BRIDGE Newsletter

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Editorial

Dear Reader!

All projects come to an end, also the BRIDGE project. In December 2011 we welcomed you to follow our research, and now in June 2015 we have passed a successful final review and summarized four years of research and innovation. This final newsletter gives you a glance into the knowledge obtained by the partners.

The expectations for the project were high, expressed by this statement from the Commission back in 2011: "*BRIDGE will examine how we can obtain and use information as disasters develop, in order to give us a better joint understanding of the situation and thus enable us to make better decisions more rapidly.*" Through the 4th project demonstration held in Flums, Switzerland in May 2015, we demonstrated that we have reached these overall objectives. Even more important, the project presented concept cases and prototypes ready for market introductions. Some of these have already been evaluated in real operations over some weeks during the spring.

The BRIDGE middleware is an open-source software that supports the flexible assembly of emergency response systems into a 'system of systems' for agile emergency response. The middleware is described in one of the public deliverables. In this newsletter you can learn more about how the concept cases come together using the middleware supporting the BRIDGE scenario based on the Toulouse disaster in 2001. We also present an overview of the impressive project dissemination, from research publications and PhD theses to TV-interviews and exhibitions.

Please get in contact with us if you have questions or just want to discuss possibilities for collaboration in the future! We hope our efforts will help Europe to establish improved emergence response systems for the benefit of all European citizens.

Dag Ausen, SINTEF
Project Coordinator

In this issue:

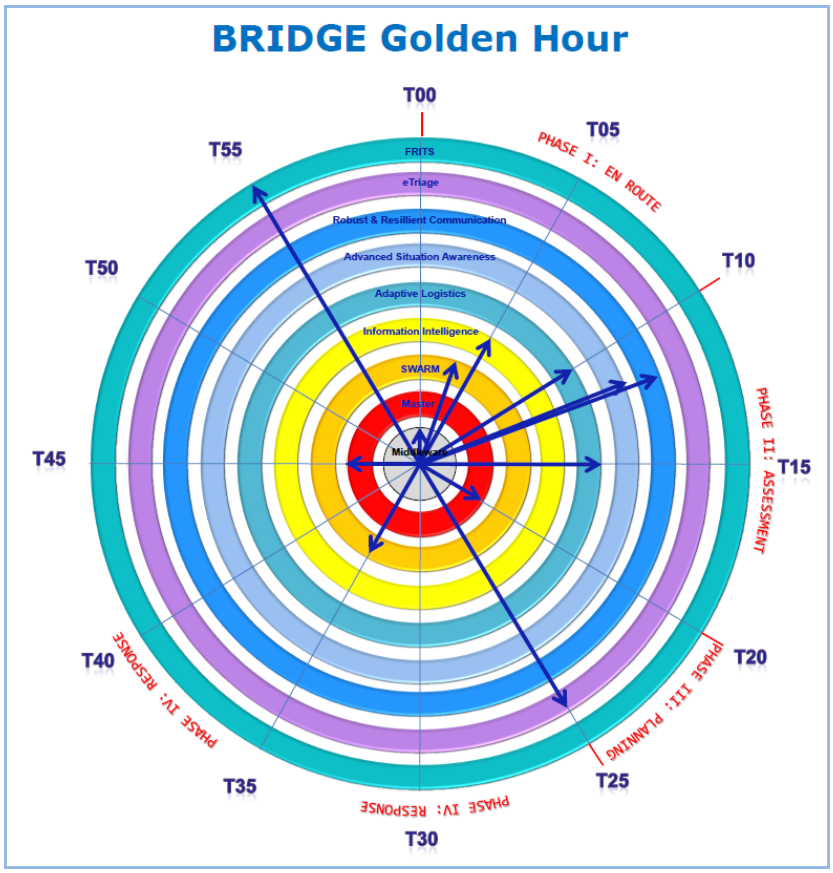
BRIDGE team, EUAB members, and evaluators after the final project demonstration in Flums, Switzerland, 20 May 2015. Photo courtesy: Maximilian Wietek (VSH).

BRIDGE Final Demonstration and Review Meeting

Fourteen BRIDGE partners gathered in Switzerland, for the fourth and final project demonstration hosted by the Hagerbach Test Galleries (Versuchstollen Hagerbach, VSH) in Flums on May 20-21, 2015. They presented emergency response systems developed in different work packages and demonstrated how they can interact to the representatives of the BRIDGE End-User Advisory Board and the project reviewers.

BRIDGE partners demonstrated a flexible assembly of emergency response systems supported by the BRIDGE middleware into a 'system of systems' for agile emergency response. Such 'systems' include BRIDGE concept cases, but also independent systems such as healthcare or vehicle registration records, building or environmental sensors, CCTV camera systems. The final concept cases that were demonstrated in Flums are:

- Adaptive Logistics;
- Advanced Situation Awareness (ASA);
- Dynamic Tagging of the Environment;
- First Responders Integrated Training System (FRITS);
- Information Intelligence;
- Master;
- Robust & Resilient Communication;
- Situation aWAre Resource Manager (SWARM).



