

EU Workshop Security of Mass Transportation

Session 2: Future Technologies
„Aviation Perspective“

Torben Hecker
Berlin, 18.03.2009



*European Center for
Aviation Development – ECAD GmbH*

Key questions for defining the call


- What goals should be focused by the call?
- Which mass transportation systems and related infrastructures should be addressed?
- Should aviation be included in the call?
- How should the call be structured?
(one or a number of individual projects, EUROPLIS etc.)

Goal: Considering all modes of transportation

*“Furthermore, it has to aim for the maximum possible cross-system/intermodular impact on a variety of passenger mass transportation systems (e.g. examine **critical “neuralgic” nodes such as transport interchanges**, where long-distance and international transport is interconnected with urban transport systems).”*

[Non-Paper, page 1]

*“The purpose is to create a '**system of systems**' demonstration, for Security of Mass Transportation. A **holistic and systematic approach** to Mass Transportation/urban transport security is, in other words, being sought.”*

- 
- All modes of transport should be addressed by the call to ensure the holistic approach.
 - Especially interfaces between the security systems of all modes of transports should be analyzed and optimized.
 - A high quality intermodal flow of information shows a common operational picture of the security situation to respond threats
 - Big opportunity to enhance the intermodal security over all possible transport chains focusing on 'neuralgic' transport nodes.

Aviation should be integrated into the call

Aviation can add major contributions to secure mass transportation


- **High degree of intermodal integration**
Nearly all modes of transport are represented at airports, airports are often endpoint of the urban chain of transportation.
- **High importance of security in aviation**
A multiplicity of aviation processes are actually affected by a high security level and continual adjustment to dynamically changing security requirements.
- **High complexity of airport infrastructure**
Approved security solution in aviation could be checked for transfer to other modes of transport.
- **Research advantage**
Solutions that have been/will be developed in integrated research project dedicated to airport security should support the intermodal security research.
- **Innovation driver**
Due to the high legal as well as economic requirements on security measures, many innovations are have been developed for aviation security.

Research Goals

*[...] the results will need to be **implementable by providers and users/demanders** e.g. the operators of urban public transport. Accordingly, a very strong participation from the 'demand side' is considered necessary [...]* *[Non-Paper, page 3]*

Project results should not interfere with the core operational processes but enhance the security level and ideally facilitate operations. Therefore, the following principals should be enforced:

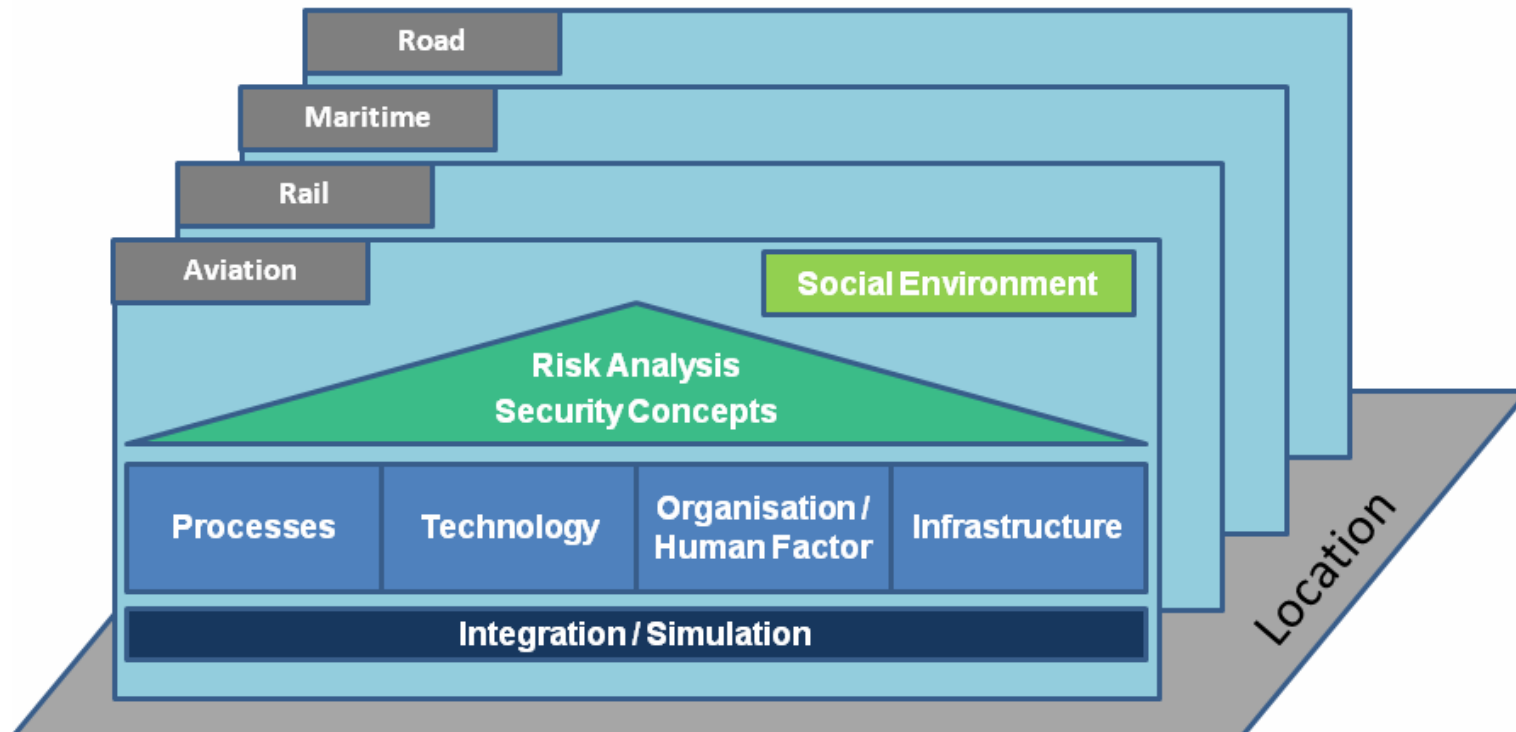
- Development of proactive and future orientated solutions
- Ensuring efficient processes and seamless passenger travel
- Considering an appropriate cost-benefit relation
- Ensuring that the solutions are ready for mass implementation



The integration of end users (infrastructure operator, authorities, transport companies) is vital to develop solutions that reflect real demands and increase the chances of bringing products into the market.

Integrated and location based solutions

The German Aviation community has discussed a possible structure. It proposes an intermodal, location based view of the thematic contents to create a 'system of systems' demonstration.

