



Aeronautic Industry Skills Resolution for a more  
Efficient VET Offer

Progress Report

Public Part

## Project information

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Beneficiary organisation: P1 - INOVA+ (Portugal – Coordinator)  
P2 - Coventry University  
P3 - Universidad Politécnica de Madrid  
P4 - Sociedad Aeronatica Española  
P5 - IRIT - Université Paul Sabatier Toulouse III  
P6 - INNpuls Sp. z o.o.  
P7 - Deep Blue. S.R.L.  
P8 - Collegio Universitario ARCES  
P9 - I3M - Image du Troisième Millénaire  
P10 - ANQEP - Agência Nacional para a qualificação e o ensino profissional

Project coordinator: Ms. Ana Ribeiro

Project coordinator organisation: INOVA+ - Serviços de Consultadoria em inovação tecnológica

Project coordinator telephone number: +351 229 397 130

Project coordinator email address: [ana.ribeiro@inovamais.pt](mailto:ana.ribeiro@inovamais.pt)

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# Executive Summary

The AIRVET Alliance brings together bodies with AI specific expertise, Vocational Education Training (VET) providers and bodies involved in education and training systems from six European Countries: Portugal, France, Italy, Poland, Spain and the UK. They share the goal of improving the adequacy and attractiveness of VET training offer addressed to this sector and work together in the AIRVET project, which stands for “Aeronautic Industry Skills Resolution for a more Efficient VET Offer”.

AIRVET’s main aim is to design, develop, evaluate and disseminate adapted/new AI curricula and VET courses in the specific fields of Maintenance and Information and Communications Technologies (ICT) to help overcome gaps of qualified personnel in the aeronautics industry.

The main outcomes expected from AIRVET are associated to its different phases:

- The **Analysis of skills needs** has provided a *Territorial Analysis*, which is a collection of training needs involving the stakeholders of the sector;
- The **Curricula Design** will provide *Training Curricula/Programmes* for the maintenance and ICT areas within the aeronautics industry.
- The **Curricula Delivery** will result on *Multimedia Resources* and users’ guide Manual to support the implementation of training curricula.

At this interim stage of the project, the main outcomes produced are related with the results of the Analysis of skills needs. This analysis included an online survey in 6 countries with questionnaires for 4 target groups, interviews, focus groups and desk research. Its conclusions, compiled in the report *Territory Analysis*, provide a wide set of information on the current training offer and skills gaps identified in terms of VET offer at European level for the aeronautics industry, especially regarding the fields of Maintenance and ICT. Three main subject areas were identified where new materials could be developed to help address skills and training gaps:

- maintenance,
- ground operations
- human factors.

In the next stages of the project, partners will focus on creating and improving VET curricula and training programmes to the aeronautics industry in these fields, according to the characteristics of the VET offer and regulation in each country.

Additionally, AIRVET will provide multimedia materials (3 learning objects) to support training around the theme of human factors for the maintenance field, for ground operation workers and for future workers who need awareness-raising training about the importance of human factors in aeronautics.

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# 1. Project Objectives

AIRVET's main aim is to **design, develop, evaluate and disseminate adapted/new AI curricula and VET courses in the specific fields of Maintenance and Information and Communications Technologies (ICT)** to help overcome gaps of qualified personnel in the aeronautics industry.

AIRVET's activities address a set of strategic objectives:

- To foster a close, open, informal dialogue and sustained interactions and networking between: VET providers, aeronautic experts and bodies involved in education and training systems;
- To define and sustain a Joint Programme and Priorities to set the base of a strong engagement and sustainable partnership;
- To improve the knowledge and gather solid evidence from labour market intelligence to identify skills needs within the AI;
- To raise awareness of young people about future career paths in aeronautics, foster science education and provide contact with different real work situations in the aeronautic sector;
- To review, create and improve the VET curricula and training programmes to the aeronautics industry, to address actual and future labour market needs;
- To provide innovative ways of delivering VET, with a special focus in the development of multimedia to increase skills and experience with interactive training systems;
- To promote the future sustainability and enlargement of the AIRVET sectoral alliance, aiming at reaching a real and spontaneous attachment between the members and attract and engage new members after the end of the project.

