



MINIMAL

Deliverable 5.3

Workshop with ongoing initiatives towards climate neutrality

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Abstract

This deliverable report provides a summary of the workshop held on 11 October 2024 at the 14th EASN International Conference in Thessaloniki, Greece. The workshop, titled “Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050,” addressed the crucial transition from conceptualization to demonstration and the associated challenges. The event featured a presentation session, a panel discussion, and roundtable discussions on various topics.

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09.12.2024	Coordinator	Carlos Xisto, Chalmers	04.02.2025
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Nature of the deliverable ¹

R

Dissemination level

PU	Public, fully open. e.g., website	✓
SEN	Sensitive, limited under the conditions of the Grant Agreement	
CL	Classified information under the Commission Decision No2015/444	

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¹ Deliverable types:

R: document, report (excluding periodic and final reports).

DEM: demonstrator, pilot, prototype, plan designs.

DEC: websites, patent filings, press and media actions, videos, etc.

OTHER: software, technical diagrams, etc.

Table of contents

1. Executive summary	4
2. Introduction.....	5
3. MINIMAL Workshop	5
3.1. Presentation Session	6
3.2. Panel Discussion.....	9
3.3. MINIMAL Roundtable Discussions.....	10
4. Closure	13
5. The ClimAvTech Cluster	13
5.1. Background of ClimAvTech.....	13
5.2. Collaboration within ClimAvTech.....	14
6. Dissemination and communication efforts around the event.....	14
6.1. Social Media	14
6.2. Website	15
6.3. Promoting Material	16
7. Conclusion	17

1. Executive summary

The MINIMAL Workshop “Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050” was held as part of the 14th EASN International Conference, Thessaloniki. The rationale of this workshop was to foster the exchange between industry and academia in the aviation domain to understand the specific needs (and gaps) to facilitate the transition from technology development to demonstration.

The workshop targeted three overarching questions:

- 1) What is needed to reach a demonstration stage?
- 2) How can academic research contribute to achieving this milestone,
- 3) What other aspects, such as Air Traffic Management (ATM), should be considered in this context?

The workshop, structured into several sessions, focused on addressing these key questions to identify both practical and theoretical approaches that support the aviation industry's climate goals. This deliverable forms part of MINIMAL's Task 5.3, which aims to foster dialogue with experts and policymakers on achieving climate neutrality and exploring related initiatives and synergies.

2. Introduction

An integral part of MINIMAL is the active engagement with key stakeholders and the exchange with other EU funded projects sharing the common goal of maturing aviation technologies towards the achievement of climate neutrality of the aviation sector in 2050. With more than 550 scientists and industry partners attending the EASN International Conference, this event provided a perfect opportunity for fruitful discussion and exchange. MINIMAL participated at the 14th EASN International Conference held in Thessaloniki, Greece, through two sessions. The first session took place on 10 October 2024 and presenting the MINIMAL project and its achievements so far. The second session was a workshop “Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050” organized by the consortium on 11 October 2024.

This deliverable serves to summarize the workshop, its results, and the work conducted in relation to it. Moreover, the Deliverable reports on the efforts of collaborating with other initiatives towards climate neutrality, including the ClimAvTech Cluster.

3. MINIMAL Workshop

The idea for the workshop “Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050” was to foster the exchange with other (EU funded) ongoing initiatives towards climate neutrality and to discuss the opportunities as well as challenges on this path, both from an industry and an academic perspective. The particular focus was to align expectations from these perspectives when it comes to the transition from conceptualization to demonstration. Three overarching questions were in the focus of discussions:

- 1) What is needed to reach a demonstration stage?
- 2) How can academic research contribute to achieving this milestone,
- 3) What other aspects, such as Air Traffic Management (ATM), should be considered in this context?

After a short overall introduction, the workshop featured short presentations by four panelists, representing industry, academia and research institutes followed by a panel discussion. The second part of the workshop included thematic group discussions, involving all the panellists and the audience. The workshop was wrapped up with a summary of the discussion rounds and an overall summary.

