

Intermediate CDE report and CDE plan update

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Abstract

This document contains the HUCAN Intermediate update of the Communication Dissemination and Exploitation activities. Since its initial submission in November 2023, this update provides an overview of the activities conducted over the past months, including updates to our website, increased media presence and enhanced social media engagement. It also outlines the performance against the defined KPIs and sets the stage for future communication and dissemination efforts as the project progresses.

Authoring & Approval

Author(s) of the document

Organisation name	Date
Serena Fabbrini (Deep Blue)	26/09/2024

Reviewed by

Organisation name	Date
Paola Lanzi (Deep Blue)	16/09/2024
Elisa Spiller (Deep Blue)	16/09/2024
Mariken Everdij (NLR)	23/09/2024

Approved for submission to the SESAR 3 JU by¹

Organisation name	Date
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Rejected by²

Organisation name	Date
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¹ Representatives of all the beneficiaries involved in the project

² Representatives of the beneficiaries involved in the project

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HUCAN

HOLISTIC UNIFIED CERTIFICATION APPROACH FOR NOVEL SYSTEMS BASED ON
ADVANCED AUTOMATION

HUCAN

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114762 under European Union’s Horizon Europe research and innovation programme.



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List of acronyms

Acronym	Description
AI	Artificial intelligence
ATC	Air Traffic Controllers
ATM	Air Traffic Management
ANSP	Air Navigation Service Providers
CA	Consortium Agreement
CDE	Communication, Dissemination and Exploitation
CMS	Content Management System
D	Deliverable
ER	Exploratory Research
IPR	Intellectual Property Rights
IR	Industrial Research
KER	Key Exploitable Results
KPI	Key Performance Indicators
M	Month
ML	Machine learning
R&D	Research and Development
ROI	Return On Investment
SCG	Stakeholder Consultation Group
S3JU	SESAR 3 Joint Undertaking
TOC	Table of Contents
TRL	Technology Readiness Level
UTM	Unmanned Traffic Management
WP	Work Package

1 Introduction

This document contains the first HUCAN Intermediate report for the Communication, Dissemination, and Exploitation (CDE) of the activities carried out from the start of the project (September 2023) until M13 (September 2024) and serves as updated internal guidance on the strategies, planned activities and tools for the sharing of the project results. The deliverable also updates the status of the KPIs defined in the first release of the document and the strategies for communication, dissemination, and exploitation measures.

We invite the reader to consult the **HUCAN CDE Plan (D6.1)** for the details of the communication, dissemination and exploitation strategies for the project, with communication goals, high-level messages and a short description to be broadcast in different media with the aim of making the project understandable at first glance. D6.1 also outlines the identification of target stakeholders, the selection of the appropriate communication and dissemination strategy, material for each group of stakeholders and the identification of exploitation target users and partners' exploitation intentions.

1.1 Applicable reference material

1. HUCAN Grant Agreement, number: 101114762
2. D6.1 - HUCAN CDE plan, available on HUCAN website and on STELLAR
3. European Research Executive Agency, [Communication, dissemination & exploitation what is the difference and why they all matter](#), 16/06/2023
4. [S3JU Communications Strategy \(02.00 edition\)](#)
5. S3JU Communications Guidelines (0.03 edition), available on STELLAR
6. S3JU, [Project communication at a glance](#)
7. [S3JU Visual Charter \(update 11/2022\)](#)
8. *SESAR 3 Joint Undertaking Project Handbook*, Edition 01, April 2022, available on STELLAR
9. S3JU "Multiannual Work Programme 2022-2031"
10. Guidance Social media guide for EU funded R&I projects
11. Project's teaser videos guidelines
12. EU emblem and guidance on its use

2 Project introduction

2.1 About HUCAN

HUCAN focuses on the evolution of Air Traffic Management (ATM) through the integration of advanced automation including Artificial Intelligence (AI) - based technologies. Recognising the rapid advancements in automation and AI and their potential in transforming the ATM landscape, HUCAN aims to bridge the gap between current practices and a future where technology and human capabilities merge. At its core, the project seeks to **develop a novel certification method that combines technical reliability with a human-centric approach**. The intention is to establish a unified framework for the certification and approval of ATM-related systems, including those powered by AI solutions. Moreover, HUCAN endeavours to create guidelines and toolkits to aid manufacturers in streamlining the development of such technologies. Rooted in a collaborative standard, the project leverages case studies to ensure a comprehensive approach, with the goal of shaping future legislative and regulatory measures in the realm of advanced automation and AI certifications.

2.2 Focal point for communications, dissemination and exploitation

At the present time, the Consortium confirms its *Communication and dissemination manager*, Serena Fabbrini (Deep Blue), and its *Exploitation manager*, Paola Lanzi (project coordinator, Deep Blue).

Name	Role	Email address
Serena Fabbrini	Communication and dissemination manager	serena.fabbrini@dblue.it
Paola Lanzi	Exploitation manager	paola.lanzi@dbieu.it

Table 1 Focal points of contact, update September 2024

3 Communication

3.1 Communications objectives and strategy

The core communication objectives of HUCAN are:

1. **Raise awareness.** Enhance the understanding of the project's goals, methodologies, and outcomes within the targeted communities, notably the stakeholders identified earlier.
2. **Stakeholder engagement.** Actively engage with specific stakeholders to gather feedback, seek collaborations, and promote the benefits of the project.
3. **Disseminate knowledge.** Share findings, methodologies, and best practices of the project with experts in the field and other relevant stakeholders to ensure the research's tangible application.
4. **Promote adoption.** Advocate of the adoption of the certification methodologies, AI tools, and best practices developed within HUCAN.

To achieve these objectives and to deliver effective and efficient communication, the information will be personalised for the different categories of stakeholders. Personalisation will not be limited to information content, but it will also consider the style of the message and the means through which it is spread (e.g., document, website, social media). The HUCAN communication plan will identify the most appropriate set of means for each category of stakeholders.

Finally, to ensure that **communications are consistent within S3JU**, the project consortium will be in constant contact with the S3JU Communications office to:

- Ensure that project communications and outreach milestones are integrated into broader S3JU communications scheduling and planning
- Review strategies, key messages, targeted audiences and communications material on S3JU solutions so that consistency with S3JU's core objectives is ensured
- Develop joint outreach activities considering established cooperative arrangements by the S3JU or with the European Commission within the context of S3JU
- Benefit from support of the S3JU for various events and conferences
- Maximise outreach by using S3JU communications channels and cooperative arrangements to further cascade relevant content

Given the nature of the HUCAN project and its focus on specific public rather than the general media, the communication strategy will be tailored accordingly. Here's the proposed approach:

- 2 **Targeted communication:** direct the communication efforts predominantly at the identified stakeholders. This ensures that the content reaches those who can derive the most value from it and influence the project's objectives.
- 3 **Tailored content:** as each stakeholder group has its distinct interests, tailor the communication content to resonate with them specifically. This includes using the appropriate technical language, addressing their concerns, and highlighting the benefits most relevant to them.

- 4 **Quality over quantity:** prioritise few, well-structured and impactful communication initiatives over a barrage of messages. This might include specialised workshops, webinars, or seminars, where meaningful exchanges can occur.
- 5 **Interactive platforms:** employ platforms where there's room for interaction (e.g. roundtables or online forums). Here, stakeholders can ask questions, provide feedback, and engage in discussions, allowing for a more in-depth understanding of their concerns and needs.
- 6 **Regular updates:** while the number of communication actions might be limited, ensure that stakeholders are updated at significant project updates or when crucial findings are available.

3.2 Communication target audiences

To achieve effective communication for the HUCAN project, it's essential to tailor messages and methods based on the specific target audience.

Using a high-level conceptual categorisation of the target audience identified by HUCAN, it is possible to identify at least two main clusters:

1. **Public authorities and policy makers:** European Commission, S3JU, regulatory and safety agencies)
2. **Aviation specialised audience,** further identified in:
 - 2.1. Producers and manufactures
 - 2.2. ANSPs and airlines

After careful consideration, we have decided to exclude the third cluster of the target audience for communication, previously identified in D6.1 as the “interested general public”. This decision stems from the increasingly specialised nature of the project's activities and outcomes, which are progressively aligned with the needs and interests of the two primary target groups: “Public authorities and policymakers” and the “Aviation specialised audience”.

The technical complexity and sector-specific focus of our work have made it evident that our communication efforts will be most impactful when directed towards these two groups. Engaging the general public with such specialised content may dilute the effectiveness of our strategy and could lead to misalignment between our communication goals and the audience's expectations.

Nevertheless, the communication manager retains the flexibility to target certain activities towards the general public, should the content and timing allow for broader engagement. This approach ensures that while our primary focus remains on the key stakeholders, we do not entirely forget opportunities to reach and inform the wider public when appropriate.

Table 2 outlines the target audiences, channels of communication and the core message for each.

Target	Channel	Message
Public authorities and policy makers	Website, press and media, social media, communication events, publications and newsletters	Raise awareness, generate understanding, engage, ensure impact, inform on social acceptance results, promote networking, engage for exploitation

Aviation specialised audience	Website, press and media, social media, communication events, publications and newsletters	Raise awareness, generate understanding, engage, ensure impact, promote networking, engage for collaborations, engage for exploitation
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Table 2 Communications target audiences, update M12

3.3 Visual identity: branding and acknowledgements

The visual identity serves as the primary element for a consistent, compelling, and impactful communication framework.

The HUCAN visual identity has been shaped following the S3JU Visual Charter 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 HUCAN logo (in Figure 1) has been provided by S3JU. Other key elements of visual identity have been provided by S3JU, including the font (Titillium regular) and the colour deep blue (HEX: #00306F) identified for Exploratory research projects.



Figure 1 Project logo

All project-related communication and dissemination actions will recognise EU backing, showcasing the European flag and funding declaration (Figure 2, right), in line with the Grant Agreement, chapter 4, section 2, article 17.2. Furthermore, for cohesive messaging and to establish brand identity, HUCAN will incorporate the SESAR logo (Figure 2, left) in all promotional materials pertaining to its project initiatives.



Figure 2 S3JU and EU logos. For all CDE actions, HUCAN will acknowledge EU funding by displaying the EU emblem and S3JU logo, in addition to the project logo

3.3.1 Graphic materials developed

Following S3JU's guidelines, two key graphic products have been developed to support the HUCAN project's communication and dissemination activities. The first product is an **informative rollup**, created specifically for the SESAR Innovation Days 2023 (Figure 3), held in Seville. This rollup provided a visually compelling overview of the project's objectives, methodologies, and expected outcomes, designed to capture the attention of event participants and spark discussions about HUCAN's contribution to the future of Air Traffic Management (ATM).

The second product is a **flyer**, also informative, intended for use by project partners whenever they need to discuss or present HUCAN in professional settings (Figure 4 and Figure 5). This flyer serves as a portable, concise, and easy-to-distribute summary of the project, highlighting its key features and research focus areas.

