

Exploitation and Dissemination Report

Deliverable ID:	D6.3
Dissemination Level:	PU
Project Acronym:	AISA
Grant:	892618
Call:	H2020-SESAR-2019-2
Topic:	SESAR-ER4-01-2019
Consortium Coordinator:	FTTS
Edition date:	23 December 2022
Edition:	00.01.02
Template Edition:	02.00.05

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Document History

Edition	Date	Status	Name / Beneficiary	Justification
00.00.01	24/10/2022	Initial draft	Roland Guraly	First skeleton created
00.00.02	10/11/2022	Draft	Andrej Kocsis	information filled in
00.00.03	18/10/2022	Draft	Tomislav Radišić	Comments and updates
00.00.04	22/11/2022	Draft	Roland Guraly	Draft for review
00.00.05	29/11/2022	Final draft	Roland Guraly	Final for submission
00/01/01	30/11/2022	Final issue	Tomislav Radišić	First issue
00/01/02	27/12/2022	Updated issue	Roland Guraly	Second issue

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AISA

AI Situational Awareness Foundation for Advancing Automation

This deliverable is part of a project that has received funding from the SESAR Joint Undertaking under grant agreement No 892618 under European Union's Horizon 2020 research and innovation programme.



Abstract

Project promotion in AISA was based on an integrated approach combining Dissemination (making results available), Communication (making sure that potential stakeholders are aware of the project and its results and establishing dialogue with some of them), and Exploitation Planning (planning of measures to encourage use of results after project completion).

Regarding dissemination, the main results disseminated are the project deliverables; they are available at the project website. In addition, detailed scientific knowledge was disseminated via scientific publications, the access to these publications is also ensured at the website.

Regarding communication, the consortium has identified key target groups and the core message to be communicated to each. The project has developed support materials such as presentations,



brochures, etc. and has established a web page and social media presence. Communication also took place via conferences, workshops and other events.

Regarding exploitation planning, the core strategy in AISA (as a TRL 1 project) was to address other stakeholders to make them aware of the potential offered by AISA results. Besides, partners contributed individually as well to the exploitation actions.



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1 Introduction: About this document

1.1 Purpose

This document serves as the proceedings for all the communication, dissemination and exploitation activities (CDE) during the two-and-half year lifespan of the AISA project. Although the official name of the deliverable is “Exploitation and Dissemination Report” as it was the official name of the deliverable in the submitted proposal, in this document it is usually referenced as “Communication, Dissemination and Exploitation Report” or “CDE report” and the associated activities as “communication, dissemination and exploitation activities” or “CDE activities”. As the report is the review of all the activities in WP6, it also has a short section on the data management related activities.

The document has the following objectives:

- to show how the different sub-strategies have been achieved,
 - to describe to what extent the project reached the KPIs in the CDE Plan,
- to detail the actual CDE activities during the lifetime of AISA.

1.2 Structure of the document

Although the document is officially named (in the Grant Agreement) as Exploitation and Dissemination Plan, communication activities are an essential part of this plan, so the plan obviously covers these activities as well. In the document the activities and the plan are referenced as CDE (dissemination, communication and exploitation activities/plan).

The document has three main parts:

- Dissemination Activities
- Communication Activities
- Exploitation Activities.

This distinction follows the general categorization of the SESAR Joint Undertaking and the European Commission. [1] Also, as mentioned in the CDE plan, we use some other reference document and a related writing of a leading research organization on the difference among communication and dissemination¹. The following chart is an extract from the CDE plan summarising the relationships between the different CDE activities.

¹ <https://projects.leitat.org/communication-vs-dissemination-whats-the-difference/>

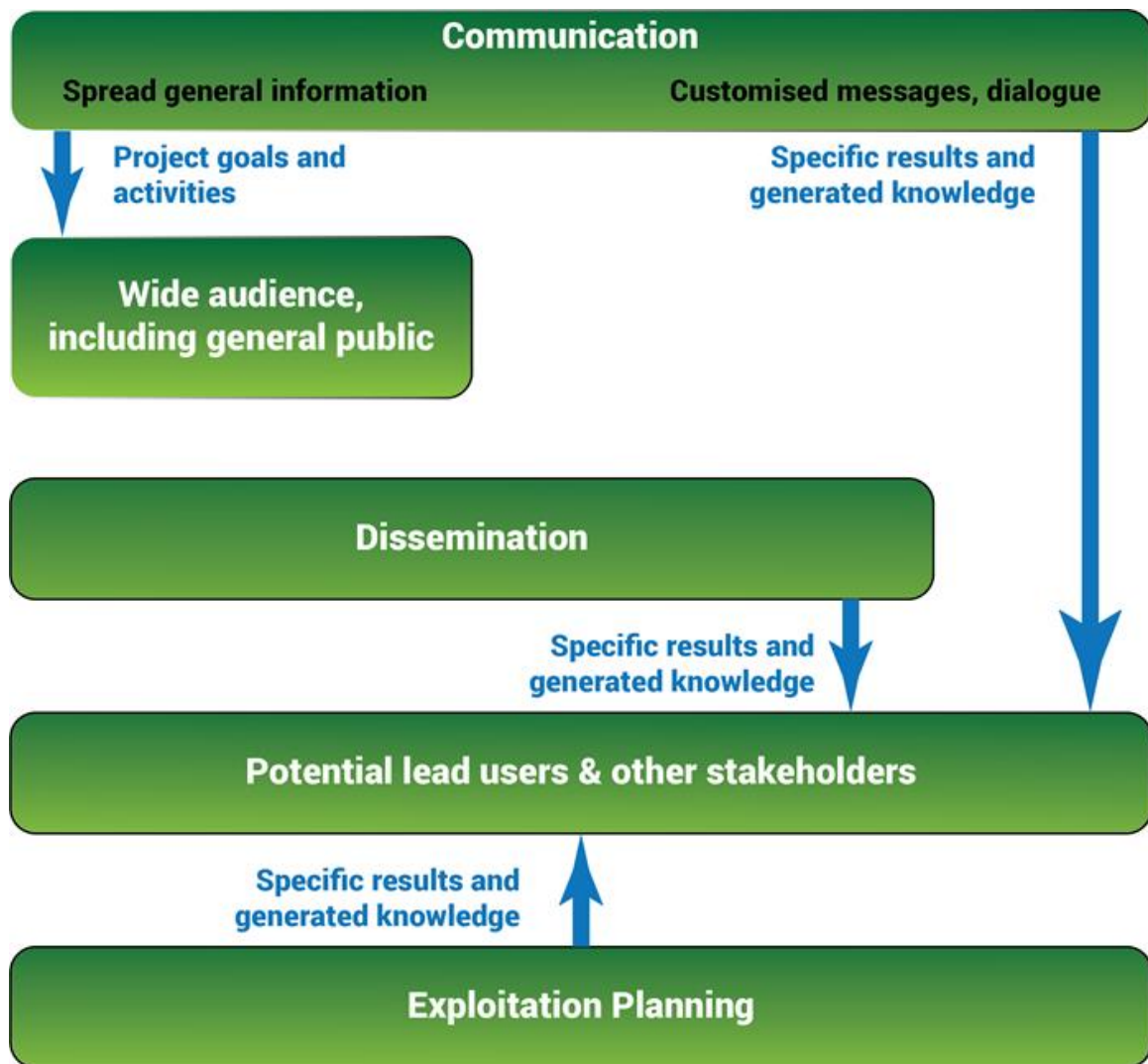


Figure 1 The role of dissemination, communication and exploitation in project promotion: detailed view

Besides the three main chapters, there is a short chapter on data management issues and finally a chapter on the lessons learnt during the CDE activities. The document is closed by the references and the Appendix. The Appendix contains a detailed repository of the dissemination and communication activities (with pictures, screenshots). These activities are in chronological order.

1.3 Intended readership

The target audience of this document is the SJU staff on one hand and the general public on the other hand: anyone being interested in the AISA CDE activities can use this document to have a quick overview on it and then he/she can find the appropriate dissemination or communication materials where more detailed information can be obtained on particular fields.

1.4 Relationship to other deliverables

This deliverable (similarly to the CDE plan) is indirectly related to all technical deliverables in the project, as these are all subject to the Dissemination measures described in this project. However, there is no direct dependency between them in terms of content or structure.

This deliverable is directly related to the following other deliverables:

1. D1.1. Project Management Plan: This deliverable provides the information and guidelines for the implementation of project activities and should be used by project beneficiaries and participants. The PMP gives detailed information about the AISA organisation structure, project schedule with start and end months of the activities, communication and dissemination activities and management processes.
2. D6.1. Exploitation and Dissemination Plan: The most important reference to this document as the strategy, the KPIs and detailed planning were set in this document to which the results are compared to in the current deliverable.
3. D6.2 Project's website and factsheet (due M06). This deliverable will describe the website of the project which is the focal point of communication and dissemination activities of the project.
4. D6.4 Data Management Plan (due M06). This deliverable as part of the Open Research Data pilot will provide guidelines for making the research data findable, accessible, interoperable, and re-usable. It will be updated in time for the intermediate review and final report.

1.5 Relationship to other documents

The main and most obvious reference document for this deliverable is the Grant Agreement for the AISA project which includes the Workplan and the planning for Work package 6: Results dissemination and communication.

