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FRAUNHOFER INSTITUTE FOR OPEN COMMUNICATION SYSTEMS FOKUS

safety lab: COLLABORATIVE SAFETY SOLUTIONS

safety lab

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The *safety lab* at the Fraunhofer FOKUS offers collaborative solutions for public safety devised from the perspective of the concerned citizens, who are put at the heart of the matter. As a demonstration environment and research laboratory, the *safety lab* provides experts, decision-makers, and politicians with an independent framework that permits them to shed light on the interaction of new technologies as well as on the legal, organizational, social-scientific, and economic challenges on their way to being addressed in practical terms.

DEMONSTRATION AND RESEARCH LABORATORY

The *safety lab* visualizes the challenges and potentials of collaborative safety solutions. On the basis of realistic hazard scenarios, the *safety lab* presents examples of organizational processes that serve as a central thread cross-linking the systems in control centers and showing their connection to alerting technologies for the population.

Demonstration

The contrast between the actual and the targeted technological status permits the *safety lab* to provide its guests with a vivid environment for discussion. At various levels of technical detail, vulnerabilities and approaches to solutions can be shown for specific exhibits or the entire warning process, and legal, organizational, social-scientific, and economic issues can be made a subject of discussion.

Research Laboratory

At the *safety lab*, common and new technologies are both employed in a manner that does not presuppose a specific solution, besides being subjected to experimental review and further development. In this way, the safety lab acts as a hub of research while, at the same time, representing a focal point for new collaborative safety solutions. The scenarios and the technologies used serve as examples and placeholders for comprehensive collaborative solutions.

Showroom Security Research

In the scope of the »Showroom Security Research«, which is funded by the Federal Ministry of Education and Research, the *safety lab* was extended by additional scenarios. The purpose is to present the results of selected lead projects in the field of safety research, jointly with the Research Forum for Public Safety.

PARTNER MODEL

Similarly, to the changes in society, technology and changing threats there are changes to the safety lab. This lab provides established companies a cooperative environment, the knowledge and technology in the domain of public safety, and a network all in one source. This concept is open to additional partners and interested stakeholders who are willing to share their expertise.

Become a partner

The Partner Model creates synergies on a competitive market while offering each partner to focus on their individual priorities within the solution network. Therefore, a company or an institution has to commit to the goals of the »collaborative safety« approach and be willing to cooperate with the other partners.

HAZARD SITUATION

Scenario: A hazard situation, for example extreme weather, causes serious cascading damage such as electricity blackouts and breakdowns in public transport and the mobile phone network. A large number of major incidents occur in a confusing situation.

Safety lab: Documentary elements prove that it is possible for extreme weather to bring on such a hazard scenario. However, the disaster warning and communication processes initiated in response to that scenario are also applicable to other hazard situations.

INFRASTRUCTURE CONTROL CENTERS

Scenario: Lightning strikes the power supply system of an infrastructure facility, for example a subway power line, resulting in a smoke-developing fire. The people on site are affected. Specialized company safety personnel initiate first aid and evacuation measures.

safety lab: On the basis of networked technologies, calls from emergency telephones are aggregated with imaging data and maps, for example for escape route signs on advertising displays or for material on the situation made available to first responders. Networking with civil protection systems permits data to be passed on automatically and simplifies contact establishment by the competent members of staff.

EMERGENCY CONTROL CENTERS (ECCS) AND RESOURCE PLANNING

Scenario: Emergency calls and damage reports are coming in at the control centers, for example the fire service. They are dealt with in the form of "if/when processes", and emergency responders of the police and the fire service are deployed accordingly. Extensive spreading of the emergency and the associated rapid increase in emergency calls result in excessive demands being made on the control centers and the emergency responders.

safety lab: Integrated system solutions permit incoming messages to be consolidated and evaluated and instructions to be prepared. Existing image files and maps from the danger zones are included for further guidance – also from external systems such as the infrastructure control centers – and, in the event of a crisis, automatically transmitted to the systems of the strategical level.

THE SAFETY LAB VISUALIZES OPPORTUNITIES WITHIN THE COLLABORATIVE SAFETY APPROACH AND OFFERS REFERENCE POINTS FOR DISCUSSIONS, COOPERATIONS AND PROJECTS.