BRIDGE Golden Hour with eight rings for concept cases demonstrated at different time slots in the sequence of their use in a simulated scenario.

Each concept case represents an end-user application whose implementation is based on individual parts and services of the BRIDGE middleware, and, therefore, each concept case represents an 'instantiation' of the BRIDGE middleware architecture and provides a specific perspective on the services offered by the BRIDGE middleware. To the producers of emergency response systems, BRIDGE middleware offers a consolidated set of software services organized in three layers that facilitate the orchestration of systems, the communication between such systems, and the management of data produced by such systems during an incident's lifecycle. The BRIDGE middleware forms the basis of all BRIDGE concept cases and underpins interoperability between different BRIDGE- and external systems.

Peeter Kool (CNet) talks about BRIDGE middleware, which underpins interoperability between different systems. Photo courtesy: Lyudmila Zaitseva (PLUS).

The demo was followed by the final review meeting, which was completed with a positive evaluation of the project results by the reviewers.

BRIDGE Scenario

BRIDGE innovations were demonstrated in the framework of a simulated technological disaster scenario, involving a powerful explosion and subsequent fire at a chemical facility. The scenario was developed based on the actual industrial accident, which happened in Toulouse, France, in September 2001, causing 30 fatalities and over 3500 injuries among the personnel onsite and general public outside of the facility.

This scenario was chosen to demonstrate how the system of systems developed in BRIDGE could be used after such a disaster and improve emergency response during its most critical early phase, i.e., the first - 'golden' - hour. All eight concept cases, plus the BRIDGE middleware, were shown at different timeslots (e.g., T5, T15, T35) of the *BRIDGE Golden Hour*, demonstrating both, the advantages of the new technologies and early stage prototypes in different phases of emergency response (e.g., en route, assessment, planning, response) and their interaction and interoperability as an integrated solution.

Thus, minutes after the detonation (T5), *Information Intelligence* starts gathering and analyzing tweets on explosions, damages, smoke cloud, etc. to help incident commanders gather operative information and identify potential sub-events requiring rescue efforts. Soon after (T12), the first fire brigade on scene flies the *ASA UAV* over the explosion site and sends the first images of the destruction, location of heat sources, and environmental sensor data from the toxic cloud. *ASA Expert System* analyzes the digital data

AZF site after the explosion. Photo courtesy: Grande Paroisse (http://www.azf.fr).

Toulouse Disaster

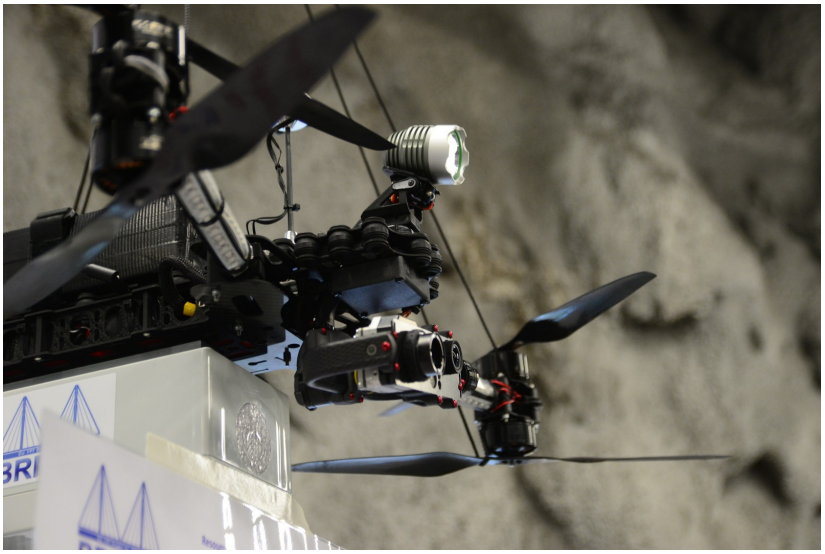
On September 21, 2001, at 10:17 on a Friday morning, a powerful explosion occurred at the AZF (*AZote Fertilisant*) fertilizer factory on the outskirts of Toulouse, France. The detonation could be felt 80 km away, and the Institute for Geophysics at Strasbourg registered the blast at 3.4 on the Richter scale, which makes it one of the biggest explosions in modern industrial history. The explosion produced a crater of about 65 m by 54 m in diameter and 7 m in depth. The TNT equivalent of the explosion was estimated in a range of 20–40 tonnes. It was established that between 20 and 120 tonnes of a stock containing more than 300 tonnes of ammonium nitrate refuse detonated at the plant.

