

Project:
AERO-UA
 (Grant Agreement number 724034)

“Strategic and Targeted Support for Europe-Ukraine Collaboration in Aviation Research”

Funding Scheme: Coordination and Support Action

Call: H2020-MG-2016-2017

Date of the latest version of ANNEX I: 15/7/2016

D4.3 Report on factory tours and technical visits in UA and EU during M1-M18

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Lead Partner for Deliverable:	TECPAR / ITWL
Deliverable Due Date:	31/3/2018
Deliverable Issue Date:	24/4/2018

Document History

(Revisions – Amendments)

Version and date	Changes
1.0 – 17/4/2018	First version
1.1 – 24/4/2018	Minor proof-reading and formatting

Dissemination Level

PU	Public	X
PP	Restricted to other program participants (including the EC Services)	
RE	Restricted to a group specified by the consortium (including the EC Services)	
CO	Confidential, only for members of the consortium (including the EC)	

The overall aim of the AERO-UA project is to stimulate aviation research collaboration between the EU and Ukraine through strategic and targeted support. AERO-UA is focused solely on Ukraine, because the country has a huge aerospace potential but a low level of aviation research collaboration with the EU. Ukraine's aerospace sector spans the full spectrum of systems and components development and production with OEMs, Tier 1 and 2 suppliers, aeroengine manufacturers, control systems manufacturers, R&D institutions, aeronautic universities, and SMEs. This is also reflected in the sector's important contribution to the country's economy (e.g. aircraft production of €1,9 billion in 2011).

Ukrainian aerospace organisations possess unique know-how that can help Europe address the challenges identified in the ACARE SRIA / Flightpath 2050 Report. Furthermore, following the signing of the Agreement for the Association of Ukraine to Horizon 2020 in March 2015, Ukrainian organisations are eligible to participate in Clean Sky 2 and H2020 Transport on the same funding terms as those from EU member states. Equally, genuine commercial opportunities exist for European aviation organisations to help modernise Ukraine's aerospace sector.

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

1. Identifying the barriers to increased EU-UA aviation research collaboration;
2. Providing strategic support to EU-UA aviation research collaboration;
3. Supporting EU-UA aviation research knowledge transfer pilot projects; and
4. Organising awareness-raising and networking between EU-UA stakeholders.

The AERO-UA consortium is comprised of key EU and UA aviation organisations that will implement WPs closely mapped to the high-level objectives. The consortium will be supported by an Advisory Board involving Airbus, DLR, Min. Education and Science of Ukraine, Ukrainian State Air Traffic Services Enterprise and retired Director of EADS Jean-Pierre Barthélemy.

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1. Introduction

The tasks relating to the organisation of the factory tours in Ukraine and Europe (Tasks 4.3 and 4.4) were part of the WP4 “Awareness-raising and networking between EU-UA stakeholders”, as agreed under the AERO-UA “Strategic and Targeted Support for Europe-Ukraine Collaboration in Aviation Research” project.

As it was presented in the AERO-UA project proposal, under Task 4.3, “Organise factory tours and technical visits in Ukraine,” European experts were invited to take part in factory tours to Ukrainian aviation manufacturers, as well as technical visits to Ukrainian R&D centres. The main objective of these factory tours and technical visits was to increase EU aeronautics actors’ awareness of the UA aeronautic capabilities and recent developments. These visits were organised by the local Ukrainian project partners and provided opportunities to see their facilities as well as those of other key Ukrainian aviation stakeholders. Under Task 4.4, “Organise factory tours and technical visits in Europe,” Ukrainian project partners and guests from European organisations participated in factory tours and technical visits to Polish aviation entities and organisations conducting research for the aviation sector. The main objective of these factory tours and technical visits was to help Ukrainian project partners understand EU needs and create a background for further cooperation. These visits were organised by the Polish project partners and provided opportunities to present their own facilities.

