SIGN-AIR's Data Management Plan – Final

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Abstract

This Deliverable is D1.6 - "Data Management Plan - Final". The Data Management Plan (DMP) is a living document - of which this document is the final version - (3 official versions had to be submitted during the duration of the project: D1.1, D1.4 and D1.6) that describes the data management life cycle for all datasets (containing personal data and/or non-personal data) to be collected, processed, or generated by the SIGN-AIR research project. Such information include, but is not limited to, scientific publications and deliverables issued by the project's consortium members, data Transport Service Providers' datasets (for example, public transport timetables), data originating from travel companions, anonymous user statistics, etc. The DMP covers the handling of research data during & after the project; what data will be collected, processed, or generated; what methodology & standards will be applied; whether data will be shared/made open access & how; how data will be curated & preserved. The overall aim is to comply with the FAIR principles, to take care of intellectual property rights (IPR) issues but also to deal with Responsible Research Innovation (RRI) considerations as well as with data protection and ethical issues.

Authoring & approval

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AETHON	5/10/2023	6/02/2024	15/05/2026
ENAC	5/10/2023	6/02/2024	15/05/2026
EPF	5/10/2023	6/02/2024	15/05/2026
CARNET	5/10/2023	6/02/2024	15/05/2026
TIMELEX	5/10/2023	6/02/2024	15/05/2026
ATM	5/10/2023	6/02/2024	15/05/2026
STA	5/10/2023	6/02/2024	15/05/2026
BLQ	5/10/2023	6/02/2024	15/05/2026
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SIGN-AIR

[IMPLEMENTED SYNERGIES, DATA SHARING CONTRACTS AND GOALS BETWEEN TRANSPORT MODES AND AIR TRANSPORTATION]

SIGN-AIR

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114845 under European Union's Horizon Europe research and innovation programme.

Table of contents

List of tables

List of acronyms

Table 1: list of acronyms

Acronym	Description
DMP	Data management Plan
DPO	Data Protection Officer
FAIR	Findable, accessible, interoperable, and re-usable
GDPR	General Data Protection regulation
TC	Travel Companion
TSP	Transport Service Provider

Co-funded by the European Union

1 Introduction

1.1 General description of SIGN-AIR

SIGN-AIR develops and demonstrates/tests a new platform for an orchestrated sharing of data in multimodal traveling. The platform provides the means for Transport Service Providers (TSPs) to register, reach Data Sharing Agreements (DSA) and Smart Contracts (SC) with other TSPs and manage their contractual relationships. The SIGN-AIR web platform enables TSP from different modes to create, modify, terminate, and monitor signed contracts, including both DSAs and SCs. While the SIGN-AIR platform generally only manages the contractual aspects through the types of data offered by the TSPs, the TSPs will continue managing their own data and that of their customers.

A DSA is an electronic contract that specifies the terms and conditions for data sharing, defining the datasets that the Data Provider TSP makes available to the Data Consumer TSP and outlining their usage terms. Complementing the DSA, a SC integrates both legal and technological components, detailing the objectives of one or more DSAs by defining specific triggers, actions, and terms related to revenue sharing and responsibility sharing. To achieve the generation and monitoring of DSAs and SCs with specific multimodal data-sharing goals, the core service of the SIGN-AIR platform is data orchestrator.

The whole concept moved from TRL2, reached by the mother project SYN-AIR[1], to TRL 6. This was done with an intensive evolution of the software and a continuous evaluation and piloting of the software with different important stakeholders that are present in the consortium.

1.2 Purpose of the document

Modern research builds on extensive scientific dialogue and advances by improving earlier work. Broader access to scientific publications and data therefore helps to:

- build on previous research results (improved quality of results),
- encourage collaboration and avoid duplication of effort (greater efficiency),
- speed up innovation (faster progress to market means faster growth),
- involve citizens and society (improved transparency of the scientific process).

This is the reason the EU wants to improve access to scientific information and to boost the benefits of public investment in research.

[1] It has to be noted that in the event of any data-reuse from the SYN+AIR project in the SIGN-AIR project, this clearly mentioned in the respective description tables which are included in Annex I, II and III of this Deliverable.

By consequence, in the SIGN-AIR project, research data must comply with the FAIR principles[2]: research data must be findable, accessible, interoperable, and reusable. In this context, every action pertaining to data (from collection, generation and processing to distribution, storage, and preservation) is examined and determined in this Data Management Plan (DMP).

As part of making research data findable, accessible, interoperable, and re-usable (FAIR), this DMP includes information on:

- the handling of research data during and after the end of the project,
- what data will be collected, processed and/or generated,
- which methodology and standards will be applied,
- whether data will be shared/made open access and
- how data will be curated and preserved (including after the end of the project).

In addition, this DMP ensures that contribution to these open research and innovation objectives complies with applicable requirements protecting personal or sensitive information such as the EU General Data Protection Regulation (GDPR)[3].

1.3 Structure of the document

The structure of this document is as follows:

- Section 1 contains a general description of the SIGN-AIR project, describes the purpose of the document, and provides for its structure.
- Section 2 identifies the categories of SIGN-AIR research outcomes, recalls the expected open access regime expected for each category of research outcomes, identifies the different target communities that might be interested in the re-use of our data and, finally, describes the SIGN-AIR's data archiving and preserving infrastructure.
- Section 3 defines the data management process for public deliverables, research datasets and peer-reviewed scientific publications in order to comply with FAIR principles.

[2] These FAIR principles are being defined in the European Commission's Guidelines on FAIR Data Management in Horizon 2020, available at

https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

[3] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

- Section 4 contains general information concerning the compliance of SIGN-AIR with FAIR principles.
- Section 5 briefly describes how the SIGN-AIR consortium envisages the compliance of other research outputs with FAIR principles.
- Section 6 briefly describes the allocation of resources for data management and compliance with FAIR principles.
- Section 7 clarifies the provisions which are in place for the security of the data that is being processed by the beneficiaries for achieving the purposes of the SIGN-AIR project (emails, documents, reports, datasets, answers to questionnaires, records of workshops, etc).
- Section 8 deals with ethical requirements. In particular, it contains a procedure that beneficiaries must comply with before conducting any activity involving human beings (interviews, questionnaires, workshops, focus groups, pilot trials, demonstrations, etc.)
- Section 9 deals with other issues. In particular, it details which measures have been taken to allow the transfer of data between the EU and beneficiaries established in non-EU countries (Switzerland and Republic of Serbia).
- Section 10 provides for a general conclusion.
- Annex I contains the public deliverables description tables.
- Annex II contains the research data description tables.
- Annex III contains the scientific publications description tables.
- Annex IV contains the detailed data protection policies of beneficiaries having not appointed a Data Protection Officer.
- Annex V contains the signed letters of the partners which have no internal ethical committee to assess activities involving human beings.
- Annex VI contains the general statement of UB-FTTE related to international transfers of data between the EU and the Republic of Serbia.
- Annex VII contains the conditions signed by Sparsity for the use of the web application "API portal" of Bologna Guglielmo Marconi Airport

2 Data summary

The role of this DMP is to define a framework concerning the handling of research data generated or acquired in the SIGN-AIR project, but also after the end of it. Subjects for investigation are: the nature of the data in question, which data will be collected and to whom they will be useful, the use of metadata to render data easily retrievable, standardisation, whether and which data will be open-access, how they will be stored and preserved, etc.

2.1 SIGN-AIR's research outcomes and open access regime

A first reasonable step of a DMP is to identify the categories of research outcomes which were expected to be generated or acquired during the SIGN-AIR project as well as their expected open access regime.

The table below identifies and categorizes the research outcomes which were expected while conducting the SIGN-AIR project.

The categories of SIGN-AIR's research outcomes are defined as follows:

- **Deliverables** are project outputs that had to be presented to the SESAR Joint Undertaking within the timeline set in the Grant Agreement. As for their access, in SIGN-AIR, deliverables may be distinguished depending on their dissemination level: Public (PU) or Sensitive, only for members of the consortium, including the Commission Services (SEN).

- **Research data** refers to information, in particular facts or numbers, collected to be examined and considered as a basis for reasoning, discussion, or calculation. In a research context, examples of data include statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings and images. Such data might also include datasets that TSPs share with the consortium (such as timetables, datasets related to disruption management, etc.). The focus is on research data that is available in digital form. Research data must be made openly accessible so that it can be accessed, mined, exploited, reproduced, and disseminated free of charge. However, not all research data can be open, mainly for the following reasons:
    - obligation to protect results that can reasonably be expected to be commercially or industrially exploited,
    - need for confidentiality in connection with security issues,
    - rules on protecting personal data,
    - rules on intellectual property.

- The dominant type of **scientific publication** is the journal article. Grant's beneficiaries were also strongly encouraged to provide open access to other types of scientific publications including monographs, books, conference proceedings, grey literature (informally published written material not controlled by scientific publishers, e.g., reports). In SIGN-AIR, each beneficiary must ensure open access to all peer-reviewed scientific publications relating to its results. To meet this requirement, beneficiaries must, at the very least, ensure that any scientific peer-reviewed publications can be read online, downloaded, and printed (free of

charge, online access to any user). Beneficiaries were also encouraged to provide for further rights that could make them even more useful (e.g., right to copy, distribute, search, link, crawl, and mine). Peer-reviewed publications are those assessed by other scholars. Peer review is typically, though not exclusively, organised by the journal or publisher to which an article or manuscript is submitted. The open access to publications mandate comprises 2 steps[4]:

1. Depositing publications in repositories (online archive)
2. Selecting the open access route (green or gold open access)

2.2 Data utility

In the context of research, data utility can be measured in terms of knowledge re-use by different target communities.

It is expected that the target audiences for the SIGN-AIR output data utility are:

1. General public,
2. Undergraduate and graduate students,
3. Research and scientific community,
4. Stakeholders such as TSPs, traveller associations, etc.,
5. Institutions in the field of transport (national and European).

Other categories of target audiences might be identified depending on the considered data output. In each description table (see templates contains in section 3), the responsible partner details to whom and how the output will be useful.

2.3 Data archiving and preserving infrastructure

A second step of a DMP is to identify and describe the platforms and repositories chosen for the SIGN-AIR data storage and dissemination. Note that all research outcomes identified in Section 2.1 will not automatically be published on the project website nor on other "public" data or document repositories. Indeed, this decision must be taken by the responsible partner after having followed the data management process described in section 3 and after having filled the template included in section 3.2.

2.3.1 Project Depository (Gdrive)

SIGN-AIR project depository is Gdrive (private space) and all the partners are granted access to its folders.

[4] These steps are explained more in detail in section 2.3.3.

According to Google's Terms and Conditions[5], in the European Economic Area (EEA) and Switzerland, Google's services are provided by Google Ireland Limited, a company incorporated in Ireland. Therefore, as regards GDPR compliance, Google Ireland Limited is the data controller for users of Google services based in the European Economic Area or Switzerland at Gordon House, Barrow Street, Dublin 4, Ireland[6]. However, as Google has servers all over the world, it is therefore possible that information may be processed by servers located outside of the European Union[7], and potentially in the United-States of America. This being recalled, it is important to note that Google complies with the EU-U.S. and Swiss-U.S. Data Privacy Frameworks (DPF) and the UK Extension to the EU-U.S. DPF as set forth by the US Department of Commerce regarding the collection, use and retention of personal information from the EEA, Switzerland and the UK, respectively. Google LLC (and its wholly owned US subsidiaries unless explicitly excluded) has certified that it adheres to the DPF Principles[8].

As an additional safeguard regarding privacy, we made use of the available options to store our data in the geographic location of Europe[9].

Project's partners use this Gdrive to avoid sharing large documents via email and enhance the collaboration among task's participants, however if partners prefer their own workspace tools such as One Drive etc they can use them and make sure that final documents such as deliverables are uploaded to the project's depository. Additionally, all material relevant to the meetings such as agenda, presentation and minutes need to be uploaded to Gdrive at least after the meeting. Credentials are needed to access any of the Gdrive material, as the private space usage is restricted only to the SIGN-AIR consortium and to SESAR (if access is requested).

2.3.2 Project Website

The SIGN-AIR website (under development) is considered as the main online public information point of the project and can be found under this web address: https://www.sign-air.eu/ . The website holds some static text information, such as an overview of the project, its structure, and its objectives; it will also offer some dynamic textual data such as the communication of news and events.

The website also contains a dedicated section (Deliverables) outlining the work plan and containing all public deliverables using the portable document format (PDF). Feedback from the SESAR JU's reviewers was taken into consideration and public deliverables were amended accordingly and officially submitted on STELLAR and SyGMa, before further dissemination via the SIGN-AIR website.

All public information on the SIGN-AIR website is available with no restrictions and is accessible by any visitor with no need to create an account. This information and all webpage-related data will be backed

[5] https://policies.google.com/terms

[6] https://policies.google.com/privacy?hl=en-US?hl%3Den-US#europeanrequirements

[7] https://policies.google.com/privacy?hl=en-US?hl=en-US#infosharing

[8] https://policies.google.com/privacy/frameworks?hl=en-US

[9] https://support.google.com/a/answer/7630496?hl=en

on a regular basis. It is expected that this website will be maintained until 6 months after project' end. Once the website will shut down, the public deliverables will still be available on CORDIS/Horizon Europe related portals.

2.3.3 Cordis

The submitted deliverables of the SIGN-AIR project having been approved by SESAR JU are also made available on CORDIS at the following web address:

https://cordis.europa.eu/project/id/101114845/results

2.3.4 Other "public" data and document repositories

Scientific publications using the funds of SESAR JU are expected to be published through peer-review international academic journals and in selected Open Access Journals (preferably provide a green/gold open access) and open access publishing platform for scientific articles such as:

- **Zenodo** is a general-purpose open-access repository developed under the European OpenAIRE program and operated by CERN. It allows researchers to deposit research papers, data sets, research software, reports, and any other research related digital artifacts. For each submission, a persistent digital object identifier (DOI) is minted, which makes the stored items easily citeable.
- **Open Research Europe** (ORE): Open Research Europe is an open access publishing platform for the publication of research stemming from Horizon 2020 funding across all subject areas. The platform makes it easy for European project beneficiaries to comply with the open access terms of their funding and offers researchers a publishing venue to share their results and insights rapidly and facilitate open, constructive research discussion.

In principle, underlying data (research data) must also be made available on public repositories, subject to the limitations determined in section 3.2.

3 Data management

The third step of this DMP consists into describing the SIGN-AIR's Data Management Process which is a procedure aiming to help beneficiaries to decide whether and how to make research outcomes openly accessible.

This section explains more in detail how each category of research outcomes identified in Section 2.1 must be dealt with by the beneficiaries of the SIGN-AIR project.

3.1 Deliverables

The SIGN-AIR's deliverables which, according to the Grant Agreement, have a public dissemination level are expected to be published on a dedicated section (Deliverables) of the SIGN-AIR's website (https://www.sign-air.eu/) using the portable document format (PDF). It is expected that this website will be maintained until 6 months after the project' end.

Once the website will shut down, the public deliverables will still be available on CORDIS/Horizon Europe related portals.

The following table enumerates the public deliverables of the SIGN-AIR project.

Table 2 - SIGN-AIR public deliverables

#	Title	Type	Lead	Diss. level	Del. date
D1.2	Data Management Plan (DMP) - Initial	R — Document, report	FD	PU	M4
D1.4	Data Management Plan (DMP) - Intermediate	R — Document, report	FD	PU	M19
D1.5	Contextual Note (CN)	R — Document, report	SPARSITY	PU	M33
D1.6	Data Management Plan (DMP) - Final	R — Document, report	FD	PU	M35

D2.1	Communication Dissemination and Exploitation (CDE) Plan - Initial	R — Document, report	CARNET	PU	M3
D2.2	Standardisation (STAND) - Initial	R — Document, report	AETHON	PU	M3
D2.3	Regulation (REG) - Initial	R — Document, report	UB-FTTE	PU	M3
D2.4	Communication Dissemination and Exploitation (CDE) Plan - Intermediate	R — Document, report	CARNET	PU	M19
D2.5	Standardisation (STAND) - Intermediate	R — Document, report	AETHON	PU	M19
D2.6	Regulation (REG) - Intermediate	R — Document, report	UB-FTTE	PU	M19
D2.7	Technical Validation plan (TVALP)	R — Document, report	SPARSITY	PU	M19
D2.9	Technical Validation Report (TVALR)	R — Document, report	ENAC	PU	M30
D2.10	Technical specifications/interface requirements (TS/IRS)	R — Document, report	SPARSITY	PU	M31
D2.11	Cost-benefit analysis (CBAT)	R — Docume	CARNET	PU	M32

		nt, report			
D2.12	Standardisation STAND - Final	R — Document, report	AETHON	PU	M32
D2.13	Regulation (REG) - Final	R — Document, report	UB-FTTE	PU	M32
D2.15	SIGN-AIR platform - short version	R — Document, report	SPARSITY	PU	M32
D2.16	SIGN-AIR added value services – Journey services	R — Document, report	SPARSITY	PU	M32
D2.17	SIGN-AIR added value services – Analytics Services	R — Document, report	AETHON	PU	M32
D2.18	SIGN-AIR added value services - Optimization algorithms for Operations	R — Document, report	ENAC	PU	M32
D2.19	Conclusions of Pilots and policy making recommendations	R — Document, report	FD	PU	M32
D2.20	Communication Dissemination and Exploitation (CDE) Plan - Final	R — Document, report	CARNET	PU	M35
D2.21	Standardization and harmonization of SIGNAIR technical solution	R — Document, report	AETHON	PU	M14

Before publishing these deliverables on the SIGN-AIR website, the responsible beneficiaries paid attention to the following:

- Comply with privacy requirements. In particular, the responsible beneficiary will anonymize personal data before publication unless express consent for publication has been given by the data subject(s) and provided all other legal requirements are met.

- Obtain and consider feedback of the SESAR JU's reviewers. Accordingly, amended deliverables were submitted on STELLAR and SyGMA before further dissemination via the SIGN-AIR website. The Deliverables must have been approved before publication.

- Complete the Public Deliverable Description Template included hereunder. In line with the FAIR data principles, the aim of this template is to gather the required details for all the public deliverables. Management of all public deliverables will be implemented using this table.

Table 3 - Public Deliverable Description Template

1. Public Deliverable Summary	
Purpose	*The purpose of the specific deliverable*
Relation to the objectives of the project	*Relation of the specific deliverable to the project objectives*
Types/Formats	*All public deliverables are (or are accompanied by) reports in the cross-platform portable document format (PDF)*
Re-use of any existing data	*Source of re-used datasets, IPR issues etc.*
Origin	*How the included data was generated (or mention source, if collected)*
Size	*Size of the public deliverable*
Utility for others	*To whom and how the deliverable will be useful.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Metadata is added manually and includes name, author, all involved consortium partner organisations, relevant keywords*
Metadata standards	*No specific metadata standard used*
Unique identifier	*The public deliverables are assigned URLs by upload on the official SIGN-AIR website*

Naming conventions	• *Naming convention used: SIGN-AIR_D.No_version_STATUS.extension* • *D._No is the deliverable number, as defined in the GA (e.g., D1.1), Version is the edition number (e.g., 00.02.00 is the second issue version approved for submission), Status is document major and minor version numbers and Extension is the filename extension (e.g., PDF).*
Search keywords	*Metadata keywords serve as search keywords.*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission: publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Complete if applicable.*
Mapping to common ontologies	*Complete if applicable.*
2.4. Increase data re-use (through clarifying licences)	
Licence	*Complete if applicable.*
Re-use availability schedule	*After submission: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission: Accessible and re-usable by third-parties. No access and time limitations apply.*

Quality assurance	*Internal quality audit control by minimum one assigned reviewer (consortium partner).*
Availability period	*No time limitation scheduled after the end of the project.*

This template was completed individually for each and every public deliverable generated in the project after its approval by SESAR 3, in order for them to be described in detail.

The relevant description tables for these deliverables are presented in Annex I.

3.2 Research data

In principle, the SIGN-AIR research data identified in section 2.1 must be made openly accessible so that it can be accessed, mined, exploited, reproduced, and disseminated free of charge. However, not all research data can be open, mainly for the following reasons:

- obligation to protect results that can reasonably be expected to be commercially or industrially exploited,
- need for confidentiality in connection with security issues,
- rules on protecting personal data,
- rules on intellectual property.