EMERGENCY RESPONSE MANAGEMENT TEAMS

Scenario: An overload has occurred at the level of the resource planning, and the management teams, for example the technical task force leaders, are summoned. They have to decide which measures are to be taken in view of the requirements of the situation. This decision calls for an accurate portrayal of the situation to be provided.

safety lab: Data from various sources converge: Maps of the town and its infrastructure, data on any emergency calls received (time, place, content) and open data, for instance public information on weekly markets. A traffic light system (green, orange, red) visualizes the extent of the damage and the action required. In cases of power outage, the evaluation of social media (twitter) will permit conclusions to be drawn about the situation. Also, automatic evaluations will facilitate communication with the media and the general public.

WARNINGS TO THE CITIZENS

Scenario: The large-scale emergency causes the traditional instruments of emergency response to come up against their limitations. Therefore, to reach the so-called "last mile", people have to be warned individually, supplied with timely information on the threat and enabled to act under their own steam (who needs to know about what happened at what time in order to act appropriately?).

safety lab: The focus is on the perspective of the people affected in everyday life situations at home or on the road: Accordingly, information will be provided on TV, on advertising displays or through smart phone apps, and innovative warning technologies such as (digital) sirens with voice output or automatic activation of building equipment and appliances will be used. Networked solutions will afford greater protection in this context than isolated technical solutions.

COLLABORATIVE SAFETY AS A CHALLENGE

In many cases, emergency response is an isolated business in Germany, both in technical and organizational terms as well as within and between public and private decision-making authorities. Therefore, in cases of large-scale emergencies, traditional instruments of emergency response rapidly reach their limits, which will result in bottlenecks concerning civil protection. These facts call for a shift in thinking towards collaborative safety solutions so as to be prepared for future emergencies.

FACTORS OF INFLUENCE

Changed threat levels must be continuously analyzed, assessed and responded to at the tactical, operational and strategic level.

The democratic constitutional state lays down the regulatory requirements applying to new safety and security technologies.

The general public requires the planning and employment of safety and security technologies and calls for structured, comprehensible and objective information to be supplied.

Human beings impact the efficiency of safety and with his behaviors impacts on the efficiency of safety and security technologies and must therefore be included in the development at an early stage.

A large number of institutions are tasked with providing safety and security at the national, federal and local levels, which requires their activities to be coordinated.

The private sector offers its own safety and security solutions that have to be checked, networked and developed independently.

Collaborative safety solutions must be of appreciable use to people in their everyday lives so as to create the necessary confidence in the new technologies.

GOALS AND SERVICES

Analyses and Concepts
- Strategic analyses of situations and trends
- Definition of goals and solutions
- Evaluation and cost-benefit-analyses
- Systems for tactical, operational and strategic levels

Technology
- Evaluation of existing solutions
- Concepts for networked and interoperable systems
- Integration of private and public system solutions
- Prototyping of new technologies

Public Administration
- Networking across authorities and departments
- Analysis of legal and organizational challenges
- Assistance in implementing cost-effective solutions

Population
- Analysis of the public perception of security solutions
- Privacy concepts
- Solutions for the so-called "last mile" of civil protection

Industry
- Assistance with the development of technology
- Environment for demonstration and development without presupposing a specific solution

FOR FURTHER INFORMATION VISIT:

WWW.FOKUS.FRAUNHOFER.DE/GO/EN_SAFETY_LAB

FRAUNHOFER FOKUS

The *safety lab* is part of the Fraunhofer Institute for Open Communication Systems (Fraunhofer FOKUS), based in Berlin, Germany. As an independent research body, the institute explores in its specialized Competence Centers how communication networks will contribute to a more convenient and more secure living.

The Competence Center ESPRI (Electronic Safety and Security Systems for the Public and Industries) is in charge of public safety and security. The research done there focuses on concepts and solutions for improving emergency response (warning and alerting systems) and for networking existing safety solutions.

With the *safety lab* and the ESPRI Competence Center, the Fraunhofer FOKUS provides comprehensive assistance, advice and development services in the field of public safety and security.

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We connect everything

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