2. AERO-UA factory tour and technical visit, Kyiv, 20 April 2017

For the purpose of reaching the common goal of the AERO-UA Project: EU - Ukraine cooperation in the area of aerospace research in conformity with Task 4.3. (Leader FED, representing the Mechatronics aerospace cluster), factory tours to SA Antonov and SA Civil Aviation Plant 410, city of Kyiv, were organized for the Consortium members and guest European experts on April 20, 2017.

The tour gave its participants an opportunity to familiarise themselves with production facilities, scientific, technical and workforce potential, up-to-date R&D, experimental, engineering and managerial processes which are the basis for development of competitive aviation products with new level functionality, recourse-effectiveness, environmental and aesthetic properties, capable of complying with the needs and requirements of the market. Directions and opportunities of efficient EU-Ukraine cooperation in aviation research were articulated.

The participants of the April 20 meetings in Kyiv were:

No.	Name	Organisation
1	Giles Martin BRANDON	Intelligentsia Consultants
2	Johann Klaus FREI	Airbus Group Innovations
3	Agata GODULA-JOPEK	Airbus Group Innovations
4	Eberhard Kurt NICKE	DLR
5	Adam Michael JOESBURY	University of Manchester (UoM)
6	Kay Christian MATZNER	Fraunhofer Institute for Factory Operation and Automation IFF
7	Dirk BERNDT	Fraunhofer Institute for Factory Operation and Automation IFF
8	Jean-Pierre BARTHÉLEMY	EADS
9	Sergiy LEV	National Academy of Sciences of Ukraine (NASU)
10	Michal Jaroslaw DZIENDZIKOWSKI	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
11	Radoslaw PRZYSOWA	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
12	Krzysztof Zygmunt DRAGAN	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
13	Michal TOWPIK	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
14	Oleksandr KOPTIEV	Ivchenko – Progress SE
15	Yuliia BIELIK	Ivchenko – Progress SE
16	Artem KARPENKO	Ivchenko – Progress SE
17	Valeriy FADEYEV	Public Joint Stock Company FED
18	Sergii SOKOLOV	Public Joint Stock Company FED
19	Oleksiy CHERNYSHOV	Public Joint Stock Company FED

20	Denys TITOV	Public Joint Stock Company FED
21	Sergiy YEPIFANOV	National Aerospace University – Kharkiv Aviation Institute (KhAI)
22	Yuriy GUSEV	National Aerospace University – Kharkiv Aviation Institute (KhAI)
23	Igor RYBALCHENKO	National Aerospace University – Kharkiv Aviation Institute (KhAI)
24	Maryna SHEVTSOVA	National Aerospace University – Kharkiv Aviation Institute (KhAI)
25	Victor SHULEPOV	Ukrainian Research Institute of Aviation Technology (UkRIAT)

2.1 State Enterprise Antonov

Kyiv Factory Tours to Antonov facilities were organised as part of the first Horizon 2020 AERO-UA Project information and networking event and started on 20 April 2017. This visit was directed to provide Ukrainian aviation stakeholders opportunities to showcase their facilities and establish contacts with EU colleagues. The AERO-UA project delegation consisted of representatives of all Consortium members and Advisory Board members from Airbus and DLR. In his welcome address the representative of Antonov informed about the company's interest in collaboration with EU partners.

The enterprise, founded more than 71 years ago, is one of several enterprises offering the whole cycle of creation of modern aircraft – from pre-project scientific research to construction, tests, certification, serial production and after-sale maintenance.

ANTONOV Company created more than one hundred types and modifications of passenger, transport and special-purpose aircraft. More than 22,000 ANTONOV airplanes were constructed. The giant Ruslan and Mriya cargo airplanes, the Company's visit card, are the special pride of aviation designers.

