



Erasmus+

Educational for Drone (*eDrone*)

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Design of the exploitation plan

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2. Introduction

Report A7.4 is based on data provided by co-writers P7-CAA, P8-ACAPOL, P10-SAUM, P11-APA, 12-ASUE, P15-ISU, P17-BSU and is a synthesis of their activity for *Promotion of start-ups*.

The report aimed to identify how new start-ups were created, what kind of commercial activity they had, and how they managed to generate new jobs. Another aspect followed was the analysis of the income obtained by these companies and the development perspective for this activity.

In the following points I will try to summarize the activity *Promotion of start-ups* based on the data received from co-writers.





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3. Description of the start-ups arising from the OEDs promotion activity

Based on the promotional activities promoted in each country, several start-ups have been set up. These were either created as a new activity within already existing companies or as stand-alone entities. Some of the most important companies are described below

- **NGA Infoconsulting ltd** (the company specialized in accounting consulting, being involved in the eDrone activities started a to offer a new service – design of multiannual plantations using GPS system and drone technologies for farmer companies in Moldova.
- **Bosal Solutions (CABOSAL ltd)** is a start-up created in 2019 with the aim of developing innovative solutions and integration of information technologies in different fields. The objective for the next period is to integrate agricultural drones for organic agriculture, precision by scanning fields to collect information about the vegetation index or monitor in real time the status of crops/plants on agricultural land, mapping them in 2D and 3D, for the planning of field intervention strategies, land status monitoring (e.g. erosions, etc.). The company obtained the status of DJI Agriculture Authorized Dealer in Moldova in September 2019. Mr. Valeriu Seinic, P10 eDrone team member offered main part of the curs for the students, being contracted by NGA Infoconsulting, having the expertise build as part of eDrone training at Evry in France.
- **The Georgian Start-up Unmanned Aerial Vehicle** is working on creating the design of unmanned aerial vehicle with vertical takeoff and landing modes, which works on hybrid system. The main task is to reach fully autonomous flight regime up to 24 hours flight endurance. Aircraft can be used in almost all industries, starting with management of emergency situations and finished with monitoring of protected territories. Because of thermal sensor placed on the fuselage of the aircraft, the device can fly during the night and in any weather conditions. They reached the level of technological readiness (TRL) 4 and after test flight of the prototype they are hoping to reach the 5th level. This means, that they are at the phase of “proof of concept”.
- **LLC Raven** (<https://goflyprize.com/meet-the-teams/meet-team-raven-llc-from-the-republic-of-georgia/>) is a newly established LLC specializing in Manned/Unmanned Aerial Systems. The



goal of company is to design, develop and commercialize different modular autonomous aerial platforms for multiple purposes. During the short period of time the company managed to develop the large part of the project and construct small scale prototype to prove the concept of the proposed aerial vehicle. Our team also succeeded in meeting the strict requirements of the GoFly contest and continues to advance towards the final fly-off scheduled for the year 2020. Just recently the competition itself published an interview and article about the team and its founder.

The similar attention and publicity was achieved with the recent article featuring Raven team and its preparation for the competition in the local famous magazine called “Entrepreneur”

www.entrepreneur.com/article/336335?fbclid=IwAR2n119yQrQbEjTVkoQORyz-5cKadh15WJDTYAnsQkimsnIXe4fYPWUja4E

- **Copter.ge** (<http://copter.ge/>) associate member of project is only one company in Georgia that is offering services in civil applications for drones and as a reseller of DJI.

□

A particular situation is described by P15 ISU where “Ilia State University is very active in terms of supporting startup and innovation ecosystem, and people who are managing eDrone project from ISU-P15 are also involved in many startup ecosystem activities. Avtandil Mgebrishvili, Goga Saatashvili, Nana Dikhaminjia and David Chechelashvili were mentoring and coaching several startups and two of these startups are in drone field, and achieved successes as a result of mentoring”. In the CIA course one Module is concerning Entrepreneurship. The aim of the Module is to work on new ideas and promote start-ups creation in the field. Therefore, There is the great expectation that from OED new startups will emerge.

Also, Armenia (ASUE, NPUA) report that: “Some start-up ideas have been generated among the 1st group's students, which will be boosted and promoted immediately after the universities are open in Armenia (after Apr 14). The start-ups haven’t been entirely formulated



yet, because the 1st group of CIA courses was launched on Feb 17, the second one - on Mar 10 and the universities in Armenia were closed from Mar 1-Mar 8, and are currently closed since Mar 13 because of the COVID-19 disease.”

