

# beAWARE



## Foreword from the Coordinator

On January 2017, beAWARE project was successfully launched with the aim to support situational awareness and command and control through intelligent data analytics techniques. beAWARE is a 3 year EU research project led by CERTH-ITI (Multimedia Knowledge and Social Media Lab) and co-funded by the EU H2020 research and innovation programme. It brings together end users, practitioners, authorities, academics, research centres and industries from Denmark, Finland, Germany, Greece, Israel, Italy and Spain.

Since then the project has made significant progress both in the use case and user requirements specification and in all the beAWARE technical solutions such as the decision support mechanisms and multimodal data analysis.

The unfortunate events of this summer, related to natural disasters and the climate change (such as the fires in Greece and Portugal), emphasize the importance of developing a platform that will coordinate the efforts of the authorities and safely guide the public during such disasters.

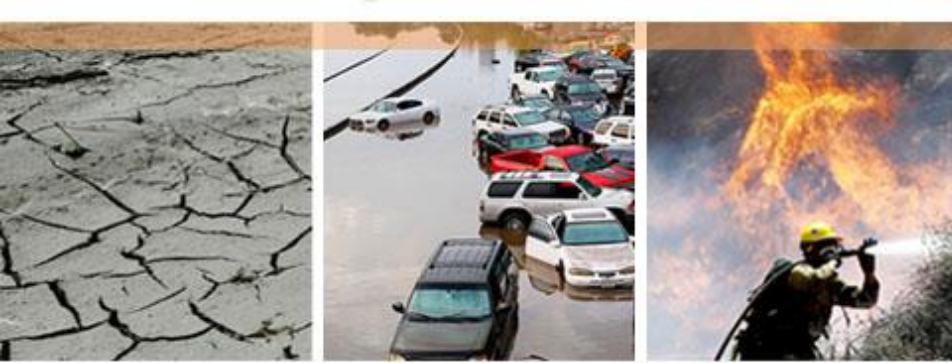
The diversity and the expertise of partners in beAWARE, both from the technical and end-users aspect, will lead to the development of an intelligent decision system for crisis management that will be tailor-made to the needs and the challenges faced before, during, and after an emergency incident caused by a natural disaster.

Stay tuned with the project progress by following our newsletter, web site and social network accounts to be informed about future project developments towards a more efficient and safe natural disaster response!

### PARTNERS



The research leading to these results has received funding from the European Union's Horizon 2020 Research and Innovation Programme, under Grant Agreement no 700475



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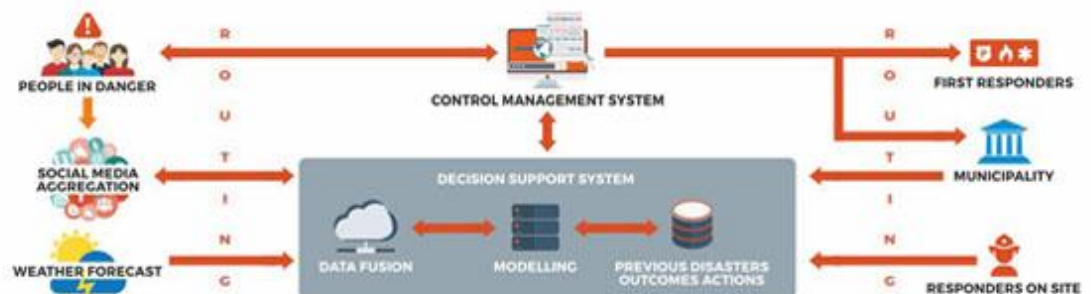


## About the project

The main goal of beAWARE is to provide support in all the phases of an emergency incident. More specifically, an integrated solution is proposed to support forecasting, early warnings, transmission and routing of the emergency data, aggregated analysis of multimodal data and management of the coordination between the first responders and the authorities. Relying on platforms, theories and methodologies that are already used for disaster forecasting and management, beAWARE will add the elements necessary to make them working more efficiently and in harm under the same objective.