The activities and results of the project are targeted at five **main target groups** at European level:

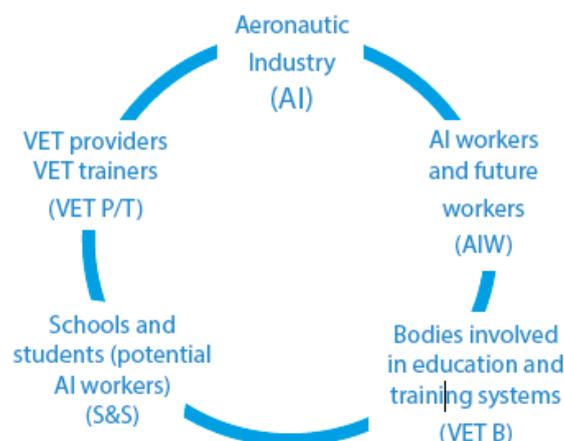


Figure 1: AIRVET Target groups

AIRVET works **TO** and **WITH** these target groups through different activities and events:

Table 1: AIRVET's main products and events and respective target groups

PRODUCTS/ EVENTS	TARGET GROUPS
<ul style="list-style-type: none"> <li>- <b>Flight Plan</b> (Booklet to present the project);</li> <li>- <b>Launch Events</b>;</li> <li>- <b>Website</b> &amp; Other dissemination materials;</li> <li>- AIRVET <b>Database</b> of Stakeholders; <b>National Workshops</b>; <b>Final Conference</b></li> </ul>	<ul style="list-style-type: none"> <li>- <i>All</i></li> </ul>
<ul style="list-style-type: none"> <li>- <b>Focus Groups</b> to identify/validate skills needs</li> </ul>	<ul style="list-style-type: none"> <li>- <i>VET providers and VET trainers</i></li> </ul>
<ul style="list-style-type: none"> <li>- <b>Open Days</b> for Future workers in AI</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Schools and students,</i></li> <li>- <i>AI workers and future workers</i></li> </ul>
<ul style="list-style-type: none"> <li>- <b>Territory Analysis</b> (report) ;</li> <li>- AI Maintenance and ICT <b>training Curricula</b>;</li> <li>- <b>Sustainability Plan</b> for VET Curricula;</li> <li>- <b>New Routes Report</b></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Aeronautic Industry,</i></li> <li>- <i>AI workers and future workers;</i></li> <li>- <i>VET providers and trainers;</i></li> <li>- <i>Bodies involved in education and training systems</i></li> </ul>
<ul style="list-style-type: none"> <li>- <b>Multimedia Resources</b> for Training + User's Guide Manual;</li> <li>- <b>Pilot Runs</b> to test and validate the multimedia materials</li> </ul>	<ul style="list-style-type: none"> <li>- <i>Aeronautic Industry,</i></li> <li>- <i>AI workers and future workers;</i></li> <li>- <i>VET providers and trainers,</i></li> <li>- <i>Schools and students</i></li> </ul>

## 2. Project Approach

The AIRVET approach comprises 4 main phases, as illustrated in the diagram.

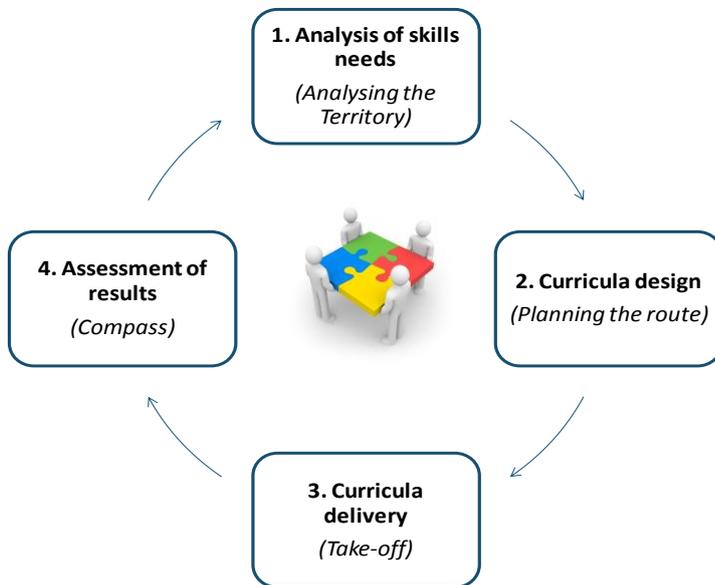


Figure 2: AIRVET main phases

The AIRVET alliance started by “**Analysing the Territory**” (phase 1), with a thorough research, survey and organisation of focus groups covering the EU but with main focus in France, Italy, Poland, Portugal, Spain and the UK. This phase provided information and input from relevant stakeholders regarding the training needs in the fields of maintenance and ICT. Its main conclusions are compiled in the document Territory Analysis (available on the project website).

