CIVIL DRONE COUNCIL

A National & Regional Drone Strategy Catalyser

Reflections on a Possible Way Forward

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22

CIVIL DRONE COUNCIL

A National & Regional Drone Strategy Catalyser

A significant number of countries in the European Union (EU), as well as in countries outside the EU, currently do not have a structure uniting the principal entities [governmental (regulatory & non-regulatory) & industrial (including micro, small & medium-sized companies)] that are part of its national drone community. In most countries, the various stakeholder groups have no formal transversal communication between them and operate in isolation from each other. No national drone association has succeeded in creating a truly federated national approach.

In most countries the national drone associations have a lack of funding, and consequently do not have the financial means to employ the dedicated personnel required to stay informed on what is going on at an European level, let alone contribute to European harmonization efforts. This situation is further exacerbated by the fact that most current drone community members are micro and small- & medium-sized enterprises (SMEs), which do not have the time, personnel, language skills, nor the financial means, to actively participate in European working groups.

This situation is not conductive to forging understanding between the various national drone community members, does not permit to identify the required national industry challenges & opportunities, nor to define, prioritize & initiate required technology developments, which makes it extremely difficult to formulate a comprehensive national drone strategy.

The use of civil drones is finding many applications in multiple market sectors. Drones integrate multiple innovative technologies and will catalyse the adaption and development of additional technologies, which stand to revolutionize aviation. However, drones also raise aerospace integration, security and public acceptance challenges.

Several countries have recognized the potential of drones relative to job creation, economic growth, and creating societal benefits, and have initiated national initiatives that bring the various members of their national drone community together [e.g. Japan UAS Industry Development Association – 2015 (chaired by Prof. Senji Suzuki, University of Tokyo); the FAA's Drone Advisory Committee – 2016 (chaired by Brian Krzanich, Intel)].

In this context, it is of interest to note that similar efforts are also being deployed in Europe.

The French Civil Drone Council

The French "Conseil pour les drones civils" (CDC) was established in early 2015 and it has had an extremely positive influence on bringing the French drone community together, structure it, and has permitted this community to jointly address pressing problems identified by them. It brings the entire drone community together [manufacturers (all sizes of civil drones), operators, national professional civil drone association, national aerospace association, large companies using or planning to use drones, governmental institutions & agencies, research organisations, technology clusters, insurers & lawyers, regional economic promotion agencies).

The French CDC has as mission to coordinate the French industry efforts to develop the national civil drone market, as well as its export potential. The French CDC is chaired by the Director General of the Direction Générale de l'Aviation Civile (DGAC), the national aviation authority.

The French CDC is made up of an Executive Committee and three Technical Committees, which each have several working groups. The Executive Committee defines, coordinates and steers all actions plans deployed by the three Technical Committees. It is composed of high level representatives from the principal contributing organisations. The Executive Committee is led by a General Secretary delegated by the DGAC.

In each of these three Technical Committees, the objective is, through a pragmatic approach in their respective Working Groups, to coordinate all national efforts at all levels and involve all drone community players, in order to support the multiplication of the usage of civil drones and the development of civil drone-related innovative technologies and services.

This has led to the creation of three additional «joint» working groups, which are populated by representatives of the «Operations, Regulation & Use» and the «Technology & Security» Technical Committees.

FRENCH COUNCIL FOR CIVIL DRONES - EXECUTIVE COMMITTEE		
TECHNICAL COMMITTEES		
OPERATIONS, REGULATION & USE	**TECHNOLOGY & SECURITY**	**SUPPORT & PROMOTION**
◆ Identify the operational & regulatory bottlenecks for drone market development ◆ Formulate recommendations or propose action plans to alleviate the bottlenecks **Working Groups** ● Improvement of drone usage ● Staying up-to-date with European & international regulatory developments ● Aeronautical information ● Definition of new regulatory scenario(s) for the incremental development of the use of drones	◆ Draw up a technical roadmap for the CDC & keep it current ◆ Identify the most promising technologies & coordinate the research efforts to develop them ◆ Propose, when necessary, the start-up of projects to alleviate technical or technological bottlenecks **Working Groups** ● International standardisation ● Test centre strategy	◆ Facilitate the development of the national civil drone community (export, education, access to financing, insurance, data protection & privacy, general public acceptance of drones) ◆ Responsible for external communication **Working Groups** ● External communication ● Acceptability of drones, responsibility, insurance, data protection & privacy ● Export-related matters ● Financing

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22

With the support of the "Direction générale des entreprises" (an agency of the French Ministry of Economy, Industry & Digital Matters, responsible for the development of the competitiveness & growth of national industrial & service enterprises), the French CDC watches over the correct integration of its action plan with the solutions of the second phase of the French national "New Industrial France" initiative, namely "Transport of Tomorrow", "Intelligent Objects" and "Digital Confidence", and in particular the technological projects identified in its national technical roadmap.

