Fraunhofer FOKUS

Fraunhofer Institute for Open Communication Systems FOKUS

Business Unit Collaborative Safety and Security

Solutions for Public Safety and Health

Networked technologies for information in the right place at the right time

Whether technology, organizations, or people – collaborative safety and security helps to address safety and health holistically and to overcome technical constraints.

Prof. Dr. rer. nat Ulrich Meissen, Director Business Unit Collaborative Safety and Security

Dipl.-Inf. Daniel Faust, Vice Director Business Unit Collaborative Safety and Security

Hazard prevention, rescue services, and the healthcare system do an excellent job in Germany. But, unexpected crisis situations or large-scale hazards, such as industrial accidents or even a pandemic, reveal the importance of a networked, coordinated, and fast interaction between the organizations and to the population.

However, many public and private organizations are too isolated both, technically and organizationally, to effectively implement the necessary data exchange, while adequately providing people with the commodity of "safety and health" in crisis situations. In addition, the shifting age structure and new lifestyles of individuals require new forms of inclusion and participation, which – on the technological side as well - are often not sufficiently taken into account. The consequences are not only impairments to life and body, but also a loss of trust in the state as a provider.

In order to sufficiently meet these challenges of the 21st century's technologically advanced societies, it is necessary to refocus on networked solutions that integrate all stakeholders. The Collaborative Safety and Security business unit is developing the required concepts, strategies, and technological solutions for this purpose.

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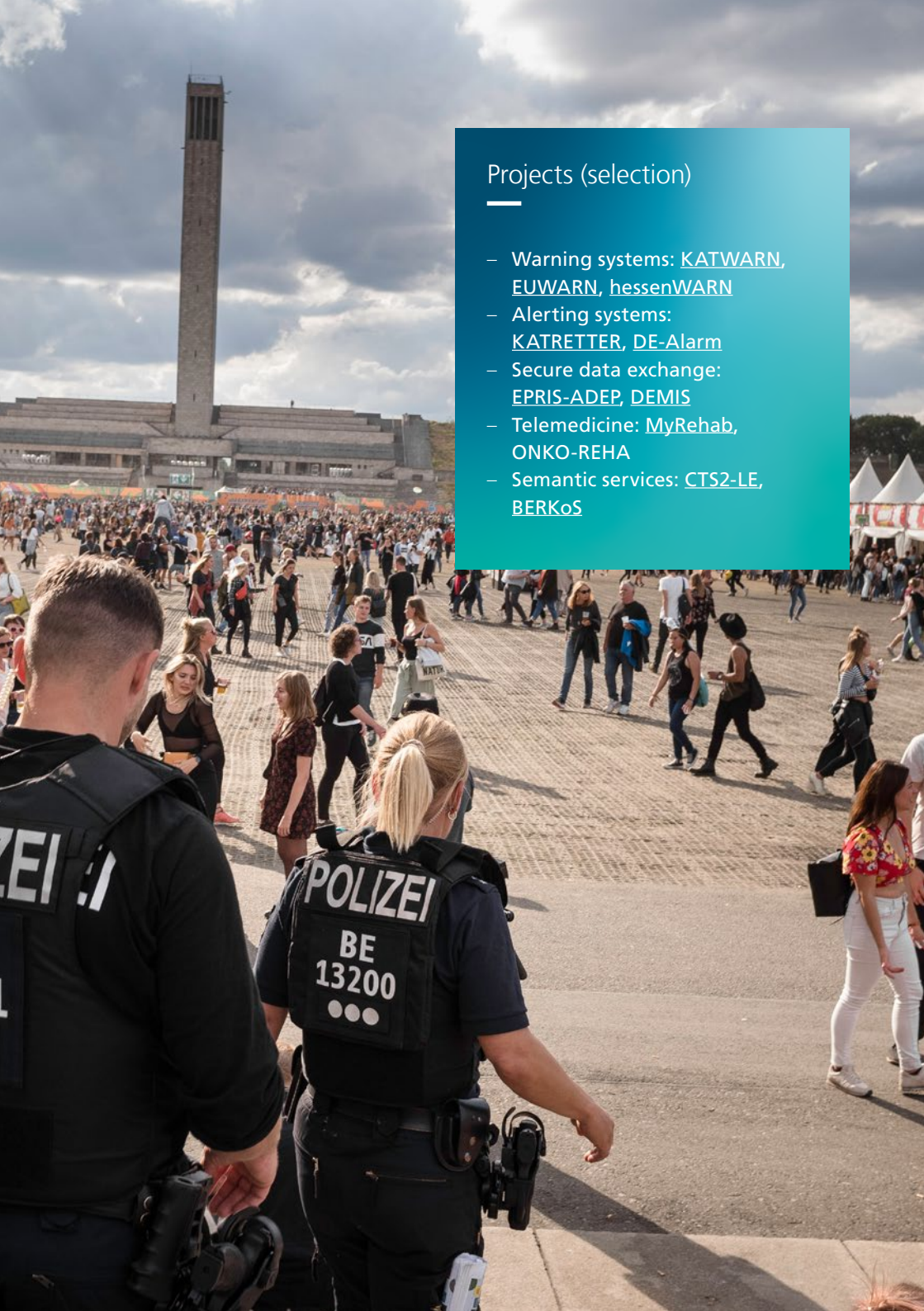