Tour participants familiarized themselves with the activities of the following Company divisions:

1. Department of Aerodynamics
 - Aerodynamic configurations of new aircraft;
 - Complete cycle of experimental aerodynamic tests;
 - other
2. Department of Strength
 - Static and fatigue strength tests;
 - Substantiation of structural reliability and durability;
 - other
3. Department of Design
4. Department of Avionics
5. Department of Material Science

The tour of Antonov's flight test airfield enabled the attendees to learn first-hand about the company's latest development work for aircraft such as the Antonov AN-148, AN-158, AN-178, AN132. It also provided a unique chance to board the iconic Antonov AN-225 Mriya – the World's largest plane.



2.2 State Enterprise “Plant 410 Civil Aviation”

The Kyiv Factory Tours to SE Plant 410 facilities were organised as part of the first Horizon 2020 AERO-UA Project information and networking event and started on 20 April 2017. The purpose of this visit was to provide Ukrainian aviation stakeholders with opportunities to show their facilities and establish useful contacts with EU colleagues. The AERO-UA project delegation included representatives of all Consortium members and Advisory Board members from Airbus and DLR. After a short introductory speech by project coordinator Giles Brandon (Intelligentsia, Luxemburg) followed by roundtable introductions of each of the experts attending the enterprise, the head of the host party, Director General Viktor Gankevych expressed the hope that present visit would mark the beginning of future collaboration.

SE Plant 410 CA is the authorized provider of a wide range of aircraft equipment maintenance, repair and overhaul services, particularly for AN-24, AN-26, AN-30, AN-32, AN-72, AN-74 airplanes, MI-8MSB helicopters, and D-36 engines. The plant possesses the necessary capacities, modern equipment, and employs advanced technologies. After a short presentation the host party organised a tour of the SE Plant 410 facilities. During the tour guests familiarized themselves with the Company activities:

- Complete overhaul of AN-24, AN-26, AN-30, AN-32 aircraft;
- Complete overhaul of D-36 engines for Yak-42, AN-72, AN-74 aircraft;
- Aircraft components reconditions;
- Inspection and non-destructive tests for aircraft equipment serviceability.

The tour provided an occasion for initial discussions on possible areas of cooperation in aviation research and maintenance.

The agenda of the visit in Kyiv is presented in Annex 1.



3. AERO-UA factory tour and technical visits, Warsaw, 21-22 September 2017

Under the AERO-UA project Task 4.4. (Leader TECPAR / ITWL), factory tours in Poland for the project consortium members and European guests were organised on 21-22 September 2017. On the first day of the visit, the consortium participants visited WZL Military Aviation Works No. 4 and the Warsaw University of Technology. The aim of the visit in WZL was to present the company's competences and potential. The group then visited the Faculty of Materials Science at Warsaw University of Technology.

The tour organised in Warsaw gave its participants an opportunity to share their experience and exchange their knowledge on selected technology areas, as well as present the scientific and technical potential, R&D and engineering practices, and the managerial approach of the visited Polish institutions and companies operating in and for the aviation sector. During the meetings in Warsaw potential fields of EU-Ukraine research cooperation were discussed.

The participants of the September 21 and 22 meetings in Warsaw were:

No.	Name	Organisation
1	Giles Martin BRANDN	Intelligentsia Consultants
2	Adam Michael JOESBURY	Aerospace Research Institute, University of Manchester (UoM)
3	Mojtaba MOARAMEDI	Aerospace Research Institute, University of Manchester (UoM)
4	Yulia BIELIK	Ivchenko – Progress SE
5	Artem KARPENKO	Ivchenko – Progress SE
6	Oleksandr KOPTIEV	Ivchenko – Progress SE
7	Kristina GUSAKOVA	National Academy of Sciences of Ukraine (NASU)
8	Sergii LEV	National Academy of Sciences of Ukraine (NASU)
9	Valeriy FADEYEV	Public Joint Stock Company FED
10	Vadym STAVYCHENKO	National Aerospace University – Kharkiv Aviation Institute (KhAI)
11	Lina SMOVZIUK	National Aerospace University – Kharkiv Aviation Institute (KhAI)
12	Victor SHULEPOV	Ukrainian Research Institute of Aviation Technology (UkRIAT)
13	Dirk BERNDT	Fraunhofer Institute for Factory Operation and Automation IFF
14	Kay Christian MATZNER	Fraunhofer Institute for Factory Operation and Automation IFF
15	Maryna GOROKHOVATSKA	National Academy of Sciences of Ukraine (NASU)
16	Olga GRYGOREVA	National Academy of Sciences of Ukraine (NASU)
17	Oleksandr FAINLEIB	National Academy of Sciences of Ukraine (NASU)
18	Iryna BILAN	National Academy of Sciences of Ukraine (NASU)
19	Anatolii ZINKOVSKYI	National Academy of Sciences of Ukraine (NASU)

