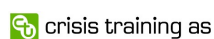




BRIDGE Newsletter

ISSUE 5 — DECEMBER 2014

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Editorial



Dear Reader!

Emergencies cannot be fully eliminated. However, better organisation may at least help emergency workers and agencies to be more effective. Specifically, organisations and technologies would benefit from planned interoperability. Better agency and personnel cooperation potentially means more effective operations. Our contribution to this is to build a system and solutions supporting interoperability during large-scale emergencies. If these solutions can be used in daily life operations as well, the BRIDGE project may have given an important contribution to European crisis management.

This is the 5th Newsletter from the

project; the last one will come in June, when we are about to close the project. Through this newsletter you will have a look into the BRIDGE ValEDation Days that took place in September and November 2014 at three different locations in Europe. Through these events the project has presented the features of the BRIDGE technologies to stakeholders within crisis management. The project partners have promoted the further usage of this knowledge to end-user representatives, governmental bodies and European companies, and discussed how to implement the results in commercial products and services. We hope you find this interesting and you are, of course, welcome to get in contact with us!

Dag Ausen, SINTEF
Project Coordinator



BRIDGE team and stakeholders at the Alpine ValEDation event in Salzburg, Austria. Photo credit: Paul Burghardt (Thales)

In this issue:

- ♦ *Editorial*
- ♦ *BRIDGE ValEDation Days: Validation, Exploitation and Dissemination*
- ♦ *Alpine ValEDation Days, St. Gilgen/ Salzburg, Austria*
- ♦ *Low Countries ValEDation Days, Delft, Netherlands*
- ♦ *Nordic ValEDation Days, Oslo, Norway*
- ♦ *BRIDGE at BSSAR 2014 Symposium, Crete, Greece*
- ♦ *BRIDGE at CPEXpo 2014, Genoa, Italy*
- ♦ *BRIDGE Scientific Results*

BRIDGE ValEDation: Validation, Exploitation, Dissemination

Catastrophes - whether natural or man-made - are difficult to predict and our society expects first responders to be always prepared to manage them in the best possible way. The BRIDGE project provides solutions to support crisis management and emergency response coordination. Through its work packages *Validation*, *Exploitation* and *Dissemination*, BRIDGE organised a series of *ValEDation Days* in Alpine, Nordic, and Low Countries to demonstrate and validate solutions for large-scale crisis management and bring them closer to the user.

The ValEDation days aimed to highlight

the features of the BRIDGE technologies and to promote their further usage in the development of commercial products and services. They have been set up in a joint initiative of the BRIDGE work packages and project partners to validate, exploit, and disseminate the final results of BRIDGE.

The BRIDGE project has made a great effort to involve end-users in the project to set the right requirements on the developed technologies. End-users and potential clients have also been invited to validate that the results do indeed provide the envisioned functionalities and qualities to the satisfac-

tion of the emergency managers and first responders that will use them.

The ValEDation days provided a final opportunity for stakeholders to examine and discuss the results of the project. Key concepts and technologies were highlighted in presentations and demonstrations. Within this innovative atmosphere, BRIDGE partners and interested organizations worked together to set up follow-up actions to exploit the results of the BRIDGE project.

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Alpine ValEDation Days, St. Gilgen/Salzburg, Austria

The first in the series of the three planned events—*Alpine ValEDation Days*—were held in St. Gilgen and Salzburg, Austria, 9-12 September 2014. The validation part of the event was conducted on 9 September 2014 in

St. Gilgen in cooperation with the volunteer fire service of St. Gilgen, Löschzug Winkl, and the local police. Two BRIDGE systems—*Advanced Situation Awareness (ASA)* and *Help Beacons*—were demonstrated and validated dur-

ing the exercise organised by the Winkl fire-fighters. The exercise simulated a car accident with a subsequent fire and an explosion. Four volunteers acted as victims in this hypothetical scenario, which was pre-tested in August 2014.



Simulated car explosion (above left); Fire extinguishing (above middle); EUAB Members Thomas Larson (Sweden) and Johannes Schadwasser (Austria) observing the exercise on September 9, 2014 (above right). Photo courtesy: Maximilian Wietek (VSH).
St. Gilgen volunteer firefighters and police after the test-exercise in August 2014. Photo courtesy: Lyudmila Zaitseva (PLUS).