Both the rollup and flyer have been designed to have a communicative impact with clear, accessible language and engaging graphics. These materials are instrumental in raising awareness about HUCAN, helping to foster interest and collaboration with stakeholders across the aviation sector.

The combination of these two tools ensures that HUCAN's key messages are consistently communicated across multiple platforms and events, enhancing the project's visibility and outreach efforts. The materials are available on HUCAN's website for download.

HUCAN

HOLISTIC UNIFIED CERTIFICATION
APPROACH FOR NOVEL SYSTEM
BASED ON ADVANCED
AUTOMATION AND ARTIFICIAL
INTELLIGENCE

September 2023 – February 2026

OVERVIEW

The HUCAN project aims to pioneer certification methods for new ATM systems with a focus on human centred advanced automation and AI technologies. The HUCAN approach to certification will be tested through case studies on dynamic airspace use and capacity on demand.

OBJECTIVES

-  Landscape of **advanced automation** within the EU digital strategy for mobility and ATM
-  Robust EU legal and regulatory framework on certification in aviation and ATM
-  Methods and procedures for certification of highly automated systems
-  Specific guidelines and toolkit for advanced automation-based ATM systems design

CASE DRIVEN APPROACH

Four case studies will be used to support the design and the validation of the holistic and unified approach to certification defined by the project

- 1 DYNAMIC AIRSPACE SECTORING**
Improvement of middle airspace utilisation obtained by means of dynamic optimization of the airspace sector configuration
- 2 AI-POWERED DIGITAL ASSISTANT IN TMA**
The DA goal is to enhance runway efficiency by optimizing aircraft routing, ensuring adherence to procedures, and preventing potential conflicts
- 3 DYNAMIC AIRSPACE RECONFIGURATION SERVICE FOR U-SPACE**
Dynamic U-space volumes definition and information exchanges between ATM and U-space
- 4 DYNAMIC ALLOCATION OF TRAFFIC BETWEEN ATCO AND SYSTEM**
Improvement of upper airspace utilisation by means of dynamic allocation of traffic between the ATCO and system

LET'S KEEP IN TOUCH!



Join the HUCAN community!



This project has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114762 under European Union's Horizon Europe research and innovation programme.

Consortium:



Figure 3 HUCAN rollup

HUCAN

HOLISTIC UNIFIED CERTIFICATION APPROACH
FOR NOVEL SYSTEM BASED ON ADVANCED
AUTOMATION AND ARTIFICIAL INTELLIGENCE

OBJECTIVES



Landscape of advanced automation within the EU digital strategy for mobility and ATM



EU legal and regulatory framework on certification of advanced-automated and autonomous technology, including AI-powered solutions, in aviation and ATM



Holistic approach to approval and certification of automated systems



Preliminary guidelines for advanced automation systems design and toolkit for application

OVERVIEW

The HUCAN project will develop a novel, holistic certification approach tailored to highly automated ATM airborne and ground systems, including those based on AI. The method and guidelines proposed will aim at supporting the definition of new standards for transparency, certification, and approval processes, ensuring the highest levels of safety and efficiency in the aviation sector. HUCAN's approach to certification will be designed, developed and tested through case studies on dynamic airspace use and capacity on demand.



This project has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114564 under European Union's Horizon Europe research and innovation programme.



Join our community!

Figure 4 HUCAN flyer (front)

CASE DRIVEN APPROACH

Four case studies will be used to support the design and the validation of the holistic and unified approach to certification defined by the project and of the preliminary guidelines for advanced automation systems design and toolkit for application.



Figure 5 HUCAN flyer (back)

3.4 Communication channels

3.4.1 Website: development, release and analysis

HUCAN website is a focal component within the project's strategy for communication, dissemination, and exploitation. This digital platform serves as a repository for comprehensive information about

HUCAN, delineating its goals, activities, and achievements. Moreover, it offers a host of features, such as updates on latest developments and forthcoming events, a suite of downloadable outreach materials, and pertinent external references. Integrated feeds from the project's social media channels ensures that visitors receive the most current updates regarding project milestones, ongoing endeavours, and other significant announcements.

In addition to the HUCAN website, S3JU provides a **dedicated webpage on the SESAR official website** [<https://www.sesarju.eu/projects/hucan/>]: this webpage serves as a vehicle of communication news and updates to a wider public. The communication and dissemination leader will keep informed the S3JU Communication office to maintain updated this webpage with the latest news.

Developed by Deep Blue, the official HUCAN website is hosted on their server and can be accessed at [<https://research.dblue.it/hucan/>] and has been developed starting from the agreed table of contents defined in D6.1 (Chapter 3.4.1 – Website).

From late November 2023, a temporary webpage was created to serve as a placeholder while the full website was being developed. This temporary page featured a concise project description and an introduction to all project partners.

The website has been developed using **WordPress**, a widely used content management system (CMS) known for its flexibility and user-friendliness. WordPress powers millions of websites around the world, offering a robust platform that supports a wide range of plugins and themes to enhance functionality and design. For the HUCAN website, we utilised the **Avada theme**, a popular and versatile template that provides extensive customization options and a variety of pre-built layouts. By leveraging the capabilities of WordPress and the Avada theme, we have created a comprehensive and user-friendly website that effectively supports the HUCAN project's communication and dissemination goals. **Matomo Analytics** is used to measure external interest in the site and the data gathered will be carefully monitored: Matomo Analytics is an open-source web analytics platform designed to provide detailed insights into website traffic and user behaviour. Unlike other analytics tools, Matomo emphasises user privacy and data ownership, allowing organisations to host the platform on their own servers and retain full control over their data.

The website, fully completed, was released at the end of April 2024.

As a classic website, users are immediately directed to the **Home page** (Figure 6), which provides a comprehensive overview of the project. This includes:

- brief description of HUCAN
- the four main objectives
- call to action for subscribing to the project newsletter
- timeline highlighting the key expected outcomes
- link to the regularly updated news page
- the footer contains the acknowledgement, contact details of the project coordinator and the communication and dissemination leader, as well as links to the project's social media profiles.

The [About page](#) provides users with comprehensive information about HUCAN. It covers the **background** of the sectors involved in the project, highlighting the context that serve as the basis for our research. The page also features an **in-depth presentation of each case study**, details the aims and methodology of the **Stakeholder Consultation Groups (SCG)**, and outlines the **expected outcomes** of the project.

Moving to the [Consortium page](#), like for the temporary webpage, it provides detailed information about all project partners, with a direct link to each organisation's website. Each partner is introduced with a brief description, highlighting their role and contributions to the HUCAN project.

The [News & Events](#) page is regularly updated with the latest announcements, achievements, and event summaries related to the HUCAN project. It serves as a dynamic hub for all project-related news, ensuring stakeholders are kept informed of progress and developments.

The [Resources](#) page (see Figure 7) is one of the most important sections of the website from both a development and user perspective. This page hosts all public materials produced by the project, including graphic materials and public deliverables. Public deliverables are released once approved by reviewers on STELLAR. Utilising a simple tagging system (e.g. "Communication materials" and "Deliverables"), users can easily find and download the materials they are interested in with just one click. This functionality ensures that resources are accessible and organised, enhancing the user experience and promoting the dissemination of project outputs.

HUCAN

Home
Consortium
Approach
News and events



HUCAN
Innovative certification methods
for advanced automation systems in aviation

The HUCAN project Holistic Unified Certification Approach for flow systems based on advanced automation aims to pioneer certification methods for new Air Traffic Management (ATM) systems with a focus on human centred advanced automation and Artificial Intelligence (AI)-powered technologies.

HUCAN approach to certification will be designed, developed and tested through case studies on dynamic airspace use and capacity on demand

HUCAN objectives



OBJECTIVE 1

Landscape of advanced automation within the EU digital strategy for mobility and ATM



OBJECTIVE 2

EU legal and regulatory framework on certification of advanced-automated and autonomous technology in aviation and ATM



OBJECTIVE 3

Holistic approach to approval and certification of automated systems



OBJECTIVE 4

Preliminary guidelines for advanced automation systems design and tools for application

Discover more

TIMELINE

W1
Sep 2023

W2
Oct 2023

W3
Nov 2023

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Nov 2031

W100
Dec 2031

Consortium

HUCAN is a collaborative project involving experts from the aviation industry, regulatory bodies, and research institutions.

Learn more about our Consortium

Latest news & events



HUCAN and CONCERTO:
Leveraging synergies to improve certification methods in aviation

On July 2023, the HUCAN project held an introductory meeting.



HUCAN Workshop brings together key stakeholders to discuss certification challenges of advanced automation and AI in ATM

The HUCAN project held a second introductory meeting.



Fly AI Forum 2024:
Explores AI's aviation impact

The HUCAN project held a third introductory meeting.

See all the news



ACKNOWLEDGEMENT

The project has received funding from the European Union under the Marie Skłodowska Curie Grant agreement No. 101019719.



CONTACTS

Project Coordinator
Project Lead
Communication and Dissemination Manager
Sponsor/Partner



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Figure 6 HUCAN Home page (update September 2024)

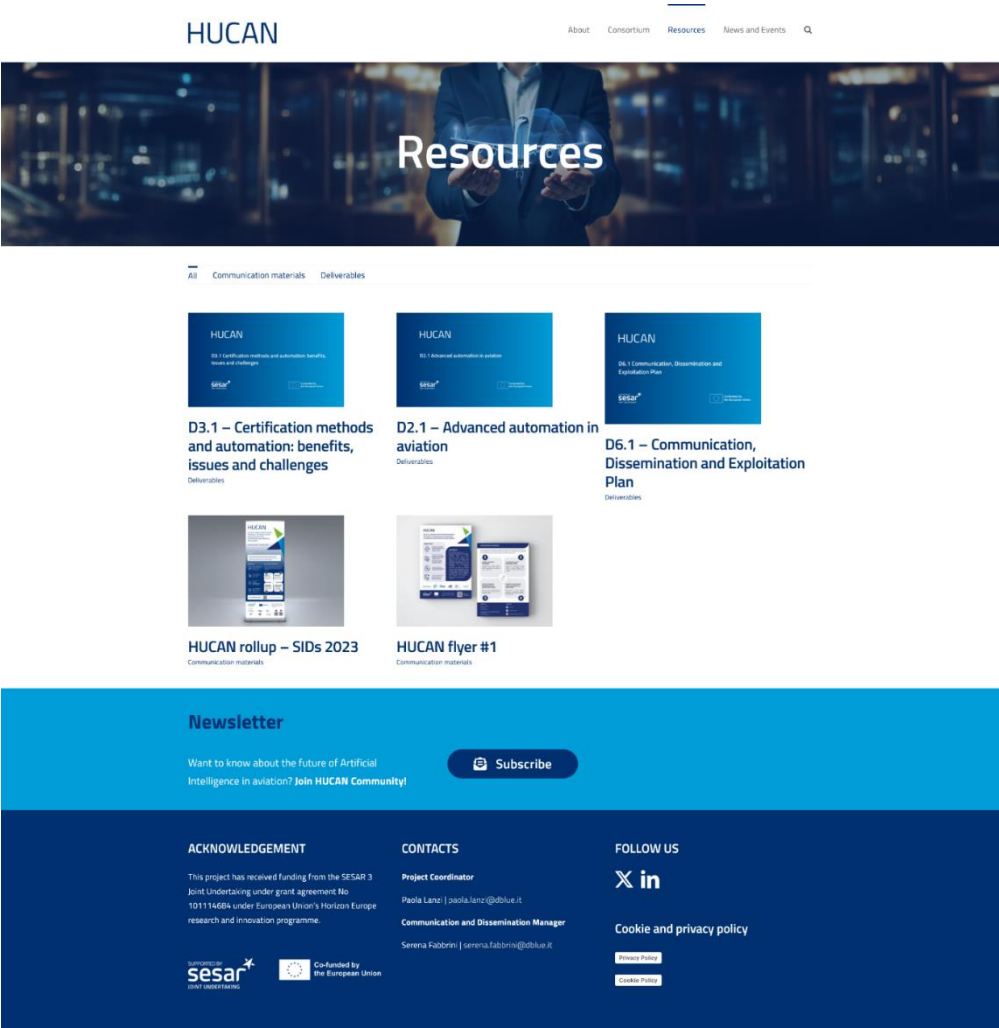


Figure 7 HUCAN website: "Resources" page (update September 2024)

