

Initial Communication, Dissemination and Exploitation Plan

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Abstract

This document contains the Initial SATERA Plan for the Communication, Dissemination, and Exploitation of results. It includes the identification of target stakeholders, the selection of the appropriate communication and dissemination strategy and material for each group of stakeholders, and the identification of exploitation target users and partners' exploitation intentions.

The deliverable also defines KPIs and strategies for communication, dissemination, and exploitation measures.

This first release will be refined and updated as the project progresses.

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SATERA

SPACE-BASED COMPOSITE ADS-B AND MULTILATERATION SYSTEM
VALIDATION THROUGH SCALABLE SIMULATIONS

SATERA

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 10116431 under European Union's Horizon Europe research and innovation programme.



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1 Introduction

The present deliverable details the initial communication, dissemination and exploitation plan for SATERA.

It sets out the communication goals, high-level messages and a short description to be broadcasted in different media with the aim of making the project understandable at a first glance. The communication means include the project's website, social media and other relevant means.

The deliverable also describes the strategy that the project will follow to make use of or disseminate the project's results, as a plan of activities including a schedule of activities and metrics to measure their impact and effectiveness.

The exploitation chapter explains the project's approach and strategy to make the best use of the project results.

1.1 Definitions

Before getting started, it is important to note the difference between communications and dissemination - see figure 1. It is important to note that the guidance in this document refers to external communications and not internal communications between project consortium members.

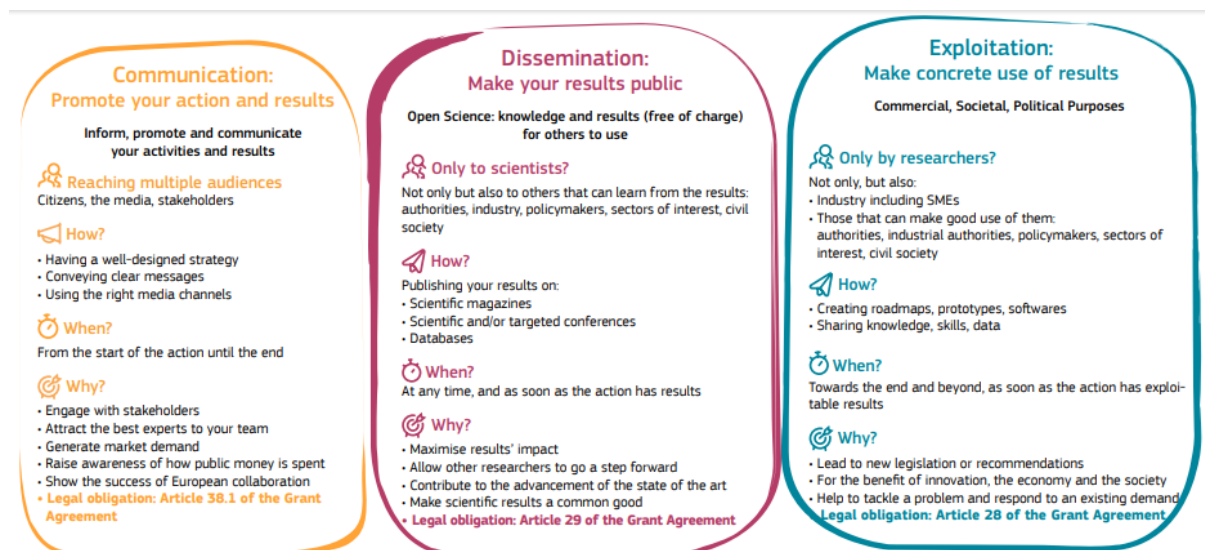


Figure 1: Definitions of communication, dissemination and exploitation in Horizon Europe

1.2 Applicable reference material

- [1] SESAR 3 Joint Undertaking Multiannual Work Programme 2022-2031
- [2] Grant Agreement N° 101164313 — SATERA — HORIZON-SESAR-2023-DES-ER-02
- [3] SESAR 3 Joint Undertaking Visual Identity Charter, November 2022

- [4] Projects' PMP - Project Management Plan
- [5] Guidance Social media guide for EU funded R&I projects
- [6] Project's teaser videos guidelines
- [7] EU emblem and guidance on its use
- [8] Communication-at-a-glance guidelines
- [9] SESAR 3 Project Handbook
- [10] SESAR 3 Joint Undertaking Communication Guidelines

2 Project introduction

2.1 “About” project text

Automatic Dependent Surveillance-Broadcast (ADS-B) is a surveillance technology in which airborne equipment automatically broadcasts aircraft location to ground stations. ADS-B is one of the pillars of state-of-the-art Air Traffic Control (ATC) systems and today it is considered as the future air traffic surveillance system. The extension of ADS-B system to cover oceanic and uninhabited areas using spaceborne receivers from Low Earth Orbit (LEO) constellations will enable safer and greener long-haul air operations. Unfortunately, it has some drawbacks related to the use of Global Navigation Satellite Systems (GNSS) data and the use of open (i.e., not secured) protocol, and usually a secondary independent surveillance system is needed. However, conventional ground-based independent surveillance systems such as primary or secondary radars are rarely available over oceanic and uninhabited areas. For this reason, SATERA aims to formulate and validate the concept of a space-based ADS-B signals multilateration (MLAT) system leveraging a constellation of LEO satellites. Moreover, SATERA will combine time-of-arrival (ToA), angle-of-arrival (AoA) and frequency-of-arrival (FoA) measurements, to localize the aircraft from the Space and to check the ADS-B positional data with these new ones. SATERA will develop architectures for the receiving systems onboard the satellite, explore telecommunication solutions for the inter satellite link (ISL) network and develop robust MLAT positioning algorithms. Moreover, SATERA will be designed to avoid common GNSS failure points.

2.2 Project key messages

# Key message id	Communication	Dissemination
1	SATERA is shaping the future of air traffic management by developing a reliable space-based surveillance system by using a constellation of small satellites in Low Earth Orbit (LEO) and combining GNSS and non-GNSS based techniques leading to improved safety and efficiency.	SATERA is improving the safety and efficiency of air operations by enhancing ATM surveillance capabilities through the development of a reliable space-based composite surveillance system combining the features of ADS-B and enhanced MLAT techniques tailored to the challenges of the space environment.
2	SATERA enables the optimisation of air operations, especially for long-haul flights over oceanic and remote areas through the use of reliable space-based surveillance systems contributing to a greener, more efficient future for aviation.	SATERA contributes to develop a new integrity estimator for the state-of-the-art space-based ADS-B system underpinning the replacement of fixed tracks schemas by free flight, trajectory-based operations (TBO) optimised to the actual performance of each aircraft leading to shorter trips and less fuel consumption.
3	SATERA is committed to enhancing European airspace sovereignty by enabling the provision of critical Air Traffic Management services by European stakeholders. By leveraging satellites and advancing space-based	SATERA aims at harnessing the capabilities and knowledge of European companies and academia to develop space-based surveillance techniques encompassing all the components of the surveillance chain (from the source of surveillance data to the

	ADS-B deployment, SATERA will boost European industrial leadership in Air Traffic Control.	delivery of target reports to the ATCOs) using available COTS components, thus minimising dependences on geo-political issues and supply chain disruptions.
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2.3 Keywords

Key Word	Definition
MLAT (Multilateration)	Aeronautical surveillance technique that makes use of a network of synchronised receiving stations to compute the aircraft position from measurements of signals emitted by onboard equipment. Either opportunity signals or signals elicited by the system can be used. Furthermore, MLAT systems can extract identity data from the signals used to compute the target position.
E-MLAT	Enhanced Multilateration. MLAT system that incorporates also other type of measurements (such as Angle of Arrival) to improve the localization performances.
ADS-B	Automatic Dependent Surveillance – Broadcast. A Surveillance technology used in aviation to provide information about aircraft position and other data to air traffic controllers and other aircraft. It exploits a Satellite navigation system to compute the position on board and a Communication link (Mode S Extended squitter) to transfer the information on ground.
ATC	Air Traffic Control, Air Traffic Control (ATC) is a service provided by ground-based controllers who coordinate the movement of aircraft in the sky and on the ground. The primary goal of ATC is to ensure that aircraft operate safely, efficiently, and in accordance with regulations, minimizing the risk of collisions and managing air traffic flow
Space-based surveillance	Space-Based Surveillance refers to the use of satellites and other space-based technologies to monitor and gather data about the air traffic.
Digital European Sky	The Digital European Sky leverages the latest digital technologies to transform Europe’s aviation infrastructure enabling it to handle the future growth and diversity of air traffic safely and efficiently, while minimising environmental impact.
Trajectory-based operations (TBO)	Trajectory Based Operations (TBO) is an air traffic management (ATM) concept that enhances strategic planning of aircraft flows to reduce capacity-to-demand imbalances and provides tools to air traffic management personnel and controllers to help expedite aircraft movement between origin and destination airports.
ADS-B integrity estimator	An integrity estimator is a tool or algorithm used to evaluate and ensure the integrity of data, systems, or processes. In this case it assesses the reliability of positional information contained in the ADS-B messages.