Moreover, as regards respect for law and ethics, each beneficiary of the SIGN-AIR project collecting or generating research datasets is responsible of ensuring compliance with the following requirements:

- ensuring voluntary participation of human beings and obtaining their consent,
- anonymizing or pseudonymizing the research datasets prior to their publication (as a general rule, "anonymisation" of data is recommended. If this is not feasible, the possibility of "pseudonymisation" of data should carefully be examined and detailed),
- verifying that the publication of the research dataset could not be potentially misused for unethical purposes.

Therefore, this section provides a set of questions aiming to help SIGN-AIR beneficiaries to classify (i.e. identify the access regime for) the various research data acquired or generated during the project. The reply given to each question determines whether the research data should stay private on the project's Gdrive or be made (partially) publicly available, either on the project website or on other "public" data or document repositories.

For the SIGN-AIR project, the following questions were selected to classify the research outcomes:

Table 4 - Data Management Process for each research dataset

Issues to be addressed for dataset	Positive Answer (yes)	Negative Answer (no)
Needed for result validation?	Public	Private

Produces added value to third parties?	Public	Private
Can the data - which may consists into/be derived from third-party data - be shared? (IPR issues)	Public	Private
Contains personal data as referred to in GDPR for which no legal basis for publication exist[10]?	Private	Public
Contains data able to back-trace individuals without having asked their prior consent before publication[11]?	Private	Public
Contains data that could be used in activities raising ethical issues or constitute a danger to the society?	Private	Public
Contains sensitive data or a security threat for one or more partners of the project (e.g., confidential information)?	Private	Public
Either a Licence restriction or an embargo is applied?	Private	Public
Contains data jeopardizing a project patent?	Private	Public

Each beneficiary of the SIGN-AIR project is responsible for the publication of the research data they collect or acquire. Without prior permission from the responsible partner, the research data remain on the project's Gdrive and are not accessible to other organisations or individuals out of the consortium. However, the beneficiary's decision to make research data (partially) publicly available or not must be motivated to the responsible of the Data Management Plan (FD).

In addition, for each research data acquired or generated during the project (both for the ones made publicly available and not), the responsible beneficiary is committed to fill in the following Research Data Description Template. In line with the FAIR data principles, the aim of this template is to gather the required details for all the research datasets acquired/generated during the project. Management of all research datasets will be implemented using this table.

Table 5 - Research Data Description Template

1. Data summary

[10] If a research dataset is needed for result validation but that dataset contains personal data as referred to in GDPR and for which no legal basis for publication exists, the beneficiaries will analyze whether such a dataset can be anonymized while still being publicly useful for the research community. If not, the research dataset will be kept private.

[11] If a research dataset contains data able to back-trace individuals without having asked their prior consent before publication (when such consent is the legal basis), the beneficiaries will analyze whether such a dataset can be anonymized while still being publicly useful for the research community. If not, the research dataset will be kept private.

Type	*Questionnaire/Records of interviews-workshops/Datasets shared by TSPs etc.*
Purpose	
Relation to the objectives of the project	
Types/Formats	
Re-use of any existing data	
Origin	
Size	
Utility for others	
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	
Metadata standards	
Unique identifier	
Naming conventions	
Search keywords	
Version control	
2.2 Making data openly Accessible	
Classification	
Sharing and access regimes	
Needed method/software	
Repository	
Access authorisation	

2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	
Mapping to common ontologies	
2.4. Increase data re-use (through clarifying licences)	
Licence	
Re-use availability schedule	
Re-use by third parties	
Quality assurance	
Availability period	

This template was completed individually for each and every research dataset collected or generated in the project (both for those made publicly available and not), in order for them to be described in detail. The relevant description tables for the specific research datasets are presented in Annex II.

3.3 Scientific publications

Each beneficiary must ensure open access – via a repository – to all peer-reviewed scientific publications relating to the project's results (including not only journal articles but also conference proceedings and long-text publications such as monographs, book chapters, edited volumes, etc.).

Access has to be provided either to the published version or the final peer-reviewed manuscript accepted for publication. To meet this requirement, beneficiaries must ensure that these publications can be read online, downloaded, and printed (free of charge, online access to any user). Beneficiaries are also encouraged to provide for further rights that could make them even more useful (e.g., right to copy, distribute, search, link, crawl and mine).

The open access to publications mandate comprises 2 steps:

1. Depositing publications in repositories (online archive): According to the EC, "Beneficiaries are required to deposit an electronic copy of the publication in a suitable repository. Publications must be "machine-readable", that is in a format that can be used and understood by a computer. They must therefore be stored in text file formats that are either standardised or otherwise publicly known so that anyone can develop new tools for working with the documents. Thus, scanned versions of printed publications do not fulfil this requirement. Depositing is mandatory regardless of the open access mode selected. It must be done as soon

as possible and at the latest upon publication"[12]. A repository for scientific publications is an online archive. Institutional, subject-based and centralised repositories are all acceptable choices. Repositories that claim rights over deposited publications and preclude access are not.

2. Selecting the open access route (green or gold open access): According to the EC, Beneficiaries should select one of the two main routes towards open access to publications, both equally valid:

    a) Green open access (self-archiving): The published work or the final peer-reviewed manuscript that has been accepted for publication is made freely and openly accessible by the author, or a representative, in an online repository. Some publishers request that open access be granted only after an embargo period has elapsed.

    b) Gold open access (open access publishing): The published work is made available in open access mode by the publisher immediately upon publication. The most common business model is based on one-off payments by authors (commonly called APCs – article processing charges – or BPCs – book processing charges). The costs of gold open access publications are eligible costs that beneficiaries can charge, provided the costs are incurred during the duration of the project and if all other eligibility conditions are fulfilled.

For each scientific publication produced during the project, the responsible beneficiary was committed to fill in the following Scientific Publication Description Template. In line with the FAIR data principles, the aim of this template is to gather the required details for all the scientific publication produced during the project. Management of all scientific publications was implemented using this table.

Table 6 - Scientific Publication Description Template

Type	
Title	
Authors	
Title of the Journal/Proc./Book	
Number, date or freq. of the Journal/Proc./Book	
Relevant Pages	
ISSN/eISSN	

[12] Guidelines on Implementation of Open Access to Scientific Publications and Research Data, available at https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-hi-erc-oa-guide_en.pdf

Publisher	
Place of publication	
Year	
Is Peer-reviewed?	
Is Open Access?	
Type of open access	
Length of the Embargo, if any	
Is this a joint public/private publication?	
Processing charges for Gold Open Access	
DOI	
Link to the Publication	
Repository Link	
Ack to SIGN-AIR	
SESAR logo and EU flag (Y/N/Not possible)	

This template was completed **individually** for each and every scientific publication produced during the project (both for those peer-reviewed and not), in order for them to be described in detail. The relevant description tables for the scientific publications are presented in Annex III.

4 FAIR data

4.1 Making data findable, including provisions for metadata

In order to make data findable, the description tables of every public deliverable or research data contains information concerning its persistent identifier, metadata and keywords to allow discovery (see Annexes I and II).

4.2 Making data accessible

The SIGN-AIR repositories are listed in Section 2.3. Moreover, each description table (public deliverables/research data/scientific publications) indicates where the research output is being published (see Annexes I, II and III).

4.3 Data

The envisaged data outputs of SIGN-AIR are described in section 2. Moreover, each description table (public deliverables/research data/scientific publications) indicates whether restricted access conditions or an embargo applies (see Annexes I, II and III).

4.4 Metadata

In order to make data findable, the description tables of every public deliverable or research data contain information concerning its persistent identifier, metadata and keywords to allow discovery (see Annexes I and II).

4.5 Making data interoperable

In order to make data interoperable, the description tables of every public deliverable or research data contain information concerning data/metadata vocabularies and other I/O standards as well as a mapping to common ontologies (see Annexes I and II).

4.6 Increase data re-use

In order to ensure increased data re-use, the description tables of every public deliverable or research data contain information concerning its licence, re-use availability schedule, re-use possibilities, by third parties, quality assurance and availability period (see Annexes I and II).

5 Other research outputs

This section details the plans for the management of other research outputs that may be generated or re-used throughout the SIGN-AIR project. Such outputs can be either or contractual.

At the time of writing this Deliverable (M35), the following outputs were developed:

- Synchronization module: This functionality aims to offer the capacity to the SIGN-AIR platform for sorting and proposing itineraries in air and railway transportation based on a connectivity index with an acceptable transfer time and low risk of missing the connection between the 1st and the 2nd leg of the trip. This module will be re-used and extended in the Travelwise Project[13].

- Extension of TransiTool: This extension offers a standardisation mechanism for IATA SSIM. This specific mechanism involves the creation of a user interface (UI), where the user (the TSP) can insert information, as well as the necessary database components, which facilitate the conversion of Slot Clearance Request (SCR) messages (that are in IATA SSIM format) and other formats into GTFS and NeTEx via a Relational Database Management System.

- Multimodal glossary: This glossary lists terms and definitions in the field of multimodal transport and is used across the SIGN-AIR, Travel Wise, MultiModX and FP1 Motional projects. This glossary is publicly available at https://www.sign-air.eu/?page_id=152

[13] https://travelwise-project.eu/

6 Allocation of resources

The partner responsible for data management in the SIGN-AIR project is FD, having specific expertise in data protection law and ethics.

In line with the SIGN-AIR Grant Agreement costs related to open access to research data are eligible for reimbursement.

- Accordingly, and in order to make SIGN-AIR research data FAIR, the project has allocated 10.000 € (distributed between UPC, ENAC, UB-FTTE and SPARSITY) to finance gold open access publications.
- Moreover, the publication of scientific publications in Green Access (via Zenodo or other) is covered by institutional resources.

Finally, for what concerns the development and maintenance of our website (https://www.sign-air.eu/) , the necessary budget has been allocated on UPC's other direct costs.

7 Data security

This section clarifies the provisions which are in place for the security of the data that is being processed by the beneficiaries for achieving the purposes of the SIGN-AIR project (emails, documents, reports, datasets, answers to questionnaires, records of workshops, etc). Therefore, this section does not apply to the security of the platform and the components that will be developed during the project.

7.1 Data Security in SIGN-AIR

Each beneficiary of the SIGN-AIR project is considered to be the data controller[14] for what concerns the security of the data that is being processed by him/her achieving the purposes of the project. At a minimum, the following organizational and security measures hat to be implemented by each beneficiary:

1. Training and competence: The SIGN-AIR data controller(s) shall establish measures, which ensure that all personnel working on the project and are given access to process SIGN-AIR data have a sufficient competence to process the data and to safeguard information security and data protection regarding data subjects. Training shall take place continually and be adapted to the various roles and user groups concerned.

2. Access control: The SIGN-AIR data controller(s) shall have procedures for the authorization, alteration and termination of access to SIGN-AIR data processing operations. Also, access to SIGN-AIR data/system components shall be controlled to ensure compliance with the confidentiality rules and so that no access to SIGN-AIR data is given to anyone other than those with an official need to gain such access. The following measures shall be established to prevent unauthorized access:

    - Technical measures shall ensure that persons inside or outside the SIGN-AIR consortium are unable to alter data without the changes being logged.
    - All allocations of authorization shall be registered in an authorization log.
    - Authorized SIGN-AIR team shall verify their identity in a secure manner. The secure manner must be determined on the basis of a risk assessment.
    - Access to SIGN-AIR data from home offices and/or mobile equipment (and mobile networks) shall be secured through a secure authentication solution.
    - All default passwords (factory settings) on systems and equipment shall be changed before the processing of SIGN-AIR data are commenced.

[14] Article 4(7) of the GDPR defined the controller as « the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data »;

3. Encryption: SIGN-AIR controller(s) shall consider technical measures to be established so that all communication (data in transit or data in rest) is encrypted.

4. Back-up: The SIGN-AIR controller(s) shall ensure that back-up copies are made of SIGN-AIR data as well as other information that is necessary for the restoration of normal operation. Back-up copies shall be stored in a locked and fire-proof facility and kept separate from operating equipment. Back-up copies shall be protected against malware and incidents.

During the project, the Project DPO had the opportunity to amend/update these minimum-security requirements.

For beneficiaries having appointed a DPO (see section 6.3), the SIGN-AIR researchers were bound to respect the additional guidelines set by their DPO. For those beneficiaries not having appointed a DPO, a detailed privacy policy submitted by them is included in Annex IV of this DMP.

7.2 Project Data Protection Officer

Given the number of beneficiaries involved in the SIGN-AIR project, a "Project Data Protection Officer" (Project DPO) was nominated. The role of the Project DPO was not take over the duties and responsibilities of the partner's Data Protection Officers (DPOs) but to ensure coordination amongst them.

In particular, the role of the Project DPO was to obtain the partner's DPOs necessary approvals and signatures before the conduction of any personal data processing operation by that partner. The role of Project DPO was ensured by FD having specific expertise in data protection law.

7.3 Partners' Data Protection Officers

Each partner of the SIGN-AIR consortium had to confirm that it has appointed a Data Protection Officer (DPO) and provide his/her contact details to the Project DPO. Under the GDPR, it is mandatory for certain controllers and processors to designate a Data Protection Officer (DPO). This is the case for all public authorities and bodies (irrespective of what data they process), and for other organisations that - as a core activity - monitor individuals systematically and on a large scale, or that process special categories of personal data on a large scale. Even when the GDPR does not specifically require the appointment of a DPO, organisations may sometimes find it useful to designate a DPO on a voluntary basis. Further guidance on the mandatory designation of a DPO can be found in the European Data Protection Board's "Guidelines on Data Protection Officers"[15].

For partners which were not required to appoint a DPO under the GDPR, a detailed data protection policy for the project had to be submitted and the contact details of the person in charge had to be provided. The partners' DPOs (or contact persons) were actively involved by the Project DPO in all privacy issues deriving from the SIGN-AIR project, including the ones related to data security.

[15] EDPB, Guidelines on Data Protection Officers ('DPOs'), as last Revised and Adopted on 5 April 2017. http://ec.europa.eu/newsroom/document.cfm?doc_id=44100

The contact details of the partners' DPOs or contact points are listed in the table below. In addition, in case a partner did not nominate a DPO, a detailed data protection policy is included in Annex IV. These contain details about the applicable data security requirements.

Table 7 - Contact details of DPOs/contact persons for data protection

Partner	Data Protection Officer/contact person	Detailed data protection policy (in case of no DPO)
UNIVERSITAT POLITECNICA DE CATALUNYA (UPC)	Delegada de Protecció de Dades Àrea Serveis Jurídics i Avaluació Riscos Universitat Politècnica de Catalunya Plaça Eusebi Güell, 6, Edifici Vèrtex Planta 2, Porta 206, 08034 Barcelona proteccio.dades@upc.edu	N/A
Univerzitet u Beogradu - Saobracajni fakultet (UB-FTTE)	Nebojša Bojović dean@sf.bg.ac.rs	N/A
AETHON ENGINEERING SINGLE MEMBER PC (AETHON)	Alex Papacharalampous a.papacharalampous@aethon.gr	N/A
ECOLE NATIONALE DE L'AVIATION CIVILE (ENAC),	Estelle CORBEL dpo@enac.fr	N/A
EUROPEAN PASSENGERS' FEDERATION IVZW (EPF)	No DPO. Contact person is Delphine Grandsart delphine.grandsart@epf.eu	A statement of compliance/data protection policy is included in Annex IV.
FUNDACIO CENTRE D'INNOVACIO I TECNOLOGIA DE LA UPC (CARNET)	Delegada de Protecció de Dades Àrea Serveis Jurídics i Avaluació Riscos Universitat Politècnica de Catalunya Plaça Eusebi Güell, 6, Edifici Vèrtex Planta 2, Porta 206, 08034 Barcelona	N/A

	proteccio.dades@upc.edu	
TIME.LEX (Timelex)	No DPO. Contact person is Stefan Van Camp stefan.vancamp@timelex.eu	A statement of compliance/data protection policy is included in Annex IV.
AUTORITAT DEL TRANSPORT METROPOLITA (ATM)	Júlia Bacaria Gea. Bacaria Legal. juliabacaria@legal-data.net. dpd@atm.cat	N/A
SMART TICKETING ALLIANCE (STA)	No DPO. The contact address for privacy matters is privacy@smart-ticketing.org	A statement of compliance/data protection policy is included in Annex IV.
AEROPORTO GUGLIELMO MARCONI DI BOLOGNA SPA (BLQ)	Bologna Airport has a DPO and the contact is dpo@bologna-airport.it. Additionally, this partner has a Data Protection Committee whose members are: - Marianna Tranchida – Legal Affairs and Regulation - Silvia Lombardi – IT & Quality Director - Luigi Ricchi – Systems Security Manager - Elena Selva – Digital & Customer Experience Manager They can be contacted at Comitato_Data_Protection@bologna-airport.it We will inform them and submit the specific activities to be done for their evaluation.	N/A
TPER S.P.A. (TPER)	Adriano Ragazzi adriano.ragazzi@tper.it	N/A
AGRUPACIO DE MUNICIPIS TITULARS DEL SERVEI DE TRANSPORT URBA DE LA REGIO	Joan Prat i Trapé	N/A

METROPOLITANA DE BARCELONA (AMTU)	jprat@amtu.cat	
FRANCK DUMORTIER JURISTE (FD)	No DPO. Contact person is Franck Dumortier Franck.dumortier@cybersecurity-law.be	A statement of compliance/data protection policy is included in Annex IV.
YDROPLANA ELLADAS ANONYMI ETAIREIA (HSP)	No DPO. Contact person is Nicolas Charalambous nc@hellenic-seaplanes.com	A statement of compliance/data protection policy is included in Annex IV.
SPARSITY	No DPO. Contact person is Josep Lluís Larriba Pey larri@sparsity-technologies.com	A statement of compliance/data protection policy is included in Annex IV.

8 Ethics

8.1 Ethical principles in European research projects

For all activities funded by the European Union, ethics is an integral part of research from beginning to end, and ethical compliance is seen as pivotal to achieve real research excellence. According to the EC, "ethical research conduct implies the application of fundamental ethical principles and legislation to scientific research in all possible domains of research"[16]. In the context of European projects, this implies that "all the research and innovation activities carried out under Horizon 2020 shall comply with ethical principles and relevant national, Union and international legislation, including the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocol. Particular attention shall be paid to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of a person, the right to non-discrimination and the need to ensure high levels of human health protection".[17]

Furthermore, in the Grant Agreement, the SIGN-AIR project consortium is committed to the obligation that "the action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles"[18]. Additionally, the beneficiaries of the SIGN-AIR project are committed to and ensure "the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities)"[19].

This implies compliance with the following principles:

- Reliability in ensuring the quality of research, reflected in the design, the methodology, the analysis and the use of resources;
- Honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way;
- Respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment;

[16] Horizon 2020 Online Manual, available at https://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/ethics_en.htm

[17] Article 19, §1 of Regulation (EU) no 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC.

[18] SIGN-AIR's Grant Agreement, Project 101114845, article 14.1.

[19] *Ibid.*, article 14.2.

- Accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts[20].

All partners of the consortium are fully committed and agreed to collaborate for the fulfilment of their above-mentioned ethical responsibilities. They are also committed to obtain all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

8.2 Implementation in the SIGN-AIR project

The SIGN-AIR project included adult human participants in a number of information gathering activities such as interviews, workshops, and focus groups.

In order to comply with the aforementioned ethical principles, before the beginning of each research activity involving human participants, each beneficiary must have obtained:

a) An ethics committee opinion. If there is no proper structure to provide authorisations/approvals in the institution performing research involving participants, based on the principle of proportionality and according to practice, the involved researcher(s) must complete an ethics checklist (see Section 8.3). This checklist must be completed by the involved researcher(s) before being involved or conducting any activity with human beings.

b) Any notification or authorisation for activities raising ethical issues required under national and/or European law needed for implementing the action tasks in question.

The table hereunder lists the ethical opinions and or approvals that are required.

Table 8 - Contact details of ethical committees/researchers in charge

Partner	Ethical committee	Approval/Opinion
UNIVERSITAT POLITECNICA DE CATALUNYA (UPC)	UPC Ethics Committee https://comite-etica.upc.edu/en/contact	Demand for approval/opinion was submitted and was approved.
Univerzitet u Beogradu - Saobracajni fakultet (UB-FTTE)	UB-FTTE Ethical Committee. It consists of five members: three are representatives of the teaching staff, one is representative of students, and one is the secretary of the Faculty (a lawyer). The chairman of the Committee is Prof. Dragana Macura (her email is d.macura@sf.bg.ac.rs)	No approval or opinion from the Ethical Committee was needed.

[20] See Annex 5 to the SIGN-AIR's Grant Agreement, Project 101114845.