The workshop was attended by over 40 participants, including representatives from key organisations such as GE Aerospace, NLR, Fraunhofer, DLR, Safran and Hannover University.



3.1. Presentation Session

First session of the workshop was composed of presentations by five participants, representing the MINIMAL consortium and advisory board. It featured MINIMAL Coordinator Carlos Xisto (Chalmers University), Anders Lundbladh (GKN Aerospace), Andrew Rolt (Cranfield University), Laurent Tabernier (EUROCONTROL) and Matthew Willshee (Rolls-Royce). Speaker selection ensured a good representation of industry and academic perspective. All the presentations are summarized below. The full presentations are available open access on the project website ([link](#)).

➤ **Carlos Xisto, Chalmers University**

The workshop was opened with an introductory presentation, entitled **“Bridging the gap from conceptualization to demonstration for climate neutrality by 2050”** by project coordinator Carlos Xisto. He discussed whether or not the ACARE 2050 target is still within reach. Reflecting on the ULTIMATE² results, some technologies are extremely promising, others are extremely challenging. There is no silver bullet yet to reach the ACARE 2050 fuel efficiency target, considering contributions from engine performance, aircraft performance and weight per passenger. This reflects the need to discuss on how to bridge the gap from conceptualisation to demonstration aiming at climate neutrality by 2050. Relevant key questions address if and how the technology development can be accelerated, which technologies will bring us closer to the targets and how are the engine development programmes influenced. Are the right funding mechanisms in place and what are the roles of industry and academia? Which infrastructure

² The ULTIMATE project (Ultra Low emission Technology Innovations for Mid-century Aircraft Turbine Engines) was a predecessor project of MINIMAL. It was funded under the Horizon 2020 European Framework Programme under Grant Agreement ID 6334336 (<https://cordis.europa.eu/project/id/6334336>)

developments are needed in parallel? With these questions, Carlos Xisto opened the floor for the panellists' presentations.

➤ **Anders Lundbladh, GKN Aerospace Sweden**

In his presentation "**Where are engines heading?**", Anders Lundbladh explains that from a historical perspective industry's capacity to innovate on jet engine efficiency is diminishing (as high gain innovations have already been made). To still reach the targets of decarbonisation of the aviation sector, GKN drives and supports developments in various research and development areas, such as advanced turbine engines, cycle engines & airframe as well as next generation engines for use of alternative fuels. GKN is involved in the R&D of fuel cell technology for liquid and gaseous hydrogen, and related cryo storage and cooled systems. Finally, GKN is involved in demonstrations for battery electric short-range aircraft.

Citing results of the ENABLEH2 project³, Anders Lundbladh indicates the high costs of hydrogen in a range of costs scenarios. The electrical energy needs for synthetic fuelled aircrafts is significant. A good way between optimisation (better engines) and innovation (smarter technologies) will need to be found, taking into account technology flexibility.

➤ **Andrew Rolt, Cranfield University**

The presentation entitled **Why is civil aviation not more efficient?** by Andrew Rolt discusses the progress and challenges in civil aviation efficiency. It highlights continuous improvements in airframes, engines, and air traffic management since 1952, but notes that fuel burn per seat kilometre improvements have slowed down in recent decades. The presentation also mentions that many advanced propulsion technologies are still at low TRL and not widely adopted. To achieve net zero emissions, the focus in energy efficiency is important, but not the only solution. Next to the introduction and increase of sustainable aviation fuels (SAF) and liquid hydrogen, contrail avoidance and NO_x reduction will play an essential role.

➤ **Laurent Tabernier, EUROCONTROL**

The presentation titled **Infrastructure & Energy Requirement & Operations** by Laurent Tabernier focuses on the types of fuels, logistics, and energy required for future aviation. It highlights the significant energy and logistical challenges involved in transitioning to sustainable aviation fuels, including the need for substantial electricity production by 2050.

➤ **Matthew Willshee, Rolls-Royce**

The presentation, titled "**From Conceptualisation to Demonstration: A Perspective from Rolls-Royce,**" by Matthew Willshee focuses on Rolls-Royce's hydrogen demonstrator program and explores the impact of new powerplant technology. Key points included in his presentation are:

- Achieving net-zero emissions and improving delivery methods.
- Challenges and opportunities with new aircraft and powerplant technologies.
- Economic implications of hydrogen aircraft.
- The MINIMAL project's goal to balance climate benefits with economic considerations.