In addition, the French CDC reviews the current national drone regulation and proposes, in consultation with the DGAC, suggestions for improvements and adaptions.

The current French civil drone community consists of over 3000 companies (2700 drone operators deploying 4500 drones; 140 approved drone producers; 398 drone type certificates granted). The economic activity associated with this budding community already represents several hundred million Euros per year. The rapid development of the French drone community is the fruit of the conjunction of a balanced national drone regulation, a dense network of very innovative micro, small & medium-sized companies (producers of drone systems, as well as companies involved with engines, payloads, energy, command & control and data links, autopilots, data processing; flight schools, etcetera; and drone operators), a long national aeronautical tradition, as well as visionary users (agricultural and public utility companies).

On 17 November 2016, the French CDC held its first annual forum at the headquarters of the DGAC in Paris, France. The slogan of the forum was: "Let us together invent the future of professional civil drones".

The Benelux Civil Drone Council

The Benelux Union is an intergovernmental organization of three neighbouring states, namely Belgium (BE), The Netherlands (NL) and Luxembourg (LU). The main institutions of the Union are the Committee of Ministers, the Benelux Parliament, the Benelux Council and the General Secretariat. The Benelux General Secretariat is located in Brussels, Belgium. It is the central administrative pillar of the Benelux Union. It handles the secretariat of the Committee of Ministers, the Council of Economic Union and the various committees & working parties.

The Benelux is a cross-border cooperation between Belgium, Luxembourg and The Netherlands. The Benelux aims to achieve a region without borders focusing on internal market, sustainable development, justice and home affairs. This is why the Benelux is an excellent model as a laboratory to further strengthen European integration.

Both UVS International and the Benelux General Secretariat (www.Benelux.int) support the exchange of knowledge and views on the intentions of regulating drones at European level. As stated in the Benelux annual plan 2016, the development of drones should be analysed on a multi-national basis in order to identify bottlenecks and opportunities for Belgium, The Netherlands and Luxembourg, as well as synergies with neighbouring countries. Consequently, the Benelux General Secretariat in Brussels, Belgium has, in collaboration with UVS International and with the support of the French Civil Drone Council, has recognized that a way to promote the aforementioned would be to constitute a "Benelux Civil Drone Council", which would have the intent to create:

- A consensual view between BE, NL & LU on various RPAS-related matters;
- A forum to promote mutual recognition of various RPAS-related certificates & qualifications;
- A leadership position for the Benelux CDC in the EU.

Furthermore, it is anticipated that this multi-national civil drone council could be the core of a EU political train that could advocate consensual EU industry opinions and advance the RPAS-related EC legislative proposal. The Benelux CDC, in coordination with the French CDC, could also be instrumental to fast-track specific RPAS-related activities that both organisations consider necessary.

On 19 October 2016, UVS International organised, in coordination with the Benelux General Secretariat and within the context of the Benelux Week of Multimodality, the Benelux Drone Meeting at the offices of the Benelux General Secretariat in Brussels, Belgium.

The objective of this meeting was to discuss the interest of coordinated sessions by Benelux and French companies & organisations at the RPAS CivOps 2016 conference in December 2016, and to discuss the proposal to start up the Benelux Civil Drone Council. This meeting was attended by representatives of organisations from Belgium, Luxembourg, The Netherlands and France in the following categories:

- National Aviation Authorities (from all 4 countries)
- National Public Private Partnerships
- National Industry Associations
- Flight Schools
- Test Ranges
- National Research Organisations
- Utility Companies
- European Parliament
- European Commission
- EUROCONTROL
- Benelux General Secretariat
- UVS International

The following estimations were drawn from the presentations given by each organisation:

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22

Belgium	National regulation (April 2016) Relatively small number of drone manufacturers 500 drones registered 100 pilot licences delivered 40 flight authorisations
Luxembourg	National regulation upcoming (Dec. 2016) 255 commercial flight authorisations 60 private flight authorisations
Netherlands	National regulation (April 2016) Relatively small number of drone manufacturers 600 operators (not all declared)
France	National regulation (April 2012) Significant number of manufacturers 2600 operators 400 000 drones (leisure & professional) have been sold nationally 40 manufacturers have registered a "type certificate"

The meeting conclusions can be summarized as follows:

Remote Pilot Qualification & Flight School Qualification

The syllabuses for remote pilots in Belgium and The Netherlands have similarities. However, in The Netherlands there are two different syllabuses:

- RPAS Operations Certification Light (ROC Light); and
- RPAS Operations Certification (ROC).

Currently, there is no national pilot training syllabus in France, but key points relative training and qualification have been identified and shared within the training committee of the French Civil Drones Council. An agreement between the BENELUX-countries could concern a set of minimum requirements.

Currently, national aviation authorities examine requests by foreign pilots on a case-by-case basis. Therefore, mutual recognition of pilot licences, as well as of aircraft registration could improve cross-border development of drone activities.

Safety Rules for Drone Test Ranges

The French delegation reminded the attendees that rules regarding conception, building, training and operating of drones are not dealt with in the EASA prototype regulation. Training and testing centres could therefore be developed in a cross-border approach. The associations called for the elaboration of a European roadmap for safety rules for test ranges.

European Commission DG MOVE

The representative of DG Move emphasised the goal of mutual recognition of pilot licenses within the European Union (EU), as well as the definition of autonomous vs automated flights, and the necessity to develop an unmanned aircraft traffic management system.

It was also highlighted that the EU needs drone test ranges. The Benelux countries could therefore consider creating a physical testing infrastructure to facilitate testing and demonstrations of new technologies.

European Parliament

In September 2015, the European Parliament published a report on the safe use of remotely piloted aircraft systems (RPAS). Agreements have been reached to enhance cooperation on licences and pilot requirements, but there is a need for adequate man force and financial resources for the authorities. The European parliament feels there is a sense of urgency. Drone registration, marking and identification are linked to liability and data protection.

EUROCONTROL

The EUROCONTROL representative informed the meeting attendees that his organisation would totally support the creation of the Benelux Civil Drone Council (organised along the lines of the French Civil Drone Council) and expressed the desire for additional countries to follow this example.

French Civil Drone Council

The French CDC agreed to coordinate its activities and cooperate with the Benelux Civil Drone Council.

Benelux Civil Drone Council

The representatives of the National Industry Associations, Flight Schools, Test Ranges, National Research Organisations, Utility Companies present were in favour of a establishing a Benelux Civil Drone Council. All agreed that cooperation and partnership between large industrial entities and small & medium-sized companies is necessary.

The Benelux General Secretariat will discuss further on the deployment of a Benelux Civil Drone Council. Furthermore, the Benelux General Secretariat agreed to set up a working group with the relevant national aviation authorities on drone-related cross-border cooperation.

Coordinated Action

The meeting attendees agreed to jointly tackle the drawing up of "standards" for the following:

- Remote Pilot Training & Qualification
- Flight School Qualification
- Safety Rules for Test Ranges

These topics were selected because they are considered as being urgent priorities that are not covered by EASA's "Prototype Rules", nor by the EC's legislative proposal to the European Parliament.

In this process, the creation of the proposed standards will be based on existing best practices & existing documents (if available) and ongoing work at national levels.

The produced and consensually agreed on "standards" would be proposed to the European Commission, EASA, EUROCONTROL, JARUS, and all EU national aviation authorities. It would then be up to the national aviation authorities to possibly implement them on a national level.

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22

GENERAL REFLECTIONS

What Is A Civil Drone Council?

It is a public/private interest group that does not necessarily have a legal entity. It can be organized on a national or regional level. Participation is on a voluntary basis and each participant pays his own way. Work hours and possible travel expenses are funded by the participants.

Governance

For a national Civil Drone Council to function correctly, it would seem natural that it is chaired by an impartial entity that is not directly involved with manufacturing drones. The chairing by a public entity may be of particular benefit in order to efficiently transition the work of the Civil Drone Council working groups into the rulemaking process.