### beAWARE Approach

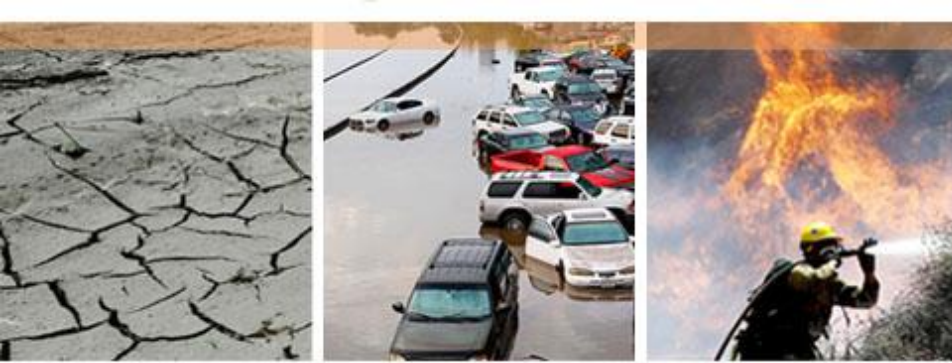
Instead of focusing on a specific part of the crisis management problem, beAWARE proposes a holistic approach to the realization of crisis management framework. Combining the information coming from people in danger, social media, responders on site and weather forecast, beAWARE platform coordinates the efforts of first responders and the authorities, providing critical information to the decision makers through the decision support system. The following diagram illustrates the beAWARE approach:



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## Objectives

The goal of beAWARE is to provide support in all the phases of an emergency incident. To reach that goal, beAWARE has set the following objectives:

- Multilingual speech and written communication analysis in emergency calls
- Aggregate multimodal information from first responders, sensor networks, meteorological stations, etc and social media for decision support and validation purposes and issue early warnings
- Visual context analysis during emergency calls
- Semantic integration of multimodal information from the emergency calls, M2M/IoT
- Platforms and social media for decision support and generation of early warnings
- Multilingual report generation from aggregated emergency data
- Design and execute 3 large scale pilots

The proposed large-scale pilots will be performed in two phases:

**Phase 1:** An initial evaluation of the developed beAWARE solutions and components will be carried out in order to perform an initial evaluation of the system and to take corrective actions to the problems that may arise

**Phase 2:** Pilot test, where a final test of the developed beAWARE solutions and components will be carried out before setting the final outcomes of the project

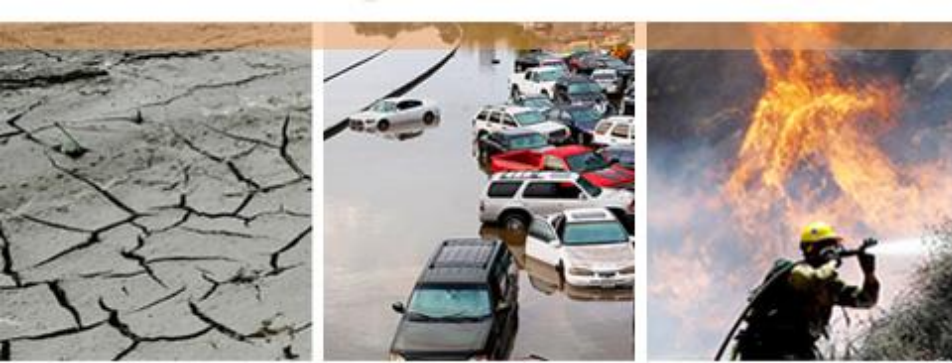
## Expected Impact

beAWARE takes into account updated information from the field and processed data in order to provide the best options and guidelines to the decision makers to take not only fast but also efficient decisions. Furthermore, beAWARE integrates a broad range of technologies. Information flow, raw data, processed data and processing results are routed and combined in different layers of the architecture with the ultimate goal of assisting decision makers and first responders to fully estimate the emergency level of a situation and act in the best possible way and finally beAWARE takes emergency services response even further by developing a framework that will organize and manage more efficiently the crisis.

