ICT for Emergency Management - Social Media and Semantic Web in Disaster 2.0 Project

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The Project

- "Disaster 2.0: Using Web 2.0 applications and Semantic Technologies to strengthen public resilience to disasters

- CIPS project funded by Directorate-General Home Affairs - 2 years from Sept 2011

- Objective: identify and share good practice on how these technologies can support government organisations and the public.

- Participants:

  - Academic: Aston University and The University of Warwick

  - Practitioners: Gov. organisations from 5 EU countries.

The Project 2

- Interviews are being conducted in 5 countries: Italy, Greece, Belgium, Germany, Poland

- For social media: identifying best practice

- For Semantic Web/Structured data: requirements analysis

- Outputs will include: reports, presentations, masterclasses, vocabularies/ontologies, demo software ....

Social Media - 1

- Increasing use of social media (Twitter, Facebook etc.) in disaster around the world

  - The public is communicating in new ways during natural disasters.

  - The activities of the public on social media during a disaster offer a potential new source of information for Government Organisations.

  - Social media poses new challenges around rumour and credibility, which can spread quickly.

  - It also changes the way in which the public communicate with organisations, especially in emergency situations.

Social Media 2 - what is happening?

- Social media penetration is growing across Europe

- EMA to public communication is developing e.g. Italy (forestry service), Greece (police), UK (police)

- Twitter is more effective than Facebook - reaches smartphones more effectively (Greece)

- SM integrated with Ushahidi for public information and 'C&C' (Italy forestry dept.)

**Social Network User Penetration in Western Europe, by Country, 2011-2014**
% of internet users

	2011	2012	2013	2014
Spain	53.6%	58.7%	62.8%	65.9%
Italy	52.5%	56.9%	60.3%	62.7%
UK	52.6%	55.3%	57.7%	59.9%
France	50.0%	54.0%	57.0%	59.0%
Germany	46.1%	51.1%	55.6%	58.8%
Other	48.6%	53.5%	57.8%	60.8%
Western Europe	**50.0%**	**54.4%**	**58.1%**	**60.8%**

Note: internet users who use a social network site via any device at least once per month
Source: eMarketer, Feb 2012

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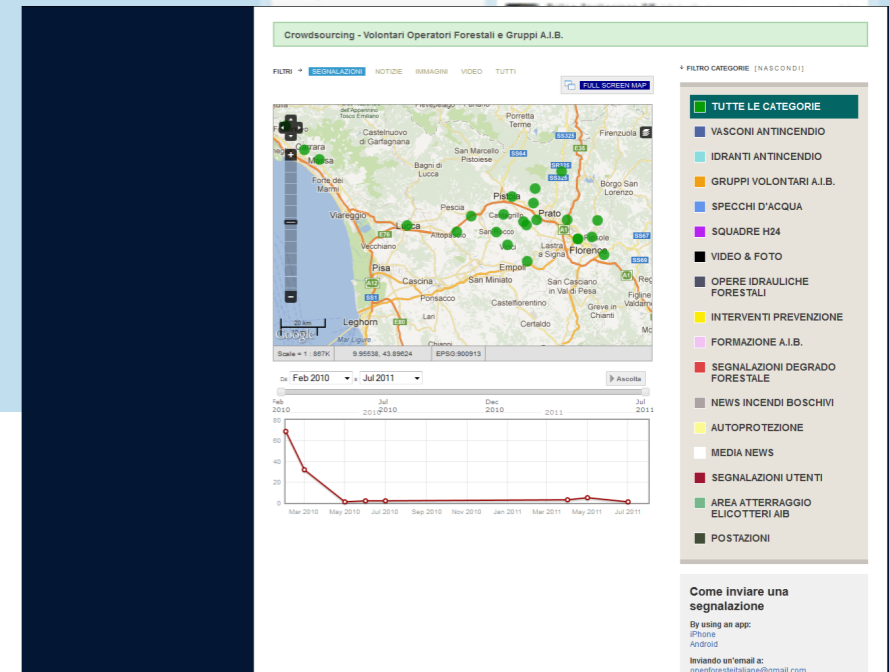
Social Media 3

- Beginnings of effort towards public to EMA communications (e.g. heat wave/tweet correlations) i.e. citizen sensors

- Awareness growing that public give "cries for help" using Twitter (e.g. Belgium) - novel conduit for 999/112