Advanced Situation Awareness

The exercise in St. Gilgen started with a car fire, which was filmed and analyzed by the flying hexacopter. Subsequently, the exploding petrol tank of the vehicle was simulated using pyrotechnics. The *Hexacopter*, component of the

plume carried out by on-board sensors. This information was used in the second ASA component, the *Expert System* software, which compares the measurement data with national limits and international recommended concentration values. These data were

safety issues concerning both, the first responders on scene (e.g., type of protective equipment needed) and members of the public living downwind from the incident site (e.g., sheltering or evacuation). VIS- and IR information was transmitted to the ground station



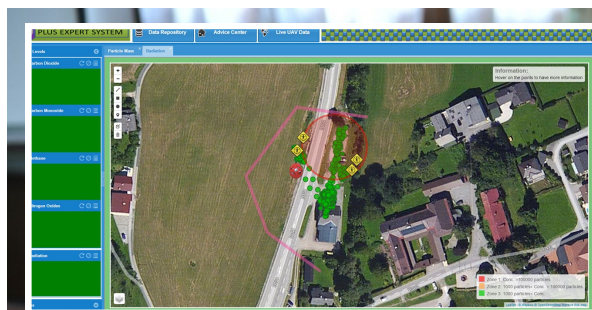
Advanced Situation Awareness (ASA) system developed by Paris-Lodron University of Salzburg (PLUS), flew into the Hot Zone, filmed the incident site from above, and transmitted live video- and infrared images to the Incident Commander, together with the data on gas and particle measurements of the toxic

then used for the third ASA component, the *Modelling Module*. This module modelled the dispersion of the plume and forecast the atmospheric concentration in the potentially affected area on a digital map. This represented the basis for recommendations to the Incident Commander on

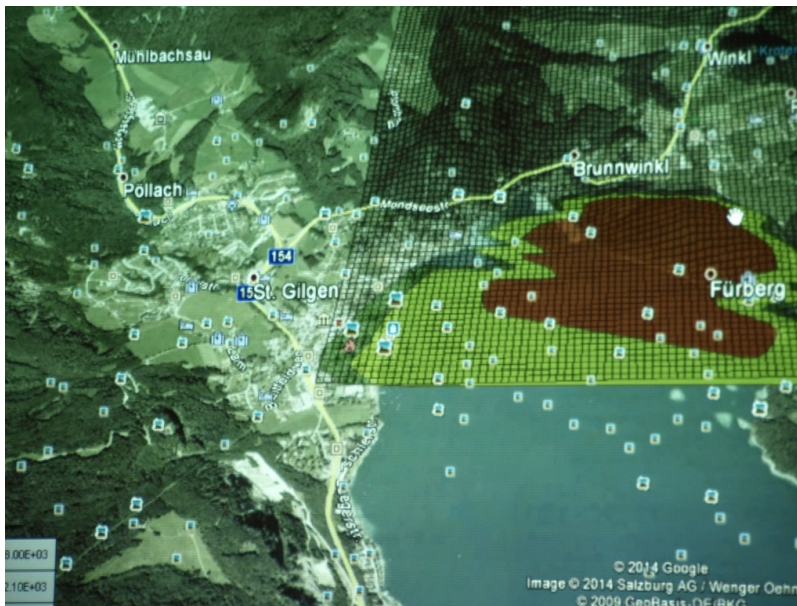
and the Incident Command clearly identified the location of all victims on the incident site.

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Hexacopter collecting visual and environmental data on site and transmitting it to ground station (above left); Work Package Leader Friedrich Steinhäusler and pilot Maximilian Kiefel (PLUS) (above right); Bukhtiar Mohsin (PLUS) analyzing data on Expert System (below). Photo courtesy: Maximilian Wietek (VSH).



Plume dissipation model based on environmental and weather forecast data.

“With the help of a weather map one could see, where the hazardous plume would be in half an hour and whether it would be necessary to evacuate certain areas.”

Herbert Hausjell, Commander, Fire Station Winkl, St. Gilgen. In “Drohnen sollen Rettern das Leben retten,” *Salzburger Nachrichten*, 15 September 2014

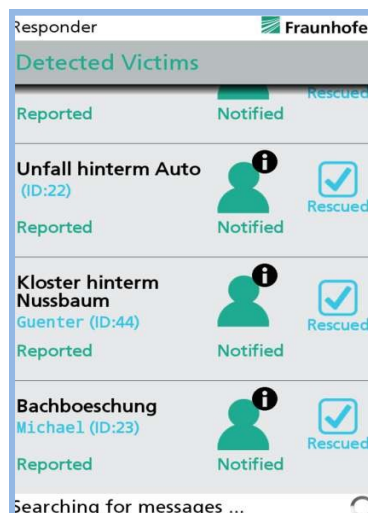
Help Beacons

The *Help Beacons* system, co-developed by the Fraunhofer Institute for Applied Information Technology



Commander Hausjell using Help Beacons application. Photo courtesy: Max Wietek

(Fraunhofer FIT) and Alpen-Adria University of Klagenfurt, was the second BRIDGE concept case deployed during the exercise in St. Gilgen. Four persons acting as victims broadcasted distress signals by the use of the Help Beacons victim application. Two victims were already found with the help of the



infrared camera on the hexacopter, and the remaining two that were out of sight of the UAV were then located by the Help Beacons responder application. In particular, the responder in the field and the incident commander leveraged the Help Beacons system in addition to their existing radio communication to better fulfil their mission.