20	Vadym KRUTS	National Academy of Sciences of Ukraine (NASU)
21	Iryna VOLOSHKEVYCH	Paton Electric Welding Institute, National Academy of Sciences of Ukraine (NASU)
22	Andrii FOMIN	Paton Electric Welding Institute, National Academy of Sciences of Ukraine (NASU)
23	Artem KOZYREW	National Academy of Sciences of Ukraine (NASU)
24	Michał TOWPIK	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
25	Przemysław KOŚMIDER	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
26	Radosław PRZYSOWA	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
27	Krzysztof DRAGAN	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
28	Michał DZIENDZIKOWSK	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)
29	Joanna NAWRAT	Technology Partners Foundation (TECPAR) / Air Force Institute of Technology (ITWL)

3.1 WZL Military Aviation Works No. 4

The WZL Military Aviation Works No. 4 has been successfully operating in the aviation technology sector for 65 years and is considered a vital part of Polish Airforce and Defence System. Its main activity covers maintenance, repair and overhaul (MRO) of commercial and military turbine engines for airplanes and helicopters. Before being put in use, repaired engines are put through strict tests in WZL's testing facility where their basic parameters are carefully checked. WZL Military Aviation Works No. 4 also performs MRO services of low-power turbine propulsive systems like turbo-starters or generators. Additionally, it offers diagnostics, overhauls and production of parts/units for aeronautical applications and in-house and on-site repairs, the latter provided by its mobile teams. WZL Military Aviation Works No. 4 has two modern engine test stations, thanks to which it is able to conduct tests: production, operation and regulatory air drives after repairs and repairs of both military (Russian and western construction) and civilian aircraft.

The engine test station is equipped with the following devices and installations:

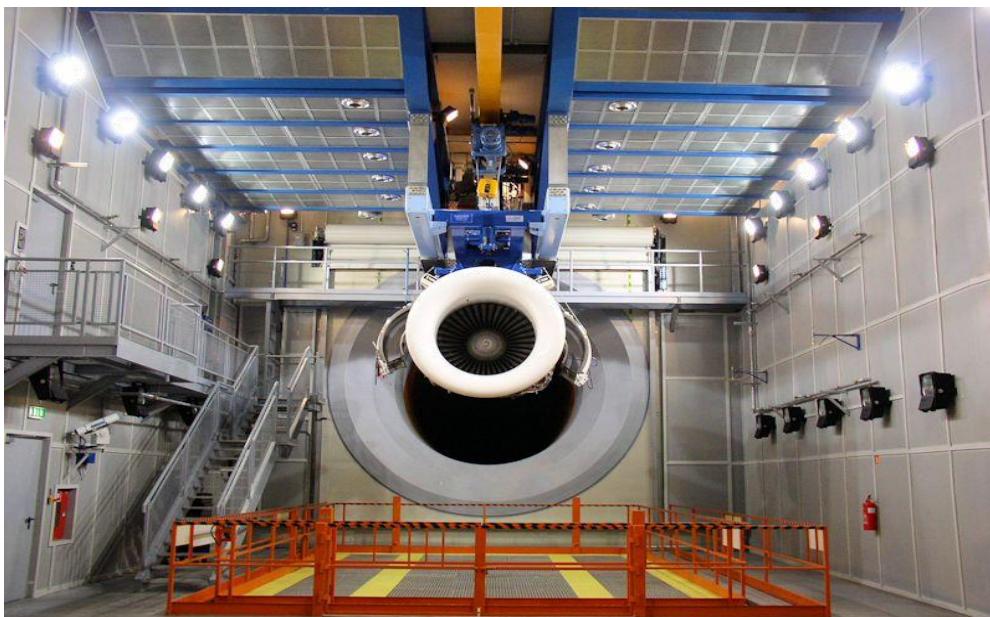
- Hydraulic lifting platform, placed in the test hall under the tested engine, with a lifting capacity of 3 tons, used to operate the engine during the test,
- A modern fire protection system, based on the SHRACK fire station, protecting the entire facility which includes, among others, smoke detectors, optical flame detectors, FM-200 gas tanks, as well as a system of hydrants, sprinklers and water sprinklers with an independent water pumping station
- Own power generator, acting as a power source, emergency lighting and supplying measurement systems and motor control during the test,
- Air-conditioning and ventilation system covering all office and social rooms located in the building, as well as a heating and ventilation system for the engine preparation hall and test hall,
- Fuel installations, maintenance oil and start-up air - supplied from manufacturers of measuring systems,

