

Reliable communication during crisis or disaster situations.



The **react** project involves the project consortium working with the Irish Dublin Fire Brigade to develop a system that will ensure constant and reliable communication for exchange of real-time information between deployed emergency response personnel and its relevant command centre during a crisis or disaster situation.

The **react** project proposes to address the limitation of the current dependence on mobile technology by developing a hybrid solution for the emergency services that intelligently combines the usage of mobile and satellite communication for transmission of information. The system will be designed for use not only in rural areas where standard mobile communication may be limited or unavailable but also during a major crisis when standard networks are overloaded.

The major objectives of the **react** system are as follows:

- Development of an end to end solution for communication of critical information between first responders deployed at the scene of a major emergency and the local crisis Command and Control centre.
- Communication within the **react** system will use a variety of available technologies ranging from wireless broadband, TETRA through to satellite communication with the automatic switching and selection of the communication network.
- Analyse and selection of the most appropriate satellite infrastructure based on the end users bandwidth needs, information communication requirements, deployment and usage costs.

- Installation and integration of the end user **react** hardware and software onto the Dublin Fire Brigades specialised incident response vehicle so that video feeds, voice communication and crucial captured data can be sent to the Command and Control centre.
- Installation and integration of the end user **react** hardware and software into the local Command and Control centre.
- Implementation of **react** system services for both the scene commanders deployed in the incident response vehicle and the personnel in the Command and Control centre to enhance the procedures, processes information analysis and support during a major crisis.
- Usage of the **react** system during the project pilot phase for system testing and validation. The piloting will be performed by Dublin Fire Brigade personnel and involve both normal training activities in addition to usage during major emergency simulation events at identified Irish SEVESO sites.

Features

The key features of the **react** system include:

- Satellite communication
- Provision of incident report information in real time from the fire fighters to a central command point in

real time using either satellite or land based wireless communication.

- Automatic adaptation and selection of the best mechanism for communication based on availability, bandwidth and cost.
- Optimisation of information being transmitted to make the best use of the available bandwidth, taking into account latency, information importance and priority.
- Integration of information sources deployed at major emergencies such as video surveillance into the **react** system for streaming of additional live information on the crisis to a crisis control centre.
- Ability to display information in the crisis control centre that is streamed back from the remote location and for command decisions to be sent back to the remote fire crews.

Functionality to allow updated pre-planned emergency response plans to be sent to remote emergency crews by the crisis control centre and for synchronisation of the latest pre-planned response.