The document also tries to conform to general communication, dissemination and exploitation related documents and guidelines such as:

- Communications guidelines – SESAR 2020 projects [3]
- Communicating EU research and innovation – guidance for project participants [4]
- Making the most of your H2020 project [2].

Also, some other previous H2020 and SESAR exploratory projects' related plans were considered for potential inputs as well as other related SESAR guidelines and presentations.

2 AISA Dissemination Activities

2.1 Accomplishment of the Dissemination Strategy

2.1.1 Reaching the dissemination objectives

The main objective of the AISA dissemination activities were to **make the AISA project results available** to the related scientific communities. The table below explains how the sub-objectives were met during the project.

Objective	Result
Project results and the accumulated knowledge made available to the stakeholders, researchers and to the potential end-users	The consortium made extensive efforts to disseminate the project results in scientific journals, conferences and via own workshops, webinars.
To cooperate with the technical work packages to provide all the scientific results possible ² available to everyone interested following the general standards in quality, format and access	All the publications related to AISA are available via the project website either directly or as links.

Table 1 Reaching the detailed dissemination objectives

2.1.2 Target groups of dissemination activities

AISA has identified four main target groups; the table below shows to what extent they were reached during the project.

Stakeholder group	Dissemination activities
Researchers	As a low TRL project, researchers were the main target of the project dissemination activities. They were reached via conferences, journals and own workshops.
the SJU	Besides the obvious reporting channel, representatives of the SJU could also follow the project actions (SID, workshops and via the communication activities)
Industrial players	Besides Skyguide, other industrial players were also made aware by the project results. ³

² Two kinds of limitations are possible: special knowledge to be protected by IPR or articles published in journals not supporting the “green” or “gold” dissemination policies. Related mitigation actions will be described under the relevant chapters, deliverables

³ More on this can be found in the Exploitation chapter.

Policy makers	Policy makers were made aware of the project scientific results mainly via conferences (SID is particularly interesting this manner).
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Table 2 Reaching the target stakeholders

2.1.3 Disseminated material

One related objective in the plan was to disseminate all the technical deliverables. AISA made special emphasis uploading all these deliverables (upon acceptance) to the website and to communicate it to stakeholders. The other one was to disseminate the scientific results other than the deliverables. AISA has made numerous publications and conference presentations giving the chance to many stakeholders to get acquainted with the results. All of these results are available at the website either directly or as links to the appropriate site (journal, conference, etc.). A special category is the source code for the knowledge engine prototype of the project, it is available on GitHub⁴.

Figure 1: A first figure

2.1.4 Dissemination means

There are several channels to disseminate the AISA related results. The table below shows the original ambitions and how AISA actually used them.

Planned Activities		Results
Publications	Scientific publications in the field of ATM, especially in the field of digitalization in ATM, digitalization/automation in general or in human factors	The AISA consortium members (usually in a team) published several related articles, mainly in the field of automation and air traffic management.
Events	<p>Organisation of own scientific events for disseminating the results</p> <p>Participation in external scientific events</p>	<p>The AISA project organised two workshops, one was an online event at the beginning of the project, the other was embedded in a scientific conference.</p> <p>The project also organised an internal workshop for Skyguide experts (a hybrid one).</p> <p>Consortium members participated at different meetings, workshops related to AI research.</p>
Online	Online disclosure of results	All the deliverables and publications are accessible from the web. Many of the presentations, posters, online presentations are also available.

⁴ More related information is in the Data Management Plan related chapter.

Planned Activities		Results
Meetings	Stakeholders engagement related meetings	The consortium had joint meetings with the Advisory Board, with other AI projects and participated at other AI project's Advisory Board meetings.
Media	Presentations in scientific events	The AISA team performed several presentations at conferences/workshops.
Materials		Conferences proceedings Conference proceedings were prepared on the basis of some of the AISA conference presentations.

Table 3 Dissemination means – plans and results

2.1.5 Cooperation with SESAR JU

The AISA consortium paid special attention to the participation of SESAR organised conferences, webinars. The participation at the SESAR Innovation Days is an important milestone every year in terms of the CDE activities of the project.

2.2 The dissemination actions in detail

2.2.1 Reaching the dissemination KPIs

The AISA project has significantly overperformed its dissemination objectives. This is well observable in terms of the quantified KPI numbers as shown in the table below. Noteworthy to mention is that the journals and the events represent a wide variety of locations and domains, so the dissemination coverage is large, e.g., the potential overlap among conference participants where AISA was presented is relatively low. Besides, more papers, conference presentations, posters are either planned to be made or are under evaluation. Part of the associated work therefore will take place outside of the project timeframe, representing a kind of exploitation activity.

Dissemination action	Success indicators	Results
Focused dissemination of research outcomes & achievements.	2 scientific publications in peer review journal papers of high impact	4 journal papers, 2 papers in conference proceedings, 1 poster and some more in preparation or under review
	3 presentations in key events	9 presentations
General dissemination of achievements, workshops	30 stakeholder participants in the first project event	62 participants at the event (three sessions)

	40 stakeholder participants in the final event	more than 40 participants
	at least 5 participants per stakeholder group in both project events	not measured, but different research domains were represented

Table 4 Dissemination KPIs

2.2.2 AISA deliverables and CDE related milestones

The technical deliverables are the most important official materials to use for dissemination as they contain all the results achieved during the project. The AISA consortium made special efforts to make these documents “rich” in content, so researchers reading them can also see the methodology (how the work was planned) and not only the results achieved. Two good examples for that are the D2.1 (CONOPS) which is 134 pages and the D5.2 (experiments and results report) which is 176 pages. These two documents also serve as an important background information for several dissemination activities.

The following list shows the public deliverables of the project.

Deliverable Number	Deliverable Title	Type
D1.2	Final Project Results Report	Report
D1.3	TRL-Assessment Report	Report
D2.1	Concept of Operations for AI Situational Awareness System	Report
D2.2	Requirements for automation of monitoring tasks via AI SA	Report
D3.1	4D trajectory prediction module	Other
D3.2	Conflict detection module	Other
D3.3	Air traffic complexity estimation module	Other
D4.1	Proof-of-concept KG system	Demonstrator
D4.2	KG-Prolog mapper	Other
D4.3	Populated knowledge graph	Other
D4.4	Facts, rules and queries capturing en-route ATC operations	Other

Deliverable Number	Deliverable Title	Type
D5.1	Risk assessment report	Report
D5.2	Report on human machine distributed SA	Report
D6.2	Project's website and factsheet	Websites, patents filling, etc.
D6.3	Exploitation and Dissemination Report	Report
D6.4	Data Management Plan	ORDP: Open Research Data Pilot

Table 5 Public deliverables

The followings are the CDE related milestones of the project:

Milestone Nbr.	Milestone title	Lead beneficiary	Due	Means of verification
MS3	ConOps Workshop	1 - FTTS	4	ConOps Workshop
MS4	SID 2020 conference papers	1 - FTTS	6	SID 2020 conference papers
MS5	Website activated	3 - SLOT	6	Website activated
MS10	SID 2021 conference papers	1 - FTTS	18	SID 2021 conference papers
MS14	SID 2022 conference papers	1 - FTTS	30	SID 2022 conference papers
MS15	AISA Workshop	1 - FTTS	30	AISA Workshop
MS18	Exploitation and Dissemination Plan	3 - SLOT	4	Exploitation and Dissemination Plan

Table 6 the CDE milestones

For the 1st SID a poster was submitted and accepted (achieved the best poster award), for the second a paper was submitted but it was not accepted, for the final SID a poster was submitted. The website was accomplished earlier as it was needed for the 1st workshop organisation.

2.2.3 AISA publications

The scientific publications are very important tools as these articles and posters are the ones which actually reach the scientific community. AISA had significant numbers of publications throughout the project and some more are under evaluation or in progress. The consortium has plans for some additional publications in the future which are not on the list.

The first related table summarises the publications during the “technical” period of the project, i.e., during the first two years. As it can be seen the project was active in publications from the beginning. The consortium is proud that the AISA poster received the best poster award at the SESAR Innovation Days in 2020.

Paper/Poster title	Journal/Conference	Publish Date	Author name	Journal/Conference no.	Status
The Proposal of a Concept of Artificial Situational Awareness in ATC	Engineering Power - Bulletin of the Croatian Academy of Engineering - ISSN 1331-7210	Q3 2020	Radišić T., Andraši .P., Novak D., Rogošić T.	Vol. 15 (2), 2020	Published
The AISA project	SID 2020	Q4 2020	Radisic, Kocsis, Guraly	SID Conference	Published
Machine Learning classification techniques applied to static air traffic conflict detection	Journal (Conference special issue)	Q1 2022	Perez-Castan, A. - Perez-Sanz, L. – Bowen-Varela, J. - Serrano-Mira, L. – Radisic, T. – Feuerle	IOP Conference Series: Materials Science and Engineering, 2022	Published
Design of an ATC Tool for Conflict Detection Based on Machine	Journal (Conference special issue)	Q1 2022	Perez-Castan, A. - Perez-Sanz, L. - Serrano-Mira, L. - Saéz-Hernando, F. - Gauxachs, I. -	Aerospace 2022, 9	Published

Learning Techniques			Gómez-Comendador,		
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Table 7 AISA Publications – 1 June 2020 – 30 May 2022

The other table shows the publications during the “AISA communication, dissemination and exploitation campaign”, i.e., during the last six months of the project.