The extent of damage was very large both on and off site. Many industrial buildings were demolished, and nearby residential buildings were in need of immediate evacuation. About 80 ha of the plant were largely devastated. Within a 3-km radius, some 27000 nearby homes were damaged, 11000 seriously, with crumbled walls and missing roofs. Windows were shattered over a radius of 5 km. Afterwards, about 40,000 damage claims were submitted to the insurance companies. The airport at Toulouse-Blagnac and the main railway station were closed and 90 schools in the area evacuated. 40,000 people—10 % of the city's population—were made homeless for a few days.

A cloud of dust and smoke formed as a result of explosion and drifted towards the city centre. At first, it was not known whether it was hazardous. Later, it was established that the release contained some toxic substances, including ammonia. Fortunately, the concentration of these chemicals did not pose serious danger to the population.

The event caused the loss of 30 lives, most of them plant workers. More than 3,500 people were injured as a result of the explosion, 50 of them seriously. Most injuries were due to shattered windows.

The investigation into the causes and circumstances surrounding the accident is still ongoing.



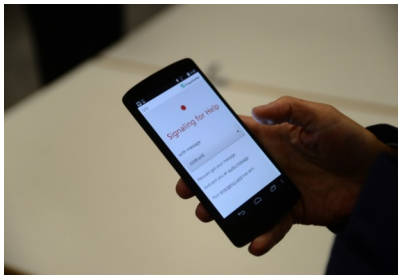
PLUS dual-quadrocopter with video and infrared cameras, and a sensor box. Photo courtesy: Alexander Boden (Fraunhofer FIT).

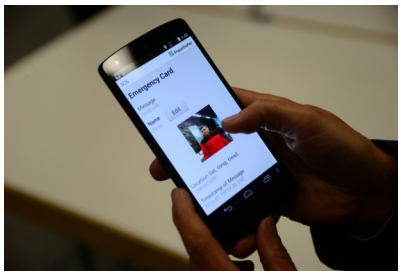
Ground-station with infrared and video images, and Expert System display.

received from the UAV and provides advice to the incident commander regarding personal protection equipment (PPE) for first responders and protective measures for public. *ASA Modelling Module* creates a plume dissipation model for the next few hours based on the current meteorological data, which should help make a decision on the areas to be evacuated. Both, the *Expert System* advice and the plume models are made available on the *Master* table and tablet PC.

Robust and Resilient Communication (RCC) concept is activated almost simultaneously with ASA (T13), upon arrival of responders on scene. In response to the disruption of network infrastructure at the incident site, responders start to deploy wireless network devices in order to establish a mesh of connected devices, i.e., *BRIDGE Mesh*. The network devices

2D plume dissipation models and expert system advice on PPE and public safety measures are sent from ASA to the Master via the BRIDGE middleware.

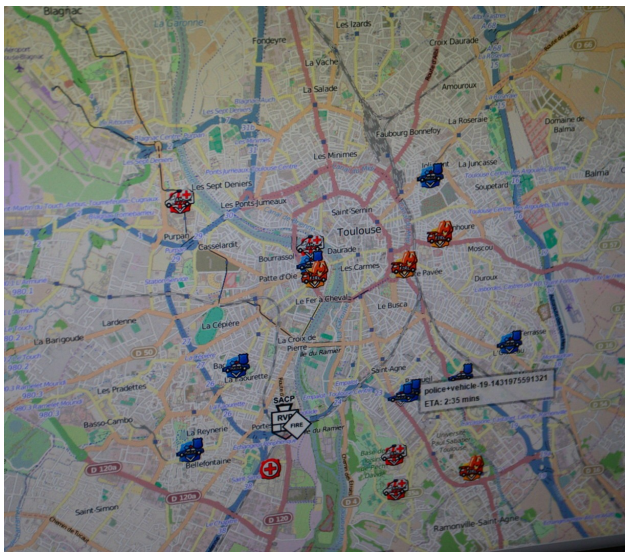




Christian Raffelsberger (Alpen-Adria Univerisity of Klagenfurt) and Amro Al-Akkad (Fraunhofer FIT) presenting RRC concept to project reviewers. Photo courtesy: Alexander Boden (Fraunhofer FIT).

provide different work interfaces (ZigBee, WiFi etc.) to enclose the heterogeneity of available devices at the incident site. People in distress use their smartphones to signal SOS via the *Help Beacon Victim App*. The SOS signal contains a message (e.g., 'Help Me') and optionally an emergency profile, which includes the time the SOS call was setup, the phone ID and, if available, the name, and GPS location. When the search and rescue team enters the disaster zone, some responders carry smartphones that run the *Help Beacons Responder App*, which searches for SOS calls on scene. In case such a SOS signal is found, the responder's phone connects to the victim's phone in order to notify the caller that his call has been discovered. If the connection is stable enough, the victim's phone can also send an emergency profile to the responder's phone. As soon as the responder's phone gets connected to the *BRIDGE Mesh*, collected SOS calls are sent to the *BRIDGE Master* and displayed on a map. Transmitting the collected SOS calls is enabled via the middleware services (S2D2S).