3.4.1.1 Website analytics

The following graphs and data offer a comprehensive overview of the website analytics for the HUCAN project covering the period January 2024-September 2024

Based on the Communication, Dissemination, and Exploitation (CDE) plan submitted in M3, this report adjusts the Key Performance Indicators (KPIs) to reflect the actual performance of the online tools. While the initial plan considered unique visits per month (100), we have now updated the KPI to focus on **total visits**, targeting **over 100 annually**. The **average time per visit** remains unchanged at **1:00 minute per month**. These metrics better reflect the sustained interest and repeat engagement of our audience, providing us with deeper insights into the effectiveness of our outreach and the overall impact of our online presence.

Table 6 - Communication KPIs and success criteria contains all the new KPI and metrics, while Table 17 - Overview of communication and dissemination activities showcase the achievements considering old KPI and metrics.

Visits Overview

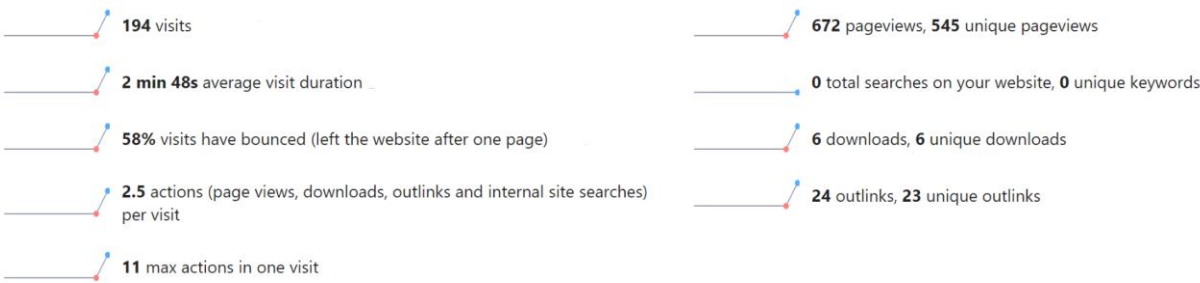


Figure 8 Matomo analytics: overview of the visits

Visits Summary

Visits	194
Actions	477
Maximum actions in one visit	11
Actions per Visit	2.5
Avg. Visit Duration (in seconds)	00:02:48
Bounce Rate	58%
Unique visitors	0

Figure 9 Matomo Analytics: visits summary (2024)

Actions - Main metrics

Pageviews	672
Unique Pageviews	545
Downloads	6
Unique Downloads	6
Outlinks	24
Unique Outlinks	23
Searches	0
Unique Keywords	0

Figure 10 Matomo Analytics: Actions, main metrics (2024)

Considering also the presence of the HUCAN webpage on S3JU website, we need to consider also the following metrics and KPIs achieved since January 2024:

Metrics	Updated data (since January 2024)
Pages views	307
Unique pages views	234
Bounce rate	56%
Average time on page	00:01:05
Exit rate	64%

Table 3 Metrics and data of HUCAN webpage on S3JU website, since January 2024

3.4.2 Press and media, update September 2024

In January 2024, as the dissemination leader, Deep Blue issued a press release in Italian to its contacts in both the general and specialised aviation press, announcing the progress of the HUCAN project. This initiative was carried out in synergy with another S3JU project, ASTAIR. The press action resulted in several noteworthy publications, highlighting the advancements and collaborative efforts of these projects within the aviation sector.

The following table provides an overview of the past contributions achieved.

Media activity	Date	Link
<i>Past contribution</i>		
HUCAN takes off!	23/10/2023	Link
Press release: HUCAN Project takes off: leading the way in AI-enabled ATM certification and automation guidelines	23/10/2023	Link
Taking a holistic approach to AI-enabled ATM certification and automation guidelines	24/10/2023	Link
HUCAN at SESAR Innovation Days 2023	05/12/2023	Link
Press release: INTELLIGENZA ARTIFICIALE E AVIAZIONE: AL VIA NUOVI SVILUPPI EUROPEI	31/01/2024	N/A
INTELLIGENZA ARTIFICIALE E AVIAZIONE: AL VIA NUOVI SVILUPPI EUROPEI	31/01/2024	Link
ASTAIR e HUCAN: i progetti di Deep Blue per portare l'IA nel mondo dell'aviazione	01/02/2024	Link
Intelligenza artificiale e aviazione: con l'azienda italiana Deep Blue al via nuovi sviluppi europei ASTAIR e HUCAN	02/02/2024	Link
Intelligenza artificiale e aviazione: al via nuovi sviluppi europei. Dai nuovi standard di certificazione alle operazioni di terra, questi alcuni degli ambiti di intervento per l'introduzione e il potenziamento dell'utilizzo dell'intelligenza artificiale in aviazione.	03/02/2024	Link
Intelligenza artificiale e aviazione: con l'azienda italiana Deep Blue al via nuovi sviluppi europei ASTAIR e HUCAN	20/03/2024	Link
HUCAN unveils AI-powered ATM advancements at Airspace World 2024	25/03/2024	Link
Fly AI Forum 2024. Explores AI's aviation impact	06/05/2024	Link
HUCAN Workshop brings together key stakeholders to discuss certification challenges of advanced automation and AI in ATM	24/05/2024	Link
HUCAN and CONCERTO: leveraging synergies to improve certification methods in aviation	31/07/2024	Link

Table 4 Contribution to media

During the implementation phase of HUCAN, a strategic approach was adopted to engage with industry-specific journals and media outlets.

Most of the news and updates are regularly published on the HUCAN website, serving as a central hub for information dissemination. However, to amplify our reach and impact, we will also produce and

distribute press releases. These press releases will be key in communicating significant results and milestones achieved by the project.

The planned schedule for these press releases is set for September of each year, to mark the ending of a single year of work, providing a comprehensive account of the progress made and the outcomes realised over the course of the year. Moreover, these press releases will be the occasion to share the upcoming activities.

HUCAN has contributed and will continue to contribute to S3JU publications, ensuring that project-related text and illustrative content are provided as needed. We intend to strengthen this synergy with S3JU publications through the SESAR Solutions Catalogue, results brochures, annual highlights, and SESAR e-news, as we approach a phase of more concrete and shareable results.

3.4.3 Social media, update September 2024: LinkedIn

Social media provides a dynamic and interactive way to engage with diverse audiences, disseminate project information, and facilitate networking opportunities. For the HUCAN project, LinkedIn and X have been chosen for their capabilities and audiences. The strategy for each platform is designed to maximise the impact of the content shared and the engagement with the project.

A major update to our social media strategy concerns the use of X, which has become increasingly difficult to leverage due to the declining audience and the new subscription requirements needed to access the platform's full potential.

The HUCAN project's LinkedIn profile has been actively used as a communication and dissemination platform to engage a broad audience, including industry experts, researchers, and stakeholders in the aviation and ATM sectors. Through regular posts, updates and shared articles, the profile has focused on highlighting key project milestones, such as participation in major events like SESAR Innovation Days and Airspace World, as well as sharing insights into HUCAN's research on AI-enabled ATM systems.

The engagement level has steadily grown, with increasing follower interactions, including likes, comments and shares, particularly around events and key project achievements. The LinkedIn platform has proved effective in fostering connections with relevant stakeholders and increasing the project's visibility in the European aviation sector.

To provide an overview of the work accomplished so far, this brief paragraph presents the LinkedIn analytics. Understanding our audience plays a crucial role in enhancing our use of this platform, offering insights into what is performing well and what requires adjustments and optimisation. The analytics pertain to the entire LinkedIn page and do not focus on individual content unless specified otherwise

1. **Number of posts.** 42 different posts have been published through LinkedIn during these months, from the start of the project to September 2024.
2. **Followers.** The number of followers reached now is 133, with a positive and organic constant growth.

Follower metrics

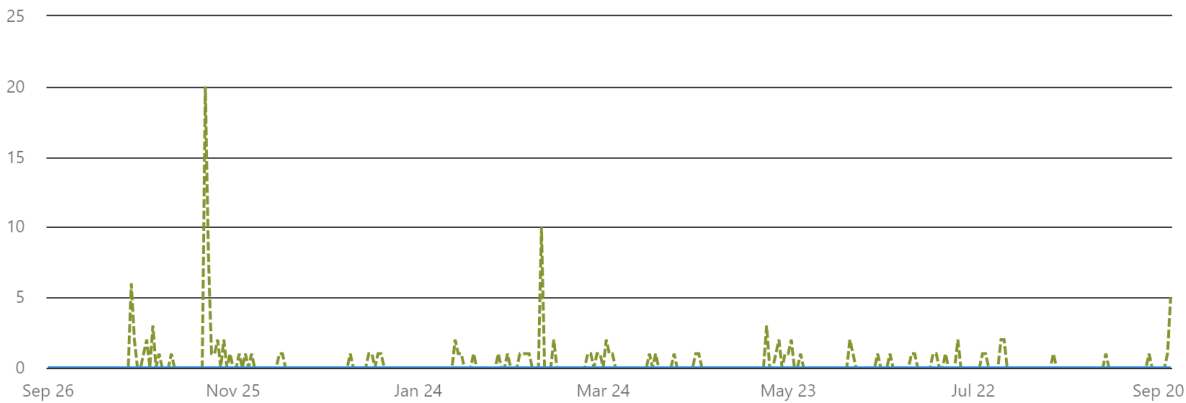


Figure 11 LinkedIn: followers (Sept. 2023-Sept. 2024)

3. **Impressions.** Impressions reflect the number of times a post or content has been displayed in users' feeds, regardless of whether they engage with it. It measures the visibility of your content but doesn't necessarily indicate interaction like clicks, likes, or comments. The more impressions a post has, the more people have seen it, making impressions a useful metric to track a post's reach. From September 2023 to September 2024, the HUCAN project's LinkedIn profile achieved **13,503** impressions, meaning its content was displayed over 13,500 times to users over that year. This data shows the project's growing visibility within the LinkedIn platform, suggesting increased exposure to its target audience, even if engagement metrics like likes or shares are separate considerations.

