The presence in the Consortium of partners such as IATA, DLR and NLR, and in the ClimOp Advisory Board of members such as EUROCONTROL and Airport Council International, will ensure a broad spectrum of global dissemination opportunities. Those and other organizations will offer a strong contribution to disseminate ClimOp results at an international level. During these activities, the Consortium will foster EU international cooperation in research and innovation (COM(2012)497).

International activities aim to drive the creation of synergies between ClimOp and other significant worldwide R&D projects. Setting up a direct communication channel with similar projects will make possible an efficient exchange of information, leading to organizing joint events and improving the effectiveness of efforts spent by the involved Consortia.

Another important aspect for international outreach is that aviation, as a global business, requires a maximum of global harmonization in terms of operational procedures. The measures recommended by ClimOp should therefore aim for global implementation, which is strongly enhanced by international dissemination of the ClimOp project activities and results.

## 4.2 Dissemination Products

The products are communication tools employed, during the whole duration of the project, in support of the communication activities. Logo, templates, posts on social profiles are all tools that will strategically carry the desired message to the target audience.

ClimOp plans to use both traditional disseminations mean (e.g., conferences and papers) and new means of communication (e.g., social networks). Each dissemination tool is expected to have a different impact on the target audience and will be used to achieve different dissemination goals. Based on this, the dissemination leaders will select the most appropriate tool(s) to use in each occasion, or will design new materials tailored for the specific dissemination action needs.

Deep Blue will update the dissemination means along with the evolution of the project, adapting the contents and type of message to the dissemination activity.

### 4.2.1 Logo and graphical identity

The design and development of a logo is a central task in the dissemination plan. A proper graphical representation is mandatory for an initiative that wants to speak to a wide and differentiated audience. Indeed, the value of images is represented by the low cognitive effort they require to be elaborated. For this reason, the project logo should be graphically appealing, manageable and meaningful with respect to the project goals and activities. The logo works as the project graphical

identity base. Through the choice of colours and fonts, it represents the frame which embodies every communication activity. It is the “trait d’union” of the project, which makes each element of the graphical identity immediately ascribed to the project, and help communicate and disseminate the project purpose.

The colours employed in the logotype are characterized by shades of green and azure, two tonalities often associated with nature and cleanness. Hence, through the employment of these colours in the logo, the Consortium conveys its commitment to climate defence.

A user manual will clarify the main aspects of the logo. Through the manual, the partners will acknowledge the logo characteristics, the “Do and Don’t” in logo usage, and logo integration in the deliverable and presentation templates. The user manual is reported in Appendix and will be distributed to all the project partners.


**Figure 3.** ClimOp logotype

### 4.2.2 Documents and presentations templates

Templates are essential to reinforce the consistency of the project identity. The design of these tools should be coherent with the project visual representations (e.g., ClimOp logo, posters, etc.). At the same time, templates should be adaptable to the specific needs of the Consortium members.

All the partners have received two templates to employ in individual presentations, deliverables and other documents for internal and external communication. ClimOp has produced one format for Word documents, such as minutes and deliverables, and one for PowerPoint presentations (Figure 4).

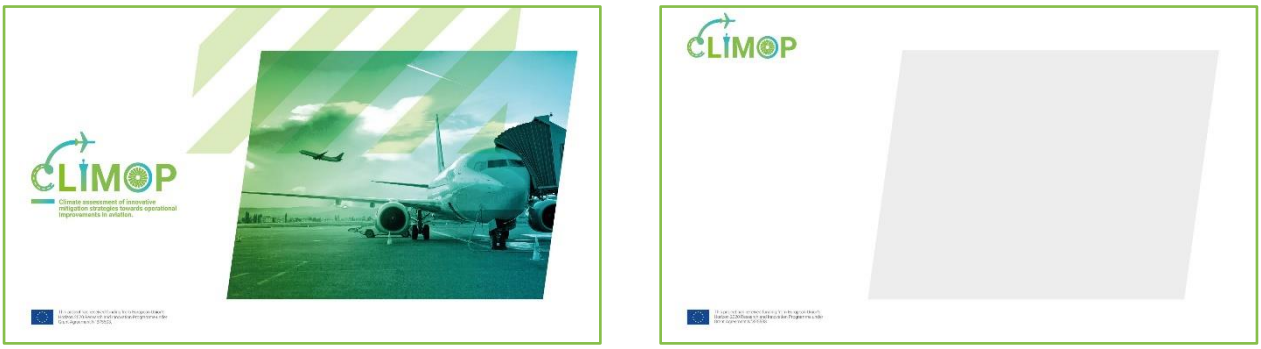


**Figure 4.** ClimOp Templates

### 4.2.3 Brochures and flyers

Flyers are one of the principal means to promote both the project and its events, such as workshops and dissemination events. They are short documents (1 or 2 pages) with a strong graphical identity; usually, they provide a brief project description, the crucial points of a conference, and its programme. Both digital and printable versions will be produced and uploaded on the website.

During the whole span of the project, the Consortium will produce printed brochures in connection to public events (e.g., conferences), always up to date with the most recent project results. Flyers and brochures will help summarize the project methods, objectives and results. The "Download" section of the ClimOp website will allow circulation of all the communication materials.

### 4.2.4 Presentation and posters

Presentations and posters are tools utilized to support the participation in conferences, workshops and other events. These two types of dissemination products help speakers give a clear presentation in public talks and enhancing audience involvement thanks to the graphic component of the tool. The Consortium will produce proper presentations for each dissemination event.