Projects (selection)

- Warning systems: KATWARN, EUWARN, hessenWARN
- Alerting systems: KATRETTER, DE-Alarm
- Secure data exchange: EPRIS-ADEP, DEMIS
- Telemedicine: MyRehab, ONKO-REHA
- Semantic services: CTS2-LE, BERKoS

“Collaborative safety and security delivers relevant information to people individually – in the right place at the right time.”

Ulrich Meissen,
Director Business Unit Collaborative Safety and Security

Holistic solutions for practical applications

The Collaborative Safety and Security business unit creates the technological basis for secure and safe living. “Collaborative safety and security” means holistic solutions that take not only technical requirements, but also organizational, economic, socio-scientific, and legal issues into account while meeting data protection and information security requirements. The goal is practice-oriented applications for authorities, organizations, industry, and the general public.

With an interdisciplinary team of around 60 employees (including developers, researchers, and professors), the business unit Collaborative Safety and Security has been recognized for its expertise in the development and implementation of securely networked information systems. It creates durable and highly scalable systems in close cooperation with partners in the healthcare and public safety sectors.

Services and competences

- Political consulting, technical and strategic consulting, and training
- Conception, development, and realization of:
  - Warning systems
  - Telemedical solutions
  - Location-based and semantic services
  - Secure and networked IT infrastructures
  - Analyses of feasibility, requirements, and profitability, from the functional specifications to the operational concept
- Information security, data protection, and IT security

Research focus

The focus of the business unit Collaborative Safety and Security is on the domains of "public safety" and "health". National and European research projects provide the framework for the development of new technologies, which are then translated into concrete applications for customers and partners. Issues of IT security, information security, and data protection affect all of these activities, and are therefore of central importance for Collaborative Safety and Security.

Collaborative Safety and Security deals with holistic solutions for people, businesses, and administrations in the areas of:

Research for Public Safety

The business unit Collaborative Safety and Security develops technologies for early hazard detection and warning systems for public and private sectors, as well as for networking control centers, and crisis management systems:

- High-performance information logistics
- Implementation of networked (warning) infrastructures
- Secure communication
- Microservice architectures
- Sensor-actuator networks
- Standards and interfaces (e.g. CAP)
- Process and organizational consulting and scenario development

Research for the healthcare system

Research in the field of health considers actors along the entire information chain of the healthcare system – from the service provider and cost unit – to the patient. The goal is to be able to exchange medical data quickly and securely between medical facilities:

- Interoperable information and communication systems
- Standardization of IT solutions
- Semantic services, ontologies, and knowledge networks
- Consulting in medical product development
- Development of prototypes

Solutions for a securely networked healthcare system

Research for IT security, information security, and data protection

Protecting public safety, healthcare, and critical infrastructure stakeholders from IT security risks as well as protecting sensitive data is crucial for to the research and services of the business unit Collaborative Safety and Security:

- Data protection, especially according to DSGVO and 95/46/EC
- Privacy by design
- Technical IT security concepts
- Organizational IT security concepts
- Identity and access management