Paper/Poster title	Journal/Conference	Publish Date	Author name	Journal/Conference no.	Status
Introducing artificial intelligence in air traffic control	Conference Proceedings	Q2 2022	Roland Guraly	Proceedings of the XII. INTERNATIONAL CONFERENCE on TRANSPORT SCIENCES	Published
Creating an ATC knowledge graph in support of the artificial situational awareness system	Transportation Research Procedia	Q32022	Michael Schrefl, Bernd Neumayr, Sebastian Gruber, Marlene Hartmann, Ivan Tukarić, Tomislav Radišić	Volume 64, 2022,	Published
Learning Assurance Analysis for Further Certification Process of Machine Learning Techniques: Case-Study Air Traffic Conflict Detection Predictor	Sensors for Navigation and Control Systems		Pérez-Castán, Pérez Sanz, Fernández-Casstellano, Radišić, Samardžić, Tukarić	Oct 2022 (Special issue)	Published

Paper/Poster title	Journal/Conference	Publish Date	Author name	Journal/Conference no.	Status
Risk assessment of using AI-based systems in ATC functions: lessons learned from AISA	Aerospace Forum Proceedings	Q4 2022	Pérez-Castán, Pérez Sanz, Radišić, Häusler, Guraly, Keiko, Neumayr, Schmidt	Proceedings of the conference	In progress
Straightforward approach on using neural networks for aircraft trajectory prediction	Journal of Air Transportation (AIAA)	Q4 2022	Schmidt, Feuerle, Radišić, Pérez-Castán Hecker	TBD	Under Evaluation
WP 5 in AISA (with results)	SESAR Innovation Days 2022	Q4 2022	Tomislav Radisic, Ivan Tukaric	Proceedings of the conference	Accepted

Table 8 AISA Publications – 1 June 2022 – 30 November 2022

Besides the publications already published or “being in progress” (already submitted but still being under evaluation, accepted but not yet published) there are other articles which are still in the planning and writing phase. These future papers typically belong to WP5 which was the last one being closed, so still more time is needed to accomplish the related dissemination activities. However, we consider this as an advantage: the project (which has already outperformed its dissemination targets) plans to be active in disseminating results even beyond the official lifetime of the project (Table 9).

Paper title	Journal/Conference	Publish Date	Author name
Artificial and human SA - a comparison and exploration of the impact combining the two	International Journal of Industrial Ergonomics	Q4 2022	Häusler Hermann, Vetter, Roth, Tensfeldt, Samardžić, Tukarić & Radišić
Deriving indicators for situation awareness and performance from eye-	Journal of Eye Movement Research (Q4 2022)	Q4 2022	Vetter, Roth, Tensfeldt & Häusler Hermann

tracking data in an Air Traffic Control simulation			
Teaming Human-Machine situation awareness and reactions to artificial SA	Human Factors	Q1 2023	Häusler Hermann, Vetter, Sommer

Table 9 AISA Planned Publications – 1 June 2022 – 30 November 2022

2.2.4 Conferences

Despite the breakthrough of the online world, conferences are still the number one entry points to the scientific community. A good presentation can lead to reading the related article, project deliverable and the event provides a networking opportunity for the participants. However, during the first two years of the project the possibilities were limited for AISA due to the pandemic. The table below shows the related activities.

Event Name	Location	Event Date	Expert name	Involvement
SID 2020	Virtual	7-10 December 2020	Radisic, T.	Presenter
SID 2020	Virtual	7-10 December 2020	Kocsis, A., Guraly, R.	Attendant, poster co-author
SID 2020	Virtual	7-10 December 2020	Pérez-Castán, Sanz, A., Mühlethaler, Spörri, Moebus, Neumarr, Schmidt, Feuerle,	Attendant
EASN 2021	Virtual	01-03 September 2021	Pérez-Castán	Presenter
World ATM Congress 2021	Madrid (Spain) or virtual	October 22, 2021	Pérez-Castán, Javier A.	Presenter
			Pérez-Sanz, Luis	Attendant
			Roland Guraly	Attendant
SID 2021	Virtual	7-9 December, 2021	Radisic, Guraly, Kocsis, Pérez-Castán, Sanz, A., Moebus, Neumarr, Schmidt, Feuerle,	Attendant

Table 10 Conference participations – 1 June 2020 – 30 May 2022

The close of the pandemic provided opportunities for the last six months (dissemination campaign) of the project. The summary of the related participations are described below.

Event Name	Location	Event Date	Expert name	Involvement
XII. INTERNATIONAL CONFERENCE on TRANSPORT SCIENCES	Gyor, Hungary	9-10 June, 2022	Roland Guraly	Presenter
World ATM Congress 2022	Madrid, Spain	21-23 June 2022	Pérez-Castán, Javier A.	Presenter
			Pérez-Sanz, Luis	Attendant
ZIRP Conference	Sibenik, Croatia	28-30 September 2022	Kristina Samardzic	Presenter
ZIRP Conference	Sibenik, Croatia	28-30 September 2022	Ivan Tukaric	Presenter
AI Workshop	Budapest, Hungary	3 November 2022	Roland Guraly	Presenter
TRA2022	Lisbon, Portugal	14-16 November 2022	Roland Guraly	participant
Risk assessment of using AI-based systems in ATC functions: lessons learned from AISA	Online	17-18 November 2022	Pérez-Castán, Pérez Sanz, Radišić, Häusler, Guraly, Keiko, Neumayr, Schmidt	Presenter
WP 5 in AISA (with results)	Conference SID 2022	December 2022*	Tomislav Radisic, Ivan Tukarić	Poster and panel participation

Table 11 Conference participations 1 June 2022 – 30 November 2022 (*SID 2022 is out of project period)

2.2.5 The AISA workshops

Own events are useful tools to describe the project methodologies and results in detail, hence for these events the organisers set the timeframe, agenda, invites attendees, etc.

The first AISA workshop was repeated in three time slots on the 16th of September 2022 to ensure better interactivity. The workshop session had over 80 registrations and more than 50 participants (session 1: 22 persons, session 2: 23 persons, session 3: 17 persons) which is well above the target

which was 30 persons. The workshop has good discussion, questions and comments arrived on several issues.

The workshop was provided by WebEx and several SJU and EUROCONTROL experts were also participating.

All three sessions started with the presentation of the AISA concept of operation presented by Tomislav Radisic. The presentation took about 45 minutes and followed by the 45 minutes Q&A sessions. The consortium received very useful feedbacks from the audience enabling to fine tune the CONOPS before starting the implementation and testing phases of the project.

The second AISA workshop was embedded into the EASN conference on the 20th October 2022 in Barcelona via two AISA related presentations. The first presentation was delivered jointly by Tomislav Radisic, project coordinator and Ruth Hausler, workpackage leader for Concept Assessment. The presentation was delivered within the „Human-centred design of AI and digital assistants“ session. Besides, Ivan Tukaric (also from University of Zagreb) delivered a speech on “Artificial Situation Awareness Assessment of a Novel ATC Support System“.

The consortium chose the EASN conference as this would enable a lot of scientists to meet the AISA team personally as the EASN conference is a major event in the aviation world. Besides, as there are several aircraft and aeronautics related engineers as usual participants in EASN events, this also offered the possibility to provide a link among the “two worlds”. Another synergy came from the fact that while the first event was an online one (therefore anybody could participate relatively easily), the second one was a personal one, where the possibilities for personal meetings was the advantage offered.

2.2.6 Advisory Board

The main role of the Advisory Board (AB) is not directly linked to CDE activities as the AB generally for validating the concepts and methodologies used. However, as the AB consists of external researchers, experts, they are also target of dissemination activities.

The following organisations were represented in the Advisory Board: Cranfield University, Croatia Control, EUROCONTROL (2 experts). In terms of other AI projects, ARTIMATION, MAHALO, SafeOPS and TAPAS representatives were invited to AB events.

The AB related events were the following:

- 16 September 2020 – CONOPS workshop (AB members involved),
- 20 September 2021 – AISA Advisory Board meeting: Advisory Board and consortium members,
- 8 March 2022: AISA Risk assessment workshop: Advisory Board and consortium members.

2.2.7 SESAR Innovation Days 2022

The 2022 SESAR Innovation Days (SID) was held in Budapest during the 5-8 December. Although this event was out of the project period (therefore it is officially not part of the dissemination activities of the project) following the request of the SJU it is also mentioned in this report. The AISA consortium was presented with several participants at the event, a poster on the project was exhibited and in the poster sessions several discussions took place at the AISA poster supported by some AISA leaflets.



During the final day of the conference, Tomislav Radisic, project coordinator took part in the panel discussion of AI projects. (A picture on the panel is available in the Appendix and the related posts are shown at the project website – Events section - and LinkedIn channel.)



3 AISA Communication Activities

3.1 Accomplishment of the communication strategy

3.1.1 Reaching the Communication Objectives

The main objectives of the communication activities were:

- to make the project results **known**,
- to ensure that the results **reach** the target groups,
- to receive **feedback** for validation, fine tuning of the work.

It is not possible to directly measure the fulfilment of these objectives, but certain numbers: e.g. the overperformance of workshop attendees thanks to effective communication of the planned events, the high number of followers in the LinkedIn channel despite the “niche” nature of the project and the active discussions after AISA related presentations indicate that the set objectives were met during the project.

