PSCEurope
Public Safety Communication Europe

4th – 5th December 2019

In collaboration and hosted by the French Ministry of Interior

MINISTÈRE DE L'INTÉRIEUR

PSCE Conference in Paris

Use of Drones in Crisis Management

Space Systems and Applications for Safety and Security

Managing Information Overload in Situation Awareness Context

Broadband Communications: Current status

PSCE Conference Report
Paris, 3-5 December 2019

Public Safety Communication Europe (PSCE) Forum held its 21st[th] conference on 3-4-5 December 2019 in Paris, in close collaboration and hosted by the French Ministry of Interior.

The conference provided the ideal platform to learn more on public safety-related strategies developed by different national or international authorities and on technology solutions provided by research as well as industry. During the panel sessions, fruitful exchange complemented the presentations and provided further information. The conference also featured an exhibition area where solution providers and projects showed their work and achievements.

Overall the event brought together around 110 participants from 15 countries including public safety practitioners, policymakers, academic researchers and industrial experts. Representatives from European Organisations and Institutions also contributed to the discussions.

The conference themes were:

- Use of Drones for Crisis Management
- Broadband Communications
- Space Systems and Applications for Safety and Security
- Managing Information Overload in Situational Awareness Context

The conference was preceded by two workshops occurring simultaneously on December 3rd. The first workshop was focused on *article 110 of the European Electronic Communication code* and on the development and effective implementation of *Public Warning Systems*. This workshop was the third and final event of a series of three workshops aimed at guiding national authorities in implementing their PWS and achieve full compliance with article 110. This third workshop offered the perspective and experiences of 3 countries in developing and implementing their own PWS (Belgium-Romania-Iceland) and dealt with the two critical areas of Operational Readiness and Community Preparedness and Education.

The second workshop titled *Mobilizing video for PPDR* dealt with the use of Mission Critical Video (MCVideo) Technology. MCVideo allows responders to share live images in critical situations, providing new benefits and challenges for PPDR practitioners and society. Field-based, it therefore requires collaboration between practitioners, developers, service providers, governance bodies and researchers. Workshop participants worked in teams of 3-5 participants and produced a short film of real-world interaction with future systems designed to enable better ways of working on PPDR. More details about the results are provided later in this report.

The conference was kicked-off by a short word and a warm welcome from David Lund, PSCE President and Mr Guillaume Lambert, from the French Ministry of Interior and responsible for the implementation of the future telecommunication network in France "Réseau du Futur".

For the first presentation, Camilo Palacio (Austrian Red Cross) discussed *how innovation could improve the management of volunteers in a crisis situation*. Reference was made to a Trial conducted as part of the DRIVER+ project where 5 innovative solutions were tested in an earthquake scenario. The aim of the exercise was to determine whether the use of these 5 solutions constituted a real added-value for practitioners on the field to manage the crisis. In particular, reference was made to "CrowdTasker" an app developed by AIT to facilitate the management of volunteers. Mr Palacio shared some preliminary feedback about the app received from trial participants. The preliminary conclusion was that, although there was a clear margin of progression with regards to accessibility and usability, the app allowed for better coordination between volunteers on the field. The presentation was complemented by Georg Neubauer (AIT) who briefly introduced the audience to the "Portfolio of Solutions": an online database developed as part of the DRIVER+ project to reference existing crisis management solutions.

Focus 1. The Use Of Drones for Crisis Management

This first topic was kicked off with a presentation from Thomas Sousselier (Paris Fire Brigade) on the *lessons learnt from the Notre-Dame-De-Paris fire*. Mr Sousselier started by providing the context in which first responders had to intervene and emphasised two main obstacle: the lack of an overview of the fire and the absence of immediate situational awareness. By using UAVs French Firefighters we able to better analyse the situation and take tactical decisions. As a conclusion, it was pointed out that UAVs gave the command post the ability to change hoses direction in real-time to improve efficiency. Overall, the use of UAVs allowed for improved decision making and a more efficient overall response.

The second presentation by Eric Rodriguez (SDIS13) on the *Use of Drones in Rescue Operations* presented the different ways in which French Firefighters Use Drones (Aerial reconnaissance, search & rescue, transport of loads). The entire "drone fleet" of the French Firefighters is composed of 8 different drones, adapted to different scenarios and serving different purposes. Mr Rodriguez presented different use cases where these drones were used as well as some of the challenges encountered during rescue missions.

Thereafter, Michael Judex (BBK) presented *Joint Regulations and Guidelines for the Use of Drones in Civil Protection in Germany*. It was emphasised that there is currently a boom in the use of Drones and UAVs in the area of civil protection in Germany (cheap, reliable and easy to control). Although the use of drones in PPDR operations is exempt from a range of restrictions that apply for commercial and private use, a common regulatory framework for operations for civil protection units is still missing. The presentation presented the joint recommendations and guidelines for training, tactical operation and risk assessment related to the use of Drones in rescue operations. The recommendations are published since June 2019 and are now implemented by various stakeholders in Germany.