A preeminent graphical template will allow communicating with the target audience, and also conveying the graphical identity. Presentations and posters will also contain the link to the project website and the contacts. Public presentations and posters will be updated to the project website and distributed to the people interested in the project topic.

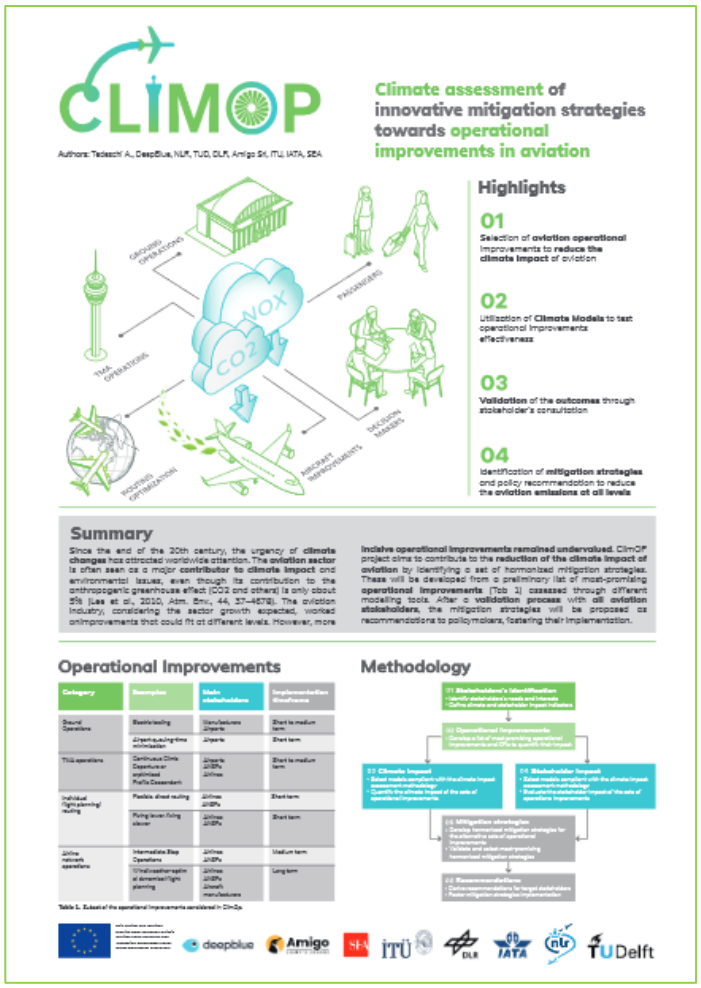


**Figure 5.** ClimOp poster for the ECTS conference

### 4.2.5 Scientific articles

Scientific articles intend to target a specialized audience, like the research community. Throughout the whole project lifetime, the consortium aims to publish at least three papers in peer-reviewed journals and five in international conference proceedings. The paper submission will begin as soon as the project delivers its first results. Then, partners will present publications to selected conferences and journals, to generate understanding of the project activities and engage the stakeholders. The articles' references and, whenever possible, a copy of the publication will be available on the project website.

### 4.2.6 Factsheets

Another easy way to raise awareness on the project and its progress is through the utilization of fact sheets. Fact sheets contain concise and tailored information on the project key facts (main findings, lessons learnt, deliverables produced) and activities. They can help to introduce new contacts to the results achieved by ClimOp and make announcements on project progress and upcoming events.

Fact sheets will available for download through the website.

### 4.2.7 Video(s)

Video(s) represent an easy way to raise awareness about the project and communicate its main concepts. The Consortium will provide video(s) about the project concepts, methods, findings and potential applications. They will address the general public as well as the other stakeholders. Social media profiles will utilize the video(s) as an audience catching tool, while a specific section of the ClimOp website will embed it.

### 4.2.8 Short reports

Short reports are related to the dissemination events and consist of brief reports, easy to distribute after a conference, to provide people with notes on the event and illustrate the outcomes. Deep Blue will distribute them via email to event participants and keep them always available on the project website. ClimOp will distribute the first one as soon as it will achieves its initial results.

### 4.2.9 Website

The ClimOp website has an essential role in the project dissemination. It is the principal space where people can find information about project objectives, activities and results. Furthermore, the website will offer a wide range of functionalities, including document download, information on events and links to other relevant websites.

The website promotes communication and interaction within ClimOp by improving dissemination directed to specialists, potential users, politicians and public funding authorities, as well as the general public. Deep Blue will regularly update it with public information about ClimOp progress, news and any other relevant information. The website and the social profiles will create a network that connects the broader possible group of stakeholders.

Deep Blue will also pay attention to the usability and simplicity of the website, to facilitate the navigation of the website and the contents' comprehension. The information categorization on the website will follow a logical and significant criterion. Pages will employ a simple layout with clear sections and texts. Moreover, to maximize ClimOp impact, the website will also include social networks and partners' websites.

Deep Blue is responsible for the graphical layout, the information architecture and technical implementation of the website. An internal review will precede templates and contents implementation. This will enable the partners to join in the construction of the most suitable and appealing website structure. In addition, the Consortium will contribute to the website by providing

all the type of information that can help to disseminate the progress of ClimOp. The Project Manager should approve all the contents before being published.

The ClimOp website construction employs a Content Management System platform that will allow the combination of functionalities and tools, like slideshows and photo galleries. Deep Blue will manage all the contents through the whole project life cycle.

The structure of the website comprises four pages:

- Home: shows general information about the project;
- Partners: contains the links to the consortium members' websites, a brief introduction on the Advisory Board, and the ClimOp sister projects;
- Resources: includes the dissemination products (from the annual reports to the brochures), ready for download;
- News: presents all the relevant news about the project and meaningful dissemination events.