3.1.2 Target groups of communication activities

In the Communication, Dissemination and Exploitation Plan (CDE Plan) we identified the following target groups for communication:

- General Public
- SESAR Joint Undertaking
- ATM research community
- ATM industry
- Other related research communities
- Decision makers

The list below shows how we interacted with the most important groups:

Target	Objective	Results
SJU	To make aware the SJU about the project's progress.	Besides reporting, SESAR experts could follow the project activities via the website, social media messages in “real-time” throughout the project.
ATM system Industry	To make industry aware of the added value of the application supported by emerging IT technologies.	EUROCONTROL experts were members of the Advisory Board, besides, some

	(EUROCONTROL, manufacturers) system	consortium members communicated with industrial players ⁵
ANSPs	To share the findings on the potential usage of AI as ATCO SA supporting tool (Skyguide, Croatia Control)	Besides the high involvement of Skyguide Communication to ANSPs were performed in several manners, Advisory Board (Croatia Control) newsletters, workshops, etc.
Research Institutions	To enable further research in the field of AI, human behaviour and the ATM management	Research organisations and universities were the number one targets for dissemination activities. To enable effective dissemination, these partners had to be notified about new project content, events, etc. Therefore, they were the targets of workshop invitations, social media messages, newsletters. Besides several members of the Advisory Board is from this target group.
Wider public	To inform the general public in an understandable way.	The AISA communication materials (brochure, video, other web content) were designed in a manner that it can be understood without being an expert in the field. The CDE team communicated the project information in various social media channels, this way not only the domain specific experts were reached.

Table 12 List of communication targets

3.1.3 Communication means

This part of the strategy answers how do we do the communication and where do we do it. The summary of the related means is shown on the table below, which is set up on the bases of the template provided in Chapter 1.

⁵ Relevant text is also available in the exploitation section.

	Channel	Performed activity
Publications/Media	Press release e-Newsletter News sites articles	Press releases and own newsletters were submitted regularly, project results were communicated in other newsletters (SESAR, EASN), and relevant other news (e.g. CANSO)
Events/Online promotion	Generalist website Social media Event organisation	The website is designed in a way to support and easy overview on the project, social media activities support those who would like to follow the project related news, the first online workshop was accessible for anyone.
Meetings	Information exchanges with experts	Conferences, exhibitions attended enabled the consortium members to exchange ideas with experts in the project related and neighbouring fields.
Materials	Video Leaflet Brochure Poster	Project videos were prepared to help the understanding of the project. Printed and electronic brochures/leaflets/posters were prepared for different occasions.

Table 13 Summary of the communication means

3.2 The communication actions in detail

3.2.1 Reaching the communication KPIs

The table below summarises all the communication related key performance indicators and to what extent they were achieved.

Communication action	Success indicators	Results
Communication of the project vision, scope and objectives.	>1000 leaflets disseminated	>the electronic version of the brochures was disseminated to significantly more than 1000 people either directly or via social media posts and reposts.
Interactive dissemination of the project vision, scope, concepts and on-going results, allowing interested parties to provide feedback and interact with the project team.	>200 visitors of the web site per month >100 subscribers to the web site during the project creation of >2 newsletters >200 recipients of the newsletters >10 posts per 3-month period (in social media) >50 followers (in social media) 1 press release	>as an average the website and the social media page together has more than 200 visitors per month >there is no subscription to the website, the social media page took over this role, with more than 100 followers >the newsletters reached much more than 200 persons either directly or via social media posts and reposts. >in communication intensive periods (e.g. the last six months of communication campaign), the project had overperformed this target. >significant overperformance in social media followers: the project has 117 followers (19 November 2022) The project performs press releases regularly (every half year)

Table 14 Communication KPIs

3.2.2 The communication materials

3.2.2.1 The AISA website

The AISA project has prepared a website quite early in the project (by August 2020) to support the organisation of the first workshop (September) with information content and registrations. The website can be found at: www.aisa-project.eu. The website serves as the main repository for AISA related materials, documents: deliverables, scientific papers, presentations, important events, communication materials, etc.

3.2.2.2 The AISA LinkedIn page

AISA has a social media page also from the beginning of the project and this became the primary communication channel to stakeholders: <https://www.linkedin.com/company/aisa-exploratory-project>. Overperforming the original 50 followers as a target, by today there are more than 100 persons receive notifications on AISA related results, activities. During the communication campaign period (the last six months of the project), there was approximately one post/week as an average.

3.2.2.3 Videos

The first video of the project was prepared for the SESAR Innovation Days in 2020 (so it is partially a dissemination material) but as it is also available at the website to watch, it became a communication tool as well to attract attention towards the project. The video is also available at the website of Slot Consulting trying to promote the project to a broader audience.

The final AISA video was prepared by November 2022 and it contains all the relevant information on the project, including the results of the experiments. It is actively communicated in social media platforms and forums.

There are two additional AISA related videos (both of them available at the AISA website), the first is the recording of the first AISA CONOPS workshop and the second is the joint video of all the SESAR ER AI projects.

As the videos are explaining the project activities in a relatively interactive and easily understandable way, they serve as primary means to inform the general public on the project activities.

3.2.2.4 Brochures

The project has prepared four brochures/leaflets. One was an interim leaflet, prepared for the World ATM Congress in 2021 (being also available in an online form), the second one was prepared towards the end of the project and it was distributed both to project partners (for further distribution) and it was used during b-to-b meetings at TRA2022 in Lisbon. The e-brochure version was partially used for exploitation purposes and it can also be downloaded from the project website.

3.2.2.5 Posters, presentations developed by the project

The project has developed four different posters in overall. Two posters were prepared for two SIDs (2020 and 2022), one for an event at University of Zagreb (FTTS) and another one for a later event at Linz University (JKU). Besides posters numerous presentations were prepared by the project and obviously synergies were built by using some common main elements in most of them.

3.2.3 The communication actions

3.2.3.1 The AISA newsletters

The AISA project has performed four newsletters during the project. Three of them was own newsletters (during different periods in the project) and one was embedded into the EASN newsletter.

3.2.3.2 The press releases

The AISA project has performed four press releases on the project. One press release was conducted by Skyguide and the other three with the support of UPM. The final press release is also available at the project website.

3.2.3.3 AISA in the SESAR e-news

The consortium is proud that the AISA project has achieved the “project of the month” title twice: once in September 2020 and lately in October 2022. These two articles (and their sharing in social media) allowed to reach a wider audience.

3.2.3.4 Individual communication actions of partners

The AISA partners did special effort in trying to reach a wider community with the AISA messages, including students and the general public. First of all most of them has an AISA related page, news at their website and circulated the e-brochures within their staff. Second, they did tailor communication actions, mainly during the last six months of the project. The following table summarises the related activities.

Organisation	Activity
FTTS	Participation at ZIRP conference, reaching to students and experts from other transport modes
Skyguide	Organisation of an internal workshop in October 2022 (a hybrid one) with the involvement of the management and air traffic controllers.
TUBS	A presentation on the project was conducted in German for the students in the frame of a lecture.
JKU	A presentation on the project was conducted for students in the frame of an online lecture.
UPM	UPM presented AISA at WACC 2022 where a high number of university students were invited for the session.
ZHAW	A presentation on the project was conducted for students in the frame of a lecture.
SLOT	The project video was prepared to make the results available for the general public.

Table 15 Partner’s communication activities

3.2.3.5 Other communication actions

The project performed several other communication actions. Consortium members have participated at Advisory Boards of other SESAR AI projects and therefore they could exchange information with other experts in the field. Also, the project coordinator, Tomislav Radisic performed other meetings coordinating with other initiatives in the field. The following table is a summary of these activities.

Activity	Responsible	Date
SESAR ER AI projects workshop	FTTS	8-Mar-21
SESAR ER AI projects workshop	FTTS	5-Oct-21
EUROCAE AI event	FTTS	1-Jul-21
ENGAGE presentation	FTTS	3-Sep-21
MAHALO AB meeting participation	Skyguide	28-Oct-21
TAPAS AB meeting participation	ZHAW	17 Jan 2022, 28 Feb 2022, 19 May 2022
Artimation workshop	Skyguide	6 July 2021, 13 April 2021
Joint workshop at EASN conference	FTTS/SLOT	20 October 2022

Table 16 Cooperation with other projects, initiatives in the field

Other activities also include:

- participating in the CANSO news (July 2021),
- presentation including elements of AISA at ATIEC 2021 by an AB member,
- publishing an article (an interview with the coordinator) at CORDIS in October 2022,
- exchange of information with different AI, automation projects in surface transport at TRA2022 in Lisbon (November 2022).

4 AISA Exploitation Activities

4.1 Accomplishment of the exploitation strategy

4.1.1 Reaching the exploitation objectives

As mentioned in the CDE Plan, the exploitation related objectives can fall into two main categories:

- exploitation activities made for the benefit of the European ATM community and research community,
- Exploitation activities made for the benefit of the consortium members.

Therefore, the interpretation of the results is made along these lines.

As AISA is a low TRL project obviously most of the exploitation activities are not separate from the dissemination and communication activities, they *indirectly* support exploitation as well.

4.1.2 Reaching the target groups

The following table summarises how the exploitation to different target groups was accomplished.