During the presentations, the audience was invited to ask questions or provide comments through the Mentimeter application accessible via a QR code. A selection of these questions and comments was addressed during the panel discussion.

³ The ENABLEH2 project (ENABling cryogEnic Hydrogen based CO2 free air transport) was a predecessor project of MINIMAL. It was funded under the Horizon 2020 European Framework Programme under Grant Agreement / ID 769241 (<https://cordis.europa.eu/project/id/769241>)

- What are the needs and requirements for air transport, are the requirements 2040/50 the same as today? What vittnet practice can be challenged? R g speed, distance, 'payload', routes, etc?

👍 1 on "Open questions from the public"

- What flight solutions can become viable if, eg, Energy costs would increase by a factor of 100?

👍 0 on "Open questions from the public"

- Is there a room to improve the efficiency of the current engine technologies?

👍 0 on "Open questions from the public"

- As shown in one presentation, seems that for probably in the first time in history, mankind will possibly have to fly less efficient to actually meet other requirements. Is aviation willing to comply?

👍 0 on "Open questions from the public"

- To reach carbon neutrality, is it a possibility to use SAF only on "old" aircrafts and that manufacturers only deliver alternative propulsion by 2050?

👍 0 on "Open questions from the public"

- Dr Rolt, what's your opinion on electric powertrains when compared to hydrogen?

👍 0 on "Open questions from the public"

- What novel options do we have for long range flights? Hydrogen, fuel cells, electric aircraft, all seem to target short range mission. Long range missions could have a larger climate footprint.

👍 0 on "Open questions from the public"

- Is Europe leading aviation sustainability?

👍 0 on "Open questions from the public"

- Launching new generation of new aircrafts or engines historically happenned approx. every 15 years. Will the length of this cycle be reduced as we strive to carbon neutrality?

👍 0 on "Open questions from the public"

- Given the long development cycles in aerospace, when should we demonstrate a carbon neutral aircraft so it will be delivered before 2050?

👍 0 on "Open questions from the public"

- What is/are the needs for future air transport?

👍 0 on "Open questions from the public"

3.2. Panel Discussion

The panel discussion, moderated by coordinator Carlos Xisto, featured an engaging exchange of ideas among the panellists. Both the coordinator and the audience posed questions that were thoughtfully addressed by the panellists. The discussion aimed to identify practical and theoretical approaches to support the aviation industry's climate goals. The challenges and opportunities were outlined and various perspectives from both the panelists and the audience were discussed.

Panelists



Anders Lundbladh
Engineering Fellow at
GKN Aerospace
Sweden



Andrew Rolt
Senior Research Fellow at
Cranfield University
United Kingdom



Laurent Tabernier
Sustainability expert at
EUROCONTROL Innovation Hub
France



Matthew Willshie
Research Engineer at
Rolls Royce
United Kingdom



The first question aimed at the options for long range flights in the future. While hydrogen, fuel cells and electric aircraft currently seem to target the short-range missions, the opportunities for a reduction of the large footprint of long range missions still seems to be limited. In response to this question, all panellists shared their views. Currently, the path for long range missions seems to be leading towards liquid hydrogen (LH₂) as aviation fuel. Still, the outcome of current research is not yet obvious and there are still changes that LH₂ proves impossible for the requirements of aviation. To find answers to these pending questions, demonstrator projects will be needed. A fundamental planning for TRL maturation, along with governmental funding opportunities will support and de-risk these developments. An important aspect -next to TRL maturation- is the safety aspect. For manned flight demonstrations, a significant increase on safety considerations are needed. In addition, an urgent need is seen to reduce the uncertainties associated with contrail formation. Only with clarity on trade-offs between the CO₂ emissions and non-CO₂ emissions, such as water vapor in LH₂-fuelled aircrafts, and the full life-cycle assessment will facilitate decisions whether or not LH₂ will be a viable alternative.