Metrics

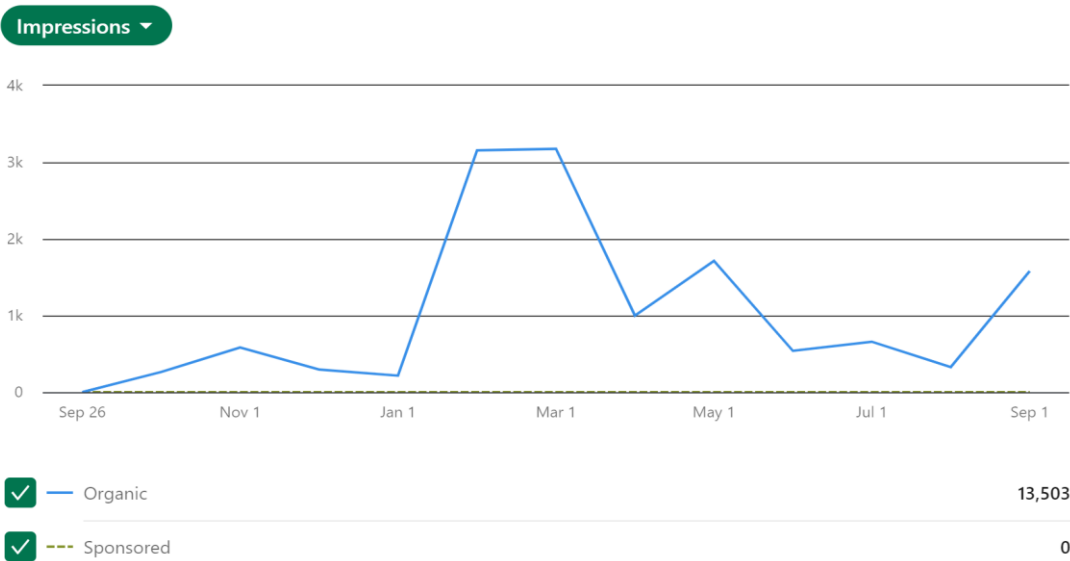


Figure 12 LinkedIn analytics: impressions (Sept. 2023- Sept. 2024)

4. **Engagement rate.** Shows the number of interactions plus the number of clicks and followers acquired, divided by the number of impressions. Currently it is **7.646**. This number is stabilising, since it has been very high in the beginning of the project. It is relevant to say that the single posts, for example when a public deliverable is published, reach up to 50%/100% engagement rate, which means the average grows.

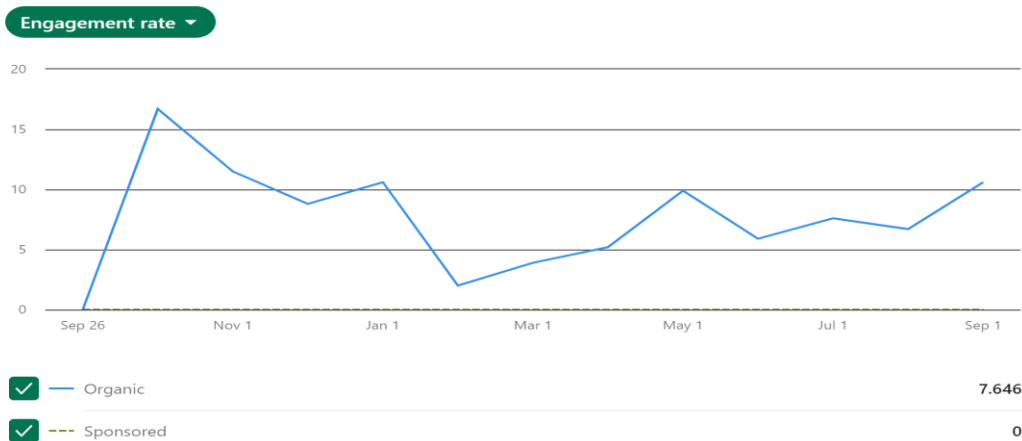


Figure 13 LinkedIn analytics: engagement rate (Sept. 2023- Sept. 2024)

5. **Unique visitors.** From September 2023 to September 2024, the HUCAN project’s LinkedIn profile recorded a total of **184 unique visitors**. This metric reflects the number of individual users who viewed any page on the LinkedIn profile, offering insight into the overall reach of our profile across all pages. Of these visitors, **101 accessed the profile via desktop**, while **83 visited through mobile devices**.

Visitor metrics

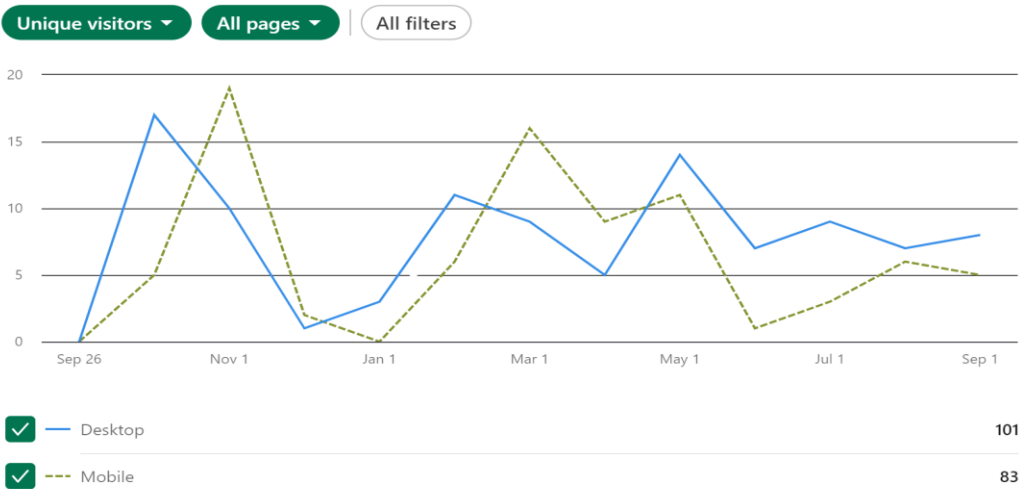


Figure 14 LinkedIn analytics, unique visitors (Sept. 2023 - Sept. 2024)

3.4.4 X. Proposed changes to the social media strategy, close the account

In the continually evolving landscape of social media, maintaining a competitive edge is essential for effective communication and engagement. As part of the HUCAN project's ongoing efforts to optimise its social media strategy, we are proposing an important change: leaving X (formerly Twitter) and moving entirely to LinkedIn.

This decision is based on a thorough assessment of the platform's performance, which has shown to be consistently low in terms of engagement and reach among our target audiences. We believe that our resources and efforts can be better allocated to other social media platforms, which have proven to be more effective in connecting with our key stakeholders.

This strategic decision is also based on a comprehensive data-driven analysis of X's performance and the shifting trends in research and innovation communication. Recent research indicates a declining use of X for European research projects. The Reuters Institute's Digital News Report 2023³ highlights a shift in social media engagement, noting that X's overall engagement levels have dipped. This drop of engagement is likely related to the new leadership and policies of X new owner Elon Musk, who have led to increased concerns about misinformation and a decrease in trust, impacting its usage for professional and research communication. Overall, traffic from X to media properties fell by 27% in 2023.

In addition, and most importantly, **the recent introduction of paid subscriptions for accessing key analytics tools on X has made it increasingly challenging to effectively track and measure the profile's performance.** This limitation further reduces the value of the platform in maintaining a robust and data-driven social media presence for the HUCAN project.

This trend aligns with broader movements in the digital landscape, where researchers and professionals increasingly prefer LinkedIn and other platforms that foster more focused and professional interactions. LinkedIn's growing popularity as a hub for research and innovation makes it a more attractive option for disseminating research findings and engaging with the academic community.

The **Airspace community** is a key target audience for the project, as they are directly impacted by the research findings and outcomes. However, our X engagement with this community has been consistently low. This is reflected in lower follower growth, lower engagement rates (likes, retweets, comments) and minimal traffic to our website from X.

Regarding the **policymakers, academic research and scientific communities**, our X reach among these communities has been limited since the beginning. This is due to factors such as the algorithm, which prioritises content from other users with large followings, and the overall lack of engagement with academic content on X.

Thanks to the analysis defined in the previous paragraph, we have noted that our target audiences are increasingly active on LinkedIn. This platform shift aligns seamlessly with our mission to disseminate advanced research and foster significant connections within our field, since LinkedIn has proven to be

³ <https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2023/dnr-executive-summary>

a much more effective platform for reaching our target audiences, well representing academics, researchers, policymakers, and industry professionals. This makes it an ideal platform for disseminating our research findings and engaging with our key stakeholders.

We propose to close the X account by the end of 2024 and adjust the KPIs according to this new strategy and migrate our social media KPIs to LinkedIn.

Overall, the decision to review the strategy of the project's social media profiles is based on a careful assessment of the platform's performance. We believe that our resources and efforts can be better allocated to LinkedIn and we are confident that we will see a significant increase in engagement and reach on LinkedIn compared to X.

3.4.5 Publications and newsletters

The first HUCAN project newsletter is scheduled for release in late Autumn 2024, marking the one-year anniversary of the project. This inaugural newsletter will serve as a comprehensive update for our stakeholders, structured to include the following sections:

- **Welcome and presentation of the project.** An introductory message that outlines the goals and objectives of ASTAIR, setting the stage for the progress and achievements to be detailed within the newsletter.
- **Project updates.** A summary of the key milestones and developments that have taken place over the past year, highlighting significant achievements and ongoing work.
- **News & Events.** Information on recent and upcoming events, including conferences, workshops, and other relevant activities where the ASTAIR project has been or will be showcased.

The newsletter will be shared on LinkedIn, where we will track views as a key performance indicator.

Future newsletters will be scheduled to coincide with the end of each subsequent 12-month period, providing regular updates on the project's progress. Additionally, special editions of the newsletter will be issued as needed to disseminate important news or to invite stakeholders to specific events and workshops.