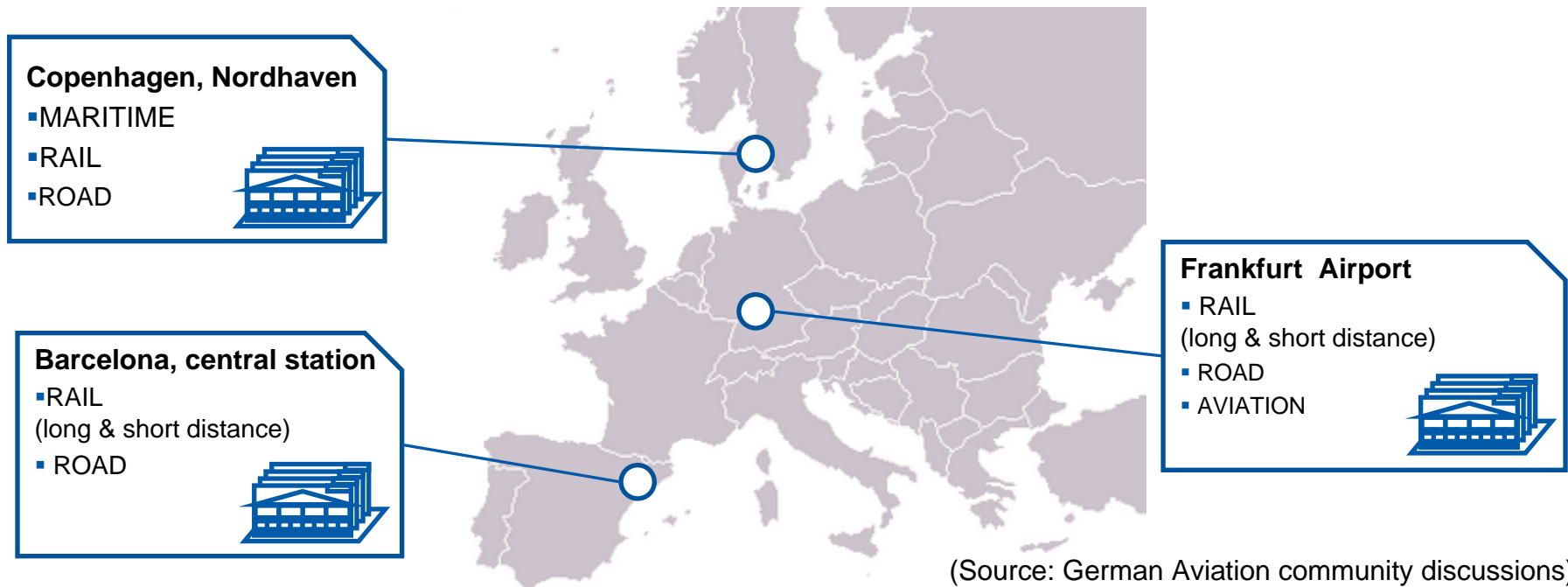


(Source: German Aviation community discussions)

Up to three projects at different locations

Advantages of calling several projects

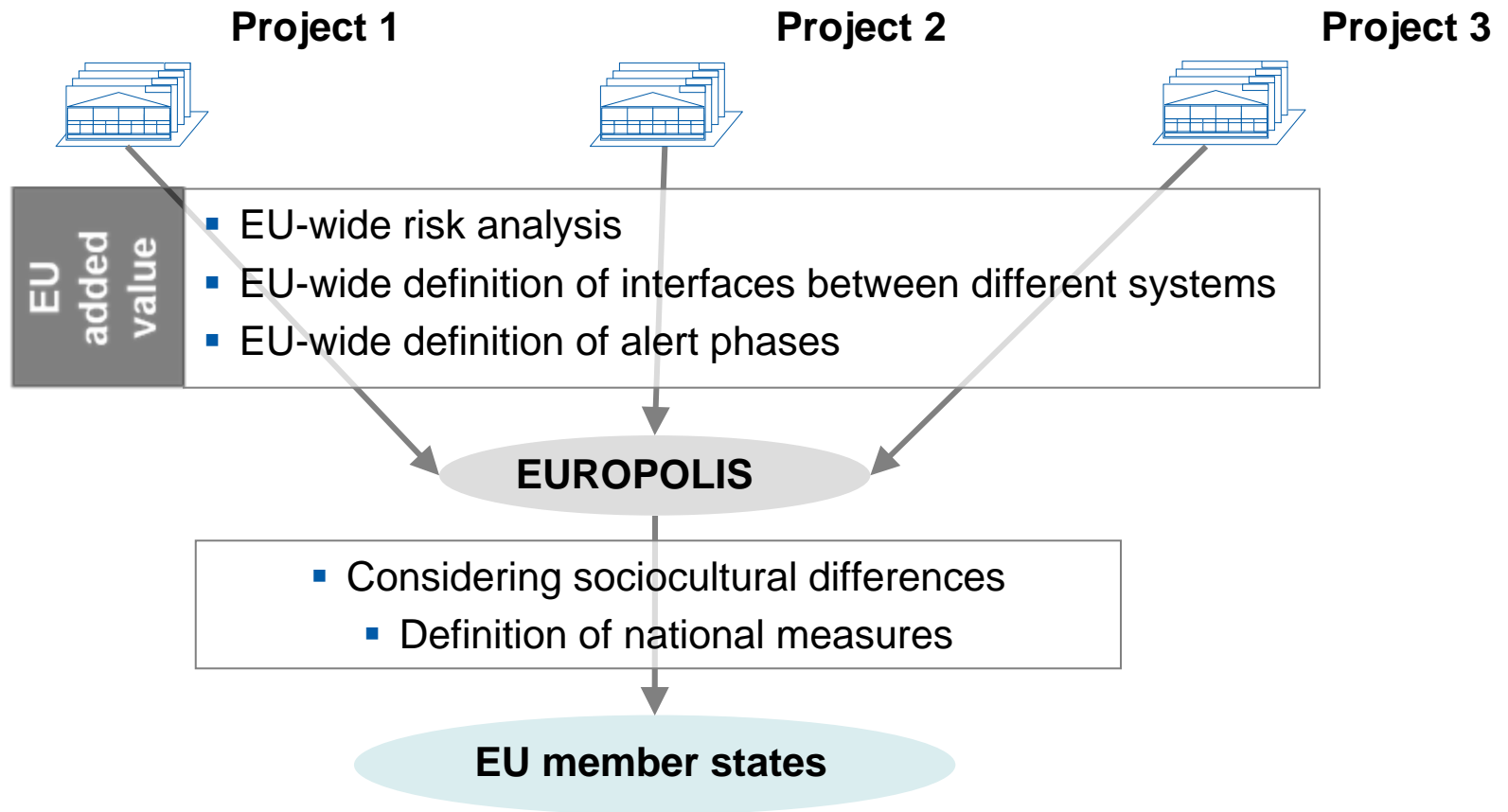
- All modes of transport are considered
- A multiplicity of institutions, authorities, end users etc. on different levels can take part in the projects
- Different legal competencies/general conditions can be represented
- Sociocultural differences can be considered