This was followed by a presentation on *Anti-Drone Detection and Tracking* by the French Gendarmerie Nationale. Were presented the legal framework regarding drones and UAVs as well as the means developed by the Gendarmerie Nationale to fight against abusive and illegal use of UAVs. The SPAD is a unit specialized in countering UAV-based threats composed of 21 operators. The unit itself uses UAVs and other devices, such as electromagnetic jamming guns, which was presented to the audience. The mission of the SPAD is manifold. First and foremost: watch, detect and identify potential threats – Inform authorities and, when applicable, neutralize the threat. The unit is mobilised for various events such as VIP escorts, important convoys, critical police operations and major events (sports, large-scale entertainement events).

The final presentation under this topic was carried by Nicolas Zunhammer (University of Munich) and was titled *Tele-Controlled Multi-Sensor UAV via Satelite Link.* Mr Zunhammer presented the CopKa system: a satellite-based, multisensory platform for mission support in the K/Ka frequency band (17 - 30 GHz). The main focus is on a telepresence system with a control interface for multi-sensor Unmanned Aerial Vehicle (UAV), which can be operated by the dispatcher via the satellite link. With the CopKa system the dispatcher receives an improved picture in the control centre of the onsite situation and consequently can better coordinate the emergency forces as well as support tasks like search and rescue. The presentation was supported by a use-case.

PSCE Conference in Paris December 2019 – Conference Report – www.psc-europe.eu

Focus 2. Broadband Communications

The topic started with Richard Reed and Jennifer Harder (FirstNET) who provided an *update on the deployment and adoption of FirstNET* by First Responders in the United States. The purpose of FirstNet is to establish, operate, and maintain an interoperable public safety broadband network. Planned FirstNet deployment on 700 MHz Band 14 spectrum is more than 65% complete, and the nationwide public-safety broadband network is providing more than 750,000 connections to almost 9,000 public-safety agencies.

Thereafter David Lund (PSCE) presented *BroadWay to BroadNet: Pan-European Public Safety Mobile Broadband*, an update on BroadWay: a pre-commercial procurement project aimed at developing a Pan-European Mobile brand System for Public Safety Responders. In October 2019, the project reached a decisive point with the signature of framework agreements with the lead tenderers of 4 successful consortia. The BroadWay Group of Procurers will continue to evaluate the progress of the alternative approaches proposed by the 4 supplier consortia throughout 3 critical phases – design, prototype and pilot. In all, the four consortia are made up of 34 companies from 11 EU Member States and 1 Associated Country. Each consortia includes SMEs, independent and impartial test organisations, Mobile Network and Satellite Operators.

This was followed by *Status of Broadband Communications in France* presented by Guillaume Lambert (French Ministry of Interior), in charge of implementing the next-generation telecommunication system in France (RRF – Réseau Radio du Futur). RRF, the French 4G PPDR program, will provide French public safety responders with 4G connectivity (and later 5G) as well as features and interoperability of latest technologies. The RRF will benefit from PCSTORM, dedicated to Special Forces, currently trialled and to be developed by H1 2020. PCSTORM benefits from pre-emption & priority mechanisms, coverage of several network operators as well as tactical bubbles. France is calling for a Stronger European State Operator's alliance to push for re-founded relationships with MNOs and a focus on cybersecurity.

The last presentation under this topic was *Finnish Mission Critical Broadband procurement: Virve 2.0* presented by Kari Junttila. The next generation of the administrative radio network Virve 2.0, will be a joint effort of authorities and commercial partners. State Security Networks Group Finland carried out a tendering process for commercial network operators in 2019. State Security Networks Group Finland will implement the solutions that will be used by the authorities on top of the winning 4G network and become the service operator. As Virve users, agencies, which need mission critical communication, are prioritised compared to general public when using mobile broadband services. This means that their broadband access and availability of services will be guaranteed in almost all circumstances, including when the network is congested. Furthermore, quick and disturbance-free group calls and SDS messages are guaranteed.

Focus 3. Space Systems and Applications for Safety and Security

This third focus started with two presentations from the European Space Agency (ESA). Christophe Allemand presented *Air Traffic Management to Quantum Communications: Space Systems for Transport, Critical Infrastructures and Governmental Services* in which he started by describing the new age of SATCOM as a solution to support European key infrastructures. ARTES (Advanced Research in Telecommunication Systems) is a programme launched by ESA which incorporates ESA's strategy with regards to Safety and Security. The strategy is mainly aimed at preparing response to European "regulated"/critical infrastructures needs or governmental security users needs and supporting European competitiveness on world SATCOM institutional markets. ARTES programme provides a full tool box and cooperative framework, both to support European-wide initiatives and National ones.