SWARM is a smartphone and cloud application for *Situation aWAre Resource Management (SWARM).* It enables the tracking and tracing of locations and status of resources in real time, and the management of tasks they have been allocated to perform. The application is intended to be distributed across all personnel and vehicles that take part in the emergency response effort. In the BRIDGE scenario of the final demonstration, *SWARM* is used during routine operations to monitor location and status of local emergency personnel. A *SWARM simulator* was used to simulate first responders around the Toulouse disaster area, using *SWARM* to track their status and to receive and respond to tasks (T03). A computer monitor (separate from the *Master table*) was used to give an overview of all simulated static and moving resources in and around the emergency area.

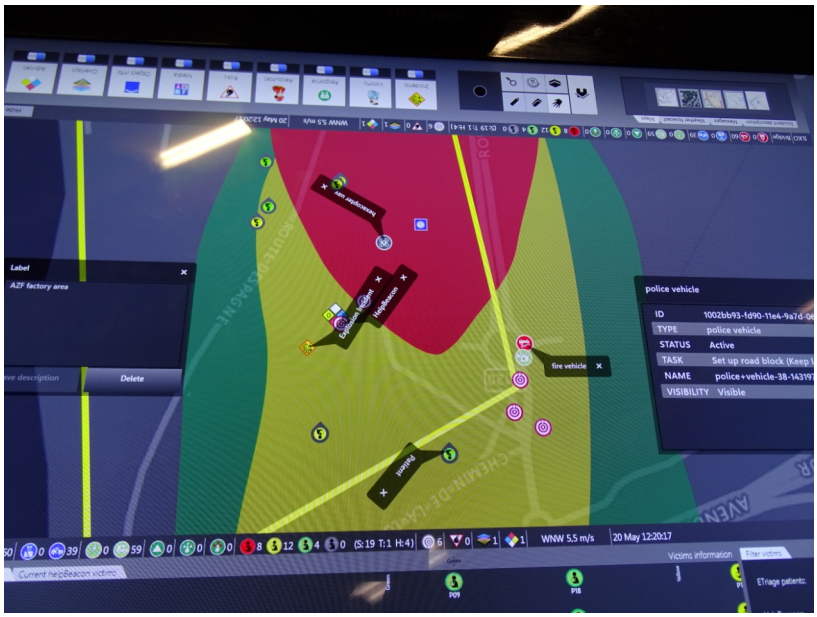


Left: Overview of simulated static and moving resources on the map of Toulouse. Right: Andries Stam (Almende) presenting SWARM. Photo courtesy: Alexander Boden (Fraunhofer FIT).

SWARM was integrated with the *Master* and with the *ASA Expert System* via the *BRIDGE Middleware*. Integration with the Adaptive Logistics Collaborative Actor Agent System (CWFGM services) was demonstrated as well. *SWARM* & *Master* show resources arriving on scene. Resources are registered both nationally and on European level. Resources can add themselves to the incident or be assigned by the incident commander or be assigned by entering the local network. This resolves the issue of unannounced and uncalled for arrivals by emergency responders, i.e., supports scalability.

Master is the visual portal to the BRIDGE System of Systems, which supports cooperation and overview. It consumes data from various sources (e.g., ASA, RRC, SWARM), supports incident commanders in obtaining situation awareness, and distributes incident information at different levels—operational and command levels. *Master* and *Middleware* enable integration of information from local authorities who, according to the Seveso Directive major-accident prevention policy (MAPP), have been provided with information sufficient to identify the dangerous substances, quantity and physical form, activity with it, areas and developments that could be the source of risk.

Aslak Wegner Eide presenting Master.
Photo courtesy: Alexander Boden.



Various masks on the Master table—resources, tweets, plume affected area.
Photo courtesy: Alexander Boden (Fraunhofer FIT).