AETHON ENGINEERING SINGLE MEMBER PC (AETHON)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by the researchers themselves before the beginning of each research activity involving human participants.	A letter confirming that AETHON does not have any competent internal ethical committee is included in Annex V.
ECOLE NATIONALE DE L'AVIATION CIVILE (ENAC)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by the researchers themselves before the beginning of each research activity involving human participants.	A letter confirming that ENAC does not have any competent internal ethical committee is included in Annex V.
EUROPEAN PASSENGERS' FEDERATION IVZW (EPF)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Delphine Grandsart before the beginning of each research activity involving human participants.	A letter confirming that EPF does not have any competent internal ethical committee is included in Annex V.
FUNDACIO CENTRE D'INNOVACIO I TECNOLOGIA DE LA UPC (CARNET)	CARNET does not participate in any activity involving human beings.	A letter confirming that CARNET is not organizing nor participating in any activity involving human beings is included in Annex V.
TIME.LEX (Timelex)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Stefan Van Camp before the beginning of each research activity involving human participants.	A letter confirming that TIMELEX does not have any competent internal ethical committee is included in Annex V.
AUTORITAT DEL TRANSPORT METROPOLITA (ATM)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Xavier Sanyer before the beginning of each research activity involving human participants.	A letter confirming that ATM does not have any competent internal ethical committee is included in Annex V.
SMART TICKETING ALLIANCE (STA)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Jaap de Bie before the beginning of each research activity involving human participants.	A letter confirming that STA does not have any competent internal ethical committee is included in Annex V.

AEROPORTO GUGLIELMO MARCONI DI BOLOGNA SPA (BLQ)	Internal Ethical & Anticorruption Committee. The members are: - Silvia Piccorossi – Legal, Corporate and Procurement Director (piccorossi@bologna-airport.it) - Marco Verga – HR Director (m.verga@bologna-airport.it) - Sonia Giannone – Bologna Airport Internal Auditor (giannone@bologna-airport.it) The Committee is competent to provide authorization for the tasks involving human beings.	No approval or opinion from the Internal Ethical & Anticorruption Committee was needed.
TPER S.P.A. (TPER)	PER has an internal committee that acts as supervisor but does not give any authorization. The committee supervises the respect of the ethical code, collects and controls warnings of possible violations received from TPER staff and other third parties. See https://www.tper.it/azienda/come-lavoriamo By consequence, the ethical checklist (see section 7.3) will be completed by Daniela Cocchi before the beginning of each research activity involving human participants.	No approval or opinion from the Internal Committee was needed.
AGRUPACIO DE MUNICIPIS TITULARS DEL SERVEI DE TRANSPORT URBA DE LA REGIO METROPOLITANA DE BARCELONA (AMTU)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by the researchers themselves before the beginning of each research activity involving human participants.	A letter confirming that AMTU does not have any competent internal ethical committee is included in Annex V.
FRANCK DUMORTIER JURISTE (FD)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Franck Dumortier before the beginning of each research activity involving human participants.	A letter confirming that FD does not have any competent internal ethical committee is included in Annex V.

YDROPLANA ELLADAS ANONYMI ETAIREIA (HSP)	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Nicolas Charalambous before the beginning of each research activity involving human participants.	A letter confirming that HSP does not have any competent internal ethical committee is included in Annex V.
SPARSITY	No Ethical Committee. The ethical checklist (see section 8.3) will be completed by Nicolas Charalambous before the beginning of each research activity involving human participants.	A letter confirming that SPARSITY does not have any competent internal ethical committee is included in Annex V.

8.3 Ethical checklist

In order to assess the activities with human beings before these are being conducted, the internal ethical committees of the beneficiaries may use their own templates. Optionally, they might decide to use the ethical checklist provided in this section. In case a beneficiary has no internal ethical committee, the involved researcher(s) must fill in the following ethical checklist before conducting the activity with human beings.

Identification of Partner and Ethical committee

Organization/Company/University:	
Ethical Committee's description (if applicable):	

Identification of researcher(s) introducing the form

Name of Researcher(s) introducing the form:	
Name of Supervisor(s):	
Date:	

Description of task involving human participation

Details of the recruitment, inclusion and exclusion criteria

Ethical questionnaire

	Mark with X in box	Yes	No	N/A
1	Will you describe the main experimental procedures to participants in advance, so that they are informed about what to expect?			
2	Will you ensure that the participation of participants that is voluntary?			
3	Will you obtain written consent for participation?			
4	If the research is observational, will you ask participants for their consent to being observed?			
5	Will you tell participants that they may withdraw from the research at any time and for any reason?			
6	With questionnaires, will you give participants the option of omitting questions they do not want to answer?			
7	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?			
8	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?			
9	With interviews, will you tell your participants that you wish to record the interview, and that they may decline to have their interview recorded?			
10	With research that requires audio or video recordings, will you tell your participants that their permission will be sought to play any excerpts in the course of presentations given?			

If you have marked Yes to Q1: please annex a copy of the Information Sheet

If you have marked Yes to any Q2-10: please annex Informed Consent Form

If you have marked No to any of Q1-10, please give an explanation on a separate annex. (Note: N/A = not applicable).

	Mark with X in box	Yes	No	N/A
11	Will your project involve deliberately misleading participants in any way?			
12	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort? If Yes, give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).			

If you have marked Yes to Q11 or 12, please give a full explanation on a separate annex.

	Mark with X in box	Yes	No	N/A
13	Are participants children under 18 of age?			
14	Are participants vulnerable individuals or groups?			
15	Are participants patients?			
16	Are some or all participants employees of your organization or of a partner's organization?			

If you have marked Yes to Q13, annex details of the procedures for obtaining approval from the guardian/legal representative and the agreement of the children or other minors.

If you have marked Yes to Q14, annex details of the type of vulnerability and demonstrate appropriate efforts to ensure fully informed understanding of the implications of participation.

If you have marked yes to Q15, annex your policy on incidental findings.

If you have marked yes to Q16, annex the steps you will have to ensure that participants are not subjected to any form of coercion.

This form and any attachments, along with your Consent Form and Participation Information Sheet, should be submitted to your Ethics Committee, for consideration. If your organization does not have any ethical committee, these documents should be submitted to FD. If any of the above information is missing, or if additional information is needed, your application will be returned to you.

STATEMENT OF ETHICAL APPROVAL

This task has been considered by the Ethical Committee and is now approved for the following reasons:

Signed: ……

Date: ……..

9 Other issues

In the SIGN-AIR project, two partners are located in a non-EU countries: SAP (Switzerland) and UB-FTTE (Republic of Serbia). Hence, it is likely that personal data might be transferred from Switzerland and the Republic of Serbia to the EU and vice-versa.

Therefore, the following measures have been taken in order to comply with GDPR requirements:

- On the basis of Article 45 of Regulation (EU) 2016/679 (General Data Protection Regulation (GDPR)), the European Commission determines whether a country outside the European Union (EU) offers an adequate level of data protection. The European Commission then issues an adequacy decision and carries out periodic reviews to ensure that an adequate level of data protection is still guaranteed. The effect of an adequacy decision is that personal data can flow from the EU (and from Norway, Liechtenstein and Iceland, which, as members of the European Economic Area (EEA), are also subject to the GDPR) to a third country without any additional safeguards being required. To date, the European Commission has recognised several countries as offering adequate protection. Switzerland was granted an adequacy decision on 26 July 2000[21].

- Contrary to Switzerland, the Republic of Serbia is not covered by an adequacy decision. Therefore, UB-FTTE submitted a general statement signed by the responsible person of the organization according to which in case personal data are collected in the Republic of Serbia, the processing of such data and their transfers will be carried out in compliance with the Law on Protection of Personal Data (Official Gazette of the Republic of Serbia, No. 87/2018). In case personal data are collected within the EU, or about data subject which are in the EU, the processing of personal data and their transfers will be carried out in compliance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

  This general statement is annexed to this Deliverable (see Annex VI).

[21] Commission Decision of 26 July 2000 pursuant to Directive 95/46/EC of the European Parliament and of the Council on the adequate protection of personal data provided in Switzerland (notified under document number C(2000) 2304).

10 Conclusion

The present deliverable is the final version of the SIGN-AIR's Data Management Plan (DMP). In line with the European Commission's and SESAR guidelines on open access and FAIR data principles, this DMP describes the open-access regimes for the following categories of SIGN-AIR's research outcomes: public deliverables, underlying research data and scientific publications. For each of these categories of research outcomes, this deliverable contains description templates that must be filled by the responsible beneficiaries. This DMP also deals with Responsible Research Innovation (RRI) considerations as well as with data protection and ethical issues.

Annex I - Description tables for public deliverables

This Annex contains the description tables of the public deliverables that have been submitted and approved by SESAR 3 at the time of submission of this document (M35).

Table 9 - Description Table of deliverable D1.2 – "Data Management plan (DMP) – Initial"

1. Public Deliverable Summary	
Purpose	*D1.2 is the first version of the Data management Plan that describes the data management life cycle for all datasets (containing personal data and/or non-personal data) to be collected, processed, or generated by the SIGN-AIR project. Such information includes, but is not limited to, scientific publications and deliverables issued by the project's consortium members, data Transport Service Providers' datasets (for example, public transport timetables), data originating from travel companions, anonymous user statistics, etc).*
Relation to the objectives of the project	*D1.2 covers the handling of research data during & after the project; what data will be collected, processed, or generated; what methodology & standards will be applied; whether data will be shared/made open access & how; how data will be curated & preserved. The overall aim is to comply with the FAIR principles, to take care of intellectual property rights (IPR) issues but also to deal with Responsible Research Innovation (RRI) considerations as well as with data protection and ethical issues. This DMP will be updated within the project's lifecycle, whenever significant changes arise (e.g., new data, changes in consortium policies or composition, etc.), and at least on M19 (D1.4 - Data Management Plan (DMP) – Intermediate) and M35 (D1.6 - Data Management Plan (DMP) – Final).*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 3,34 Mo – 80 pages*
Utility for others	*All consortium partners, Sesar JU, general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D1.2 metadata:* • *Name: Data Management Plan (DMP) - Initial*

	• *Author: FD* • *Keywords: Data management, datasets, research data, data protection, ethics, FAIR principles, open access, Responsible research Innovation*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_%20D1.2-%20DMP%20(Initial)_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_ D1.2- DMP (Initial)_v01.00.00.pdf*
Search keywords	*Data management, datasets, research data, data protection, ethics, FAIR principles, open access, Responsible research Innovation*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission and approval: is publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	

Licence	*No licence neeeded*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Table 10 - Description Table of deliverable D1.4 – "Data Management plan (DMP) – Intermediate"

1. Public Deliverable Summary	
Purpose	*D1.4 is the intermediate version of the Data management Plan that describes the data management life cycle for all datasets (containing personal data and/or non-personal data) to be collected, processed, or generated by the SIGN-AIR project. Such information includes, but is not limited to, scientific publications and deliverables issued by the project's consortium members, data Transport Service Providers' datasets (for example, public transport timetables), data originating from travel companions, anonymous user statistics, etc).*
Relation to the objectives of the project	*D1.4 covers the handling of research data during & after the project; what data will be collected, processed, or generated; what methodology & standards will be applied; whether data will be shared/made open access & how; how data will be curated & preserved. The overall aim is to comply with the FAIR principles, to take care of intellectual property rights (IPR) issues but also to deal with Responsible Research Innovation (RRI) considerations as well as with data protection and ethical issues.*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 4619 Ko – 100 pages*
Utility for others	*All consortium partners, Sesar JU, general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	

Metadata provision	*D1.4 metadata:* • *Name: Data Management Plan (DMP) - Initial* • *Author: FD* • *Keywords: Data management, datasets, research data, data protection, ethics, FAIR principles, open access, Responsible research Innovation*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_%20D1.4-%20DMP%20(Intermediate)_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_ D1.4- DMP (Intermediate)_v01.00.00.pdf*
Search keywords	*Data management, datasets, research data, data protection, ethics, FAIR principles, open access, Responsible research Innovation*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission and approval: is publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-

2.4. Increase data re-use (through clarifying licences)	
Licence	*No licence neeeded*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Table 11 - Description Table of deliverable D2.1 - "Communication Dissemination and Exploitation (CDE) Plan – Initial"

1. Public Deliverable Summary	
Purpose	*D2.1 details the communication, dissemination, and exploitation plan for SIGN-AIR project.*
Relation to the objectives of the project	*This report is dedicated to the planning of the SIGN-AIR's project's Communication, Dissemination and Exploitation (CDE) activities, providing the general information and the main activities that need to be performed and setting the guidelines for the consortium members. This document is an M3 initial version, so it will be dully updated in both M19 and M35.*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 2,34Mo – 79 pages*
Utility for others	*All consortium partners, Sesar JU, general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D2.1 metadata:* • *Name: Communication Dissemination and Exploitation (CDE) Plan – Initial* • *Author: CARNET, SPA*

	• *Keywords: Communication objectives and strategy, target audience, branding, communication channels, dissemination channels, KPIs, exploitation strategy and results, IPR management, cross initiatives collaborations, events, web presence*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.1_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_D2.1_v01.00.00.pdf*
Search keywords	*Communication objectives and strategy, target audience, branding, communication channels, dissemination channels, KPIs, exploitation strategy and results, IPR management, cross initiatives collaborations, events, web presence*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission: is publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	

Licence	*No licence neeeded*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Table 12 - Description Table of deliverable D2.2 – "Standardisation (STAND) – Initial"

1. Public Deliverable Summary	
Purpose	*D2.2 "Standardisation (STAND) - Initial" is the first iteration of a series of reports aiming to capture the standardisation needs of the SIGN-AIR SESAR solution.*
Relation to the objectives of the project	*This initial iteration of STAND provides all standardisation contextual information existing at the beginning of the development activities. D2.2 captures the overall status of the most widely available and used data standards per transportation mode.*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 900 Ko – 53 pages*
Utility for others	*All consortium partners, SESAR JU, Research and scientific community, Stakeholders such as TSPs, traveller associations, etc, Institutions in the field of transport (national and European), general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D2.2 Metadata:* • *Name: D2.2 – Standardisation (STAND) - Initial* • *Author: AETHON*

	• *Keywords: Standardization, Transportation, GTFS, NeTEx, SIRI, OSDM, SSIM, PADIS, NDC, AIRIMP, AIDM, AIDX, FIXM, AIXM, AMXM, BIX, RailML, DATEX II, IndoorGML*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.2_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_D2.2_v01.00.00.pdf*
Search keywords	*Standardization, Transportation, GTFS, NeTEx, SIRI, OSDM, SSIM, PADIS, NDC, AIRIMP, AIDM, AIDX, FIXM, AIXM, AMXM, BIX, RailML, DATEX II, IndoorGML*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission and approval: is publicly available through the official SIGN-AIR website.*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	

Licence	*No licence needed*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC*
Availability period	*No time limitation scheduled after the end of the project.*

Table 13 - Description Table of deliverable D2.3 – "Regulation (REG) – Initial"

1. Public Deliverable Summary	
Purpose	*D2.3 aims at the identification of regulatory need(s) and to indicate any need to amend the existing regulation or to introduce a completely new regulation regarding SIGN-AIR's Solution namely SIGN-AIR platform.*
Relation to the objectives of the project	*This report is the initial version of REG, two updates will follow in M19 and in M32. As the exact relation between the SIGN-AIR platform and the ATM system is not yet clear, the identification of the needs for amendments to the available regulations is not yet performed. However, this document detects and details the main components of the solution, and it is a first attempt to capture the regulatory needs.*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 681 Ko – 13 pages*
Utility for others	*All consortium partners, SESAR JU, Research and scientific community, Stakeholders such as TSPs, traveller associations, etc, Institutions in the field of transport (national and European), general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D2.3 Medata:* • *Name: D2.3 – Regulatory (REG) - Initial* • *Author: UB-FTTE, SPA*

	• *Keywords: SIGN-AIR platform, Legal layer, regulations, ATM, need for amendments*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.3_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_D2.3_v00.01.00.pdf*
Search keywords	*SIGN-AIR platform, Legal layer, regulations, ATM, need for amendments*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission and approval: is publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	
Licence	*No licence needed*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*

Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by UPC and FD*
Availability period	*No time limitation scheduled after the end of the project.*

Table 14 - Public Deliverable Description of D2.4 Communication Dissemination and Exploitation (CDE) Plan - Intermediate

1. Public Deliverable Summary	
Purpose	*D2.4 details the communication, dissemination, and exploitation plan for SIGN-AIR project.*
Relation to the objectives of the project	*This report is dedicated to the planning of the SIGN-AIR's project's Communication, Dissemination and Exploitation (CDE) activities, providing the general information and the main activities that need to be performed and setting the guidelines for the consortium members.*
Types/Formats	*PDF*
Re-use of any existing data	*None*
Origin	*N/A*
Size	*2,57 MB 74pages*
Utility for others	*All consortium partners, Sesar JU, general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D2.4 metadata:* *Name: Communication Dissemination and Exploitation (CDE) Plan – Initial* *•Author: UPC, SPA* *•Keywords: Communication objectives and strategy, target audience, branding, communication channels, dissemination channels, KPIs, exploitation strategy and results, IPR management, cross initiatives collaborations, events, web presence*
Metadata standards	*No specific metadata standard used*

Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.4_v01.00.00.pdf*
Naming conventions	*SIGN-AIR_D2.4_v01.00.00.pdf*
Search keywords	*Communication objectives and strategy, target audience, branding, communication channels, dissemination channels, KPIs, exploitation strategy and results, IPR management, cross initiatives collaborations, events, web presence*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission: publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*/*
Mapping to common ontologies	*/*
2.4. Increase data re-use (through clarifying licenses)	
Licence	*No license neeeded*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*

Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Table 15 - Public Deliverable Description Template – D2.5 "Standardisation (STAND) – Intermediate"

1. Public Deliverable Summary	
Purpose	*This intermediate iteration of STAND provides all standardisation contextual information existing since the beginning of SIGN-AIR's development activities until its submission deadline, as well as insight and knowledge produced during the development activities and the refinement of the use cases the project aims to serve and demonstrate, which entail specific, prominent standardisation needs. Its goal is to support industrialisation activities and assist the entry into operations of the corresponding SESAR solution. Building upon the initial report (D2.2), this deliverable offers insights into the project's progress, challenges, and opportunities in the context of various transportation modes, including rail, public transport, MaaS, and aviation. It highlights the most widely available and used data standards, as well as the specific standardisation needs identified for the project's use cases, goals and subgoals.*
Relation to the objectives of the project	*This deliverable supports WP2 by providing a clear understanding of relevant data standards required for the SIGN-AIR platform's functionalities and Monitoring Dashboard, as well as for effective communication with Travel Companions (TCs). It builds upon D2.2 by examining the progress and challenges in harmonizing data across rail, public transport, MaaS, and aviation.*
Types/Formats	*PDF*
Re-use of any existing data	*This deliverable re-uses and expands upon the initial findings from D2.2 - Standardisation (STAND) - Initial. It also incorporates data from a literature review of prominent mobility standards globally and within Europe from openly available sources. Furthermore, this deliverable utilizes insights derived from the IATA Standard Schedules Information Manual (SSIM), which was legally acquired by AETHON for the research purposes of Task 2.2. To ensure full compliance with licensing and Intellectual Property Rights (IPR), the overview provided in D2.5 is methodologically structured based on publicly accessible technical documentation and high-level summaries. No proprietary information restricted to the purchased manual is disclosed within this report; rather, the deliverable serves as a structured guide to the standard's relevance within the SIGN-AIR ecosystem, ensuring that the public dissemination remains within the scope of open-access protocols.*

Origin	*Generated through literature reviews, internal development activities, and collaborative input from consortium partners and stakeholders.*
Size	*Approximately 136 pages. Approx. 2 MB.*
Utility for others	*All consortium partners, SESAR JU, Research and scientific community, Stakeholders such as TSPs, traveller associations, etc, Institutions in the field of transport (national and European), general public.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	• *Name: D2.5 – Standardisation (STAND) – Intermediate* • *Author: AETHON* • *Keywords: Standardization, Transportation, GTFS, NeTEx, SIRI, OSDM, SSIM, PADIS, NDC, AIRIMP, AIDM, AIDX, FIXM, AIXM, AMXM, BIX, RailML, DATEX II, IndoorGML*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official website of the project at the following address: https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.5-STAND_v.00.02.00.pdf*
Naming conventions	• *SIGN-AIR_D2.5-STAND_v.00.02.00.pdf*
Search keywords	*Standardization, Transportation, GTFS, NeTEx, SIRI, OSDM, SSIM, PADIS, NDC, AIRIMP, AIDM, AIDX, FIXM, AIXM, AMXM, BIX, RailML, DATEX II, IndoorGML*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission: publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission: upload on the website, no authorisation needed*