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Amro Al-Akkad (Fraunhofer FIT) preparing for exercise. Photo courtesy: Max Wietek

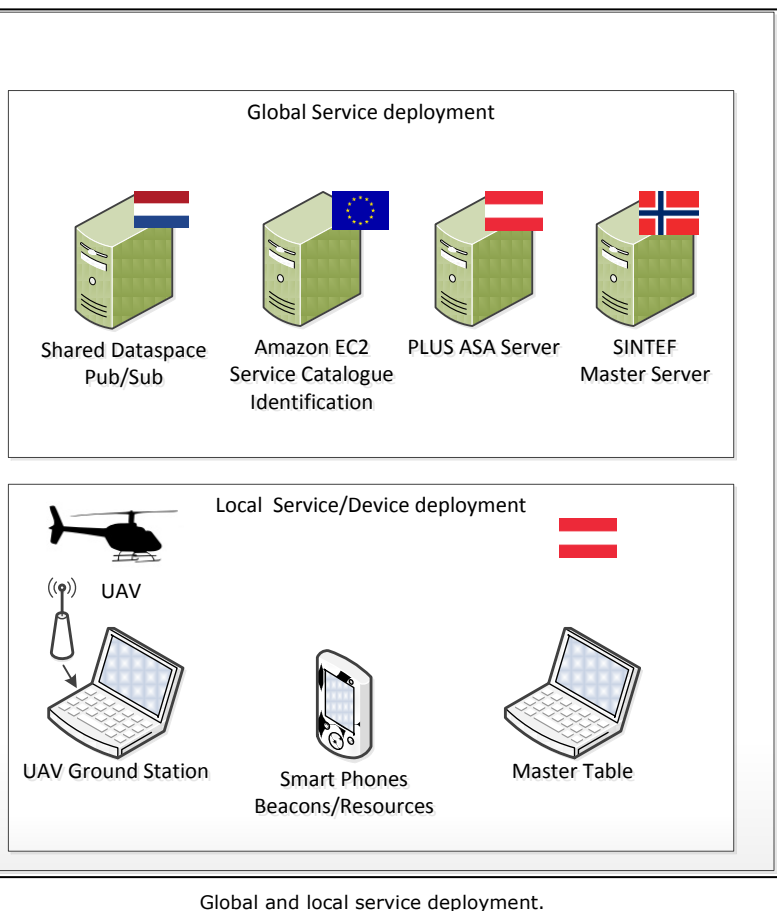
Master Integration with ASA

The third BRIDGE concept displayed in Austria was the Master system. In preparation for the Alpine ValEDation Days, the ASA was integrated with the BRIDGE network and the Master, which is a command and control information tool for use during emergency response. The following data from the ASA was integrated into the BRIDGE network and was displayed on the Master system:

1. Video feeds, both visual and infra-red, from the UAV were shown on the Master.
2. Static images from the UAV.
3. UAV position was shown on the Master, allowing tracking the movement during flight.
4. Advice information from the ASA Expert System was shown on the Master, including the defined danger area.
5. Toxic plume forecast were integrated with overlay display in the Master map.

The integration of the ASA information into the BRIDGE network was primarily done using four BRIDGE middleware components:

1. **On-Site storage** provides a web server like functionality for the BRIDGE network. Information is published in the BRIDGE network using BRIDGE link format. The BRIDGE links can be used by members of the BRIDGE network to retrieve the information when needed.
2. **Transformation service** provides transformations from ASA internal data formats to the standard



BRIDGE formats, i.e. EDXL and BRIDGE links.

3. **Network Service** provides access to the virtual private BRIDGE network.
4. **Shared Dataspace** is used for publishing and subscribing data on the BRIDGE network and in this case was used as the link between the Master and the ASA information.

The actual deployed BRIDGE system

involved components deployed in multiple locations where the local services were running at the actual incident site in Winkl, while the global service deployment involved servers in Austria, Netherlands, Norway and finally the Amazon EC2 cloud.

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Peeter Kool (CNet) and Antoine Pultier (SINTEF) integrating ASA data into the BRIDGE network (left); ASA information displayed on Master PC (right). Photo courtesy: Maximilian Wietek (VSH).

Alpine Exploitation and Dissemination Event

The Alpine Exploitation and Dissemination event was hosted by PLUS in Salzburg, Austria, on 12 September 2014. Fifteen representatives of different agencies and organisations attended the meeting, including the Austrian Federal Ministry of Interior, Federal Ministry of Defence and Sport, Government of Salzburg Departments of Public Health and Disaster Management, Alpine Rescue Service, St. Gilgen Volunteer Fire Service, etc. Two members of the BRIDGE End-User Advisory Board (EUAB) also participated in the Alpine VaLEdation Days.

