

KhAI-ERA Project

Publishable Summary for the 1st reporting period (2011/12/01 – 2013/05/31)

Grant Agreement number: 294311

Project acronym: KhAI-ERA

Project title: Integrating the National Aerospace University "KhAI" into ERA

Funding Scheme: Coordination and support action

Consortium:

- National Aerospace University "Kharkiv Aviation Institute" (KhAI)
www.khai.edu
- Institute of Aerospace Engineering, Brno University of Technology
www.lu.fme.vutbr.cz
- Fraunhofer Institute for Factory Operation and Automation
www.iff.fraunhofer.de
- Centre for Integrated Electronic Systems and Biomedical Engineering, Tallinn University of Technology
www.cebe.ttu.ee
- Intelligentsia Consultants
www.intelligentsia-consultants.com



Summary description of project context and objectives

The overall aim of the KhAI-ERA project is to integrate the National Aerospace University (KhAI) into the European Research Area (ERA), by reinforcing its cooperation capacities and twinning with European research and innovation organisations in its three strongest aerospace and IT research topics, which are also highly relevant to the FP7 Transport, Space, ICT and Research for SMEs work programmes:

- A) Composite materials
- B) Advanced manufacturing for aircraft assembly
- C) Dependable embedded systems.

KhAI is the only university in Ukraine providing the full cycle of higher education in aerospace science and engineering. It has over 1146 researchers, 700 teachers and 12,000 students. KhAI is also a major research centre with a high potential for integration into ERA as demonstrated by its participation in many national and international projects.

The KhAI-ERA project will build upon KhAI's existing strengths as a high-quality research institution via knowledge exchange, setting up joint experiments, and training development with the following 4 excellent European research and innovation organizations: Institute of Aerospace Engineering, Brno University of Technology (IAE-BUT), Fraunhofer Institute for Factory Operation and Automation (Fraunhofer-IFF), Centre for Integrated Electronic Systems and Biomedical Engineering, Tallinn University of Technology (CEBE-TUT) and Intelligentsia Consultants (Intelligentsia).

Specific **project objectives** are:

- ✓ To develop KhAI's research partnerships

- ✓ To increase KhAI's scientific visibility
- ✓ To increase KhAI's human potential
- ✓ To develop medium to long term KhAI Research Strategy

As a result of the KhAI-ERA project implementation both KhAI involvement into ERA (incl. EU R&D Programmes participation) and regional socio-economic impacts will be increased.

Work performed and the main results achieved so far

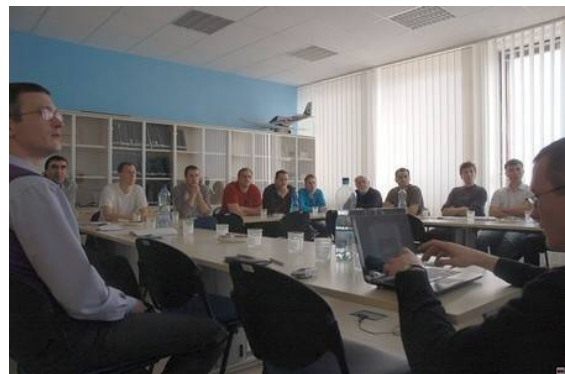
During the first half of the KhAI-ERA project implementation the following results have been achieved:

WP2 – Twinning

In order to achieve a progress in KhAI targeted research teams twinning with the EU partners' organizations amongst three Research Topics, Ukrainian and European researchers held 3 general consortium meetings plus 14 partners bilateral meetings (during 9 of them specific research workshops were organized). Setting up of joint experiments in different research areas resulted in 12 joint research articles already published, or prepared for publishing in internationally-recognized scientific journals.



**KhAI-ERA Consortium Progress Meeting
(May 2013)**



**Workshop on Research Topic A
(April 2012)**



**Workshop on Research Topic B
(May 2013)**



**Workshop on Research Topic C
(May 2012)**

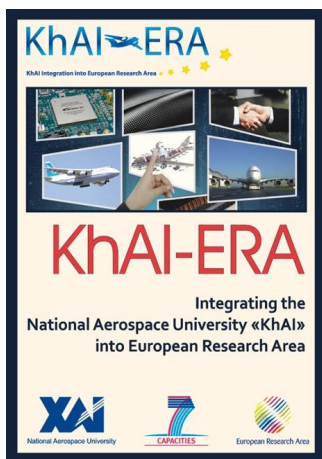
In the context of networking relevant to FP7 KhAI staff actively participated in various national and international conferences, workshops, brokerage events, etc. favourable for networking. Due to this activity, during the 2013 FP7 round of Calls 8 proposals with KhAI as a partner (while 3 of them were based on KhAI ideas) were submitted for evaluation. As a result, one

collaborative project CORSAIR started on June 2013 with KhAI participation as a research partner.