The analysis of skills needs (concluded in the first year of the project) provided basis to “**Plan the Route**” (phase 2), where partners address the skills/training gaps identified within the previous phase. This is achieved through the creation of new curricula/part of curricula or through the adjustment/enrichment of already existing curricula. Based on the conclusions obtained, the consortium decided to focus on the theme “Human Factors”.

Therefore, three human factors based training course proposals were outlined for different target groups: Maintenance technicians; Airport operation workers; Potential future aeronautical workers.

Phase 3, **Curricula delivery**, includes the development of multimedia materials also addressing the theme of Human Factors for the above-mentioned target groups. This has the potential to both improve the current VET training offering and also fill training gaps for workers within the EU aeronautical industry.

Phase 4 of the project is crosscutting and includes several mechanisms and tools to **test, evaluate, provide input and validate** the main results and ensure continuous monitoring of the project progress.

In order to assess the project’s results and disseminate the outcomes, AIRVET reaches its targets through online tools and various events, including:

- Launch events in the 6 partner countries to raise awareness about the project.
- Focus groups (Spain, France, Poland, Italy) to discuss the analysis of skills needs.

- Open Days for Future workers in AI to raise awareness of young people about future career paths in aeronautics, including work opportunities.
- Pilot Runs (Spain, France, Poland, Italy) to test/validate the multimedia resources.
- AIRVET National Workshops (in the 6 partner countries) and AIRVET Final Conference to promote the final results of the project.

In a global perspective, AIRVET's activities are carried out by the consortium, but counts with the collaboration of different stakeholders at different stages.

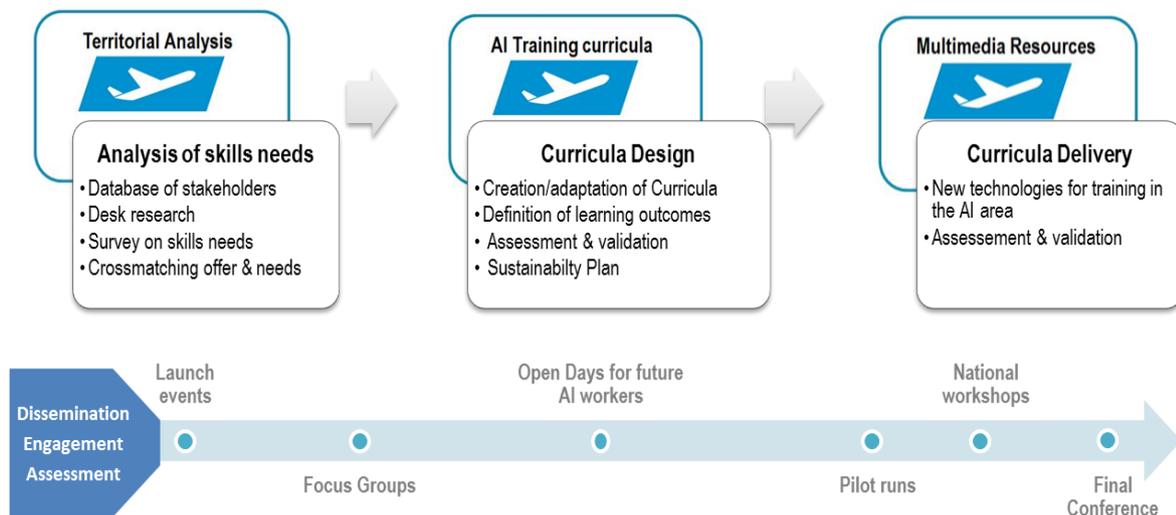


Figure 3: AIRVET progress of activities and events

This involvement of external stakeholders in key activities of the project is also part of the AIRVET approach to build an Alliance of relevant AI actors with regular communication and collaboration. It is also an action that will certainly contribute for the future sustainability of the Alliance.

