



1st NEWSLETTER

March 2018

STRATEGIC AND TARGETED SUPPORT FOR EUROPE-UKRAINE COLLABORATION IN AVIATION RESEARCH

About project

AERO-UA is 3-year Coordination and Support Action started on 1 October 2016 and funded by the European Commission under Smart Green and Integrated Transport Challenge of Horizon 2020 Programme.

The project **aims to stimulate aviation research collaboration** between the European Union and Ukraine through strategic and targeted support. **AERO-UA focuses solely on Ukraine** due to the country's huge aerospace potential and comparatively low level of aviation research collaboration with the EU.

The AERO-UA project will achieve its overall aim via four **high-level objectives**:



Identifying the barriers to increased EU-UA aviation research collaboration



Supporting EU-UA aviation research knowledge transfer pilot projects



Providing strategic support to EU-UA aviation research collaboration



Organizing awareness-raising and networking between EU-UA stakeholders

Why is it important? On one hand, enhancing of EU-UA collaboration will stimulate growth and development of Ukrainian aeronautic community. On the other hand, unique skills and knowledge possessed by Ukrainian aerospace organisations can help Europe to address the global aeronautics' challenges and goals identified by ACARE in the Flightpath 2050 Report.

Attend the AERO-UA Information and Networking Event in Kharkiv

Discover cooperation opportunities

During the Information and Networking Event, we will discuss European research funding opportunities open in the frame of Clean Sky 2 and H2020, with a specific focus on aeronautics-related calls.

Our experts will guide you in topic selection, partner search, proposal preparation and submission and in addition, will present some successful case studies.

SAVE THE DATE - 31 May 2018

AERO-UA Information and Networking Event
Kharkiv, Ukraine

Registration will open soon at www.aero-ua.eu



Meet AERO-UA team

The AERO-UA project consortium includes pro-active Ukrainian organizations and well-known European partners, who are open for knowledge exchange, networking and sharing best practices. Moreover, you will have an opportunity to meet our Advisory Board members – AIRBUS Group and DLR representatives.

Barriers to increased EU-UA aviation research collaboration

From December 2016 until April 2017, the research groups and departments of Ukrainian aeronautics organisations participated in the AERO-UA project survey. The survey objective was to identify the **barriers to aeronautic research collaboration between European and Ukrainian partners**.

In total, **65 representatives** belonging to Ukrainian aeronautics from academia, industry and businesses took part in the survey. They expressed their opinion regarding importance and severity of potential barriers for research cooperation with EU in the following measures:

- ▶ **Lack of motivation** due to difficulties to find partners (67 %), low success rate (58 %) and programmes complexity and bureaucracy (52 %).
- ▶ **Lack of awareness of European collaboration opportunities**, first of all, lack of information about partner search instruments (53 %), collaboration opportunities (45 %) and relevant legal and financial issues (44 %).
- ▶ **Lack of human resources or talents** in Ukrainian organizations, which need extra people (62 %) to enlarge research teams and cover new expertises and, especially, need young researchers (78 %).
- ▶ **Lack of adequate facilities, hardware or software** to perform advanced research and provide competitive R&D services, including new R&D facilities and equipment (98 %), modern computer facilities (40 %) and software (32 %).
- ▶ **Lack of funding** in the majority of Ukrainian organizations (88 %) required to buy new equipment (83 %) and to hire new staff (62 %).
- ▶ **International travel limitations** are not so rigorous (72 % of respondents travel internationally), meanwhile lack of funding is still the main obstacle (80 %) for travel intensification.
- ▶ **Inadequacy of the research culture** isn't a serious barrier as far as Ukrainian aeronautic actors doing well in research papers publication in international peer-review journals (82 %), presentation at international conferences (66 %), and participation in professional networks and associations (51 %).
- ▶ **Legal and financial barriers** in the form of lack of resources to co-fund project (63 %), specific Ukrainian financial regulations (63 %) and procedures of international projects approval by the governmental bodies (50 %).