2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*The report utilizes and references established transport vocabularies including Transmodel (NeTEx, SIRI), IATA (SSIM, NDC, AIDM), and rail standards (OSDM).*
Mapping to common ontologies	*While not mapped to a single ontology, the content is aligned with the SESAR 3 JU ATM Master Plan and the Transmodel ecosystem. The project Glossary may serve as said mapping, to ensure common understanding of terms among all project deliverables (accessible here: https://www.sign-air.eu/?page_id=152)*
2.4. Increase data re-use (through clarifying licences)	
Licence	*No Licence needed*
Re-use availability schedule	*After submission: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Table 16 - Public Deliverable Description Template – D2.6 "Regulatory (REG) – Intermediate"

1. Public Deliverable Summary	
Purpose	*D2.6 is the second iteration of a series of reports aiming to capture the regulatory needs of the SIGN-AIR SESAR solution. The purpose of this REG Deliverable is to provide a comprehensive overview of the key European regulations in the fields of 1) Data law, 2) Contract law, 3) Passenger rights law and 4) Aviation (safety) law. The aim of such an overview is to understand the scope of application of each of the applicable regulations and to clarify the legal impact that must be taken into account while developing the SIGN-AIR solution.*
Relation to the objectives of the project	*This deliverable supports WP2 by providing a clear overview of regulatory requirements and constraints to be respected when negotiating and managing Data Sharing Agreements (DSAs) and Smart Contracts (SCs) between transport service providers (TSPs).*
Types/Formats	*PDF*

Re-use of any existing data	*None*
Origin	*N/A*
Size	*Approximatively 1848 Ko – 113 pages*
Utility for others	*All consortium partners, SESAR JU, Research and scientific community, Stakeholders such as TSPs, traveller associations, etc, Institutions in the field of transport (national and European), general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*D2.3 Medata:* • *Name: D2.6 – Regulatory (REG) - Intermediate* • *Author: FD, Timelex, EPF, UB-FTTE* • *Keywords: SIGN-AIR platform, Legal layer, regulations, Data law, Contract law, Passenger rights, Aviation (safety) law*
Metadata standards	*No specific metadata standard used*
Unique identifier	*This public deliverable is available on the official SIGN-AIR website at the following address:https://www.sign-air.eu/Deliverables/SIGN-AIR_D2.6-REG_v00.01.00.pdf*
Naming conventions	*SIGN-AIR_D2.6-REG_v00.01.00.pdf*
Search keywords	*SIGN-AIR platform, Legal layer, regulations, Data law, Contract law, Passenger rights, Aviation (safety) law*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission and approval: is publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*

Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission and approval: upload on the website, no authorisation needed*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	-
Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	
Licence	*No licence needed*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by UPC and FD*
Availability period	*No time limitation scheduled after the end of the project.*

Table 17 - Description Table of deliverable D2.21 - Standardization and harmonization of SIGN-AIR technical soultion

1. Public Deliverable Summary	
Purpose	This report provides a comprehensive overview of standardisation and harmonisation strategies, as well as an elaborate plan sought for the project to achieve its objectives, specifically the utilisation of standardised data for its Monitoring Dashboard, the communication with Travel Companions, as well as to ease the contracts to have standardised data fields and facilitate the exchange of standardised data between Transport Service Providers.
Relation to the objectives of the project	*D2.21 shows how harmonization and validation of data quality of IATA SSIM and GTFS has been conducted in SIGN-AIR*
Types/Formats	*PDF*

Re-use of any existing data	*None*
Origin	*N/A*
Size	*4,60 MB -68 pages*
Utility for others	*All consortium partners, SESAR JU, Research and scientific community, Stakeholders such as TSPs, traveller associations, etc, Institutions in the field of transport (national and European), general public*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	• *Name: D2.21 - Standardization and harmonization of SIGN-AIR technical soultion* •*Author: AETHON* •*Keywords: Standardization, Harmonization, IATA SSIM, GTFS*
Metadata standards	*No specific metadata standard used*
Unique identifier	
Naming conventions	• *Naming convention used: SIGN-AIR_ D2.21 - Standardization and harmonization of SIGN-AIR technical solution_v00.01.00*
Search keywords	*Standardization, Harmonization, IATA SSIM, GTFS*
Version control	*All changes are reported in the document history section.*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: PU (public)*
Sharing and access regimes	*Before submission: available only to consortium partners through the SIGN-AIR project repository (GDrive)* *After submission: publicly available through the official SIGN-AIR website*
Needed method/software	*No special software needed for the PDF format*
Repository	*SIGN-AIR project repository (GDrive) and SIGN-AIR official website*
Access authorisation	*Before submission: accessible only by authorised consortium partners* *After submission: upload on the website, no authorisation needed*

2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	/
Mapping to common ontologies	/
2.4. Increase data re-use (through clarifying licences)	
Licence	*No license neeeded*
Re-use availability schedule	*After submission and approval: immediately granted free open Access for mining, exploiting, processing and disseminating.*
Re-use by third parties	*After submission and approval: Accessible and re-usable by third-parties. No access and time limitations apply.*
Quality assurance	*Internal quality audit control by SPA and UPC.*
Availability period	*No time limitation scheduled after the end of the project.*

Annex II – Description tables for research data

This Annex contains the description tables of the research datasets collected at the time of submission of this document (M35).

Table 18 - Research Data Description Table BLQ-API

1. Data summary	
Type	*Dataset shared by TSP*
Purpose	*Creation of timetables synchronization module*
Relation to the objectives of the project	*SIGN-AIR platform at the phase of negotiation provides the opportunity at the TSPs to use the external module of synchronization upload their planned schedules in order to identify the most promising combined itineraries between two TSPs and based on a specific hub.*
Types/Formats	*'json' files obtained from API*
Re-use of any existing data	*List of Airports and Airport-station connections*
Origin	*Bologna Airport (LIPE, BLQ)*
Size	*~30MB (each API call, which gives 1 day of data)*
Utility for others	*Help improve scheduling and optimize multi-modal connections.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Not available*
Metadata standards	*Does not apply*
Unique identifier	*None, data is identified by the date it was obtained*
Naming conventions	*Provided by the airport*
Search keywords	*BLQ, LIPE, Airport, data, Airplane, Bologna*
Version control	*Not managed*
2.2 Making data openly Accessible	
Classification	*Restricted, access via API keys*

Sharing and access regimes	*Only accessible verification users via API key.*
Needed method/software	*API call*
Repository	*BLQ Airport server*
Access authorisation	*Airport of Bologna*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Convert json to csv, preprocess and modify to fit Eurocontrol standards*
Mapping to common ontologies	*Eurocontrol standards*
2.4. Increase data re-use (through clarifying licences)	
Licence	*Proprietary License – see Annex VII of this deliverable*
Re-use availability schedule	*Access upon request*
Re-use by third parties	*Limited to authorised users through API*
Quality assurance	*It was provided by the airport, not needed*
Availability period	*Until expiration of contract*

Table 19 - Research Data Description Table SNCF data

1. Data summary	
Type	*Datasets shared by TSP*
Purpose	*Creation of timetables synchronization module*
Relation to the objectives of the project	*SIGN-AIR platform at the phase of negotiation provides the opportunity at the TSPs to use the external module of synchronization upload their planned schedules in order to identify the most promising combined itineraries between two TSPs and based on a specific hub.*
Types/Formats	*GTFS zip file*

Re-use of any existing data	*Not needed*
Origin	*https://transport.data.gouv.fr/datasets/horaires-des-lignes-ter-sncf*
Size	*~250KB*
Utility for others	*Help improve public transportation scheduling and optimize multi-modal connections.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Not available*
Metadata standards	*GTFS standards*
Unique identifier	-
Naming conventions	*GTFS standard format*
Search keywords	*SNCF, GTFS*
Version control	*Tracked by publication date*
2.2 Making data openly Accessible	
Classification	*Open source*
Sharing and access regimes	*Everyone can access*
Needed method/software	*Direct download of GTFS in ZIP format.*
Repository	*GTFS link provided.*
Access authorisation	*None*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*GTFS standard*
Mapping to common ontologies	*Already in GTFS standard*

2.4. Increase data re-use (through clarifying licences)	
Licence	*Creative Commons Attribution*
Re-use availability schedule	*Access upon request*
Re-use by third parties	*Everyone can access*
Quality assurance	*Validated with https://github.com/MobilityData/gtfs-validator*
Availability period	*No time restrictions*

Table 20 - Research Data Description Table Trenitalia Data

1. Data summary	
Type	*Datasets shared by TSPs*
Purpose	*Creation of timetables synchronization module*
Relation to the objectives of the project	*SIGN-AIR platform at the phase of negotiation provides the opportunity at the TSPs to use the external module of synchronization upload their planned schedules in order to identify the most promising combined itineraries between two TSPs and based on a specific hub.*
Types/Formats	*GTFS zip file*
Re-use of any existing data	*Not needed*
Origin	*https://mobilitydatabase.org/feeds/mdb-840*
Size	*~2MB*
Utility for others	*Help improve public transportation scheduling and optimize multi-modal connections.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Not available*
Metadata standards	*GTFS standards*
Unique identifier	*http://dati.toscana.it/dataset/8bb8f8fe-fe7d-41d0-90dc-49f2456180d1*

Naming conventions	*GTFS standard format*
Search keywords	*Trenitalia, Emilia Romagna, GTFS,*
Version control	*Tracked by publication date*
2.2 Making data openly Accessible	
Classification	*Open source*
Sharing and access regimes	*Everyone can access*
Needed method/software	*Direct download of GTFS in ZIP format.*
Repository	*GTFS link provided.*
Access authorisation	*None*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*GTFS standard*
Mapping to common ontologies	*Already in GTFS standard*
2.4. Increase data re-use (through clarifying licences)	
Licence	*Creative Commons Attribution*
Re-use availability schedule	*Access upon request*
Re-use by third parties	*Everyone can access*
Quality assurance	*Validated with https://github.com/MobilityData/gtfs-validator*
Availability period	*No time restrictions*

Table 21 - Research Data Description Table Istanbul Airport Data

1. Data summary	
Type	*Datasets shared by TSP*

Purpose	*Creation of timetables synchronization module*
Relation to the objectives of the project	*SIGN-AIR platform at the phase of negotiation provides the opportunity at the TSPs to use the external module of synchronization upload their planned schedules in order to identify the most promising combined itineraries between two TSPs and based on a specific hub.*
Types/Formats	*xlsx file*
Re-use of any existing data	*List of Airports and Airport-station connections*
Origin	*Provided by the Istanbul Airport*
Size	*~4MB*
Utility for others	*Help improve scheduling and optimize multi-modal connections.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Not available*
Metadata standards	*Does not apply*
Unique identifier	*06.11.24_IST DEMO DATA_SIGN-AIR*
Naming conventions	*Provided by the airport*
Search keywords	*IST, Istanbul, Istanbul Airport*
Version control	*Not Managed*
2.2 Making data openly Accessible	
Classification	*Restricted access*
Sharing and access regimes	*Unable to share, provided by airport*
Needed method/software	*Downloading the provided xlsx file directly*
Repository	*Istanbul airport data server*
Access authorisation	*Forbidden, file provided directly*
2.3. Making data interoperable	

Data/metadata vocabularies and other I/O standards	*Convert xlsx to csv, preprocess and modify to fit Eurocontrol standards*
Mapping to common ontologies	*Transform data to Eurocontrol format*
2.4. Increase data re-use (through clarifying licences)	
Licence	-
Re-use availability schedule	*Does not apply*
Re-use by third parties	*Not possible*
Quality assurance	*Provided by the airport itself*
Availability period	*Until contract expiration*

Table 22 - Research Data Description Table Eurocontrol Data

1. Data summary	
Type	*Datasets shared by TSP*
Purpose	*Creation of timetables synchronization module*
Relation to the objectives of the project	*SIGN-AIR platform at the phase of negotiation provides the opportunity at the TSPs to use the external module of synchronization upload their planned schedules in order to identify the most promising combined itineraries between two TSPs and based on a specific hub.*
Types/Formats	*csv files*
Re-use of any existing data	*Does not apply*
Origin	*https://www.eurocontrol.int/our-data*
Size	*~230 MB*
Utility for others	*Obtaining lists of aircrafts, airports, companies and their IATA-ICAO codes*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	

Metadata provision	*Provided with the data*
Metadata standards	*Eurocontrol Standards*
Unique identifier	*extract-20240920120012873-31mar24-29mar25-u*
Naming conventions	*Eurocontrol*
Search keywords	*Eurocotrol data, Eurocontrol sample*
Version control	*Tracked by publication date*
2.2 Making data openly Accessible	
Classification	*Open source*
Sharing and access regimes	*Open for all R&D use*
Needed method/software	*Direct download from the link provided. It is needed to log in to the Eurocontrol portal and agree on terms and conditio*
Repository	OneSky - Eurocontrol servers
Access authorisation	*OneSky user authentification*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Eurocontrol standards*
Mapping to common ontologies	*Not needed*
2.4. Increase data re-use (through clarifying licences)	
Licence	*Terms And Conditions: https://www.oneskyapp.com/terms/*
Re-use availability schedule	*Limited to R&D*
Re-use by third parties	*Limited to R&D*
Quality assurance	*Provided by Eurocontrol*
Availability period	*No time limit*

Table 23 - Research Description Table French NAP Air transport Data

1. Data summary	
Type	*Air Transport datasets from the French National Access Point for transport open data (https://transport.data.gouv.fr/datasets?locale=en&type=air-transport)*
Purpose	*For WP2 – Lot1 – T2.2 – Development and internal testing of the IATA SSIM standardisation mechanism in the TransiTool environment – usage of a sample for demonstration to consortium members (internal meeting)*
Relation to the objectives of the project	*The acquired air transport data directly supported the objectives of ex. D2.21 of T2.2 and the SIGN-AIR project. These datasets enabled the development of the IATA SSIM standardization mechanism within TransiTool. This mechanism harmonizes SSIM with multimodal transport standards like GTFS and NeTEx, addressing the challenge of non-standardized data and enhancing data-sharing capabilities between transport service providers (TSPs). By aligning with T2.2 objectives, this work facilitates data-driven decision-making, improves operational coordination, and ensures the seamless integration of aviation with other transport modes.* *The acquisition of the open data from France's NAP is related to the Objective 3 of the project, "Study and determine the current state of data standards harmonization for public transport and air transport", as well as Objective 5, "Execute demonstrations of SIGN-AIR in various environments achieving TRL 7". As the task states, TransiTool will be connected with SIGN-AIR platform, therefore the internal testing and demonstration, with the use of the data, ensured the readiness of the IATA SSIM mechanism.*
Types/Formats	*IATA's Standard Schedules Information Manual (SSIM), CSV*
Re-use of any existing data	*The data acquired as part of the SIGN-AIR project for the development and internal testing of the IATA SSIM standardization mechanism is intended solely for internal use by the project's consortium members.* *While the data is derived from open-access source, its use within the SIGN-AIR project is restricted to the objectives defined under the Grant Agreement. The data will not be reproduced, redistributed, or otherwise utilized outside the project consortium in any reports, publications, presentations, or other forms of documentation.*
Origin	*Website: https://transport.data.gouv.fr/datasets?locale=en&type=air-transport* *The website is part of data.gouv.fr, which is the French government's official open data platform. This platform serves as a National Access Point*

	(NAP) for transport data in compliance with European Union regulations on mobility and transport.
Size	*The total size of the datasets is approximately 113.11 MB.*
Utility for others	*Limited*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Programme des vols Air France KLM* • *Resource: afkltohv-20dec24-27oct24-25oct25-u.ssim* • *Format: SSIM* • *Size: 108.7 MB* • *Description: Flight schedules operated by the AIR FRANCE-KLM group (AF, KL, TO, HV) between 31/03/2024 and 29/03/2025 in SSIM format. Program updated on 20/09/2024.* • *Download Link: https://transport.data.gouv.fr/resources/80766* *Programme des vols Corsair* • *Resource: programme-des-vols-corsair.ssim* • *Format: SSIM* • *Size: 1.42 MB* • *Description: Flight schedules for Corsair.* • *Download Link: https://transport.data.gouv.fr/resources/82270* *Programme des vols TUI* • *Resource: france-s23.csv* • *Format: CSV* • *Size: 115.83 KB* • *Description: Flight schedules for TUI.* • *Download Link: https://transport.data.gouv.fr/resources/80760*
Metadata standards	*No specific metadata standard used.*

Unique identifier	*No specific identifier.*
Naming conventions	*ssimw24-1-.ssim* *ssims24.ssim* *afkltohv-20dec24-27oct24-25oct25-u.ssim* *programme-des-vols-corsair.ssim* *france-s23.csv*
Search keywords	*IATA, SSIM, Air, Transport, Open, Data*
Version control	*Created: 11/06/2024 2:23 PM* *Last Modified: 11/11/2024 6:57 PM*
2.2 Making data openly Accessible	
Classification	*Open Data (public)*
Sharing and access regimes	Stored in AETHON's internal repository (OneDrive), with access restricted to authorised personnel within AETHON. Available to consortium partners upon request, in accordance with the terms of open data sharing. The data is publicly available on the French government portal and is intended for internal research and development purposes. All users must adhere to the terms outlined by the data provider when using or distributing the data.
Needed method/software	*XML viewer, CSV reader, MS Excel or similar dedicated software*
Repository	AETHON's One Drive This data was originally sourced from the French government's open data repository, Transport.data.gouv.fr. Datasets were downloaded from said portal and stored in AETHON's repository for its internal development and testing purposes. While the data is publicly available on the French government portal, AETHON assumes no liability for the accuracy, completeness, or timeliness of the information.
Access authorisation	*Accessible to authorised AETHON personnel.*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*International Air Transport Association (IATA) Standard Schedules Information Manual (SSIM)* *Comma-Separated Values (CSV)*

Mapping to common ontologies	-
2.4. Increase data re-use (through clarifying licences)	
Licence	*Programme des Vols Aircorsica: Licence Ouverte — version 2.0*
Re-use availability schedule	*Stored in AETHON's internal repository (OneDrive), with access restricted to authorised personnel within AETHON. Available to consortium partners upon request, in accordance with the terms of open data sharing. The data is publicly available on the French government portal and is intended for internal research and development purposes. All users must adhere to the terms outlined by the data provider when using or distributing the data.*
Re-use by third parties	*Available to consortium partners upon request, in accordance with the terms of open data sharing. The data is publicly available on the French government portal and is intended for internal research and development purposes. All users must adhere to the terms outlined by the data provider when using or distributing the data.*
Quality assurance	*High, in terms of accuracy, standardisation, accessibility. Please not that the fact that data is provided via the Transport.data.gouv.fr portal does contribute to a level of quality assurance, but the overall quality assurance still depends significantly on the data providers.*
Availability period	*No specific time limitation scheduled after the end of the project.*

Table 24 - Research Description Table Payern Airport historical data

1. Data summary	
Type	*Sample of historical data of Payern Airport, provided by SAP*
Purpose	*The acquisition of historical airport data from the Payern Airport, provided by SAP, member of the SIGN-AIR consortium, had the sole purpose of acquiring insight into the airport data and the format of them, for internal purposes and specifically for the WP2 – Lot 1 – T2.2. The acquisition of the data sample's aim was to facilitate our understanding of current practices, the data format the Payern airport for its operations (planning and executing its flights), the process of data acquisition, confirmation and data collected by Eurocontrol, and thus explore whether the said airport utilises the IATA SSIM standard, what data format is utilised, as well as what data attributes are mandatory for such operations.*