Target Group	Exploitation Activity
European Researchers	The primary target group of AISA. They have almost full access to all the developments of AISA via deliverables, source codes, etc. Via dissemination and communication activities, a significant number of related researchers were informed, so they can use the AISA results.
ATM industry	The ATM industry should be aware of AI research results in order to be able to adjust middle and long-term planning accordingly. Therefore, their involvement in AISA dissemination and communication activities were key before further exploitation steps.
European decision makers	The European decision makers could learn about AISA results from AISA communication activities and by participating at related conferences, e.g., SESAR Innovation Days, where AISA related posters, presentations were made.
General Public	AISA has mainly an indirect role here: to contribute in trust building. AISA communication materials show that the process is scientific, careful and gradual, so by reading, watching them, the general public can be reassured that future developments will be implemented with keeping the safety as top priority.

Table 17 Exploitation target groups

4.1.3 Exploitable results

AISA generated three kinds of exploitable results:

- New knowledge was generated by the project partners on the process: how to use AI in ATM. This process was well described in the project deliverables and related publications so other researchers could make a use of it.
- The AISA experiments made interesting conclusions which were explained in the associated deliverable. Researchers performing similar research and development activities might further use these results when trying to move an AISA-like solution up on the TRL scale.
- The indirect results of the project is the exact methodology how partners can make AI related prototypes for the use in ATM. This is primarily a knowledge the project partners can benefit from.

4.1.4 Exploitation methodology

Exploitation plans usually describe how project results could be used in one or more of the following ways:

- To facilitate further research.
- To develop and market a product or service.
- Contribute to standardisation activities.

As AISA is a TRL-1 project (basic research) obviously the first objective (further research facilitation) has the most potential and the exploitation plans were tailored to this possibility. Nevertheless, some actions supported the other two objectives as well.

The following items were the main exploitable materials for AISA:

The following exploitable outcomes from the project have been identified:

- the AISA technical deliverables, within them the CONOPS (D2.1) and the report on experiments (D5.2) has a special role in this respect,
- the scientific publications.
- the source code of the knowledge engine (available on GitHub)
- the overall methodology on how to set up AI related experiments and prototypes in an ATM/ATC environment.

4.1.5 Exploitation agreements in practice

The AISA Consortium Agreement governs the exploitation and IPR methods of the project. However, the direct use was not necessary as being a low TRL project, the consortium partners did not consider it necessary to establish legal protection on any of the developments. Obviously, confidentiality measures were applied to certain parts of the input data, sources either via ethical or legal constraints.

4.2 The exploitation activities in detail

4.2.1 Direct exploitation activities

4.2.1.1 General exploitation

As mentioned in the CDE Plan: “The project has a general ambition by introducing AI to ATM and it can be exploited further: for the first time a reasoning engine combined with ATC-specific ontology will be used to explore the possibility of creating an artificial situational awareness system which can be used as a foundation for integration of other automation concepts.” This is the number one “exploitable item” of AISA, but obviously, the sub-parts and the overall knowledge gained through the process are also interesting. As there is no ATM tool manufacturer within the consortium direct exploitation by partners is only possible via further research. The consortium members are committed to carry on with further research activities by building on the results of the AISA project. In this manner, the AISA results can be gradually led up on the TRL – scale, until it reaches a point from where an ATM tool developer can further exploit it via product development activities.

The concrete exploitation steps towards and within stakeholders:

Air Navigation Service Providers:

Skyguide as an ANSP is a member of the consortium. For them the participation in the project is already a part of a long exploitation process on the use of AI.

Croatia Control was informed on the project results directly as their representative is a member of the Advisory Board.

HungaroControl has received an information pack on the project from SLOT and further related talks are expected at the SESAR Innovation Days in Budapest.

ATM system manufacturers:

Due to the low TRL nature of the project, the direct contacts with ATM manufacturers were limited. FTTS had talks with Collins Aerospace as they were interested on the project results. Besides, industrial experts are generally on the list of the newsletter list of the project and they were invited to AISA workshops as well.

European decision makers, certification bodies:

EUROCONTROL is a member of the Advisory Board via two experts and the coordinator Tomislav Radisic participated at a EUROCAE meeting.

Other SESAR AI projects:

The representatives of four SESAR AI projects are members of the AISA Advisory Board and also AISA had experts participating in the Advisory Board of three AI related projects. This enabled extensive information sharing for supporting exploitation of the project results by other researchers as well.

Partners’ own exploitation goals

The AISA project partners benefit from the project directly as well.

Consortium member	Generic/Specific	Area
UPM	Integration of project knowledge to educational purposes	ATM Education
UPM	Integration of ML knowledge to research purposes	ATM
ZHAW	Through AISA ZHAW further developed its competences in measuring cognitive skills of air traffic controllers and this improved set of know-how is be used in teaching and other related projects.	ATM Education
SLOT	The AISA project enabled SLOT to enhance its skills and knowledge in air traffic management and particularly in automation issues, which will help the company to be involved in related innovation and consulting activities.	ATM related skill enhancement for further research
FTTS	FTTS as the coordinator and a key technical partner gained a lot of new knowledge during the project and it plans to further use these skills in other research initiatives.	ATM and AI research
JKU	The AISA project enabled JKU to further develop its expertise in solving data integration and knowledge representation problems in the domain of air traffic management. The gained expertise is used in teaching and related projects.	Teaching Research projects
TUBS	TUBS includes the AISA results into their aeronautical research education (e.g., into the lecture “Basics of Flight Guidance/Grundlagen der Flugführung”) and plans to use the results in future related research projects on national and European level.	ATM/aviation
Skyguide	The AISA project enabled Skyguide to further consider the potential usage and application of the AI in our future operations. The knowledge and experience gained from the project were actively communicated throughout the AISA research project phases to Skyguide senior management, the experts who shape the company strategies as well air traffic controllers and professional and labour union executive members.	ATM/aviation

Table 18 Individual exploitation benefits

4.2.1.2 Indirect exploitation

As mentioned in the CDE Plan, In case of a low TRL project, this is the most important mean for exploitation. The AISA consortium believes that with the help of the extensive dissemination and communication activities, a lot of ATM and AI researchers were informed on the results of the AISA project and this in turn will expedite the further exploitation of the AISA concept.

5 Data Management related Activities

Although Data Management is not directly associated with the CDE activities, in the AISA project the coordination of the data management activities were performed in WP6 (CDE activities). A Data Management plan was developed at the beginning of the project and it was updated once a workpackage has been closed and the relevant information could be updated.

As described in the Data Management Plan, the project applied the general data management principles and shared all the information which was not meant to be confidential due to GDPR issues, restrictions from third parties or due to exploitation objectives.

The “openness” of the project reveals itself via the example of sharing the source code of the knowledge engine prototype in GitHub⁶.

⁶ Details can be found in the Appendix.

6 Lessons Learnt

In this chapter we introduce briefly what we have learned during the project in terms of communication, dissemination and exploitation activities. The overall lessons learnt is that **the extra six months extension of the projects happened to be a very good idea: during the extra half year the consortium was able to focus on disseminating, communicating and exploitation of already final results** and it made the process much more effective than in previous structure of projects where CDE actions were conducted in parallel with the finalisation of the technical work.

Dissemination

- The consortium has produced significant amount of technical results. The amount was significant both in terms of quality (there are scientific novelties in several ways) and also in terms of quantity (some deliverables are relatively long, as the content generated worth to be explained in a detailed way). This had an effect on the dissemination activities: if there is substantial content to be disseminated it would be wasteful not to do so. This way the technical activity has put some positive “pressure” on CDE activities: the consortium had not only the content but also the will to disseminate.
- The topic AISA covers is “hot”, AISA was generally welcome by conference and event organisers as it was interesting to see how to introduce a new technology in a safety critical industry.
- The consortium received useful feedbacks during workshops and meetings, especially at the time of the first workshop when the draft Concept of Operations was introduced. Therefore dissemination is considered primarily not as a requirement by the consortium members, but rather as a tool via which feedback can be gained and subsequent research can be improved.
- During the pandemic dissemination was not easy as earlier dissemination channels “froze” one day to another, but on the other hand with the spread of online meetings, workshops, the merit of online was discovered. Now there is a mix for meetings to choose from: online, hybrid, personal, and this enriches the dissemination (and also communication) possibilities.

Communication

- Despite the initial expectations (AISA is a low TRL project in a “niche” scientific area), we were glad to recognise that there is an interest in the project activities. The success of the LinkedIn page (117 followers compared to the original 50 as a target) shows that even in a relatively involved field experts can be committed to listen to news of an AISA-like project.
- Cooperation on communication with SJU is beneficial as obviously the SJU has much more resources to reach the target audience than AISA had. The consortium is proud of the SJU related achievements: twice “project of the month” in the SESAR E-News and once the best poster award at SID (2020).
- There is a room “outside of aviation”: communication with other fields (general AI, surface transport, logistics, etc.) can enrich the knowledge on the topic of the research and can support exploitation as well.

Exploitation

- Even low TRL projects can do exploitation activities. It is not necessary to come in a form of IPR. Targeted communication to possible further developers, future users of the system is the necessary first step in the long process to bring AISA results from TRL-1 to TRL-9.