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## NEWS

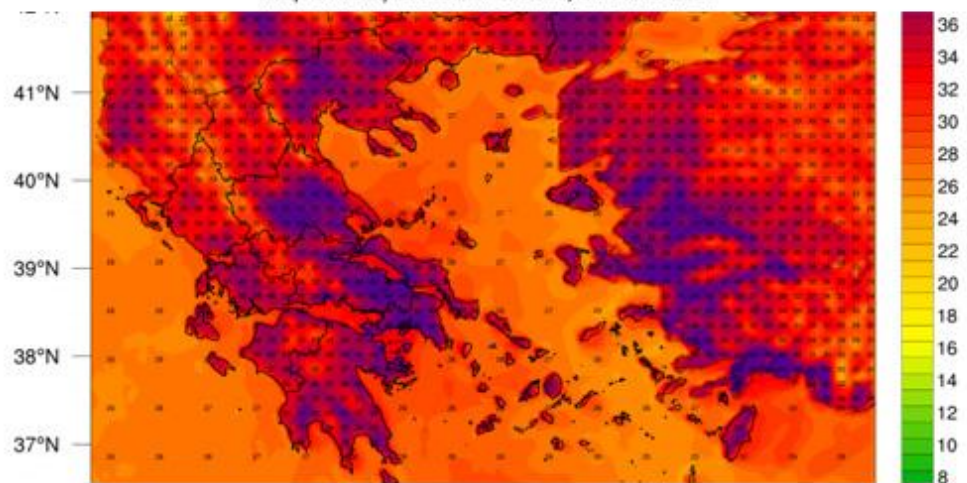
The following section takes a look into heat waves, forest fires and floods that Europe faced in the period of June to September 2017, which had a major environmental impact and caused the loss of human lives. The unfortunate events of this summer, related to natural disasters and the climate change, has proven the importance of creating tools that will increase the efficiency by coordinating the efforts of the authorities and guiding the public to take safety measures.

### Heatwaves in West and South Europe

In the end of June, Europe experienced one of the most intense heatwave in the meteorological recording history. Britain sustained its warmest June day since of 1976 and France suffered the hottest June night ever on the 21st century. Similarly, the Netherlands faced its hottest June on record while in Switzerland it was the second warmest month since 1864.

In Greece, temperatures were risen up to 45-46 degrees Celsius in the shadow across the country. To make matters worse, the heat index (the real feeling of the temperature) was a couple of degrees higher than the previous mentioned temperatures due to the increased humidity.

Map of tempratures in Greece, 30 June 2017

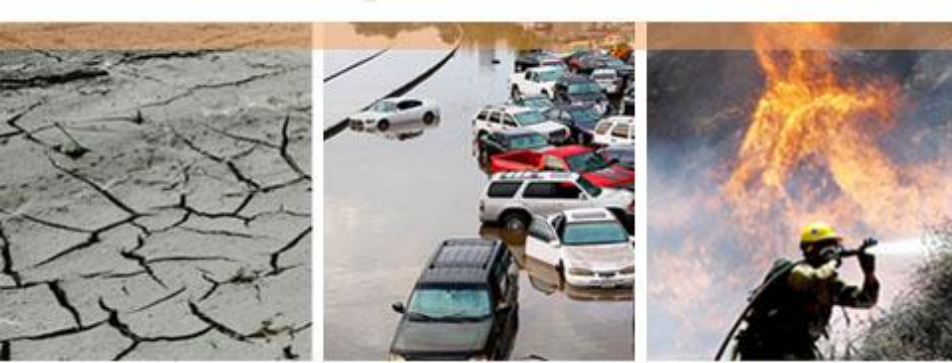


According to World Weather Attribution (an international coalition of scientists that calculates the role of climate change in extreme weather events), human-caused climate change dramatically increased the likelihood of the extreme heatwave up to 10 times in many parts of Europe. Their study indicated that in countries like Spain, Portugal and France, climate change could be increasing the chances of extreme heat by up to 40 times.

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beAWARE can play a vital role in the response of these extreme weather tendencies. Its early warning system regarding the upcoming phenomenon, combined with the coordination platform and co-operation mechanism between the different civil services and first responders, can provide significant assistance in taking the necessary measures in order to avoid past problems and address the heatwave more efficiently.

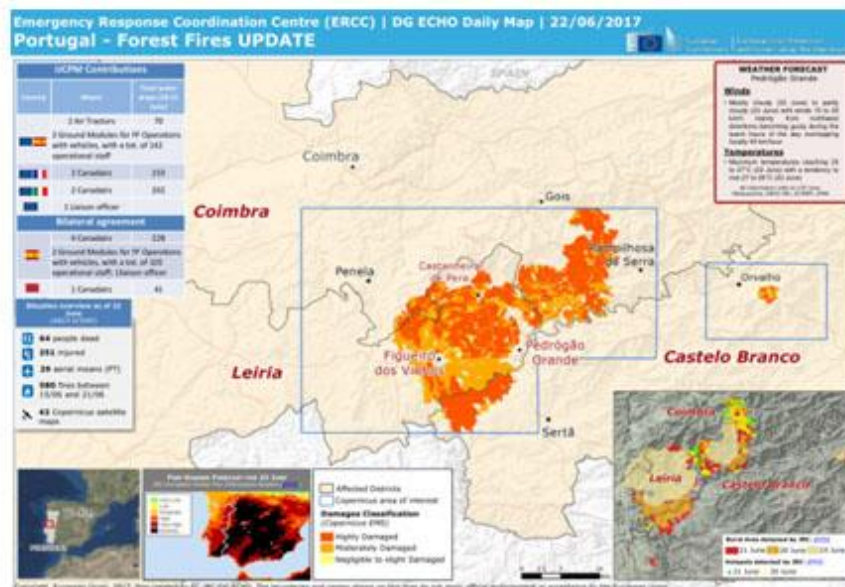
Source: <http://www.bbc.com/news/science-environment-40449234>