Members of the BRIDGE consortium presented the project and its ASA and Help Beacons systems to the invited audience and showed a video of the validation test in St. Gilgen, which took place on the 9th of September 2014. The practical demonstration of the BRIDGE concepts included a live transmission of visual and infrared data stream from the PLUS hexacopter flying



Paul Burghardt (Thales) talking about BRIDGE exploitation plans (left); Paul Marouschek (Federal Ministry of Interior) providing his feedback (right).

outside the university building into the meeting room. The participants were then given an opportunity to have a closer look at the UAV and the Help Beacons applications on the smartphones. In the final part of the event, the stakeholders shared their positive

impressions with the scientists and technology developers.

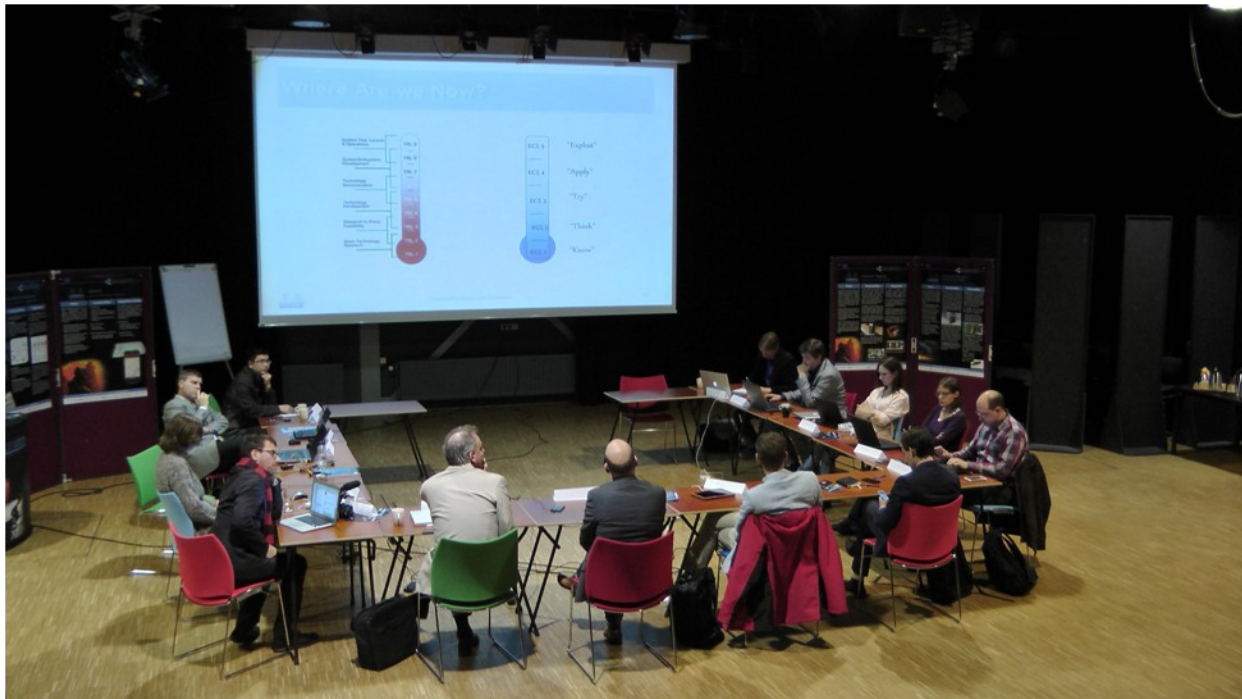
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René Reiners (Frauhofer FIT) presenting Help Beacons (above left); Invited stakeholders and end-users (above right and below left); PLUS ASA team with the hexacopter (below right). Photo courtesy: Lyudmila Zaitseva (PLUS).

Low Countries ValEDation Days, Delft, The Netherlands



BRIDGE technology presented to senior business developers during the exploitation event in Delft.

Photo courtesy: Paul Burghardt (Thales).

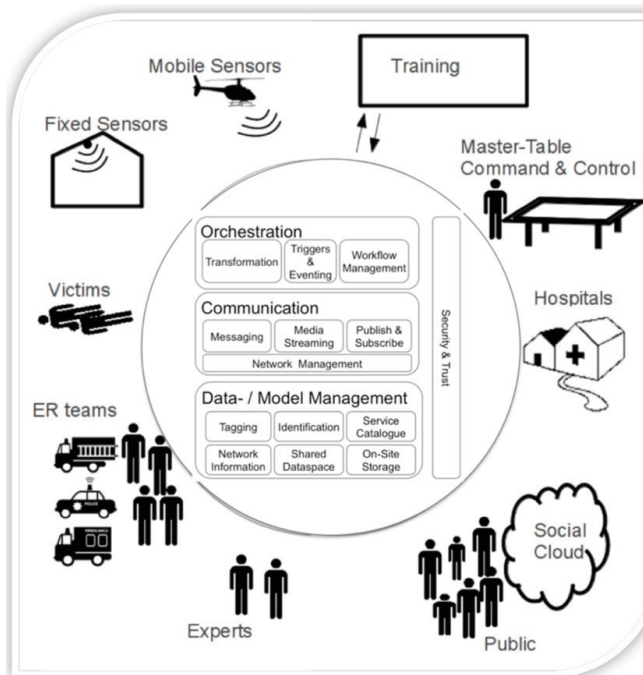
The *Low Countries ValEDation Days* were held in Delft, The Netherlands, 10-14 November 2014. This program featured four of the nine main results of the BRIDGE project: (1) BRIDGE middleware, (2) *Adaptive Logistics*, (3) *SWARM*, and (4) *Information Intelligence*. In comparison to the functional applications presented at the Alpine and Nordic ValEDation days with respect to the (5) *Advanced Situation Awareness*, (6) *Help Beacons*, (7) *Master*, (8) *e-Triage*, and (9) *FRITS*, the Low Countries program focused on the Validation, Exploitation and Dissemination (=ValEDation) of infrastructural assets that enable interoperability between functional applications for end-users, making it possible to collaborate in large-scale emergencies.

