



Communication set

Deliverable 7.7

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DOCUMENTS HISTORY

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DISTRIBUTION LIST

Full Name or Group	Organisation
ACASIAS consortium	
PO	INEA

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1. EXECUTIVE SUMMARY

1.1. Introduction

This deliverable report describes the design and implementation of the lay-out, content and features of the ACASIAS poster, leaflet, newsletter and social media accounts.

1.2. Brief description of the work performed and results achieved

The communication set was prepared according the Dissemination Action planned within the D7.5: Dissemination action plan. The leaflet, poster, kakemono, newsletters and social network pages have been prepared according the project graphic identity set at the beginning of the project. The coordinator and project partners have been involved in reviewing and commenting the circulating draft versions in order to ensure full adequacy with the project corporate vision.

1.3. Deviation from the original schedule

The content preparation of the different communication supports was launched in October 2017 (M5). Different layout options were proposed the 14th November 2017 (M6) to the coordination team and among consortium partners for their comments and revue. Due to numerous iterations and revisions within the consortium , the D7.7 has been delayed. These communication supports have been achieved in January 2018 and the deliverable 7.7 was available with a slight delay which has no consequence on the project.

2. Work performed

The main objective of the communication set is to provide the ACASIAS consortium some means of hard supporting dissemination materials that can be handed to the wider public during specific dissemination events; refer to below sections for more detailed information.

2.1. The Leaflet

The leaflet serves as a "business card" of the project during any face-to-face meetings and will be handed out to interested parties during conferences, workshops, networking events, trade fairs, etc.

The information displayed allow technical and none technical public to easily understand the scope of the ACASIAS project.

The document is composed of 3 pages (double-sided print 21x21cm document). The file has been made available to the consortium via the project management EMDESK platform and to general public via the ACASIAS public website. The document will be printed by L-UP who will distribute the printed copies to all partners for their use.

The screenshots in the following page gives an overview of the ACASIAS leaflet.

OBJECTIVES

ACASIAS goal is to reduce the environmental impact of aircraft by improving aerodynamics and reducing the weight of the aircraft. ACASIAS will embed sensors and antennas into typical aircraft structure (by instance fuselage panels, wings and tails). The aerodynamic performance is improved by the conformal and structural integration of antennas. The noise reduction of CRJ engines inside the cabin is facilitated by installation of an Active Structural Acoustic Control (ASAC) system in the fuselage.

MULTIDISCIPLINARY PROJECT

The integration of the additional functionalities in the aero-structures requires multidisciplinary research, involving:

- Mechanical engineering**: Design and mechanical testing of fuselage panels and wings.
- Aeronautical engineering**: Design of lightweight structures with focus on drag lightning effects and aerodynamic loads.
- Structural manufacturing**: Manufacturing and assembly of lightweight and low-cost composite structures consisting of several materials and PCB layers.
- Thermal engineering**: Transport and dissipation of the heat produced by active elements in antennas.
- Antenna engineering**: Electromagnetic design of antennas to be integrated within the structures covering form-structural constraints.
- Aerodynamics**: Calculation of aerodynamic loads on wings, calculation of drag forces on classical protruding antennas and antennas.
- Aero-acoustics and noise control**: Design and development of a smart acoustic control system.

Partners

UNITED KINGDOM TRACXUSSE	GERMANY DFW
CZECH REPUBLIC VZLU	NETHERLANDS GRO
FRANCE IP	SPAIN ENEA

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ACASIAS

ADVANCED CONCEPTS FOR AERO-STRUCTURES WITH INTEGRATED ANTENNAS AND SENSORS

ACASIAS is a three years H2020 collaborative project with the objective to contribute to the reduction of energy consumption of future aircraft by improving aerodynamic performance and by facilitating the integration of novel efficient propulsion systems such as contra-rotating open rotor (CROR) engines.

11 PARTNERS | 6 COUNTRIES | 4 INNOVATIVE AERO-STRUCTURES | TOTAL BUDGET 5 800 000 € | 36 MONTHS

ACASIAS PROCESS INNOVATION

The innovations will encompass several domains and disciplines involved in the project such as antenna design, composite process manufacturing, Radio-Frequency (RF) and Structural analysis. The innovations are:

- New technology manufacturing process**: for assembling two different materials (carbon and transparent dielectric) into a hybrid composite structure for the realization of RF transparent skin and embedded antennas.
- New process for manufacturing**: of grid stiffened panels for fuselage structures with integrated antennas and smooth aerodynamic quality.
- New process for manufacturing**: of grid stiffened panels for fuselage structures with integrated antennas and smooth aerodynamic quality.
- New concepts for integration**: of wiring, sensors and actuators in composite fuselage panels for active structural acoustic noise level reduction with minimal impact on weight.