Relation to the objectives of the project	*The acquisition of the SAP data sample served the purposes of T2.2 and the project's Objective 3, "Study and determine the current state of data standards harmonization for public transport and air transport".*
Types/Formats	*Xlsx*
Re-use of any existing data	*Strictly internally, for research purposes, the data will not be reproduced in any publications/reports/presentations or any other form of documents anywhere outside the project's consortium in any way, neither during nor after the completion of the project. Data will be stored in AETHON's internal repositories, to which only authorised personnel of AETHON has access.*
Origin	*Consortium partner SAP: Swiss Aeropole SA*
Size	*41.8 KB*
Utility for others	*Limited*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Name: SAP_dataSample_PayernAirport_V2.xlsx* Author: Calmander Didier on 3/5/2024, 3:28 PM Last Modified by: Frederic Chambour on 23/5/2024, 6:40 PM
Metadata standards	*No specific metadata standard used*
Unique identifier	*No specific identifier*
Naming conventions	*SAP_dataSample_PayernAirport_V2.xlsx*
Search keywords	*Data, sample, Payern, airport, swiss, aeropole, Eurocontrol, estimated, time, arrival, departure*
Version control	*Created:* 23/5/2024, 6:53 PM *Last Modified: 24/5/2024, 9:57 AM*
2.2 Making data openly Accessible	
Classification	*Confidentiality level: SEN (sensitive)*
Sharing and access regimes	Stored in AETHON internal repository (One Drive), accessed only by authorised personnel of AETHON. Available only to consortium partners

	only upon request and discretion is advised. For internal research purposes only.
Needed method/software	*MS Excel*
Repository	AETHON's One Drive
Access authorisation	*Accessible to authorised AETHON personnel and to specific consortium members upon request and after the provision of justification and agreeing to not distributing outside the consortium in any way.*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Payern Airport Working Process and data samples*
Mapping to common ontologies	*flight schedule information, trip schedule information*
2.4. Increase data re-use (through clarifying licences)	
Licence	*The file was provided by SAP as a sample of historical data, property of SAP, restrictions apply.*
Re-use availability schedule	*No sharing, neither during the lifecycle of the project nor after its completion, in any way.*
Re-use by third parties	*No sharing, neither during the lifecycle of the project nor after its completion, in any way.*
Quality assurance	*High – quality assurance guarantee by SAP*
Availability period	*No specific time limitation scheduled after the end of the project.*

Table 25 - Research Data Description Template – Flight Schedules data from BLQ

1. Data summary	
Type	*Datasets shared by Transport Service Providers (TSPs) (BLQ), including static flight schedules (PDF) , API JSON structures from the AdB API Portal , and intermediate CSV/Excel conversion files.*
Purpose	*To retrieve, harmonize, and convert Bologna Airport flight schedule data into standardized formats (GTFS and NeTEx). This enables the integration of aviation information into multimodal systems.*

Relation to the objectives of the project	*Supports Task 2.2 (Standardisation) by providing the raw material for the TransiTool conversion engine. This facilitates multimodal integration and the reflection of flight data in the TPER Travel Companion (TC).*
Types/Formats	*Raw: PDF and JSON. Intermediate: XLSM and CSV. Final Output: GTFS and NeTEx (XML).*
Re-use of any existing data	*Re-uses official historical Bologna Airport static timetables (e.g., Summer 2025) and live/scheduled data accessible via the AdB API Portal.*
Origin	*Bologna Airport (Aeroporto Guglielmo Marconi di Bologna S.p.A. - AdB).*
Size	*Static schedules are ~2-5 MB per season; API responses are small (KB), while converted GTFS/NeTEx feeds vary based on the schedule depth.*
Utility for others	*Useful for TransiTool developers for validation, TPER for Travel Companion integration, and the SESAR 3 JU for multimodal interoperability research.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	*Metadata is added manually and includes TSP Source (AdB), Data Type (Aviation/Multimodal), Validity Period (e.g., Summer 2025), and versioning details.*
Metadata standards	*Aligned with GTFS metadata requirements and the NeTEx Italian Profile (v.4.0.2).*
Unique identifier	*Unique IDs are assigned via the SIGN-AIR project repository and the AdB API endpoint identifiers.*
Naming conventions	*Dati Voli – Copia.xlsx* *ImportExport – Sample Data – Copia.xlsx* *ImportExport - Sample Data - mod 01.09.25_BLQ.xlsm* *Orario_voli_summer_2025.pdf*
Search keywords	*Bologna Airport, AdB, Flight Schedule, GTFS, NeTEx, TPER, Multimodal, TransiTool.*
Version control	*Managed through the BLQ internal drives, AETHON internal drives and internal document history logs. These can be shared with the rest of the consortium upon request to the data owner (BLQ), as the exchange of data was restricted for research and harmonisation purposes strictly in the context of the project and specifically T2.2.*

2.2 Making data openly Accessible	
Classification	*Raw data: CO (Confidential) during processing.*
Sharing and access regimes	Shared with AETHON by BLQ via mail and the authorised access to the AdB API Portal.
Needed method/software	*TransiTool (for conversion) , JSON parsers , Excel/CSV editors , and PDF readers.*
Repository	Source Data at Bologna Airport API Portal. AETHON stored locally in internal OneDrive.
Access authorisation	*API access requires Auth0 authentication and client credentials. OneDrive of AETHON is accessible only to authorised employees, subject to restrictions and obligations outlined in their contracts.*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Uses GTFS vocabularies and the CEN Transmodel-based NeTEx Italian Profile.*
Mapping to common ontologies	*Mapped to the Transmodel ontology via the NeTEx conversion process to ensure multimodal alignment.*
2.4. Increase data re-use (through clarifying licences)	
Licence	*Data are being governed by specific agreement signed between Bologna Airport and AETHON. The document called AdB API Portal Conditions of Use dictated the data usage, which is restricted to specific purposes defined in the access request [access to API Portal]: "To support collaborative work on the SIGN-AIR project, assess the feasibility of converting planned flight data into the NeTEx format, and proceed with mapping and conversion." Access is granted specifically to AETHON Engineering for the SIGN-AIR project. Data must be used in compliance with AdB's "Ethical Code of Conduct" and "Model 231". Bologna Airport disclaims responsibility for data accuracy and completeness, as the data originates from external sources.*
Re-use availability schedule	*Were made immediately available for T2.2 activities and TPER TC integration after validation for the purposes of November 2025 workshop in Bologna Airport (in person meeting of the project).*
Re-use by third parties	*Standardized GTFS/NeTEx files may be re-usable by third parties BLQ signs relevant agreement with (TPER) to enhance multimodal travel information services. Raw data of BLQ are proprietary, raw API access and raw JSON*

	structures remain under the control of AdB and their provider, Ammagamma.
Quality assurance	*Validated via TransiTool's internal audit logs and compared against AdB's official static timetables.*
Availability period	*Retained for at least 5 years after the project ends, as per SESAR 3 JU regulations.*

Table 26 - Research Data Description Template - AdB GTFS Dataset (Winter 2025/2026)

1. Data summary	
Type	*Standardized GTFS Dataset. A collection of machine-readable text files (agency.txt, stops.txt, routes.txt, etc.) representing airport flight schedules in a public transport format.*
Purpose	*To provide a validated, standardized dataset for the November 2025 workshop and to support the integration of flight data into the TPER Travel Companion and TransiTool validation.*
Relation to the objectives of the project	*Directly supports the project's goal of multimodal standardisation. It serves as a pilot for aviation-to-GTFS conversion and prepares the ground for NeTEx harmonisation.*
Types/Formats	*GTFS (General Transit Feed Specification). Files are in .txt (CSV-formatted) standard compliant with GTFS rules.*
Re-use of any existing data	*Derived from raw schedule data provided via the AdB API Portal and static schedules (e.g., Winter 2025/2026 period).*
Origin	*Produced by the SIGN-AIR project (AETHON/TransiTool) based on source data from Bologna Airport (AdB).*
Size	*Small-scale dataset (~100 KB total for the shared text files) covering specific sample routes such as BLQ to Budapest (BUD), Brussels (CRL), and Malta (MLA).*
Utility for others	*High utility for transport authorities (TPER), app developers, and the SESAR JU as a reference for aviation-multimodal interoperability.*
2. FAIR data	
2.1. Making data findable, including provisions for metadata	

Metadata provision	*Metadata is embedded within feed_info.txt, identifying "Bologna Airport" as the publisher.*
Metadata standards	*Fully compliant with GTFS metadata standards (Google/MobilityData) and aligns with the Italian NeTEx Profile for structural consistency.*
Unique identifier	*Unique IDs are assigned to routes (e.g., BLQ-BUD_FR) and agencies (FR for Ryanair) within the feed.*
Naming conventions	*Feed_info.zip*
Search keywords	*Bologna Airport, GTFS, Winter 2025, Multimodal, Workshop Data, Ryanair, TransiTool.*
Version control	*Feed versioning is tracked in feed_info.txt. Valid from 2025-10-17 to 2026-01-15.*
2.2 Making data openly Accessible	
Classification	*PU (Public). The dataset was provided to AETHON for validation and alignment purposes, and intended for dissemination and integration into TPER specific Travel Companion (TC) for the demonstration provided by TPER in Bologna Airport in the dedicated workshop of November 2025.*
Sharing and access regimes	Shared with AETHON by BLQ via email. Stored in AETHON's OneDrive in the dedicated project folder.
Needed method/software	*Any GTFS validator, text editor, or GIS software (for shapes.txt).*
Repository	OneDrive of AETHON, under SIGN-AIR dedicated folder until data owner (BLQ) dictates otherwise.
Access authorisation	*No specific authorization required for the standardized output; however for proper data management purposes, only authorised personnel of AETHON have access to AETHON's OneDrive and the dedicated folder, all subject to their terms, restrictions and obligations reflected in their contracts.*
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	*Uses standard GTFS vocabularies. Agency timezones (e.g., Europe/Dublin) and stop coordinates are globally standardized.*
Mapping to common ontologies	*Mapped to the Transmodel framework via its GTFS representation, ensuring the data can be converted to NeTEx if required for TPER integration.*

2.4. Increase data re-use (through clarifying licences)	
Licence	*Creative Commons Attribution 4.0 (CC-BY 4.0).*
Re-use availability schedule	*Available immediately for the November 2025 workshop and subsequent pilot testing.*
Re-use by third parties	*Third-party developers can use this feed to display Bologna Airport flights alongside local bus/rail services after agreeing with BLQ.*
Quality assurance	*Validated using feed_info.txt start/end dates and manual cross-checks of stop_times.txt against official AdB timetables.*
Availability period	*Maintained for 5 years after project completion (2031) per SESAR JU rules.*

Table 27 – Research Data Description Table EUROCONTROL flight schedule

1. Data summary	
Type	Dataset – flight schedule and operational performance data
Purpose	The dataset was used to test and validate algorithms developed within the project, in particular those related to flight schedule processing, timing consistency, trajectory-related calculations, and performance assessment under realistic European traffic conditions.
Relation to the objectives of the project	These data were needed to test and validate the algorithms developped for the task T2.12 Optimization algorithms for operations The data supports project objectives related to technological validation, algorithm verification, and maturity assessment by providing realistic air traffic inputs representative of European operations for validation at the targeted TRL levels.
Types/Formats	Structured tabular data, mainly in CSV format (comma-separated values), including timestamps, airport identifiers, aircraft characteristics, and flight performance attributes.
Re-use of any existing data	Yes. The dataset is an existing dataset provided through the EUROCONTROL BADA repository and was reused for research and validation purposes within the project.
Origin	External source: EUROCONTROL – Base of Aircraft Data (BADA) repository.
Size	201,8 MB

Utility for others	The dataset is useful for researchers and practitioners working on air traffic modelling, trajectory prediction, network performance analysis, and algorithm validation, subject to EUROCONTROL's data access conditions and licensing terms.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Metadata are provided by EUROCONTROL as part of the BADA dataset documentation, describing the structure, fields, units, and scope of the data.
Metadata standards	EUROCONTROL flight format EUROCONTROL internal data description standards and structured tabular field definitions
Unique identifier	N/A
Naming conventions	Flight_starting-date_ending-date.csv The date format is yyyymmdd
Search keywords	Flight schedule data, air traffic operations, EUROCONTROL, BADA, aircraft performance, itinerary, timetable, aviation validation.
Version control	Versioning is managed by EUROCONTROL. The project uses a fixed dataset version to ensure reproducibility of validation results.
2.2 Making data openly Accessible	
Classification	Restricted data. Access is subject to EUROCONTROL terms and conditions and is not openly accessible without authorisation.
Sharing and access regimes	Data access is governed by EUROCONTROL's data-sharing policies. The dataset is used exclusively for research and validation purposes within the project scope.
Needed method/software	Standard data analysis tools capable of processing CSV files (e.g. Python, R, MATLAB, spreadsheet software). No proprietary software is required for reading the data.
Repository	EUROCONTROL BADA repository.
Access authorisation	Access requires authorisation from EUROCONTROL and compliance with applicable licence conditions.
2.3. Making data interoperable	

Data/metadata vocabularies and other I/O standards	The dataset uses widely accepted aviation data conventions, including ICAO airport codes, standard aircraft type designators, UTC-based timestamps, and structured tabular formats (CSV).
Mapping to common ontologies	No explicit mapping to external semantic ontologies is provided. However, the use of standard aviation identifiers facilitates interoperability with other ATM and transport datasets.
2.4. Increase data re-use (through clarifying licences)	
Licence	*The dataset is subject to the EUROCONTROL BADA licence and associated usage restrictions.*
Re-use availability schedule	Re-use is determined by EUROCONTROL and available in accordance with their data access policies.
Re-use by third parties	Third-party re-use is possible only if permitted under EUROCONTROL licensing terms; the project does not redistribute the data.
Quality assurance	*Data quality assurance is performed by EUROCONTROL prior to release. Within the project, additional checks were conducted to verify data consistency and suitability for validation purposes.*
Availability period	*The dataset remains available through the EUROCONTROL BADA repository for authorised users, subject to EUROCONTROL's retention and access policies.*

Table 28 — Research Data Description Table SNCF train schedule

1. Data summary	
Type	Dataset – GTFS (General Transit Feed Specification) timetable data for rail transport
Purpose	The dataset was used to support the development and validation of multimodal algorithms by providing realistic railway timetable data. It enabled the testing of data ingestion, timetable harmonisation, connectivity calculation, and multimodal itinerary construction involving rail transport.
Relation to the objectives of the project	The data contributes directly to project objectives related to multimodal transport integration, interoperability between air and rail timetables, and technological validation of digital solutions supporting passenger itineraries at the targeted TRL levels.

Types/Formats	Structured datasets compliant with the GTFS standard, typically delivered as CSV files packaged in ZIP format (e.g. stops.txt, trips.txt, stop_times.txt, routes.txt, calendar.txt).
Re-use of any existing data	Yes. The dataset is reused from an existing open data source published by SNCF and was employed for research and technological validation purposes.
Origin	External source: SNCF Open Data portal (GTFS train schedules – Horaires SNCF dataset).
Size	agency.txt 117 B calendar_dates.txt 164 kB feed_info.txt 192 B routes.txt 6,5kB stop_times.txt 1,6 MB stops.txt 36,8 kB tarifs.csv 1,4 MB transfers.txt 81 B trips.txt 332,6 kB
Utility for others	The dataset is valuable for researchers, system developers, and transport planners working on multimodal journey planning, timetable analysis, rail-air integration, and transport performance assessment, subject to SNCF open-data licence conditions.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Metadata are provided by SNCF through the open data portal, including dataset description, temporal coverage, update frequency, and structure of GTFS files.
Metadata standards	GTFS standard metadata and file specifications as defined by the General Transit Feed Specification; dataset-level metadata provided via the SNCF Open Data platform.
Unique identifier	The dataset is uniquely identifiable via the SNCF Open Data portal (Horaires SNCF GTFS dataset), including dataset identifier and version/date of publication.
Naming conventions	File and field naming conventions follow the GTFS specification (e.g. stops.txt, trips.txt, stop_times.txt). Standard identifiers such as station codes and service IDs are used.

Search keywords	GTFS, SNCF, rail timetable, train schedules, public transport, multimodal transport, journey planning.
Version control	Versioning and updates are managed by SNCF. For validation purposes, a fixed snapshot corresponding to the first week of June 2024 was used to ensure result reproducibility.
2.2 Making data openly Accessible	
Classification	Open data.
Sharing and access regimes	The dataset is publicly available via the SNCF Open Data portal and may be accessed without authentication, subject to licence conditions.
Needed method/software	Standard tools capable of processing GTFS and CSV files (e.g. Python, R, Java-based GTFS libraries, spreadsheet tools). No proprietary software is required.
Repository	SNCF Open Data portal: Horaires SNCF dataset.
Access authorisation	No prior authorisation required; access is open under the terms of the SNCF open-data licence.
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	Data fully comply with the GTFS standard, a widely adopted international specification for public transport timetables. CSV formats and standard identifiers ensure high interoperability.
Mapping to common ontologies	No explicit semantic ontology mapping is provided, but GTFS compliance enables straightforward integration with other transport datasets and multimodal journey planning systems.
2.4. Increase data re-use (through clarifying licences)	
Licence	SNCF Open Data Licence (as specified on the SNCF Open Data portal).
Re-use availability schedule	Data are continuously available and regularly updated by SNCF; reuse is permitted according to licence terms.
Re-use by third parties	Allowed, including for research and development purposes, provided that licence conditions and attribution requirements are respected.
Quality assurance	Data quality checks are performed by SNCF prior to publication. Additional validation and consistency checks were carried out within the project to ensure suitability for algorithm validation.

Availability period	The dataset remains available on the SNCF Open Data portal, subject to SNCF publication and maintenance policies.

Table 29 — Research Data Description Table OAG flight schedule

1. Data summary	
Type	Dataset – commercial flight schedule data
Purpose	The dataset was used to support the development, testing, and validation of algorithms handling air transport schedules. In particular, it enabled the assessment of flight timetable ingestion, schedule consistency, frequency analysis, connectivity computation, and integration with other transport modes within the project's research activities.
Relation to the objectives of the project	The data directly supports project objectives related to technological validation, multimodal itinerary construction, and interoperability by providing representative commercial flight schedules used to validate digital solutions at the targeted TRL levels.
Types/Formats	Structured tabular data, typically delivered in CSV-like format, including airline identifiers, origin/destination airports, operating days, departure and arrival times, aircraft type, frequency, capacity, and time-series information.
Re-use of any existing data	Yes. The dataset consists of existing commercial schedule data sourced from OAG and reused for research, testing, and validation purposes within the project.
Origin	External source: OAG (Official Airline Guide) – Schedules Analyser platform.
Size	194,9 MB
Utility for others	The dataset is valuable for researchers, system developers, and analysts working on air traffic network analysis, schedule optimisation, connectivity studies, and multimodal transport integration, subject to OAG's licensing and usage conditions.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Metadata are provided by OAG as part of the Schedules Analyser service, describing dataset scope, temporal coverage, data fields, and update

	cycles. Additional contextual metadata related to the project use case are maintained at project level.
Metadata standards	Proprietary OAG metadata definitions and structured field descriptions; no external mandatory metadata standard is applied.
Unique identifier	The dataset is uniquely identifiable through the OAG Schedules Analyser platform, including customer account, dataset configuration, and time-series identifiers associated with extracted data snapshots.
Naming conventions	Fields follow OAG naming conventions (e.g. carrier codes, origin/destination IATA airport codes, departure/arrival times, operating days).
Search keywords	OAG, flight schedules, airline timetables, air transport, commercial aviation, connectivity analysis, multimodal research.
Version control	Versioning and updates are managed by OAG. For research reproducibility, the project uses fixed data extracts corresponding to defined analysis periods (e.g. selected 2024 dates).
2.2 Making data openly Accessible	
Classification	Restricted / commercial data.
Sharing and access regimes	Access is governed by OAG contractual and licensing terms. The dataset is used solely for internal research, testing, and validation within the project.
Needed method/software	Standard data analysis tools capable of processing CSV-like tabular data (e.g. Python, R, spreadsheet software). No specialised proprietary software is required beyond data access.
Repository	OAG Schedules Analyser platform.
Access authorisation	Access is restricted to authorised users under an OAG licence agreement. No public access is provided.
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	The dataset uses widely accepted aviation conventions, including IATA airline and airport codes, standard aircraft equipment codes, and structured tabular formats, enabling interoperability with other aviation and multimodal datasets.
Mapping to common ontologies	No explicit semantic ontology mapping is provided. However, the use of standard aviation identifiers supports integration with air traffic and multimodal transport systems.

2.4. Increase data re-use (through clarifying licences)	
Licence	Proprietary commercial licence provided by OAG, defining permitted uses and restrictions.
Re-use availability schedule	Re-use is permitted only in accordance with OAG licence terms and within the contractual timeframe.
Re-use by third parties	Third-party re-use is not permitted unless explicitly authorised by OAG; the project does not redistribute the data.
Quality assurance	Data quality assurance processes are performed by OAG prior to delivery. Additional consistency and suitability checks were performed within the project for validation purposes.
Availability period	Data availability is subject to the duration of the OAG licence and contractual access conditions.

