



At a Glance

Project: Wireless Infrastructure over Satellite for Emergency COMMunications

Projects coordinator

Dr. Matteo Berioli
German Aerospace Center (DLR)
Tel.: +49-8153-282863
E-mail: matteo.beriola@dlr.de

Duration: 18 months
From 01/09/2006 to 31/01/2008

Total cost: 2.525.227 €
EC contribution 1.277.000 €

Programme:

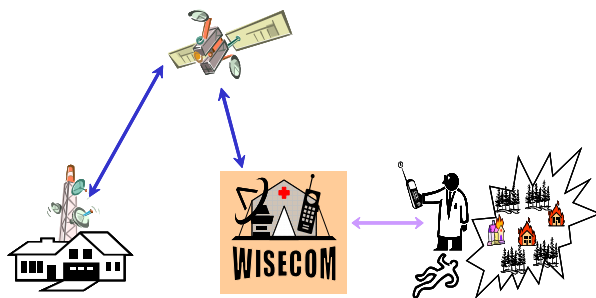


Sixth Framework Programme

Project web site:

<http://www.wisecom-fp6.eu>

Consortium: 7 Partners from 4 Countries



The **WISECOM** project will study, develop, and validate by life trials candidate rapidly deployable lightweight communications infrastructures for emergency conditions (e.g. after a natural or industrial hazard).

The system will integrate several terrestrial mobile radio networks - comprising GSM, UMTS, WiFi, and optionally WIMAX and TETRA - over satellite systems (Inmarsat BGAN and DVB-RCS), using lightweight and rapidly deployable technologies, and including location-based services.

The infrastructure should cover the immediate needs in the first hours and days after the disaster, and medium to longer term needs, during the recovery and rebuilding phase following an emergency.

Project Objectives

The detailed WISECOM objectives are:

- Develop and test a micro-cell instantly deployable base station providing GSM coverage that can be carried by one person on board a flight and be deployed in minutes. Target weight is around 5 kg for a deployable GSM base station that can be set up anywhere in the world where there is satellite coverage.
- Develop and test a micro-cell GSM coverage deployable base station that allows higher capacity and lower usage cost than the portable one above for medium term usage. Connection with terrestrial backbone will be ensured via a DVB-RCS satellite link, using preferably a transportable solution.
- Develop backhauling strategies for the remote infrastructure that can be managed by a rescue coordination center. Baseline for backhauling links will be to use satellite based Inmarsat BGAN and DVB-RCS equipment.
- Study and design a location based service application that can take advantage of GSM and/or GPS positioning methods for the purpose of: a) locating lost or trapped people in a region and b) improving the logistics in an emergency situation by tracking where rescue workers are by means of their mobile phones.
- Combine voice with data access, such as Wi-Fi, for e.g. Tele-medicine and other applications.
- Study the evolution from GSM to UMTS and from WiFi to WiMax in order to secure a sustainable service concept.
- Test the concept in the field by a rescue organization.
- Study and define operational scenarios including regulatory and licensing regime aspects.

Description of the Work

The research is structured into 7 work packages:

- **WP1:** Scenario Definition and Requirements. The definition of the possible use cases in an emergency situation is a key issue (target users and organizations, definition of short and medium term telecom needs after a crisis, requested services and applications, typical site topologies, etc...); the system technical requirements will be then derived from the above analysis. A business case analysis will be also performed in this work package.
- **WP2:** General System Concept. Existing systems for safety communications will be reviewed together with the technology state of the art; the overall system architecture will be defined, theoretical and practical solutions will be identified for the implementation of a prototype and for a real commercial product. Regulatory and licensing aspects will be also taken into account providing feedback to standardization and regulatory authorities.
- **WP3:** Demonstrator Development and Integration. A prototype of the system will be deployed as a proof of the concept: architecture definition, development of the single modules, demonstrator integration and testing.
- **WP4:** Trials Planning and Evaluation. Trials and demonstrations will be planned together with international safety organizations, in order to get feedback from the real final users. Measurements and performance analysis will be performed.
- **WP5:** Trials preparation and trials execution.
- **WP6:** Dissemination, Standardization and Exploitation.
- **WP7:** Management.

Participants:

- German Aerospace Center (DLR), Germany, Dr. Matteo Berioli: matteo.berioli@dlr.de
- TriaGnoSys, Germany, Dr. Markus Werner: markus.werner@triagnosys.com
- AnsuR Technologies, Norway, Dr. Harald Skinnemoen: harald@ansur.no
- EADS Astrium, France, Mr. Laurent Thomasson: laurent.thomasson@astrium.eads.net
- Steinbeis Foundation, Germany, Dr. Michael Weinlich: michael.weinlich@t-online.de
- Reach-U Ltd., Estonia, Mr. Hillar Tork: hillar.tork@reach-u.com
- Alcatel Alenia Space, France, Mr. Jean-Louis Fondere: jean-louis.fondere@alcatelaleniaspace.com