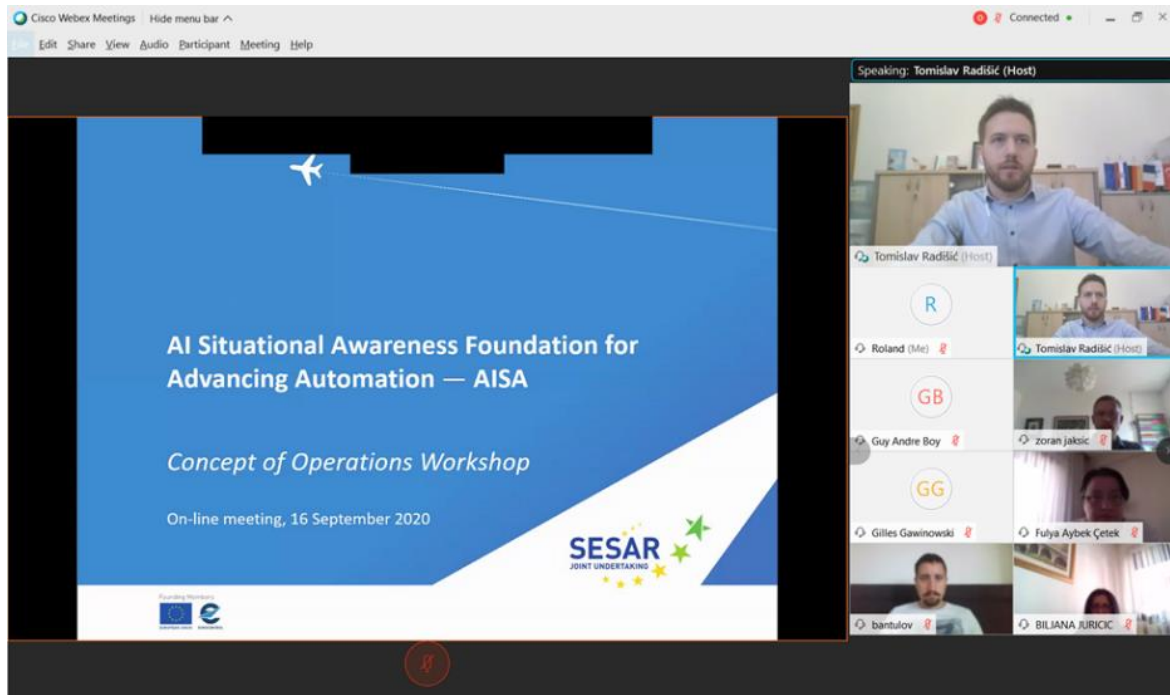
7 References

- [1] “General Categorisation of the SESAR Joint Undertaking and the European Commission”.
- [2] European IPR Helpdesk, “Making the most of your H2020 project,” [Online]. Available: <https://www.iprhelpdesk.eu/sites/default/files/EU-IPR-Brochure-Boosting-Impact-C-D-E.pdf>.
- [3] T. Keaveney, “Communications Guidelines SESAR 2020 Projects,” SESAR JU, 14 January 2019.
- [4] European Commission, “Communicating EU research and innovation guidance for project participants,” European Commission, 25 September 2014.
- [5] S. S. C. a. M. R. O. Triona Keaveney, *SESAR 2020 Communications*, SJU, 2020.
- [6] SJU, “AISA Kick-off Meeting Presentation,” 2020.
- [7] SJU, *ENGAGE : the SESAR Knowledge Transfer Network*, SJU, 2020.
- [8] SJU, *MATURITY Gate*, SJU, 2020.
- [9] AISA, “D1.1 Project Management Plan,” 2020.
- [10] Leitat, “Leitat,” Leitat, [Online]. Available: <https://projects.leitat.org/communication-vs-dissemination-whats-the-difference/>.
- [11] SJU, *SJU Presentation on Project Management Guidance*, SJU, 2020.

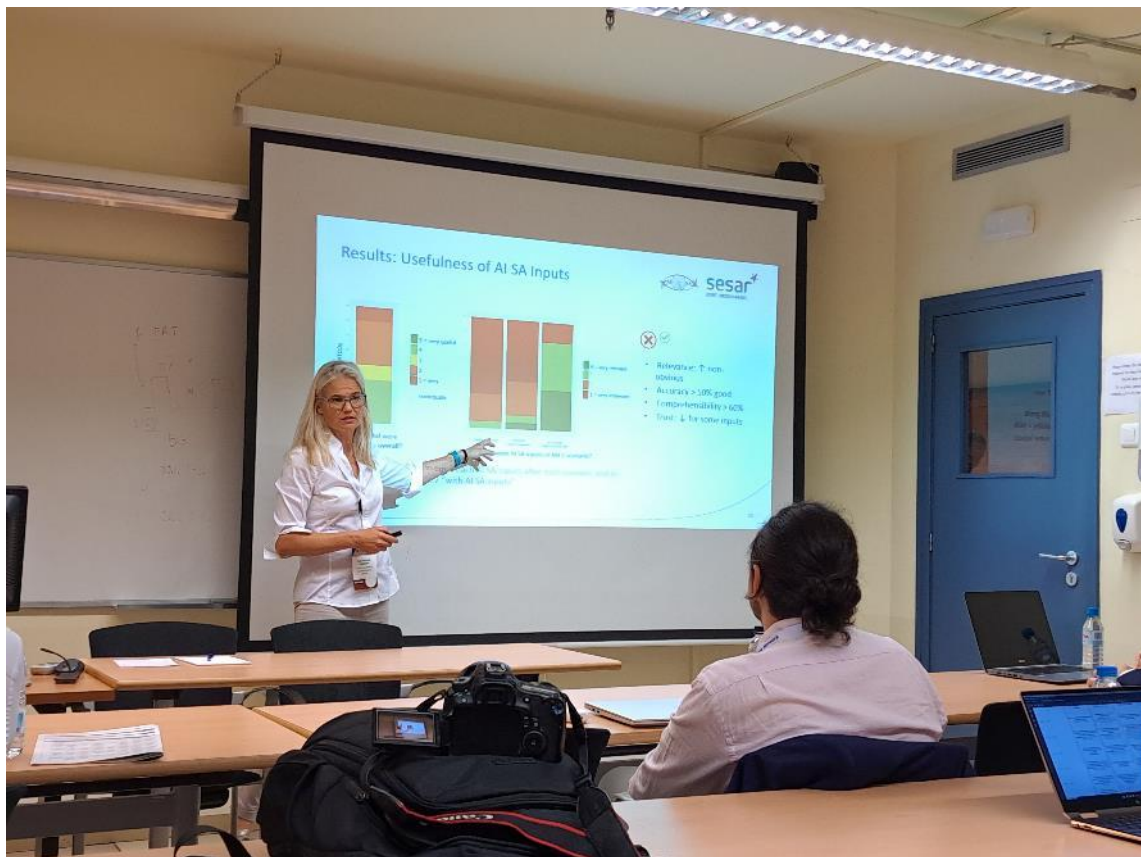
Appendix A – Dissemination related results

Own events

First AISA workshop (online) – 16 September 2020



Second AISA workshop (in person) – 20 October 2020





Conferences

SESAR Innovation Days 7-10 December 2020 (online)

PRIZE: Best poster



World ATM Congress – 28 October 2021, Madrid



XX. International Conference on Transport Sciences – 9-10 June 2022, Gyor



World ATM Congress – 21-23 June, Madrid



ZIRP Conference – 28-30 September, Sibenik



Artificial Intelligence Working Group Workshop – 3 November, Budapest



AISA at SID 2022



Appendix B – Communication related results

Communication tools and materials

Website



About AISA

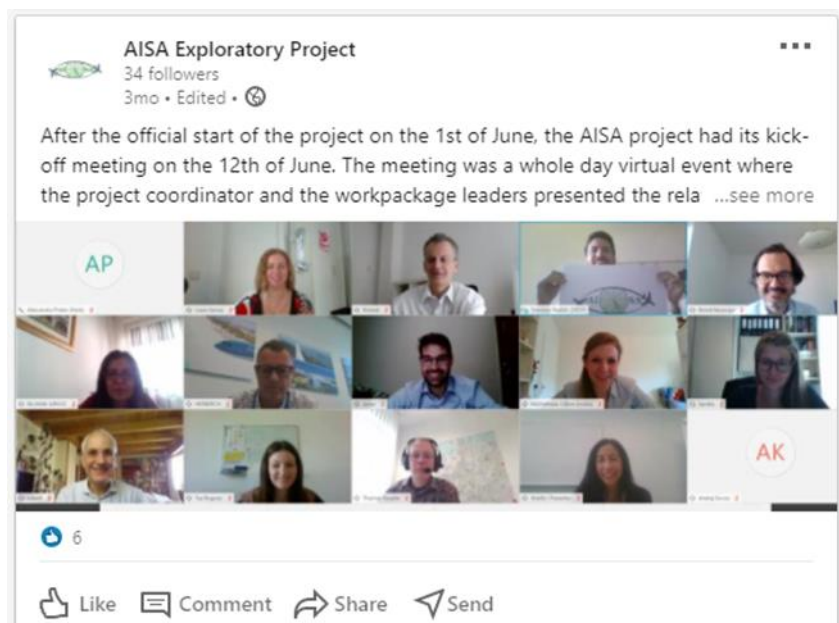
AISA (AI Situational Awareness Foundation for Advancing Automation) is a SESAR Exploratory Research project investigating how to increase automation in air traffic management. The project will explore domain-specific application of transparent and generalizable artificial intelligence methods.