(Source: German Aviation community discussions)

EUROPOLIS as a possible framework for the call

To ensure value creation in all member states the **EUROPOLIS** framework could be employed to summarize the projects findings



Possible integrated subject areas

In order to develop a consistent and integrated set of mass transportation security systems to secure critical “neuralgic” nodes, the following four subject areas can provide a comprehensive approach.

1	<p>Integrated risk scenarios of critical “neuralgic” nodes Threat analysis, quantitative methods of risk research (statistics, econometrics), cost-benefit analysis for the assessment of risks, intermodal security concepts, crisis management,</p>
2	<p>Scenario based simulation of intermodal passenger flow Steering of persons in complex, intermodal traffic flows, evacuation concepts, requirements on traffic nodes design, optimal use of space.</p>
3	<p>Integrated security technology planning for intermodal interfaces Linkage of sensor technologies, extended perimetric protection, IT architectures,</p>
4	<p>Scene understanding und –forecasting at intermodal nodes Integrated object / movement recognition and analysis, novel detection technologies, behaviour pattern recognition, innovative sensor technologies</p>

(Source: German Aviation community discussions)

Possible technical and managerial topics


Technical topics (sample)

- Intelligent closed circuit television for the recognition of unusual or dangerous behavior
- Non-contact person controls
- Use of biometrics
- Perimetric protection
- High performance information of architectures
- Man-machine interface

Managerial topics (sample)

- Development of joint security goals
- Comprehensive, integrated and intermodal security management concept
- Cost-benefit analysis
- Quality management

(Source: German Aviation community discussions)



All contents should follow an intermodal approach, that means that the development of solutions should either be implementable for different modes of transport or defines interfaces to intermodal systems.

ECAD summary

All modes of transport focusing on 'neuralgic' transport nodes - especially interfaces - must be addressed by the call to ensure a “holistic approach” and a “System of systems”

- **Aviation can add major contributions**

Innovation driver, high legal and economic requirements, intermodal hub, provision of existing research results for other modes

- **Integration of end users**

Development of solutions that reflect real demands of operators etc.

- **Up to three projects at different locations**

Consideration of all modes of transport and sociocultural differences

- **EUROPOLIS as a possible framework**

Summarizing the single projects findings to ensure value creation in all member states

- **Intermodal approach**

The development of solutions should either be implementable for different modes of transport or define interfaces to intermodal systems.

Thank you for your attention!

Torben Hecker

Project manager

+49 6151 3605-417

torben.hecker@ecad-aviation.de

Lise-Meitner-Str.10, 64293 Darmstadt, Germany



*European Center for
Aviation Development – ECAD GmbH*

