Aerospace Districts: Acceleration of the Strategic Transfer of Regional Advancements

Report on the foreseen impacts and potential beneficiaries

D3.2 – Report on the foreseen impacts and potential beneficiaries

Abstract:

Task 3.2 – "Impacts and beneficiaries" aims at identifying the impacts and the potential beneficiaries of the actions of the AD-ASTRA project, but also the impact of the *D3.1 – "Joint Action Plan"*. The idea is to cover the whole industrial ecosystem including areas that extend outside of aerospace as well as the actions foreseen in the aftermath of the project. This deliverable therefore assesses the potential beneficiaries of the project and the anticipated impacts of the Joint Action Plan designed to enhance the aerospace innovation ecosystem. The project has benefited its consortium. Through various activities such as collaborative research, SWOT and TOWS analyses, and co-creation workshops, each partner gained a deeper understanding of their regional ecosystems and established stronger relationships that have paved the way for future joint initiatives.

The human-centred AD-ASTRA tool, developed as part of this collaboration, is a key outcome that will continue to facilitate connections between stakeholders and drive further innovation.

By leveraging the Quadruple Helix model—comprising academia, industry, public bodies, and civil society—the Joint Action Plan outlines a strategic framework with short-term, mid-term, and long-term actions. The plan is expected to significantly benefit academia through improved research capabilities and industry alignment, the aerospace industry by providing a steady talent pipeline and advancing technological solutions, public bodies by fostering regulatory and infrastructural support, and civil society by enhancing job opportunities and access to cutting-edge technologies. Collectively, these efforts are set to drive societal progress, economic growth, and advancements in the aerospace sector.

Keywords:

Innovation, regions, aerospace, international cooperation, SWOT & TOWS analyses, quadruple helix, impact, AD-ASTRA tool.

Document Author(s): Céline Bizieau (TM)

Document Contributor(s): Gustavo Alonso (UPM); Lorenzo Calabri; Alina Bisag (ART-ER), Michele Giannuzzi (DTA), Niels Krol (IQ)

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Authoring & Approval

Prepared by		
Name and Organization	Position and title	Date
Céline Bizieau - TM	Partner	25/03/2024

Reviewed by		
Name and Organization	Position and title	Date
Lorenzo Calabri - ATR-ER	Coordinator	10/08/2024
Alina Bisag - ART-ER	Coordinator	26/08/2024
Gustavo Alonso - UPM	Partner	26/08/2024
Niels Krol - IQ	Partner	26/08/2024
Michele Giannuzzi - DTA	Partner	26/08/2024

Approved for submission by		
Name and Organization	Position and title	Date
Céline Bizieau - TM	Partner	30/08/2024
Alina Bisag – ART-ER	Coordinator	30/08/2024
Lorenzo Calabri – ART-ER	Coordinator	30/08/2024

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Acronyms and Terminology

Term	Definition
AD-ASTRA	Aerospace Districts: Acceleration of the Strategic Transfer of Regional Advancements
ART-ER	Attractiveness Research Territory - Emilia-Romagna
CNR	National Research Council
CTNA	National Technology Cluster on Aerospace
DTA	Distretto Tecnologico Aerospaziale
ECARE	European Clean Aviation Regional Ecosystem
ETE	Earth Technology Expo
E-R	Emilia-Romagna
ESA	European Space Agency
IQ	Innovation Quarter
NEREUS	Network of European Regions Using Space Technologies
R2B	Research to Business
STEM	Sciences Technology Engineering Mathematics
SWOT	Strengths, Weaknesses, Opportunities and Threats
TM	Toulouse Métropole
TOWS	Threats, Opportunities,Weaknesses and Strengths
UAV	Unmanned Aerial Vehicle
UNIFE	University of Ferrara
UPM	Universidad Politécnica de Madrid
WP	Work Package

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1. Introduction

The AD-ASTRA project stands at the forefront of a transformative initiative aimed at bringing more collaboration in the European aerospace sector through the creation of a robust innovation ecosystem. In an era marked by rapid technological advancements and increasing global competition, the aerospace industry is pivotal for Europe's economic growth, technological leadership, and strategic autonomy. The AD-ASTRA project aspires to harness Europe's rich heritage in aerospace and its diverse pool of scientific and engineering expertise to establish a dynamic and sustainable innovation environment.

This report delves into the anticipated impacts of the AD-ASTRA project and its action plan, outlining how it aims to foster technological advancements, enhance competitiveness, and stimulate economic growth within the European aerospace sector and more particularly the five regions of the consortium. By developing a comprehensive innovation ecosystem, AD-ASTRA seeks to bridge the gap between research, industry, and policy, ensuring that Europe remains at the cutting edge of aerospace innovation.

Key areas of focus include the integration of emerging technologies, the development of new business models, and the fostering of a collaborative environment that encourages knowledge sharing and cross-sector partnerships. The report will also identify potential beneficiaries of the AD-ASTRA project, ranging from small and medium-sized enterprises (SMEs) and large aerospace companies to research institutions and educational establishments. Furthermore, this document presents a short summary of Deliverable *D3.1 - "Joint Action Plan"* for implementing the envisioned innovation ecosystem and its foreseen impact. This plan details the strategic initiatives, policy recommendations, and collaborative frameworks necessary to achieve the project's objectives: the realization of a competitive and innovative European aerospace sector.

The AD-ASTRA project represents a leap towards a future where Europe not only competes but leads in aerospace innovation. This report aims to provide a comprehensive overview of the project's potential impacts, highlight the beneficiaries, and lay out the impacts of the pragmatic action plan.

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2. Potential beneficiaries of the project

This first part of the report will consider how the project impacted the partners of the consortium, in their own entity but also looking at the connections that were created thanks to the project, and the rest of the aerospace ecosystems in the five regions.

2.1 Project's partners

The five AD-ASTRA partners are the first beneficiaries of the project. Through their participation in the project, they were able to initiate and strengthen their relationships. As the project moved forward, this relationship became stronger, to the point that they decided to consider answering more calls for projects together. Moreover, doing the research for the different deliverables (mapping the ecosystems, SWOT and TOWS analyses) enabled each partner to better enquire into their own ecosystem and exposing the results enabled to compare and benchmark internally. Individually, each of the partners also benefited from the AD-ASTRA project and the advantage are reported in the following Table 1.

Table 1 Benefits of the AD-ASTRA project for each consortium member.

ART-ER 	For Emilia-Romagna (E-R), the aerospace sector's importance is underscored by its impact on established supply chains like aeronautics, infrastructure, ground services, manufacturing, and advanced materials, as well as emerging sectors such as Big Data, AI, augmented reality, satellite systems, and commercial spaceflight. Furthermore the aerospace sector is particularly relevant for E-R, because it could have strong connections and spill-overs with other sectors where the Region has a leading position, such as Automotive, Motorsports, Automation, etc. In this regard, over the past two years, the AD-ASTRA project has significantly benefited ART-ER and the region by aligning with the European Innovation Ecosystem program, thereby elevating the region's European standing. The project has facilitated new collaborations and partnerships in aerospace, a critical sector for regional economic development. Individually, each partner has also gained from the AD-ASTRA project, enhancing their capabilities and strategic insights.
UPM 	For Universidad Politécnica de Madrid (UPM), as a university, the participation in the AD-ASTRA project has been extremely useful. Firstly, it has served an internal purpose of coordinating the different research groups within UPM dealing with aerospace activities, located at different Engineering Schools, not only the Aerospace Engineering School, but also IT, Telecom, even Civil and Mechanical, particularly interesting for space downstream activities, or for unmanned aerial vehicles (UAVs). Also from an internal perspective, it has helped to strengthen the cooperation between the resource group involved in AD-ASTRA, and the Business Centre at UPM, improving the alignment between research, technical activities and