2.4 Focal point for communications, dissemination and exploitation.

The focal points are reported in the following table.

Name	Role	Email address
Mauro Leonardi	CDE lead (Communication, Dissemination and Exploitation)	Mauro.leonardi@uniroma2.it
Rosanna Gervasio	Social Media Manager	Rosanna.gervasio@uniroma2.it
Sergio Pandiscia	Website Manager	Sergio.pandiscia@uniroma2.it
Muhammad Zeeshan	Exploitation Manager	Muhammad.Zeeshan@collins.com

Table 1: Focal points of contact

2.5 Stakeholders identification

The project stakeholders are identified in the following table.

Stakeholder	Content
Regulatory and standardisation bodies (e.g., European Aviation Authorities such as the EASA, EUROCAE, EUROCONTROL.)	Concept of operations, functional requirements and safety and performance metrics, validation details (validation plan and results).
Aviation and space industries (Manufactures of ground and airborne CNS equipment, as well as manufactures of small satellites and spaceborne payloads, and companies exploiting LEO constellations).	Functional requirements, safety and performance metrics, system components' description (prototypes, use cases, and guidance material, such as the ECO-EVAL).
Air Navigation Services Providers (ANSPs) such as ENAIRE, NAV Portugal, AirNavIE, NATS, etc.	Concept of operations, safety and performance metrics.
Air Traffic Controllers	Concept of operations, safety and performance metrics, validation details (validation plan and results).
Academia and R&D community (Universities, research organisations, research projects worldwide, etc.).	Concept of operations, functional requirements, safety and performance metrics, systems' components' description and validation results (architecture, algorithms, use cases, datasets, etc.).
Citizens and media.	Concept of the project and awareness on the benefits in terms of travel experience (e.g., increased offer or reduced travel time), safety, and environmental impact.

Table 2: Stakeholders

3 Communication

3.1 Communications objectives and strategy

At the beginning of the project and through all its life cycle, the communication activities intend to:

- **Raise awareness** of the project goals, drawing target audiences' attention to the project outcomes;
- **Develop insight** around the project activities by conveying appropriate key messages to the target audiences and verifying that those messages are effective;
- **Foster** the use of the project results and contributions to the cutting edge of the related technologies by the stakeholders, promote further interaction between them, underlying the relevance of the project to their own activities and collecting feedback and comments;
- **Promote long-term impact** of the project outcomes on the stakeholders by conveying key messages to key decision makers.

To achieve these objectives and ensure effective and efficient communication, the information will be tailored to different categories of stakeholders. This customisation will extend beyond just the content and account for the style of the message and the channels through which it is delivered (e.g., documents, websites, social media). The SATERA communication plan identifies the most suitable set of channels for each stakeholder category.

Moreover, to ensure **that communications are consistent with the SESAR 3 JU**, the project consortium will be in constant contact with the SESAR 3 JU Communications office in order to:

- Ensure that project communications and outreach milestones are integrated into broader SESAR 3 JU communications scheduling and planning;
- Review strategies, key messages, targeted audiences and communications material on SESAR solutions so that consistency with SESAR 3 JU's core objectives is ensured;
- Develop joint outreach activities taking into account established cooperative arrangements by the SESAR 3 JU or with the European Commission within the context of SESAR;
- Benefit from support of the SESAR 3 JU for various events and conferences;
- Maximise outreach by using SESAR 3 JU communications channels and cooperative arrangements to further cascade relevant content.

3.2 Communication target audiences

Different strategies and communication actions will be used to achieve the goal of raising awareness of the project among the following target audiences:

1. Regulatory and standardisation bodies: European and National regulatory and standardisation bodies such as EASA, EUROCAE, EUROCONTROL are a key target audience since the success of the SATERA concept will greatly depend on the confidence they have on the effectiveness of this composite ADS-B + E-MLAT surveillance system to enhance the safety and the efficiency of aircraft operations. In addition, they are crucial to promote CO2 emissions mitigation actions pursuing a more resilient and sustainable ATM system.

2. Aviation and space industries: Manufactures CNS equipment, as well as manufactures of satellites and spaceborne payloads, Companies exploiting Satellite system play a relevant role in the development of the composite ADS-B + E-MLAT surveillance system because they should design or adapt the products involved in the provision of space-based surveillance and navigation services to meet the performance requirements emerging from the space environment.

3. Air Navigation Services Providers (ANSPs): This target group (e.g. ENAIRE, NAV Portugal, AirNavIE, NATS, ENAV etc.) is mainly interested in offering new and innovative services and in improving the existing ones to end-users, thus this audience is expected to contribute to the development and exploitation of the project results from SATERA.

4. Air Traffic Controllers: They are the primary users of SATERA outcomes, since they need reliable and accurate data on the position of the aircrafts to make decisions and provide operators with instructions for safe and efficient air operations

5. Academia & R&D community: The main members of this audience are researchers working at universities and research centres focused on air transport, air navigation systems, aerospace systems, etc. This audience also comprises professors and students of programs related to subjects such as electronics, telecommunications, computer science, aeronautical engineering, etc. and professionals of these areas willing to start a career in a new and promising field.

6. Citizens and media: Involvement of citizens is of great importance to promote awareness and acceptance of new air surveillance and navigation technologies and avoiding (political and societal) rejection of the SATERA technology. To reach this target audience, promotional campaigns will be planned through social and mass media.

Detailed information on the messages to be sent to different audiences is reported in the following table.

Target	Channel	Message	Activities
Regulatory and standardisation bodies	Website, press and media, social media, videos, communication events, publications and newsletters	The technical outcomes of SATERA are sound enough as to lay down new regulatory requirements and the development of supporting standards.	TBD
Aviation and space industries	Website, press and media, social media, videos, communication events, publications and newsletters	The outcomes of SATERA (both the technical and the operational ones) promote networking or collaborations. Moreover, component description, functional requirements, proposed metrics, system components' description can be the starting point for new system development.	TBD

Air Navigation service providers (ANSPs)	Website, press and media, social media, videos, communication events, publications and newsletters	SATERA concept of operations and safety and performance metrics can help the ANSPs to improve their awareness of the safety aspects of the ADS-B system on long-haul routes.	TBD
Air Traffic Controllers	Website, press and media, social media, videos, communication events, publications and newsletters	SATERA concept of operations, safety and performance metrics, and validation show that the Air traffic safety can be improved exploiting new easy-to-use and powerful ATC tools that exploit satellites surveillance.	TBD
Academia & R&D community	Website, press and media, social media, videos, communication events, publications and newsletters	SATERA concept description, algorithms, validation and performance metrics lead to new opportunities in different fields of research, such as Safety, Satellite Constellation, ADS-B sensors etc. paving the way for networking and collaborations.	TBD
Citizens and media	Website, press and media, social media, videos, communication events, publications and newsletters	SATERA concept of the project and awareness of the benefits in terms of travel experience, travel safety and environmental impact.	TBD

Table 3: Communications target audiences

3.3 Branding and acknowledgements

The visual identity is the first key aspect for a clear, attractive, coherent, and effective communication structure. The SATERA visual identity will be shaped following the SESAR 3 JU Visual Charter [3] that specifically aims to:

1. Build brand recognition and thereby brand value;
2. Improve the efficiency of both internal and external communications;
3. Produce a professional and consistent visual identity across all media.