The actual structure and governance principals may vary, but should be collectively agreed on and laid down in a charter.

Drone Community Segmentation in Relation to a Civil Drone Council

Based on the examples of France and the Benelux, the drone community can be segmented in the following stakeholder groups, which have demonstrated being the principal actors to drive the start-up of a Civil Drone Council.

Manufacturers

a) Drone manufacturers [leisure (flying toys, recreational, model aircraft) professional, military].
   Currently, the majority of this community consists of start-ups small & medium-sized enterprises. However, larger companies (e.g. aerospace & defence companies) are also involved, principally in the security sector.
b) Manufacturers and suppliers of sub-systems, such as engines, payloads (imaging & non-imaging), command & control systems, communications systems (incl. 5G & satellite), telemetry, data links, autopilots, servos, data processing, power supply (large capacity batteries; fuel cells), software, etcetera;

Service Providers

a) Air Navigation Service Providers (ANSPs)
b) Communication service providers (incl. satellite)
c) Other service providers (flight schools, insurance companies, legal offices, qualified entities, research organisations, test ranges, academics)

Operators – Commercial & Non-Commercial

a) Companies supplying aerial work missions for paying customers (commercial operation).
   Currently, the majority of these operators are micro or small & medium-sized companies.
b) Companies & organisations flying aerial work missions for their own benefit (non-commercial corporate operation – principally large companies), e.g. energy providers, transport & logistics companies.

Operators - Governmental

a) Governmental non-military organisations (e.g. civil protection, customs, police, environmental agencies)
b) Military operators.

Large Users

This segment covers large capital strong companies active in fields such as aerial work & transport companies, construction companies, electricity supply & electric grid operators, highway management companies, national postal service, oil & gas companies, railroad operators, solar energy farms, wind turbine farms. A significant number of these companies is experimenting the use of drones.

Potential Participants in a Civil Drone Council

A Civil Drone Council should aims to bring all the relevant drone community players together, namely:

- Governmental entities - Ministries
  (e.g. Agriculture, Environment, Industry, Infrastructure, Interior, Justice, Research, Transport)
- Governmental entities - Agencies
  (e.g. civil protection, customs, police)
- Regulatory authorities
- Air Navigation Service Suppliers (ANSPs)
- RPAS manufacturers & integrators (all sizes of leisure & professional drones)
  Large (aerospace manufacturers) + micro, small & medium-sized companies.
- Manufacturers at sub-system level (e.g. autopilots, engines, navigation systems, positioning systems, propellers, servos, software)
  Large (aerospace manufacturers) + micro, small & medium-sized companies.
- Manufacturers of ATM & UTM systems + related software development
- Manufacturers of new technologies (e.g. mobile network suppliers)
- RPAS operators
  (commercial & non-commercial – including corporate)
  Large + micro, small & medium-sized companies.
- Distributors & retailers
- Communication Service Providers (incl. satellite)
- Service suppliers (e.g. insurers, legal offices, qualified entities, consultants)
- Flight schools (theoretical & practical)
- Test ranges
- National manufacturer associations & networks
- National operator associations
- National airspace user stakeholder associations
- National standards organisations
- Research organizations (public & private)
- Universities & Academia
- Regional economic promotion agencies
- Regional technology clusters
- Large capital-strong nationally & internationally operating companies using and/or planning to use drones in various domains (e.g. agriculture, airport management, communication provision, electricity distribution, energy production, gas distribution, highway exploitation, industrial maintenance, mining & exploration, mobile communication networks, offshore platform maintenance, railways, water distribution, water treatment).

Membership should be open to ALL relevant civil RPAS community members wanting to contribute.

Note: In some cases, it may be necessary to consider participation by governmental representatives as "Observers", instead of full members.

Drivers & Work Methodology

Industry (manufacturers & operators) has to be the driver and has to identify what it considers priorities (in coordination with the relevant governmental authorities), create the committees

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22

and working groups driven by their representatives to tackle the identified priorities, set the timelines for such work, and create a coherent structure to permit this. The structure should be flexible enough to be adaptable to the rapidly changing drone & technology landscape.

Note: Modern communication tools should be used to reduce physical meetings to a minimum. However, physical meetings will probably still be required.