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	the market perspective. A major achievement very much related to AD-ASTRA has been the project ESATBES: UPM, in cooperation with a local consultancy boutique, has been awarded by European Space Agency (ESA) the ESA Technology Broker Spain project. The project aims to create added value for the Spanish industry by solving its technological needs through the use of space technology, and in turn, meet the needs of the Spanish space industry using terrestrial innovations. For this purpose, the project seeks to interact with both space and non-space entities, understanding the strengths and needs of each of them, fostering their collaboration and the willingness to enter the space business for those who have not yet done so, thus reducing the barriers perceived by non-space entities. It also aims to help space companies detect unmet needs in other sectors for which space technology can be applied. From an external perspective, AD-ASTRA has been very useful for UPM at regional level, improving the understanding of the regional aerospace ecosystem and reinforcing the connections with the different stakeholders, particularly the newly created companies, very often spin-offs of UPM and the other Universities in the region. Finally, it has also helped very much in the consolidation of stakeholders from the other regions participating in the AD-ASTRA project, even if there were already existing connections and networks. Applying the methodology followed in the project, the regional ecosystem has been very well characterized, compared with the ecosystems in the other regions, drawing conclusions and future action plans. This was in fact the aim of the project.
DTA 	DTA (Distretto Tecnologico Aerospaziale) derived several benefits from the collaboration with the other partners of the AD-ASTRA project, in addition to those resulting from mere participation in the project. These benefits stem mainly from the sharing of knowledge, experience and good practices between regions with different levels of maturity in the aerospace sector. Learning from more advanced ecosystems. Through the comparison with other participating regions, DTA was able to identify areas of strength and weakness in its own ecosystem. In particular, the comparison with more advanced regions in the sector, such as Occitania (with a highly developed aerospace ecosystem, driven by the presence of Airbus and strong political support) and South Holland (with a well-established innovation ecosystem in the space and drone sectors), allowed DTA to gain specific knowledge and expertise. Targeted collaboration opportunities: the comparative analysis of the ecosystems highlighted areas of possible synergy and opportunities for targeted collaboration. For example, the DTA was able to gain insight into the testing infrastructure and investment attraction strategies adopted in other European regions, strengthening of position in the sector. Collaboration with high-level European partners has helped to strengthen DTA's position in the aerospace sector on an international level. Participation in joint projects and the exchange of knowledge and expertise have increased the visibility and credibility of DTA as a key player in the sector.

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TM 	For Toulouse Métropole (TM), the AD-ASTRA project enabled a better influence of the administration on its own territory by offering a European outreach and collaborations to entities inside th.e territory, some of them becoming direct stakeholders of the AD-ASTRA project. This in turn enhanced the administration's credibility and reputation, and opened the door to new collaborations and partnerships, including partnerships and projects funded by the European Commission. It also enabled TM to work very closely with the major competitiveness pole Aerospace Valley and to strengthen the relationship between them. To finish, it enabled the administration to better know its territory in terms of aerospace innovation and provided links with the Occitania region that will be of value to implement the Joint Action Plan.
IQ 	For InnovationQuarter (IQ) (working under the Aerospace Delta branding label) participating in the European project alongside four similar aerospace/high tech regions from France, Spain, and Italy has yielded significant benefits for the regional economic development agency and the partners within the regional aerospace ecosystem. The project facilitated a comprehensive exchange of knowledge and expertise, enabling the agency to gain valuable insights into the best practices and innovative approaches employed by other regions. By conducting visits to each other's regions, IQ and its partners were able to engage directly with relevant stakeholders, including industry leaders, research institutions, and governmental bodies, thereby expanding their network and fostering potential collaborations. Furthermore, the project has enabled IQ to align its regional aerospace strategies with those of its European counterparts, culminating in the development of a cohesive, longer-term joint action program. This collaborative effort has not only enhanced the capabilities of the regional aerospace ecosystem but has also positioned it to compete more effectively in the global market. The relationships and shared objectives that have emerged from this project are anticipated to drive sustained economic growth and innovation across the participating regions, establishing a solid foundation for future cooperative initiatives.

The Joint Action Plan developed through this collaboration serves as a strategic roadmap, ensuring that efforts across the regions are synergistic and that the strengths of each are effectively leveraged. This collective approach is expected to enhance the competitiveness of the regional aerospace sector, attract investment, and spur technological advancements, ultimately benefiting all stakeholders involved in the project. Overall, the impact of the AD-ASTRA project on its partners was positive, fostering growth, positive network and innovation possibilities for them and each of their individual ecosystems.

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2.2 Connections already made

The AD-ASTRA project enabled a few connections between the ecosystems during its lifetime; some examples are reported in Table 2. More connections are expected to take place in the following months, particularly thanks to the AD-ASTRA tool that will be explained below.

Table 2 Connections established during the AD-ASTRA project.

Proambiente ↔ AD-ASTRA	The collaboration between Proambiente and the AD-ASTRA project forms a strategic alliance to advance technological innovations in the aerospace sector. Proambiente, a mixed public-private consortium that includes the National Research Council (CNR), the University of Ferrara (UNIFE), and nine SMEs from Emilia-Romagna, specializes in industrial research and technology transfer focused on environmental issues. Their expertise encompasses monitoring aquatic environments, agricultural systems, tools and sensor development, and modular systems for air quality and indoor comfort. Driven by their goal to excel in the aerospace sector and utilize their knowledge in hyperspectral imaging for remote sensing in agriculture, Proambiente has actively engaged with the AD-ASTRA consortium. By participating in AD-ASTRA's events and initiatives in Emilia-Romagna, Proambiente aims to solidify this collaboration, developing methods to concretize their joint efforts and maximize their combined technological potential.
DTA ↔ ANSER	Regarding Emilia-Romagna region another collaboration that started in the last period of the project AD-ASTRA is between the partner DTA (which is an aerospace district that involves many companies located in the Apulia region) and ANSER (https://www.anser-it.it/) which is a private consortium that put together about 25 companies coming from the E-R region all involved in the aerospace domain. These two clusters well represent the peculiarities and the complementarities of the two ecosystems, and a factual industrial collaboration can be easily foreseen in the next future (starting from a meeting among the two clusters that is going to be planned for autumn 2024).
ART-ER ↔ Aerospace Valley	During the AD-ASTRA project, ART-ER entered in contact with the cluster Aerospace Valley (from Occitania), one of the major European clusters on aerospace, and started a one-to-one collaboration with the aim of setting-up exchanges of ideas and connections among companies from Occitania and from E-R regions. In particular starting from the global event IAC2024 (https://www.iac2024.org/) that will be held in Milan in October and that is the event globally known as the reference for the Space community. In this occasion, meetings among the two ecosystems will be organized, in order to deepen the relative knowledge and the possibility of collaborations. A second occasion will be

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	related to the Network of European Regions Using Space Technologies (NEREUS) symposium, that for 2024 will be held actually in Toulouse and is co-organized by the Occitania Region and the European network NEREUS. This event anticipates for a few days the IAC conference and will be a great opportunity for the E-R ecosystem to get in contact with the Occitania ecosystem and in particular to strengthen the connections with Aerospace Valley that will host a visit to its premises during the symposium. This event will also be an opportunity to further strengthen the collaborations among the five regions/ecosystems involved in AD-ASTRA, being all members of NEREUS, thus all participating in the annual symposium.
Dawn Aerospace ↔ TM ↔ Aerospace Valley	Dawn Aerospace, a Delft-based space start-up company out of the IQ/Aerospace Delta region expanded their activities in 2023 by setting up a subsidiary in the TM/Aerospace Valley region. Dawn Aerospace France SAS will focus on customer support, business development, and R&D, enhancing partnerships between Dutch and French entities. The move underscores Dawn's commitment to the European market, offering non-toxic propulsion systems and developing reusable space planes and underscores the importance of collaboration between these two key aerospace regions, emphasizing the potential for innovation, shared expertise, and strengthened partnerships. Even though the direct commitment of the AD-ASTRA project in this setup cannot be established, it is obvious that the project served to tighten the already existing ties between the regions and proved a further incentive to the natural occurrence of such business developments.
Unmanned Valley ↔ Aerospace Delta ↔ Grottaglie Airport	Substantial connections were made between the Unmanned Valley drone test- and development centre in Katwijk (Aerospace Delta) and Grottaglie Airport in DTA's Apulia's area. Especially the Test Bed research infrastructure that is (going to be) implemented here offers opportunities for Dutch companies and research parties to test and develop especially larger drones and specialized sensor-based applications; the innovative drone ecosystem at Unmanned Valley offers potential partnership to the further development of drone companies and operators currently active in Grottaglie. For the past year, the two drone centers have been exploring various ways for collaboration and identifying potential next steps.
AD-ASTRA - Madrid	Thanks to the AD-ASTRA tool, and to the workshop organized in Madrid in the context of AD-ASTRA, regional young companies located in Madrid have the opportunity to establish relationships with companies in the other regions, giving them cooperation opportunities and opening their markets.