On Monday, a full day was taken to validate the *Adaptive Logistics* concept case, which is mainly the result of collaboration between Thales, the TU-Delft, and Almende. The key assumption of this

group was that large-scale emergencies will involve organizations and ICT systems from various agencies, possibly crossing national European borders. In

e-Triage and further emergency operations, will require the orchestration of many systems and services into cohesive, collaborative workflows. The

adaptive logistics team has focused on technologies that enable just this. Particular attention was paid to the creation of a workflow language that makes it possible to mediate between the various organization-specific workflow systems. This has resulted in the BRIDGE Advanced Workflow Language (BRAWL). To be able to specify the quality requirements on any resulting workflows in terms of timeliness, reliability, availability and so on a supporting language was developed with which 'smart' operational constraints can be well formulated. While there is naturally a great deal to be done to further develop this, the End-User Advisory Board and the business developers confirmed that these assets



Software services offered by BRIDGE Middleware.

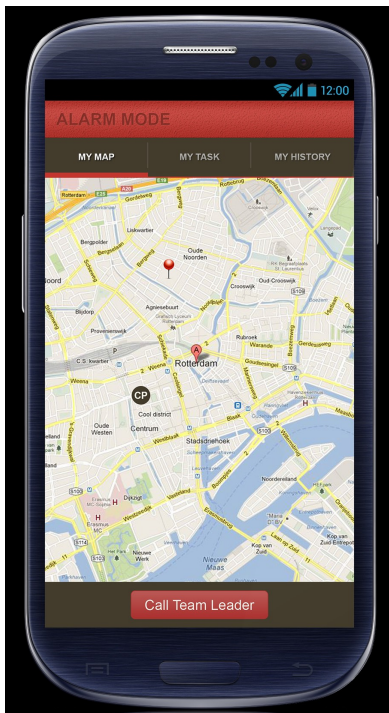
such cases the acquisition of data for situation awareness, the creation of master overviews, the coordination of

are of critical value for the desired interoperability, for which the BRIDGE project was initiated.

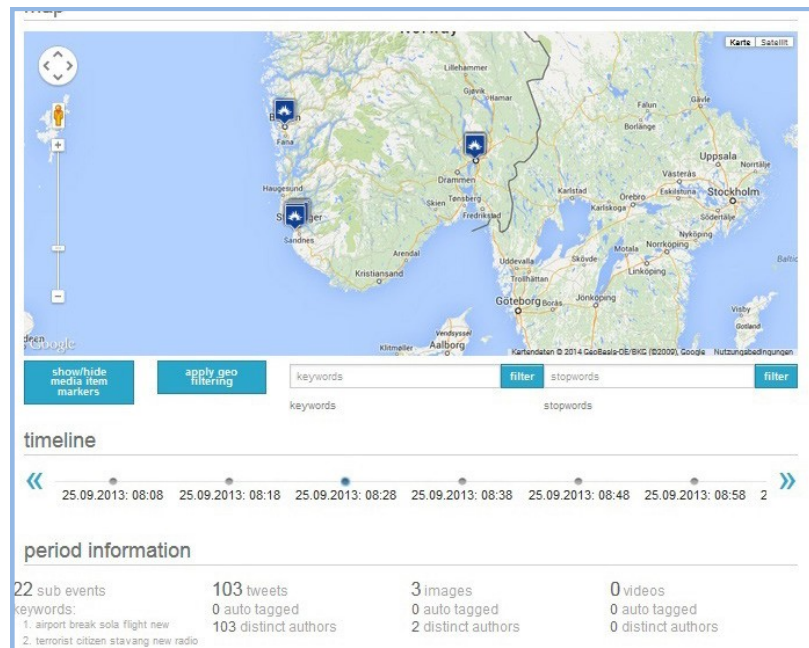
On Tuesday, again, a full day was reserved for the first initial validation of the BRIDGE middleware. This was developed in cooperation between the BRIDGE partners, featuring C-NET, Thales, the TU-Delft, Almende, Saab, Fraunhofer, and SINTEF. This result of the BRIDGE project deserves special attention because it is crucial for enabling interoperability at a more infra-structural level. In fact, practically all of the BRIDGE concepts were meant to drive and test the BRIDGE middleware development.