### 3. Project Outcomes & Results

Besides the global expected outcomes connected to strengthening collaboration and dialogue between aeronautics stakeholders at European Level, the main specific outcomes expected from the AIRVET project are associated to its different phases:

- The **Analysis of skills needs** has provided a *Territorial Analysis*, which is a collection of training needs involving the stakeholders of the sector;
- The **Curricula Design** will provide *Training Curricula/Programmes* for the maintenance and ICT areas within the aeronautics industry.
- The **Curricula Delivery** will result on *Multimedia Resources* and users' guide Manual to support the implementation of training curricula.

At this interim stage of the project, the main outcomes produced are related with the results of the Analysis of skills needs. This analysis was the main task in the first year of the project, since it included an online survey in 6 countries with questionnaires for 4 target groups, interviews, focus groups and desk research. Although causing a slight delay to the next project activities, the conclusions of the analysis of skills need, compiled in the report *Territory Analysis*, provided valuable information regarding the characteristics and gaps in the current VET offer in aeronautics.

The report *Territorial Analysis* is available for download from the AIRVET website ([www.airvet-project.eu](http://www.airvet-project.eu)) and provides a wide set of information on the current training offer and skills gaps identified in terms of VET offer at European level for the aeronautics industry, especially regarding the fields of Maintenance and ICT. Three main subject areas were identified where new materials could be developed to help address skills and training gaps:

- maintenance,
- ground operations
- human factors.

The results of the analysis also revealed a strong need to ensure that young people and potential future employees are made aware of career possibilities. We believe that human factors can also be used as a theme to address this need.

The **human factors** subject fits, therefore, the skills/training gaps identified within the maintenance and ground operation functions of the airline industry, but it was also frequently independently identified as a subject area with skills gaps. Based on the need for awareness training about Human Factors and its importance on the development of safety awareness and safety systems, human factors is the vehicle used to support the development of the other three areas:

Table 2: Target groups, training needs and improvement objectives of AIRVET's training materials

Target Audience	Training Need	Objective of improvement
<b>Maintenance Technician</b>	Improvement in the teaching materials and soft skill development.	Improve the training materials of the Human Factors module in the Part 66 approved training manual.
<b>Airport Operation Operatives</b>	Upskilling of workers to address skills/training gaps and improve operation safety.	Provide exposure to Human Factors to address skills gaps. Short introductory course to the topics.
<b>Future Workers</b>	New training material.	Provide introductory training materials for future workers who have had no exposure to the subject or the "Aviation Culture".

For the curricula design and development of multimedia material to address the skills/training gaps within the aviation industry, partners are working on the creation of new curricula/part of curricula and on the adjustment/enrichment of already existing curricula. A structured plan for the definition of the training courses for the three target groups, which has the potential for EU wide implementation has been outlined and the format of a module descriptor has been provided.

In a crosscutting perspective of strengthening the AIRVET Alliance, several communication, collaboration and dissemination activities and tools have been developed and implemented. In the six partner countries, launch events were organised to raise awareness about AIRVET. The Flight Plan (a public document containing the strategy and objectives of the project) was produced, printed and distributed among partners and relevant stakeholders and is also available for download from the website. The focus groups organised in Spain, Italy, France and Poland to feed the needs analysis also contributed to communicate the achievements and aims of the project. Besides, the focus groups, launch events and several other events where partners participated, contributed to mobilise more stakeholders to the project, which is crucial for the next stages of the project, where several evaluation and validation moments are planned.

AIRVET has launched a dedicated website ([www.airvet-project.eu](http://www.airvet-project.eu)) available in 6 languages and associated to accounts in social networks (Facebook and Linked In). The website presents the project focusing on its benefits and aims, makes a concise presentation of the partnership and provides access to results and links to other resources, as well as all relevant information relating dissemination actions, such as press releases, articles and the newsletters.

AIRVET website includes a section "**Stakeholders Database**" with a short explanation about this resource and links to the public access database of AI

stakeholders and to the online form to be completed by users who want to suggest a new entry to the database. The database is/will be used both by the AIRVET partners (internal use) to identify and contact relevant stakeholders to participate in the project's activities; and by visitors, to search for stakeholders related to the AI.