Finally, the website will show on the bottom of each page direct links to the social media profiles and contact details.


**Figure 6.** Website examples

### 4.2.10 Social networks

Social networks' usage aims to enlarge the ClimOp group of followers and ensure better dissemination of project findings and results. Social media eases the creation of a proper community interested in receiving and exchanging information on a specific topic.

ClimOp selected two social media to pursue this goal: Twitter and LinkedIn. These means of communication will allow ClimOp to contact people potentially interested in its activities. Furthermore, the social media enable to speak selectively to a target stakeholder and have a more effective communication approach than the traditional means.

As a matter of fact, the specialised audience and institutional bodies often utilize LinkedIn, while Twitter users are less distinguishable than other social media users.

Through these channels, Deep Blue will disseminate articles and news published on the ClimOp website, promote events, videos, disseminate project findings and results, and ensure a constant connection with other relevant projects.

### 4.2.11 Other online channels

Institutional EU websites like CORDIS, TRIMIS and additional online channels, such as other projects' websites, will help to promote the project contents and activities.

CORDIS is the European Commission's (EC) primary portal for results of EU-funded research projects. TRIMIS is the EC's online space that collects information on Transport Research and

Innovation. Moreover, the Consortium will also invite the Innovation and Networks Executive Agency (INEA) to help with the communication activities, sharing information about ClimOp through its social media profiles.

# 5. Stakeholders' Consultation Plan

This chapter presents the methodology ClimOp will utilize in the stakeholders' consultation activities, providing details about the high-validation criteria, the relevant stakeholders and the planned validation activities.

The aim of this process is to steer the validation activities throughout the duration of the project. To do that, ClimOp seeks to create effective feedback loops between the technical work packages. The iteration of project activities aims to ease the integration of the different work packages and to lead to more valuable results. To propose a well-adapted set of activities, ClimOp will need to gather adequate stakeholders' engagement within the technical aspects of the project. In this framework, the validation process will study how the proposed mitigations strategies can be applied in real life conditions. Further, the Consortium will consider the level of performances, security and operability for the weighting of the suggested results.

## 5.1 Stakeholders' Consultation Methodology

ClimOp stakeholders' consultation methodology is grounded on a sound and logical user-centred technique. This approach is the result of the combination of the European Operational Concept Validation Methodology (E-OCVM) and the multi-actor, multi-criteria analysis perspective (MAMCA).

The interaction between these two methods aims to maximize the benefits linked to the mitigation strategies selected at the beginning of the project. Also, the implementation of multiple criteria will let ClimOp results gain value by considering different stakeholders and paying attention to any involved concerns.

### 5.1.1 MAMCA

The multi-actor multi-criteria analysis (MAMCA) is one of the approaches chosen in the Stakeholder Consultation activities. The purpose of its involvement is to contribute to structuring the consultation process. The MAMCA application consists of a democratic and scientifically sound methodology that aims to involve stakeholders in drawing up the action plan.

In the MAMCA process, the most relevant actors will participate in the individuation of a series of future solutions (scenarios), feasible with stakeholders' needs. Subsequently, the O-CVM approach will take the scenarios and break them up in a set of Validation Criteria. During this process, stakeholders identified in Section 2.2 will contribute to the selection of the most promising outcomes. The cooperation of the most significant actors will begin at the start of the project and last until its final phases. Hence, in WP1, stakeholder engagement will start during the selection of the operational improvements and the KPIs definition. In this phase, most relevant players of the industry will employ their previous knowledge in the choice of the metrics.

| Project Outcomes | Criteria | Stakeholders Involved |
|---|---|---|
| Operational Improvements | • Climate sustainable<br>• Technically feasible<br>• Economically sustainable | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs |

| | | |
|---|---|---|
| | • Operationally applicable<br>• Scientifically grounded | • Research community<br>• Aerospace manufacturers |
| KPIs | • Measurable<br>• Time bounded<br>• Reachable target value<br>• Pertinent | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Climate Models | • Representative<br>• Applicable<br>• Scientifically grounded<br>• Time bounded | • Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Mitigation strategies | • Effective<br>• Technical feasibility<br>• Social Acceptability<br>• Safe<br>• Economically sustainable<br>• Operationally applicable | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Recommendations | • Fair<br>• Efficacious<br>• Incentive | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers<br>• Policy institutions |

**Table 4.** Identified validation criteria

In WP2, the climate model assessment will need stakeholders' participation to test their effectiveness. In WP3, representant of the stakeholders will participate in the definition of the mitigation strategies and policy recommendations.

As show Table 4, several workshops will complete the MAMCA process and allow the stakeholder community to give direct inputs to ClimOp. Their knowledge will foster the construction of the scenarios, the validation of objectives, and the weighting of stakeholder criteria as well as it will help to build the final consensus and select the best-ranked scenario. These workshops will make use of graphic visualisation techniques. Besides, an international expert committee will provide unbiased input for the quantitative and qualitative evaluation of the scenarios.

### 5.1.2 E-OCVM

The European Operational Concept Validation Methodology supports the validation process and enables the segmentation of the scenarios previously built with the MAMCA approach. The objective

of this step is to obtain meaningful validation criteria to understand whether the validation process is on track or not.