- Proposals for structured tweets exist (like Snowtweets or Tweak the Tweets) e.g. in Italy
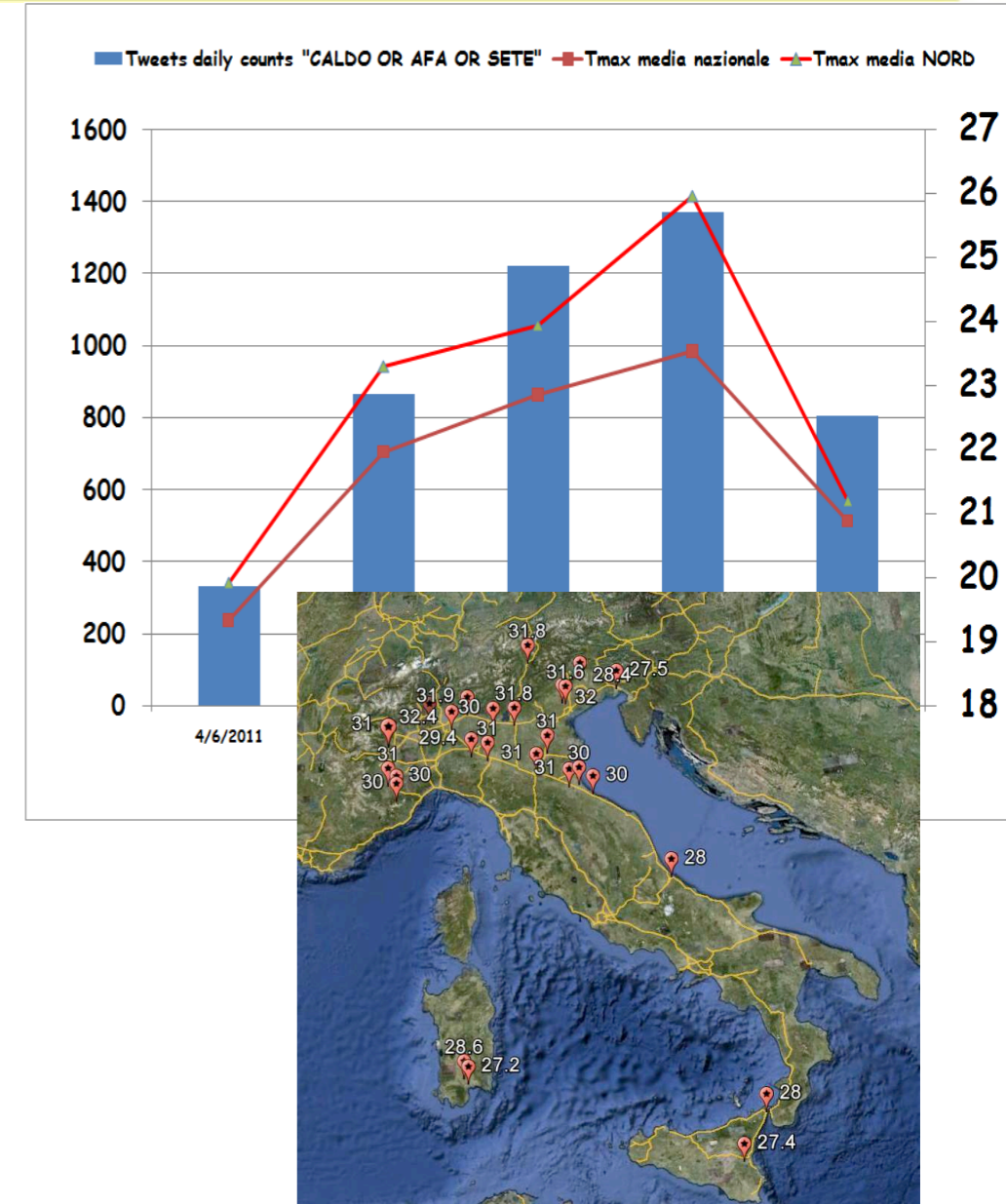
Standards and Semantic Web

- Enormous growth in use of Semantic Technologies in last decade

  - Linked Open Data/Open Data/Open Government initiatives e.g. data.gov.uk, data.gouv.fr, etc. including Finland

  - Use of Linked Data for data integration and federated queries e.g. BBC Sport/Natural History websites, integration with MusicBrainz, use by NASA etc.

- Question: What can standardised data formats and semantic technologies do for emergency management?

Semantic Technologies -2

- Identifying standard vocabularies to cover the domain

- What is covered, what is missing (e.g. type of disaster, type of damage, resources, geography, topography and hydrology, infrastructure, etc.