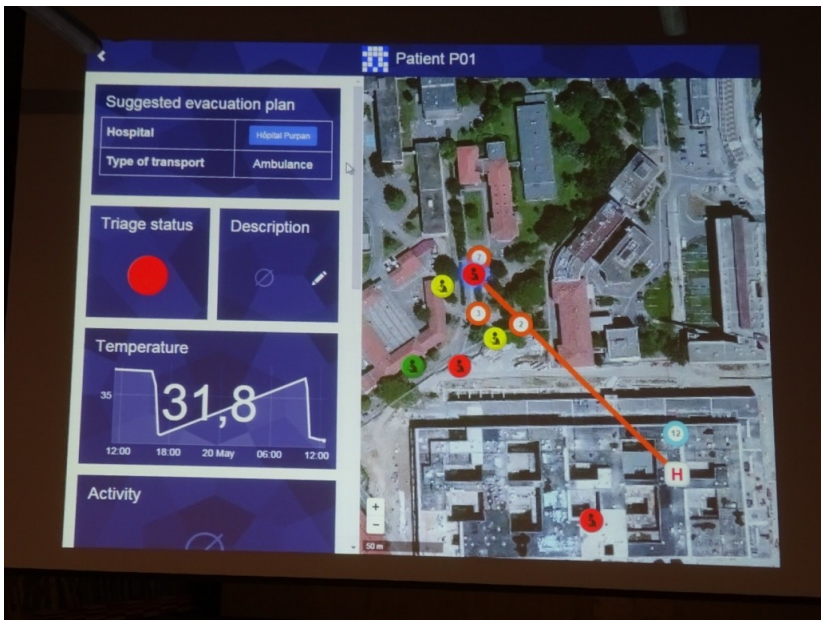
Left: Coloured, reflective, snap-on plastic bracelets for eTriage. Right: Erion Elmasllary (Fraunhofer FIT) demonstrating the eTriage system. Photo courtesy: Alexander Boden (Fraunhofer FIT).

At T25 first triagers on site start triaging the injured using the *eTriage* concept case developed by Fraunhofer FIT. *eTriage* supports the triaging process without any need for other communication networks, like mobile networks or internet. It provides overview of all casualties including information about their health or injury status. The main functionality includes triaging of victims in three categories as well as an ad hoc communication of the *eTriage* devices.

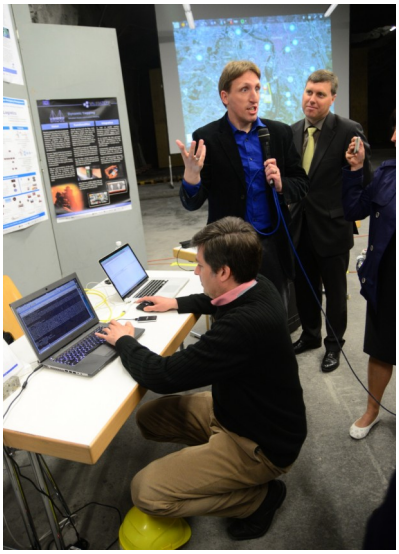
A coloured, reflective, snap-on plastic bracelet is augmented with microelectronic components for communication and location acquisition. Various sensors that do not need contact with the victim's body (e.g., air temperature, infrared, etc.) are added to the bracelets. The *eTriage* system is completed by apps for Android tablets and smartphones that allow to scan the bracelets, assign manual location data in case of no GPS coverage, show an overview of the bracelets' distribution and access their data.

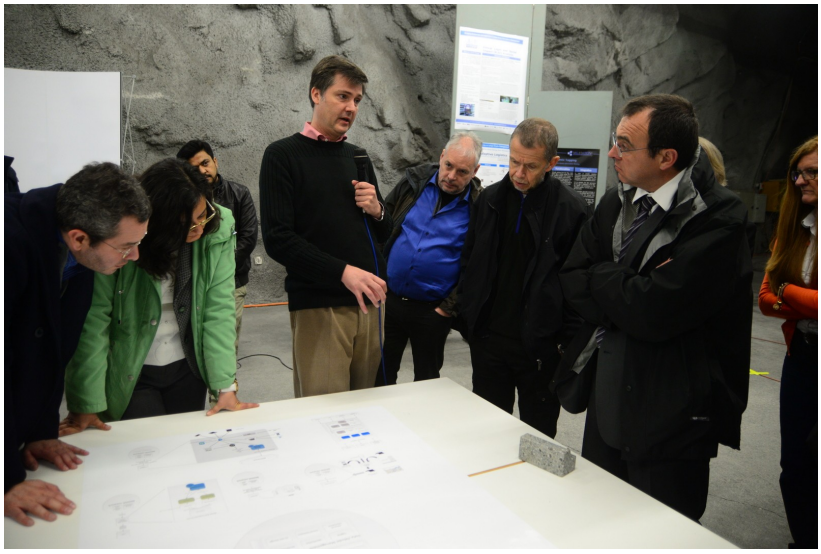
BRIDGE triage bracelets are conceptualised to turn on automatically as soon as they are pulled from the pack. They report position and category of the injured to the *Master*. Similar to the *RRC* concept case, data transmission is enabled via the *BRIDGE Mesh* and middleware services (S2D2S).

In areas without GPS, triagers can scan and set the position manually. In areas without network coverage, the bracelets are conceptualised to send triage data over the triage relays.



Patient data on an eTriage app for Android tablets.