During this Tuesday session the middleware was validated from this point of view: does it enable the desired interoperability of functional applications? It was concluded that the BRIDGE middleware essentially provides enabling services in the three main areas: *Orchestration, Communication, and Data Management*, and that these services were used and tested in the context of the functional applications such as e-Triage and Advanced Situation Awareness.

Wednesday was devoted to the validation of two results concerning the monitoring of human resources in the field (SWARM) and social media analy-



SWARM application.



Information Intelligence analyzing social media for sub-events in emergencies.

sis in large scale crisis events (Information Intelligence). The SWARM application, mainly developed by Almende, ties into Adaptive Logistics with emphasis on gathering data on the status and well-being of first responders from various organizations collaborating in the field. It makes good use of the BRIDGE middleware, utilizing its capability to support agent-based applications. The parts of the BRIDGE middleware that it relies upon have already been deployed in commercial applications, making it possible to productize SWARM on a short term.

The Information Intelligence algorithms that were mainly developed by the University of Klagenfurt, make it possible to support common situation awareness in large-scale events, by discovering localized sub-events within the overall crisis. When such information on sub-events, that may require the special attention of the incident commander, becomes available in real-time via the BRIDGE Master, better informed decision making will become possible. The Information Intelligence has been tested and validated with large historical data-sets from social media companies on prior emergencies. It is now ready for further testing and validation with further data-sets and actual real world emergencies.

The ValEDation days were concluded on Thursday with an 'exploitation' day. In the Netherlands the choice was made to have an in-depth conversation with a number of senior business developers, rather than a full day of presentations and demonstrations with a large audience of emergency response professionals. This proved to be a very well spent day. There was in fact a great deal of appreciation for the results described above, especially because the functionality and qualities of the results were so thoroughly validated. Furthermore, the possible value of integrating inter-organizational workflows (with BRAWL) was fully recognized, as was the value of integrated human resource monitoring (SWARM) and the detection of sub-events within large-scale crises (Information Intelligence). On the whole, it was concluded that Thales would initiate follow-up events to further investigate the exploitation of the BRIDGE results in the Low Countries and explore possibilities of cooperation in the expected exploitation activities in the Nordic and Alpine countries.

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You can find more information on all BRIDGE Concept Cases on the project website at:
<http://www.bridgeproject.eu/en/bridge-results/concept-cases>.

BRIDGE Nordic ValEDation Day, Oslo, Norway

The *Nordic ValEDation Day* was organised in Oslo, Norway, on November 19, 2014. The purpose was to demonstrate the potential of the BRIDGE system with related concept cases for Nordic stakeholders. The focus was on three concept cases – *MASTER*, *eTriage*, and *FRITS* (*First Responders Integrated Training System*). To ensure that the demonstration was relevant for the participants, the concept cases were demonstrated in the context of the international exercise *HabourEX 2015*, which will be held in Oslo in April 2015.

Twenty external actors from different organizations in Norway participated in the event. They were all key actors regarding introduction of collaborative systems for emergency management. The participants represented directorates of Health, police and emergency communication, Norwegian Police



SINTEF CEO Unni Steinsmo opening the Nordic ValEDation Day in Oslo, Norway.
Photo courtesy: Jan H. Skjetne (SINTEF).



Aslak Wegne Eide (SINTEF) demonstrating Master table to Norwegian first responders during the Risavika exercise in 2013.
Photo courtesy: Jan H. Skjetne (SINTEF).

University College, Norwegian Industrial Safety Organisation (NSO), Joint Rescue Coordination Centres and local rescue units in police, health, and fire.

The Nordic ValEDation Day was opened by SINTEF CEO Unni Steinsmo and incident commander from Oslo Police Erling Olstad. Heiko Werner from the German Federal Agency for Technical Relief (THW), who is also on the BRIDGE End-User Advisory Board (EUAB), talked about the challenges and needs related to systems supporting co-operation and emergency management. The BRIDGE system and selected concept cases were then demonstrated.

The event ended with a plenum discussion. The feedback from the participants was positive. Their main question was related to when such products and services would be available. Issues on who would get access to different data, how secure and how agile such a system could be were also of great interest to the audience.

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BRIDGE at BSSAR 2014 Symposium in Crete, Greece



BRIDGE took part in the European Symposium on Border Surveillance and Search and Rescue Operations Technology (BSSAR 2014), which was organized by the Center for Security Studies (KEMEA) in Heraklion, Crete, 27-28 November 2014. One hundred and fifty representatives from international organizations, national authorities and services, academic institutions, research agencies, and end-users in both the public and private sectors from fifteen EU member states, participated in the Symposium. The results of ten European Research Projects (FP7) and two National Research Programs on border surveillance technology, ground and air survey, crisis management and search and rescue operations were presented during the event.