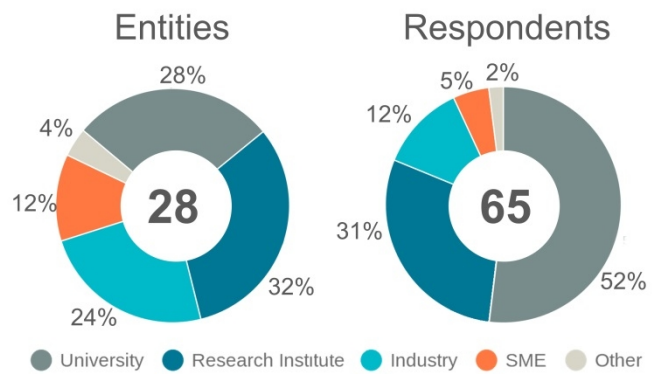
Also, the respondents proposed a series of specific measures to overcome these barriers, including significant changes in Ukrainian policies, less bureaucracy and better coordination and communication between European and Ukrainian players, creation of Ukrainian (governmental) Agency to represent Ukrainian parties and interests in European collaboration (particularly in the context of Clean Sky 2 and Horizon 2020).

The on-line survey was supplemented by the dedicated interviews of the key Ukrainian aeronautics R&T decision makers at SE Ivchenko-Progress, Ukrainian Research Institute of Aviation Technology (JSC UkrIAT), National Aerospace University (KhAI), Frantsevich Institute for Problems of Materials Science (IPMS-NASU), and Physical-Technological Institute Metals and Alloys (PTIMA-NASU).

More results of AERO-UA survey:

[Barriers analysis](#)

[Suggested measures](#)



Expectations of EU-UA aviation research collaboration



Strategic Support to EU-UA aviation research collaboration

Ukrainian representative in ACARE



The [Advisory Council for Aviation Research and Innovation in Europe \(ACARE\)](#) provides strategic, technical and institutional guidance to the European Commission, Member States and its stakeholders. The Council develops roadmaps outlining strategic directions of aviation research, development and innovation to enable Europe to remain a global leader in this field, as well as ensure that air transport satisfies society and environmental needs. These roadmaps provide a guide to future actions in public and private funding programmes in aeronautics.

Thanks to the AERO-UA project support, since the end of 2017, Ukraine has been represented in this valuable European decision-making and strategic body by Mr. Viktor Shulepov, Director of international projects and programs, [Ukrainian Research Institute of Aviation Technology \(UkrRIAT\)](#).

Travel Grants

One of the project tasks is to increase the range and number of Ukrainian organisations participating in aeronautics proposals for H2020 and Clean Sky 2, and to share their knowledge and capacities for the benefit of the EU aeronautics industry. This is accomplished by issuing travel grants to visit EC info-days, brokerage events and valuable European aviation research conferences.

In 2017, two separate calls were launched, demonstrating the following results:

- ▶ **1st call** – 6 travel grants awarded to participate in the [2017 E-MRS Fall Meeting](#) and [7th EASN International Conference](#) See detailed call results at <https://www.aero-ua.eu/travel-grants-first-call-results.html>
- ▶ **2nd call** – 4 travel grants awarded to attend the [EC Horizon 2020 Transport Info-Day](#) and [ETNA 2020 Brokerage Event](#) See detailed call results at <https://www.aero-ua.eu/travel-grants-second-call-results.html>

Next call for AERO-UA travel grants will be announced soon.
Follow our announcements and subscribe to our e-mail list [here](#).

Aviation research knowledge transfer pilot projects

The AERO-UA project launched a series of knowledge transfer pilot projects to provide a targeted support for EU-UA collaboration in aviation research. The pilot projects allow short-term visits between the European and Ukrainian partners in order to exchange knowledge, receive training and conduct feasibility studies.

Being structured around key areas of ACARE Strategic Research and Innovation Agenda and Flightpath 2050, the pilot projects are focused on Aerostructures, Aeroengines and Aerospace Manufacturing. Their specific topics have been carefully selected to meet the partners' expectations and to utilize their knowledge and competencies in the best possible way. In addition to the AERO-UA partners, a number of Research Institutes of NASU are involved in the pilot projects.



Pilot project meeting in Manchester, July 2017

Pilot projects in the field of aerostructures

- **Advanced design of aerospace composite structures:** The idea is to focus efforts on advanced multi-level FE simulation of real aeronautical structures with a view towards their optimization. Different approaches will be used

by pilot project participants in parallel, while the final results will be validated on the basis of real testing campaign data.

- **Aerospace composite structural health monitoring:** The aim is to conduct a feasibility study for an aerospace composite structural health monitoring system based on the network of embedded sensors as a potential application for Ukrainian aircraft. The project will examine issues such as composite structure manufacturing and optimisation of technology for embedding sensors into the composite materials structure at TRL 5 and higher.