- With few exceptions (HXL) lack of publicly available ontologies, especially formal ontologies.

| Subject Areas/ Topics	Number of Ontologies Identified	Ontology Name(s)	Representation Language	Able to down...
Resources	1	SOKNOS resource ontology	OWL-DL	N
Processes	3	ISyCri response ontology	OWL-DL	N
		SIADEX (mainly forest fire)	Not known, developed using Protégé	N
		Ontology of Web Elements for Natural DM	XML	availabl... requ...
People	2	FOAF	RDF	Ye
		Bio ontology	RDF	Ye
Organisations	3	IntelLEO organization ontology	RDF	Ye
		organisation ontology (Epimorphics Ltd)	RDF	Ye
		AKtiveSA organisation ontology	OWL	Ye

Resources   Processes

Cadastre

Infrastru

Aston Business School

- Currently developing **scenarios** for use of SW technologies in disasters e.g. **local flooding**

  - Residents and businesses require resources

  - Distributed disaster registries

  - Providers and requesters of resources

  - Publish resources available and required as open linked data

  - Provide various data input methods + sparql endpoint

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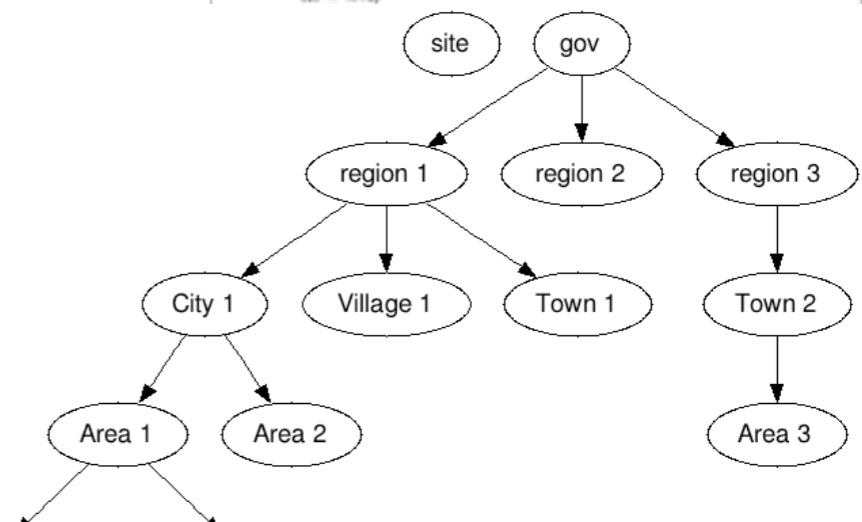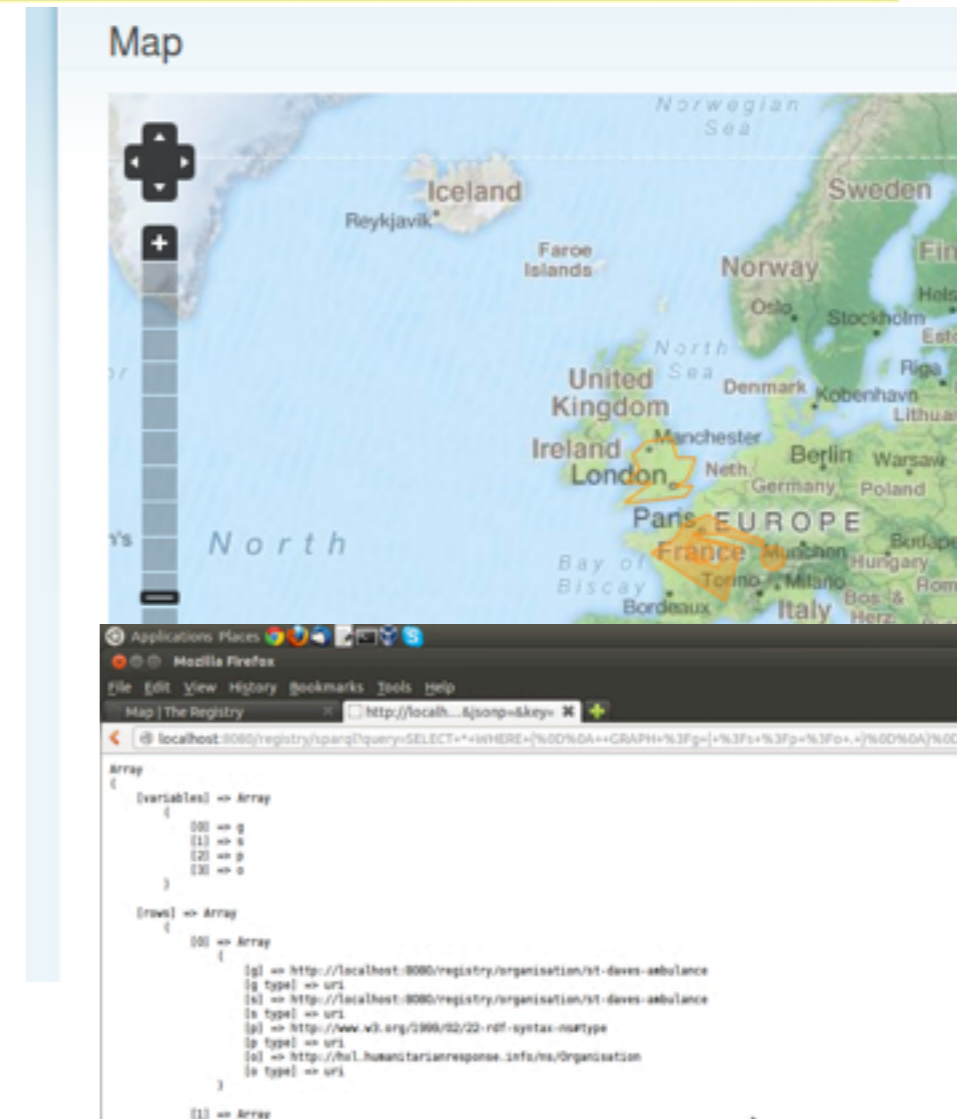
Project events