In the next presentation *ESA Space Based Services for a Safe and Secure Society*, Laurence Duquerroy emphasised the role of ESA in supporting the development of innovative applications and services using space technologies for diverse user communities. A significant part of these solutions are aimed at improving the safety and security of the society and economy. This focus is to be reinforced in the coming years with the new ESA Strategic programme line dedicated to "Space Systems for Safety and Security (4S)". After having given an insight of ESA past and current activities in the domain of safety and security, dealing with e.g. drones applications, critical infrastructure protection, CBRN, cybersecurity, etc, the presentation highlighted opportunities and possible activities to further engage with the Public Safety community and develop solutions in accordance with its user needs.

This was followed by *SATCOM: general capabilities, evolution, applications and Use Cases in the Public Security Domain* by Mark Rawlins and Ali Belmaachi (EUTELSAT). Mr Rawlins started by proving on introduction on EUTELSAT, its history in developing and providing a variety of satellite-based solutions for different sectors, including security and crisis management. A succinct description of the three satellite "flavours" was provided: high throughput, flexible and IoT. Thereafter, Mr Belmaachi presented the new applications developed by EUTELSAT as a results of evolving communication needs. The company provides automated access to its sitcom services through bespoke services orchestration triggered by missions control planning and IP services profiles. By using LTE tactical bubbles & satellite connectivity, there is potential to greatly improve situation awareness as well as operational agility in crisis situations.

The topic ended with *Galileo: Emergency Warning Service and Search & Rescue Service* by Frederic Domps (European Commission). Mr Domps discussed the future deployment of the Galileo Emergency Warning Service to alert the population in case of a looming disaster. It will be included in the future Space Regulation and referenced in the Union Civil Protection Mechanism. Galileo is currently working with EU stakeholders in Civil Protection and GNSS to define mission requirements. There are still technical and policy challenge to address before the service is deployed (space regulation & UCPM need to go through the legislative process, converge EWS

data formats and standards, development of an operational EWS network and operational interfaces between the Civil Protection centres and GNSS operations ect.)

Day 2 was started with *Financing Digital Innovation in Public Safety Communications* by Pierre-Alain Francois (European Investment Bank). The European Investment Bank (EIB) furthers the objectives of the European Union by providing long-term project funding, guarantees and advice and supporting projects both within and outside the EU. Its shareholders are the Member States of the EU. The EIB is the majority shareholder in the European Investment Fund (EIF) and, together with the latter, makes up the EIB Group. Within the Investment Plan for Europe proposed by the Commission, the EIB Group is part of a broader strategy aimed at overcoming the large investment gap by relieving investors of some of the risk inherent in projects. The EIB has invested 16.1 billion€ in climate actions and is ready to support more PPDR projects in the upcoming years.

Mona Mustafa (GSMA) presented *IoT for Public Safety*. Mobile IoT will play an integral role in the 5G era – indeed, the technologies already have a complementary relationship today. Mobile IoT refers to low power wide area (LPWA) networks in licensed spectrum, standardised by 3GPP to assure the most secure and reliable form of delivery for cellular IoT. Mobile IoT is thus the most trusted architecture available for applications which use low data rates, require long battery lives

and low unit costs, and often operate in remote or hard to reach locations – examples include smart utilities, smart environmental monitoring and smart logistics. Mr Mustafa presented the work that is currently being undertaken jointly with PSCE to draft reports regarding the use of IoT for PPDR.

This was followed by *the EU Cybersecurity Act* by Jean-Pierre Quémard (ACN). The EU Cybersecurity Act establishes an EU certification framework for ICT digital products, services and processes. The European cybersecurity certification framework enables the creation of tailored and risk-based EU certification schemes. Companies in the EU will benefit from having to certify their products, processes and services only once and see their certificates recognised across the Union. Under the framework, multiple schemes will be created for different categories of ICT products, processes and services. Each scheme will specify, among the others, the type or categories of ICT products, services and processes covered, the purpose, the security standards that shall be met and the evaluation methods.

Next, took place a *report on the workshop on Mission Critical Video* by Monika Buscher (PSCE). The workshop took the form of a collaborative (game) workshop in small groups. Some of the lessons learnt are that network and capacity for transmission is not enough. MCV comes from so many sources, that we need AI and advanced algorithms to be able to use them efficiently. Moreover, there are security and training issues that should not be overlooked. What are the processes and procedures and practices in different countries? There is a need to draft a process document on how to adequately exploit MC Video for PPDR. Legal and ethical issues are complex and important and also need to be taken into account. Finally, there is a need to design for citizen understanding and engagement, and for civil liberty preserving use of data. The specific approach used for the workshop was deemed very useful, and made things clear and concrete. Although more time was needed, it was considered a very good method for thinking about the needs and solutions of MCVideo.