WP3 – Dissemination and Promotion

Activities under this WP are aimed on KhAI, as well as KhAI-ERA, promotion in Europe and Ukraine. Results achieved so far are:

- KhAI-ERA project website (<http://khai-era.khai.edu>) implemented in 3 languages, regularly maintained and updated.
- KhAI-ERA promotional leaflet and poster developed, published, and being disseminated whenever possible (incl. by electronic means)



Project leaflet



Project poster

- Two issues of KhAI-ERA newsletter prepared and disseminated among EU and Ukrainian contacts

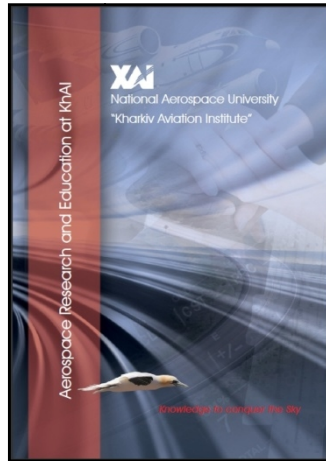


KhAI-ERA Newsletter 1st Issue (September 2012)



KhAI-ERA Newsletter 2nd Issue (March 2013)

- KhAI Promo Brochure developed, published, and being disseminated.
- Promotion Brochure featuring Ukrainian Aeronautics Research and Technology Groups developed, published and being disseminated.



KhAI Promo Brochure: Aerospace Research and Education at KhAI



Ukrainian Aeronautics: Research and Technology Groups Brochure

Available at <http://khai-era.khai.edu/en/site/promo-materials.html>

- Two regional Workshops dedicated to Research Topics A and C were organized in Ukraine



KhAI-ERA Local Workshop on Research Topic A (May 2013)

- Special sessions on two major international scientific conferences directly related to KhAI-ERA research priorities (Topics A and C) were held (incl. the project progress and results presentation)



KhAI-ERA Special Session at International Conference on Composite Materials (May 2013)

- KhAI-ERA up-to-date results, as well as KhAI achievements in impulse riveting (Research Topic B), were published as an article in the “All-Ukrainian Technical newspaper”

WP4 – Training Development

In the first project period three training modules collections for master students, young and experienced researchers in composite materials, aircraft assembly, and dependable embedded systems, as well one collection for Ukrainian researchers interesting in FP7 and H2020 were prepared (all available at the project web-site <http://khai-era.khai.edu/en/site/training-modules.html>):

- Advances in composite structures design and simulation (in two volumes)
- Automated Assembly of Aircraft Structures
- Impulse technology of aircraft manufacturing
- Dependable embedded systems
- FP7: How to build successful research cooperation



Training Modules Collections

WP5 – Strategy Development

Comprehensive evaluation of KhAI research excellence and research environment was performed by the team of European independent experts. As a result, they provided a set of

recommendations on KhAI scientific visibility increasing, KhAI human potential raising and facilitation of KhAI integration into ERA. On the basis of evaluation findings KhAI will develop the University Research Strategy defining specific goals and activities over the following 5+ years.

The expected final results and their potential impact and use

- Contribution to **RTD capacity building in Ukraine** due to KhAI twinning with European excellent R&D organizations, University human potential increasing and KhAI Research Strategy preparation for the next 5+ years.
- **Enhanced participation of the Ukrainian researchers in the 7th Framework Programme and HORIZON 2020** resulted from: KhAI active networking with EU research centres; promotion of KhAI and other Ukrainian organizations as potential partners for FP7/H2020 and raising Ukrainian researchers awareness on FP7/H2020, as a result of Ukrainian FP7 Transport NCP activity supported by the project.
- **Enhanced scope of the KhAI research activities with increased linkage with economic and social environment:** due to KhAI location in a specific aerospace cluster of Ukraine, the KhAI-ERA activities would create positive socio-economic impact via increasing local community awareness in EU research activities and programs (through the specialized FP7 and thematic trainings), introducing KhAI and EU joint research results to local RTD companies (incl. SMEs), harmonization of Ukraine/EU vision of future trends in aeronautic and ICT, and cooperation with local authorities for widening cooperation with EU.
- **Networking with other research centres in Member States or Associated Countries,** provided by participation in key European conferences/workshops related to the project research areas and use of other significant European opportunities for networking and contacts establishing (e.g. EU InfoDays, EASN events, ETNA brokerage sessions, and others).
- **Increased job opportunities in the country for young scientists:** Young KhAI researchers will be closely involved in scientific knowledge exchange and joint experiments setting up, and will participate in the training development in collaboration with EU partners. University Strategy will also be aimed on KhAI sustainability, which will involve determining ways to attract, train and retain young scientists.

Project public website

All information about the project objectives and results, recent news and advance announcements are available on the KhAI-ERA website: <http://khai-era.khai.edu>

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