- Hackathon #1 (http://h4d2.eu)
  - 21-23 Sept 2012

- Attendees from Spain, USA, Italy, Iceland, UK

- Focus on **humanitarian software** e.g. sahana, taarifa, HXL, and automating disaster needs analyses

- Need to bring humanitarian disaster response community together with emergency management community
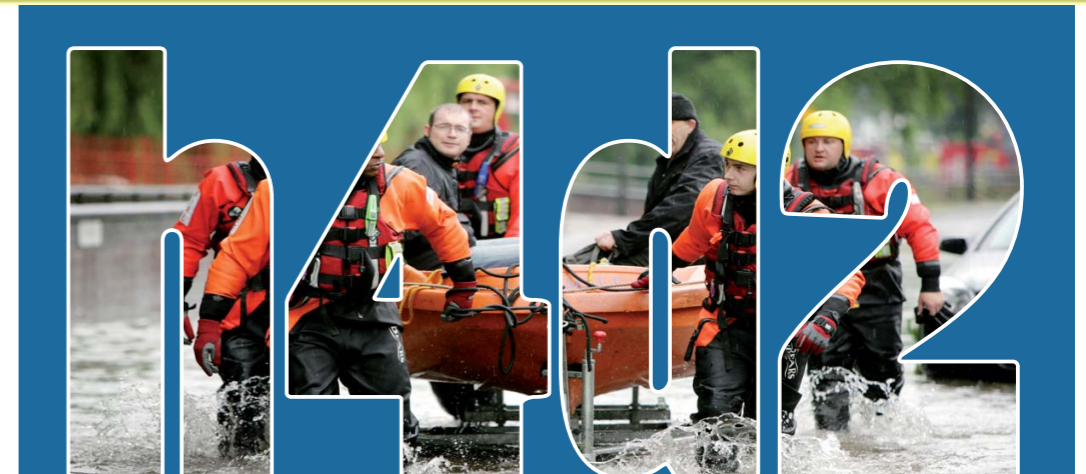
Future Events

- Masterclasses:
    - #1 5-6 November, 2012;
    - #2 16-17 January, 2013
- Hackathon #2 12-14 April,
- Conference 15-16 April, 2013

Please join us!

Conclusions

- Social media is of ever growing importance

    - some uptake by EMAs, major uptake by the public, lots of regional variation

    - major opportunity to leverage enthusiasm for humanitarian disasters   and transfer technology

- Semantic technologies fit into a networked world/ Internet of Things/Future Internet paradigm

    - Potential for lots of solutions - need to transfer visions into reality

Thank You

For further information:

http://disaster20.eu

http://h4d2.eu

http://www.astoncrisis.com

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