3.4.6 Videos

A **one-minute video teaser** was produced in M8 (May 2024) in response to a request from SESAR for a summer social media campaign. The video aims to present HUCAN's research objectives in a clear and engaging way, utilising concise phrases and graphic representations of the key research points. The teaser is designed to provide an immediate understanding of the project's goals and scope. Currently, the video has not yet been shared on HUCAN's online profiles, as we are awaiting SESAR's official release, which is scheduled for mid-October 2024.

From the video release plan outlined in D6.1, a comprehensive final video, which will serve as a capstone to the project's endeavours, providing a narrative that weaves together the challenges faced and the results achieved, will be produced and released towards M26 (October 2025). It will showcase

the journey of the project from inception to completion, highlighting key milestones and the collective efforts of the team. This video will be released by the end of the project.

3.5 Events

Attending and participating in relevant European events is a strategic way to communicate the HUCAN project's progress, network with industry experts, and stay abreast of the latest developments in the field. The table below offers an overview of the achieved participation and the scheduled ones.

Each event offers a unique platform for presenting our findings, engaging with potential collaborators, and enhancing the project's visibility among key industry players.

The following table collects events for both communication and dissemination scopes.

Event	Date	Place	Information to be shared	Importance for the project
Past events				
SESAR Innovation Days	28-30 November 2023	Seville	Project presentation and future research directions	High - Showcasing SESAR R&D activities
Airspace world	18-21 March 2024	Geneva	Comprehensive perspective on the certification and approval processes for AI-enabled ATM systems	High - To demonstrate project aims to ATM professionals and gather feedback
Fly AI Forum 2024	29-30 April 2024	Brussels	Project presentation and future research directions	High - Showcasing SESAR R&D activities
Future events				
SESAR AI flagship workshop	11 November 2024	Rome	Research findings and future research directions	High - Showcasing SESAR R&D activities
SESAR Innovation Days 2024 (and future editions)	12-15 November 2024	Rome	Research findings and future research directions	High - Showcasing SESAR R&D activities
SESAR annual conference 2025 (and future editions)	18 February 2025	Brussels	Research findings and future research directions	High - Showcasing SESAR R&D activities
Airspace world 2025 (and future editions)	13-15 May 2025	Lisboa	Research findings and future research directions	High - To demonstrate project aims to ATMt

				professionals and gather feedback
Aerodays 2025 (and future editions)	7-9 May 2025	Warsaw (PL)	Research findings and future research directions	High - To demonstrate project aims to ATMt professionals and gather feedback

Table 5 Events

3.6 Communication key performance indicators (KPIs) and success criteria

Action	KPIs	Success criteria	Currently achieved	Last update	Annual growth
Web presence	Number of visits	100 unique (per month)	≥ 17 (average per month)	26/09/2024	+194 (total of unique visitors)
	Search engine position (keyword: "HUCAN Project")	More than 1.00 minute	3.00 minute (average time)		+00:02:48 (average visit duration)
	Average time of visit				
Press and media	# of press releases	3	2	26/09/2024	+2
	# articles (online & printed)	3+	12		+12
Social media	# posts published (overall)	100+ posts published (overall)	42 (LinkedIn) + 22 (X)	26/09/2024	+64
	# followers on X and LinkedIn combined	200+ (overall)	133 (LinkedIn) + 48 (X)		+181
Newsletter	# of newsletter disseminated	3	N/A	26/09/2024	N/A
Events	# of networking activities	2	1	26/09/2024	+1
	# Participation in external events	8+	3		+3
Promotional material (brochures, roll-ups etc.)	# copies distributed (aggregated)	1000, 500 mainly digital	206	26/09/2024	+206

Table 6 Communication KPIs and success criteria (update September 2024)

4 Dissemination

4.1 Dissemination objectives and strategy

The dissemination strategy for the HUCAN project is designed to effectively share knowledge and innovations with a diverse range of stakeholders both within the aviation sector and beyond. This approach is based on a thorough understanding of the specific needs and interests of each stakeholder group, ensuring that information is tailored and communicated in a way that addresses their unique requirements. By doing so, the strategy ensures that the project's outcomes are widely broadcast and accessible to the relevant audiences.

The objectives of dissemination strategy include:

- **Informing stakeholders.** Ensuring that all relevant stakeholders are kept informed of the project's progress, findings, and successes.
- **Maximising impact.** Leveraging dissemination activities to maximise the project's impact within the aviation industry and related fields.
- **Encouraging adoption.** Encouraging the adoption of the project's outputs through clear and compelling showcases of their potential and applicability.
- **Enduring dialogue.** Establishing and maintaining a dialogue with the community that fosters an ongoing exchange of ideas and feedback.

The definition of the dissemination strategy started with the **definition of the stakeholders' needs**. The process involved three crucial steps:

- 1 **Stakeholder analysis.** Firstly, we analysed in detail the main clusters of targeted stakeholders, which encompasses policy and decision makers, other S3JU funded projects, the research community and industrial stakeholders. This analysis has been instrumental in adapting the dissemination content to the stakeholders' unique characteristics and expectations
- 2 **Content definition.** Then, we defined the content to be disseminated. Initial stages emphasise promoting the project through general informational channels, such as the website and informational posters. As the project advances, the focus shifts to the dissemination of technical findings through specialised means, including scientific publications and presentations at conferences and seminars.
- 3 **Strategic matching.** The HUCAN project employs a strategic matching process that aligns the stakeholders' profile and informational needs with the customised content prepared for dissemination. This ensures the utilisation of appropriate means and styles of communication to achieve impactful engagement with the intended audiences.

The outcomes anticipated from these dissemination activities are multifaceted. They are expected to foster a broader understanding of the HUCAN project's goals and progress, facilitate the adoption of its outputs and stimulate industry-wide dialogue that can lead to actionable changes in the ATM domain.

4.2 Dissemination target audiences

The target audiences for dissemination are aligned with those identified for communication.

Target	Channel	Benefits from the project	Expected feedback
Policy and decision makers	Policy briefings, roundtable discussions, official reports	Information to shape future policies and standards in aviation	Guidance on regulatory implications, recommendations for legislative considerations
HUCAN Stakeholder Group members	Dedicated meetings, newsletters, direct engagement	Direct involvement in project evolution, early access to findings and technologies	Constructive feedback on project outputs, user experience, adoption barriers
ANSPs	Professional forums, targeted emails, webinars	Innovative solutions to enhance airspace management and operations	Operational feedback, user acceptance, implementation challenges
Research Community	Academic journals, symposia and workshops, networking platforms and events	Contribution to the body of knowledge in AI and automation within ATM	Academics evaluate, suggestions for further research, potential collaboration
Industrial Stakeholders	Industry conferences, workshops, direct communication	Access to advanced certification methodologies and integration of AI in ATM systems.	Insights on practical application, interest in adoption, technical feedback

Table 7 Dissemination target audiences

4.3 Dissemination channels and means

Channel	Objectives	Tools	Information to be shared
Journals	Disseminate project results to a specialised audience	Scientific publications, technical publications	Project approach, methodologies and results
Conferences and Events	Disseminate project results to a specialised audience, promote discussion, gather feedback, networking	Posters, oral presentations, roll-ups, infographics, videos, pictures.	Project results
Website	Disseminate project results to a specialised audience	Videos, presentations, scientific publications, PU deliverables,	Project results

		infographics, videos, pictures	
Social networks	Disseminate project results to a specialised audience	Videos, presentations, scientific publications, PU deliverables, infographic, videos, pictures.	Project results

Table 8 Dissemination channels

4.4 HUCAN Stakeholder Consultation Group (SCG)

The HUCAN project considers stakeholder involvement as a crucial aspect of its strategic plan. The project identifies target audiences from the outset, devises key messages, and employs tailored communication channels and materials to ensure maximum efficacy in engaging each group. Acknowledging the significance of such engagement, stakeholders are incorporated throughout all stages of implementation and evaluation. Effective integration is crucial for promoting long-term adoption and acceptance of the project's solutions, and for facilitating their successful exploitation.

HUCAN utilises its partners' extensive networks to ensure that information about the project life cycle is effectively transmitted to relevant stakeholders. This approach enables the collection of valuable feedback, raises awareness, and encourages active involvement in project activities. The HUCAN consortium is set to interact primarily with three communities:

Community	Description
Targeted users of project outputs	This includes industrial stakeholders, manufacturers, and regulatory authorities, all of whom are essential in understanding operational concerns related to advanced automation and in shaping realistic expectations around certification processes
SESAR's Exploratory Research projects	The R&D community working within these projects will provide a critical perspective on the project's innovation and research trajectory.
Scientific community	Researchers engaged in the domain of advanced automation for ATM will contribute to the scientific rigour and validation of the project's findings

Table 9 The HUCAN consortium is set to interact primarily with three communities

The Stakeholder Consultation Group (SCG) serves as the nexus for stakeholder engagement. This group has been and will be involved in direct and ongoing dialogues to discuss the project's outputs and their practical applications. Collaboration with the SCG is the cornerstone of stakeholder engagement, ensuring that all parties contribute to a comprehensive understanding of the project's impact and are aligned with the project's goals. This collaborative approach is designed not only to inform but also to listen and adapt, ensuring that the HUCAN project remains responsive to the needs and insights of its stakeholders.

The Consortium has strategically decided, in accordance and with the help of HUCAN Programme manager, to **integrate select SJU projects into the SCG**, particularly those aligned with the SESAR flagship of *Capacity-on-demand and dynamic airspace, Artificial Intelligence for aviation and Civil-military interoperability and coordination*. **These projects were chosen based on their demonstrated interest in connecting with the HUCAN project**, either due to their existing focus on certification challenges or the recognition of certification's importance within their scope.

An important aspect of these S3JU projects is their **varied levels of maturity**, a factor that is of relevance to the HUCAN initiative. This diversity in developmental stages among the projects within the SCG is crucial as it offers a broader perspective and deeper insights into the challenges and opportunities within the domain of ATM automation and AI integration. The involvement of these projects is not just passive; they actively complement the use cases analysed in the HUCAN project. By bringing specific issues, unique perspectives and challenges to the table, they enrich the project's research and development process. Their contributions are expected to fuel reflection, provide distinct issues for consideration and enhance the depth and applicability of the project's work.

Moreover, these projects will play a central role in **testing the validity and scalability of the HUCAN project's outputs, particularly the developed methods and guidelines**. This testing will not only provide practical feedback on the applicability of these results but also serve as a test for their effectiveness in diverse operational contexts.

The table below shows the S3JU projects that at M12 agreed to be part of the SCG and that were involved in the first SCG workshop.

