Bridging resources in large crisis management

“Implementation according to the BRIDGE project”

ITA-COSUF Workshop
Berlin, Germany, June 2014

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VSH - Hagerbach Test Gallery Ltd.
BRIDGE – relevant issues (glossary)

- Large Crisis Management — This is what BRIDGE is about
- Concept Cases — This is to demonstrate what was done
- Middleware — This is what we are paid for
- Blasting tests — This is what makes fun
- Validation — This is one good reason for the Commission to pay
BRIDGE

Full title: “BRIDGE: Bridging resources and agencies in large-scale emergency management”

- Different Agencies
- Different Systems
- Different Countries
BRIDGE Success Criteria

- Improve communication and understanding
- Facilitate collaboration
- Prove usability of tools in real environment
BRIDGE Validation Objectives I

• Develop a BRIDGE Validation Plan

• Validate the functionality and robustness of developed and integrated systems

• Accompany the development to guarantee interoperability under harsh underground conditions

• Test the usability of tools in real environment
BRIDGE Validation Objectives II

- Prove the reliability of an ad hoc network in case of crises
- Integrate computer simulation and validation of explosions in confined spaces
- Involve the End User Advisory Board to integrate end users’ feedback and comments
V-Model for Validation
Needs and Checks

WP 3-8

Design and Implementation of Low Level Units

Techical Design Models ↔ Technical Test Models

WP 10

System & Part Requirements ↔ System & Part Evaluation Criteria

Criteria-based Validation of Concepts Systems & Parts

WP 2, 9, 10

End User Needs ↔ End User Evals

Experience based Participatory Evaluation

Participatory Design

Requirements Engineering of Concepts, Systems & Parts
Why Concept Cases?

- CCs were introduced to prepare for demonstration
- CCs should allow for bringing technology to end users (dissemination, exploitation)
- Base for Validation
- CCs should show project results in a measurable way
9 BRIDGE Concept Cases

• Infrastructure Concepts
  (1) Robust and Resilient Communication

• Situation Awareness Concepts
  (2) Information Intelligence (social media analysis)
  (3) Dynamic Tagging of the Environment (Sensors Tag Network)
  (4) Advanced situation awareness (Octocopter UAV)

• Decision-making & Action Concepts
  (5) Master Table (Touchscreen Map)
  (6) Adpative Logistics (patients, evacuations, resources)
  (7) Situation aware Human Resource Management (SWARM)
  (8) Federated Control Rooms (Expert Network with Face-Map/Process)

• Training Concepts
  (9) First Responder Integrated Training System (FRITS)
## 9 BRIDGE Concept Cases

<table>
<thead>
<tr>
<th>Concept Cases</th>
<th>Relevance for Tunnel Operation</th>
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<tbody>
<tr>
<td><strong>Infrastructure Concepts</strong></td>
<td>(1) In case of fire or explosion, disruption of power supply in tunnels, the normal communication networks may break down.</td>
</tr>
<tr>
<td>(1) Robust and Resilient Communication</td>
<td>(2) Avoidance of information overflow, gathering all relevant information and ONLY relevant information</td>
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<tr>
<td><strong>Situation Awareness Concepts</strong></td>
<td>(3) Identification and location of vehicles, persons, recourses in an incident area</td>
</tr>
<tr>
<td>(2) Information Intelligence</td>
<td>(4) Availability of data relevant for normal operation and/or intervention (pictures, video, infrared, gas detection, etc.)</td>
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<td>(3) Dynamic Tagging of the Environment</td>
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<tr>
<td>(Sensors Tag Network)</td>
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<td>(4) Advanced situation awareness (Hexacopter UAV)</td>
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### 9 BRIDGE Concept Cases

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<td>• Decision-making &amp; Action Concepts</td>
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<tr>
<td>(5) <em>Master Table (Touchscreen Map)</em></td>
<td>(5) Master screen in the control room</td>
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<td>(6) Adaptive Logistics</td>
<td>(6) Overview of persons, resources, goods in the tunnel</td>
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<td>(patients, evacuations, resources)</td>
<td>(7) Distribution of personnel, action teams, …</td>
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<td>(7) Situation aware Human Resource Management (SWARM)</td>
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<td>(8) Federated Control Rooms (Expert Network with Face-Map/Process)</td>
<td>(8) Support in finding the right persons / experts for an incident</td>
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<td>• Training Concepts</td>
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<td>(9) First Responder Integrated Training System (FRITS)</td>
<td>(9) Trainings methodology and tool for high quality first responder training</td>
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</table>
9 BRIDGE Concept Cases

Concept Cases - Example Dynamic Tagging
9 BRIDGE Concept Cases

Concept Cases - Master Table
CC Specific Test Cases

• Interest for validation
  – Crisis management Story
  – Invite Local first responders as End Users

• Interest for dissemination
  – Go to the public
  – Link to other large events like exhibitions

• Interest for Exploitation
  – Find partners and clients (internal and external)
Validation – Demo1 at VSH
Validation of PLUS software

- Domain Analysis
- Definition of Requirements
- Definition of validation process
- Validation of blasting simulations done by PLUS
Validation of PLUS software

Blasting tests have been carried out with different charges to proof scalability of the model simulation.
Validation of PLUS software
Key findings from the 2nd review - conclusions

- **Validation** is a key element to ensure useful outcomes of an R&D project
- **End user involvement** is highly appreciated by the EC reviewers
- **Communication** and the quality of information is critical for large crisis management
- It is all about **integration**
Thank you for your attention!

Questions:
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