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2.3 The whole ecosystem

During the AD-ASTRA project's writing phase, each entity listed below provided a letter of interest that highlighted the consortium's enthusiasm and attracted the attention of other regional organizations. These letters (included in Annex 1) emphasized the partners' strong regional connections and extensive outreach capabilities.

- **Dpixel**: an innovation company and certified incubator with decades of experience supporting entrepreneurial teams with strong innovative qualities. Dpixel specializes in fostering the growth of start-ups and guiding the innovation processes of companies and institutions.
- **Primo Space Fund**: a seed and early-stage venture capital fund dedicated to accelerating the potential of Space Tech projects developed by exceptional teams.
- **CIRI Aerospace**: an interdepartmental research center affiliated with the University of Bologna, committed to advancing knowledge, expertise, and research services for companies and research entities in aeronautics, space, energy systems, advanced materials, mechanical systems, sensor technologies, nautical, and ground transportation.

During the AD-ASTRA project, specifically in the WP1 activities, a comprehensive mapping of the aerospace innovation ecosystems in each of the five consortium regions was conducted. This mapping included stakeholders, capabilities, programmes and policies, connections effectively creating a wider circle of stakeholders to the project. This list is available in the first deliverable, *D1.1 – "Innovation inventory"*.

In WP2, approximately 40 stakeholders were selected from this wider circle, creating a closer circle of interested partners for the project. These stakeholders (companies, universities, research centers, institutions, etc…) participated in the co-creation workshops across the five regions, attended specific AD-ASTRA events or hosted visits from the consortium. A detailed list of this stakeholders is reported in Annex 2.

These stakeholders form the basis of the AD-ASTRA tool, a self-devised channel to interconnect the regions. The tool is further detailed in this report, in Chapter 3.1.4.

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3. Project's outcomes

This section seeks to present the actual results of the project, in particular the many actions that were undertaken by the partners during the course of the project: participation in different sorts of events, information collected in WP1 leading to the SWOT analysis and the TOWS strategy that would later infer the Joint Action Plan but also the connections with other projects. This section then presents a quick insight of some lessons learned during the project and the future actions that are foreseen by the partners in relation to the AD-ASTRA project.

3.1 Actions undertaken

3.1.1 Participation of partners in (European and local) events

By taking part in local, national and European events, the partners gave visibility to the project during the course of the two years of its duration. In doing so, they disseminated the actions of the project and gave it more consistency. In particular, the partners could give away flyers linking to the project's website and public documents. In the following Table 3 is reported a brief description of the attended events for each of the five regions of the consortium.

Table 3 Description of the events attended by the AD-ASTRA consortium members

ART-ER	**ART-ER,** the coordinator of the project, participated in many events related to the aerospace sectors during the project lifespan, always bringing the example of the AD-ASTRA project, as a best practice in terms of interregional active collaboration. In some of them the partnership has been actively involved: during the exhibition R2B2023, the International Exhibition of Research and High Skills for Innovation, a meeting point for the international innovation community held every year in Bologna, the event "Aerospace Innovative Ecosystems" has been organized with the AD-ASTRA partnership, within the framework of the exhibition, in June 2023. In July 2024, to celebrate the end of the project and present the Joint Action Plan to the Emilia-Romagna regional community a public event was organized in Bologna, together with the partnership, named "Joint Action Plan for the Development of Regional Aerospace Ecosystems". In parallel to these dissemination activities, ART-ER participated again at R2B2024, introducing the AD-ASTRA project during 2 events: "Exploring Aerospace Places: Internationalizing the Regional Ecosystem"; "Space Data for regional policies". ART-ER participated also in several events organized by the CTNA (National Technology Cluster on Aerospace) and by NEREUS, such as the National Symposium organized in Matera for the year 2023. Finally, other visited events are connected with the Emilia-Romagna Regional Strategic Forum on Aerospace, that organizes periodic events on the aerospace domain and also international missions (*i.e.*, to Houston, Tokyo, Montreal, Seoul), where ART-ER is always participating. In particular during the Houston mission, the regional delegation, including ART-ER, participated at the Ascend Texas conference, fully

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	devoted to the aerospace stakeholders, and very valuable to exchange information about our European ecosystems, connected to the project, and the American ones. Again within the context of the regional Forum, ART-ER participated in other international exhibitions, such as the San Marino Aerospace, held in October 2023, ETE 2023 (Earth Technology Expo) in November 2023, and other local events connected to the aerospace regional ecosystem development.
UPM	**UPM**, through its numerous researchers, have participated in many scientific and technical events where the participation in the AD-ASTRA project has been relevant. As it has been mentioned before, a major milestone has been the awareness of the ESA Technology Broker Spain. Both projects have been presented at different events, like the Workshop on Technology Innovation at the UPM Innovation Week.
DTA	**DTA** participated in several events over the two years of the project, mainly at the local level. For example, the "Drones Beyond 2023", where an editorial on the AD-ASTRA and its megatrend analysis was presented for the event booklet; flyers on the project were distributed at a meeting in Bologna in March 2024 for the "Invitalia Roadshow" for the "House of the Emerging Technology" framework organized by the Minister for Economic Development; furthermore, the project was presented in Bari at a regional forum organized by the Regional Economic Development Agency (ARTI) focusing on the state of the art of the aeronautical industry in the Apulia region.
TM	**TM** participated in several events over the two years of the project, mainly locally around the south-west of France. The most important of them being the Aerospace Valley Forum where TM could meet Aerospace Valley members, present AD-ASTRA project and tool, and get a lot of valuable insight on different aspects of the aerospace sector. For example, the 2023 conference on the relationship between the Z generation and aerospace enabled us to have interesting inputs for the Bologna co-creation event that followed. The 2024 Forum enabled TM to present the AD-ASTRA tool to Aerospace Valley members. Other visited events are local events linked to aerospace or to Europe: Aerospace Valley workshops or events, EIC presentation in Occitania with the Occitania Europe association, visit to Occitania Europe in Brussels, SIANE industries forum in Toulouse, "Académie de l'Air et de l'Espace" conferences, EIT UAM Plazza events and other webinars or conferences linked to other European projects, including partner projects like Metastars.
IQ	**For InnovationQuarter** participating in events of the AD-ASTRA consortia partners allowed the agency to build stronger relationships within stakeholders from the regions, understand their regional priorities, and collaborate more effectively on shared objectives. All regions were present also at the launch of the Aerospace Delta Agenda 2030 in May 2023 in Delft.

Other events throughout the two years of cooperation included these expos and congresses and symposia where we met up with representatives of the various partner regions: Paris Air Show 2023, Space Tech Expo Bremen 2022 & 2023,

Amsterdam Drone Week 2023 & 2024, ILA Berlin 2024, Industry Space Days Noordwijk 2024.