Project acronym	Project name	Flagship	Project type
SMARTS	Smart sectors	Capacity on demand and dynamic airspace	ER (Applications-oriented)
HARMONIC	Harmonised network through smart technology and Collaboration	Civil military interoperability and coordination	IR
ISLAND	Intelligent suite for local and network demand and capacity balance	Capacity on demand and dynamic airspace	IR
FASTNet	Future Data Services and Applications for airports and Network	Capacity on demand and dynamic airspace	Fast track
KAIROS	Unlocking the potential of AI-based Weather forecasts for Operational Benefits	Capacity on demand and dynamic airspace	Fast track
MITRANO	Mission Trajectory in ATC and Network Management Operations	Civil-military interoperability and coordination	IR

ASTRA	AI-enabled tactical FMP hotspot prediction and resolution	Artificial intelligence for aviation	ER
Other eligible projects which may be included in HUCAN SCG			
TINDAIR	Tactical Instrumental Deconfliction And in flight Resolution	N/A (Project completed)	Large scale demonstrations
PJ34-W3 AURA	PJ34-W3 AURA - ATM U-Space Interface	N/A (Project completed)	IR
CORUS-XUAM	Concept of Operations for European U-space Services - Extension for Urban Air Mobility	N/A (Project completed)	Large scale demonstrations
Metropolis 2	A unified approach to airspace design and separation management for U-space	N/A (Project completed)	ER
DACUS	Demand and Capacity Optimisation in U-space	N/A (Project completed)	ER
TAPAS	Towards an Automated and exPlainable ATM System	N/A (Project completed)	ER
MAHALO	Modern ATM via Human/Automation Learning Optimisation	N/A (Project completed)	ER
COTTON	Capacity optimisation in trajectory-based operations	N/A (Project completed)	ER
ADAPT	Advanced prediction models for flexible trajectory-based operations	N/A (Project completed)	ER

Table 10 List of SESAR projects involved in HUCAN SCG (update September 2024)

The SCG's strategy for engaging key sector actors in validating HUCAN's research results involves:

- 1 **Continuous dialogue.** Maintaining open lines of communication with stakeholders through the SCG, ensuring their perspectives are considered throughout the project's lifecycle.
- 2 **Collaborative review.** Engaging stakeholders in collaborative review sessions where research findings and project outputs are presented and critically evaluated.
- 3 **Validation workshops.** Conducting dedicated workshops where stakeholders can test and validate the research outcomes, providing practical feedback on their applicability.
- 4 **Integration feedback.** Taking the insights from these validation activities and integrating them back into the project to refine and enhance the research outcomes.

During the HUCAN project, a series of **dedicated meetings** will be organised, considering also the topics of other HUCAN workshops, to maximise the benefits of the outcomes. These meetings aim specifically to gather valuable feedback and inputs from the projects participating in the SCG. These meetings are designed to facilitate a fruitful exchange of ideas and experiences, providing an essential platform for

the SCG members to voice their insights, concerns, and suggestions. The feedback collected from these interactions will be instrumental in refining the HUCAN project's methodologies and outputs, ensuring they are aligned with real-world needs and effectively address the challenges faced by the ATM community.

The HUCAN project plans to organise a **series of workshops** in conjunction with the SCG, which aim to be an important aspect of stakeholder engagement. The workshops will act as interactive platforms that enable stakeholders to engage directly with the project's progress, offering them an immersive chance to comprehend, evaluate, and endorse the research findings. The workshops have been designed to provide an all-inclusive depiction of the project's integration into the wider ATM framework, as well as a practical encounter with the project's outputs.

Their aim is twofold: firstly, to facilitate transparent communication about the HUCAN project's advancements; secondly, to offer a forum for gathering priceless feedback that will direct prospective research and development. These meetings aim to facilitate a participatory setting in which stakeholders can express their requirements and expectations, guaranteeing that the project stays in line with the actual needs of the ATM sector.

4.4.1 Workshops within SCG: Workshop #1, May 2024 (Rome)

Meeting	First Stakeholder Workshop
Type of meeting	Workshop
Date and Time (CET)	14 May 24 1:00 PM- 15 May 24 1:00 PM
Event location	Rome
Attendees	PL Lanzi, Paola ES Spiller, Elisa SF Fabbrini, Serena TV Vendruscolo, Tommaso FB BRAMBATI, François ML Laviola, Marilea RL Lacatus, Remus Acanfore, Adriano Uygur, Oznur AJ Jardines, Aniel Puntero Parla, Eva JG Garcia Lopez, Juan Francisco JK Kopec, Jacek EF Fornaciari, Edoardo DP Pascarella, Domenico GC Contissa, Giuseppe MJ Jameel, Mohsan ME Everdij, Mariken
Meeting agenda	-
Meeting documents	SESAR HUCAN WS presentation.. SESAR Template. DAC-DCB SMARTS_HUCAN workshop_May 2024 MITRANO_HUCAN workshop_May 2024 KAIROS_HUCAN workshop_May 2024 ISLAND_HUCAN workshop_May 2024_project presentation HARMONIC_HUCAN workshop_May 2024 FASTNet Project_HUCAN workshop_May 2024 Engage 2_Capacity on demand and dynamic airspace HUCAN_1st Stakeholder Workshop SCG workshop_May2004_agenda

Figure 15 First stakeholder workshop, activity on STELLAR

On the 14th and 15th May 2024, HUCAN held its first SCG workshop in Rome. The workshop was also an opportunity to hold the **first in-person meeting of the *Capacity on demand and dynamic airspace* flagship**, where S3JU representatives presented the state-of-the-art and future plans for sharing the new Masterplan.

The objective of the workshop was to share and discuss the initial findings from the first few months of the HUCAN project. The Consortium pinpointed key technical and regulatory obstacles currently impacting the certification of advanced automated systems in aviation. Through open discussion and interactive sessions, participants had the opportunity to evaluate the comprehensiveness and coherence of the preliminary research through a collaborative approach.

This workshop served as a platform to delve into the solutions being implemented by each participating project, their respective Technology Readiness Levels (TRLs) and the integration of

advanced automated solutions, including AI. This exploration is closely aligned with the levels of interaction with AI as outlined in the EASA AI Roadmap.

The table below shows the participants list.

Name	Surname	Organisation	Project represented	Attendance
Paola	Lanzi	Deep Blue	HUCAN	Day 1 and 2
Elisa	Spiller	Deep Blue	HUCAN	Day 1 and 2
Serena	Fabbrini	Deep Blue	HUCAN	Day 1 and 2
Mariken	Everdij	NLR	HUCAN	Day 1 and 2
Edoardo	Fornaciari	d-flight	HUCAN	Day 1 and 2
Giuseppe	Contissa	EUI	HUCAN	Day 1
Marco	Sanchi	EUI	HUCAN	Day 1 and 2
Domenico	Pascarella	CIRA	HUCAN	Day 1 and 2
Mohsan	Jameel	DLR	HUCAN	Day 1 and 2
Tommaso	Vendruscolo	Deep Blue	ASTRA	Day 1
Francois	Brambati	Deep Blue	ASTRA	Day 2
Mariela	Laviola	Deep Blue	Engage 2	Day 1
Remus	Lacatus	Eurocontrol	MITRANO	Day 1 and 2
Jacek	Kopec	Eurocontrol	HARMONIC, ISLAND	Day 1 and 2
Aniel	Jardines	Applied Innovative Methods	KAIROS	Day 1 and 2
Eva María	Puntero Parla	CRIDA A.I.E	SMARTS	Day 1 and 2
Juan Francisco	García López	INDRA	FASTNET	Day 1 and 2
Oznur	Uygur	SESAR	SESAR	Day 1 and 2
Adriano	Acanfora	SESAR	SESAR	Day 1 and 2

Table 11 SCG workshop #1, participants list

After the welcoming, the presentation of HUCAN and the goals of the workshop, the Flagship meeting began, an activity coordinated by SESAR and the HUCAN Programme manager.

In the first session of the workshop itself, each representative had the chance to present its project, following a template provided by HUCAN and sent via email a few weeks before. The template covered key inquiries including the solutions implemented by each project, its TRL, the integration of Advance Automated or AI- based solutions and any other pertinent details deemed relevant to the discussion.

This activity resulted in an initial analysis of the proposed use cases, following a holistic approach structured around two perspectives. On the one hand, it applied the levels of automation proposed by

EASA and SESAR to analyse human-machine interaction across different automated functions. On the other hand, it examined the ethical and legal implications and expectations associated with achieving higher levels of automation. This approach made it possible to introduce the basics of a holistic design and certification process, while testing the reactions and concerns of the participants regarding the specificities of their solutions.

On the second day, starting from the outcome of day 1, participants discussed their certification issues associated with levels of interaction with AI according to EASA's AI Roadmap. Aim of the new activity was the identification of possible challenges of the certification.

Proposed new Levels of Automation Taxonomy and correspondence to EASA AI Levels

	Definition	PERCEPTION Information Acquisition & Exchange	ANALYSIS Information Analysis	DECISION Decision and Action Selection	EXECUTION Action Implementation	Authority of the Human Operator
1A LEVEL 0 LOW AUTOMATION	Automation gathers and exchanges data. It analyses and prepares all available information for the human operator. The human operator takes all decisions and implements them (with or without execution support).					
1B LEVEL 1 DECISION SUPPORT	Automation supports the human operator in action selection by providing a solution space and/or multiple options. The human operator implements the actions (with or without execution support).					
2A LEVEL 2 RESOLUTION SUPPORT	Automation proposes the optimal solution in the solution space. The human operator validates the optimal solution or comes up with a different solution. Automation implements the actions when due and if safe. Automation acts under human direction.					
2B LEVEL 3 CONDITIONAL AUTOMATION	Automation selects the optimal solution and implements the respective actions when due and if safe. The human operator supervises automation and overrides or improves the decisions that are not deemed appropriate. Automation acts under human supervision.					
3A LEVEL 4 CONFINED AUTOMATION	Automation takes all decisions and implements all actions silently within the confines of a predefined scope. Automation requests the human operator to supervise its operation if outside the predefined scope. Any human intervention results in a reversion to LEVEL 3. Automation acts under human safeguarding.					
3B LEVEL 5 FULL AUTOMATION	There is no human operator. Automation acts without human supervision or safeguarding.					