Scenarios breakdown is an essential step to demonstrate the fulfilment of the validation objectives. The validation criteria have a direct influence on the more general Validation objectives and, being more detailed, are more easily measurable. This process of segmentation has to be repeated several times for each ClimOp outcome. The breakdown of objectives ends with the identification of basic indicators, that can be quite diverse in response to the goal that needs to be assessed. For example, in some cases, it is possible to measure the indicators, while in others, it may be easy to highlight their conformity with standards.

Indicators will then require different types of stakeholders' evaluations, further explicated in Section 4.2. Table 4 shows a series of criteria, identified in relation to project outcomes. To ease the selection of activities for the validation process, a set of audience's members is also shown in the following table.

## 5.2 Planning of Consultation Activities

After the identification of specific validation criteria, the set of activities to use in the validation assessment strongly depends on the nature of the particular result under evaluation. As a matter of fact, it is necessary to consider and select the appropriate validation techniques and tools for each criterion. The choice will depend on the maturity of the assessed concept and the type of evidence sought. The chosen techniques and tools will follow in the Table 5.

### 5.2.1 Literature Study

Literature study aims at the identification of documents relevant to the reviewed notion and making a critical assessment of the concept using a structured approach. The employment of proper previous studies will provide a broad knowledge of the subject of the research. The application of this technique depends on the maturity level of the issue to review. For instance, a low level of maturity needs rapid identification of strengths, weaknesses and outstanding issues challenging the proposed concept. Executive summaries of the selected document will offer a background for the knowledge obtained from the review. Then, final survey documents will contain recorded assumptions too.

The output from the literature study is a list of qualitative statements, and possibly numerical results, from relevant documents providing the "evidence material" for testing the hypotheses. The information on the state-of-the-art provides a base from which start to rethink a more sustainable way in which aircraft are operated.

### 5.2.2 Fast-Time Modelling

Fast-time techniques involve using models of ATM systems, several of which exist for both airspace and airport operations. These models are highly dependent on the data used to drive them, and hence this must be carefully validated in order to assure realistic outputs.

Fast-time validation exercises generally consist of a structured series of run with randomised variations that represent validation scenarios. The numerical produced data require careful analysis and interpretation to check the effects of the underlying model, data and scenarios. They are used at best to test the sensitivity of a proposed concept to different assumptions and scenarios.

### 5.2.3 Gaming Techniques

Gaming techniques are appropriate to the exploration of real-life situations where two or more parties must interact with a choice of action to meet their objectives. Gaming will help ClimOp to gain insight into real-life situations where the outcome depends on human interactions with each other. In particular, this practice will reveal hidden, implicit or otherwise non-expected behaviours of the

participants, and thereby helps to understand the drivers affecting a real situation. Role assignment will include the aim, motivation and doctrine expected from the role. Gaming will be played in real-time or in rounds (where players carry out simultaneous actions). Gaming will require some players, a simple scenario and rule set, and a recording medium, although an automated gaming facility will help increase realism.

### 5.2.4 Surveys

Surveys will be based on a series of questions to collect information from targeted subjects. For instance, this tool will enable the consortium to gather feedback on workshops' structures, quality of contents or other similar information. The questionnaires utilize statistical criteria of data analysis to give an interpretation of the respondent collected answers. They will allow interviewing a huge number of people with a low effort.

### 5.2.5 Interviews

Interviews are conventional techniques where domain experts are asked questions by an interviewer to gain domain knowledge. The type, detail and validity of data gathered vary with the kind of interview and the experience of the interviewer. Interviewing is not as simple as it may appear; three types of interviews can be identified: unstructured interviews, semi-structured interviews and structured interviews. ClimOp will establish what type of interview to use according to its specific scope and to the phase of the project.

### 5.2.6 Workshops

Workshops bring together a cluster of people in a situation that aims to create a multi-perspective view on the dynamics of the proposed issue. The methodology employed during this activity reunites a cross-section of stakeholders in an informal discussion group format. Facilitators stimulate the creation of different points of view upon the relevant topics. Record of meetings will allow later analysis. Workshops will be useful in WP1, WP2 and WP3 as further specified in Table 5.

| ClimOp WP | Project Outcomes | Criteria | Validation Activities | Expected period for Validation (in month) |
|---|---|---|---|---|
| Operational Improvements and KPIs/metrics | KPIs | • Measurable<br>• Time bounded<br>• Reachable target value<br>• Pertinent | • Literature reviews<br>• Focus groups<br>• Workshops<br>• Surveys | M4-M7 |
| | Operational improvements lists | • Climate sustainable<br>• Technical feasible<br>• Economically sustainable<br>• Operationally applicable<br>• Scientifically grounded | • Literature reviews<br>• Surveys<br>• Interviews<br>• Focus groups<br>• Workshops<br>• Design of scenarios | M4-M7 |
| | Investigation of the operational improvements | | | M7-M12 |
| | Iteration and identification of the final of operational improvement | | | M18-M25 |
| Climate impact assessment including non-CO2 effects | Climate Models | • Representative<br>• Applicable<br>• Scientifically grounded | • Literature reviews<br>• Design of scenarios<br>• Fast-time modelling<br>• Models results visualization and discussion during workshops | M12-M24 |
| | Assessment of the climate impact of the preliminary set of operational improvements | | | M12-24 (D2.3) |
| | Assessment iteration with the second set of operational improvements | | | M24-29 (D2.4) |
| Selection and recommendation for the implementation of mitigation strategies | Mitigation strategies | • Effective<br>• Technical feasibility<br>• Safe<br>• Economically sustainable<br>• Operationally applicable | • Game sessions<br>• Workshops<br>• Use cases<br>• Fast-time modelling | M27-30 (D3.1) |
| | Recommendations | • Fair<br>• Efficacy<br>• Incentive | • Policymakers expert judgment | M39-42 (D3.4) |