- 24 hour security service, monitoring system, as well as electronic access to individual zones of the facility based on individual magnetic cards.

The first CFM56-3 engines tested at position 2 were the Boeing 737 aircraft propulsion system.

In 2005 WZL Military Aviation Works No. 4 modernized the test station, which allowed for post-production tests of F100-PW-229 engines that drive the F-16 C / D aircraft. Thanks to this, the WZL Military Aviation Works No. 4 has carried out tests on almost all the engines with which the F-16 multirole aircraft purchased for the Polish army at the time were equipped. The next step was to adapt the test station to perform tests on F100-PW-229 engines after improvements. After re-modernization in 2014-2016, the engine test station in cooperation with a foreign partner carried out a series of tests of one of the new generation drive prototypes.

This project was part of an international campaign in which only a few test centres in the world took part. In 2016, after completing these tests and receiving certification, the first serial engine copies were sent to customers.



The WZL Military Aviation Works No. 4 has been providing repair, repair and maintenance services for turbine engines and their aggregates and components since the mid-1960s. At that time, a total of over

15,000 overhauls and repairs of turbine jet and helicopter engines of various types for MiG-15, MiG-17, MiG-21, Su-22, MiG-29, Mi-2, Mi-8 aircraft and helicopters were performed.

The WZL Military Aviation Works No. 4 S.A. has extensive technological capabilities in the areas of verification, renovation and regeneration of assemblies and subassemblies, including: machining, welding of steel and aluminium and titanium alloys, chemical processing, electrical and thermal treatment, regenerative plasma spraying, dynamic balancing of rotating assemblies.

3.2 Warsaw University of Technology, Faculty of Materials Science and Engineering

The Faculty of Materials Science and Engineering of the Warsaw University of Technology is one of the leading research & development centres in Poland in the area of materials science and materials engineering. According to a parametric assessment conducted by the Ministry of Science & Higher Education, the Faculty is a 1st class unit ranked 1st in the classification of units carrying out research in chemistry and materials' mechanics. Main research areas include the following:

- Nanomaterials and nanotechnologies
 - Nanomaterials manufacturing using the following methods: severe plastic deformation (SPD),
 - Mechanical synthesis, nanocrystallisation from amorphous phase, nanopowder consolidation,
 - Electrodeposition
 - Nanocrystalline high-resistance metal alloys,
 - Nano-particle modified polymers.
- Smart and functional materials
 - Ceramic-metal composites (multi-layered and particle),
 - Smart materials (magnetorheological elastomers),
 - Materials used in extreme conditions,
 - Intra-metallic phases.