The SATERA logo (in Figure 2) has been designed, together with the SESAR 3 JU Communications office, following the SESAR 3 JU Visual Charter which provides the key elements for the logo branding, including the font (Titillium regular) and the colour deep blue (HEX 00306F) identified for Exploratory Research projects.

SATERA

Figure 2: Project logo

Any communication and dissemination activity related to the project will acknowledge EU funding by displaying the European flag (Figure 3, right) and funding statement, as per Grant Agreement [2]:

“This project has received funding from the SESAR 3 Joint Undertaking (JU) under grant agreement No 101164313. The JU receives support from the European Union’s Horizon Europe research and innovation programme and the SESAR 3 JU members other than the Union.”

Moreover, to ensure consistent communication and build brand recognition, SATERA will use the SESAR 3 JU logo (Figure 3, left) in all communications material promoting its project activities[8][10].

The communication and dissemination activities will always indicate that it reflects only the author's view, and that the SESAR 3 JU is not responsible for any use that may be made of the information it contains.

When displayed together with another logo, the SESAR 3 JU logo and the EU emblem will have appropriate prominence [7].



Figure 3: SESAR 3 Joint Undertaking logo (left), European emblem and funding statement (right).

3.4 Communication channels

3.4.1 Website

The SATERA website is a key communication and dissemination channel for the project. It will contain an overview of SATERA including the project objectives, as well as its activities and outcomes. The website will also provide information on news and events, downloadable communication material, and relevant external links along with updated information about the progress, status of the activities, and any other relevant communication related to SATERA.

Furthermore, pursuing the alignment with SESAR 3 JU communication policies, SATERA will make use of the dedicated webpage in the SESAR 3 JU website (<https://www.sesarju.eu/projects/SATERA>), which is a key dissemination channel both in the scientific and in the public domain.

The table below describes the preliminary structure project website.

Page	Content
Homepage	Header with logo and menu Banner with title and picture Project description Project objectives Latest news Footer with funding acknowledgments, contacts, social media links, link to SESAR JU website
About page	Context Objectives and methodology Expected outcomes Advisory Board members
Consortium	Logos and descriptions
Results	Public deliverables Scientific publications Communication and dissemination material Solutions
News & events	News and events
Download	Documents of the project (brochures, posters etc.)

Table 4: SATERA preliminary website structure.

The website will feature comprehensive information about the project, including technical documents and public deliverables, all shared in compliance with IPR, copyright, and privacy standards. It will showcase both current and potential applications of the project’s results and provide a platform for interested stakeholders to connect with project partners.

Additionally, the site will offer access to the project’s biannual electronic newsletter, which covers project events and outcomes, reaching a broad audience of potential stakeholders. Interested parties will be able to register to receive updates and explore networking opportunities.

The expected results of these communication activities are 3,000 visits to the project website and 250 subscribers to the electronic newsletter.

3.4.2 Press and media

Press releases are official announcements sent to selected members of the news media to publicize noteworthy information. They will be concise, engaging news stories designed to capture the attention of journalists or publications.

Partners will be asked to track and document the audience reached, as well as to highlight any media discussions related to the project and its themes. Press releases' structure will respect the guidelines provided by SESAR in the *DES HE CDE Plan - Annex I - Press releases*.

SATERA will target trade press such as Aviation24, Aviation International News, Aviation Today, International Airport Review, ATC Network, etc. and relevant stakeholder associations/representatives' groups, in order to relay the news on their own respective communications channels.

Press notes about the project will be prepared whenever significant events or activities occur. These notes will be crafted by the task leaders responsible for each development and then distributed by all partners through their respective networks. The wide geographic coverage and the contact networks of the Consortium, will guarantee a proper awareness creation. SATERA intends to publish a total of 10 press releases and 5 articles in media., reaching an audience of 3,000 people.

Past and forecasted contribution to external media is provided in Table 5 .

Expected press and media KPIs are provided in chapter 3.5.

Media activity	Date	Link
<i>Past contribution</i>		
<i>Forecasted contribution</i>		
Press releases (trade press)	When needed (e.g., at the completion of solutions and other project's activities, when final results are available)	
Press releases (EU channels)	When needed (e.g., at the completion of solutions and other project's activities, when final results are available)	

Table 5: Contribution to external media

3.4.3 Social media

A social media strategy will be developed to effectively leverage social media in line with the project objectives. This will involve identifying the platforms where our target audience is most active and determining the type of content appropriate for each platform. The strategy will also focus on establishing relationships with our audience. All social media platforms will be utilized to direct our target audience to the project website and social channels, helping to continually expand our reach.

SATERA will create accounts on at least three platforms: X, LinkedIn, and YouTube. These channels will support ongoing communication with both specialized audiences and institutional bodies, as well as the public. Through these platforms, the project will share articles and news from the SATERA website,

promote events, share videos, disseminate project findings and results, and maintain consistent engagement with other related projects. The project will be connected to all of the EC and SESAR 3 JU’s channels on social media.

3.4.4 Communication events

SATERA will organize events and take part to external events to promote the work throughout the duration of project. The communication activity will be done, together with the dissemination activity in three workshops.

The most suitable external event (Fairs, Conferences and Forums) will be selected during the project (such as, for example: Air Traffic Management and space, ATCA Global Conference & Expo, Airspace World, Inter Airport Europe, Innovation Fair – ICAO, USA/Europe ATM R&D Seminar, European Transport Conference; EASN International Conference; SESAR Innovation Days; “Towards Sustainable Aviation” Summit; ICRAT – International Conference on Research in Air Transportation); SESAR 3 JU Annual Conferences.

A list of possible conference in which communication activities can be done is also reported in the dissemination section, Table 14.

Event	Date	Place	Information to be shared	Importance for the project
First SATERA workshop	M12	Madrid/Valencia	Presentation to key industrial and stakeholders (general description of the project, highlighting the concept and the methodology that the consortium will use to formulate and validate it).	Raise early awareness among relevant stakeholders and gather feedback enabling the update of the concept.
Second SATERA workshop	M24	Cork	Presentation to key industrial and stakeholders the validation results of the composite ADS-B + E-MLAT surveillance concept, highlighting performance requirements to support the provision of the surveillance and navigation services	Raise awareness of the project outcomes among relevant stakeholders.
Third SATERA workshop	M30	Brussels	Presentation of the project outcomes to regulatory and standardisation organisations, underlining those	Foster the impact of the project outcomes proving insight to authorities and standardisation bodies on their

			susceptible of supporting regulation and standards.	relevance and soundness.
European Research Night	27 September 2024	Rome, Italy	Presentation of the project main goals.	Delivering a project overview and objectives to Citizen and Media.
Participations	TBD	TBD	TBD	TBD
Trade fairs				
Participation in conferences, congresses and forums	TBD	TBD	TBD	TBD

Table 6: Communication Events

3.4.5 Publications and newsletters

Promotional materials, including flyers, brochures, and posters, will be created and made available in digital format. These materials will provide an overview of the project, detail the involvement of each partner in the various work packages, and outline the project's overarching goals and its potential impact on scientific and commercial development across the European Union.

These materials will be distributed to partners to assist them in presenting and promoting the SATERA project and its outcomes. Printed versions of the materials will be produced as needed for specific actions, with careful consideration given to printing only the necessary quantity to support sustainability.

Publications/newsletters/printed material	Description	Date	Link
Past Contribution			
Roll-up (Figure 4)	Printed material produced for SATERA Kick Off Meeting	Project KOM 18 – 19 July 2024	N/A
Roll-up	Printed material produced for the European Research Night	27 September 2024	
Forecasted Contribution			

Roll-up/Poster	To inform about project's activities, outcomes etc	When needed (e.g., organisation of events or participation to events)	N/A
Other online materials (leaflets, factsheets, flyers, brochures)	To inform about project's activities, outcomes etc.	When needed (e.g., organisation of events or participation to events)	N/A
Newsletters	To inform about project's activities, outcomes etc.	E.g., updates on project's activities, when final results are available, to announce participation/organisation of events)	N/A

Table 7: Printed materials



  **Co-funded by the European Union** | This project receives funding from the SESAR Joint Undertaking under grant agreement N° 101160313 under European Union's Horizon Europe research and innovation programme.