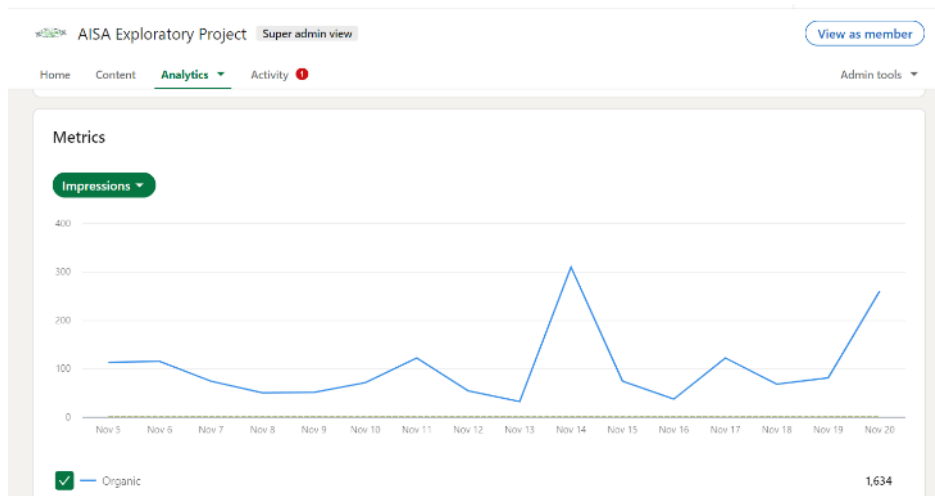
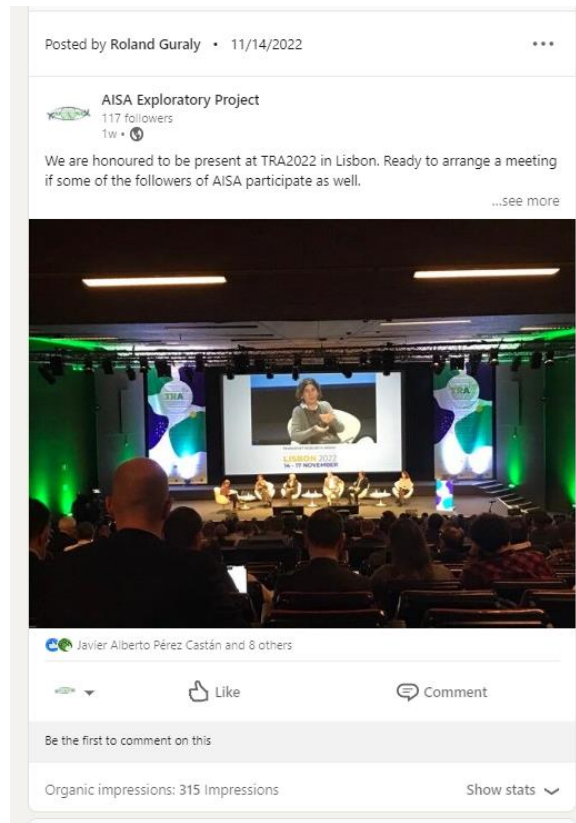


Adoption of higher levels of automation is slow because of the fears of the out-of-the-loop effects where air traffic controllers lose situational awareness due to complacency caused by automation. In the worst-case scenario neither the human is completely aware of the traffic situation nor the machine is able to guarantee that the situation is being handled appropriately. Our approach to this problem aims to solve the problems by introducing artificial situational awareness into the, usually only human, team situational awareness.

AISA will present a vision of automation in a specific ATM operational environment (en-route ATC) and address the challenges of transparency and generalization. During the project, a strategy for providing the necessary information to air traffic controllers in order to make them trust the automated system will be devised. Methods to increase the ability of an automated system to adapt to novel circumstances will be explored.

LinkedIn page

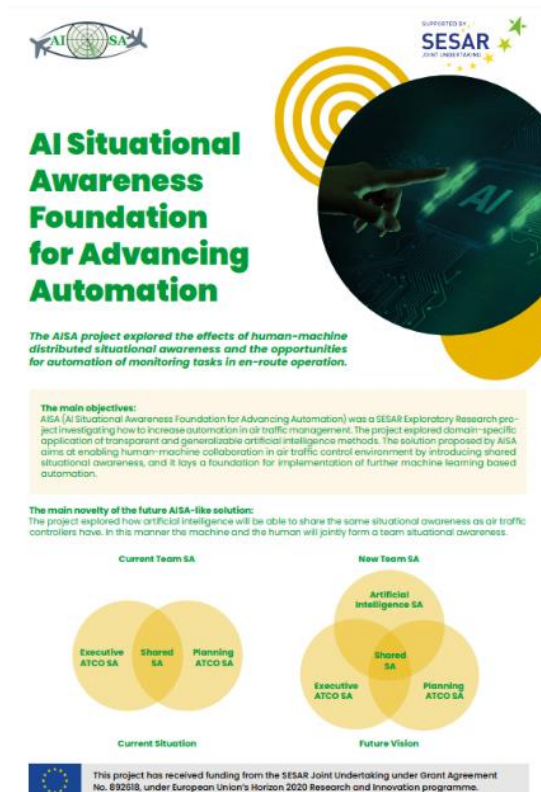




The final project video



The final e-brochure




AI Situational Awareness Foundation for Advancing Automation

The AISA project explored the effects of human-machine distributed situational awareness and the opportunities for automation of monitoring tasks in en-route operation.

The main objectives:
AISA (AI Situational Awareness Foundation for Advancing Automation) was a SESAR Exploratory Research project investigating how to increase automation in air traffic management. The project explored domain-specific application of transparent and generalizable artificial intelligence methods. The solution proposed by AISA aims at enabling human-machine collaboration in air traffic control environment by introducing shared situational awareness, and it lays a foundation for implementation of further machine learning based automation.


The main novelty of the future AISA-like solution:
The project explored how artificial intelligence will be able to share the same situational awareness as air traffic controllers have. In this manner the machine and the human will jointly form a team situational awareness.

Current Team SA



Current Situation

New Team SA



Future Vision

This project has received funding from the SESAR Joint Undertaking under Grant Agreement No. 892818, under European Union's Horizon 2020 Research and Innovation programme.

First publication

The first publication on the AISA project was published last summer in the Bulletin of the Croatian Academy of Engineering. The paper "The Proposal of a Concept of Artificial Situational Awareness in ATC" can be downloaded from the AISA project website.



First AISA workshop

The AISA project organized its first workshop on the 16th of September 2020. During the online event, the consortium presented the draft Concept of Operations for the proposed new ATM Artificial Intelligence Situational Awareness System. The AISA workshop was repeated in three time slots to ensure better interactivity. The workshop session had more than 50 participants. All the sessions had good discussion sections, questions and comments arrived on several issues. The presentation is available for download in pdf format.



AISA at SID (poster, video)

AISA project has submitted a poster to the on line SID2020 and the Project Coordinator Tomislav Radacic presented it in a short video. The poster and the video are available for download.



The presentation of the poster was delivered by the AISA Project Coordinator Mr. Tomislav Radacic and it won the best poster prize.

AISA CONOPS

D2.1 Concept of Operations for AI Situational Awareness

One of the main deliverables during the 1st year of the project is the CONOPS of AISA. This concept of operations is developed as a base for human-machine distributed situational awareness that will be used as support in en-route ATC monitoring tasks. The concept of operations describes the expected changes between the current concept of operations, future concepts which do not consider human machine distracted situational awareness, and the proposed concept which includes the AI into the team situational awareness.



AISA Requirement analysis

D2.2 Requirements for automation of monitoring tasks via AI SA

The analysis shows which monitoring tasks exist, which of them can be automated in different scenarios (medium/high automation), and most importantly what are requirements for their automation in terms of needed data, changes in operations, changes in the user interface, and the possible effect on human operators.



Other AISA deliverables and publications

The AISA consortium continuously prepares new deliverables and those which are approved, are uploaded to the AISA website. New publications will also be stored at the dissemination part of the website. Stay in touch with AISA. If you are interested in AISA activities between two AISA newsletters, we recommend you to follow the AISA LinkedIn channel, where you can get the latest information on the project also we share aviation AI development related news.



Stay in touch with AISA

If you are interested in AISA activities between two AISA newsletters, we recommend you to follow the AISA LinkedIn channel, where you can get the latest information on the project also we share aviation AI development related news.



In case of questions, issues, please write to Andrej Kacalis, AISA communication and dissemination manager: andre.kacalis@aircconsulting.hu. The AISA consortium plans to issue four newsletters, (incl. the current one). If you are interested make sure to check back here time to time or ask to be included in the address list.

The EASN newsletter – with AISA in it

PADICTON project goes further with its technical activities. A testing kit which was prepared from Brunel University London, TWI and FDM Digital Solutions to measure the thermal conductivity using a Fox 50 Instrument for a thermoplastic powder. The kit consists of two borosilicate glass discs at the top and bottom, a film to ease moving the setup and a 3D printed ring to hold everything together.

The TWI coordinated project is funded as part of the Clean Sky initiative under GA 864819. The collaborative consortium also includes topic manager Airbus, Brunel University London, FDM Digital Solutions and e-XStream.

Bespoke thermoplastic powder thermal conductivity measurement kit

- 1) Place disc to measure on top of the kit to read from the response.
- 2) Second disc on the powder to hold the bottom of the kit.
- 3) Add thermoplastic powder until it is level with the top disc.
- 4) Insert the Fox 50 instrument.
- 5) Read the response on the display.