During the visit, the group could familiarise themselves with modern, often unique, research equipment that allows characterization of the structure of materials from the atomic to the macroscopic scale. The most important devices include:

- HITACHI HD2700 high resolution scanning transmission electron microscope (200 kV accelerating voltage and 0,14 nm angular resolution)
- HITACHI 5500 high resolution scanning electron microscope
- JEM 3010 high-resolution transmission electron microscope
- JEOL JEM 1200 EX II scanning-transmission electron microscope
- NanoScope Multimode IIIa atomic forces microscope
- Auger electron spectroscope with a XPS MICROLAB 350 attachment (together with IChF)
- BRUKER D8 DISCOVER X-ray diffractometer
- 2201 SKYSCAN X-ray micro- and nano-tomograph
- FB-2100 ion microscope

The visitors had the opportunity to see the aerodynamic tunnel at the Faculty of Power and Aeronautical Engineering of the Warsaw University of Technology. The closed loop wind tunnel is equipped with two test sections, the so-called environmental section and the aeronautical section. These two test sections enable research at a wide range of velocities of 5-100 m/s and additionally a set of removable meshes allows for obtaining the desired turbulence level. It is the newest wind tunnel in the Aerodynamic Department, realised in scope of LATiS. Wind tunnel with closed measuring spaces. Housing and body - steel. Measurement environmental space has a turntable that allows rotation of the model and its mechanical extraction, and a traverse system for pressure, speed or turbulence measurements. The

airspace has interchangeable sections enabling pressure measurements (comb), weight (sting and side weights).

The environmental section is intended for measurements, flow tests of urban facilities, wind turbines, vehicles and all industrial applications. The main tasks are measurements of pressure distribution on the walls of drained models and weight measurements.

The air section is mainly designed for testing profiles, flaps, and flying vessels, but can be adapted as the need arises for testing vehicles or buildings. Equipped with interchangeable spaces, it allows for a wide variety of research.



3.3 Air Force Institute of Technology (ITWL)

The Air Force Institute of Technology (ITWL) is a scientific and research organisation, supervised by the Minister of National Defence. Its mission is scientific support and research into issues of operating of products of aeronautical engineering. Owing to the studies in the field of reliability and general flight safety, the Institute has significantly contributed to the development of Polish aviation. The Institute's output comprises hundreds of elaborations - effects of research and experimental work, design efforts, and technical/servicing activities - applied in the Air Force of the Armed Forces of the Republic of Poland. The Institute is involved in the innovative work in the following areas:

- Designing and Integration of Aeronautical Systems
- Logistics Systems
- Safety and Reliability
- Unmanned Aerial Vehicles
- Training Systems, including E-learning
- Air Armament
- Airfield and Road Infrastructure
- Substitute Fuels, Working Liquids and Lubricating Oils
- Biocomponents in POL's Engineering Products

At the Institute the meeting participants visited the engine test cell, the X-ray Computed Tomography Lab, the Oil Analysis Lab, the Measurement System Lab and the Bearing and Transmission Systems Lab.

On the second day, the project participants met at the Air Force Institute of Technology to discuss the initiated EU-UA aviation research knowledge transfer pilot projects (as agreed within the WP3 schedule) in three groups corresponding to three selected main areas of interest (aerostructures, aeroengines, aerospace manufacturing). After the group sessions all participants discussed all the project Work packages. The agenda of the 2-day visit in Warsaw is presented in Annex 2.



Annex 1

Kyiv Networking Event and Factory Tours

H2020 AERO-UA Project

19-20 April 2017

Agenda

Kyiv Networking Event, Wednesday 19 April 2017

The Kyiv Networking Event will be hosted within the 13th International Scientific Conference "AVIA 2017" hosted by the National Aviation University, Kyiv.