PROJECT TIMELINE

ACASIAS AEROSTRUCTURES INNOVATIONS

The ACASIAS project focuses on challenges posed by the development of aerostuctures with multifunctional properties. Four innovative aerostuctures with integrated systems are developed and evaluated:

- 1**: A smart winglet with integrated blade VHF (Very High Frequency) antenna.
- 2**: A fuselage panel with integrated ASAC (Active Structural Acoustic Control) system for reduction of CRJ cabin noise with minimal impact on weight.
- 3**: A composite stiffened ortho-grid fuselage panel for the integration of a Ka-band SATCOM antenna array.
- 4**: A Fibre Metal Laminate (FML) CLARE (Glass Laminate Aluminium Reinforced Epoxy) panel with integrated VHF communication slot antenna and GPS patch antenna.

EXPECTED IMPACT

Novel aerostuctures will contribute to:

- Reduce the overall airframe weight by eliminating structural backbone and support structures required for conventional antennas and by integrating and rationalization of sensors and actuators which are required in future aircraft to reduce cabin noise due to CRJ engines by up to 8 dB.
- Reduce the CO2 and NOx emissions by increased aerodynamic performance because structurally integrated antennas cause less additional drag, noise and turbulence than protruding antennas and by facilitating the use of CRJ engines.
- Reduce the maintenance costs and operational delays through integrated antennas, sensors and wiring (by avoiding collages with protruding blade antennas by airport cargo cars), and through antenna apertures on fuselage panels with access to antennas from the cabin and through increased robustness of integrated antennas.

ADVANCED CONCEPTS FOR AERO-STRUCTURES WITH INTEGRATED ANTENNAS AND SENSORS

ACASIAS is a three year H2020 collaborative project with the objective to contribute to the reduction of fuel consumption of future aircraft by improving aerodynamic performance and by facilitating noise reduction measures for novel efficient propulsion systems such as contra-rotating open rotor (CROR) engines.

Before the modification: Protruding blade antennas are causing additional drag, and turbulence, aerodynamic resistance and increased fuel consumption.

After the modification: Integrating antennas into the carbon fibre composite and metal laminate material structure of the fuselage will provide greater streamlining of the fuselage, with low aerodynamic resistance and a significant reduction in weight.

Before the modification: Classical antennas are sometimes damaged due to collisions with ground cargo, and then require replacement.

After the modification: The structural integration of antennas and wiring will reduce replacement and inspection costs.

2.2. The poster

The poster serves as a support during conferences, workshops, networking events, trade fairs, exhibitions etc. The main intention of the poster is to provide a snapshot of the project, its context, objectives and expected outcomes. The format of the poster is 80*120 cm.

The targeted audience is mainly scientists, technical and industrial public.

The file has been made available to the consortium via the EMDESK platform and to general public via the ACASIAS public website.

As for the leaflet, this document will be printed by L-UP who will distribute printed copies to all partners for their use.

The screenshot below shows the ACASIAS poster.

ACASIAS
Advanced Concepts for Aero-Structures with Integrated Antennas and Sensors

ACASIAS objective is to contribute to the reduction of energy consumption of future aircraft by improving aerodynamic performance and by facilitating the integration of novel efficient propulsion systems such as contra-rotating open rotor (CROOR) engines. ACASIAS intends to embed sensors and antennas into typical structures of aircraft (for instance fuselage panels, winglets and tail). The aerodynamic performance is improved by the conformal and structural integration of antennas. The installation of an Active Structural Acoustic Control system in the fuselage will reduce CROOR engine noise in the cabin.

ACASIAS INNOVATIONS
The ACASIAS project focuses on challenges posed by the development of aero-structures with multifunctional capabilities. Four innovative aero-structures with integrated systems are developed and evaluated.

1. A new integral antenna panel (IAP) with...
2. A fuselage panel with embedded sensors and antennas (IAP)...
3. A novel conformal antenna panel for fuselage...
4. A novel conformal antenna panel for fuselage...