BRIDGE was presented through a plenary presentation and a BRIDGE booth. The Project Technical Coordinator, Evangelos Vlachogiannis (Fraunhofer



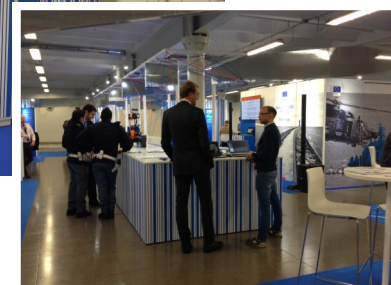
FIT), gave a 20 minutes presentation focusing on the overall BRIDGE user-centered approach targeting to emergent interoperability (i.e., System of Systems). The presentation focused on a subset of concept cases (*Robust and Resilient Communication, Master, Dynamic Tagging/eTriage, and First Responder Integrated Training System (FRITS)*), on Ethical, Legal and Social Issues (ELSI) as a critical dimension, and on BRIDGE ValEDation approach and tangible results.

The BRIDGErs—Monika Buscher (Lancaster University), Michelle Burghardt (Versuchsstollen Hagerbach, VSH), René Reiners (Fraunhofer FIT), Morten Wenstad (Crisis Training), Max Wietek (VSH) and Antoine Pultier (SINTEF)—had the opportunity to demonstrate the aforementioned concept cases in the BRIDGE booth, discuss them with interested participants, share experiences, mostly through BRIDGE videos, and consider potential future opportunities in the field.

BRIDGE at CPExpo 2014 in Genova, Italy



The BRIDGE project was part of the CPExpo 2014 and SRC Security Research Conference 2014, which took place at the Centro Congressi in Genova, Italy, 9-11 December 2014. The global expo-conference was organ-



ized by the European Commission with the purpose of providing visibility and business opportunities, and serving as a meeting point for industries and academic institutions working within the field of community protection. BRIDGE

participated in the exhibition as one of the European Commission's FP7 projects. Aslak Wegner Eide and Ida Maria Haugstveit (both from SINTEF) were the BRIDGE project's representatives at the event.

BRIDGE was showcased at a stand where the project's technologies were demonstrated. Two project presentations were held, giving the audience an overview of the different concept cases and technologies of BRIDGE. The stand and the presentations attracted attention from many of the event's participants. Several stakeholders visited the stand: practitioners, academics, people from industry, and members of the European Commission. The project received positive feedback, and the BRIDGE technology was regarded as innovative and highly useful. The exhibition provided a good place for meeting with, talking to, and establishing connections to interested parties from different fields.

BRIDGE Scientific Results

NordiCHI'14

26—30 October 2014

With four of his colleagues from the University of Oslo, Aslak Wegne Eide (SINTEF) co-authored a paper entitled *Usability of a Shareable Interface in a Multiuser Setting*, which was presented at the 8th Nordic Conference on Human-Computer Interaction (NordiCHI'14) in Helsinki. The paper reports on an experiment investigating how the number of simultaneous users affects the usability and user experience of a shareable user interface.

ADHOC-NOW 2014

22—27 June 2014

Christian Raffelsberger and Hermann Hellwagner (Alpen-Adria University of Klagenfurt) presented a paper at the 13th International Conference on Ad-Hoc Networks and Wireless (ADHOC-NOW 2014) held in Benidorm, Spain in June 2014. The paper, entitled *Combined Mobile Ad-hoc and Delay/Disruption-Tolerant Networking* presents a routing approach that combined MANET and DTN routing to provide a client routing in diverse networks. The combined routing approach can be used in well-connected networks as well as in intermittently connected networks that are prone to disruptions.

Fraunhofer Series in Information and Communication Technology—11 June 2014

René Reinert (Fraunhofer FIT) published his PhD thesis as a book in the Fraunhofer series in Information and Communication Technology. Entitled *An Evolving Pattern Library for Collaborative Project Documentation*, the book presents a collaborative pattern formulation and validation process that takes into account the special conditions of joint research projects.

ISCRAM 2014

18—21 May 2014

Yet again, BRIDGE consortium partners were active contributors to the annual ISCRAM conference. BRIDGErs Monika Büscher and Michael Liegl (Lancaster University) led the track on *Ethical, Legal and Social Issues (ELSI) in IT Supported Emergency Response*. Monika presented a BRIDGE paper, which explored key ELSI issues in utilizing cloud computing for disaster response and management. Entitled *Cloud Ethics for Disaster Response*, the paper was co-authored with Maike Kuhnert (Dortmund University of Technology), Jens Pottebaum (Universität Paderborn), Matts Ahlsén (CNet Svenska), Catherine Easton (Lancaster University), Bernard Van Veelen (Thales), and Christian Wietfeld (Dortmund University of Technology).