As can be seen in this recapitulation, quite a lot of the European events in the field of aerospace were covered by the members of the AD-ASTRA project in the previous two years, which gave the project a wide coverage and helped improve its impact.

3.1.2 Common SWOT and TOWS analysis

WP 2 consisted in the analysis of the ecosystems of the five regions, through an initial SWOT analysis and a final one that took the form of a TOWS strategy. Both were conducted individually by the five partners following a common methodology that was specifically co-designed for the project. This gave an interesting insight of the five aerospace innovation ecosystems, but also of the commonalities and differences of the regions and enabled the consortium to move smoothly towards the Joint Action Plan. The following section is a short summary of the **common SWOT analysis** for the five regions (common strengths, weaknesses, etc…) that can be read in its entirety in *D2.2 – "Initial report on the SWOT analysis, relevant networks, and innovation barriers mitigation"*.

The aerospace sectors across the five AD-ASTRA regions exhibit several **common strengths**. Education and research are particularly robust, with numerous high-level educational institutions and a strong research and development infrastructure in both aeronautics and space. The presence of a diverse array of aerospace companies contributes significantly to the economic weight of these regions, further supported by well-established aerospace districts of varying maturity. Political support is evident through regional strategies and policies that promote aerospace growth. Innovation ecosystems thrive due to the presence of enabling actors, accelerators, incubators, and collaborative organizations, fostering a helpful environment for startups and technological advancements. Additionally, strategic geographical locations with well-connected transportation infrastructure and key airports strengthen the aerospace sectors' operational efficiency and global connectivity.

Despite their strengths, aerospace sectors in various regions face notable **common weaknesses**. There are significant skill gaps, particularly in critical technologies like artificial intelligence and cyber security, making it challenging to attract and retain skilled professionals. Manufacturing capabilities are limited in some areas, especially in some specific aerospace sectors and large companies are not present in all the regions. There are some regulatory challenges with some regions lacking policies and support for drone usage. Infrastructure deficiencies, such as the absence of experimentation and testing facilities for drones, further hinder development. To finish, there is a low level of public awareness about the aerospace sector, which may impact its growth and societal support.

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The aerospace sectors of the five regions have several promising **common opportunities**. Technological growth is anticipated in areas like sustainable aviation, hydrogen propulsion, and alternative energy sources, presenting significant advancement potential. There are also ample opportunities for interregional collaboration, allowing regions to leverage each other's strengths and share resources. Policy support is increasing, with regional interest in securing funding and promoting sector growth through political influence. Academic collaboration with high-level universities can further enhance education in specialized areas. Eventually, the establishment of new innovation hubs and centers focused on emerging technologies, such as hydrogen for air mobility, offers a fertile ground for technological advancements and sectoral development.

The five regions' aerospace sectors face several **common threats**. Intense global competition poses a risk, as other regions and countries may advance more quickly, potentially leading to the migration of aerospace businesses to more competitive areas. Talent challenges are significant, with skilled professionals often moving to regions offering better opportunities, creating a shortage of necessary expertise. The absence of major aerospace companies and headquarters in some regions holds back sector development and innovation. Economic shifts, including the diversion of focus and resources from established sectors to new ones, could disrupt existing industries and lead to a loss of competitive edge. Finally, regulatory and legislative challenges, particularly in the drone sector, slow the development of supportive regulations and hinder the testing and demonstration of new applications.

The following section is a short summary of **the common TOWS analysis and strategy for the five regions** that can be read in its entirety in *D2.3 – "Final report on the SWOT analysis, relevant networks, and innovation barriers mitigation"*. The results of this strategy greatly influenced the Joint Action Plan that can be read in D3.1.

A TOWS analysis is a way of taking a SWOT analysis further, to provide actionable links between the different parts of the specific analyzed scenarios and environment. In the framework of the AD-ASTRA project, this type of analysis was presented as an extension of the SWOT analysis for each partner region. Then a common TOWS analysis was elaborated, based on the separate TOWS analyses of each of the partners.

The **MAXI-MAXI strategy** for the aerospace sectors of the five regions leverages regional strengths and opportunities to drive innovation and growth. It emphasizes collaboration among research institutions, universities, and aerospace businesses to advance technologies like drones and sustainable aviation. Education is strengthened through specialized courses and international cooperation to develop a skilled workforce. The strategy enhances business ecosystems by fostering networking and partnerships, promoting competitiveness, and attracting investments. Political advocacy ensures aerospace priorities are included in strategic agendas, securing funding and support. The strategy also focuses on sustainable practices and cross-

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sector innovation, integrating aerospace technologies with other industries to address broader challenges. This approach positions regions as global leaders in aerospace innovation and economic growth.

The **MINI-MAXI strategy** addresses weaknesses by leveraging opportunities. It focuses on attracting and retaining talent through partnerships with educational institutions for internships and skill development programs. Enhancing the regulatory framework involves advocating for supportive policies for drones and space activities. Infrastructure development includes investing in specialized R&D and testing facilities to attract companies and international partnerships. Financial support is improved by coordinating regional, national, and European funding and attracting private investment for startups and SMEs. Strategic partnerships with European aerospace programs and major companies are pursued to strengthen regional presence. Promotional activities and outreach programs should be organized to raise community awareness and attract new businesses and investments. This strategy transforms weaknesses into strengths, fostering growth and innovation in the aerospace sector.

The **MAXI-MINI strategy** leverages regional strengths to address potential threats. It encourages collaboration among regional aerospace companies, universities, and research centers to create a unified ecosystem, enhancing R&D and innovation while mitigating the risk of companies relocating. International collaborations are pursued to maintain competitiveness and market access, using political influence and partnerships with other regions and countries. Talent attraction and retention are prioritized through talent exchange programs, residency services, and educational alliances, addressing hiring challenges and ensuring a steady influx of skilled professionals. Continuous industry diversification is promoted by implementing policies that encourage varied investments and monitoring global aerospace trends, reducing dependence on specific sectors and mitigating industry shifts. By focusing on these strategies, regions can strengthen their collaboration, innovation, and talent pools while addressing potential threats to ensure sustained growth and competitiveness in the aerospace sector.

The **MINI-MINI strategy** focuses on addressing weaknesses and threats while leveraging strengths. This includes working closely with regulatory bodies to develop effective frameworks for drone regulation, advocating for reforms to support aerospace growth, and ensuring a supportive regulatory environment. Infrastructure development is prioritized by investing in specialized facilities and manufacturing capabilities to mitigate economic shifts and retain businesses. Strengthening the regional innovation ecosystem involves stimulating collaboration, supporting startups, and attracting investments to enhance competitiveness. Partnerships with industry players are facilitated to capitalize on their presence and boost overall regional competitiveness. By implementing these strategies, regions can address their

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weaknesses and threats while reinforcing their strengths to improve the competitiveness and resilience of their aerospace sectors.

3.1.3 Links with other projects

During the course of its lifetime, the AD-ASTRA project had the opportunity to create specific links with other European projects. In the following paragraphs is reported a short description of the projects that were of interest for the AD-ASTRA consortium and the subsequent links that were created.

METASTARS project

A **Memorandum of Understanding** was signed between the AD-ASTRA project and the METASTARS European project, coordinated by Aerospace Valley. The AD-ASTRA and METASTARS projects share several common objectives and approaches within the European aerospace sector, both aiming to enhance innovation, competitiveness, and resilience.

METASTARS aims to support SMEs in the aerospace and defense sectors, promoting digital and environmental transitions, and improving resilience against economic shocks. The project provides financial support for innovative projects and services, encourages cross-sectoral collaboration, and develops strategies to enhance the international presence of European aerospace businesses.

Both projects involve collaboration among clusters, research institutions, and industry players to create a more cohesive and competitive European aerospace ecosystem. They also share a focus on addressing regulatory and infrastructural challenges to support sector growth and innovation. These common goals underline a broader European strategy to maintain and enhance the global competitiveness of its aerospace sector through coordinated efforts and strategic initiatives.