Fraunhofer SIRIOS

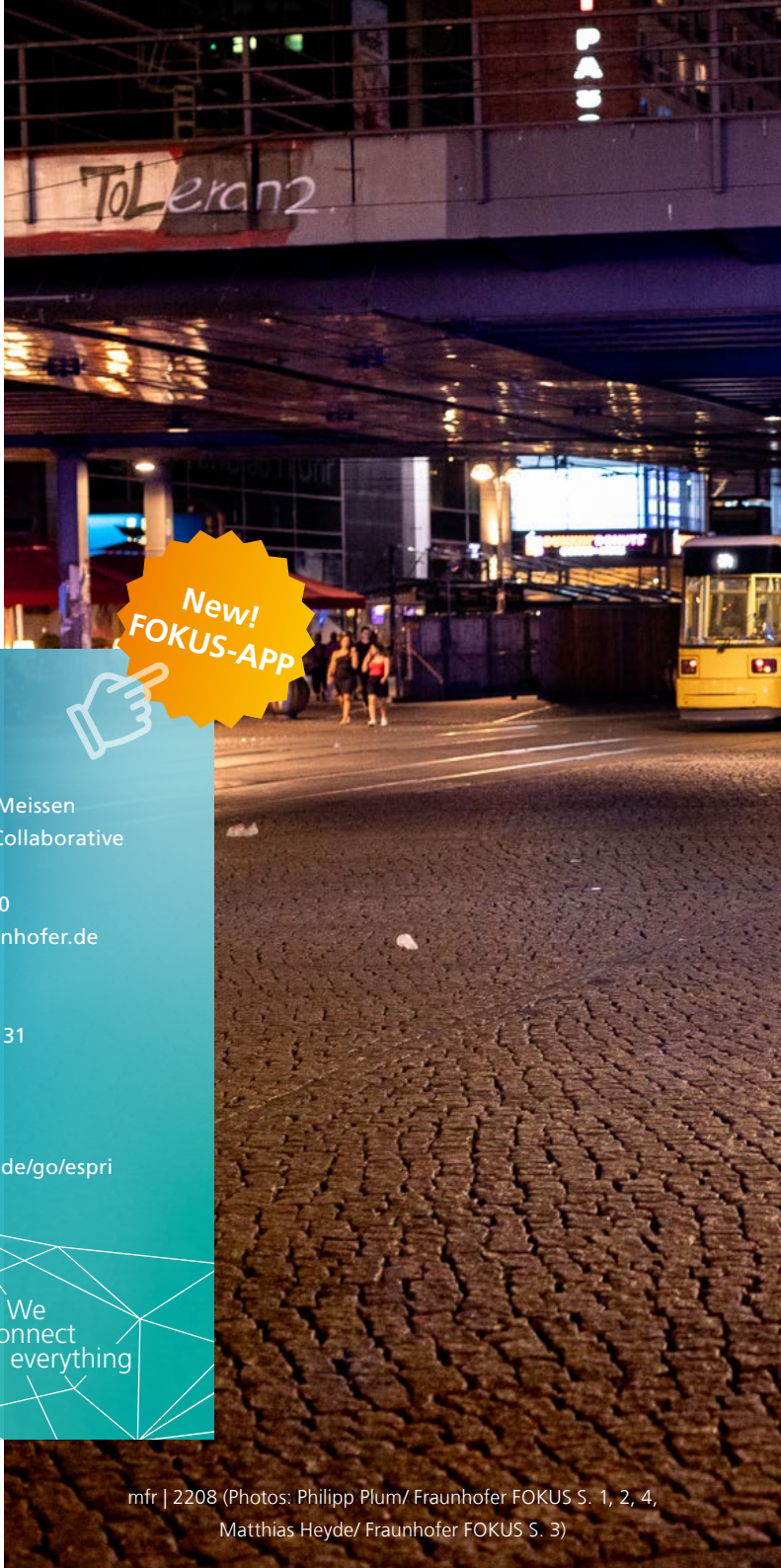
In January 2022, the newly established The Fraunhofer Center for the Security of Socio-Technical Systems (Fraunhofer SIRIOS) started operations. It combines the expertise of the four Fraunhofer institutes EMI, FOKUS, IOSB and IVI and builds a research, testing and training environment for coupled simulations of complex security scenarios for its partners and stakeholders in the field of public safety. Research focuses on digital building and infrastructure twins, secure supply networks and infrastructure, collaborative responder systems, virtual situation visualization and efficiency of communication and response.

Customers and partners

- Authorities and organizations with security tasks, e.g. fire departments, rescue services and disaster control, the police
- Players in the healthcare sector, e.g. regional supply networks, hospital operators, Gematik
- Insurance companies
- Operators of critical infrastructures
- Politics and institutions

Innovation Center Telehealth Technologies

The innovation center shows current IT solutions for patient care and organizational structures within the healthcare system. Interactive demonstrators show the benefit of innovative IT applications for networked medicine and health as well as for the fields of rehabilitation and therapy. This way, the solution can be tested and discussed on an interdisciplinary basis with visitors from the healthcare sector, politics, administration, and research. The aim is to illustrate the low-threshold integration of advanced treatment options into everyday life, and to get new solutions off the ground.



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