The second question deals with the duration of development cycles. The launching of new generations of aircrafts or engines historically happens approximately every 15 years. The length of development cycle needs to be challenged striving for carbon neutrality in 2050. Among the panellists, there are different views on this question. While some mention that with a concerted effort, including from policy side, shortening the cycle will extremely difficult, but not impossible, others emphasize that safety is a major aspect which cannot be neglected and would hinder a quicker cycle. Limitations also arise not only from technology development, but also from broad implementation in the community. In conclusion, the panel assumes speeding up the process is not very likely, in particular when respecting the safety aspects.

The third question raised the aspect that, according to the presentations, it seems that for the first time in history, it might be necessary to accept less efficiency to meet other, potentially more relevant, requirements. Among panellists there was a quite clear alignment that this might be needed on the path to overall decarbonisation. During the discussion, several aspects were raised. The first aspect was related to the topic of contrail avoidance. Taking into account that only a very small proportion of flights produce warming contrails, their climate impact could be relatively easy reduced by removing these flights from the flight plan to avoid the specific conditions that lead to the formation of warming contrails (e.g. certain night flights on certain routes and altitudes), or by re-routing these specific flights despite the potential fuel burn penalties. Still, the analyses by climate scientists are still needed to assess the impacts of the short- and long-term effects of contrails and CO₂, and their respective penalties, also considering their persistence in the atmosphere. The second aspect raised was that an increase in fuel efficiency is still feasible by introducing more efficient components and materials. Finally, another relevant aspect is to keep the overall aim of decarbonization in mind. Therefore, the assessment of the fuel efficiency is not the only relevant factor, but the full lifecycle assessment of the fuel is needed.

The last question that was discussed was whether there is a possibility to use SAF to reduce the carbon footprint until climate neutral systems are in place and manufacturers are able to deliver alternative propulsion systems by 2050. SAF is seen as potential bridge until 2050. The major concern is currently that SAF is too expensive to fully replace kerosene. The cost effectiveness of SAF is closely linked to policy decisions. Next to the costs of SAF (and also H₂), its availability and the competition between sectors on their paths to decarbonization.

3.3. MINIMAL Roundtable Discussions

To increase the level of exchange between panellists and attendees, the event featured four roundtable discussions, each led by a moderator and focused on specific themes: Funding and Policy, Initial Conceptualization, Technology Demonstration, and Infrastructure, Energy Requirements, and Operations. Participants were invited to join the roundtable of their choice based on their expertise or interests. This format encouraged open discussions in small groups, allowing all participants to share their ideas. Moderators facilitated the discussions and later summarized the key points.

Overall, the roundtables were highly productive, fostering collaboration and providing valuable insights into the workshop discussions. Essential takeaways were captured contributing to a clear understanding of the challenges and opportunities.

A summary of each roundtable discussion:

Round-table n° 1 Funding and Policy	
Moderator	Sandra Annetzberger, ARTTIC Innovation GmbH
Topics	Are the existing funding mechanisms sufficient?

	What are the required policy mechanisms to accelerate transition?
Summary / Notes:	The main focus was on the question on required policy mechanisms. Several aspects were discussed: - ETS needs to be implemented towards an achievement of impact beyond Europe. This requires the implementation of the ETS for all planes arriving or leaving the EU. - The demand for renewable energy and for hydrogen is significantly increasing across several sectors that all foresee the usage of green energy and/or hydrogen for their decarbonisation. So far, there seems to be too little alignment across the sectors to ensure that the energy is fairly distributed or – to put it more clear – that the same energy is not planned for several sectors. A common approach and planning across sectors is needed. - There is a need to drop research on non-promising technologies. Huge amounts of (tax payers') money are invested to research and mature novel concepts and technologies. This is extremely valuable. But it should be clear that not all concepts will go into market readiness. To focus time and resources towards most promising technologies, measures should be in place to ensure the streamlining and maximisation of synergies for the promising concepts while dropping non-promising ones. - It becomes more clear that the goals of the Paris agreement (to stay below 1.5°C temperature increase) will not be achievable with current measures. Policy measures towards increase CO₂ pricing could be considered to drastically reduce the number of flights.