UAM Plazza accelerator

UAM Plazza Accelerator is coordinated by Toulouse Metropole and involves Aerospace Valley. Both projects share a focus on innovation and growth within the aerospace sector, particularly through fostering startups and developing new technologies.

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UAM Plazza Accelerator, funded by EIT Urban Mobility, supports startups in the Urban Air Mobility (UAM) sector. It provides these startups with connections to the European UAM ecosystem, key stakeholders, investors, and living labs. The accelerator focuses on helping startups refine their product-market fit, navigate regulatory landscapes, and secure funding and investment opportunities.

Both projects emphasize the importance of collaboration between industry and academia, regulatory support, and infrastructure development to drive innovation in aerospace and urban air mobility sectors. They also share a common goal of enhancing Europe's competitiveness in these fields by supporting emerging companies and facilitating the development and implementation of cutting-edge technologies.

Toulouse Métropole AD-ASTRA manager therefore gets involved in many of the UAM Plazza actions and vice versa. Moreover, they share resources, create synergies, work together with regulatory bodies, benefit from each other's networks, providing more opportunities for partnerships, exchange best practices and lessons learned.

Engage.EU universities alliance

Both the AD-ASTRA European project and the ENGAGE.EU European university alliance have an anchor point in Toulouse. Although collaboration has just started between the two, they share several potential links and opportunities for further cooperation. Both initiatives emphasize the importance of research, innovation, and education to address major societal challenges. While AD-ASTRA focuses on enhancing the aerospace sector through research, innovation, and the development of new technologies, ENGAGE.EU aims to empower European citizens through interdisciplinary education and research in business, economics, and social sciences, among other fields.

Going further, bringing ENGAGE.EU universities in AD-ASTRA could bolster research collaboration and innovation. The interdisciplinary approach of ENGAGE.EU, which spans business, economic, social sciences, and beyond, can provide valuable insights and methodologies that could be applied to the aerospace sector. Moreover, ENGAGE.EU's focus on fostering societal engagement and sustainable development aligns well with AD-ASTRA's goals of promoting innovation and addressing technological and economic challenges in aerospace.

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The integration of educational programs and research initiatives between the two could enhance the talent pool for the aerospace sector, addressing skill gaps and promoting a more comprehensive educational framework.

By collaborating further, AD-ASTRA and ENGAGE.EU could enhance their impact on both aerospace innovation and broader societal challenges, fostering a robust ecosystem of research, education, and practical applications across Europe.

MAE – Moving towards Aerospace

The MAE project aims to drive a sustainable and innovative transition within specific manufacturing value chains, particularly in the automotive and nautical sectors, by addressing challenges related to green transformations. Partners in the MAE project, including entities from the Emilia-Romagna region (CISE - *Centro per l'Innovazione e lo Sviluppo Economico*; City of Forlì) and the South Holland region (TU Delft; City of Delft), have the potential to realize valuable connections with AD-ASTRA. By integrating MAE's focus on sustainable manufacturing with AD-ASTRA's emphasis on aerospace innovation, both initiatives can significantly enhance their impact. This collaboration could boost research and innovation, accelerate the development of new technologies, and align with AD-ASTRA's aerospace goals while advancing MAE's green transition objectives.

ECARE – European Clean Aviation Regional Ecosystem

During the development of the project we entered into contact, as a consortium, with the ECARE project, and in particular with its coordinator (Aerospace Valley). There are indeed, quite many synergies among the two projects, in particular in relation to the possibility of integrating data coming from AD-ASTRA, or in general from the single ecosystems involved, into the ECARE digital platform that is being developed during the project. This collaboration is on-going.

3.1.4 AD-ASTRA tool

The AD-ASTRA partners felt that they could and should implement a concrete way to interconnect their regions and their ecosystems. This is why the AD-ASTRA tool (Figure 1) was created.

Through the project consortium of five European partners, the AD-ASTRA tool is a **channel** for linking the ecosystems of the five partner regions. Relying on their **privileged relationship** and their **knowledge of each other's ecosystems**, the partners

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can act as intermediaries between their ecosystem and the equivalents in the other AD-ASTRA regions.

Figure 1 Logo for the AD-ASTRA tool.

Figure 2 reports the schematic organization of the interconnected network. The first level of interconnection corresponds to the stakeholders of the AD-ASTRA partnership, and it then expands to a further external network. The stakeholders (see Annex 2) are the entities who got involved in the project in WP2: they took part in the co-creation workshops or welcomed the partners for visits in their premises.

Figure 2 Representation of the AD-ASTRA network.

During the implementation phase of the tool, each partner approached stakeholders within their region to seek consent for sharing their contact details with others in the network. More specifically, stakeholders were asked which details they were

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comfortable sharing such as name, role, e-mail address, etc… Additionally, stakeholders provided a brief description of their activities within their company or laboratory, and specified if they were seeking particular opportunities or collaborations. After receiving all the stakeholders' contact information and data, each partner shared these details with their own network. This established the first level of interconnection opportunities. Subsequently, the next level which aims to broaden the circle is reported in Figure 3.

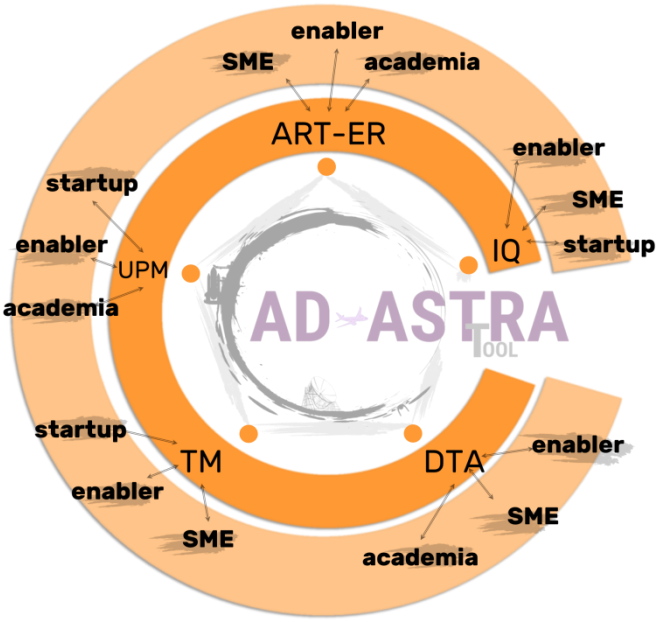

Figure 3 Broadened circle of the AD-ASTRA tool

Through their enablers (*i.e.*, local clusters or entities that might have connections with a wider community of stakeholders) the partners can reach out to a wider ecosystem in each of their regions. The tool will be presented to the enablers in each of the regions of the consortium, so that it can be used and operated by them simultaneously. This should in turn create the bond and bring more opportunities of collaboration between the actors of the different ecosystems.

3.2 Lessons learned

During our project, we discovered that co-creation workshops, which might appear straightforward on the surface, involve a deeper level of complexity than anticipated. Initially, we expected these workshops to be simple collaborative sessions where ideas flowed naturally. However, as we delved into the process, we realized that effectively facilitating co-creation requires careful planning, a deep understanding of participant dynamics, and a nuanced approach to guiding discussions. The complexity arises from the need to balance diverse perspectives, manage differing expectations,

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and ensure that every participant feels heard and valued. This complexity, while challenging, ultimately enriches the co-creation process.

Our attempt at a collaboration tool guided us away from simply replicating existing digital platforms from other projects without genuine innovation. This realization pushed us to maintain a more concrete, human-centered approach, emphasizing the importance of personal connections and human contribution. By focusing on these elements, we were able to foster meaningful networking, which grounded our work in tangible outcomes. A key lesson learned was the value of the AD-ASTRA human-centered tool, which emerged from our collaborative efforts.