ACASIAS IN A NUTSHELL

11 PARTNERS	HC IS ABOUNDER	TOTAL BUDGET € 800 000 €
4 INNOVATIVE INFO-BY-DESIGN	UP TO EUR 800 000 FOR DLR	TOTAL MANPOWER 800 PERSONS TOGETHER
6 COUNTRIES	3 MONTHS	3 MAIN DISCIPLINES

PROJECT TIMELINE

Phase 1: INFO BY DESIGN (0-12 months)
Phase 2: CONFORMAL ANTENNA PANELS (12-24 months)
Phase 3: TOWERS FOR AIRCRAFT (24-36 months)

MULTIDISCIPLINARY PROJECT
The integration of the additional functional capabilities in the aero-structures requires multidisciplinary research, involving:

- Mechanical engineering
- Acoustics
- Antenna engineering
- Structural engineering
- Electrical engineering
- Software engineering
- Thermal engineering

EXPECTED IMPACT
Novel aero-structures will contribute to:

- Reduction of energy consumption
- Reduction of noise
- Reduction of weight
- Reduction of maintenance and operational costs

Partners

Information: www.acasias.eu
 Media: www.acasias.eu
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2.3. The Newsletter

The Newsletter will allow spreading information on the progress of work made within ACASIAS, the results achieved, participation of the consortium partners in conferences and trade fairs.

2.3.1. Content

The objective of the public newsletters is to regularly keep the targeted audience informed about the progress made in the ACASIAS projects and about the achieved results. The newsletters will respect the ACASIAS graphical identity while emphasising the core results.

The structure of the ACASIAS newsletters are defined as follows:

- ▲ Welcome and introduction;
- ▲ Word from the coordinator(s);
- ▲ News section and major events as prioritised in the ACASIAS "Get Together" file: the objective is to share information on the events of interest for the ACASIAS community;
- ▲ Progress per WP: the objective is to present the progress made within the project in an attractive layout while incorporating images illustrating the work performed and results achieved;
- ▲ Interviews (Optional): the objective is to acquaint the public with the consortium partners and the cooperation they develop to achieve the project objectives.

This structure will be adapted depending on the project news and activity.

2.3.2. Diffusion list

The Newsletter aims to target a wider public since it will be distributed to the consortium, EC and INEA communication services, LinkedIn, website subscribers and contacts identified and communicated by the consortium partners. It will also be uploaded on the project and partners' websites.

The diffusion list of the newsletter has been built with:

- ▲ Individual subscriptions on the public website;
- ▲ Contacts provided by the consortium partners and INEA.

The diffusion list will be constantly updated in order to increase the network. The ACASIAS partners will promote the newsletter during dissemination events (conferences, workshops, trade fairs).

L-UP will also request the Project Officer to provide e-mail addresses of people potentially interested in the ACASIAS activities (e.g. related past and running EU-funded projects).

Finally, the newsletter will be available on the website. Its content will feed the "Outcomes" section of the website.

2.4. Social Networks

Specific ACASIAS account have been created in the social network LinkedIn, Facebook and Twitter. It will be accessible both to individuals (researchers, engineers) and to organisations, with the aim to directly activate networking and communication around ACASIAS.

The different ACASIAS weblinks are:

- ▲ Facebook: <https://www.facebook.com/Acasias-120113045374698/>.
- ▲ Twitter: https://twitter.com/Acasias_Project.
- ▲ LinkedIn: <https://www.linkedin.com/in/project-acasias-332805151/>.

The aim is three-fold:

- ▲ Build up an "ACASIAS community" within and beyond the ACASIAS consortium;
- ▲ Display and release via a dynamic channel information contained in the newsletters and in the section "News and Events" of the website;
- ▲ Attract young researchers and engineers with an adapted communication and exchange channel, using the social network as "user forum" around the ACASIAS research topics.

The layout of these accounts has been created accordingly with the ACASIAS graphic identity and logo. The pages contain a short description of the project and will be regularly fed with news and results of the projects.

3. CONCLUSIONS

Leaflet, posters and Kakemono have been successfully achieved and printing of these materials is launched. Newsletter n°1 is available with all interested stakeholders' inputs. These materials are available via the ACASIAS website as well as the paper supports for distribution to the interested parties (scientific and technical conferences...).