### Forest fires in Europe

Unfortunately, the extremely high temperatures were the causing factor behind the fires that hit the Iberian Peninsula, resulting severe human loses. In Portugal, 64 people died in huge forest fires, while in Spain 1,500 people were forced to evacuate by forest blazes caused by the extreme weather conditions.

### Forest fires in Portugal

In June 2017, Portugal faced one of the most tragic forest fires in its history. The fire in Pedrógão Grande ravaged 30,000 hectares (74,000 acres) of forest, killed 64 people and injured more than 250. Many of those who died were killed in their cars as they were trying to flee the flames.



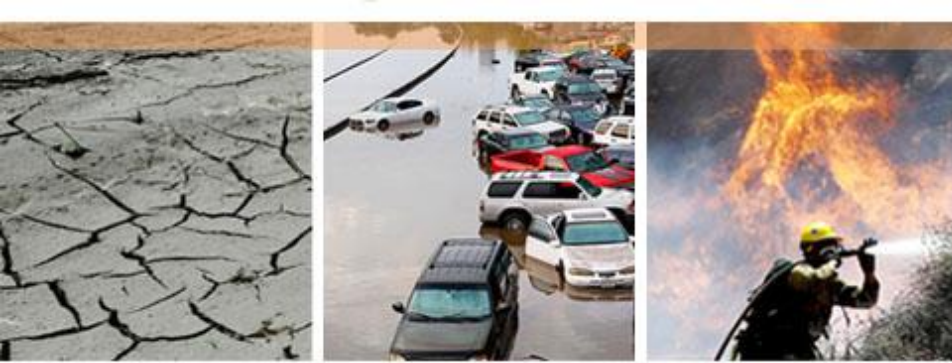
ERCC Map 22/6/2017 Forest Fires Portugal

Source: <http://reliefweb.int/map/portugal/portugal-forest-fires-update-dg-echo-daily-map-22062017>

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According to the Guardian, more than 1500 forest firefighters were battling to control the wildfires, and many European countries like Spain and France sent forces to assist the efforts.



Photos source: <https://www.theguardian.com/world/gallery/2017/jun/18/portugal-wildfires-in-pictures>  
 Source: <https://www.theguardian.com/world/2017/jun/19/portuguese-wildfires-water-dropping-planes-spain-france-italy>

## Forest fires Spain

On the 24th of June a fire started in Spain in Moguer region in Huelva, Andalucía. The fire forced the reallocation of more than 2.000 people and threatened an UNESCO World Heritage site of more than 107.000 hectares of extreme ecological value and endangered species. Over 550 firefighters, soldiers and police officers with the support of 21 air units are combating this blaze.

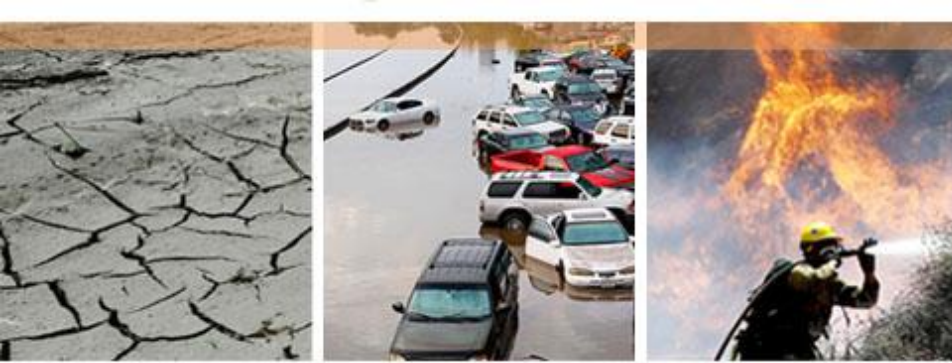


Forest fire in Huelva, Southern Spain

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beAWARE tools can be used in all of the phases in dealing with fire emergency. The system technologies will help in the early stages of the development of fires and support decision makers in the emergency management system. It will also use forecast and warning systems in the handling of the public and influence on their behaviour to minimize risk of fire.

