



Erasmus+ Ka2 D.E.L.T.A. Project

Drones: Experiential Learning and New Training Assets

Newsletter no. 1 – May 2017





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## Project Summary

Today, 90% of the EU working positions require technical skills: by 2018 the demand for STEM resources will grow by 8% while the average of jobs will grow only by 3%; by 2020 there will be a deficit of 825.000 resources with technological skills; by 2025, due to turnover, 7 million jobs requiring STEM skills will be available. If the realization of the ET 2020 strategy hopes that benchmark doesn't exceed 15% of students below the age of 15 with low achievements in math and science, data reveal 22% in 2015 (36.6% for students in unfavorable socio-economic conditions).

Besides, there is a strong gender-gap: only 32.1% of EU-27 graduates in STEM disciplines is females.

Drones are suitable to promote vocational learning experiences based on experiential practice, in an interdisciplinary approach, in response to the needs of vocational skills development related to key technologies of the digital era and STEM disciplinary skills: engineering for the resolution of design issues, production and maintenance of light aircraft, built with advanced materials that allow the flight in accordance with applicable regulations; mathematics (from trigonometry to set the flight plan, to 3D modeling through the cloud of points for volumetric calculations and remote sensing); the physical and natural sciences to fully understand the application fields of technology.

The project aims at:

- socializing (with case studies reconstructed for educational purposes) pupils and teachers of

VET schools with drone technology, designing its integration with curricular STEM programs as teacher-led approach;

- co-designing with companies innovative working environments, developing the necessary resources for an open and transferable WBL for the realization of a project work "pupil-led", in response to the challenges of application of drone technology;

- promoting among students, with a logic of gamification to develop entrepreneurship, a competition of ideas for design, development and implementation of new applications / uses of drones.

The project involves a VET secondary school and a business / technology oriented institution in each country, considering countries with similar urgency to address a problem of under-performance and disaffection with the STEM subjects (cfr. Eurydice 2013) and with homogeneous conditions / prospects of development of drone technology (see. "Innovation Union Scoreboard 2015").

The expected results follow, in the realization of IOs, a logical sequence of industrialization passing from the enabling conditions for the activation of the drones (1- design / assembly of the UAV, 2- study of how to use the data on the ground 3- making of the devices to be installed on board), to real activation of technology (4- study of flight plans) and, finally, to the examination of application problems (5- enhancement of marketability fields).



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## **ACTIVITES**

The realization of each of the first 5 IO is divided into the following three macro activities:

- 1) DESIGN
- 2) TESTING
- 3) RELEASE

The competition of ideas (IO 6) allows students / teachers / business experts to explore innovative fields of application, using the methodology of "gamification" to stimulate the engagement.

The WBL methodology to be adopted for the implementation of the IO intends to be an active testing of subject content, referring to a type of "learning by doing" according to the model called "Ambito di attività", whereby students are given: a labour process, tools - both materials (technology) and intangible (information, procedures), an OBJECT of application and a RESULT to get, being placed in RELATIONS specifically defined.

VET secondary school will be able to expand the supply of training and increase interest between the "digital generation" to the STEM disciplines; the learners will be able to increase motivation for further education, particularly scientific (even overcoming the gender gap) and increase their employability; the business / technology oriented institutions can take advantage of connecting with new generations of workers and exploring the potential of the innovative application uses of drones.

## **IMPACTS**

increase awareness of VET teachers about the pedagogical potential of WBL;

develop in VET students (especially low achievers and / or female students) motivation to study STEM disciplines and encouraging employability, even in an entrepreneurial way;

seize the enormous potential of the drone market development: EU sources says of a market of about 15 billion euro within the next 10 years in our continent and, globally, of 130 billion dollars. All IO project will be released as OER.

## **RESULTS**

The project consists of 5 Intellectual Outputs, according to a logical-temporal sequence of drones production / industrialization:

- IO1, Engineering Program
- IO2, ICT Program
- IO3, Electronics Program
- IO 4, Math Program
- IO 5, Science Program



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Experiential Learning and new Training Assets

**COORDINATOR**

**Cisita Parma scarl**  
Parma, Italy

[www.cisita.parma.it](http://www.cisita.parma.it)



**PARTNERSHIP**





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## EVENTS

14/12/2016 - 1st Transnational Meeting - Parma (Italy)





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03/05/2017 - 2nd Transnational Meeting - Zaragoza (Spain)





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## 27-31/March/2017 - Short term joint teacher/staff training - Parma (Italy)



Activity C.1 - Short term joint teacher/ staff training



Dates: 27<sup>th</sup> – 31<sup>st</sup> march 2017

Draft Agenda: Rev\_2\_Cisita

	Monday 27th Start 11 am	Tuesday 28th at 9.15 am	Wednesday 29th at 9.15 am	Thursday 30th at 9.15 am	Friday 31st at 9am
<i>Morning 9am – 1 pm Short break at 11</i>	<b>Drones' scenario - AERODRON</b> a. Drones' market scenario in each country b. company expertise c. drones legislation in each country	<b>Aerodron / all:</b> Reverse Engineering VS. Building a drone from scratch  <b>LUDOR :</b> Information about components/materials/ techniques	<b>Aerodron:</b> drone applications and post-elaboration of data	<b>Cisita / UPT:</b> a. <del>structure</del> of the Intellectual Outputs (revision) b. the identification of the learning object for the Intellectual Outputs	<b>Cisita / all:</b>  Debriefing Revising project's tasks Next steps
<i>about 1-2 pm Afternoon 2-6 pm Short break at 4</i>	<b>Lunch</b>  Drones' Scenario - Ludor Engineering, Romania - AITIP, Spain  Committee: how to cooperate together considering the different backgrounds  Discussion	<b>Lunch</b>  Company Visit in Parma: Aerodron CGR	<b>Lunch</b>  Schools, 30/45 minutes each:  a. Presentation of the STEM training offer b. Description the didactic programs of the classes involved in the project	<b>Lunch</b>  <b>Aerodron / Workshop:</b> Creating a WBL setting at school	
<i>Night</i>			<b>Social Dinner tbd</b>		

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