Amro Al-Akkad (Fraunhofer FIT) presented

two papers at ISCRAM 2014—one in the Social Media track and one in the Practitioner track:

- *Tweeting 'When Online is Off'? Opportunistically Creating Mobile Ad-hoc Networks in Response to Disrupted Infrastructure* co-authored with his BRIDGE colleagues Christian Raffelsberger (Alpen-Adria University of Klagenfurt), Alexander Boden (Fraunhofer FIT), Leonardo Ramirez (Fraunhofer Headquarters) and Andreas Zimmermann (Fraunhofer FIT); and
- *How Do I Get This App? A Discourse on Distributing Mobile Applications Despite Disrupted Infrastructure* co-authored with Christian Raffelsberger.

Erik Nilsson (SINTEF) presented another BRIDGE paper on in the Command and Control Studies track, entitled *Finding the best devices for emergency responders in Norway—an empirical study*. The paper was co-authored with Linda Katrine Andresen (University of Oslo).

CHI'14

26 April—1 May 2014

Amro Al-Akkad (Fraunhofer FIT) presented a paper at the SIGCHI Conference on Human Factors in Computing Systems (CHI'14) held in Toronto, Canada. The paper, entitled *Help Beacons: Design and Evaluation of an Ad-Hoc Lightweight S.O.S. System for Smartphones*, received the Honorable Mention Award, indicating that it was identified by the CHI Associate Chairs as being among the top 5 percent of all submission. The paper was co-authored with Leonardo Ramirez (Fraunhofer Headquarters), Alexander Boden (Fraunhofer FIT), Dave Randall (University of Siegen), and Andreas Zimmermann (Fraunhofer FIT). It presented the design and evaluation of a lightweight mobile S.O.S. system that facilitates ad-hoc communication between first responders and victims in emergency situations.

i-com—2014, Vol. 13, No. 1

Amro Al-Akkad and Alexander Boden (Fraunhofer FIT) co-authored a paper, entitled *Creative Usage of Available Network Infrastructure in Disaster Situations (Kreative Nutzung der verfügbaren Netzwerk-Infrastruktur im Katastrophenfall* in original), which appeared in the German-language *i-com* journal for interactive and cooperative media. The paper examined the challenges faced in situations of disrupted network infrastructures and how surviving portions of technology could be used to cope with these challenges.

CSCW—2014, Vol. 23, Issue 2

Monika Büscher (Lancaster University) wrote an article entitled *Nomadic Work: Romance*

and Reality. A Response to Barbara Czarniawska's 'Nomadic Work as Life-Story Plot'. The article was published in *Computer Supported Cooperative Work (CSCW)*, a journal that disseminates innovative research results and provides an interdisciplinary forum for the debate & exchange of ideas concerning theoretical, practical, technical, and social issues in CSCW.

STCSN E-Letter—2014, Vol. 2, No. 2

The IEEE STC (Special Technical Community) on Social Networking releases periodical E-Letters regarding special innovations and research topics covering social networks. The March 2014 issue of the STCSN E-Letter, dedicated to the topic "Social Media Analysis for Crisis Management", was guest edited by the Alpen-Adria University of Klagenfurt in the context of the EU FP7 BRIDGE Project. The E-Letter provided a project overview, described the social media analysis research and associated social, ethical and legal considerations in the BRIDGE project, and discussed related work and further activities worldwide on the use of social networks for crises management. Four BRIDGE-related articles were contributed to this issue:

- *The BRIDGE Project - Bridging Resources and Agencies in Large-Scale Emergency Management* by Hermann Hellwagner (Alpen-Adria University of Klagenfurt). This paper introduces the BRIDGE research on social networking: automatic detection of notable sub-events of a crisis from social networks.
- *Social Media Analysis for Crisis Management: A Brief Survey* by Daniela Pohl (Alpen-Adria University of Klagenfurt). This contribution summarizes important research work using social media analysis in the context of crisis management.
- *Crisis-related Sub-Event Detection Based on Clustering* by Daniela Pohl, Hermann Hellwagner (Alpen-Adria University of Klagenfurt), and Abdelhamid Bouchachia (Bournemouth University). This contribution focuses on the detection of sub-events, which are special hotspots of a crisis that emergency management teams must be aware of. This activity makes use of crisis-related information coming from citizens via social networks and thus contributes to building an improved operational picture in a crisis situation.
- *Connected Communities in Crisis* by Monika Büscher and Michael Liegl (Lancaster University). The paper discusses positive and negative frictions and avenues for socio-technical innovation that bridge between connected communities in crises and professional responders.

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

BRIDGE at a Glance

BRIDGE will build a system to support interoperability — both technical and social — in large-scale emergency management. The system will serve 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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