An AIRVET **brochure** was produced with general information about the project, its objectives and expected results, and the top pick events that organized within the project. This brochure is available for download at the project website in English, Polish, French, Italian and Spanish.

Figure 4: AIRVET brochure



Besides the brochure, the AIRVET consortium has developed the Flight Plan, a public document available for download from the project's website. This is a public guiding document on how the AIRVET project develops. The Flight Plan has been widely distributed (online and in paper) and will remain available as main synthesis of the AIRVET approach.

AIRVET partners have also disseminated the project and its outcomes through their own online channels, such as institutional websites, internal newsletters, dedicated social media channels or through external online channels.

The first issue of AIRVET Newsletter was launched on September 2014, another 3 issues will follow.

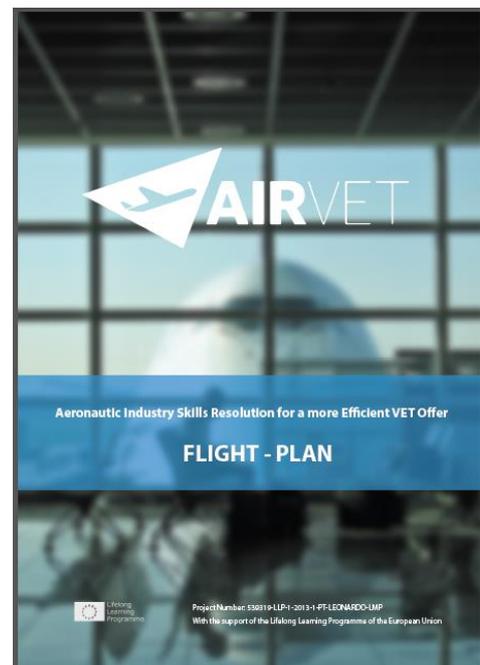


Figure 5: AIRVET Flight Plan

## 4. Partnerships

The **AIRVET Alliance** is a multidisciplinary consortium composed of 10 partners from 6 countries, representing 3 types of actors of key importance to the AI sector and to the accomplishment of the objectives of the project:

- Bodies with aeronautic expertise
- VET providers
- Bodies involved in the education and training systems

The AIRVET countries (Portugal, France, Italy, Poland, Spain, UK) represent regions where the AI plays an important role and the interest for this industry is increasing. All partners share the common concern towards AI and VET, as well as the relevance of the New Media and ICT technologies in this process.

AIRVET partners represent different institutions such as Aeronautic clusters (namely research centres, airborne and ground industry) Universities, SMEs, VET providers, public bodies and multimedia providers. The relevance of acting at European level is particularly strong in AIRVET, since the aeronautic industry is eminently transnational, with practices such as workers mobility within the EU. In this context, it is particularly relevant to have a training offer, certifying mechanisms and training qualifications that are compatible and offer flexibility for workers (and learners) to move at European level.

The same way several initiatives have been launched at European level to support the aeronautics industry, also several challenges cannot be overcome by member states isolately - they require dialogue, common work and a European cooperation approach in order to tackle them. The future shortage of qualified personnel for aeronautics can only be reversed with a joint European effort to attract, educate/train and motivate young Europeans to embrace future VET training and careers in the field of Aeronautics.

In the first year of AIRVET, different activities of the project required the collaboration with external stakeholders, for example for the desk research, online survey, interviews, implementation of focus groups. Therefore, the AIRVET Alliance has, from the beginning of activities, established contacts and cooperation with various external actors in different countries. In many cases these contacts were originated from other projects where AIRVET partners collaborate; in other cases new bridges were established, as for example with Eurocontrol and with PEMAS – Portuguese aerospace industry association.

AIRVET counts also with a set of associated partners that have been supporting the project, especially through the participation and input of their experts. Associated partners of AIRVET are, among others, the European HALA! SESAR Research Network, the Spanish Aeronautic Cluster, the United Kingdom Aeronautic Cluster, the French Engineering School on Civil Aviation, Boeing Research & Technology

Europe, Air Europa and the Polish Aviation valley association. AIRVET was also invited to participate in the Skills Hub project, a Leonardo da Vinci partnership aimed at creating a structure and a common language that will facilitate information transfer, mobility and project cooperation between EACP members and regional actors. This project is analysing VET systems in the participating regions and analysing the VET offer in the Maintenance, Repair and Operation (MRO) field.