**Table 5.** Plan of Consultation Activities

# 6. ClimOp Exploitation Plan

The exploitation plan is aimed at bringing ClimOp innovative concepts into the market. In this sense, the following section will provide an initial outline of the strategy for the exploitation of the ClimOp results. The plan identifies an initial set of potentially exploitable results, specifies the potential users of each of them and defines some preliminary lines of action. The full exploitation plan will be delivered with the mid-term release of the PEDR, due at the end of the second year. With the exploitation plan, a series of specific exploitation actions will be provided with indicators to measure their impact. In particular, the exploitation plan will be built through:

- **Identification of exploitable results:** specific, technical results, achieved from the specific WPs activities, worth to be exploited during and after the project;
- **Stakeholders identification:** the range of potential stakeholders interested in using the output of the project, in further developing them, or stakeholders impacted by the innovative results (see Section 2.2);
- **Analysis of exploitable results** in terms of maturity level, strengths, weaknesses, opportunities and threats (SWOT analysis) and IPR management and protection following what expressed in the ClimOp Consortium Agreement;
- **Exploitation strategy definition,** also defining the measures to be applied by the consortium members, both individually and through joint initiatives for each exploitable result. It includes the analysis of partners' interest in the exploitation and the identification of target markets and audiences, potential competitors and complementors (if possible), as well as expected benefits and potential constraints of the foreseen exploitation initiatives.

During the project lifetime, ClimOp will ensure continuous updates of the Exploitation Plan. Such process intends to ensure the proper and regular performance of the exploitation of project results. In ClimOp's lifespan, the partners of the consortium will drive joint exploitation and individual exploitation plans. The project will generate and identify commercially exploitable ideas and results. The exploitation plan will contribute through its products to the maximization of the exploitation of results.

In the ClimOp project, exploitable products aim to ensure the longevity of the project's results through their uptake in policy, and in research or commercial purposes. The close involvement of stakeholders and potential users will grant to the project the chance to explore market opportunities and to prototype scenarios and responsive business models.

## 6.1 ClimOp Exploitable Outcomes

After the individuation of major ClimOp outcomes, the audience will find them available on the proper website section. The publication of ClimOp results intends to pursue the maximization of the project impact on the related context.

Table 6 present a list of exploitable outcomes categorized per type of stakeholder:

| Project Outcomes | Owner and main partners involved | Primary stakeholder involved |
|---|---|---|
| Operational Improvements and KPIs | • TU Delft<br>• Deep Blue<br>• NLR<br>• DLR<br>• AMIGO SRL<br>• ITU<br>• IATA<br>• SEA | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Climate Models | • DLR<br>• TU Delft<br>• NLR<br>• AMIGO SRL<br>• ITU | • Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Mitigation strategies | • NLR<br>• Deep Blue<br>• TU Delft<br>• DLR<br>• AMIGO SRL<br>• ITU<br>• IATA<br>• SEA | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers |
| Recommendations | • Deep Blue<br>• NLR<br>• TU Delft<br>• DLR<br>• IATA<br>• SEA | • Passengers<br>• Airlines<br>• Airports<br>• ANSPs<br>• Research community<br>• Aerospace manufacturers<br>• Policy institutions |

**Table 6.** Exploitable Outcomes

### 6.2 Global valorization of ClimOp

Exploitation activities allow research projects to exploit all their relevant, or innovative outcomes (new ideas, new methods, new concepts, new prototypes/products, new services, etc.).

An overall perspective on the complete set of project initiatives will work as a base so to carry out the exploitation activities.

Controlling and monitoring the exploitation process is an extremely detailed task. The intricate aspects of this process concern the management of plural activities and the collaboration of partners with different expertise.

The ClimOp plan for exploitation activities includes the following steps:

1. Identify specific technical results, market and organisational issues for innovation resulting from the specific WPs activities;
2. Identify the range of potential users or stakeholders potentially impacted by innovative results;
3. For each project result:
    a. manage open access and IPR issues detailing the principles already signed by all Partners in the ClimOp Consortium Agreement;
    b. carry out a periodic SWOT analysis;
    c. monitor the maturity level;
4. Define exploitation measures for project results addressing the range of potential users and possible uses;
5. Identify the impact and uses, including research, commercial, the trigger of new investments, social, policymaking, in terms of their pushing potential towards new standardization, regulation and certification standards;
6. Monitor resulting knowledge, identifying potential use, further research paths, and exploitation benefits.

All these steps describe an iterative process that carried out at least every six months or at major Milestones. To monitor the ongoing of the Exploitation plan, ClimOp will use the template contained in ANNEX A.

### 6.2.1 ClimOp Exploitable results

The aim of the ClimOp project is to present a set of recommendations which will reduce the climate impact of the aviation sector.

In particular, ClimOp aims at:

1. Present a list of potential operational improvements and a series of metrics to assess project performance.
2. Test the list of possible operational improvements with Stakeholders and Climate Models.
3. Provide a set of most-promising mitigation strategies.
4. Foster outcomes implementation through dissemination to policy and decision makers.

Main innovative outcomes of the ClimOp will be:

1. Produce, based on the results of phases 1 and 2, a set of most-promising mitigation actions for the aviation sector;
2. Develop policy recommendations for policymakers, regulators, municipalities and public transport operators.

Research and practical solutions addressing these topics are lacking, and ClimOp will provide new means and methods to address the climate impact of aviation.