Round-table n° 2 Initial conceptualization	
Moderator	Feijia Yin, Delft University of Technology
Topics	- What is needed from the universities and research institutes? - What elements are needed to give the confidence for the step up in funding to reach a demonstrator?
Summary / Notes:	Three main aspects were raised by the participants. - Targets are needed, but it is essential to define the scope and the target clearly. For instance, when talking about sustainable design, we need to clarify what sustainability means (regarding emissions, noise, environmental impact (local vs. global)) and the relevant targets. Various well-established definitions of sustainability exist. - Having clear benchmarking is an area where Universities may be helpful to industry. - A top-down approach would be beneficial for the community. For instance, much past research was not openly shared for reasons

	including IP issues. This sometimes adds repetition, and should be avoided if possible. It was also suggested that the perception of the aviation sector's approach to sustainability by the public and from other industry sectors should be valued.
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Round-table n° 3 Technology demonstration	
Moderator	Matthew Willshee, Rolls-Royce plc
Topics	▪ What is required to go from concept to (flying) demo? ▪ How to accelerate the process?
Summary / Notes:	Several aspects on the key drivers that make a flying demonstrator desirable were discussed: ▪ The importance of gaining public confidence ▪ Designing for flight drives a discipline in the design and safety case that can make the demonstrator more representative than if it were only intended for ground test. ▪ The timescales to get to demonstration on some of the new propulsion technologies were likely to be long (of the order of 15 years). propulsion technologies were likely to be long (of the order of 15 years). This brings a place for public funding to help drive a consistent application of effort: financial realities can force enterprises to be more short term in outlook. ▪ It is important that industry partners risk some of their own capital. This brings some commercial impetus to progress the project and gives industry a stake in the selection of concepts. ▪ Funding models that support the support of governmental funding by raising fundings at industry could be a driving force for productive academia-industry partnerships. Working in these partnerships are considered important as this brings together different capabilities of academia, industry and public bodies.

Round-table n°4 Infrastructure & Energy Requirement & Operations	
Moderator	Laurent Tabernier, Sustainability Unit EUROCONTROL
Topics	▪ What type of fuel? Where to distribute? Quantities of energy required for its production.
Summary / Notes:	▪ Participants highlighted that current thinking is often based on a "business as usual" approach, while the situation and needs we face today will be different tomorrow. They emphasised the importance of considering multimodality between transport modes and the potential for new disruptive forms of transport that may emerge. ▪ All transport sectors and others may compete for the same resources, creating a need for policies to arbitrate and allocate resources appropriately.

- The same applies to energy, which is not infinite. To save time and money, it would be beneficial for policymakers to allocate energy resources to each mode of transport efficiently.
- Additionally, the production of SAF (Sustainable Aviation Fuel), where kerosene production has co-products like biodiesel, could help decarbonise the maritime sector.
- Synergies between industries and users should be analysed. For example, hydrogen production could be integrated with other industries, such as steel, agriculture, and fertiliser production, to ensure distribution/production, resource-sharing and cost reduction.

4. Closure

After fruitful discussions at the round tables, the most relevant conclusions were shared with the audience and the audience was offered the opportunity to share their final thoughts on the event and discussions via the Mentimeter application. Finally, the session was closed by the MINIMAL Coordinator Carlos Xisto.

We attack a systemic/global problem from one established sector only, (aviation) whereas solutions require cross-sectorial solutions (priorities, technology, energy, infrastructure)

Everyone says we need to define sustainability. But there are already really good science-based definitions ! We should NOT make our own "aerospace" def. which would be biased

Research should support companies in developing their own capabilities in key fields

Need to (re)define transport needs, opening for more modes of air transport, mulitmodal transports etc. We see the difficulty with pure product and fuel solutions to meet present flight routes.

Aerospace has a lot to offer to other businesses (technology, strategy, safety, Methods) who in turn may have other solutions for aviation.