Table 30 - Research Data Description Table Ourairport airport data

1. Data summary	
Type	Dataset – airport reference and geospatial information
Purpose	The dataset was used as a reference layer providing airport characteristics and geolocation information. It supports the validation and development of algorithms requiring airport metadata, such as origin–destination matching, geospatial calculations, timetable alignment, and multimodal connectivity analysis.
Relation to the objectives of the project	The data contributes to project objectives related to interoperability, data integration, and technological validation by enabling consistent identification and localisation of airports involved in air and multimodal itineraries across validation exercises.
Types/Formats	Structured tabular data in CSV format (airports.csv), including identifiers (ICAO, IATA), airport type, geographic coordinates, country/region codes, and auxiliary reference information.
Re-use of any existing data	Yes. The dataset originates from an existing open data source and was reused within the project for research and validation purposes.
Origin	External source: OurAirports open data repository.
Size	12MB

Utility for others	The dataset is useful for researchers, system developers, and analysts working on aviation data integration, route analysis, spatial modelling, and multimodal transport applications, subject to the conditions of the OurAirports open-data licence.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Metadata are provided by the OurAirports project through dataset documentation available on the website, describing the dataset scope, field meanings, update history, and data provenance. Additional contextual metadata related to usage within the project are documented at project level.
Metadata standards	Dataset documentation follows OurAirports internal conventions; field definitions rely on standard aviation identifiers (ICAO, IATA) and geospatial attributes. No formal external metadata standard is enforced.
Unique identifier	The dataset is uniquely identifiable via the OurAirports website (airports.csv). Individual records are uniquely identified by the internal airport ID and associated ICAO/IATA codes.
Naming conventions	File and attribute names follow clear, human-readable naming conventions (e.g. icao_code, iata_code, latitude_deg, longitude_deg).
Search keywords	Airports, aerodromes, aviation reference data, ICAO, IATA, geospatial data, airport metadata.
Version control	Dataset updates are managed by the OurAirports project. A fixed snapshot of the data was used within the project to ensure reproducibility of validation results.
2.2 Making data openly Accessible	
Classification	Open data.
Sharing and access regimes	The dataset is publicly available for download without access restrictions via the OurAirports website.
Needed method/software	Standard data processing tools capable of reading CSV files (e.g. Python, R, spreadsheet software, GIS tools). No proprietary software is required.
Repository	OurAirports open data repository (https://ourairports.com/data/).
Access authorisation	No access authorisation required; data are openly accessible.
2.3. Making data interoperable	

Data/metadata vocabularies and other I/O standards	Data use widely recognised aviation and geospatial conventions, including ICAO and IATA airport codes, ISO country and region codes, and latitude/longitude in decimal degrees, ensuring high interoperability.
Mapping to common ontologies	No explicit mapping to formal semantic ontologies is provided; however, the use of standard aviation and geographic identifiers facilitates integration with other air transport and multimodal datasets.
2.4. Increase data re-use (through clarifying licences)	
Licence	Open data licence as specified by OurAirports (permitting reuse with attribution).
Re-use availability schedule	The dataset is continuously available and may be reused at any time according to licence conditions.
Re-use by third parties	Permitted, including for research, development, and commercial uses, provided licence terms and attribution requirements are respected.
Quality assurance	Data consistency and completeness checks are performed by the OurAirports maintainers. Within the project, additional validation checks were performed to ensure correctness and suitability for research purposes.
Availability period	The dataset is maintained and made available on an ongoing basis, subject to the OurAirports project's maintenance policies.

Table 31 - Research Data Description Table 2nd stakeholder wks validation

1. Data summary	
Type	Secondary datasets obtained from transport service providers and public open-data repositories (air traffic datasets, GTFS timetables and network data).
Purpose	To analyse multimodal transport operations, mobility patterns, scheduling, and network performance in air and rail transport systems.
Relation to the objectives of the project	The datasets support the project objectives related to transport modelling, operational analysis, intermodal connectivity assessment, and evaluation of mobility optimisation strategies.
Types/Formats	CSV, TXT, GTFS static feeds (.zip), JSON, tabular datasets, geospatial data where applicable.
Re-use of any existing data	Yes. Existing publicly available and research-access datasets are re-used.

Origin	Air traffic research and development datasets provided by EUROCONTROL and publicly available GTFS data published by Trenitalia.
Size	Medium-scale datasets ranging from several MBs to multiple GBs depending on the temporal coverage and granularity of transport records.
Utility for others	The datasets and derived outputs may support future research in transport analytics, multimodal mobility, scheduling optimisation, transport policy evaluation, and machine learning applications in mobility systems.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Metadata describing dataset origin, structure, variables, temporal coverage, geographic scope, and preprocessing steps will be documented and maintained.
Metadata standards	Standard metadata practices will be followed using dataset documentation, README files, GTFS specifications, and Dublin Core principles where applicable.
Unique identifier	Each dataset version and processed output will receive a unique internal identifier and version number. Public datasets retain their original provider identifiers.
Naming conventions	Consistent file naming conventions including source, date, version, and processing stage (e.g. eurocontrol_flights_2025_v1.csv).
Search keywords	Air traffic, GTFS, rail transport, multimodal transport, mobility analysis, transport networks, scheduling, EUROCONTROL, Trenitalia.
Version control	/
2.2 Making data openly Accessible	
Classification	Combination of open public transport datasets and restricted research-use datasets.
Sharing and access regimes	Open datasets remain accessible according to the original provider terms. Derived datasets and project outputs may be shared subject to licensing and confidentiality constraints.
Needed method / software	Standard data analysis software including Python, R, GIS tools, and GTFS-compatible libraries.
Repository	/

Table 32 - Research Data Description Table Hellenic Seaplanes Synthetic Timetables

1. Data summary

Type	Dataset generated by Hellenic Seaplanes
Purpose	Testing of Timetables Synchronisation Module
Relation to the objectives of the project	SIGN-AIR platform must support adequately the synchronisation of timetables for multimodal trips. Validating and evaluating this feature in the seaplane operator Use Case required the generation of a dataset of in a common hub for seaplanes and traditional airlines. For this purpose, a set of periodic flights from/to Ioannina Airport was generated in alignment with the strategy of Hellenic Seaplanes for upcoming routes in this area, considering all operating limitations. Similarly, an amplified set of airline flights was generated based on past scheduled and charter flights in the area to test synchronisation efficiency and connectivity indices accuracy.
Types/Formats	Offline CSV/JSON exports
Re-use of any existing data	Historical listing of routes from/to Ioannina Airport
Origin	Hellenic Seaplanes
Size	~ 2 MB
Utility for others	Help improve scheduling and optimize multi-modal connections.
2. FAIR data	
2.1. Making data findable, including provisions for metadata	
Metadata provision	Not Applicable
Metadata standards	Not Applicable
Unique identifier	Not Applicable
Naming conventions	ICAO Airport Identifiers /
Search keywords	Not Applicable
Version control	Not Managed
2.2 Making data openly Accessible	
Classification	Restricted
Sharing and access regimes	Based on Business Strategy Planning. Thus not accessible.

Needed method/software	None
Repository	Hellenic Seaplanes One Drive
Access authorisation	Hellenic Seaplanes
2.3. Making data interoperable	
Data/metadata vocabularies and other I/O standards	Eurocontrol flight plan terminology
Mapping to common ontologies	Eurocontrol Standards
2.4. Increase data re-use (through clarifying licences)	
Licence	Not Applicable
Re-use availability schedule	Not Applicable
Re-use by third parties	Not Available
Quality assurance	Compatibility with Timetable Synchronisation Module Validated
Availability period	Duration of the Project

Annex III – Description tables for scientific publications

This Annex contains the description tables of the published scientific publications at the time of submission of this document (M35).

Table 33 - Scientific Publication Description Table Air-rail connectivity index

Type	
Title	*Air-rail connectivity index: A comprehensive study of multimodal journeys*
Authors	*Clara Buire, Slavica Dožic, Danica Babic, Ismini Stroumpou, Josep L. Larriba, Esteban Gatein, and Ruth Parajó*
Title of the Journal/Proc./Book	*Engineering Proceedings Journal*
Number, date or freq. of the Journal/Proc./Book	*90(1)*
Relevant Pages	*72*
ISSN/eISSN	*ISSN 2673-4591*
Publisher	*MDPI AG*
Place of publication	*Basel, Switzerland*
Year	*2025*
Is Peer-reviewed?	*Yes*
Is Open Access?	*Yes*
Type of open access	*Open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/).*
Length of the Embargo, if any	*N/A*
Is this a joint public/private publication?	*Public publication*
Processing charges for Gold Open Access	*Open access journal. Fees were only paid for the registration at the conference.*
DOI	*https://doi.org/10.3390/engproc2025090072*
Link to the Publication	*https://www.mdpi.com/2673-4591/90/1/72*

Repository Link	https://www.mdpi.com/journal/engproc
Ack to SIGN-AIR	*Yes, the following text is present:* *"Funding: This research was co-funded by SESAR Joint Undertaking and European Commission, within the project "Implemented Synergies, data sharing contracts and goals between transport modes and air transportation" (SIGN-AIR) under grant number 101114845".*
SESAR logo and EU flag (Y/N/Not possible)	*Not possible*

Table 34 - Scientific Publication Description Table Implementation of a novel concept to unlock data value in multimodal systems

Type	
Title	*Implementation of a novel concept to unlock data value in multimodal systems*
Authors	*Ismini Stroumpou, Slavica Dožić, Danica Babić, Josep Lluis Larriba Pey, Milica Kalić*
Title of the Journal/Proc./Book	*In: McNally, C., Carroll, P., Martinez-Pastor, B., Ghosh, B., Efthymiou, M., Valantasis-Kanellos, N. (eds) Transport Transitions: Advancing Sustainable and Inclusive Mobility. TRA conference 2024. Lecture Notes in Mobility*
Number, date or freq. of the Journal/Proc./Book	*Volume 6: Connected Mobility Ecosystems*
Relevant Pages	*400–406*
ISSN/eISSN	*ISSN 2196-5544, ISSN 2196-5552 (electronic)* *ISBN 978-3-032-06762-3, ISBN 978-3-032-06763-0 (eBook)*
Publisher	*Springer*
Place of publication	*Switzerland*
Year	2026

Is Peer-reviewed?	*Yes*
Is Open Access?	*Yes*
Type of open access	*Open access publication, which means that you have free and unlimited access.*
Length of the Embargo, if any	*N/A*
Is this a joint public/private publication?	*Public publication*
Processing charges for Gold Open Access	*Open access journal. Fees were only paid for the registration at the conference.*
DOI	*https://doi.org/10.1007/978-3-032-06763-0_58*
Link to the Publication	*https://link.springer.com/chapter/10.1007/978-3-032-06763-0_58#citeas*
Repository Link	*/*
Ack to SIGN-AIR	*Mentioned in the manuscript (all details as in the acknowledgement))*
SESAR logo and EU flag (Y/N/Not possible)	*Not possible*

Table 35 - Scientific Publication Description Template *How do costs influence Electric Vertical Take-off and Landing aircraft selection?*

Type	**Conference paper**
Title	*How do costs influence Electric Vertical Take-off and Landing aircraft selection?*
Authors	*Dožić, S., Kuljanin, J. and Dožić, A.*
Title of the Journal/Proc./Book	*Transportation Research Procedia*
Number, date or freq. of the Journal/Proc./Book	*95*
Relevant Pages	*480-487*
ISSN/eISSN	*Online ISSN: 2352-1465*

	Print ISSN: 2352-1457
Publisher	*Elsevier B.V.*
Place of publication	*Amsterdam, Netherlands*
Year	*2026*
Is Peer-reviewed?	*Yes*
Is Open Access?	*Yes*
Type of open access	*fully open-access journal*
Length of the Embargo, if any	-
Is this a joint public/private publication?	
Processing charges for Gold Open Access	-
DOI	*https://doi.org/10.1016/j.trpro.2026.02.061*
Link to the Publication	*https://www.sciencedirect.com/science/article/pii/S2352146526001237*
Repository Link	
Ack to SIGN-AIR	*Yes*
SESAR logo and EU flag (Y/N/Not possible)	*Not possible*

Annex IV – Data protection policies

EPF

European Passengers' Federation

SIGN-AIR project

EPF Data Protection Officer

Ghent, 30. August 2023

I undersigned, Josef Schneider, Chairman and legal representative of the European Passengers' Federation (EPF), hereby confirm that EPF does not have an Data Protection Officer competent to assess EPF's research activities with human beings.

It is expected that EPF's involvement in the SIGN-AIR project might include the collection and processing of the following data: e-mail addresses, names, socio-demographic data, responses to surveys, interviews, contributions (statements, written input, ...) to workshops, amongst others.

EPF's privacy statement is available on its website: https://www.epf.eu/wp/legal-details/. Any questions, comments or complaints can be addressed to privacy@epf.eu.

Furthermore, performing any research within SIGN-AIR that involves the collection and processing of personal data, EPF employees will comply with the rules as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

Josef Schneider, Chairman EPF

J. Schneider

www.epf.eu

+32 9 233 97 29 | SECRETARIAT@EPF.EU | KORTRIJKSESTEENWEG 304, 900 GENT; BELGIUM

TIMELEX

TIMELEX

Privacy policy

1. About TIMELEX

Timelex BV/SRL is a law firm established at Joseph Stevensstraat 7, 23rd floor, 1000 Brussels, Belgium, Company number 0890.217.005, RPR/RPM Brussels, Tel.: +32 2 893 20 95

2. Data processing operations carried out in the context of the SIGN-AIR project

- Given that TIMELEX is a legal partner in the SIGN-AIR project, its task includes the processing of personal data such as e-mail addresses of partners involved in the project and exchanges of communications with these partners, including contractual documents (terms & conditions, user agreements, data sharing agreements, smart contracts, etc.).
- E-mail addresses of partners will only be used for the purposes of the accomplishment of the SIGN-AIR project and will not be used for any direct marketing or other purposes.
- We respect the confidentiality of your e-mail, and will never send unsolicited mail from the timelex.eu domain.

3. Privacy statement

- Any electronic communication, including any attached files, sent from or to TIMELEX is confidential. If you are not the intended recipient of an electronic message, please notify the sender of his mistake and remove the message from your system.
- Electronic communications are stored exclusively on servers located in TIMELEX premises or in premises of its hosting companies established in the EU.
- The security of stored electronic communications is ensured through the application of strong passwords to TIMELEX's e-mail account.
- Any outgoing or incoming electronic communication may be checked and verified for compliance with an antivirus to protect the business interests of TIMELEX.
- Folders containing electronic communications may be archived by TIMELEX for internal purposes and to ensure compliance with applicable regulations.
- Notwithstanding the obligations incumbent on TIMELEX based on legally binding provisions, TIMELEX will never intentionally reveal personal data allowing the deduction of your identity to any third parties, including your e-mail address, without your prior consent or other legal basis.

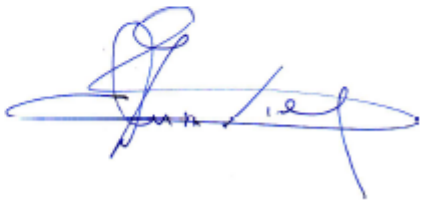
4. Your rights

- You have the right to access any personal data regarding yourself being processed by TIMELEX, and to demand the correction or removal of any incorrect, incomplete or irrelevant data. You can exercise these rights by submitting a written request to this effect to us. You also have the right to lodge a complaint with the supervisory authority: https://www.autoriteprotectiondonnees.be/

5. Contact information

TIMELEX

- If you have any questions in relation to the aforementioned legal information, please contact us via privacy@timelex.eu .



STA

WEBSITE PRIVACY POLICY

Aim of STA privacy policy

This privacy policy is intended to inform the users of this website about the nature, scope and purpose of the collection and use of personal data by the website operator **Smart Ticketing Alliance**, Rue Sainte Marie, 6, 1080 Brussels, Belgium. The website operator takes your data protection very seriously and treats your personal data confidentially and in accordance with the statutory provisions. Definitions of the personal data related terms used can be found in Art. 4 GDPR.

About Smart Ticketing Alliance

Smart Ticketing Alliance was founded in 2015 as follow-up to the European Interoperable Fare Management Project, which was funded by the European Commission. Since then, the Smart Ticketing Alliance (STA) is a non-profit association that promotes and facilitates cooperation between national and regional smart ticketing systems to implement interoperable smart ticketing in Europe and elsewhere. Therefore, STA has become the integrated platform for European transport authorities, transport operators and providers, industry and policy makers to promote, standardise and further develop ticketing and seamless travel in Europe.

Smart Ticketing Alliance informs the standards making process and coordinates how public transport uses them. We are recognised by a worldwide network of stakeholders as leader in the public transport smart ticketing environment.

Personal data collection and processing

The website operator only collects, uses and discloses your personal data if this is permitted by law or if you consent to the collection of data. You can also visit this website without providing any personal information. However, in order to improve our online services, we store (without personal reference) your access data to this website. This access data includes, for example, the file you requested or the name of your Internet provider. By making the data anonymous, it is not possible to draw conclusions about your person. We collect the access data only for statistical recording of website usage and optimization of our website. The legal basis for the processing is Art. 6 para. 1 sentence 1 lit. f GDPR. No information will be handed out to third parties without the user's consent. Any other data is processed in accordance with Art. 6 para. 1 sentence 1 lit. a, b GDPR.

Your rights

You have the right to request information about your personal data stored by us free of charge at any time, to correct incorrect data and to have data processing restricted. In addition, you have the right to have your personal data processed by us deleted at any time, unless the data is needed to complete outstanding tasks or to enforce our rights and claims or must be retained in accordance with legal requirements. You may object to the processing

of your personal data at any time. If you wish to request information, correction, restriction or deletion, please contact us in writing or directly by mail, e-mail: privacy@smart-ticketing.org.

If you believe that your data has been processed unlawfully, you may lodge a complaint with the competent supervisory authority, Belgian Data Protection Authority (GBA), Rue de la Presse 35, 1000 Brussels, https://www.autoriteprotectiondonnees.be/.

Use of our newsletter

You have the possibility to subscribe to our newsletters. For this purpose, you must provide your e-mail address to which we can send the newsletters. By providing your e-mail address, you consent to us using your data for the newsletter dispatch in order to inform you about news. Your e-mail address will not be used for any other purpose, in particular it will not be passed on to third parties. Of course, you have the option to unsubscribe from the newsletter at any time and to revoke your consent for the future. To do so, please click the corresponding link in the newsletter sent to you. Your e-mail address will then be deleted from our system immediately. Newsletter service is provided by "mailchimp" by INTUIT (https://mailchimp.com/en/privacy-rights/).

Application form for new members

You have the possibility to apply for membership via electronic form or in written form by mail. By providing the necessary information, your data will only be used for the application process and not for other purposes. Without your consent your information will not be shared with third parties. The electronic application form is provided by TYPFORM SL, (https://www.typeform.com/).

Analytics & Cookies

This website uses cookies for pseudonymised reach measurement, which are transferred to the user's browser either from our server or the server of a third party. Common browsers offer the setting option to not allow cookies. Note: It is not guaranteed that you will be able to access all functions of this website without restrictions if you make the corresponding settings.

This website uses the Analytics service due to our legitimate interests to optimise and analyse our online offer in terms of Art. 6 para. 1 lit. f. DSGVO the analytics service of the company "mailchimp" by INTUIT.

Links to websites of other providers

Our websites may contain links to websites of other providers, which are not covered by this privacy policy. Insofar as the collection, processing or use of personal data is associated with the use of the websites of other providers, please observe the data protection information of the respective providers.

****
Smart Ticketing Alliance, Dr. Ralph Gambetta
29.08.2023

SIGN-AIR Privacy Policy

1. About Smart Ticketing Alliance

Smart Ticketing Alliance (https://www.smart-ticketing.org/) was founded in 2015 as follow-up to the European Interoperable Fare Management Project, which was funded by the European Commission.

Since then, the Smart Ticketing Alliance (STA) is a non-profit association that promotes and facilitates cooperation between national and regional smart ticketing systems to implement interoperable smart ticketing in Europe and elsewhere. Therefore, STA has become the integrated platform for European transport authorities, transport operators and providers, industry and policy makers to promote, standardise and further develop ticketing and seamless travel in Europe.

Smart Ticketing Alliance informs the standards making process and coordinates how public transport uses them. We are recognised by a worldwide network of stakeholders as leader in the public transport smart ticketing environment.

2. Aim of this privacy policy

Smart Ticketing Alliance wants to protect privacy-related information in general, according to the regulations of the European law on privacy, the General Data Protection Regulation (GDPR, 2016/679), as laid down in the PDF of the Regulation in its latest version (https://gdpr-info.eu/).

