



# Integrated help reaction chains for enhancement of security in public transport

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## Synchronizing research activities with actual needs

- In the city center of Karlsruhe the Kaiserstraße is a highly frequented light-rail line
- In 2005 it was decided to build a more efficient solution in the underground space, the so-called „Kombi-Lösung“
- Public acceptance was problematic in the beginning as there were concerns of increasing crime and lower level of security





## Synchronizing research activities with actual needs

- For Karlsruhe Transport Association it became clear that several measures have to be taken for enhancement of security
  - Open architectural style
  - Emergency telephones
  - Video surveillance etc.

**How can video surveillance be performed both efficient and reliable?**





## Past incidents

- Security scenario
  - Subway attackers in Berlin, Germany (2011)
  - Killed bus driver in Brussels, Belgium (2012)
- Who?
  - Passengers
  - Drivers, ticket inspectors, security staff
- Where?
  - In vehicles (trams, busses)
  - At tram stop and bus stops



Source: sueddeutsche.de





## Overall aims

- Swifter and more efficient reaction of staff in public transport in situations deemed critical in terms of security
- Automatic proceeding of help reactions chains integrated in an Incident Management System (IMS):
  - Detecting somebody needing help
  - Reporting a detected situation
  - Notifying the response forces
  - Intervening directly at the scene

→ InREAKT



## Detecting

- Automatic detection of security-critical situations and emergencies on the public transport by using a combination of optical, acoustic and mechanical sensors
- Consideration of additional data, (e.g. telematics or acceleration) for avoidance of false alarms
- No recording of personnel data for the benefit of harmlessness in terms of data protection (Privacy by design)





## Reporting

- Reporting means the transfer of a detected situation to an Incident Management System (IMS) within the transportation company's control centre
- This IMS provides recommendations on measures for operators as well as drivers, ticket inspectors and security staff
- Self-learning structures enable continuous improvement of recommendations on measures





## Notifying

- In order to enable quicker intervention of response forces (police, rescue and security service), communication channels will be improved.
- For instance, a „Staff App Portal“ for smartphones will be integrated into the Incident Management System (IMS)







## Intervening

- Technical systems (e.g. loudspeakers and light control systems) provide the possibility to influence security-critical situations remote-controlled
- Therefore, related strategies incl. selectable options for control centre operators as well as driver, ticket inspectors and security staff are to be developed





## Accompanying psychological research and legal aspects

- Accompanying psychological research
  - Acceptance analysis
  - Capturing of subjective security concerns in public transport using disorder theory
- Legal aspects
  - Applicable data protection law





## Project partners

- STUVA e. V., Köln  
Overall concept & intervention measures
- Fraunhofer IPK, Berlin  
Digital image processing & intelligent control centre systems
- Infokom GmbH, Neubrandenburg  
Audio analysis & reporting infrastructure
- INIT GmbH, Karlsruhe  
Control centre systems, telematics & passenger information
- Heidelberg University  
Accompanying psychological research
- VBK – Karlsruhe Transport Association GmbH, Practice partner



We are looking forward to hearing from you  
about experiences and latest developments.

# Thank you for your attention.