Address: National Aviation University
Building No 1
Kosmonavta Komarova 1
03058 Kyiv
Ukraine

9:00	Registration on Day 1	
9:30	AERO-UA consortium meeting <i>(Review current status of each WP and plan next 6 months for AERO-UA project)</i> <ul style="list-style-type: none"> - Introduction of the Advisory Board Members (Intelligentsia, 10 mins) - WP1: Barriers to increased EU-UA aviation research collaboration (Intelligentsia, 25 mins) - WP2: Strategic support to EU-UA aviation research collaboration (KhAI, 20 mins) - WP3: EU-UA aviation research knowledge transfer pilot projects (TECPAR / ITWL, 75 mins) - WP4: Awareness-raising and networking between EU-UA stakeholders (NASU, 15 mins) - WP5: Dissemination and Promotion (KhAI, 15 mins) - WP6: Project Management & WP7 Ethics Requirements (Intelligentsia, 20 mins) 	All Consortium Partners
12:30	Lunch break	
14:00	AERO-UA session of the AVIA 2017 Conference <i>(Promote opportunities for aviation research collaboration between Ukraine and Europe)</i> <ul style="list-style-type: none"> - DLR's research and technology developments in Eastern Europe and potential collaboration interests in Ukraine (Nicolas Peter, DLR, 20 mins) - Airbus' research and technology developments in Eastern Europe and potential collaboration interests in Ukraine (Dr-Habil. Ing. Agata Godula-Jopek FRSC, Airbus Group Innovations, 15 mins) - H2020 / Clean Sky 2 Schemes: Aviation research funding opportunities for Ukraine (Mr. Igor Rybalchenko, H2020 Transport NCP, 15 mins) - Opportunities for cooperation with NASU in the field of aviation (Dr. Iryna Belan, H2020 Nanotechnologies and Advanced Materials NCP, 10 mins) - Fraunhofer-IFF's aviation research activities and AERO-UA aviation research pilot projects (Kay Matzner, Fraunhofer-IFF, 10 mins) - Technology Partner's aviation research activities and AERO-UA aviation research pilot projects (Michał Towpik, TECPAR / ITWL, 10 mins) - University of Manchester's aviation research activities and AERO-UA aviation research pilot projects (Dr. Adam Joesbury, UoM, 10 mins) 	
15:30	Coffee break	

15:45 AERO-UA survey results and round table discussions

(Present AERO-UA survey and discuss with Advisory Board Members and UA Stakeholders)

- Overview of survey approach, results & analysis (Dr. Lina Smovziuk, KhAI, 10 mins,
- Mr. Igor Rybalchenko, KhAI, 15 mins)
- Round table discussions (Led by Jean-Pierre Barthelemy, 45 mins)
- Provisional recommendations (Giles Brandon, Intelligentsia, 5 mins)

17:00 End of Kyiv Networking Event on Day 1**19:30 Evening Dinner – Venue: Cosmopolite Hotel, Vadyma Hetmana St. 6, Kyiv**

Kyiv Factory Tours, Thursday 20 April 2017

8:30 Transport AERO-UA Advisory Board Members and Consortium Partners to Antonov**9:00 Tour of Antonov**

- Introduction of Antonov
- Introduction of Advisory Board Members and Consortium Partners
- Tour of Antonov facilities

12.30 Lunch break at Antonov**13.30 Transport AERO-UA Advisory Board Members and Consortium Partners to SE Plant 410****14:00 Tour of SE Plant 410**

- Introduction of SE Plant 410
- Introduction of Advisory Board Members and Consortium Partners
- Tour of SE Plant 410 facilities