Source:

<http://www.express.co.uk/news/world/821095/HOLIDAY-WARNING-Huelva-Spain-Thousands-evacuated-forest-fires-southern-Spain>

## Fires in France and Southern Europe

On the 26th of June wildfires were once again blazing across southern Europe, forcing the evacuation of 12,000 people on France's Mediterranean coast along with sudden forest fires as far afield as Corsica, Portugal, Italy and Albania.

In the Côte d'Azur region, more than 4,000 firefighters and troops backed by 19 water-bombers were mobilized to confront the flames. At least 12 firefighters were injured and 15 police officers were affected by smoke inhalation. According to the authorities, thousands of people were decided to move out of tents, campsites and holiday homes to save zones that were created around the affected areas.

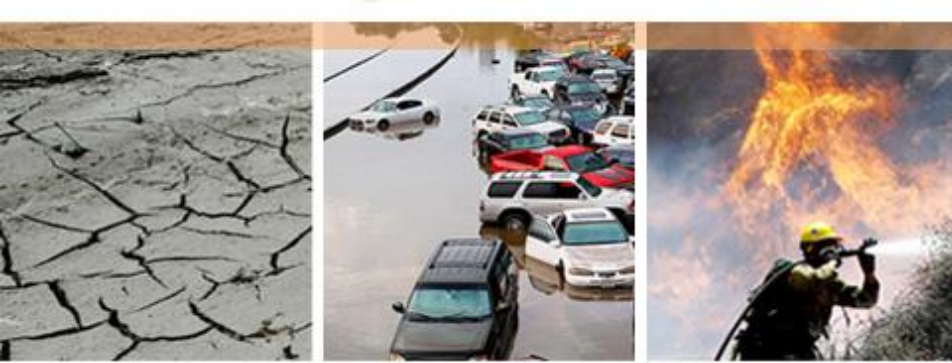
Overall, there have been 1,068 blazes in 2017 across Europe – a huge increase on the 404 annually on average over the previous eight years. According to the National Research Institute of Science and Technology for Environment and Agriculture, global warming was the major factor behind the increase of deadly fires and climate change had extended the wildfire season from two to up to five months.

The European Forest Institute has warned that "we'll see more fires and more intense fires in the Mediterranean and new fire situations in countries that don't really expect it".

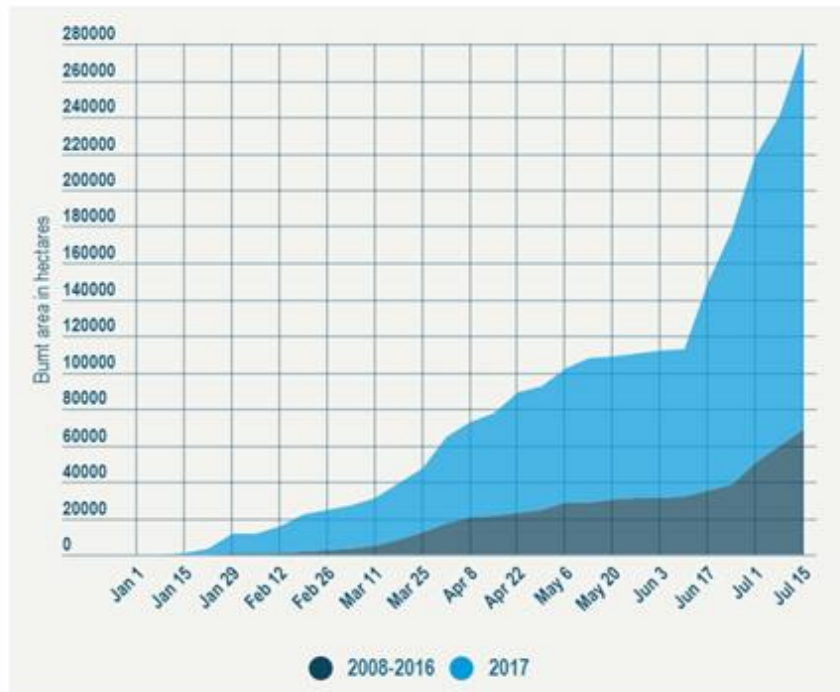
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Hectares burnt by forest fires in the EU (2017 vs 2008-2016)