3.3 Future projects

The AD-ASTRA consortium gathered again, with other partners, to answer the Startup Europe call for proposals. **DEEP DIVE** proposal aims at strengthening the EU start-up infrastructure, and the full empowering of their potential outcomes, through the unified deployment of instruments already existing in the EU and the adoption of instruments facilitating the connection and circulation of ideas, and the generation of a common ground for investments to be duly addressed at the EU scale.

The AD-ASTRA consortium is in the process of answering another call for proposals in order to implement one of the actions foreseen in *D3.1 – "Joint Action Plan"*: HORIZON-EIE-2024-CONNECT-02-01 – Expanding Academia - Enterprise Collaboration. In this case the proposal has not been submitted yet, but the idea is to put a focus on providing pre-incubation possibilities to innovative ideas coming out from the universities and willing to find their own market access as well as specific networking possibilities.

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4. Impact of the Joint Action Plan

This report not only aims to describe the results and beneficiaries of the project but it also seeks to present the impact of the Joint Action Plan on the whole ecosystem, particularly the Quadruple Helix.

4.1 Summary of the Joint Action Plan

Before taking a look at the impact of the Joint Action Plan that can be read in its entirety in deliverable D3.1, the following section presents a short summary of the Plan itself, introducing the short-term, mid-term and long-term recommended actions.

The actions of the Action Plan are designed to enhance synergies and complementarities among existing initiatives, encouraging the alignment of innovation agendas across various sectors and regions. The whole Action Plan applies the Quadruple Helix model, which recognizes four major actors in the innovation system: government, academia, industry, and community. The information is presented with short, medium, and long-term perspectives, considering a 10-year timescale to foresee the development and growth of interconnected aerospace innovation ecosystems.

- Short-term actions: 0-3 years
  - **Education and talent development:** 4 actions that establish cross-regional internships, promote STEM education, encourage interdisciplinary research, and develop Ph.D. exchange programs to bolster talent and innovation in the aerospace sector.
  - **Industry-academia collaboration**: 2 actions that develop specialized industry-tailored courses and training programs in collaboration with educational institutions, and establish internships and student exchange initiatives to bridge the gap between academia and industry and promote entrepreneurship for academics.
  - **Industrial collaboration:** 2 actions that establish cross-regional collaboration among companies within the aerospace sector and with those in other innovative sectors
  - **Networking between ecosystems**: 3 actions that organize regular networking events and matchmaking sessions, and implement collaborative tools like shared document repositories to facilitate relationship-building and collaboration.

- Mid-term actions: 3-5 years
  - **Regulatory framework enhancement**: 4 actions that engage with policymakers to develop supportive regulations, streamline processes,

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address barriers, and align regional aerospace strategies with national and European priorities to foster growth and innovation.

- **Trans-regional collaborations and funding**: 3 actions that monitor global aerospace trends, adapt strategies, establish joint research initiatives and innovation hubs, and create trans-regional funding initiatives to support projects, startups, and research programs in aerospace and related technologies.

- Long-term actions (5 - 10+ years)
  - **Market development:** 3 actions that facilitate market access for regional aerospace companies through international partnerships and trade agreements, develop online platforms for global industry insights and trends, and promote the establishment of international aerospace offices to support regional businesses globally.
  - **Infrastructure development:** 2 actions that allocate funding for infrastructure projects and create shared experimentation and test facilities to improve aerospace capabilities, support industry growth, and enhance collaboration and innovation.

4.2 Impact of the action plan on the Quadruple Helix

The following Table 4 will consider the possible impacts the Joint Action Plan could have on the five regions' ecosystems, if and when thoroughly implemented. The list of impacts could be found incomplete or misaligned in some aspects, however comprehensive it aims to be as respects the four branches of the Quadruple Helix. Therefore, while recognizing potential gaps or misalignments, this short analysis aims to provide a foundational understanding of how the Joint Action Plan can drive transformative benefits across the Quadruple Helix framework in the five regions' ecosystems.

Table 4 Impact of the Joint Action Plan across the Quadruple Helix

IMPACT ON ACADEMIA	
Key aspects	Global Competitiveness
	Research Impact
	Industry Collaboration
	Educational Infrastructure
The Action Plan's impact on academia is multifaceted and spans short, medium, and long-term effects. In the **short term** (0-3 years), cross-regional internships and students, Ph.D. and researchers exchange programs will enhance practical skills and global competitiveness, while promoting STEM and interdisciplinary fields will create a versatile workforce. Industry-tailored courses and training programs will improve employability and strengthen academia-industry connections through internships and networking events. Actions to	

promote academics' entrepreneurship will reinforce the links between academia and industry, benefitting both.

In the **medium term** (3-5 years), engaging with policymakers will create a supportive regulatory environment, facilitating research and innovation, and international collaborations and trans-regional funding initiatives will enhance the relevance and impact of academic research.

Over the **long term** (5-10+ years), international partnerships, trade agreements, and access to global industry insights will bring a global perspective to research and education, while improved infrastructure and shared facilities will boost research capabilities and foster collaboration.

Overall, the Action Plan should advance academic quality and impact, particularly in aerospace, by strengthening linkages with government, industry, and community, leading to increased funding, better infrastructure, and a workforce aligned with industry needs.

IMPACT ON INDUSTRY	
Key aspects	Talent Development
	Industry-Academia Partnerships
	Regulatory Framework
	Market Expansion

The Action Plan will significantly impact the aerospace industry by ensuring a steady flow of well-trained talent and fostering strong industry-academia partnerships.

In the **short term** (0-3 years), the Action Plan will enhance the aerospace industry by boosting education, talent development, and industry-academia collaboration with the development of new cutting-edge innovation possibilities. Cross-regional internships and Ph.D. exchanges will supply well-trained talent while promoting STEM education and interdisciplinary research will create a skilled workforce. Tailored educational programs and internships will ensure graduates have the necessary industry-specific skills, reducing training costs. Cross-regional company collaborations will drive sector-wide advancements through shared best practices and technologies. Regular networking events and collaborative tools will foster a more integrated and cooperative industry environment.

Medium-term (3-5 years) benefits include an improvement of the regulatory framework and of trans-regional collaborations and funding. Engaging with policymakers to develop supportive regulations and streamline processes will reduce bureaucratic hurdles, creating a more conducive environment for growth and innovation. Aligning regional strategies with national and European priorities will provide clearer direction and stronger support. Additionally, monitoring global trends and adapting strategies will help companies stay competitive and innovative, while joint research initiatives and innovation hubs will offer access to cutting-edge research, advanced technologies, and new funding opportunities, driving the development of groundbreaking aerospace solutions.

The **long term** (5-10+ years) impact for Industry will be to drive market development and infrastructure improvements. International partnerships and trade agreements will expand market access, opening new revenue streams and business opportunities. Investment in infrastructure projects and the creation of shared experimentation and test facilities will improve capabilities, support growth, and accelerate technological advancements.

Overall, the Action Plan should significantly benefit the aerospace industry by ensuring a continuous supply of well-trained talent, fostering strong industry-academia partnerships, and promoting collaboration across sectors and across regions. Regulatory enhancements and strategic alignments will create a more supportive environment for growth and innovation. Long-term market development and infrastructure investments will further

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strengthen the European industry's competitiveness, driving sustained advancements and success in the aerospace sector.

IMPACT ON PUBLIC BODIES	
Key aspects	Regulatory Support
	Strategic Alignment
	Infrastructure Development
	International Partnerships
The Action Plan will impact public bodies by enhancing their role in supporting the aerospace industry's growth and innovation over a 10-year period. In the **short term** (0-3 years), public bodies could facilitate cross-regional internships and Ph.D. exchange programs, promote STEM education, and develop specialized courses and training programs in collaboration with educational institutions. They will also support the development of academics' entrepreneurship and cross-regional company collaborations and organize regular networking events. In the **mid-term** (3-5 years), public bodies could be instrumental in developing supportive regulations, aligning regional strategies with national and European priorities, addressing barriers and funding joint research initiatives and innovation hubs. The **long-term** (5-10+ years) is that public bodies should negotiate international partnerships and trade agreements, establish global industry insights and international offices, and allocate resources for key infrastructure projects and shared experimentation facilities. Overall, the Action Plan should empower public bodies to create a conducive environment for industry advancements, ensuring sustained growth and global competitiveness in the aerospace sector.	