17:00 End of Kyiv Factory Tours on Day 2

AERO-UA Project Meeting Warsaw, September 21-22, 2017

Agenda

Day 1 – Thursday, September 21st, 2017

VISITS, SOCIAL EVENT

9:00	Meeting in front of Hotel Gromada <i>Plac Powstańców Warszawy 2 / intersection with Warecka street (see map attached)</i>
9:15 – 10:00	Transfer by coach to Zielonka (outskirts of Warsaw)
10:00 – 11:30	Tour of WZL 4 http://www.wzl4.mil.pl/ <i>Zielonka, ul. 111 Eskadry Myśliwskiej 2</i>
11:30 – 12:15	Transfer by coach to city centre
12:15 – 13:30	Lunch Funded by Technology Partners <i>Restauracja Avangarda, Czackiego 3/5</i>
13:30 – 13:45	Transfer by coach to Warsaw University of Technology
13:45 – 15:15	Tour of Warsaw University of Technology: <ul style="list-style-type: none"> ▪ Aerodynamics Lab, Faculty of Power and Aeronautical Engineering; Prof. Jacek Rokicki ▪ Ceramics and Polymer Materials Division, Faculty of Materials Science and Engineering; Prof. Anna Boczkowska <i>Nowowiejska 24 / intersection with Al. Niepodległości (see map attached)</i>
15:15 – 15:45	Transfer by coach to PZL "WARSZAWA-OKĘCIE" S.A.
15:45 – 16:45	Tour of PZL "WARSZAWA-OKĘCIE" S.A. https://airbusdefenceandspace.com/pzl/ <i>Aleja Krakowska 110/114</i>
16:45 – 17:00	Transfer by coach to Hotel Gromada <i>Plac Powstańców Warszawy 2 / intersection with Warecka street</i>
19:00	Evening Dinner Funded by Technology Partners <i>Restauracja Avangarda, Czackiego 3/5 (see map attached)</i>

Day 2 – Friday, September 22nd, 2017

PROJECT MEETING

Location: Air Force Institute of Technology
Instytut Techniczny Wojsk Lotniczych, ul. Księcia Bolesława 6, 01-494 Warszawa
Independent transfer, app. 25 min. by taxi from city centre

8:30 – 12:30	Pilot Projects – technical discussions in sub-groups: ALL groups meet at 8:30 at the entrance of ITWL. The meetings will start at 9:00 AM. <ul style="list-style-type: none"> ▪ Group 1: PP 3.1a, 3.1b, 3.3b ▪ Group 2: PP 3.2a, 3.2b ▪ Group 3: PP 3.3a
12:30 – 13:30	Lunch
13:30 – 17.10	Project Meeting
13:30 – 13:40	<ul style="list-style-type: none"> ▪ Introduction (G. Brandon, 10 min.)
13:40 – 14:10	<ul style="list-style-type: none"> ▪ WP 1 Barriers to increased EU-UA aviation research collaboration (Intelligentsia; 30 min.)
14.10 – 14.40	<ul style="list-style-type: none"> ▪ WP 2 Strategic support to EU-UA aviation research collaboration (KhAI; 30 min.)
14.40 – 15.40	<ul style="list-style-type: none"> ▪ WP 3 EU-UA aviation research knowledge transfer pilot projects (60 min.): <ul style="list-style-type: none"> – 3.1a Advanced design of aerospace composite structures (UoM; 10 min.) – 3.1b Aerospace composite structural health monitoring system (TECPAR/ITWL; 10 min.) – 3.2a Engine health management system (TECPAR/ITWL; 10 min.) – 3.2b Advanced low-cost small turbine (IVCHENKO; 10 min.) – 3.3a Manufacturing joints (Fraunhofer; 10 min.) – 3.3b Manufacturing aerospace composite structures (UoM; 10 min.)
15.40 – 16.00	
16.00 – 16.30	Coffee break <ul style="list-style-type: none"> ▪ WP 4 Awareness-raising and networking between EU-UA stakeholders (NASU; 30 min.)
16.30 – 16.50	<ul style="list-style-type: none"> ▪ WP 5 Dissemination and Communication (KhAI; 20 min.)
16.50 – 17.10	<ul style="list-style-type: none"> ▪ WP 6 Project Management (Intelligentsia; 20 min.)
17.10 – 17.40	<ul style="list-style-type: none"> ▪ Discussion / Conclusions (G. Brandon, 30 min.)