AIRVET benefits from the linkage to other projects with common objectives, such as the Fly Higher project ([www.flyhigher.eu](http://www.flyhigher.eu)), another initiative funded by the European Commission that aims to attract young people into career pathways in the Aeronautic sector through various educational and hands-on events and with IN2SAI (Lifelong Learning Programme) – Increasing Women’s Participation in science studies and in aeronautic industry ([www.in2sai.eu](http://www.in2sai.eu)). Each partner has privileged links to other relevant organisations or networks.

The wide network accessible to AIRVET includes the AI industry, VET providers and trainers, but also universities, schools, associations, business and youth associations. Interaction with these actors will also ensure a multiplier effect for dissemination and a stronger basis for future sustainability.

## 5. Plans for the Future

In the upcoming months, AIRVET partners will work on three main fronts:

- Conclude the creation, improvement and validation of VET curricula and training programmes to the aeronautics industry in the fields of maintenance, ground operations and human factors, according to the characteristics of the VET offer and regulation in each country.
- Conclude multimedia materials (3 learning objects) to support training around the theme of human factors for the maintenance field, for ground operation workers and for future workers who need awareness-raising training about the importance of human factors in aeronautics.
- Increase the dissemination of the project's results along with the completion of the remaining activities.

The strategy of developing training material around human factors, but implemented in the distinct target groups allows using the strengths of the consortium and provides greatest potential to produce tangible and sustainable benefits.

The creation/adaptation of curricula to include/strengthen the component of Human Factors in the three target training courses will run parallel to production and testing of multimedia training materials. Three learning objects are being produced around the theme of Human Factors. Each "learning object" will be complemented by a teachers manual and guidelines on how it can be included in curricula addressing Human Factors. The AIRVET multimedia materials will be usable online and offline and will be available in six languages: English, Portuguese, Spanish, Italian, French and Polish.

There will be successive testing and validation phases of the curricula and multimedia materials, involving internal and external stakeholders, including Pilot Runs to be implemented in 4 countries aiming at reaching a wide perspective of the impact of the training programmes created and implemented. Evaluation activities will result in important documents with the assessment of results of the different phases: Analysing the Territory (needs analysis); Planning the Route (development of curricula); Take-off (multimedia materials). Towards the end of the project, the New Routes Report will present recommendations for future work in VET field addressing the AI, based on the AIRVET experience and assessment results.

To capitalise on the dissemination efforts and contacts established in AIRVET's activities, a sustainability strategy will be developed with a special concern to include the curricula developed/adapted in the national qualification frameworks of the partner countries and to ensure that the AIRVET Alliance continues and expands. Partners will continue and intensify the dissemination of the project objectives, activities and results via different channels, namely the project Website, newsletters, Facebook, participation in external events, publication of articles and press releases,

if possible including presentation of findings, submission of papers, demonstration of the multimedia materials, among others.

There will also be a strong focus in strengthening collaborations with external stakeholders to ensure the continuation of the project after its finalisation. It is crucial to ensure that:

- The AIRVET's curricula are incorporated in the VET offer for aeronautics in different countries
- The AIRVET's multimedia materials are used within more formal learning contexts (for example included in the new curricula developed/adapted) but also by self-learners and potential AI workers
- All other AIRVET useful information and resources are further explored and of use to other initiatives: for example the information contained on the Territory Analysis provides a valuable mapping of part of the VET offer for aeronautics; the AIRVET database of stakeholders compiles and organises information about different categories of stakeholders in the AI across all Europe.

The planned upcoming events will certainly contribute to maximise the project's sustainability perspectives. Besides the above-mentioned pilot runs that will take place in 4 countries, AIRVET will organise National Workshops (one in each partner country) and Open Days for Future AI workers (also covering the 6 partner countries and involving at least 300 visitors) to bring together schools, VET institutions, industry and other stakeholders to disseminate jobs in AI, clarify opportunities within the sector and present VET courses as a valuable learning and future career path. The AIRVET final conference will also be a major event to mobilise relevant stakeholders at European level to promote a wide exploitation – this event will take place in Italy in September 2015.