IMPACT ON CIVIL SOCIETY AND CITIZENS	
Key aspects	Educational Opportunities
	Career Prospects
	Technological Advancements
	Community Engagement
The Action Plan will impact civil society and citizens by enhancing educational and professional opportunities and fostering community engagement. In the **short term** (0-3 years), it should provide valuable internships, promote STEM education, and tailor training programs to industry needs, improving career prospects and job readiness with a better skilled workforce. Citizens will benefit from a more dynamic job market, participate in innovation processes and benefit from shared knowledge and resources. **Mid-term** (3-5 years) regulatory enhancements and inter-regional collaborations will create a supportive environment for economic growth and technological advancements, benefiting communities through improved public services and innovative solutions, in short new technologies and solutions that improve everyday life. In the **long-term** (5-10+ years), expanded market access and infrastructure development will create job opportunities, improve quality of life, and facilitate greater participation in the global economy. It should provide citizens with access to cutting-edge technologies and opportunities for community-driven projects. Overall, the Joint Action Plan should greatly benefit civil society and citizens, drive societal	

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progress, economic growth and societal development. It should ensure that citizens are actively involved in and benefit from advancements in the aerospace sector.

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5. Conclusions

This report on the foreseen impacts and potential beneficiaries of the AD-ASTRA project shows that it has benefited many. First, it benefitted its partners by fostering collaboration but also enhancing strategic insights, and strengthening connections within the aerospace sector. Through various activities such as collaborative research, SWOT and TOWS analyses, and co-creation workshops, each partner gained a deeper understanding of their regional ecosystems and established stronger relationships that have paved the way for future joint initiatives. The project not only improved the internal benchmarking and strategic alignment of the partners but also contributed to the broader aerospace ecosystem across the involved regions.

By engaging in local, national, and European events, the project partners effectively disseminated project objectives, shared insights, and enhanced the visibility of the AD-ASTRA initiative. The AD-ASTRA tool, developed as part of this collaboration, is a key outcome that will continue to facilitate connections between stakeholders and drive further innovation. The project has laid a solid foundation for ongoing collaboration and growth, ensuring that the entire ecosystem—across all five regions—will continue to benefit in the long term.

The collaborative efforts and shared analyses, such as the SWOT and TOWS strategies, have provided a robust foundation for the Joint Action Plan, ensuring that regional strengths are leveraged while addressing common challenges.

The creation of links with other European projects further exemplifies the strategic foresight of the consortium in aligning AD-ASTRA's goals with broader European aerospace initiatives. These connections not only expand the project's impact but also pave the way for continued collaboration and resource sharing across regions.

The development of the AD-ASTRA tool marks a tangible outcome of the project, serving as a practical mechanism to interconnect regional ecosystems and promote sustained cooperation. This tool, coupled with the lessons learned from co-creation workshops, underscores the importance of a human-centered approach in fostering meaningful and effective partnerships.

The Joint Action Plan outlined in deliverable D3.1 represents a comprehensive strategy designed to foster innovation, collaboration, and growth within the aerospace ecosystem by applying the Quadruple Helix model, which integrates the efforts of government, academia, industry, and civil society. The plan's impact, as analyzed across these four key actors, highlights its potential to advance the aerospace sector over a 10-year timescale. It strengthens academia through industry partnerships and skills development, while supporting the industry with a steady talent pipeline, regulatory improvements, and infrastructure investments. Public bodies will facilitate this growth by creating a supportive environment through education, regulation, and strategic investments. For civil society, the Joint Action Plan promises better job prospects, improved quality of life through new technologies, and greater community

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involvement in innovation. Overall, the Joint Action Plan aims to drive innovation, competitiveness, and societal progress across the aerospace sector.

As the consortium looks toward future projects, the foundation laid by AD-ASTRA will undoubtedly serve as a catalyst for continued innovation and collaboration in the European aerospace sector. A webinar destined to present the Joint Action Plan to a wide audience, including institutions, will be conducted in September, after the end of the project. The upcoming proposals, aimed at enhancing start-up infrastructure and expanding academia-enterprise collaboration, reflect the consortium's commitment to advancing the aerospace industry and driving economic growth across the regions involved.

In a word, the AD-ASTRA project has started to bolster innovation, collaboration, and competitiveness in the European aerospace sector by uniting key stakeholders and fostering a more interconnected and supportive ecosystem.

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Annex 1

The 3 letters of interest by CIRI Aerospace, Primo Space Fund and Dpixel can be found here.

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
CENTRO INTERDIPARTIMENTALE
DI RICERCA INDUSTRIALE
AEROSPAZIALE - AEROSPACE

ART-ER S.Cons.p.A.
Via Gobetti, 101
40129 - Bologna (BO)
Italy

Forlì, 21/10/2021

SUBJECT: Expression of INTEREST

On behalf of the Interdepartmental Center for Industrial Research in Aerospace (CIRI Aerospace), Alma Mater Studiorum – Università di Bologna, we herewith confirm the commitment to support the proposal titled AD ASTRA - Aerospace Districts: Acceleration of the Strategic Transfer of Regional Advancements, in response to the European Commission Horizon Europe call HORIZON-EIE-2021-CONNECT-01-01 call. The proposal is coordinated by ART-ER SOCIETÀ CONSORTILE PER AZIONI (Bologna, Italy).

The mission of CIRI Aerospace is to promote the development of knowledge, expertise and research services for companies and research entities operating in the sectors of aeronautics, space, energy systems, advanced materials and mechanical systems, sensors technologies, nautical and ground transportation.

We wish to offer our support and cooperation to the proposal and are willing to commit to the project as a member of the ecosystem of stakeholders, taking part in related activities bringing our expertise: participating in capacity building initiatives, offering to act as an intermediate actor to involve our community and network of partners and startups to widen the impact of the project and disseminating the results.

We will contribute to WP 2 (Network engagement) and WP 3 (Synthesis toward the joint action plan). In particular our experience will be useful to evaluate the economic sustainability of medium and long term actions identified in the joint action plan.

AD ASTRA proposal aims at the development of a connected interregional innovation ecosystems between 5 EU regions (Toulouse, South Holland, Madrid, Apulia and Emilia-Romagna) with different innovation readiness levels but a shared interest in fostering aerospace innovations and sectors. The overarching objective of the project is to build an interconnected, inclusive innovation ecosystem across Europe, with a shared focus on the aerospace innovation sector and cross-contamination to and from other innovative sectors (e.g., automotive, biomedical, agri-food, big data).

CIRI Aerospace will not disclose to any third party information received related to the preparation of the proposal. CIRI Aerospace shall not use such confidential information for any other purpose than supporting the proposal preparation.

We look forward to a successful cooperation.

Yours sincerely,

Prof. Paolo Tortora

Director
CIRI Aerospace
Alma Mater Studiorum – Università di Bologna

ALMA MATER STUDIORUM • UNIVERSITÀ DI BOLOGNA
VIA B. CARNACCINI 12 – I-47121 FORLÌ (FC) – ITALIA
ARIC - CIRI Progetti - aric.ciri-progetti@unibo.it

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PRIMO VENTURES

Milano, 25/10/2021

ART-ER S.Cons.p.A.
Via Gobetti, 101
40129 - Bologna (BO)
Italy

SUBJECT: Expression of INTEREST

Primomiglio SGR S.p.A. (the "Manager") as manager of **Primo Space Fund**, herewith confirms the commitment to support the proposal titled **AD ASTRA - Aerospace Districts: Acceleration of the Strategic Transfer of Regional Advancements**, in response to the European Commission Horizon Europe call HORIZON-EIE-2021-CONNECT-01-01 call. The proposal is coordinated by ART-ER SOCIETÀ CONSORTILE PER AZIONI (Bologna, Italy).