5. The ClimAvTech Cluster

5.1. Background of ClimAvTech

The ClimAvTech Cluster was established as part of a European Commission initiative to foster collaboration among research projects funded under related calls, enabling them to identify synergies and participate in shared activities. Initially, the ClimAvTech cluster was formed by six projects: MINIMAL, BeCoM, MATISSE, OVERLEAF, HESTIA, and EFACA.

In its first year, the ClimAvTech Cluster was coordinated by the MINIMAL project, with HESTIA taking on the role in the second year. Coordination is planned to rotate annually among the cluster's member projects, fostering shared leadership and collaboration.

With new projects having started, the cluster has grown to include seven additional projects: FlyECO, TRIATHLON, MYTHOS, FFLECS, HOPE, HYLENA, and ExFAN. The primary objective of the

ClimAvTech Cluster is to establish itself as a sustainable initiative, continually expanding its membership with new projects funded by the European Commission under related calls.

5.2. Collaboration within ClimAvTech

To enlarge the outreach of the single projects, the ClimAvTech cluster has organized several joint dissemination and communication activities, including online communication (via the projects' website and social media) or a joint booklet. In particular the joint participation in numerous significant events, such as ILA Berlin, the Paris Airshow, and the EASN International Conference, provided a great opportunity for networking and deepening collaboration among the projects. Over time, it was also decided to not limit the cluster's activities to dissemination and communication activities, but to stronger collaborate on content topics, resulting in the formation of two main groups, "Aircraft Design" and "Propulsion". The ClimAvTech Cluster has been instrumental in fostering collaboration and innovation among its member projects. By bringing together diverse expertise and resources, the cluster has been able to address challenges and drive collective progress together. Its efforts have not only advanced individual projects but also cultivated a cohesive and supportive community that actively shares knowledge, insights, and best practices.

6. Dissemination and communication efforts around the event

A significant effort was undertaken by ARTTIC Innovation GmbH, supported by all MINIMAL project partners to communicate and disseminate information regarding the participation of MINIMAL at the EASN International Conference. A comprehensive communication strategy was developed, and a campaign was executed on the social media platforms LinkedIn and X. A professional graphic designer was engaged to create high-quality communication materials for social media. The aim of the event was clearly presented, and the participants and panellists were prominently showcased.

The plan included among others presenting a new panellist each day on social media, highlighting their background, initial thoughts, and expectations from the event. Both LinkedIn and X (twitter) channels were actively utilized for this purpose. On the days of the event, real-time online communication was conducted to inform the project audience about the ongoing activities and results. Additionally, the project website was used to announce the event and provide updates.

This meticulous approach ensured that the MINIMAL project's participation in the EASN International Conference was well-publicized and effectively communicated to a broad audience. The use of professional communication materials and a structured timeline helped in maintaining a consistent and engaging presence on social media, thereby enhancing the visibility and impact of the project.

6.1. Social Media

The LinkedIn and X communications on the project's account described the project's involvement in EASN 2024 and its efforts in promoting the event's goals. The posts included the following Information:

- **Event Promotion:** Posts announced MINIMAL's presence at the EASN International Conference in Thessaloniki, Greece, held on October 10-11, 2024. They encouraged engagement in two sessions: project presentations and an interactive workshop.
- **Workshop Focus:** Specific attention was given to the workshop titled "Bridging the gap from conceptualization to demonstration for climate neutrality by 2050." This session included a panel discussion with experts from academia, industry, and public bodies, as well as thematic group discussions and a roundtable.
- **Achievements and Networking:** A group photo post from a MINIMAL session celebrated the team's contribution, emphasizing collaboration and inviting participation in the upcoming workshop.

The communication was consistent, utilizing hashtags like #ClimateNeutrality2050, #Sustainability, and #AviationInnovation to amplify visibility. It effectively combined event details, key themes, and engagement highlights to drive interest and participation.

With more than 6500 impressions and 230 reactions gained within 2 weeks of active communication around the event, the LinkedIn page gained lots of visibility and increased significantly the number of participants, visitors and subscribers.