Objectives

The objectives of a Civil Drone Council can include, amongst others, the following:

a) Definition national priorities & formulate a consolidated national opinion (technical roadmap & action plans).
b) Optimization the horizontal & vertical flow of drone-related (regulatory) information (especially on what is going on at European level).
c) Optimization the use of national resources.
d) Definition a national drone strategy.
e) Creation of a national collective conscience, promotion of awareness & positive public perception.
f) Definition a national opinion and promote it on European & international level.
g) Direct contact between manufacturers and their potential future customers, which should facilitate the development of systems that correspond more directly with user expectations.
h) Coordination with other Civil Drone Councils to fast-track specific topics, e.g.:
   - Mutual recognition (e.g. pilot licences, flight school courses);
   - Mutually recognized industry standards (including for product safety);
   - Harmonized multi-national opinions expressed in the European Parliament.

Advantages

The advantages of a Civil Drone Council include:

a) Makes it possible for the members of a national drone community to recognize themselves to each other.
b) Permits to overcome drone community fragmentation, which is currently the case in many countries.
c) Minimizes the risk of duplication (at national & European level).
d) Federates the members of a national drone community behind a common objective.
e) Permits to create a national vision and the relevant strategy to make it reality.
f) Creates better understanding between the involved governmental & non-governmental community members.
g) Permits the national drone community to work in its national language.

Regional Civil Drone Councils (e.g. BENELUX, Scandinavia & the Baltic states) permit the national drone communities in countries which do not have an industry base large enough to create a viable national Civil Drone Council, to make their combined voice heard.

Cooperation & Coordination

By prioritizing & coordinating their activities, Civil Drone Councils in the European Union could form a significant drone stakeholder group and supply harmonised inputs to:

- ICAO
- European Parliament
- European Commission
- EASA
- SESAR JU
- EUROCONTROL
- JARUS (Joint Authorities for Rulemaking on Unmanned Systems)

Note: Such multi-national community inputs carry more weight than individual national inputs, and would be highly appreciated by these organisations.

What UVS International Can Bring to the Table

UVS International (UVSI) is recognized as a drone community representative by the following organisations:

ICAO

- UVSI is a member of: - ICAO RPAS Panel;
  - ICAO Space Learning Group;
- UVSI has been involved in the organization of ICAO's Global UAS Forum, as well as regional ICAO workshops;
- UVSI has applied to be recognised by ICAO as an ''International Organisation''.

European Parliament

UVSI is recognized as representative of the national drone associations & the drone operator community and has a solid working relationship with the European Parliament.

European Commission

- UVSI is recognized as representative of the national drone associations & drone operator community, and is consulted on drone-related matters by various DGs;
- UVSI is called on to present its position at all EC drone-related High Level conferences;
- UVSI is on all EC regulatory panels & workshops.

EASA

UVSI is recognized as representative of the national drone associations & operator community, and a member of:

- EASA's General Aviation Sectorial Committee [covers drones until the agency's extension of competence to include aircraft with a mass inferior to 150 kg is official]
- EASA's Expert group for rulemaking task RMT.023 'Regulatory framework to accommodate unmanned aircraft systems to the European aviation system'.

SESAR Joint Undertaking

UVSI is recognized as representative of the national drone associations & the drone operator community and has a solid working relationship with SESAR JU.

EUROCONTROL

UVSI is recognized as representative of the national drone associations & the drone operator community and has a solid working relationship with EUROCONTROL.

JARUS

- UVSI is member of the JARUS Stakeholder Consultation Body;
- UVSI has widely promoted JARUS on an international level and motivated national aviation authorities to join.

In view of the aforementioned, UVS International could play a coordinating role between the Civil Drone Councils in the EU and facilitate making their joint positions (coordinated actions) known to the aforementioned organisations.

Representatives of Civil Drone Councils, as well as of specific multi-national drone community stakeholder groups (e.g. manufacturers, operators, large users) made up of the members of various Civil Drone Councils, could, using UVS International's existing recognition and participation in European and international regulatory activities, participate in and make their voices heard at the indicated panels, commissions and committees.

Blyenburgh & Co - 86 rue Michel Ange - FR-75016 Paris - France - Tel.: 33-1-46.51.88.65 - Fax: 33-1-46.51.05.22