ACAPOL report that: “We cannot talk about an exact number of persons because people who have been trained at the drone Education Office at the State University of the RM are acting as an entrepreneur on a patent basis.”





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4. **Description of the commercial activities in which are involved start-ups drones arising from the OEDs (i.e. mapping and survey, inspections, security, monitoring, commercial photos/video, delivery of goods, innovation etc.)**

As we can see from the data received from the co-writers the start-ups cover a large range of commercial and scientific activities:

- activities for filming and presentation of tourist objectives, as well as cultural events;
- inspection activities of the different installations and infrastructures;
- UAV development activities with vertical take-off capable of flying 24 hours and having the possibility to be equipped with rescue search and aerial surveillance equipment;

All these activities are carried out both with purchased drones and with custom made systems. The following equipments have been used: CO2 Laser Cutting, Engraving Machine, High-Precision; Solder station; 3D Printer; set of tools.

Cube autopilot Mini Board; Cube autopilot Carrier Board; Raspberry Pi 3+ third-generation single-board computer; Jetson Nano Developer Kit - a small, powerful computer that lets you run multiple neural networks in parallel for applications like image classification, object detection, segmentation, and speech processing, were equipment implemented in the custom built drones.





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5. Financial results reported by start-ups as a result of drone activity

As can be seen from the reports received, all the companies were newly established, or are separate activities within the companies already established at this time, so no financial indicator resulting from this activity can be reported.

- P15 ISU: "Both of the startups (Start-up Unmanned Aerial Vehicle and LLC Raven) are at pre-revenue proof of concept stage, so there are not revenues yet. However both of them recently received grant (100K GEL) from Georgian Innovation and Technology Agency and World Bank and are moving fast to make prototypes and conduct first sales"

- ACAPOL: "At this point, we cannot give a fixed amount only one probability of around 1000 EUR annually."

- Armenia (ASUE, NPUA): "As the situation caused by COVID-19 postponed the lectures and the activities regarding the start-up at the OED laboratory, the turnover more concretely will be reported after the end of this situation."





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6. Capacity of start-ups to create new jobs

In the activity of promoting start-ups, more jobs were created as follows:

- 13 jobs – Moldova;
- 6 jobs – Georgia;
- 3 jobs – Armenia.

The following criteria were used in the selection of personnel:

- knowledge of the legislative framework, the functional obligations of the education professionals for drones;
- knowledge of drone technology, including architecture, avionics of drones, use of measurement and monitoring equipment, the maintenance of drones;
- application of data transmission and processing techniques received by drones;
- knowledge of the legal regulations regarding the drone activities;
- initial knowledge of photography and video-film.
- Possession of practical skills for the use (handling) of the technical equipment;

Even if the jobs are relatively few, we can say that it is a promising start for such a new and complex activity.





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7. Forecasts for the development of the start-up activity

The engagement of more cursants, providing them with comprehensive and targeted lectures regarding the new technologies, their different applications, the market demand and shortcomings will promote them to undertake activities aimed to setup their own start-ups. This will lead to cover the gaps existing and offer the specific markets their innovative solutions.

Start-ups will be created in the areas:

- Tourism: Drone filming for presentations by tour operators, catering and leisure to show the facilities they offer to their customers and the tourist potential of the area;
- Under construction and architecture: Overall filming of project development during project development. Periodic inspections can be carried out to detect surface deficiencies in floors, poles of support, roofs, windows, etc. filming construction, roads, and bridges can be particularly useful for future regional development plans.
- In real estate: Potential buyers have a clear view of the exterior and surroundings of the property.
- In insurance: May be used for claims inspections.





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8. Conclusion

Because the nature of startups are to break the old rules and set up the new rules, these are very effective tools to exploit the outcomes and results of the CIA courses, OED laboratory and the eDrone project as a whole.

However, it is necessary to harmonize national legislation with a single legislation at EU level and beyond.

At the same time, it is necessary that in each country the drone operator profession and the specific activity of drone operation must be recognized as a separate job.





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9. References:

Reports received from:

- P15 ISU;
- ACAPOL;
- Armenia (ASEUE, NPUA) - joint report;
- SAUM;
- TSU - Georgia