Sander van Splunter (Technical University of Delft) and Bernard van Veelen (Thales NL) presenting Adaptive Logistics. Photo courtesy: Alexander Boden.

As paramedics gather casualties from the field to the assembly points, information is updated live on the *Master*. In case of electronics malfunction, the bracelet colours serve as a backup, which makes this triage system as reliable as the currently existing ones.

Adaptive Logistics is aiming for observing, controlling and managing the big amount of resources in a large scale incident. Dynamic response on changing situations should guarantee the best possible support to both incident managers and the teams acting on site.

Main functionalities of this concept case include the observation of movements of all kinds of resources as well as offering support in decisions to be made regarding consequences of logistic actions.

Chairman of the BRIDGE EUAB, Eivind Rake (RAKOS), providing his comments. Photo courtesy: Lyudmila Zaitseva.

BRIDGE Project Dissemination

Throughout the whole duration of the project, BRIDGE consortium was very active in disseminating the project results. Close to a hundred publications, multiple conferences and workshops, dozens of articles in the popular press and TV reports are the outcomes of the BRIDGE dissemination efforts, which have been reflected on the project website. Besides, over two hundred first responders and emergency response personnel from Norway, Austria, UK, Germany, and other EU countries were involved in various BRIDGE events ranging from End-User Advisory Board meetings and participatory design workshops in the first half of the project to exploitation, testing, and training activities in the second half.

Publications

Being heavily research-oriented, BRIDGE consortium produced a high number of scientific publications. Thus, before the end of June, a total of eighty BRIDGE papers were published, with six more accepted, seven more submitted for review, and eight more still in preparation, including two PhD theses. The accepted papers have been published in peer-reviewed scientific journals (8), edited books or book series (7), conference or workshop proceedings (60), and professional/ popular journals (5). Five PhD theses and one scientific monograph were published by universities. We are also proud that BRIDGE paper on *Help Beacons* presented by its main author Amro Al-Akkad (Fraunhofer FIT) at the 2014 ACM Annual Conference on Human Factors in Computing Systems (CHI'14) in Toronto, Canada in April 2014 received the *Honorable Mention Award*, indicating it had been identified by the CHI Associate Chairs as being among the top five percent of all submission.

Events

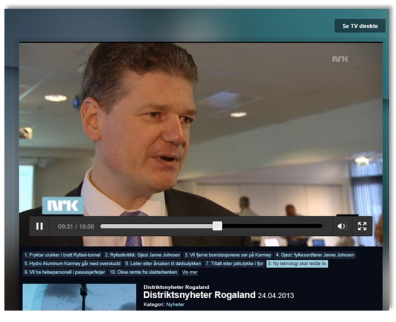
In the course of four years, BRIDGE partners have attended over a hundred different events to disseminate the knowledge about the project, its goals, and major achievements: fifty-five conferences and symposia, twenty-seven workshops and expert forum meetings, ten non-BRIDGE EU project meetings, six training exercises, and four exhibitions.

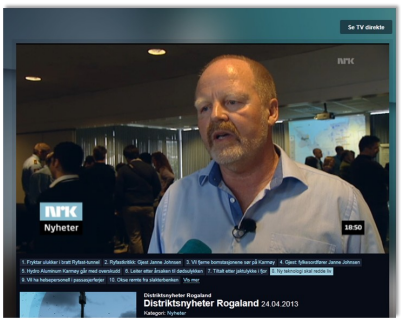
In addition, BRIDGE also organized and co-organized several conferences, workshops and seminars, including:

- International Joint Conference on Ambient Intelligence (AmI), Pisa, Italy, November 2012;
- Nordic Conference on Crisis Management, Stavanger, Norway, September 2013;
- Ethical, Legal, and Social Issues (ELSI) Tracks at the 10th, 11th, and 12th editions of the International Conference on Information Systems for Crisis Response and Management (ISCRAM 2013, 2014, 2015);
- ELSI Workshop, ISCRAM 2015, Kristiansand, Norway, May 2015;
- Workshop *New Social Media and Crisis*, Bielefeld, Germany, April 2011;
- Workshop *Collective Intelligence and CSCW in Crisis Situations*, Aarhus, Denmark, September 2011;
- Seminar *Kommunikasjon og samhandling ved katastrofer*, Oslo, Norway, December 2011;
- Workshop *New Interaction Orders, New Mobile Publics*, Lancaster, UK, March 2012;
- Workshop *Mobilizing Emergency Response*, Lancaster, UK, September 2012;
- Seminar Crisis Management in Europe, Ghent, Belgium, May 2013.