Thereafter, Patricia Compard (CEN) presented *European Standardisation in Crisis Management*. The presentation started by briefly describing the role of CEN and CENELEC as services providers for the development of European standards and other technical specification. Were then discussed the concepts of pre-standardisation (building up the forward looking picture of standardisation – particularly needed in EU current context). Improvements can be achieved such as enhanced coordination, identifying the state of the art, developing comprehensive guiding instruments, setting up priorities, improving relevance of investments including research and innovation, developing needed and used standards. The standard CEN/TS17091, in particular, aims at building a common basic crisis management framework and culture particularly needed in an open, multi-partner, connected and interdependent environment.

Focus 3. Managing Overload in Situation Awareness Context

In his presentation *Multimedia platform in firefighter control rooms*, Michel Monneret presented the current Fire and Rescue Services systems in France and the future transition to the next generation system, the NexSIS 18-112. Current IT systems for Fire and Rescue Services (FRS) in France are partitioned and do not take advantage of the power of the digital revolution (phones and radios are the main communication tools and rich data is not shareable). On the other hand, NexSIS 18-112 will be an open, user-oriented and scalable system, allowing for a greater mobility and a better use of data. Within this new system, communication will be unified and information-sharing mechanisms are more efficient. All the FRS will benefit from the best technologies while decreasing the cost. Finally, the national technical environment will be safer, as the digital infrastructure of the system will belong to the Ministry of Interior (and no longer to local technical environment which rendered the system less reliable).

Therafter, Jeppe Jepsen (Motorola Solutions) presented "*Artificial Intelligence and Machine Learning applied to Public Safety"*. The presentation highlighted and emphasized the "deluge of data" in the public safety domain (112 calls, surveillance and body-worn cameras ect). Mr Jepsen also raised the challenge of human attention, emphasizing that first responders are less capable of using technology at the times they need it the most (stress intensity rises and ability to focus and make rational choices is impeded). Mr Jepsen noted 5 key applications for AI in Public Safety: Unusual Motion Detection, Voice Analytics, Voice Control, Virtual Partner, and Appearance Search. Then Mr Jepsen used several Use Cases from the various response phases of an incident (Incident Awareness – Incident Management – Post Incident Resolution) to show the potential benefits of using AI in these particular situations. Motorola is currently working on a White Paper titled "Principles and Practices for the Responsible Application of Artificial Intelligence".

This was followed by **Artificial Intelligence for Public Safety** by Antti Kauppinnen (Erillisverkot). Mr Kauppinnen outlines of the objectives of using AI in the public safety domain. The main objective was to boost the efficiency of the tools, methods and work both administratively and operationally so that people can spend their time on the core activities. In other words, supporting people's work and decision making as well as releasing people's time from recurring and automated tasks to core activities. What is required to achieve that goal is both readymade solutions and applications platforms for using AI as well as the capability for harnessing the power of AI and, in particular, the ability to cooperate and share expertise in joint projects with users. Finally, 3 recommendations were given to maximise AI utilization in Public Safety: Be open and collaborate to maximize data collection, survey legislation (changes take time) and get partners (to form an ecosystem).

In *How automation can simplify processes and speed up response for control room*s, Christophe Ducamp (Everbridge) started by identifying key trends in Crisis & Public Warning. First, Multi-channel, multi-hazard population alerting systems are required to successfully support diverse

audiences. Second, Crisis response best practices are expanding to support transboundary crisis management. Efficient public alerting means being capable of communicating across all phases of the event. Plan: encourage residents to prepare and publicise practice drills. Alert: the broadest number of people as fast as possible. Respond: to groups in their local language with two-way communications. Recover: by precisely targeting people with special skills; those who can assist and direct follow-up activities. Mr Ducamp presented the benefits of using a hybrid approach to public alerting via a use case (Tsunami).

The last presentation *What are the challenges for managing information on the medical scene? The No FEAR project answers* was carried out by Chaim Rafalowski (MDA). Emergency medical care in the EU is a fragmented chain including population, emergency medical services, volunteers, hospitals and cooperation with fire services, police and authorities. It needs to prepare to respond to new threats and assist casualties after security incidents. In response to this challenge, NO-FEAR proposes to bring together a pan-European network of practitioners, decision and policy makers in the medical and security fields. They will collaborate to achieve a common understanding of needs, as well as – in collaboration with academia and industries – increase the EU innovation potential that could better fill the operational gaps and recommend areas for future innovations.

Exhibition Area

An exhibition area showcasing companies and project lasted throughout the conference. The companies EVERBRIDGE, EUTELSAT, GOODMILL, INTERSEC, ATHONET as well as the DRIVER+ Project had a presentation booth in the exhibition area, while the Heimdall and NO-FEAR projects presented a poster.