Source: EFFIS

Source: <https://www.theguardian.com/world/2017/jul/26/france-wildfires-corsica-cote-d-azur-holiday>  
<http://www.euronews.com/2017/08/15/how-europe-s-wildfires-have-more-than-trebled-in-2017>

### Floods in Northern Italy

Heavy rains that fell the weekend of 10th and 11th of September in Northern Italy caused severe flooding in Tuscany region.

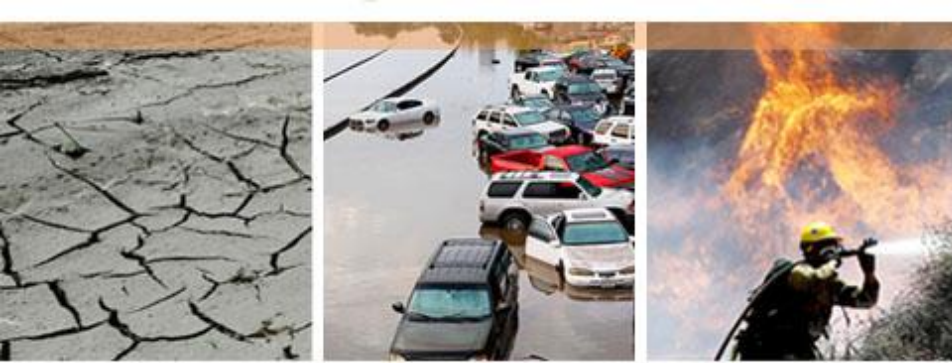
The areas worst hit were the La Spezia region and the picturesque Five Lands tourist destination, where up to 500 millimetres of rain fell in just a few hours overnight.

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Four members of one family trapped in their basement apartment died in the city of Livorno, which was taken on the brunt of the flooding. In total, 6 people were report dead and 2 missing.



Source :<http://edition.cnn.com/2017/09/11/europe/tuscany-flooding/index.html>

## Participation in Events/Conferences

In order to promote the project and disseminate its goals and objectives, beAWARE has participated in the following events and conferences:

1. iv&L Net (COST Action IC1307: The European Network on Integrating Vision and Language in Lisbon on 3/2/2017, represented by the Coordinator of the project, CERTH.
2. Collaboration Police-Fire fighters in emergencies, in Valencia on February 2017, represented by PLV
3. The 20th European Police Congress, topic "Europe – boundless? liberty, mobility, security", in Berlin on the 22/2/2017, represented by PLV
4. SMILE Conference, in Long Island USA on the 3/4/2017, represented by PLV
5. 6th Meeting of the Community of Users on Safe, Secure and Resilient Societies in Brussels on 13/4/2017, represented by the Coordinator of the project, CERTH.

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## Project Workshops

### 1st Stakeholder Workshop

On the 10th and 11th of May 2017, the 1st Stakeholder workshop of the project was hosted in Venice, in the premises of Alto Adriatico Water Authority (AAWA).

The issues that were discussed were the implementation of the foreseen pilots of the project, the use cases that define the pilot implementation and the user requirements that derived from the scenarios. Furthermore, an extensive discussion over the user requirements was made and a first approach on the pilot evaluation was presented.



## Project Meetings

### 2nd project plenary meeting, Barcelona 4-6/7/2017

The 2nd was hosted in the premises of UPF in Barcelona from the 4th until the 6th of July 2017. The issues discussed were the project progression so far and the next steps on technological and pilot preparation issues.

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## Partners of the Consortium

The partners that formulate the consortium of the project are:



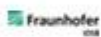
**Centre for Research and Technology Hellas (CERTH) - Coordinator**



**Motorola Solutions Israel Ltd (MSIL)**



**Universitat Pompeu Fabra (UPF)**



**Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (IOSB)**



**Valencia Local Police (PLV)**



**Hellenic Rescue Team (HRT)**



**Finnish Meteorological Institute (FMI)**



**Alto Adriatico Water Authority (AAWA)**



**IBM Israel - Science And Technology Ltd (IBM)**



**Frederiksborg Fire & Rescue Service (FBBR)**



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