Primo Space Fund is a seed and early-stage venture capital fund focused on the space economy, the first one in Italy and one of the few ones in the world. The fund invests in seed and early-stage venture deals in both upstream and downstream segments, including deep tech verticals (robotics, AI, telco, biomedical, etc.) related to space applications. The typology of investments can vary starting from small tickets in low-TRL startups up to 5 million Euro in companies with advanced metrics. The geographical focus covers mainly Italian companies, but the fund is open to consider startups based in the European Union, the United Kingdom, Switzerland, Israel, and the United States.
Primo Space Fund started its operations in July 2020 and during its first year of life the fund performed 6 investments and reached a size of 85 million Euro. The Manager also operates other funds investing in the digital industry.

We wish to offer our support and cooperation to the proposal and are willing to commit to the project as a member of the ecosystem of stakeholders, taking part in related activities bringing our expertise: participating in capacity building initiatives, offering to act as an intermediate actor to involve our community and network of partners and startups to widen the impact of the project and disseminating the results.

We will contribute to WP 2 (Network engagement) and WP 3 (Synthesis toward the joint action plan). In particular our experience will be useful to evaluate the economic sustainability of medium- and long-term actions identified in the joint action plan.

AD ASTRA proposal aims at the development of a connected interregional innovation ecosystems between 5 EU regions (Toulouse, South Holland, Madrid, Apulia and Emilia-Romagna) with different innovation readiness levels but a shared interest in fostering aerospace innovations and sectors. The overarching objective of the project is to build an interconnected, inclusive innovation ecosystem across Europe, with a shared focus on the aerospace innovation sector and cross-contamination to and from other innovative sectors (e.g., automotive, biomedical, agri-food, big data).

The Manager will not disclose to any third-party information received related to the preparation of the proposal. The Manager shall not use such confidential information for any other purpose than supporting the proposal preparation.

We look forward to a successful cooperation.

Yours sincerely,

Giorgio Minola
Executive Director – Primomiglio SGR S.p.A.

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Società a socio unico
Sede Legale: Piazza Gaudenzio Sella 1, 13900 Biella
info@dpixel.it

ART-ER S.Cons.p.A.
Via Gobetti, 101
40129 - Bologna (BO)
Italy

Biella 20 ottobre 2021

SUBJECT: Expression of INTEREST

On behalf of **dpixel**, we herewith confirm the commitment to support the proposal titled **AD ASTRA - Aerospace Districts: Acceleration of the Strategic Transfer of Regional Advancements**, in response to the European Commission Horizon Europe call HORIZON-EIE-2021-CONNECT-01-01 call. The proposal is coordinated by ART-ER SOCIETÀ CONSORTILE PER AZIONI (Bologna, Italy).

dpixel is an innovation company and certified incubator, with decades of experience in supporting entrepreneurial teams with strong innovative connotations, specialized in supporting the growth of startups and the innovation processes of companies and institutions.

We wish to offer our support and cooperation to the proposal and are willing to commit to the project as a member of the ecosystem of stakeholders, taking part in related activities bringing our expertise: participating in capacity building initiatives, offering to act as an intermediate actor to involve our community and network of partners and startups to widen the impact of the project and disseminating the results.

We will contribute to WP 2 (Network engagement) and WP 3 (Synthesis toward the joint action plan). In particular our experience will be useful to evaluate the economic sustainability of medium and long term actions identified in the joint action plan.

AD ASTRA proposal aims at the development of a connected interregional innovation ecosystems between 5 EU regions (Toulouse, South Holland, Madrid, Apulia and Emilia-Romagna) with different innovation readiness levels but a shared interest in fostering aerospace innovations and sectors. The overarching objective of the project is to build an interconnected, inclusive innovation ecosystem across Europe, with a shared focus on the aerospace innovation sector and cross-contamination to and from other innovative sectors (e.g., automotive, biomedical, agri-food, big data).
dpixel will not disclose to any third party information received related to the preparation of the proposal. dpixel shall not use such confidential information for any other purpose than supporting the proposal preparation.

We look forward to a successful cooperation.

Yours sincerely,

Stefano Azzalin

dpixel srl
P. IVA 02675650028
C.F. 02405570025

Codice Fiscale 02405570025
Società appartenente al Gruppo Iva Maurizio Sella S.A.A. con P. IVA 02675650028
Soggetta all'attività di direzione e coordinamento di Banca Sella Holding S.p.A. – Iscrizione Tribunale di Biella n. 71524

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Annex 2

What follows is the list of all the companies, administrations, academics, research institutes or other structures who were involved in one way or another in the AD-ASTRA project or their partners.

They are organised by region, in alphabetical order.

ART-ER Emilia-Romagna region

ARESYS

ART-ER

ART-ER | EDIH ER2Digit

As Soft Solving srl

Beamit Spa

CISE - Centro per l'innovazione e lo sviluppo economico

CNR - ISMN

Confindustria ER

CONTROLLO QUALITA' SRL

CShark srl

CURTI Costruzioni Meccaniche S.p.A.

Darwix

Data Reply

DICAM UniBO - CIRI Aerospace

DTM srl

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E4 Computer Engineering

ENEA

Epm

gecosistema

GEO4

GeoDataLab Srls

INFN TTLb

IRST IRCCS

Jacobacci & Partners S.p.A.

Laran S.r.l.s.

LEOgistic Space Solutions

Leonardo S.p.a

Mark One

MEEO

NANOPROM CHEMICALS S.R.L

Net Service

Novac

NPC SPACEMIND

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OPTICA formerly OSA

POGGIPOLINI SPA

Politecnico di MIlano

PROAMBIENTE

Regione Emilia-Romagna

Studiomapp

Symboolic

TAUA SRL SOCIETA' BENEFIT

Taua srl società benefit

TEC Eurolab Srl

Tecnopolo di Forlì-Cesena

Teoresi Spa

THE ADECCO GROUP

Unibo

Università di Bologna - Dipartimento di Fisica e Astronomia

Università di Bologna - Scuola di Ingegneria e Architettura

Università di Bologna / CIRI Aerospaziale - Alma Mater Studiorum

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Università di Ferrara

Università di Modena e Reggio Emilia

Yalp

Zocca Coatings srl

Toulouse Métropole - Occitanie region

AD'OCC (regional agency)

AerospaceValley

Aiko

AIRBUS

Alpha Recyclage

ESA BIC (Aeropsace Valley)

Invest In Toulouse

Isae Supaero

Nobrak

Pangea Aerospace

Région Occitanie

SOVAMEP

TARMAC Aerosave

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Toulouse Métropole elected persons

Veso Concept

Innovation Quarter- South Holland region

Aerospace Innovation Hub

Airborne

Conscious Aerospace

Enterprise Europe Network IQ

ESA-ESTEC

FSO Instruments

GTM Advanced Structures

ISISpace

Province of South Holland

Space4Good

Technology Park Ypenburg

TU Delft

Unmanned Valley

DTA - Apulia region

Planetek Italia

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Grottaglie Airport Test Bed

Leonardo Aerostructures

Novotech Aerospace Advanced Technology

UPM – Madrid Community

CRIDA (Reference Centre for Research, Development and Innovation for ATM)

European Space Agency Villafranca - European Space Astronomy Centre

IDAERO

IENAI

INSTER

Instituto Ignacio Da Riva (IDR/UPM)

INTA (National Institute of Aerospace Technology

OCCAM Space

OESIA Group

School of Aerospace Engineering, UPM

UPM Business Centre

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