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Figure 4. SATERA Roll-up (KOM)

3.4.6 Videos

Three videos aiming at raising awareness of the project and its expected outcomes will be created and disseminated for partners to use to present the project, as well as for press relation purposes.

A first video that aims at presenting the manifold aspects of SATERA, the objectives, target audiences and impacts of the project as well as the technical solutions proposed to achieve them (Concept video Teaser). The video will follow the guidelines given in [6].

A partners' interviews video aiming at introducing partners, explaining the research activities in which they are involved and describing the features of SATERA technology.

A third one describing the validation activities, as well as their results in order to raise awareness and interest in the project outcomes. This video will have a hybrid format, combining records of the performed simulations, interviews with the researchers involved and key stakeholders and some scenes of the simulator of composite space-based ADS-B + E-MLAT system in action.

Videos	Description	Planning	Link
Concept video Teaser	A teaser to divulgate the project's objectives and expected benefits.	Toward M6	N/A
Interviews	A partners' interviews video aiming at introducing partners, explaining the research activities in which they are involved and describing the features of SATERA technology	Toward M15	N/A
Results	A final video will be produced to summarise project's outcomes and showcase demo activities (toward M30)	Toward M30	N/A

Table 8: SATERA videos

3.5 Communication key performance indicators (KPIs) and success criteria

Action	KPIs	Success criteria	Currently achieved	Last update	Annual growth
Web presence	# of visits.	3000 in 3 Years*	N/A	N/A	N/A
Press and media	# of press releases & articles (online & printed).	10 press releases and 5 articles*	N/A	N/A	N/A
Social Media	# of followers (# of posts shared	300 for each account 200 across all platform*	N/A	N/A	N/A
Events	# of organised workshops/events. # of attendees. # of participation in external events and seminars.	3 Workshops* 50 at every workshop (150 total)* 3 Fairs attendances 2 Fairs (exposing)* 2 Conferences (presenting)* 4 Conference (attendance)	N/A	N/A	N/A
Printed material (brochures, roll-ups, flyers...)	# of copies (digital and hardcopy) distributed	300*	2	27/09/24	N/A
Newsletters	# of issues	5	N/A	N/A	N/A
Videos	# of videos and other multimedia content	3*	N/A	N/A	N/A

Table 9: Communication KPIs and success criteria. *: overlapping with dissemination

4 Dissemination

4.1 Dissemination objectives and strategy

Dissemination will spread over the project lifespan allowing the project stakeholders to learn about SATERA findings and developments. SATERA dissemination strategy pursues contributing to widen the borders of knowledge of the scientific and technical subjects within the project scope.

The dissemination activities will therefore include both internal communication among the project partners and external communication to non-partner stakeholders. A well-designed dissemination will allow the measurement of stakeholders' acceptance of the SATERA results, ensuring that SATERA addresses its stakeholders' needs.

A proper dissemination strategy of project results is paramount to the success of SATERA project, and it will be based on two main steps:

- **an awareness-oriented phase** will run intertwined with the communication activities during the first years of the project, **to raise awareness** within a qualified stakeholder's community and to engage the general public about the project and its objectives.
- **a result-oriented phase** meant to promote the scientific results and knowledge generated in the project, in order to allow potentially interested parties such as academic experts and researchers, **have early access to relevant data and** to get to know the **achievements** as well as related **benefits** of the project.

In the project's first and part of the second year, dissemination activities will remain limited to the distribution of publishable abstracts and progress resumes. Main dissemination activities will take place towards the end of the project, where initial data and evidence on scientific advances and technological results will be available and will extend beyond the end of the project. Each partner of the consortium will contribute at specific levels according to their expertise and business activities.

4.1.1 Advisory Board

SATERA consortium comprises outstanding representatives of many of the identified stakeholders. Nonetheless, the consortium considers necessary setting up an advisory board (AB) encompassing a set of relevant representatives of the full range of project stakeholders because of a twofold reason: on the one hand, AB members coming from stakeholders' categories not covered by the SATERA consortium will contribute to get a comprehensive picture of the stakeholder' needs and interests; on the other hand, the AB will help the consortium gather feedback about the suitability of planned activities, as well as about the soundness and interest of the project results. The table below lists some potential AB that have been already identified.

Stakeholder	Representative
Regulatory and standardisation bodies	EUROCONTROL, EUROCAE
Aviation and space industries	Airlines: IAG (Spain-UK), TAP (Portugal), KLM (the Netherlands), Air France, Swiss Air, Lufthansa (Germany), IATA (International Air Transport Association). Manufacturers of CNS equipment and systems: INDRA.

	Providers of space-based surveillance services:
	Startical.
Air Navigation Services Providers.	NAV Portugal, AirNavIE (Ireland), NATS (UK), DECEA (Brazil), CANSO (Civil Air Navigation Services Organisation).
Air Traffic Controllers	IFATCA (International Federation of Air Traffic Controllers Associations).
Academia and R&D community.	Outstanding scholars in the scientific and technical subjects within the scope of the project (e.g., Gaspare Galati).
Citizens and media.	BEUC (The European Customer Organisation).

Table 10: Tentative AB members

Besides the AB, SATERA has set up an agreement with the European Union Aviation Safety Agency (EASA) to get their technical support and contacted the sibling project EURIALO (co-funded by the European Space Agency) to explore a possible liaison or collaboration.

SATERA consortium will achieve appropriate Non-Disclosure Agreements (NDAs) with AB members meant to preserve their previous knowledge and industrial property, as well as the IPR generated by the project.

4.2 Dissemination channels

The following table reports the Dissemination channels and Activities.

Channel	Objective	Tools	Link	Information to be shared
Peer-reviewed scientific journals	Share project results among the research and industrial communities	Scientific and technical publications	N/A	Project results
Conferences and events	Disseminate project activities and results to a specialised audience, promote discussion, gather feedback, networking	Roll-ups, presentations, infographics, posters, videos, pictures.	N/A	Project results, project activities
Website	Disseminate project results to a specialised audience, promote discussion,	Videos, presentations, scientific publications, public deliverables,	N/A	Project results, project steps

	gather feedback, networking	pictures, articles, infographics.		
Social networks	Disseminate project results to a specialised audience, promote discussion, gather feedback, networking	Videos, presentations, scientific publications, public deliverables, pictures, articles, infographics.	N/A	Project results, Project steps

Table 11: Dissemination channels

4.2.1 Open access to scientific publications

SATERA will adhere to European guidelines for the large-scale accessibility of project findings by adopting a Green Open Access standard. The consortium will strive to ensure that all articles are made freely accessible within six months of acceptance for publication. These articles will be archived in an Online Open Access Repository, such as ZENODO, and will also be available on the project website.

In the SESAR programme, hybrid publishing platforms include the SESAR 3 JU website (www.sesarju.eu) and the eATM portal (www.atmmasterplan.eu). The SESAR 3 JU website shares news and updates about SESAR3 projects, while the eATM Portal provides a comprehensive view of the European ATM System, detailing the operational and technological changes necessary to meet SESAR's Single European Sky performance objectives. SATERA will use these trusted repositories for disseminating project information.

In the following Table (Table 12), some examples of relevant scientific journals that could be targeted by SATERA are given.

Scientific papers/ presentations	Link	Information to be shared
International Journal of Aviation Management	https://www.inderscience.com/jhome.php?jcode=ijam	Project results
Aerospace	https://www.mdpi.com/journal/aerospace	Project results
IEEE Transactions on Aerospace and Electronic Systems	https://ieeetxpress.ieee.org/publications/taes	Project results
IEEE Transactions on Dependable and Secure Computing	https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=8858	Project results
Journal of Air Transportation	https://arc.aiaa.org/journal/jat	Project results

International Journal of aviation, aeronautics and aerospace	https://commons.erau.edu/ijaaa/	Project results
AIAA Journal of Aircraft	https://arc.aiaa.org/journal/ja	Project results
Aerospace Science and Technology	https://www.sciencedirect.com/journal/aerospace-science-and-technology	Project results
Journal of Air Transport Management	https://www.sciencedirect.com/journal/journal-of-air-transport-management	Project results
IET Radar, Sonar & Navigation	https://ietresearch.onlinelibrary.wiley.com/journal/17518792	Project results
Wiley Security and Communication Networks	https://onlinelibrary.wiley.com/journal/2037	Project results

Table 12: Scientific papers, publications and presentations

4.2.2 Dissemination events

The list of dissemination events is reported in Table 13.

