



Fraunhofer FOKUS

FRAUNHOFER INSTITUTE FOR OPEN COMMUNICATION SYSTEMS FOKUS

COMPETENCE CENTER FOR ELECTRONIC SAFETY AND SECURITY SYSTEMS



COLLABORATIVE SAFETY SOLUTIONS

When the "unexpected" happens, public safety must be protected. Whether the event is a natural disaster, an industrial accident or a pandemic – collaborative safety solutions and effective early warning systems can help control threats even before they occur. The ESPRI Competence Center analyzes, evaluates and develops technologies and procedures to do this.

EMERGENCY WARNING TECHNOLOGIES FOR THE PUBLIC

When it comes to dealing with emergencies and serious incidents, citizens are always the main priority. They are in danger, and they need to act in the emergency situation. But whatever the disaster, it will inevitably be followed by a second one – the information disaster! The organizational processes and infrastructures that should protect the public in an emergency are often weakly developed. Warnings are issued too late, or are imprecise. The results are extended response times, delayed actions and an overstretched civil protection service.

This is why the ESPRI Competence Center pursues integrative approaches to connect and expand existing (public and private) safety and security systems in an intelligent and effective manner. The aim is to carefully match the distribution and delivery of information to both safety specialists and the general public.

ESPRI technology users:

- The general public
- Public and private hazard control organizations
- Industrial sites
- Infrastructure facilities

THE "CITIZEN FIRST" APPROACH

It is a great challenge for an effective civil protection operation to involve people affected by an emergency in safety measures, such as helping people to help themselves. A change in perspectives of the safety experts and the emergency personnel is essential. They need to see the situation through the affected people's eyes according to the motto "Citizens First".

In order to provide comprehensive information and instructions for the people in danger, we need a change from a detection-based approach ("How do I recognize a threat?") to an approach based on information logistics solutions ("Who needs to know what and when about a certain emergency?"). The intelligent use and networking of existing resources is often the fastest, easiest, most economical and most effective way to do this. Several of the warning systems developed by ESPRI are already in regular operation and form the cornerstones of national and international warning infrastructures.

Application areas for ESPRI warning systems:

- (Severe) weather events
- Natural disasters
- Industrial and technological accidents

"The value of safety is often appreciated only when it is no longer there."

**Custom made safety
solutions for the public
and private domain**





CRITICAL INFRASTRUCTURE CONTROL

CENTER: COLLABORATIVE SAFETY SOLUTIONS

CREATE SYNERGIES BETWEEN PUBLIC

AND PRIVATE INSTITUTIONS

AN OVERVIEW OF THE ESPRI COMPETENCE CENTER

The ESPRI competence center works on concepts and solutions for improving emergency response and connecting existing safety solutions. The competence center is divided into three complementary areas of activity:

ESPRI project teams develop technologies and procedures for monitoring, detecting and generating early warnings of threats in the public and private domain. They support their customers and partners each step of the way: from feasibility, requirements and efficiency analyses, from conception and development to the implementation of the regular operation. The goal is to turn solutions into effective applications as quickly as possible.

The **Innovation Center for Public Safety and Security** supports the exchange of information between specialists from research institutions, public agencies and industry. The vendor- and product-independent platform provides a framework for identifying existing requirements, products and cooperation opportunities for network solutions and converting them into application projects.

In cooperation with well-known industry partners, the Fraunhofer FOKUS **safety lab** demonstrates and evaluates collaborative safety solutions from the citizen's point of view. Here, outside the competitive environment, the networking of complementary solutions is tested and discussed from various perspectives – organizational, technical, and legal.

Services portfolio

- Feasibility, requirements and efficiency analyses (e. g. tracking and sensor technologies, mobile services platforms, control centers, secure communication)
- Conceptual design, architectural design, implementation of local and situation-related services
- Development, piloting and operation of multi-hazard/ multi-channel warning systems
- Networking and further development of existing safety technologies and solutions offering substantial benefits to the everyday lives of the public

Customers and partners (examples)

- Industry, particularly critical infrastructure operators
- Insurance companies
- Public sector administration departments of cities, municipalities and counties, as well as of the federal government and the EU
- Public Protection and Disaster Relief (PPDR)
- Manufacturers of safety and security technologies and systems
- Meteorological companies, measurement and sensor engineering technology companies
- Civil engineering, building management
- Transportation services and infrastructure

Expertise and projects (examples)

- Orchestration and knowledge fusion in complex emergency response systems: IMSK, SAFEST
- Multi-hazard warning: GITEWS, WIND, WIND mobile, SAFE
- Multi-channel warning: KATWARN, Opti-Alert, ENSURE
- Technology radar for European security research: fit4sec

For further information on these projects, please visit:
www.fokus.fraunhofer.de/en/espri/projects



*Dr. Ulrich Meissen,
Director Competence Center ESPRI*

FRAUNHOFER FOKUS

Fraunhofer Institute for Open Communication Systems (Fraunhofer FOKUS) develops vendor-neutral solutions for future ICT systems. The Berlin institute concentrates their research on how information and communication systems can contribute to making life within a society more convenient and more safe, while at the same time addressing key challenges presented by social development and the smart cities of tomorrow. The institute focuses on access to information, the sustainable and efficient use of resources, networked mobility and modern public administration. The research undertaken by Fraunhofer FOKUS builds bridges between companies, the public sector, users and citizens.

The work of the institute is not limited to studying technical infrastructures; it is also developing practice-oriented concepts, prototypes and applications in the precompetitive environment. Its research activities focus on the development of interoperable, user-centered domain- and inter-organizational solutions.

FOKUS is a trusted partner in the implementation of IT projects for the public sector at federal, state and county level government. Because FOKUS is product-, manufacturer- and technology-independent, it offers suppliers and partners a neutral platform.

KEY RESEARCH FIELDS

- Technologies for situation-based hazard prevention processes
- Flexible space and time event processing for the detection of complex threats
- Combining sensor and actuator systems
- Integration of heterogeneous warning and information logistics
- Collaborative safety solutions

RESEARCH FOR PUBLIC AND PRIVATE SAFETY AND SECURITY

ESPRI's interdisciplinary research work provides the technological basis for safe and secure living. The competence center's integrative approach combines the safety requirements of private and public spaces while at the same time creating new synergies by combining, for example, safety and user friendliness. In the long run, this approach will encourage the general public to adopt and accept new safety and security solutions.

Dr. Ulrich Meissen

Dr. Ulrich Meissen studied industrial engineering at the University of Karlsruhe and spent a year at Trinity College Dublin. Upon completion of his studies, Dr. Meissen worked as an IT manager for the Versicherungskammer Bayern insurance group. Since joining Fraunhofer in 2000, he works as a research scientist in the fields of information logistics, location-based services and early warning systems. He wrote his doctoral thesis on effective alerting technologies in early warning systems.



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