Media

BRIDGE partners put a lot of emphasis on communicating with the public about the project and its developments through the mass media means. This resulted in dozens of articles published in various printed European media (*Neue Zürcher Zeitung, Der Standard*, *Salzburger Nachrichten*, *Crisis Response Journal, Ingeniør Nytt, Aftenposten Morgen*, *Kleine Zeitung*, *Tagesblatt*, *Stavanger Aftenblatt*, *Østlendingen, Sarganserland*, etc.) and online journals, newspapers and news platforms (e.g., *Berner Zeitung Online*, *Gizmodo*, *Endgadget*, *APA-Science*, *Alpha-Galileo*, *Salzburg24*, *News Medical*, *Dagens Medisin*, *NewScientist.com*, *St. Galler Tagblatt Online*, etc.). Several BRIDGE experts were interviewed by various TV channels and two BRIDGE demonstrations were covered by the Swiss and Norwegian TV in the evening news.





Geir Horn (SINTEF), Morten Wenstad (Crisis Training AS), and Eivind Rake (RAKOS) giving invterviews for Norwegian TV.

BRIDGE at CeBIT 2015 in Hannover, Germany

CeBIT 2015 was held in Hannover, Germany, on 16-20 March 2015. Boasting an IT exhibition and a conference programme for professionals, CeBIT defines the latest IT trends, presents talks by high-calibre speakers and forward-looking panel discussions, and showcases product innovations from all over the world. BRIDGE consortium partner Fraunhofer Institute of Applied Information Technology (Fraunhofer FIT) participated in CeBIT 2015 exhibiting two of its innovations developed in BRIDGE: *eTriage* and *Help Beacons*. Both concept cases attracted a lot of attention and evoked great interest among the visitors of the exhibition.

René Reiners at CeBIT 2015 (top); Marc Jentsch giving an interview to a TV channel (bottom left); and Erion Elmasllari showcasing eTriage to the visitors (bottom right). Photo courtesy: René Reiners.

BRIDGE ASA in Crisis Response Journal

We are pleased to report that *Crisis Response Journal* has published two articles in a series of four on the *Advanced Situation Awareness (ASA)* system developed by Paris-Lodron University of Salzburg (PLUS) within the BRIDGE project.

The first article, entitled *Awareness Systems in Emergency Response*, came out in April in issue 10:3 of the journal. Friedrich Steinhäusler (PLUS) introduces the first part of a series describing a system that incorporates UAVs, a computer-based expert system and a modelling module to provide situational awareness in emergencies.

The second article, entitled *UAVs in Crisis Management*, came out in issue 10:4 of the journal. Pierre Madl (PLUS) describes how smart UAVs, carrying multiple sensors and cameras, help to provide advanced situational awareness for emergency responders in the field.

The two forthcoming articles will discuss the ASA expert system, which analyzes digital data received from the UAV, and the modelling module, which creates 3D models of structures onsite and 2D models of toxic plumes.

> *"Friedrich Steinhäusler says that the infamous fog of war also applies to civilian disasters, when incident commanders have to make far-reaching decisions based on a mixture of reliable data, half-truths, and erroneous information. This series looks at some ICT systems being developed to help them."*
>
> Awareness Systems in Emergency Response, *Crisis Response Journal*, Issue 10:3, April 2015

BRIDGE Scientific Results

PhD Thesis, RWTH Aachen University
15 June 2015

Amro Al-Akkad (Fraunhofer FIT) defended his PhD thesis entitled *Working Around Disruptions of Network Infrastructures—Design and Evaluation of Mobile Ad-hoc Systems for Resilient Communication in Disasters*.

PhD Thesis, RWTH Aachen University
19 February 2015

Marc Jentsch (Fraunhofer FIT) defended his PhD thesis entitled *Ubiquitous Annotation Visualization—Concept and Rapid Prototyping Framework* / Allgegenwärtige Anmerkungsvisualisierung – Konzept und Rahmenwerk für die schnelle Prototyperstellung.

ISCRAM 2015
24—27 May 2015

BRIDGE presented a whole range of contributions at the 12th International Conference on Information Systems for Crisis Response and Management (ISCRAM 2015) held in Kristiansand, Norway in May 2015. BRIDGErs Monica Büscher and Michael Liegl (Lancaster University) organised a special track on *Ethical, Legal and Social Issues (ELSI)* and a workshop on *Ethical, Legal and Social Narratives in IT Design for Disaster Response*.