HUCAN
HUCAN
First stakeholder workshop
Rome, 14-15 May 2024

Source: European ATM MP Stakeholder
consultation workshop pre-read
material (SESAR 3 JU, April 2024)

Figure 16 Proposed new Levels of Automation Taxonomy and correspondence to EASA AI Levels, tool for exercise #1 during Day 2

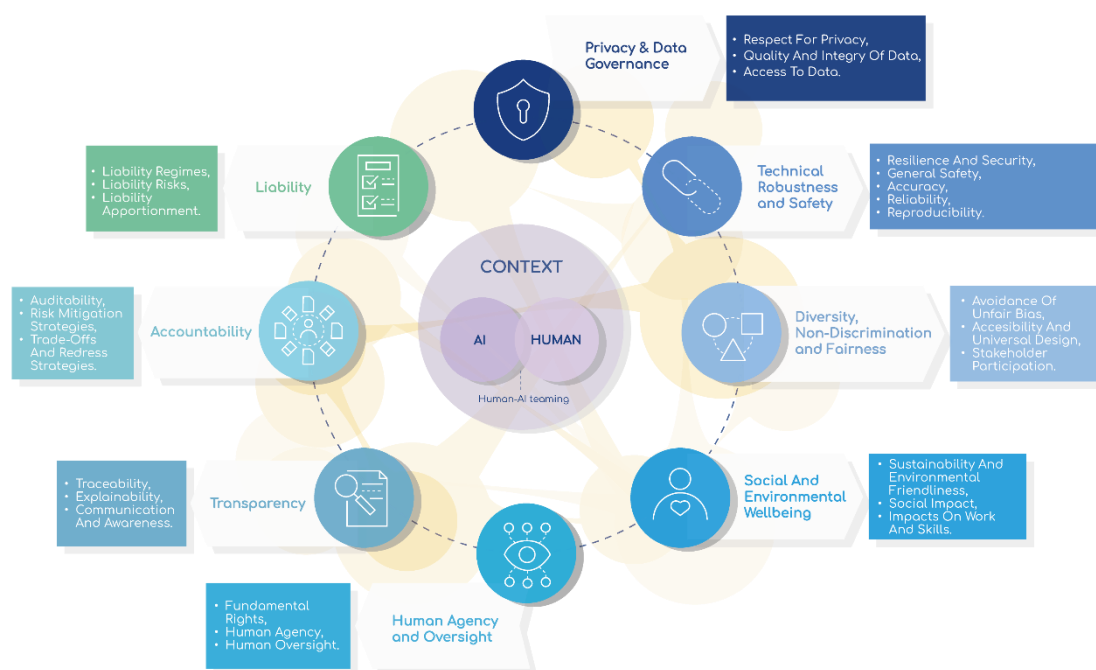


Figure 17 Ethics: toward a common holistic approach. Map used during Day 2

4.5 Events

The list of the events to which the HUCAN project participated in is available in Chapter 3.5.

To date, the consortium has submitted a paper for the next edition of SIDs to be held in Rome from the 12th to the 15th of November 2024.

4.6 Synergies with other SESAR initiatives and projects

4.6.1 CONCERTO

On the 25th of July 2024, the HUCAN project held an initial meeting with the [CONCERTO](#) project, an initiative funded by the Clean Aviation Joint Undertaking. This meeting served as an opportunity for both projects to explore their respective approaches to innovative certification methods, with a focus on identifying potential synergies and areas for collaboration.

Both HUCAN and CONCERTO are conducting research on certification processes, addressing the emerging safety and accountability requirements driven by advanced automation and disruptive technologies in aviation. By fostering collaboration, the two projects aim to leverage their combined expertise and resources to develop cohesive strategies for communicating their achievements and methodologies.

This meeting represented an important step towards fostering an open and collaborative research environment, emphasising the significance of cross-project cooperation. Through the alignment of their efforts, HUCAN and CONCERTO can accelerate progress in developing cutting-edge certification solutions, ultimately enhancing the efficiency and sustainability of aviation.

4.6.2 AMPLE3

On the 4th of September, HUCAN and [AMPLE3](#) – a S3JU transversal project that focuses on integration and reuse of different SESAR solutions within the overall framework of the programme, had an internal meeting to identify possible exploitation of HUCAN solutions within the SESAR programme.

4.6.3 AI Flagship workshop: September and November 2024

The HUCAN project has been invited to participate in the **upcoming Artificial Intelligence for Aviation Flagship Workshop**, which will take place in two separate sessions. The first session will be held online, followed by an in-person. The workshop is organised by S3JU in collaboration with the Engage 2 project.

The initial online workshop (September 2024) is aimed at fostering collaboration and creating synergies among S3JU projects utilising AI technologies to advance ATM. It will provide a platform for addressing common challenges, sharing best practices, and discussing the latest AI developments in ATM.

The insights and outcomes from this virtual session will lay the groundwork for the face-to-face, which is scheduled to take place on November 11th in Rome, just ahead of the start of SESAR Innovation Days 2024. This in-person meeting will build on the online discussions and serve as a critical opportunity for SESAR stakeholders to align their AI strategies and further strengthen cross-project collaboration.

4.7 HUCAN glossary, upcoming in November 2024

The HUCAN project is in the process of developing a comprehensive glossary, which will be formally presented at the SESAR Innovation Days (SIDs) 2024 in Rome. This glossary compiles key terms and definitions identified by the consortium and documented in D3.2 - *Innovative approaches to approval and certification*. Its primary aim is to provide decision-makers, like SESAR, with a valuable tool for navigating the complex terminologies associated with advanced automation and AI in the aviation sector: a ready-to-use document for practitioners involved in certification of AI and AA solutions.

It will be organised into operational categories:

- Automation
- AI: concepts and approaches
- Models, Learning and Data
- Actors and roles
- AI Regulation and certification
- AI Ethics and Privacy

The glossary will serve as an essential resource for those involved in shaping new guidelines that the aviation industry must follow. These guidelines will ensure that safety and ethical standards are

maintained as AI and automation technologies are integrated into existing aviation systems and processes.

By standardising definitions and terminology, the glossary will support stakeholders in aligning their efforts with emerging safety and regulatory frameworks, contributing to the long-term success and safety of innovations within the sector.

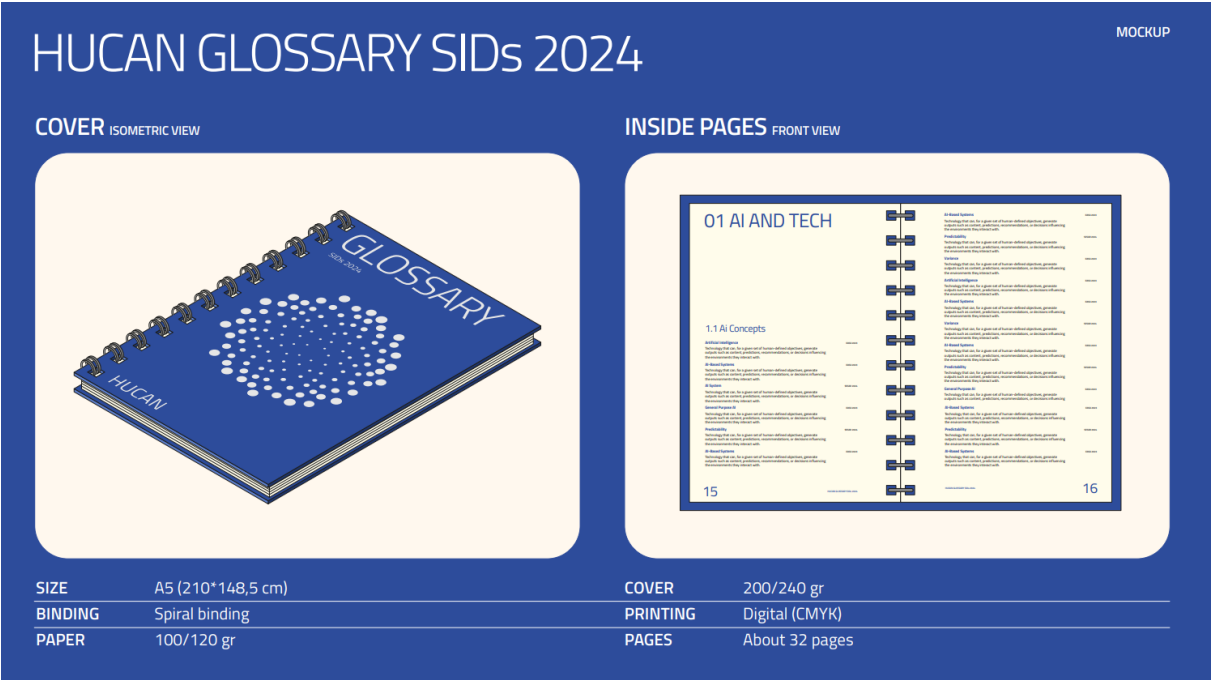


Figure 18 HUCAN glossary, mock-up

4.8 Open access to scientific publications

In alignment with the principles of Open Science, HUCAN is committed to publishing its research findings in a manner that facilitates easy and free access to all. The project unites partners from academia, industry, and end-users to ensure a wide array of research outcomes, enriching the diversity and applicability of its scientific contributions.

Collaborative efforts within HUCAN encompass the entire research cycle—from discovery and review to assessment and sharing—ensuring a comprehensive approach to Open Science. By disseminating findings through open access journals and platforms, HUCAN anticipates a significant increase in research visibility. Open access publishing is known to boost citation rates and broaden the dissemination of research, leading to a higher impact.

To maximise the reach and accessibility of its scientific publications, the HUCAN project ensures that research outcomes are available without financial barriers. All scholarly articles produced by the project will be uploaded to either general or discipline-specific repositories trusted within the respective research fields, concurrent with or prior to the publication date. This is coupled with careful adherence to copyright conditions, ensuring that publications are available under licences such as CC-BY that permit commercial usage.

In Table 12, some examples of relevant scientific journals that could be targeted by HUCAN are given.

Scientific papers/ presentations	Link	Information to be shared
Aerospace	Link	HUCAN achievements and results
Journal of Aerospace Operations	Link	HUCAN achievements and results
Journal of Air Transport Management	Link	HUCAN achievements and results
Transport Policy	Link	HUCAN achievements and results
Artificial Intelligence	Link	HUCAN achievements and results

Table 12 Scientific papers, publications and presentations

4.9 Dissemination KPIs and success criteria

The KPIs available in this table must be integrated with the ones inserted in Table 6 - Communication KPIs and success criteria (update September 2024)

Action	KPIs	Success criteria	Currently achieved	Last update	Annual growth
Academic Publications	# articles in international peer-reviewed scientific journals	5	N/A	16/09/2024	N/A
Events	# participation in external events and seminars	5+	4	16/09/2024	+4
	# meetings organised with the Stakeholders Group	2	1		+1

Table 13 Dissemination KPIs and success criteria

5 Exploitation

The HUCAN project is dedicated to maximising the impact of its findings and ensuring successful post-project exploitation. To achieve this goal, it is imperative to perform a thorough evaluation. Such an evaluation should encompass various factors, for instance, assessing stakeholders' interests in HUCAN outputs, the operational applicability of the project's findings, the usefulness of the proposed analyses, methods, guidelines, and toolkits for ATM stakeholders, and the feasibility of sustaining initiatives beyond the project's conclusion.

Based on a solid foundation established by current literature reviews and cutting-edge assessments, early proactive actions have been taken in the research design. The key focus centres on how the HUCAN results can be immediately applied by ATM stakeholders and identifying post-project activities that are feasible for sustained use. To tackle these challenges, the consortium has taken a diversified approach that aligns with the features of the two key tools developed in HUCAN:

1. **Certification method.** A comprehensive approach that ensures systematic accreditation over time.
2. **Guidelines for advanced automation systems design and toolkit for guidelines application.** Easily accessible and proactive guidelines that complement the certification method.