Event	Date	Place	Information to be shared	Importance for the project
First SATERA Workshop	M12	See Table 6	See Table 6	See Table 6
Second SATERA Workshop	M24	See Table 6	See Table 6	See Table 6
Third SATERA Workshop	M30	See Table 6	See Table 6	See Table 6
Participations Trade fairs	TBD	TBD	TBD	TBD
Participation in conferences, congresses and forums	TBD (See Table 14)	TBD (See Table 14)	TBD (See Table 14)	TBD (see Table 14)

Working sessions with air traffic controllers (ATCOs) to collect their feed-back during the validation activities	TBD	TBD	TBD	TBD
Participation in standardisation working groups (WG), especially in Eurocae WG51.	Throughout the project	TBD	Standard Drafts	Delivering project outcomes and research results

Table 13: Dissemination conferences and workshops

The table below presents potential conferences for SATERA dissemination activities:

Event	Next event Date	Next event Place	Information to be shared	Importance for the project
AIRSPACE World	13 - 15 May 2025	Lisbon	Project overview, Project Results	Delivering a project overview, the main research results and outcomes
16 th ATM seminar	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and their potential impact on operations.
ATCA Global Conference & Expo	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and outcomes related to future of Space Based Surveillance
IEEE/IFIP International Conference on Dependable Systems and Networks	June 23-26, 2025	Naples, Italy	Project overview, Project Results	Delivering a project overview, the main research results and outcomes related to future of Space Based Surveillance, with focus on the dependability and security aspects.
European Dependable Computing Conference	8-11 April 2025	Lisbon, Portugal	Project overview, Project Results	Delivering a project overview, the main research results and outcomes related to future of Space Based Surveillance, with focus on

				the dependability and security aspects.
European Transport Conference	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and outcomes related aircraft localization
EASN International Conference	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and outcomes
SESAR Innovation Days	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and outcomes and solutions
International Conference on Research in Air Transportation	TBD	TBD	Project overview, Project Results	Delivering a project overview, the main research results and outcomes and solutions
International astronomical congress (IAC)	TBD	TBD	Project Results	Delivering a project overview, the main research results and outcomes (LEO constellation, LEO PNT)
OpenSky Symposium	TBD	TBD	Project Results	Main research results (EMLAT, FoA, AOA measurements)
ION GNSS+	September 8-12, 2025	Baltimore Inner Harbor, Maryland	Project Results	Research results (LEO localization)
DASC	TBD	TBD	Project Results	Delivering a project overview, the main research results and outcomes
SESAR 3 JU Annual Conference.	February 18th, 2025.	Brussels	Project overview and first result	Delivering a project overview, the initial research results and outcomes

Table 14: Potential conferences for targeting SATERA dissemination activities

4.3 Dissemination target audiences

As for Communication, different strategies and actions will be used to achieve the dissemination goals of the (partially) same target audiences. In particular dissemination actions will be:

- Regulatory and standardisation bodies:** Dissemination to this target audience is focused on conveying project contribution towards a wide range of EC initiatives and objectives, like the European Digital Sky, the Europe fit for the digital age, and the 2030 and 2050 targets for CO2 emission reduction agreed at the Paris Agreement. Their involvement will be achieved through the organisation of a specific workshop, where specific time will be allocated to discuss the main issues of their concern (e.g., policy impact) and the potential usage of project results. In addition, SATERA partners will keep on actively participating in standardisation working groups (WG), especially in EUROCAE WG51, identifying their links with research activities and providing a forum for discussion.
- Aviation and space industries:** The dissemination message for this audience is twofold: (1) how other air navigation systems should be updated to support air traffic control and, (2) which are the requirements in terms of performance of the systems supporting the provision of the surveillance and navigation services. Achieving this target audience is crucial for a successful deployment of this technology, for this reason specific dissemination activities will be designed, like participation in trade fairs and congresses of importance for this sector, to reach it.
- Air Navigation Services Providers (ANSPs):** In order to achieve this audience, specific dissemination activities will be planned, including participation in relevant trade fairs and congress for this sector and organisation of dedicated workshops throughout the different stages of the project.
- Air Traffic Controllers:** SATERA concept will be designed so that they can assess the benefits that they might get from a composite space-based ADS-B + EMLAT system and give us their feedback.
- Academia & R&D community:** Dissemination to these audiences will be conducted to increase knowledge and awareness of availability of these innovative technologies. In this regard, papers will be published in outstanding journals and conferences describing the main results of the project, as well as the organisation of dedicated workshops throughout the different stages of the project.

Detailed information on the messages to be sent to different audiences is reported in Table 15.

Target	Channel	Benefits from the project	Expected feedback
Regulatory and standardisation bodies	Dissemination events (especially the third SATERA Workshop), website, press and media, social media, videos, publications and newsletters.	Raise awareness, generate understanding, engage, ensure impact. Inform on social acceptance results. Engage for STAND and REG activities.	Support on the methodological work of the project, recommendations and feedback on project activities and findings
Air Navigation Services Providers (ANSPs):	Dissemination events (especially the first and second SATERA Workshops and trade fairs), website, press and media, social media, videos, publications and newsletters.	Raise awareness, generate understanding, engage, ensure impact. Promote networking. Engage for collaborations. Engage for exploitation.	Support on the methodological work of the project, recommendations and feedback on project activities and findings

Aviation and space industries	Dissemination events (especially the first and second SATERA Workshops and trade fairs), website, press and media, social media, videos, publications and newsletters.	Raise awareness, generate understanding, engage, ensure impact. Promote networking. Engage for collaborations. Engage for exploitation.	Gather feedback on the results produced, opportunities of new collaborations and follow-ups. Exploitation of the results
Air Traffic Controllers	Dissemination events (specific working sessions and trade fairs), website, press and media, social media, videos, publications and newsletters.	Raise awareness, generate understanding, engage, ensure impact. Promote networking. Engage for collaborations.	Gather feedback on the results produced, opportunities of new collaborations and follow-ups.
Academia & R&D community	Scientific and technical publications and conferences, website, press and media, social media, videos, dissemination events and newsletters.	Raise awareness, generate understanding, engage, ensure impact. Promote networking. Engage for collaborations. Engage for exploitation.	Gather feedback on the results produced, opportunities of new collaborations and follow-ups.

Table 15: Dissemination target audiences

4.4 Dissemination KPIs and success criteria

The dissemination KPIS are listed in Table 16.

Action	KPIs	Success criteria	Currently achieved	Last update	Annual growth
Academic publications	# of published scientific publications.	3	N/A	N/A	N/A
Events	# of organised workshop/working sessions	4	N/A	N/A	N/A
	# participation in external conferences/events	6			
Printed materials	Refer to Table 9		N/A	N/A	N/A
Website	Refer to Table 9		N/A	N/A	N/A
Video content	Refer to Table 9		N/A	N/A	N/A

Social media	Refer to Table 9	N/A	N/A	N/A
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Table 16: Dissemination KPIs and success criteria

5 Exploitation

This section provides an outline of the strategy for the exploitation of the SATERA results. It identifies an initial set of potentially exploitable results, outlines a general strategy for the exploitation of results, and defines some preliminary lines of action for each partner.

5.1 Project exploitable results

SATERA's key exploitable results are shown in Figure 5.