6.2. Website

The MINIMAL Project effectively promoted its participation at the 14th EASN International Conference on its website <https://www.minimal-aviation.eu/>. The workshop's theme, "Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050," was prominently highlighted, providing essential details such as the date, time, location, and agenda.

Both the MINIMAL Session and the overall MINIMAL project were communicated effectively, showcasing the presenters and the topics that were planned to be presented. The communication strategy demonstrated that the project had engaged stakeholders from academia, industry, and policy, ensuring a comprehensive vision across all domains while encouraging participation and future collaboration.

A [leaflet](#) was meticulously prepared by ARTTIC Innovation GmbH in collaboration with a professional graphic designer. This leaflet, available on the project website, detailed the workshop and served as a key communication and dissemination tool. The aim of the event was clearly presented, and the participants and panellists were showcased.

MINIMAL Workshop at 14th EASN International Conference

Thessaloniki, Greece

10 & 11 October 2024

The MINIMAL project team will present cutting-edge research at the 14th International Conference in Thessaloniki, Greece on the 10th and 11th of October 2024.



MINIMAL Workshop
14th EASN International Conference
Thessaloniki, Greece

11 October 2024,
 10:30–12:30 EEST

Moderation:
 Dr. Carlos Xisto

Room:
 Library

Panellists:

- Carlos Xisto**
Associate Professor at Chalmers University of Technology, Sweden
- Anders Lundblad**
Engineering Fellow at ESN Aerospace, Sweden
- Andrew Rolt**
Senior Research Fellow at Cranfield University, United Kingdom
- Laurent Tabernier**
Sustainability expert at EUROCONTROL, Innovation Hub, France
- Matthew Willishe**
Research Engineer at Rolls Royce, United Kingdom

[CLICK HERE FOR WORKSHOP LEAFLET](#)

On 10 October 2024, MINIMAL will host a session at the EASN International Conference 2024, covering topics like hydrogen-fueled engines, nacelle drag, and climate impact assessments. On 11 October 2024, a workshop titled "Bridging the Gap from Conceptualization to Demonstration for Climate Neutrality by 2050" will be organised, featuring a panel session and round-table discussions on funding, policy, and technology demonstration. Both events will be chaired by project coordinator Dr. Carlos Xisto and include representatives from academia, industry, and public bodies.

6.3. Promoting Material

Considerable effort was made in developing promotional materials to enhance the visibility and impact of the MINIMAL project for the event. These materials included project-branded bloc notes, pens, and flyers, which were distributed to attendees at the event. The aim was to provide participants with tangible reminders of the project and its objectives, thereby promoting greater awareness and engagement.

The bloc notes were designed to be both functional and visually appealing, featuring the MINIMAL project logo. These bloc notes served as useful tools for attendees to take notes during the sessions, while also keeping the project at the forefront of their minds.

Similarly, the pens were branded with the MINIMAL project logo and were distributed to participants as practical and memorable keepsakes. These pens not only served a functional purpose but also acted as constant reminders of the project.

The flyers provided detailed information about the MINIMAL project, including its objectives, key milestones, and the benefits it aims to achieve. They also included contact details and links to the project's website and social media channels, encouraging further engagement and interaction.

The distribution of these promotional materials was carefully planned to maximize their impact. They were put on several tables, on each chair and were also distributed directly to the participants, ensuring that participants received them when they were most likely to take notice. This created a cohesive and professional image for the MINIMAL project, reinforcing its importance and relevance in the context of the EASN International Conference.

The creation and distribution of the promotional materials played a crucial role in enhancing the visibility of the MINIMAL project at the event. By providing attendees with useful and attractive items, the project was able to leave a lasting impression and foster greater interest and engagement among the participants.



7. Conclusion

In conclusion, the MINIMAL Workshop at the 14th EASN International Conference successfully addressed the challenges and opportunities in the aviation sector. The event included presentations, a panel discussion, and roundtable sessions, promoting collaboration among academia, industry, and policy stakeholders. The format encouraged active audience engagement through online questions and interactive roundtable discussions.

The communication and dissemination efforts, including the creation of promotional materials and active social media engagement, significantly enhanced the visibility and impact of the MINIMAL project.