A total of nine academic and insight BRIDGE papers were presented at ISCRAM 2015. They ranged from discussions of ELSI issues in the use of modelling and drones to an articulation of ELSI-Aware Co-Design methodologies, to supporting first responder in-field communication and navigation using head-mounted displays. Monika Büscher (Lancaster University) co-authored six papers presented at ISCRAM 2015—one in the ELSI Narratives Workshop and five in the ELSI track:

– *Technology in Disaster Response and Management: Narratives of Ethical, Legal, and Social Issues*, with Katrina Petersen (Lancaster University).
– *Uncertainty and Transparency: Augmenting Modelling and Prediction for Crisis Response,* with Sung-Yueh Perng (Maynooth University).
– *Don't Drone? Negotiating Ethics of RPAS in Emergency Response,* with Xaroula Kerasidou and Michael Liegl (Lancaster University).
– *The Role of the Privacy Impact Assessment in IT Innovation in Crises: An Example*, with Catherine Easton (Lancaster University).
– *Ethically Aware IT Design for Emergency Response: From Co-Design to ELSI Co-Design,* with Michael Liegl and Rachel Oliphant (Lancaster University).
– *Designing with Users: Co-Design for Innovation in Emergency Technologies,* with Katrina Petersen (Lancaster University), Maike Kuhnert (Technische Universität Dortmund), Steffen Schneider and Jenns Potterbaum (Universität Paderborn).

Three more BRIDGE papers were contibuted by SINTEF ICT. BRIDGErs Aslak Wegner Eide and Antoine Pultier (SINTEF) co-authored a paper with Fahd Bin Malek Newaz (University of Oslo), entitled *Supporting First Responder In-Field Communication and Navigation Using Head-Mounted Displays* and presented in the *Command and Control* track.

Michael Stiso, Aslak Wegner Eide and Antoine Pultier (SINTEF ICT) presented another BRIDGE paper in the Serious Gaming track entitled *A Foray into the Use of Serious Games in Controlled Research on Crisis Management*.

Aslak Wegner Eide (SINTEF ICT) co-authored his third paper at ISCRAM 2015 with BRIDGE colleagues Ida Maria Haugstveit (SINTEF ICT) and Eivind Rake (RAKOS) at the practitioner track. The title of the paper was *Practitioner-Centered, Long-Term Evaluation of an ICT-based Triage System for Emergency Management*.

PerNEM 2015
27 March 2015

Christian Raffelsberger (Alpen-Adria University of Klagenfurt) presented a BRIDGE paper at the Fifth International Workshop on Pervasive Networks for Emergency Management (PerNEM 2015) held in in conjunction with IEEE PerCom 2015 in St. Louis, Missouri, USA, on 27 March 2015. Hermann Hellwagner (Alpen-Adria University of Klagenfurt) co-authored the paper, entitled *A Multimedia Delivery System for Delay-/Disruption -Tolerant Networks*.

Social Collective Intelligence (Springer)
January 2015

Monika Büscher, Michael Liegl (Lancaster University) and Vanessa Thomas (High-wire) contributed a chapter—*Collective Intelligence in Crises*—to the book entitled *Social Collective Intelligence: Combining the Powers of Humans and Machines* (Springer).

Patent: EP 2 814 299

Submitted to: European Patent Office
Title: **Method for organizing a wireless network**
Inventor(s): Al-Akkad, Amro; Ramirez, Leonardo; Zimmermann, Andreas
Application No./Patent No.: 13171881.9 - 1857
Applicant: Fraunhofer Gesellschaft zur Förderung der angewandten Forschungen e.V.
Date of Filing: 13.06.2013
Date of Publication: 17.12.2014
Designated States: Europe (AL AT BE… SK SM TR)

You can find more on these and other project results at: http://www.bridgeproject.eu/en/bridge-results/

BRIDGE at a Glance

BRIDGE builds a system to support interoperability — both technical and social — in large-scale emergency management. The system serves as a bridge between multiple First Responder organisations in Europe, contributing to an effective and efficient response to natural catastrophes, technological disasters, and large-scale terrorist attacks.

"The project will look in particular at how cooperation among different agencies and organisations can be made more efficient at national and transnational level."

EU finances BRIDGE project to tackle major disasters, *News Medical*, 26 August 2011

The vision of the BRIDGE project is to:

- Facilitate cross-border and cross-agency collaboration
- Allow the creation of a common, comprehensive, and reliable operational picture of the incident site
- Enable integration of resources and technologies into workflow management
- Enable active ad-hoc participation of third parties

CONSORTIUM

The BRIDGE consortium consists of a well-balanced mix of cross-disciplinary academics, technology developers, domain experts and end-user representatives:

- Stiftelsen SINTEF, Norway
- Almende B.V., The Netherlands
- CNet Svenska AB, Sweden
- The Fraunhofer Institute for Applied Information Technology FIT, Germany
- Lancaster University, UK
- Crisis Training AS, Norway
- SAAB Training Systems, Sweden
- Thales Nederland B.V., The Netherlands
- Alpen-Adria University of Klagenfurt, Austria
- Paris-Lodron University of Salzburg, Austria
- VSH Hagerbach Test Gallery LTD, Switzerland
- Technical University of Delft, The Netherlands
- Stockholm University, Sweden
- Helse Stavanger HF, Norway

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For more information, please visit the project website: http://www.bridgeproject.eu.

Newsletter designed by Lyudmila Zaitseva