Pilot projects in the field of aeroengines

- **Engine health management system:** The main goal is to conduct a feasibility study for an engine health management system of Ivchenko's turboshaft or turbofan engine. The project will consider a non-contact blade vibration measurement technique to increase blade durability by reducing the effects of natural resonances, aerodynamic instabilities and foreign objects ingestion. This will involve numeric and experimental analysis of blade strength; development of miniature tip-timing sensors; characterisation of blade vibration in a test cell; fault modelling and diagnostic algorithms; and flight ready diagnostic system.
- **Advanced low-cost small turbine:** The key objective is to further exploit the advanced, low-cost, small turbine (400-470 kW), which Ivchenko had begun developing during the FP7 ESPOSA and FP6 CESAR projects. For this purpose, the pilot project participants will conduct a joint feasibility study in fields such as advanced materials and coatings, additive manufacturing, advanced instrumentation and so on.

Pilot projects in the field of aerospace manufacturing

- **Manufacturing joints:** The target is to conduct a feasibility study concerning the development of manufacturing processes for high-load-transfer and high-lifetime joints for Ukrainian aerospace structures. The final outcome of the project expects to generate a number of aerospace case-studies presented by the Ukrainian partners.
- **Manufacturing aerospace composite structures:** The idea is to utilize a flexibility of composite material architecture for development of multifunctional materials. Multifunctionality signifies a combination of mechanical characteristics with electric and thermal conductivity which could be achieved through advanced approaches and manufacturing technologies.

Ukrainian Aeronautics: Research and Technology Groups Brochure

The third and latest edition of the Ukrainian Aeronautics Research and Technology Groups Brochure describing the Ukrainian organisations' key achievements and current research in the aeronautics field has been developed and published by the AERO-UA project.

This brochure will be disseminated at key EU events to raise awareness of Ukrainian aeronautics research and technology expertise and also, to highlight the involvement of Ukrainian organisations into European collaborative research projects.

Read the Brochure: <https://www.aero-ua.eu/publications.html>

AERO-UA and RADIANT joint session at the 7th EASN International Conference

On 26 September 2017, a special joint session between the H2020 AERO-UA and [RADIANT](#) projects was held as a part of the 7th EASN International Conference, "Innovation in European Aeronautics Research" in Warsaw. Over the years, the EASN conference has established itself as a major European dissemination event in the field of aviation research.

This joint AERO-UA and RADIANT session focused upon increasing international collaboration in the aviation field. The session was attended by the representatives of the European aviation sector, and fortunately for the AERO-UA travel grants, Ukrainian representatives also had an opportunity to present their research expertise to the attendees.



Information and Networking Event in Kyiv, Ukraine

The AERO-UA project enjoyed a very successful Networking Event in Kyiv on 19-20th April 2017, which provided an excellent opportunity for the AERO-UA consortium partners and Advisory Board Members to meet Ukrainian aviation experts.

The Networking Event was held as a dedicated "AERO-UA Session" during the 13th International Scientific Conference "AVIA 2017" hosted by the National Aviation University in Kyiv. Approximately 65 people attended the AERO-UA session, with the participants coming from various Ukrainian universities, research institutes of the National Academy of Sciences of Ukraine, and industrial enterprises such as ANTONOV Company, FED, Ivchenko-Progress and Motor Sich.

The session aimed to promote opportunities for aviation research collaboration between Ukraine and Europe. This included presenting the AERO-UA project and providing an overview of EU funding opportunities for research and innovation in aeronautics. In addition, representatives from DLR, Airbus Group, Fraunhofer-IFF, and the University of Manchester presented their organizations, research and technology developments and potential collaboration interests in Ukraine. [For more information, the presentations may be viewed here](#).

Factory Tour to Ukrainian Enterprises



On April 21st 2017, a factory tour to Ukrainian aviation enterprises based in Kyiv was organized for the AERO-UA European partners and Advisory Board members. The tour also included visits to ANTONOV Company and Plant 410 Civil Aviation SE.

The visit to Antonov's flight test airfield enabled the attendees to learn first-hand about the company's latest development work for cargo aircraft, such as the Antonov AN-178. It also provided a unique chance to board the iconic Antonov AN-225 Mriya – the largest plane in the world.

During the tour of Plant 410, closely based to Kyiv's Zhuliany international airport – the attendees were given insight to the company's aircraft and engine repair activities. It was also an excellent opportunity to stimulate initial discussions regarding possible areas of cooperation in aviation repair and maintenance.



Project Partners



technology
PARTNERS



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