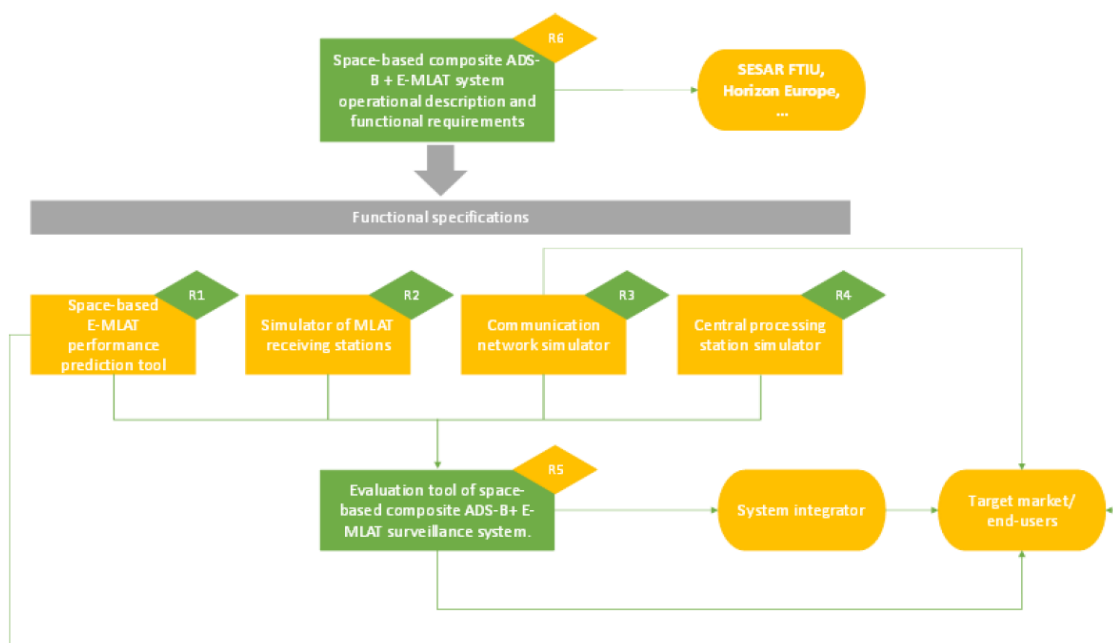


Figure 5 SATERA key exploitable results

The main exploitable result will be the operational description and functional requirements of a space-based composite ADS-B + EMLAT (R6), encompassing (1) a constellation of LEO satellites that shall be configurable to meet the required coverage of a space-based multilateration system, either worldwide or regional; (2) receiving stations suitable to be used on board LEO satellites as part of a space-based E-MLAT system; (3) a communication network that shall connect each constellation's satellite to the central processing station on the ground; (4) a ground central processing station that shall process the measurements done on board the satellites to compute and track the position of the aircraft flying within the system operational volume(s) and provide an integrity check to the ADS-B messages received from aircraft operating therein.

All these results will be delivered at a rather low maturity level (TRL2) and a roadmap to mature and assemble them in a TRL7 demonstrator by means of a future innovation action, such as SESAR FTIU, Horizon Europe innovation calls or other national or international research programs, preserving in any case the IPRs generated during the execution of SATERA or by increasing the project outcomes' maturity using the partners' own resources establishing license agreements with the owner(s) of the necessary IPRs will be identified.

In addition to this main exploitable result, SATERA will develop different simulation tools to validate the concept of composite space-based ADS-B + E-MLAT system proposed by the project. These simulators, properly assembled, constitute the following additional exploitation results:

1. A Space-based E-MLAT systems' performance prediction tool (R1),
2. the communication network simulator (R3), and
3. An evaluation tool of space-based composite ADS-B + E-MLAT surveillance system (R5), composed of the space-based E-MLAT performance prediction tool (R1), the simulator of MLAT receiving stations (R2), the communication network simulator (R3), and the simulator of the central processing station (R4).
4. Space-based Composite ADS-B+EMLAT system Operation description and functional requirements (R6).

Summing up, at least the following results are expected to be exploited:

- The space-based composite ADS-B + E-MLAT system operational description and functional requirements based on the state-of-the-art standards: this result will be validated at TRL2 and will be further matured along the SESAR innovation pipeline.
- The evaluation tool of space-based composite ADSB + E-MLAT surveillance system: this tool will allow ANSPs and aircraft operators to design enhanced services and optimized operations.
- The space-based E-MLAT performance prediction tool: this tool will allow space-based CNS providers to optimize their constellations to provide E-MLAT surveillance.
- The communication network simulator: this simulator will allow to optimize interlink communication networks in LEO constellations used to provide CNS and communication services.

5.2 Exploitation strategy and objectives

The SATERA's industrial partners cover the entire value chain of this new business model for the provision of air traffic services: ENAIRE's partially owned company Startical will provide the space-based CNS service to ANSPs such as ENAIRE, which will use flight planning tools and air traffic automation systems manufactured by COLLINS, which, in addition, could provide Startical with the systems (onboard receiving stations and ground-based central processing stations, as well as the communication network).

Therefore, the consortium has a unique perspective to define and execute effective exploitation strategies. The SATERA's consortium will start by defining, at the earliest stages, the exploitable results of the project.

The exploitation strategy, which will consist of both joint and individual exploitation activities:

- Joint exploitation: According to the exploitation activities, the consortium will refine the description of the exploitable results of the project and their relation to IPRs, laying the

foundations for a joint strategy to bring the results of the project as close to the market as possible.

- Individual exploitation: Each consortium partner has defined its individual strategic interests in relation to SATERA results both from the research and commercial point of view. These individual strategic interests will be further developed during the project.

Joint exploitation

SATERA envisages three possible target markets for future exploitation of the project outcomes:

Mk-1. The main market for the stand-alone evaluation tool of space-based composite ADSB+ E-MLAT surveillance system (R5) will consist of ANSPs making use of the space-based CNS associated with services to provide air traffic services to aircraft operators, as well as aircraft operators themselves. ANSPs will use this tool to predict the performance of the system in the areas where they offer ATS to upgrade their catalogue of services (e.g., the reduction of the separation minima they may provide by means of the ATC service). Aircraft operators will use the SATERA evaluation tool to design new operations considering the ATS they may expect from ANSPs making use of space-based surveillance. Considering ANSPs, almost every country in the world has at least one ANSP. With regards to commercial air transport operators, the market is estimated in 290 companies worldwide (this figure corresponds to the number of affiliates to the International Air Transport Association, which represent the 82% of the air traffic in the World). ANSPs and aircraft operators can be further classified in two additional categories:

- Large companies with engineering capabilities. Into this category fall the European ANSPs (supported by EUROCONTROL) such as ENAIRE and North American ANSPs (the FAA and Air Canada) involved in the provision of CNS services to intercontinental flights over the North Atlantic, as well as major ANSPs from Middle and Far East and Oceania countries. Big commercial air transport companies (such as flag carriers and big transport companies with their own fleets, such as DHL or UPS) also fit this category.
- ANSPs of emerging and developing countries (especially in Africa, South America and Caribbean region, and central Asia) and small local commercial air transport companies operating therein. These companies do not have the capability to integrate advanced tools by themselves and will need external support to use the evaluation tool.

Mk-2. The main market for the space-based E-MLAT systems' performance prediction tool (R1) will consist of companies providing space-based CNS services to ANSPs. The provision of space-based surveillance services to ANSPs is an emerging activity in the aviation sector. This is an activity with very special characteristics. It is a rather small market (there will be no more than a few companies offering this service around the world). However, the provision of CNS services is crucial for the air transport industry and has pronounced geopolitical implications. SATERA will help the European aviation industry have the edge over its competitors from other regions (China, Russia, the USA, etc.), thus keeping the global leadership it currently holds in the ATM sector. Beyond this economic contribution, by combining the unique features of space-based surveillance systems and the European GNSS Galileo, SATERA will help guarantee the operation of the European civil aviation fleet in an increasingly unstable geopolitical international scene and, in the end, preserve the European sovereignty.

Notwithstanding what has been previously stated above in this paragraph, companies exploiting these results, will have a huge market of tens of ANSPs providing ATS to thousands of aircraft worldwide.

Mk-3. The main market for the stand-alone communication network simulator (R3) encompasses companies providing services based on LEO constellations. The use of this kind of constellations is an emerging aerospace sector. Most of these constellations are being used to provide communication services, especially in areas where the access to the Internet is difficult or as back-up for conventional telecommunication systems. There are several companies such as SpaceX, Amazon, Telesat, or OneWeb, which are currently designing and deploying LEO constellations for this purpose. The LEO satellite market is expected to grow from 3.5 billion US\$ in 2021 to 9 billion US\$ in 2026, being the telecommunication services the main driver of this growth. Large companies such as SpaceX or Amazon will not be interested in SATERA's results, since they have strong engineering departments that can develop proprietary design tools fit for their specific purposes. However, small and medium companies, especially from Europe, such as GomeSpace (DK) or U-Space (FR), which are relevant players in the nanosatellite global market, may leverage SATERA's results to expand their portfolio with higher complexity, more competitive products.