Additionally, permanent connection with other projects and initiatives will also be key for the continuation of AIRVET's effort. Sharing information and exploring synergies with projects covering common themes and keeping track of potential collaboration opportunities are, therefore, important goals of the AIRVET Alliance.

## 6. Contribution to EU policies

The AIRVET Sectors Skills Alliance addresses the challenges of vocational skills mismatches and shortages in the aeronautic sector. Driven by the real demands of the market, the AIRVET project is an investment in the skills of the Aeronautics Industry workforce. The project intends to have a strong impact on the existing VET training provision in order to boost the skills of human resources working in the AI by the use of multimedia material that will be essential to contribute to the implementation of innovative ways of delivering VET.

AIRVET addresses key EU policies and contributes to the objectives of the Lifelong Learning Programme. By focusing on the improvement of the adequacy and attractiveness of the VET training offer and also on the connection between different VET systems, AIRVET is contributing to the quality of Lifelong Learning and to promote Innovation and the European dimension of training for the aeronautics sector. In the first year of AIRVET, we have accomplished important milestones that directly contribute to these aims, such as detecting skills needs and planning the improvement of the VET offer (including curricula and training materials).

AIRVET addresses the shortage of qualified personnel for the European Aeronautic Industry, by contributing to the joint effort to attract, educate/train and motivate young Europeans to embrace future VET training and careers in this field. The project includes concrete activities to *“support participants in training and further training activities in the acquisition and the use of knowledge, skills and qualifications to facilitate personal development, employability and participation in the European labour market”* (one of the specific objectives of the Action). More concretely, the AIRVET curricula and the multimedia resources will contribute to a more efficient VET, based on real market needs, to support a more competitive European workforce for the aeronautics industry.

The AIRVET Alliance, bringing together bodies with AI specific expertise (Polytechnic University of Madrid, Spanish Aeronautic Society, University Paul Sabatier, Coventry University) with VET providers (INOVA+, INNPuls, DeepBLUE and i3M) and bodies involved in education and training systems (Portuguese qualifications agency, Italian university college ARCES) is a clear manifestation of the operational objective *to improve the quality and to increase the volume of co-operation between institutions or organisations providing learning opportunities, enterprises, social partners and other relevant bodies throughout Europe*. Additionally, in their cooperation to improve the quality and adequacy of the VET offer, the AIRVET Alliance is designing, developing and disseminating adapted/new AI curricula and multimedia resources for training, which represents a clear contribution to the objective of facilitating the development of innovative practices in the field of VET.

As mentioned previously, the aeronautics sector operates at European level and several European programmes seek to contribute for a more competitive and

technological advanced European Aeronautics Industry, especially research and innovation programmes. Currently, and while recovering of an unprecedented economic crisis, the EU has to deal with several relevant challenges (such as globalisation, climate change, ageing population, scarcity of resources) which directly and strongly affect the competitiveness, performance and sustainability of the sector.

In order to achieve the desirable sustained growth, aeronautics also depends on the availability of flexible and high-skilled labour force and on the supply of human capital. However, demographic trends (aging of the population and declining of younger age groups) and the competition with other industry sectors for skilled employees put additional pressure on the education and training capacity to meet the high demand, including responsive learning methodologies to new evolving learning.

From this perspective, AIRVET acts complementarity with other policies, not only contributing to a more skilled workforce who can work on the research an innovation initiatives promoted by the EU (for example under Horizon 2020), but also directly addressing the Education and Training 2020 Work Programme, namely by promoting a better anticipation of future skills needs; developing better matching between skills and labour market needs and; bridging the gap between the worlds of education and work."

By raising awareness about the different career opportunities (for men and women) in the aeronautics sector, AIRVET also addresses LLP Horizontal policies aimed at promoting equality between men and women and contributing to combating all forms of discrimination. Many of the AIRVET partners have participated in projects or initiatives targeted at fostering the participation of women in studies and/or careers with male predomination (such as those connected to aerospace), so there is particular attention to messages fostering inclusion and women participation. Also through this component we believe that AIRVET strengthens the contribution of lifelong learning to social cohesion and personal fulfilment.