Specifically, it is expected that Smart Ticketing Alliance will take part in tasks in the SIGN-AIR project (Grant Agreement number 101114845) with regard to human beings, a.o.: e-mail data exchanges, questionnaires, interviews, surveys and workshops. In this connection, Smart Ticketing Alliance will comply with ethical guidelines as to be set out in the SIGN-AIR project Data Management Plan.

3. Privacy-relevant SIGN-AIR project tasks of Smart Ticketing Alliance to be considered

- Communication via e-mails will be a major source of information exchange during the whole SIGN-AIR project.
- Interviews, surveys, questionnaires as well as workshops are expected to be a major source of information exchanges in a range of tasks of Smart Ticketing Alliance in the SIGN-AIR project:
    - task 2.2 Standardisation and harmonisation aspects
    - task 2.4 Implementation of the creation of TSP's identity
    - task 2.6 Templating mechanism with regard to clauses and rules in contracts
    - task 2.7 Legal drafting of contracts
    - task 2.8 Creation of negotiation mechanism and settlement
    - task 2.13 Pilots design and execution
    - task 2.15 Validation and demonstration of SIGN-AIR platform
    - task 2.17 Conclusions about the pilots and Policy recommendations.
- All these tasks, and related tasks like dissemination of results, relate to the core activities of Smart Ticketing Alliance, being standardisation and harmonisation in a yet quite fragmented

environment where priorities and needs of different parties involved need to be aligned while keeping trust and the willingness to cooperate in an inclusive mobility ecosystem.
A key protection priority to be followed up here is to respect privacy in dealing with personal information related to tasks to be carried out in the SIGN-AIR project.

4. Compliance with GDPR during the SIGN-AIR project

Working effectively in the SIGN-AIR project has a prerequisite: sharing information in order to reach common goals.

- All personal data collected or processed by Smart Ticketing Alliance during the project will be shared with project partners according to set agreements.
- All personal data collected or processed by Smart Ticketing Alliance will be used only for the purposes of the project as specified in in the official SIGN-AIR documentation that was granted by the European Commission and serves as a basis for all activities.

5. Privacy statement

- Smart Ticketing Alliance respects the confidentiality of e-mails, and attachments sent together with e-mails to or from our organisation, at all times.
- Smart Ticketing Alliance, as an independent, non-commercial organisation, will never send unsolicited e-mails.
- If you receive an e-mail from Smart Ticketing Alliance that is probably not meant to be for you, please notify the sender and remove the information that was sent to you incorrectly from your system. Thank you for your cooperation!
- E-mails and attachments sent to or received from Smart Ticketing Alliance are stored in a protected environment including use of strong passwords.
- Smart Ticketing Alliance will never intentionally reveal personal data that may be related to your identity to any third parties, including your e-mail address, without your prior consent.

6. Your rights

Smart Ticketing Alliance deals with personal information with great care and offers you rights according to GDPR.

- You have the right to ask us to provide you with information about personal data that we have stored about you.
- You have the right to ask us to correct your personal data if information as stored in our environment proves not to be in order.
- You can ask us to delete your personal data if it is no longer necessary for the original purposes.
- If you have any questions regarding the processing of your personal data by Smart Ticketing Alliance, you can contact the privacy responsible within our organisation: privacy@smart-ticketing.org.
- If you are still not satisfied with our response or you believe that your data has been processed unlawfully, you can lodge a complaint with the competent data protection authority: Belgian Data Protection Authority (GBA), Rue de la Presse 35, 1000 Brussels, https://www.autoriteprotectiondonnees.be/.

****
Smart Ticketing Alliance, Dr. Ralph Gambetta
29.08.2023

FD

Cybersecurity-Law

Privacy policy

1. About Cybersecurity-law

- Franck Dumortier Juriste SRL (FD) is a limited liability company under Belgian law. (www.cybersecurity-law.be), established and principally seated at Rue Docteur Elie Lambotte, 155, B-1030 Brussels, Belgium. Franck Dumortier's enterprise number is 0798.950.495.

2. Data processing operations carried out in the context of the SIGN-AIR project

- Given that FD is a legal partner in the SIGN-AIR project, his task includes the processing of personal data such as e-mail addresses of partners involved in the project and exchanges of communications with these partners, including contractual documents (terms & conditions, user agreements, data sharing agreements, smart contracts, etc).
- E-mail addresses of partners will only be used for the purposes of the accomplishment of the SIGN-AIR project and will not be used for any direct marketing or other purposes.
- We respect the confidentiality of your e-mail, and will never send unsolicited mail from the cybersecurity-law.be domain.

3. Privacy statement

- Any electronic communication, including any attached files, sent from or to Franck Dumortier is confidential. If you are not the intended recipient of an electronic message, please notify the sender of his mistake and remove the message from your system.
- Electronic communications are stored exclusively on servers located in FD premises or in premises of his hosting company (OVH – France).
- The security of stored electronic communications is ensured through the application of strong passwords to FD's e-mail account.
- Any outgoing or incoming electronic communication may be checked and verified for compliance with an antivirus to protect the business interests of Franck Dumortier.
- Folders containing electronic communications may be archived by Franck Dumortier for internal purposes and to ensure compliance with applicable regulations.
- Notwithstanding the obligations incumbent on Franck Dumortier based on legally binding provisions, Franck Dumortier will never intentionally reveal personal data allowing the deduction of your identity to any third parties, including your e-mail address, without your prior consent or other legal basis.

4. Your rights

- You have the right to access any personal data regarding yourself being processed by Franck Dumortier, and to demand the correction or removal of any incorrect, incomplete or irrelevant data. You can exercise these rights by submitting a written request to this effect to us. You also have the right to lodge a complaint with the supervisory authority: https://www.autoriteprotectiondonnees.be/

5. Contact information

- If you have any questions in relation to the aforementioned legal information, please contact us via franck.dumortier@cybersecurity-law.be.

****
Franck Dumortier

HSP

Hellenic Seaplanes

(https://hellenic-seaplanes.com/)

Privacy Notice

Hellenic Seaplanes S.A. respects your privacy. The information you give us is processed in accordance with our privacy policy which is compliant with the EU General Data Protection Regulation (Regulation (EU) 2016/679) known as GDPR, other EU legislation and pertinent laws of the Republic of Greece.

1. PURPOSE OF THIS PRIVACY NOTICE

This Privacy Policy aims to give you information on how we collect and processes your personal data through the website or the call centre for the purpose of issuing your air ticket, offering ancillaries, to sign up to our newsletter, to participate in our online competitions or to apply for a job posting.

CHANGES TO THE PRIVACY NOTICE AND YOUR DUTY TO INFORM US OF CHANGES

Our Privacy Policy is regularly reviewed in line with our activities and the services we offer to our passengers. It is important that the personal data we hold about you is accurate and current. Please keep us informed if your personal data changes during your relationship with us.

2. THE DATA WE COLLECT ABOUT YOU

Personal data is any information that relates to an identified or identifiable living individual.

The information we collect varies depending on whether you would like to purchase an air ticket, subscribe to our newsletter, participate in any online competition we organize or simply browse our website having accepted our cookies policy.

We do not collect or process any sensitive personal data about you. In the case of passengers requiring personalized assistance prior to or during a flight, the information is limited to what is needed to provide assistance during air transport and at the water airports of departure and destination.

The information we collect, use, store and transfer includes:

- Identity Data: name, date of birth, I.D. number,
- Contact Data: telephone number, email address
- Transaction Data: payments made from/to you for the purchase of air tickets and ancillaries.
- Marketing Data: your preferences in receiving marketing material if you opt-in.
- Professional qualifications: information you include in your CV when applying for a vacancy.

3. HOW IS YOUR PERSONAL DATA COLLECTED?

We use different methods to collect data from and about you including through:

Direct interactions.

- You give us data concerning your identity, contact details and payment method when you purchase an air ticket and ancillaries. Tickets and ancillaries can be bought online through our website, or by contacting the Call Centre.
- You give us your email address when you subscribe to our newsletter.
- You give us your preferences when you opt-in to receive customized marketing material to have a better website experience.
- You give us personal data regarding your professional qualifications when you submit an online application for a vacancy to the Human Resources department.
- You give us your email, your name, and surname when you enter a competition, or promotion.

Through the use of cookies.

- We might collect data about your preferences if you accept the use of cookies. Please see our cookie policy (https://hellenic-seaplanes.com/en/privacy-policy/) for further details.

You have the right to withdraw consent to receiving marketing material and to unsubscribe from our newsletter at any time. This option is available at every communication we have with you.

4. PURPOSES FOR WHICH WE USE YOUR PERSONAL DATA

We will use your personal data in the following circumstances:

- To carry out our obligations under the air carriage contract we enter into with you and to offer you any ancillaries you have purchased including travel insurance products.
- To process payment of your ticket and ancillaries.
- To inform you of any flight delays or cancellations.
- To send you our newsletter if you are a subscriber.
- To send you marketing material if you have indicated your wish to receive it.
- To assess your suitability as a potential job candidate.
- Where we need to comply with a legal or regulatory obligation.
- To comply with the requirements of border control authorities to receive certain passenger information and to respond to the requests of the Passenger Information Units set up in the EU Member States.

5. CHILDREN'S PRIVACY

We do not knowingly collect any information from anyone under 16 years of age. Our website, products and services are all directed to people who are at least 16 years old or older.

If you are under 16, do not use or provide any information on this website or on or through any of its features / register on the website, make any purchases through the website or provide any information about yourself to us, including your name, address, telephone number or email address.

If we learn that we have collected or received personal data from a child under 16 (apart from the data for reservation and ticketing purposes), we will delete that information, unless consent is given or authorised by the holder of parental responsibility over the child.

If you believe we might have any information from or about a child under 16 (apart from the data for reservation and ticketing purposes), please contact us.

6. DATA SECURITY

We have put in place appropriate security measures to prevent your personal data from being accidentally lost, used or accessed in an unauthorized way, altered or disclosed. In addition, we limit access to your personal data to those employees, agents, contractors and other third parties who are involved in our performance of the air carriage contract or in the provision of other services to you. They will only process your personal data on our instructions and they are subject to a duty of confidentiality.

7. DATA RETENTION

We will retain your personal data for as long as necessary to fulfill the purposes for which we collected it. In the event of a complaint or if there is a possibility of a dispute procedure, we will retain your data for a longer period.

Where the data is collected to comply with a legal obligation, the retention period is determined by the applicable regulatory instrument.

8. YOUR LEGAL RIGHTS

RIGHT OF ACCESS

Under certain circumstances, you have the right to request a copy of any personal data that you have provided us and you may make corrections to such data.

If you wish to exercise your right of access, please contact us.

RIGHT TO OBJECT TO PROCESSING

You have the right to object to processing in regard to certain purposes. However certain information may have to be processed due to compelling legal obligations and rules on safety which govern the aviation industry.

SPARSITY

*Sparsity

Privacy policy

1. About Sparsity

- Sparsity-Technologies (formally Sparsity, S.L.) is a spin-out of the UPC (Universitat Politècnica de Catalunya) created on March 2010 to commercialize and provide services based on the technologies developed at DAMA-UPC.

- Sparsity is involved in the tasks concerning the development of SIGN-AIR's platform such as "T2.4 Implementation of the creation of TSPs' Identity (registration and creation of the catalogue of catalogues)". Furthermore, it will participate in the activities of "T2.10 Journey services for MaaS platforms and Travel Companion applications" that aims to connect SIGN-AIR platform with Travel Companion (TC) application and a demo TC might be created for testing purposes. Moreover, it will participate in "T2.13 Pilots design and execution" for testing and demonstration SIGN-AIR platform in real environment. Also, it will be actively participate in "T2.14 Workshops of SIGN-AIR´s stakeholders" for the formation of an external advisory board and for the organization and execution of at least two stakeholder workshops. Finally, Sparsity is leading "Task 2.19: Cross projects and initiatives collaboration and Transport Service Providers (TSPs) engagement" activities and therefore plays a crucial role in organizing and executing bilateral meetings and/or focus groups targeting SIGN-AIR's stakeholders.

2. Aim of this Privacy Policy and definitions

- The aim of this privacy policy is to ensure that the processing of personal data carried out by Sparsity during the SIGN-AIR project complies with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (GDPR).

- Personal data are any information which are related to an identified or identifiable natural person. The data subjects are identifiable if they can be directly or indirectly identified, especially by reference to an identifier such as a name, an identification number, location data, an online identifier or one of several special characteristics, which expresses the physical, physiological, genetic, mental, commercial, cultural or social identity of these natural persons. In practice, these also include all data which are or can be assigned to a person in any kind of way. For example, the telephone, credit card or personnel number of a person, account data, number plate, appearance, customer number or address are all personal data.

- The term "processing" means any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organization, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction;

3. Compliance with the GDPR during the SIGN-AIR project

- All personal data collected or processed by Sparsity during the SIGN-AIR project will be used solely for the purposes of the project as specified in in the GA 894116.
- Personal data collected or processed by Sparsity during the SIGN-AIR project may only be shared with the following organizations of the consortium for the purposes of the project: UNIVERSITAT POLITECNICA DE CATALUNYA (UPC), AETHON SYMVOULI MICHANIKI MONOPROSOPI IKE (AETHON), Univerzitet u Beogradu - Saobracajni fakultet (UB-FTTE), ECOLE NATIONALE DE L AVIATION CIVILE (ENAC), EUROPEAN PASSENGERS' FEDERATION IVZW (EPF), FUNDACIO CENTRE D'INNOVACIO I TECNOLOGIA DE LA UPC (CARNET), TIME.LEX, AUTORITAT DEL TRANSPORT METROPOLITA (AMTU), SMART TICKETING ALLIANCE (STA), AEROPORTO GUGLIELMO MARCONI DI BOLOGNA SPA (BLQ), TPER S.P.A. (TPER), AGRUPACIO DE MUNICIPIS TITULARS DEL SERVEI DE TRANSPORT URBA DE LA REGIO METROPOLITANA DE BARCELONA (AMTU), FRANCK DUMORTIER JURISTE (FD), YDROPLANA ELLADAS ANONYMI ETAIREIA (HSP), swiss aeropole SA (HSP).
- Any electronic communication, including any attached files, sent from or to Sparsity is confidential.
- Electronic communications are stored exclusively on servers located in Sparsity premises or in premises of the website syn-air.eu hosting company. Our hosting company is Siteground and their servers are located in Eemshaven (Netherlands). The website we have built is for people to find information regarding the SIGN-AIR project. For the newsletter purpose, we will use 'Mailchimp' to gather emails, prepare and send the newsletters. Once the project ends, we will erase the database and delete the account. The intention of gathering emails is purely for dissemination purposes and we will not process the emails in any other way. Users accept the Terms &Conditions in order to be included in our Mailchimp contact list.
- The security of stored electronic communications and personal data is ensured through Mailchimp Terms & Conditions and security measures.
- The collected personal data will be retained up to 6 months after the end of the project, unless further retention is imposed by law.
- Notwithstanding the obligations incumbent on Sparsity based on legally binding provisions, Sparsity will never intentionally reveal personal data allowing the deduction of your identity to any third parties, including your e-mail address, without your prior consent or other legal basis.
- No personal data will be transferred outside of the EU with the exception of transfers to UB-FTTE, which is situated in Serbia. UB-FTTE has submitted a general statement signed by the responsible person of the organization according to which in case personal data are collected in the Republic of Serbia, the processing of such data and their transfers will be carried out in compliance with the Law on Protection of Personal Data (Official Gazette of the Republic of Serbia, No. 87/2018). In case personal data are collected within the EU, the processing of personal data and their transfers will be carried out in compliance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons regarding the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

4. Your rights

- When we collect and use your personal data, you have a number of rights that you can exercise as described below.
- You have the right to access your personal data, which means that you can ask us to provide you with information about the personal data we have about you. You can even request a copy of your personal data.
- You have the right to ask us to correct your personal data if you can prove that the personal data, we process about you is incorrect, incomplete or out of date. Please specify the context

in which we use your personal data (e.g., to send you newsletters or to respond to a request), so that we can assess your request quickly and accurately.

- If we have asked for your consent to the collection and use of your personal data, for example to send you newsletters, you have the right to withdraw this previously given consent.
- You can ask us to delete your personal data if it is no longer necessary for the purposes for which it was collected, if its collection was unlawful or if you have successfully exercised your right to withdraw your consent or your right to object to the processing of your personal data. Where any of these circumstances apply, we will delete your personal data immediately unless we are prohibited from deleting your personal data by law, regulatory obligations or administrative or court orders.
- When we process your personal data on the basis of our own legitimate interests, you have the right to object to our processing of your personal data. However, we will ask you to describe your particular situation giving rise to the request. We must then balance your situation against our interests. If this balancing exercise results in your situation outweighing our interests, we will stop processing your personal data.
- If you have any complaints regarding the processing of your personal data by Sparsity, you can always contact the person in charge of privacy within our organization: larri@sparsity-technologies.com
- If you are still not satisfied with our response, you can lodge a complaint with the competent data protection authority, APDCAT: https://apdcat.gencat.cat/ca/inici

****
Josep Lluís Larriba Pey

Annex V – Ethical statements/letters

AETHON

AETHON ENGINEERING

9, Alexandras Avenue, 11473, Athens, Greece
T/F: +30 210-3801139
VAT: 800728666 | GECR: 138657301000
info@aethon.gr | www.aethon.gr

Athens, Greece, September 29, 2023

***To**: SIGN-AIR*

Subject: [SIGN-AIR project] AETHON Internal ethical committee

Sirs,

I undersigned, Alexandros Papacharalampous, CEO and legal representative of the AETHON Engineering Single-Member P.C., hereby confirm that AETHON does not have an internal Ethics Committee competent to assess AETHON's research activities with human beings.

It is expected that AETHON's involvement in the SIGN-AIR project might include the following research activities with human beings: surveys, interviews, workshops, Q&A sessions at conferences or other events, e-mail exchanges, amongst others.

While performing such research, AETHON employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

On behalf of AETHON,

Digitally signed by ALEXANDROS PAPACHARALAMPOUS
Date: 2023.09.29 18:48:01 EEST

Alexandros Papacharalampous
CEO&CTO

ENAC

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

Toulouse, 4th of October, 2023

CERTIFICATION

I undersigned, Patrick SENAC, head of research at Ecole Nationale de l'Aviation Civile (ENAC), hereby confirm that ENAC does not have an internal ethics committee to assess ENAC's research activities in human beings.

It is expected that ENAC's involvement in the SIGN-AIR project might include the following research activities with human beings : surveys, interviews, workshops, Q&A sessions at conferences or other events, e-mail exchanges, amongst others.

While performing such research, ENAC's employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

Patrick SENAC
Head of Research

Ecole Nationale de l'Aviation Civile – 7 avenue Edouard Belin – 31055 Toulouse Cedex 04, FRANCE

EPF

European Passengers' Federation

SIGN-AIR project

EPF Internal ethical committee

Ghent, 30. August 2023

I undersigned, Josef Schneider, Chairman and legal representative of the European Passengers' Federation (EPF), hereby confirm that EPF does not have an internal Ethics Committee competent to assess EPF's research activities with human beings.

It is expected that EPF's involvement in the SIGN-AIR project might include the following research activities with human beings: surveys, interviews, workshops, Q&A sessions at conferences or other events, e-mail exchanges, amongst others.

While performing such research, EPF employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

Josef Schneider, Chairman EPF

www.epf.eu
+32 9 233 97 29 | SECRETARIAT@EPF.EU | KORTRIJKSESTEENWEG 304, 900 GENT; BELGIUM

1

CARNET

Project SIGN-AIR – Title

Dear Mr. Franck Dumortier,

In reply to your email requesting information in order to enable you to prepare the first version of the Data Management Plan in the SIGN-AIR project (Grant Agreement number 101114845), we herewith inform you about the following:

FUNDACIO CENTRE D'INNOVACIO I TECNOLOGIA DE LA UPC (CARNET) will not organize nor take part in SIGN-AIR project tasks involving human beings, among others: questionnaires, interviews, surveys, workshops, demonstrations and pilots.

Therefore, FUNDACIO CENTRE D'INNOVACIO I TECNOLOGIA DE LA UPC (CARNET) is not under the obligation to ask any opinion/approval from UPC's Ethical Committee.