### 6.2.2 Stakeholders interested in the valorisation of ClimOp results

As already mentioned before, deciders are our latest target. As a matter of fact, the policymakers are the ones who create a bridge between the knowledge produced by researchers and their application to the real world. Within this group of audience, we can find municipalities and deciders of metropolitan areas, company management, Representatives of the European Commission, H2020 Programme committee, Representatives of Regulators, European Agencies and Institutions in the Aviation Sector, etc.

A preliminary list of decision makers and European Agencies interested in ClimOp outcomes includes:

- IATA – International Air Transport Association – www.iata.org
- ACI Europe – Airport Council International Europe – www.aci-europe.org
- EASA – European Aviation Safety Agency – www.easa.europa.eu
- EUROCONTROL – European Aviation Safety Agency – www.eurocontrol.int
- World Bank's Transport, Water and ICT Department – www.worldbank.org

Together with this specific target audience, ClimOp will exploit its result to all the groups of audience already targeted during the dissemination activities:

- Airlines, Airports, ANSPs, …
- ASD, EBAA, LEONARDO, INDRA, Airbus, Embraer, …
- SESAR, Clean-Sky, TEN-T Agency, …
- European Commission, ICAO, …

### 6.2.3 Mainstreaming and multiplication

When considering the overall objective of the exploitation activities, it is possible to split them into two components: mainstreaming and multiplication. Mainstreaming addresses the deciders and convinces them to consider the products of the project. Multiplication, instead, aims at persuading ClimOp beneficiaries to adopt those products. The employment of the project results could be driven either within the partnership or outside, at local, regional, national or European level.

ClimOp intends to pursue mainstreaming and multiplication at the same time, but with a particular preference for mainstreaming activities. In fact, with the right level of cooperation among project partners, ClimOp will ease the change in policy, regulations and the public opinion too.

Mainstreaming consists of a process of networking with all relevant stakeholders. Building contacts and attending meetings is vital to reach a wider audience. Usually, institutions such as the European Commission, European and National Agencies, National Committees and Programme Committees organise events to stimulate this type of cooperation.

The ClimOp project will ensure that outcomes and supporting measures will meet National Agencies and Ministries as well as EC institutions. Furthermore, EC will obtain policy papers and white papers, so to be able to inform future R&D projects on the subject and foster rule-makers activities.

ClimOp will also guarantee to address multiplication activities targeted to making the project sustainable. Other EU R&D projects, as well as end-users in the Aviation domain, will be contacted and actively involved in the ClimOp Validation, Dissemination and Exploitation activities. For example, the Advisory Board represents an essential group of relevant stakeholders to collaborate with. As a matter of fact, the AB composition is an initial pool of potential aviation stakeholders.

## 6.3 ClimOp Joint Exploitation

The joint exploitation strategy will consider the possibility to continue working together on the topic, and to pursuit the evolution of the ClimOp outcomes. The collective exploitation is the most effective and practical way to make the outcomes of ClimOp evolve and reach a higher level of impact. The joint exploitation will enhance the capability of project products and contribute to reducing the climate impact of aviation. Also, the partners' shared exploitation will be in line with the H2020 Programme principles and with the IPR management principles described in the Consortium Agreement signed

by all ClimOp partners. This type of research will foster the introduction of new scientific technology and educational benefits to the Aviation Sector and in future EU funded projects.

### 6.3.1 Preliminary Individual Exploitation Plan

The ClimOp Consortium has a strategical composition. The Consortium partners constitute a complex mix of skills, expertise and infrastructures that will synergize for together in the fulfilment of project goals. The compound created by those eight partners will allow the whole project to count on a varied strategy leading to a differentiation in the exploitation needs and possibilities. To this end, the partners' exploitation activities will vary within the Consortium. For this reason, each partner will define a set of individual exploitation strategies. The following sections specify the proper exploitation plans of each partner.

#### 6.3.1.1 Deep Blue

Deep Blue will mainly exploit the ClimOp results in its consultancy and training activities for public and private organisations in the Aviation sector.

The increasing globalization and the world population levels have contributed significantly to enhance the emissions of the aviation sector. The consequences of those factors led to seek improvements in the operations of the Aviation sector. Reducing CO2 and non-CO2 emissions is the objective pursued by the future operational improvements.

The findings of ClimOp will represent a very significant contribution to the SESAR 2020 programme, with the aim to create a Single European Sky in the next decades. To this end, the identification of a series of harmonized mitigation strategies represents a way in which ClimOp will provide a significant commercial advantage to the consortium partners.

The opportunity to have a continuous dialogue with the research community, the passenger associations and the Aviation industry will become increasingly relevant to Policymakers and Regulators in the Aviation domain. Deep Blue will exploit the concepts, solutions, and network of collaborators developed within the ClimOp project to foster the effective communication of the impact of Aviation on climate and of the societal and economical aspects involved in the planning of future air-traffic operations and mitigation strategies.

In addition, Deep Blue will further elaborate and investigate ClimOp solutions and ideas in future R&D proposals and projects on similar topics, also taking benefit from ClimOp's rich and diverse network of partners and collaborators. A series of commercial conferences will be organized by ClimOp, where the project's outcomes will be proposed to relevant Deep Blue clients (Enav, Enaire, Pansa, Hungaro Control, AdR, Aeroporto di Genova, Aeroporto di Monaco, Aeroporto di Antalva, etc.) or Deep Blue partners derived from other activities.