The TOD Consortium is thrilled to announce the start of the production of complex aerospace parts through linear friction welding (LFW). Linear friction welding is an emerging technology for the manufacturing of titanium and aluminium alloy aerospace components. The tools chain is almost completed and the start of thermoplastic parts manufacturing is getting closer.

The TWI coordinated project is funded as part of the Clean Sky initiative under grant agreement number 821192. The collaborative consortium also includes the Topic Manager Leonardo, DEMA and CETMA.

More information can be found in the official TOD project website.

AISA (AI Situational Awareness Foundation for Advancing Automation) has started this year and will run till the end of 2022. AISA is a SESAR Exploratory Research project aiming to create a team situational awareness among human and machine. The project will explore domain-specific application of transparent and generalizable artificial intelligence methods in the field of air traffic management.

The team: *University of Zagreb* is the coordinator, and the consortium is: *Johannes Kepler University of Linz, Technische Universität Braunschweig, Universidad Politécnica de Madrid, Zurich University of Applied Sciences, Skyguide and Slot Consulting*.

More information can be found in the official AISA website which can be found [here](#).

University of the West of England (Bristol, UK) has been awarded a grant to contribute towards developing the Dock-to-Dock use case scenario as part of the UK Research and Innovation sponsored Future Flight Challenge. A team of four UWE researchers, along with partners from Cardiff University, Neoptera Aero Ltd and Smart Ports Ltd, will deliver on the use case definition and evaluation, route characterisation and eVTOL assessment activities.

Researchers at UWE Bristol will develop a simplified performance analysis model of eVTOL, define the optimal route and flight profile for the dock to dock operation between the docks of Bristol and Cardiff, develop a digital twin for the system-of-systems analysis and analyse the eVTOL operational peculiarities from economical and performance points of view.

For more information please visit the following link: <https://blogs.uwe.ac.uk/engineering/dock-to-dock-project-wins-government-funding/>

AISA in Cordis

CORDIS European Commission EU research results

AI Situational Awareness Foundation for Advancing Automation

AI assistant helps air traffic controllers maintain situational awareness

While automation in air traffic management can improve efficiency, such tools must be fully reliable and complement the work of controllers. An intelligent, situationally aware system could provide the framework in which machine learning tools safely fit in.

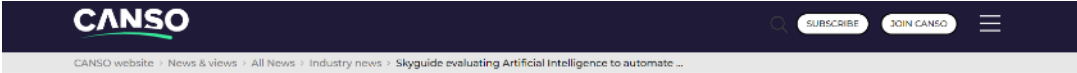
Project Information:

- AISA Grant: 821192 | ID: 802518
- DOI: 10.31233/osf.io/2q2
- Start date: 1 June 2020 | End date: 30 November 2022
- Horizon: HORIZON-EU-3.4 | HORIZON-EU-3.4.1
- Overall budget: € 585.125
- EU contribution: 1.779.125
- Coordinated by: INSTITUTE FOR AIR TRAFFIC MANAGEMENT, ZAGREB, CROATIA

This project is featured in...

RESULTS PACK
Bringing intelligent and trustworthy automation to Europe's aviation sector

AISA in CANSO news



CANSO website | News & views | All News | Industry news | Skyguide evaluating Artificial Intelligence to automate ...

Skyguide evaluating Artificial Intelligence to automate ATCO monitoring tasks through AISA research project

02/07/2021

Skyguide continues evaluating Artificial Intelligence as an option to automate some of the monitoring tasks and share the same situational awareness with air traffic controllers in En-Route operations through the AISA (AI Situational Awareness Foundation for Advancing Automation) research project.

The recent development and acceleration of new Artificial Intelligence (AI) / Machine Learning (ML) technologies provide an opportunity to better monitor system performance, automating computation and repetitive tasks as well as detecting anomalies faster while a human expert can focus in areas where additional attention and problem solving are required. This translates to new opportunities for air navigation service providers such as Skyguide to improve safety, efficiency and capacity (once reliability and trust of AI in ATM are assured and established).

One of the AI initiatives Skyguide is engaging in is the AISA (AI Situational Awareness Foundation for Advancing Automation) SESAR Exploratory Research project within the EU Horizons 2020 programme. The project aim of AISA is simple and based on the firm belief that, a prerequisite for the implementation of advanced automation concepts is that artificial intelligence and humans can share the same situational awareness.



Similar Posts

EANS and ANS Finland sign a contract with Thales for a joint TopSky ATC supporting dynamic ANS provision

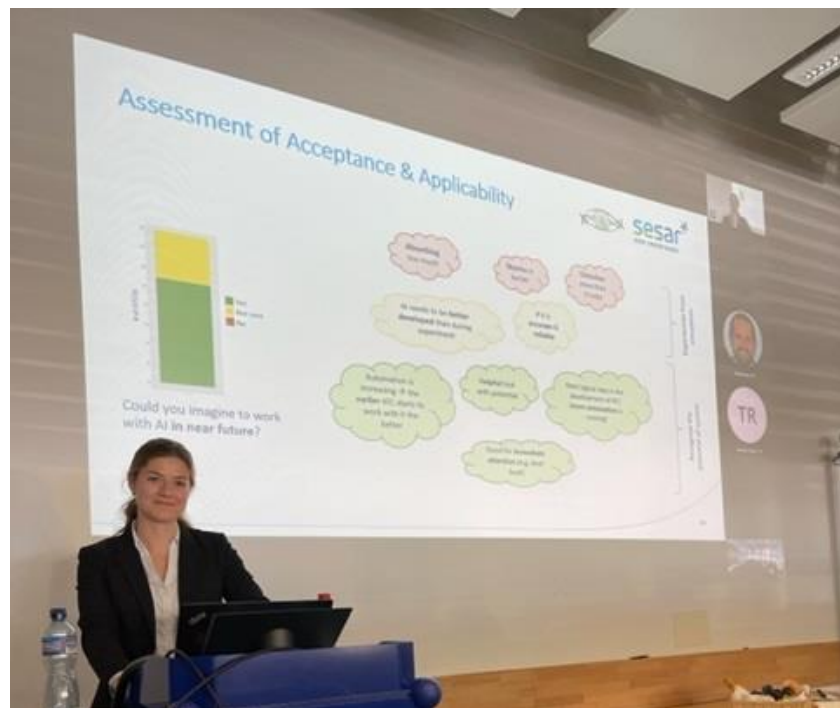
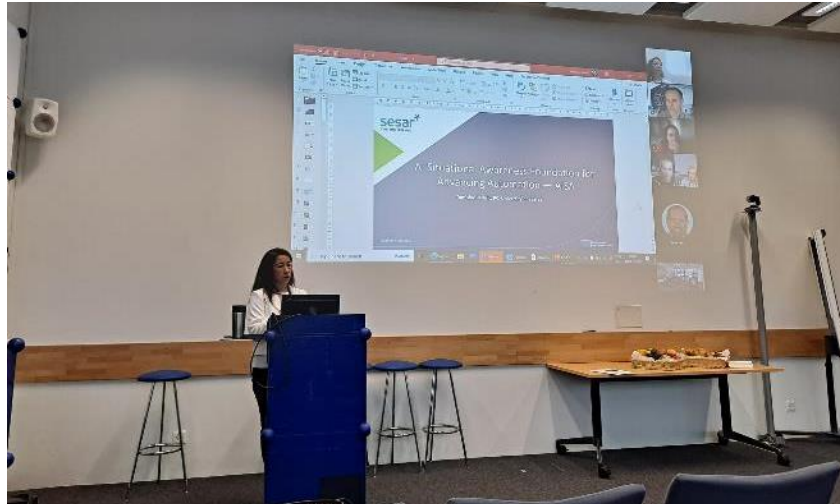
Saab-contracted ATC Tower Simulator for Air Navigation and Weather Services

no consent



Communication activities


Skyguide internal hybrid workshop – 26 October 2022



JKU presentation to students

AI Situational Awareness
Aims

- Enabling human-machine collaboration in air traffic control by introducing shared situations
- Automation of monitoring tasks
- Additional safety



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TUBS presentation to students

AISA – Ziele

AI Situational Awareness Foundation for Advancing Automation 

Projektziele

- Untersuchung des Situationsbewusstseins in teil-automatisierten Systemen und der Möglichkeit zur Automatisierung von Monitoring-Aufgaben in en-route-Flugphasen
- Identifizierung und Aufbereitung erforderlicher Informationen zur Unterstützung von Fluglotsen
- Entwicklung von Methoden zur Anpassung des Automatisierungssystems an veränderte Randbedingungen für einen sicheren Betrieb



November 2022 | Dr. Thomas Feuerle | Vorstellung EU-Projekt "AISA" 

ZHAW presentation to students



Appendix C – Exploitation related results

Transport Research Arena 2022 – 14-16 November, Lisbon



Exploitation focused meetings with:

- Andata (Austria): veronet.eu
- DataPorts project (dataports-project.eu)
- ESRIUM project (esrium.eu)
- Award project (award.eu)
- ENIDE
- Aventier
- Marelli

Appendix D – Data management related information

The source codes of the D4.1 and D4.2 deliverables can be found at GitHub:

D4.1

The UML to RDFS/SHACL mapper

<https://github.com/jku-win-dke/AISA-XMI-Mapper/>

The Proof-of-concept KG system prototype

<https://github.com/bneumayr/aisa-kg-system/>

D4.2

The KG-Prolog mapper

<https://github.com/jku-win-dke/AISA-KG-Prolog-Mapper/>