Each of the potential markets has its own expectations and particularities. Therefore, SATERA defines the following market penetration strategies specific to each of them:

Regarding market Mk-1 (ANSPs and aircraft operators), since it encompasses quite different companies, SATERA will approach them with specific strategies:

- Large companies with engineering capabilities may integrate and use commercial tools developed by SATERA's partners, such as Collins' FlightHub™, IntelliSight (state-of-the-art operations' optimisation tools), MARS and STARS traffic automation systems, ADS-B transponders and satellite communications networks. COLLINS, according to the conditions agreed between the partners considering the share of involved IPRs, will evaluate integration of SATERA's evaluation tool of space-based composite ADS-B + E-MLAT surveillance systems (R5) into their commercial products to improve them with extended simulation capabilities with the support of ENAIRE, which will use these tools according to the conditions agreed between the partners considering the share of involved IPRs.
- Small companies without engineering capabilities will require turn-key solutions, often including support to the operation. In this case, system integrators will integrate SATERA's evaluation tool of space-based composite ADS-B + E-MLAT surveillance systems (R5) into suitable, ad-hoc solutions. SATERA's partner COLLINS may play this role, but also other companies external to the project consortium, can do it under the appropriate license agreement.

Regarding market Mk-2 (companies providing space-based CNS services). These companies will require turn-key solutions addressing the particularities of their systems. As part of the industrialisation of SATERA's results, COLLINS will adapt the space-based E-MLAT performance prediction tool (R1) to match the requirements of each customer. Given the particular features of this market (outlined above), for the time being the only user identified by SATERA is ENAIRE's co-owned company, Startical, which would use this tool according to the conditions agreed between the partners considering the share of involved IPRs. COLLINS will support the commercial exploitation of this result to third parties external to the project according to the conditions agreed between the partners considering the share of involved IPRs.

Regarding market Mk-3 (companies providing services based on LEO CubeSat constellations) SATERA will focus on small and medium companies of the aerospace sector that might be able to develop state-of-the-art applications based on LEO constellations for purposes other than space-based CNS. The manufactures will have to tailor the outcomes from SATERA to applications different than the original one. COLLINS may play this role, but also other companies external to the project consortium, can do it under the appropriate license agreement.

Individual exploitation

The consortium partners have expressed their interest in exploiting some of the project results beyond the scope of SATERA, that will be further developed during the project:

- UPV: Use of new position estimation algorithms (R4, partly) in drone surveillance systems, Use of advance tracking algorithms (R4, partly) for trajectory reconstruction and tacking of highly manoeuvrable targets, Use of the AoA measuring system (R2, partly) in drone detect and avoid systems.
- COLLINS: Use of the simulator of the communication network (R3) for applications different than CNS, Application of the constellation modelling and orbit estimation tools (R4) for modelling other space-based services.
- UNITOV: Use of new positioning estimation algorithms (R4, partly) in in other fields of application such as deep space navigation or indoor navigation, Use of advance tracking systems (R4, partly) for trajectory reconstruction and orbit determination and/or time synchronization, Use of the simulator of MLAT receiving stations (R2, partly) for deep space navigation system.
- UNIV COIMBRA: Use of the simulator of the communication network (R3) in application domains different than aviation.
- INPE: Study of the existent constellations of satellites to verify if they are suitable for the needs of SATERA (R1 partly), To design new options of constellations, which include to define the number of satellites required for a given coverage as a function of the orbital parameters of the individual satellites (R1 partly), To develop a propagation model to estimate the position of the constellation satellites at any moment so that the receivers' position can be used by the localization

5.3 Exploitation of results

This section describes the project outputs and their impact in terms of specific domain, required actions and longer-term outcomes. In this initial exploitation plan, some of the items and the described timelines are tentative and may undergo modifications in the future versions of the document.

Project outputs	Area impacted	Action	Outcomes	When
(R1) Space-based E-MLAT systems'	Companies providing space-based CNS	R1 will allow the design of new options for	Better optimization of interlink communication	TBD

Performance prediction tool	services to ANSPs	constellations and the propagation models.	networks in LEO constellations.	
(R2) Simulator of MLAT receiving stations	ANSPs and aircraft operators	Further research can be done to extend the use of R2 in deep space navigation systems and drones detect and avoid systems.	Application in deep space navigation systems.	TBD
(R3) Communication network simulator	Companies providing services based on LEO constellations	Further research in this area will result in the use of this simulator in applications different than CNS.	Use of this simulator in applications other than aviation as well.	TBD
(R4) Central processing Station simulator	ANSPs and aircraft operators	Partial outcomes of R4 can be used for trajectory reconstruction and tacking of highly manoeuvrable targets through further research.	Positive impact on deep space navigation or indoor navigation systems, trajectory reconstruction and orbit determination and/or time synchronization.	TBD
(R5) Evaluation tool of space-based composite ADS-B+EMLAT surveillance system.	ANSPs and aircraft operators	R5 will enable ENAIRE, one of the partners, to make use of the space-based CNS.	Upgradation of service offered to ATS by ANSP.	TBD
(R6) Space-based Composite ADS-B+EMLAT system Operation description and functional requirements.	Aviation and space industries, Academia and R&D community, Standardization bodies	This result will be validated at TRL2 and will be further matured along the SESAR innovation pipeline through further research.	Positive impact on the R&D community working in this area as it will provide a strong baseline for further research.	TBD

Table 17: Project internal exploitation of results

Project outputs	Area impacted	Action	Outcomes	When
(R1) Space-based E-MLAT systems' Performance prediction tool	Companies providing space-based CNS services to ANSPs	R1 will allow space-based CNS providers to optimize their constellations to	Provide CNS services through provision of space-based surveillance services to ANSPs	TBD

		provide E-MLAT surveillance.		
(R2) Simulator of MLAT receiving stations	ANSPs and aircraft operators	R2 will help ANSPs and aircraft operators design enhanced services and optimized operations.	ANSPs could offer ATS to upgrade their catalogue of services.	TBD
(R3) Communication network simulator	Companies providing services based on LEO constellations	A significant market aspect is to provide backup for conventional telecom service. Small and medium sized companies will leverage from this outcome to expand their portfolio.	It will enable the use of LEO constellations to provide internet access to remote areas.	TBD
(R4) Central processing Station simulator	ANSPs and aircraft operators	R4 will help ANSPs design enhanced services and the aircraft operators to improve operations.	Results will affect orbit determination and/or time synchronization for better estimation.	TBD
(R5) Evaluation tool of space-based composite ADS-B+EMLAT surveillance system.	ANSPs and aircraft operators	R5 will enable ANSPs to make use of the space-based CNS associated with services to provide air traffic services to aircraft operators. Both the large and small/medium sized ANSPs and aircraft operators will find this tool relevant and integrable either directly or through external support.	Design of new operations by aircraft operators considering the ATS they may expect from ANSPs making use of space-based surveillance.	TBD
(R6) Space-based Composite ADS-B+EMLAT system Operation description and functional requirements.	Aviation and space industries, Academia and R&D community, Standardization bodies	Further research will lead to the involvement of standardization bodies and relevant aviation industries for	Positive impact on the aviation and space industries.	TBD

higher TRL
solutions.

Table 18: Project external exploitation of results

5.4 Data protection strategy

All consortium partners confirm compliance with the General Data Protection Regulation (GDPR (EU) 2016/679) and with respective national legal framework(s). Data Protection Officers (DPO) are appointed, and their contact details are made available to all data subjects involved in the research.

Personal data collected during dissemination and communication activities will be protected regarding article 8 – protection of personal data – of the European Charter of Fundamental Rights and the Treaty on the Functioning of the European Union. These personal data will be collected and processed fully in accordance with the General Data Protection Regulation (GDPR (EU) 2016/679).

A set of requirements for collection, storage, protection, retention, and destruction (when applicable) of personal data used throughout the project, as well as project results, will be defined in the SATERA Data Management Plan (DMP). The Data Management Plan (DMP) will be completed and delivered to the SESAR 3 JU in December 2024.