#### 6.3.1.2 DLR

DLR will exploit the obtained results from ClimOp project to advance its expertise in simulation of air transport operations and air traffic emissions on global scale. The increase of knowledge is helpful to apply for successful acquisition in future research project calls in sustainable and environmental aviation. Additional research on operational improvements and its assessment shall be done by students from Hamburg University of Technology within Bachelor or Master theses. A workshop about environmental air transport operations could also be possible to exploit the results to interested research fellows and students.

#### 6.3.1.3 NLR

NLR will mainly exploit project ClimOp results in its consultancy and research activities for public and private organisations in the Aviation sector. The results within ClimOp will be helpful in

developing solutions for their main clients such as the Government of the Netherlands and airports and air navigation providers, as well as the EU, EASA and ICAO.

Furthermore, the lessons learned will also be communicated and will benefit community engagement. Additionally, with the ClimOp solutions obtained, the NLR will expand its knowledge beyond emissions, and they will improve collaboration with meteorological institutes.

NLR expects to further develop and elaborate the knowledge in this field beyond Horizon2020 and the SESAR programme, and will foster the rich and diverse network of partners and collaborators of the ClimOp consortium.

#### 6.3.1.4 TU Delft

The Delft University of Technology (TU Delft) will exploit ClimOp's solutions and results mainly by presenting them in conference and publishing the methods developed in scientific articles in reference journals. The assessment of aviation's climate impacts and mitigation actions is a topic of increasing interest in the aviation research community. The goal from ACARE (Advisory Council for Aeronautics Research in Europe) is to promote and implement a combination of technological and operational developments to compensate the environmental and climate impacts of the aviation traffic growth in Europe. ClimOp will contribute to the discussion of some of these operational and technological improvements, identifying promising solutions for a future sustainable aviation in Europe.

The TU Delft team will select both academic and technical conferences to promote ClimOp's solutions and results. These will include conferences promoted by the EC Clean Sky JU and SESAR research frameworks. These conferences will allow not only the discussion of the project results, but also the validation of some of the concepts and solutions being studied. Furthermore, the TU Delft team will promote the future analysis of these solutions in future research frameworks in these conferences. The TU Delft team will also participate in academic conferences in which the methods and result analysis will be presented and discussed with peers.

In terms of publications, the TU Delft team will focus on scientific journals on the climate and environment, operations research, mathematical modeling and general air transport domains. The goal will be to disseminate and validate with peers the modeling techniques and the results analysis developed in ClimOp.

In addition, TU Delft will further elaborate and investigate ClimOp solutions and ideas in future R& D proposals and projects on similar topics, also taking benefit from ClimOp rich and diverse network of partners and collaborators.

#### 6.3.1.5 AMIGO Srl

Amigo will exploit the methods developed during ClimOp in its consultancy activities. Considering the increasing interest in Climate Change from the Aviation sector, it is expected that services based on the methodologies developed during ClimOp will be highly requested.

Amigo envisions the potential development of innovative climate services on the basis of the results of ClimOp. To this end, Amigo will exploit the concepts, solutions, and network of collaborators developed within the ClimOp project to foster further research in the field of Climate Services for Aviation. This includes future R&D proposals and projects on similar topics, also taking benefit from the ClimOp rich and diverse network of partners and collaborators.

#### 6.3.1.6 ITU

ITU is planning to exploit the methods developed in the ClimOp project to contribute to the scientific community, while enhancing its domain knowledge. The ClimOp project intends to propose and

evaluate mitigation strategies to reduce the climate impact of aviation. Because of the increasing demand in air transportation, it is expected that the emissions produced by the aviation community will also increase. Hence, the project focuses on an urgent problem. From the perspective of ITU, it is important to focus on real problems rather than purely scientific problems and it is critical to use realistic modelling approaches while solving these problems.

The approaches proposed in the ClimOp project will satisfy these criteria. ITU will benefit from the proposed methods to publish papers to contribute to the scientific community. And, ITU will enhance its domain knowledge by collaborating with the project partners.

#### 6.3.1.7 IATA

IATA is committed to the high-level aviation industry's climate goals, including a reduction in net aviation $CO_2$ emissions of 50% by 2050, relative to 2005 levels. It is an important element of IATA's environmental strategy to support and promote measures and technologies contributing to achieving this goal. ClimOp investigates the merits and feasibility of a wide scope of operational measures to reduce both $CO_2$ and non-$CO_2$ emissions. The ClimOp results will provide important input to IATA's climate strategy implementation.

IATA will use the knowledge and information from ClimOp in its communication with airlines, other stakeholders and the broader public, and in its support to airlines for more fuel-efficient and climate-friendly flight operations. Need for such support is expected to increase in the near future.

IATA will cooperate with other aviation stakeholders on efforts to jointly implement fuel- efficient and climate-friendly flight operations, using the results from ClimOp.

IATA is exploring, together with the scientific community, the opportunities to reduce aviation's non-$CO_2$ greenhouse impact through optimized flight trajectories. The ClimOp results will provide helpful insight into the efficiency and feasibility of such flight operations.

#### 6.3.1.8 SEA

Within the sustainability pathway outlined by ACI Europe for the purpose of achieving net 0 emissions by 2050, SEA has developed its environmental sustainability strategy plan 2020-2025, which outlines a commitment to continuous improvement of environmental and energy performance.

Once the ClimOp solutions will be proven effective, SEA will be interested in exploiting and applying those ClimOp results in its practices regarding airport-system operations, environment and energy management. As a matter of facts, SEA intends to develop its business in a sustainable way for the environment, creating lasting and shared value for the communities that live with both our airports, Linate and Malpensa, for the operators and for all the stakeholders, promoting a partnership model at all levels.