The project is well positioned to further extend regulatory insights obtained from HUCAN in the medium term. These strategies have been specifically developed to align with the current landscape of innovation and predict future tendencies that will attract the attention of ATM stakeholders towards the outcomes of HUCAN.

To ensure the optimal utilisation of the project's findings, the consortium has enlisted pertinent stakeholders, encompassing project members and participants in the SCG. Consequently, they will serve as the key channels for the first application of the outcomes. Furthermore, the consortium is planning to investigate how the deliverables (certification methods, design guidelines, and toolkit) can be extended to other research domains.

5.1 Project exploitable results

The following list presents the project results that the HUCAN Consortium has identified as worth being exploited during the project and after its completion.

The definition of key exploitable results provided in the below is preliminary: this list will depend heavily on what HUCAN will achieve; therefore, it will change throughout the duration of the project to reflect additional or different achievements and lessons learned. An update to this list, together with the period when each result is expected to be available to the S3JU, and after the approval, for the exploitation, will be provided in the Final CDE report due at M29.

KER	IPR	Main users	Other users
Certification methods	Open	Regulatory Authorities Research Networks (different from aviation and ATM)	Industrial stakeholders; Producers and manufacturers; ANSPs
Design guidelines and toolkit	Open	Industrial stakeholders; Producers and manufacturers; ANSPs	Research Networks (different from aviation and ATM)

Table 14 HUCAN preliminary KER (Key Exploitable Results)

5.2 Exploitation strategy and objectives

Specific actions for exploitation include:

Exploitation strategy. These guidelines – drafted at M3 and reviewed accordingly during the lifetime of HUCAN - will serve as a definitive guide for market exploitation, outlining the full strategy, market analysis, and key actions for partners to continue beyond the project’s lifespan.

Joint exploitation agreement. Integrating with the Consortium Agreement, this will delineate commercial pathways for the exploitation of project outputs, offering commercial opportunities for all parties involved.

The exploitation activities are structured into three phases, forming an “Exploitation Path”:

1. **Initial phase (M1-M6).** This involves mapping project outputs and conducting a preliminary market analysis.
2. **Mid phase (M6-M18).** In this phase, a deeper market analysis is undertaken, an initial exploitation plan is drafted, and the plan is validated with stakeholders.
3. **Final phase (M18-36).** The project will finalise exploitable outputs, perform ROI analysis, and solidify the exploitation agreement.

By instituting this strategic framework, the HUCAN project ensures a systematic approach to exploitation, aiming for the project’s outputs to have a lasting impact and practical application within and potentially beyond the ATM sector.

HUCAN partners have developed preliminary Individual Exploitation Plans which will ensure full impact for the project and are outlined below grouped depending on the partner category. These Individual Exploitation Plans are still valid, see Table 16.

5.3 Exploitation of results

The following table collects the Key Exploitable Results (KER) identified in D6.1. These KER are still valid.

Table 15 HUCAN Exploitation grid

Partner	KER	Exploitation potential	Level of interest in the exploitation	Role	Exploitation strategy	Target sector	Target users
DBL	New approach for approval and certification of newly proposed operations based on advanced automation	Currently there are no approved methodologies available for the certification of new innovative air transport systems such as advanced automation, AI-based systems. The new approach developed in HUCAN aims to fill that gap.	High	Owner	Publications, involvement in new research projects, recommendations to EU and EASA	ATM in Europe	Authorities, Aviation sector
	Preliminary guidelines for advanced automation systems design and toolkit for guidelines application	The guidelines will have the purpose to support the design of certification-proof technologies. To this end they have a high exploitation potential.	High	Owner	Publications, involvement in new research projects, recommendations to EU and EASA	ATM in Europe	
NLR	New approach for approval and certification of newly proposed operations based on advanced automation	Currently there are no approved methodologies available for the certification of new innovative air transport systems such as advanced automation, AI-based systems. The new approach developed in HUCAN aims to fill that gap.	High	Owner	Publications, involvement in new research projects, recommendations to EU	ATM in Europe	Authorities, Aviation sector

EUI	Methodological approach for certification of AI-powered aviation systems	Legal Compliance and Certification: The methodology likely involves a systematic approach to ensuring AI-powered aviation systems comply with legal regulations and standards. This can be exploited by aviation companies to streamline their certification processes, ensuring that their technologies meet legal requirements effectively. Risk Mitigation: The methodology might provide techniques to identify potential legal risks associated with AI-powered aviation systems. Understanding and mitigating these risks is crucial for the safe deployment of advanced technologies in aviation. Companies could use this knowledge to proactively address legal challenges. Regulatory Engagement: The methodology may offer insights into engaging with regulatory authorities. Understanding how	High	Owner	Consultancy, publications, involvement in new research projects, recommendations to EU	ATM and other automated transportation management (trains, cars etc.) in Europe	Academia, policy-makers
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		to navigate legal frameworks and work collaboratively with regulatory agencies is essential for gaining approval for AI-powered aviation systems. This information can be exploited to facilitate smoother interactions with regulatory bodies.					
DLR	New approach for approval and certification of newly proposed operations based on advanced automation.	Currently there are no approved methodologies available for the certification of highly automated and AI-based systems in the area of air traffic management. The holistic approach developed in HUCAN fills the gap	High	Owner	Consultancy, Publications, Involvement in new research projects, Recommendations to EU, Standard setting, Internal adoption	Air Traffic Management, Aviation, Transport, Energy and Space	Industry, Academia, SMEs, Policy-makers, Authorities
CIRA	Case studies introduction : level of automation analysis and certification issues (D4.1) Preliminary guidelines for advanced automation systems design and toolkit for guidelines application (D5.2)	The exploitation potential is related to refinement of the toolkit, the actual consolidation and application of the guidelines in real ATM systems and to a broader set of use cases	High	Owner	Consultancy, Publications and participations to other research projects, recommendations to civil aviation authorities, to industries	Aviation and Space	Industry, SMEs, Policy-makers, Authorities
D-FLIGHT	New approach for approval and	There are currently no approved methodologies available for the	High	Owner	Publications, involvement in new research	ATM and UTM	ATM and UTM solution provider

certification of newly proposed operations based on advanced automation.	certification of new innovative Air Traffic Management (ATM) and Unmanned Traffic Management (UTM) systems as automation and AI-based systems. The new approach developed within HUCAN aims to fill this gap.	projects, recommendations to EU	s, Authorities
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5.4 Data protection strategy

HUCAN Data Management Plan (D1.1) details the handling of generated or re-used data. It governs the data management practices, sharing protocols, and preservation methods, assuring that the integrity of the research is upheld even as it is opened to the world. The DMP and the related policies are compliant with the EU legislation on the protection of personal data.

More information on HUCAN data protection strategy will be presented in the following releases of the CDE Plan.

5.5 IPR management

The Intellectual Property Rights (IPR) management within the HUCAN project is structured to achieve several key objectives, central to fostering a productive collaboration environment and safeguarding the interests of all partners involved. The overarching goals are to:

1. **Encourage effective partnership.** Stimulate collaborative effort among partners during the project's lifespan.
2. **Motivate contributions.** Incentivise input from all partners, regardless of their specific project responsibilities.
3. **Protect commercial interests.** Safeguard the commercial interests of the partners, ensuring that intellectual property is well managed and secure.
4. **Facilitate exploitation.** Provide a clear path for further research developments and commercial exploitation of project outcomes.

The management of knowledge and IPR is defined within the Grant Agreement (GA), the rules for participation, and the Consortium Agreement (CA) between the HUCAN partners. Specific activities within work packages are designated for handling these aspects, with a dual focus of proactively ensuring the protection of IPRs for new systems and solutions.

The Exploitation Leader will oversee the implementation of these IPR principles and the preparation for exploitation, providing regular and on-demand reports to the coordinator. Knowledge management specifics will be further delineated in the CA to preclude inconsistencies with IPR issues defined by the partners.

Key elements of the IPR management strategy will include:

1. **Secure intellectual property.** Ensuring intellectual property developed within the project is protected in the interest of all partners.
2. **Commercial exploitation rights.** Granting all partners joint non-exclusive rights to commercially exploit the IP produced in the project.
3. **Use of pre-existing IPR.** Allowing partners cost-free licences to utilise each other's pre-existing IPR for project purposes while the project is in operation.

The approach to IPR and knowledge management will be thoroughly detailed and regulated in the CA, which will be aligned with the GA's terms. The CA will also catalogue each partner's background that may be utilised to achieve project objectives. Ownership of foreground IP will reside with the generating party, who will also bear the primary responsibility for protecting and managing these results.

6 Overview of communication and dissemination activities

Activity	Channel/Tool	Objective	Target audience	KPIs	Success criteria - update September 2024)	Frequency/date
Website activity	HUCAN website	Raise awareness on project goals, activities, and achievements. Disseminate project results.	Specialized and non-specialized audience	Number of visits Average time of visit	150+ unique per year More than 2.50 minute	Constant monitoring and updating to follow the project progresses
Social media activity	Posts on LinkedIn	Raise awareness on project goals, activities, and achievements	Specialized and non-specialized audience	# Impressions # followers on LinkedIn	15.500 per year 250+ per year	Constant monitoring and updating to follow the project progresses
Non-scientific articles, press releases	Trade press	To inform on project activities, results etc	Specialized and non-specialized audience	# press releases # articles	3 3+	Combined with relevant activities/achievements
Newsletter	HUCAN newsletter	To inform on project activities, results etc	Specialized and non-specialized audience	# newsletter released	3+	1 per year
Promotional material (brochures, roll-ups etc.)	HUCAN promotional materials	Raise awareness on project goals, activities, and achievements	Specialized and non-specialized audience	# copies distributed (aggregated)	1000, 500 mainly digital	Copies distributed/downloaded
Video	HUCAN video	Raise awareness on project	Specialized and non-	# video	1	Toward M26

		goals, activities, and achievemen ts	specialized audience			
Participati on to external events (e.g., conferenc es, exhibitions)	Online and offline events. posters, oral presentations , roll-ups, infographics, videos, pictures.	Disseminate project results, promote discussion, gather feedback, networking.	Specialised audience	# external events	8+	At least 3 per year
Organizati on of disseminat ion events	Online and offline events, presentations , infographics, focal groups, workshops.	Raise awareness in society/ local policy makers/ industrial stakeholder s. disseminate project results.	Specialized and non- specialized audience	# events organise d (e.g. networki ng activities)	2	Meetings with SCG
Academic Publicatio ns	Peer reviewed journals	Disseminate project results	Specialised audience	# articles in internati onal peer- reviewed scientific journals	5	N/A
Disseminat ion events (e.g. third parties events and SCG meetings)	Third parties events and SCG meetings	Disseminate project results, validation of the results, networking	Specialised audience	# participa tion in external events and seminars	5+	N/A
				# meetings organise d with the SCG	2	M6, M18

Table 16 Overview of communication and dissemination activities