5.5 IPR management

IPR and legal issues will be managed according to the SATERA Consortium Agreement which will be based on the DESCA model updated for the Horizon Europe programme.

Considering the nature of the results derived from SATERA project, **IPR protection types** might include copyright, (as computer-implemented inventions) and secret know-how (as a technical specifications and system architecture diagrams) and patents. Exploitation may adopt figures such as licensing, selling, transfer, etc.

Algorithms and software protection. Article 52 of the European Patent Convention excludes software from patentability to the extent that a patent application relates to a computer program as such. A distinction is made for “computer-implemented inventions”, which are accepted at the European Patent Office. In this respect, SATERA will seek the maximum IPR protection that its characteristics abide to. If SATERA results do not meet the requirements for protection by any of the aforementioned intellectual property rights (copyright, know-how), then assets will be kept secret. A review of the background protection status will be made to assure that all SATERA components are equally protected, and measures will be taken in case faults are detected.

IPR management rules. The consortium partners have already drafted general exploitation and intellectual property rights for the Consortium Agreement (CA), using the DESCA reference model under fair and reasonable conditions. The CA contains all the details related to results expected distribution of IP among partners and access to- and use of background knowledge likely to be needed for the implementation of the project.

- **Intellectual property rights.** Each partner will be the owner of the knowledge/development it has generated during the project and can decide about the protection type (tentative protection strategies are listed in table 4. If results are generated jointly by several partners and, it is not possible to separate or distinguish individual contributions, they will be jointly owned, unless the partners concerned agree on a different solution (see joint ownership below).
- During the project, **free access rights to the necessary background will** be granted among partners when they need it to carry out the tasks they have been assigned (always limited to research purposes) to achieve project’s goals. After the project, participants will be provided with access rights to the background (under fair and reasonable conditions) owned by other partners, if such access is needed for the use of generated results.
- In case of **joint ownership**, the main IPR handling line shall be anticipated as follows: (i) if, in the course of the project, a joint invention, design or work is made, more than one partner contributes to it and, the features of such joint invention, design or work are such that prevent independent IPR protection, the concerned partners agree that they may jointly apply to obtain and/or maintain the relevant right together with any other parties. (ii) In this case, specific arrangements to implement IPR protection shall be made on a case-by-case basis. As long as any such right is in force, partners concerned will not use or license such right without the written consent of the other partners, which shall be informed in advance. In case of licensing to third parties, appropriate financial compensation shall be given to the other partners concerned.

In the following Table, the main IPR holder and protection strategy envisaged, as well as the access rights (i.e. exploitation or use) to other consortium partners for the main results detailed in the previous section are reported.

Further provisions will be agreed during the project.

Result	Type of result and protection method	Main IPR holders	Exploitation and/or user rights
(R1) Space-based E-MLAT systems’ Performance prediction tool	Algorithms and software. Copyright, closed source, knowhow.	Joint ownership UPV, COLLINS, UNITOV, INPE.	Integration into R5 to as part of an evaluation tool of space-based composite ADS-B + E-MLAT surveillance system. In addition, R1 is a stand-alone exploitable result. Exploitation to analyse and deploy constellations.
(R2) Simulator of MLAT receiving Stations	Algorithms and software, system Architecture diagrams. Copyright, closed source, patent.	Joint ownership UPV, UNITOV, UNIV COIMBRA	Integration into R5 to as part of an evaluation tool of space-based composite ADS-B + E-MLAT surveillance system. Exploitation to develop drone detection and avoid systems and to be applied on ground-based and deep space navigation applications.
(R3) Communication network	Algorithms and software.	Joint ownership	Integration into R5 to as part of an evaluation tool of space-based composite ADS-B + E-MLAT surveillance system. In

simulator	Copyright, closed source, knowhow.	UPV, UNIV COIMBRA	addition, R3 is a stand-alone exploitable result. Exploitation to develop applications different than CNS.
(R4) Central processing Station simulator	Algorithms and software, system architecture diagrams. Copyright, closed source, patent.	Joint ownership UPV, COLLINS, UNITOV, UNIV COIMBRA.	Integration into R5 as part of an evaluation tool of space-based composite ADS-B+ E-MLAT surveillance system. Exploitation to develop localization and tracking systems in other domains of application.
(R5) Evaluation tool of space-based composite ADS-B+EMLAT surveillance system.	Algorithms and software, system Architecture diagrams, interface descriptions and data formats. Copyright, closed source, patent.	Joint ownership	it integrates R1, R2, R3, and R4. Joint exploitation by the consortium.
(R6) Space-based Composite ADS-B+EMLAT system Operation description and functional requirements.	Algorithms and software, system architecture diagrams, interface descriptions and data formats. Copyright, closed source, patent.	Joint ownership	It will support further technology upscale/ industrialisation activities (such as SESAR3 FTIU) towards a commercial product.

Table 19: IPR holder, protection strategy, access rights for the main project results

6 Overview of communication and dissemination activities

The overview of communication and dissemination activities is reported in the following table.

Activity	Channel	Tool	Objective	Target audience	KPIs	Success criteria	Frequency/ date
Website activity	Project website	Website updates	Raise awareness on project goals, activities, and achievement. Disseminate project results.	Specialised and non-specialised audience	# of visits	3000 in three years	Constant monitoring and updating to follow the project progresses
Social media activity	LinkedIn, X and YouTube	Posts and reposts	Raise awareness on project goals, activities, and achievements	Specialised and non-specialised audience	# of followers # of posts shared	300 for each account 200 across all platform*	Constant monitoring and updating to follow the project progresses
Graphic dissemination material	To be distributed online and offline	Website download page, events, and conferences	Raise awareness on project goals, activities, and achievements . Disseminate project results.	Specialised and non-specialised audience	# of copies (digital and hardcopy) distributed	300	As needed, combined with relevant activities/achievements
Non-scientific articles, press releases	Trade press	Articles and press release	To inform on project activities, results etc.	Specialised and non-specialised audience	# of press releases (online & printed).	10 press releases and 5 articles	Combined with relevant activities/achievements
Videos	To be distributed online (e.g., social media, website) and offline (e.g., conferences)	Social media, website, conferences, and events	To showcase project concept and illustrate project results	Specialised and non-specialised audience	# of videos	3	Toward M6 and toward M30

Organization of communication and dissemination events	Online and offline	Oral presentations, infographics, workshops, seminars.	Raise awareness in society/ local policy makers/ industrial stakeholders. Disseminate project results.	Specialised and non-specialised audience	# of organised workshop/events	4
Participation to external events (e.g., conferences, exhibitions)	Online and offline events	Posters, oral presentations, roll-ups, infographics, videos, pictures.	Disseminate project results, promote discussion, gather feedback, networking	Specialised audience	# of presentations delivered at third-party events # of participation in external conferences/events	4 7
Scientific publications	Online distribution	Scientific Journals	Disseminate project results.	Specialised audience	# of scientific publications	3

Table 20: Overview of communication and dissemination Activities

7 List of acronyms

Acronym	Description
AB	Advisory Board
ADS-B	Automatic Dependent Surveillance–Broadcast
ANSP	Air Navigation Service Provider
AoA	Angle of Arrival
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATM	Air Traffic Management
CA	Consortium Agreement
CDE	Communication, Dissemination and Exploitation
CNS	Communication/Navigation/Surveillance
COTS	Commercial Off-The-Shelf
DMP	Data Management Plan
DPO	Data Protection Officer
EMLAT	Enhanced MLAT
FoA	Frequency of Arrival
GA	Grant Agreement
GNSS	Global Navigation Satellite System
ICAO	International Civil Aviation Organization
IPR	Intellectual Property Rights
ISL	Inter Satellite Link
KPI	Key Performance Indicator
LEO	Low Earth Orbit
MLAT	Multilateration
N/A	Not Available
NDA	Non-Disclosure Agreement
PMB	Project Management Board
PMP	Project Management Plan
PU	Public
SESAR 3 JU	SESAR Joint Undertaking

TBO	Trajectory Based Operation
ToA	Time of Arrival
TRL	Technology Readiness Level
TBD	To Be Determined

Table 21: List of acronyms