## 7. Summary and Conclusion

With this elaborated, we gave a presentation of all the pivotal aspects around which is structured the deployment of the communication activities. We started the discussion by presenting the dissemination goals and how their interaction set the base of our communication approach. Later, we presented a set of metrics to monitor the project ongoing.

In Chapters 3 and 4, all the activities to maximise the spreading of ClimOp messages and the stakeholders' consultation translated gave a more concrete representation of the PEDR.

Finally, we presented the plan for the exploitation of ClimOp results and all the activities that each partner will put in place individually when the project will be ended.

ANNEX A

| Title | Examples | Section to fill |
|---|---|---|
| Name of Exploitable Foreground:<br>High level category (for clarification)<br>Name of results | | |
| | E.g. OI xyz (ficticious) | |
| Type of Exploitable Foreground:<br>1. General advancement of knowledge<br>2. Commercial exploitation<br>3. Exploitation of R&D results via standards<br>4. Exploitation of results through EU policies<br>5. Exploitation of results through (social) innovation | | |
| Description: | Describe the result. First, clarify the nature of the result, whether it is software, paper documents, or other.<br>What does it do?: describe main features, e.g. "the model XYZ produces predictions for X, Y and Z<br>variables. The information is displayed in matrix/chart/report format and documents that facilitate assessment. The model XYZ is fed by different type of information, socioeconomic (density of population, average income, etc...), business (amount of travellers, operational cost of the airport...), etc. It enables the user to bla bla...."<br>It is up to you to decide the level of description, the more detail the better. It can also be useful to list and describe the subcomponents of a result.<br>Please understand that if you declare different models (or results of similar category) as different exploitable results, the description (the inputs and outputs of the model, the purpose...) should be different. | |
| Associated to main results | This field can be empty. Typically, it applies to software results, when partner#1 contributes with a software component (module XY) to a bigger tool (TOOL XYZ), if module XY can be exploited by partner#1 on its own independently from the bigger tool, partner#1 declares module XY as exploitable result (i.e. enters a new row in this template),<br>associated to main result TOOL XYZ. | |

| | | |
|---|---|---|
| Exploitable product (market perspective) or measures, how it will be exploited (services) | Explain how your organisation will generate revenue with this result. As an alternative, if your organisation cannot generate revenue (non-profit organisation) describe the benefits for the end users.<br>It is important to identify and describe the products or services that you will offer to the market.<br><br>See an example: "The model XYZ will be exploited in different products and extensions. Mainly it will be used to develop a fare set of mitigation strategies to reduce the climate impact of aviation. This set will allow managers to bla bla. In the medioum term the model could be adapted for bla bla... and in a later stage it could be extended for bla bla."<br><br>"The set of mitigation strtegies will be sold for a sum of money, and the client will acquire a propriety license.<br>Alternatively, the mitigation strategies can be sold …"<br><br>"Other products and services include consultancy services to reduce the climate impact of aviation. The model XYZ will allow us to develop our own proprietary methodologies or frameworks to guide the identification of improvement measures for more effective operational improvements."<br><br>Example #2: "the model XYZ will be publicly available for download by researchers and citizens interested to test and conduct further research on the domains of bla bla... Documentation will be developed to promote the uptake of the model by<br>the community. Other actions include bla bla..."<br><br>Example #3: "As an academic institution, my organisation will include the model XYZ in a customised college course of security models (provide details of the course if possible). In addition this result will allow us to create doctoral<br>study opportunities (provide details if possible). "<br><br>Example #4: "My company will partner with other company in order to commercialise the project findings. My company provides skills#1 and skills#2 and takes care of tasks#1 and tasks#2 while the other company provides skills#3 and takes care of task#3 required to commercialised this product." | |
| Users, clients, sector(s) of application | Identify and characterize clients, and users. Be as specific as possible. The more specific the more convincing our exploitation strategy is. Ideally, the information we want is something like "The result will be used to develop a more sustainable way to carries European passengers. The flight operators of Italy and Netherland have also been consulted and showed interest to use our product."<br><br>On the other side of the spectrum generic information would be "The envisaged users of the <products and service previously identified> are<br>security policy makers and national critical aviation operators". | |

| | | |
|---|---|---|
| | Use this field, combined with the previous field<br>(Column E) to describe exploitation opportunities, on-going or idendified for the future. | |
| Timetable, commercial or any other use | This field shows the level of maturity of the result.<br><br>If the result is mature, it can be stated that "it will be commercialised in 2021."<br><br>On the contrary, it could be stated that "the result is still a conceptual prototype and it is not ready for immediate commercialization/exploitation. Exploitation is expected in 2021 or 2022".<br><br>"Some consolidation of the prototype will be performed by … in 2022, and the … will be further developed in the scope of other works. Further development of the biodiversity application will depend on the avaliability of additional funding, e.g. through R&D or industrialization projects." | |
| Patents or other IPR exploitation (licences) | Describe Intelectual property issues.<br>Explain whether licenses apply to this result. In case of technology results, explain if it will be released with propietary or other license.<br>Do you plan to register any patent? | |
| Owner & Others beneficiary(s) involved | Enter the name of your organisation. It is helpful if you can clarify whether you are one of the owners of the result (you eveloped the result) or you are a beneficiary partner that is interested to exploit a result produced by other partners.<br>E.g. "Owners: partner #1 and partner#2."<br>"Beneficiaries: partner #3 and partner #4."<br><br>Notice that this information shows opportunities for joint exploitation. | |
| Link to the result (if available) | When applicable, add link to the result.<br>E.g., research papers published in a scientific magazine or the project website, or software components if they are available for download. | |