Antonio Álvarez Álvarez

46668122H ANTONIO ALVAREZ (R: G65497182) Signat digitalment per 46668122H ANTONIO ALVAREZ (R: G65497182) Data: 2023.10.03 18:17:22 +02'00'

TIMELEX

TIMELEX

Brussels, 30 September 2023

ADVOCATEN
AVOCATS
ATTORNEYS

Jos Dumortier[1]
Geert Somers[1]
Hans Graux[1]
Edwin Jacobs[1]
Frederic Debusseré[1]
Ruben Roex[1]

Stefan Van Camp
Eleni Kosta[2]
Magdalena Kogut-Czarkowska[3]
Magdalena Gad-Nowak[3,4]
Lynn Pype
Bernd Fiten
Pieter Gryffroy[1]
Liesa Boghaert
Charlotte De Thaye
Pedro Demolder
Silke Fiers
Jolien Clemens
Janvier Parewyck
Siyanna Lilova[5]

LEGAL CONSULTANTS

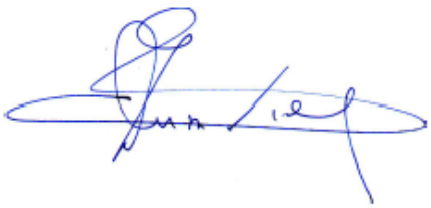
Niels Vandezande
Anubhuti Sinha

[1] BV/SRL
[2] Heraklion Bar
[3] Warsaw Bar
[4] New York State Bar
[5] Sofia Bar

Re : SIGN-AIR

To whom it may concern:

I undersigned, Jos Dumortier, Legal Representative of *TIMELEX BV* hereby confirm that Timelex does not have an internal Ethical Committee competent to assess Timelex's research activities involving human beings.
It is expected that Timelex's involvement in the SIGN-AIR project (Grant Agreement number 101114845) might include the following research activities with human beings: surveys, interviews, workshops, conferences or other events, e-mail exchanges, exchange of contractual documents (terms & conditions, user agreements, data sharing agreements, smart contracts).
While performing such research, Timelex will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and ethical guidelines.



Jos Dumortier
Partner

ATM

ATM Àrea de Barcelona
Autoritat del Transport Metropolità

ATM Internal ethical committee

Barcelona, 28th September 2023

I undersigned, Lluís Alegre i Valls, Director of the Mobility Department and Legal Representative of the AUTORITAT DEL TRANSPORT METROPOLITA (ATM. Àrea de Barcelona), hereby confirm that ATM does not have an internal Ethics Committee competent to assess ATM's research activities with human beings.

IT is expected that ATM's involvement in the SIGN-AIR project might include the following research activities with human beings: surveys, interviews, workshops, Q&A sessions at conferences or other events, e-mail exchanges, amongst others.

While performing such research, ATM employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

Lluís Alegre i Valls
2023.09.29
11:29:35
+02'00'

Lluís Alegre i Valls, Director of the Mobility Department
ATM

STA

Smart Ticketing Alliance · Rue Sainte-Marie 6 · 1080 Brussels

CYBERSECURITY LAW
Franck Dumortier Juriste SRL
Rue Docteur Elie Lambotte, 155
1030 Bruxelles
BELGIUM

Project SIGN-AIR - your request with regard to Internal Technical Committee

22 August 2023

Dear Mr. Franck Dumortier,

in reply to your email requesting information in order to enable you to prepare the first version of the Data Management Plan in the SIGN-AIR project (Grant Agreement number 101114845) from 7 August 2023, we herewith inform you about the following:

- Smart Ticketing Alliance does not have an Internal Ethical Committee
  For this reason, our organisation does not impose our activities in the SIGN-AIR project to be notified or authorised by an internal ethical committee
- Smart Ticketing Alliance does not have a Data Protection Officer
  Smart Ticketing Alliance will use a privacy policy in relation with the SIGN-AIR project (please see attachment)
- It is expected that Smart Ticketing Alliance will take part in SIGN-AIR project tasks with regard to human beings, among others: e-mail data exchanges, questionnaires, interviews, surveys and workshops
  Related to these SIGN-AIR project research activities, Smart Ticketing Alliance will comply with ethical guidelines as to be set out in the Data Management Plan
- Contact address for data protection matters:
  privacy@smart-ticketing.org
- Smart Ticketing has a legal representative, undersigned, chairman of Smart Ticketing Alliance

Kind regards,

Dr. Ralph Gambetta
Chairman (Legal representative of the STA)

Attachment: Smart Ticketing Alliance privacy policy

Smart Ticketing Alliance
Rue Sainte-Marie 6, 1080 Brussels
Tax identification number: 0634.896.573
VAT number: BE0634.896.573

Account: ING Belgium
IBAN: BE67 3632 0588 7287
Swift BIC: BBRU-BE-BB-010
Bank address: Avenue Marnixlaan 24, 1000 Brussels

AMTU

SIGN-AIR project

AMTU Internal ethical committee

Granollers - Catalonia, 3rd October 2023

I undersigned, Mrs. Maria Dolors Vilalta i Fossas, comptroller, secretary and legal representative of the "Associació de municipis per la Mobilitat i el Transport Urbà – AMTU" (Association of Municipalities for Mobility and Urban Transport), hereby confirm that AMTU does not have an internal Ethics Committee competent to assess AMTU's research activities with human beings.

It is expected that AMTU's involvement in the SIGN-AIR project might include the following research activities with human beings: surveys, interviews, workshops, Q&A sessions at conferences or other events, e-mail exchanges, amongst others.

While performing such research, AMTU employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and Ethics Manual.

MARIA DOLORS VILALTA FOSSAS - 40601354Y

Firmado digitalmente por MARIA DOLORS VILALTA FOSSAS - 40601354Y
Fecha: 2023.10.03 12:31:44 +02'00'

Maria Dolors Vilalta i Fossas, Comptroller and Secretary

FD

Cybersecurity-Law

Concerns: Franck Dumortier – Ethical Committee

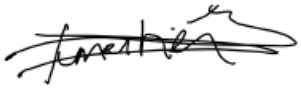
Brussels, 29th September 2023

I undersigned, Franck Dumortier, Legal Representative of *Franck Dumortier Juriste SRL* (FD), hereby confirm that FD does not have an internal Ethical Committee competent to assess FD's research activities involving human beings.

It is expected that FD's involvement in the SIGN-AIR project (Grant Agreement number 101114845) might include the following research activities with human beings: surveys, interviews, workshops, conferences or other events, e-mail exchanges, exchange of contractual documents (terms & conditions, user agreements, data sharing agreements, smart contracts).

While performing such research, Franck Dumortier will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and ethical guidelines.

Franck Dumortier



HSP

SIGN AIR PROGRAMM

HELLENIC SEAPLANES Internal ethnical committee

Athens, 28 September 2023

I undersigned, Nicolas Charalambous , Chairman CEO and legal representative of Hellenic Seaplanes SA, hereby confirm that Hellenic Seaplanes does not have an internal Ethics Committee competent to assess Hellenic Seaplanes's research activities with human beings.

It is expected that Hellenic Seaplanes's involvement in the SIGN-AIR project might include the following research activities with human beings: surveys, interviews, workshops, Q&A sessions at conferences or other events, e -mail exchanges, amongst others.

While performing such research, Hellenic Seaplanes employees will comply with the ethical guidelines as set up by the project and as referred to in the SIGN_ARI Data Management Plan and Ethical Manual

Nicolas Charalambous
Chairman & CEO
«HELLENIC SEAPLANES»

HELLENIC SEAPLANES S.A.
ΥΠΗΡΕΣΙΕΣ ΕΝΑΕΡΙΑΣ ΜΕΤΑΦΟΡΑΣ
& ΔΙΑΧΕΙΡΙΣΗΣ ΥΔΑΤΟΔΡΟΜΙΩΝ
ΛΕΩΦ.ΑΛΕΞΑΝΔΡΑΣ 102 - Τ.Κ. 115 21
Α.Φ.Μ.: 800496421 Δ.Ο.Υ.: ΦΑΕ ΑΘΗΝΩΝ

SPARSITY

*Sparsity

Topic: Absence of Ethical Committee

Barcelona, 3rd October 2023

To whom it may concern,

I undersigned, Josep Lluis Larriba Pey, Legal Representative of Sparsity SL (SPA), hereby confirm that SPA does not have an internal Ethical Committee competent to assess SPA's research activities involving human beings.

It is expected that SPA's involvement in the SIGN-AIR project (Grant Agreement number 101114845) might include the following research activities with human beings: surveys, interviews, focus groups, workshops, conferences or other events, e-mail exchanges, exchange of contractual documents part of the SIGN-AIR platform (e.g., terms & conditions, user agreements, data sharing agreements, smart contracts).

While performing such research activities, Josep Lluis Larriba Pey and SPA's team dedicated to the project will comply with the ethical guidelines as set up by the project and as referred to in the SIGN-AIR Data Management Plan and ethical guidelines.

Yours sincerely,

38073457Q JOSEP LLUIS LARRIBA PEY (R: B65297038)

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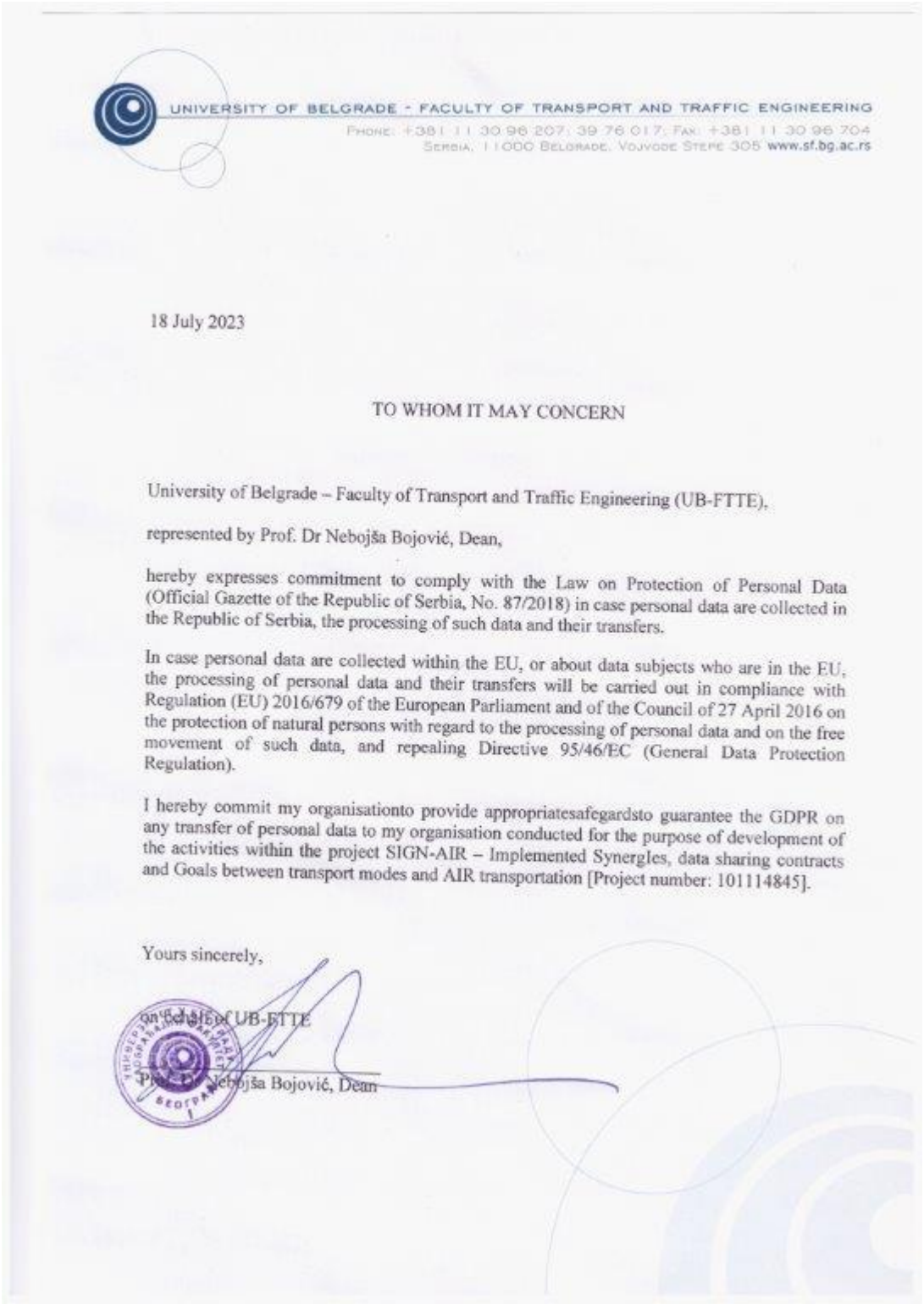
Josep Lluís Larriba Pey
Legal representative
Sparsity SL

Annex VI – Statement of UB-FTTE/international data flows



UNIVERSITY OF BELGRADE - FACULTY OF TRANSPORT AND TRAFFIC ENGINEERING
PHONE: +381 11 30 96 207; 39 76 017; FAX: +381 11 30 96 704
SERBIA, 11000 BELGRADE, VOJVODE STEPE 305 www.sf.bg.ac.rs

18 July 2023

TO WHOM IT MAY CONCERN

University of Belgrade – Faculty of Transport and Traffic Engineering (UB-FTTE),

represented by Prof. Dr Nebojša Bojović, Dean,

hereby expresses commitment to comply with the Law on Protection of Personal Data (Official Gazette of the Republic of Serbia, No. 87/2018) in case personal data are collected in the Republic of Serbia, the processing of such data and their transfers.

In case personal data are collected within the EU, or about data subjects who are in the EU, the processing of personal data and their transfers will be carried out in compliance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

I hereby commit my organisationto provide appropriatesafegardsto guarantee the GDPR on any transfer of personal data to my organisation conducted for the purpose of development of the activities within the project SIGN-AIR – Implemented Synergies, data sharing contracts and Goals between transport modes and AIR transportation [Project number: 101114845].

Yours sincerely,

on behalf of UB-FTTE

Prof. Dr Nebojša Bojović, Dean

Annex VII – Conditions for the use of the "API portal" of Bologna

Aeroporto di Bologna
Aeroporto Guglielmo Marconi di Bologna S.p.A.

CONDITIONS FOR THE USE OF THE WEB APPLICATION "API PORTAL" OF BOLOGNA GUGLIELMO MARCONI AIRPORT

PREMISE

Bologna Airport (hereinafter referred to as "AdB") developed a *web application* (hereinafter also referred to as "API portal") that allows to display the available APIs, to test them, and to obtain the corresponding access keys for use by their own application, whose operational details are set in Annex 1 (Developer Notes).

Access to this API portal may be granted to any economic operator, company, public or private body submitting a request to use Bologna Airport data in form of API, explicitly indicating the end use that will be made (see the request template attached). The use of such data by applicants must be in accordance with the following procedures provided by Bologna Airport, as well as in compliance with all applicable regulations and legal provisions.

Applicants acknowledge and take note that the use of data implies the automatic and unconditional acceptance of these conditions and undertake, therefore, to comply with all the following. In case of non-compliance with the conditions, Bologna Airport may suspend, without notice or further communication, the use of data and, where deemed appropriate, claim for compensation for any possible damage suffered.

In addition, applicants commit to comply with the Ethical Code of Conduct and "Model 231" of AdB – Bologna Airport (which can be consulted and printed at www.bologna-airport.it), ensuring that, in the execution of this agreement, any conduct likely to cause prejudice will be avoided, with reference to the offences indicated in Legislative Decree no.231/01.

The API portal already contains some datasets (hereinafter referred to as "the data"), whose formats and routes are detailed in Annex 2. This Annex will be updated as new routes and datasets become available.

The use by the requesting companies is subject to the following conditions and terms of use:

a) the data remains Bologna Airport's property and may not be manipulated and/or modified in any way by the companies that will use it and may not be used for purposes other than those stated in the request;
b) it is forbidden to store historical series of data to be used for statistical purposes, unless expressly requested and authorized by Bologna Airport;
c) it is not allowed to include advertising communications within the page/application through which the data is used or made public, without the prior authorization of Bologna Airport;
d) any logo directly related to the used data -including Bologna Airport logo- shall not be modified or altered and may only be intended for the requested end use;
e) applicants/data users will be required to show users the updates of the data in real time, where required by the purpose of the request;

f) applicants/data users will be required to show to final users the latest update time of the data;
g) applicants/users shall comply with the obligation to:
   - not use the APIs for any illegal or non-authorized purpose
   - not interfere with the security, integrity or performance of the APIs
   - not modify, decompile, disassemble or decode the APIs;
h) (Changes to the Conditions) Bologna Airport reserves the right to modify the above conditions of use at any time. Changes will be promptly notified and will take effect immediately. Continued use of the API constitutes acceptance of the changes.

It should be noted that Bologna Airport could in no way be held responsible for the accuracy and/or completeness of the data, as mainly coming from external sources. Bologna Airport can also not be held responsible for any direct, indirect, incidental, special, consequential or punitive damages resulting from the use of the APIs, as well as for the incorrect use of the data and its wrong communication to end-users.

Applicants and data users hereby waive any judicial and/or extrajudicial action, pretense, charge, claim for damages and/or compensation, regarding the presence, correctness and/or completeness of the data available through the web application "API portal" of Bologna Airport.

For any disputes that may arise between the Parties in the interpretation and application of the conditions already mentioned, the Court of Bologna will have exclusive jurisdiction.

Annex 1 - Developer notes

Annex 2 - Data format and route list

Template – Request for API portal access

Date and Signature for conditions acceptance

LARRIBA PEY, JOSEP LLUIS (FIRMA)

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*Sparsity

Request to access and use the AdB API portal

This document represents the request to access and use the API catalogue, made available by Bologna Airport - Aeroporto G. Marconi di Bologna S.p.A., based on the defined conditions of use.

The following data are provided for the correct user profiling:
- reasons for using the APIs catalogue
- list of users to be enabled for access fulfilment
- list of IPs to be enabled to limit access to the service to known IPs only, for security and performance reasons.

1. Reasons for using the APIs catalogue:

Sparsity Technologies SL (SPA) request access to your API for two key purposes related to the SIGN-AIR project (ID: 101114845).

1. Data Feed for the Connectivity Index and Timetable Synchronization Module
The API data will play a crucial role in facilitating the timetable synchronization module. The aim of this module is to enhance operational efficiency and user experience by synchronizing the timetables of rail and air operators, ensuring seamless transitions with minimal passenger wait times. Key variables in the synchronization process include connectivity, arrival and departure times, and transfer times between transport modes. Through the SIGN-AIR project, SPA is developing a module to measure air-rail connectivity, analysing schedule synchronization and network integration. The module calculates a "destination index," where direct connections ($Cdirect$) are added to indirect connections ($Cindirect$), assuming the connection time is within the defined [MCT, MACT] range. The data for BLQ´s API will be used to calculate the new multimodality connectivity index and show how well is BLQ connected with other airports and cities of Europe allowing us to see which flights and trains (highspeed+monorail) can have an acceptable transfer time and therefore proposed to be synchronized and proposed to the airlines and highspeed railway operator for an agreement. Additionally, the connectivity can be an indicator for the airport and assist in disruption management as the network will be designed with the assistance of Sparksee graph and we could implement testing scenarios.

2. Data Feed for Affected Flights Algorithms

Additionally, we seek data to feed algorithms designed to calculate potential disruptions to flights due to train delays (from either Marconi Express or Trenitalia). These algorithms aim to identify which flights might be impacted by such delays, particularly highlighting any passengers potentially "trapped" in transit due to unforeseen circumstances. These algorithms will be developed to serve the contract generation of SIGN-AIR platform under G3: Disruption management.

3. List of users to be enabled for access fulfilment (to be forwarded to the API portal service provider):

Surname	Name	Mail
Mrazovic	Petar	petar@sparsity-technologies.com
Igen	Arystan	arystan@sparsity-technologies.com

Note: the user agrees to provide the necessary information and to keep it up-to-date in a timely manner, in the event of any changes, and communicate to nomineads@bologna-airport.it

Escale	Francesc	cesc@sparsity-technologies.com

4. List of IPs to be enabled (to be forwarded to the API portal service provider), both for Production and Development environment:

IP PROD	IP DEV
IP 1	IP 1 91.121.2.150
IP 2	IP 2
IP 3	IP 3
IP 4	IP 4

Please find here enclosed, the conditions for the use of the API Portal, duly signed along with the related annexes.

Date and Signature of legal representative

LARRIBA PEY, JOSEP LLUIS (FIRMA)

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Note: the user agrees to provide the necessary information and to keep it up-to-date in a timely manner, in the event of any changes, and communicate to nomineads@bologna-airport.it