

RESOLUTE

Resilience management guidelines and Operationalization applied to Urban Transport Environment

DRS-7-2015 - RIA – start 1/5/2015 - end 30/4/2018 Budget 3.8M

Emanuele Bellini, Paolo Nesi

DISIT Lab, Distributed System and Internet Tech Lab
Dipartimento di Ingegneria dell'Informazione, DINFO

Università degli Studi di Firenze

Via S. Marta 3, 50139, Firenze, Italy

Tel: +39-055-2758515, fax: +39-055-2758570

DISIT Lab

<http://www.disit.dinfo.unifi.it> *alias* <http://www.disit.org> , paolo.nesi@unifi.it

DRS – 7 Understanding Topics

- 1) **survey worldwide approaches** how to define, develop, implement and evaluate resilience concepts, including relevant EU sectorial approaches.
- 2) promising implementation approaches and elements should be identified which can be adapted to one or more of the above mentioned critical infrastructures, and/or the public, and **assessed regarding their potential to serve as a basis for a general guideline on resilience assessment and implementation.**
- 3) such a general **resilience management guideline** should be developed, linked with the **EU Risk Assessment Guidelines**, and operationalized in one or more of the **security sectors, and/or the public.** The successful pilot implementation of the developed guideline need to be demonstrated and tested in an **operational environment**

DRS – 7 Understanding Impact

- the development of **European Resilience Management Guideline** and demonstration through pilot implementation;
- more **efficient uptake of risk assessments** through Member States and Associated Countries and **Critical Infrastructure Providers**; and
- more effective and coherent crises and disaster resilience management, including improved **trainings for rescuers and population engagement**.

Infrastructure Provider



Data Provider

THALES



Resilience



RESOLUTE

Balanced Consortium
(avoiding overlaps)

Transport

CERTH

Big Data Mining Smart City



Services



Dissemination



RESOLUTE Objectives

Obj1- **Conducting a systematic review and assessment** of the state of the art of the Resilience assessment and Management concepts, national guidelines and their implementation strategies in order to develop a conceptual framework for resilience within Urban Transport Systems

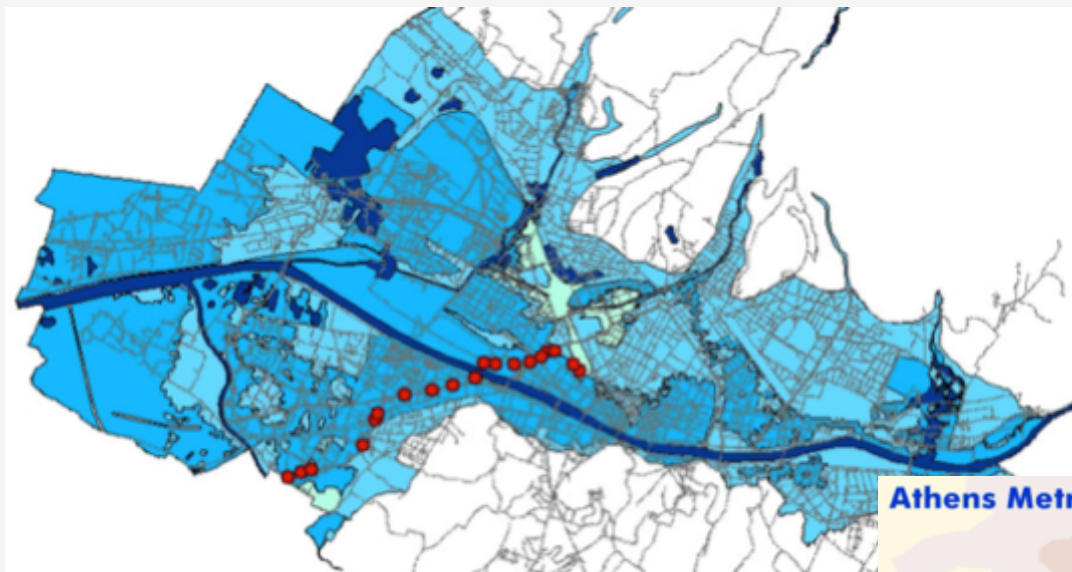
Obj2 - Development of **European Resilience Management Guidelines (ERMG)**

Obj3 - Operationalize and validate the ERMG by implementing the RESOLUTE Collaborative **Resilience Assessment and Management Support System (CRAMSS)** for Urban Transport System (UTS) addressing Roads and Rails Infrastructures

Obj4 – Enhancing resilience through **improved support to human decision making processes**, particularly through increased focus on the training of final users (first responders, civil protections, infrastructure managers) and population on ERMG and RESOLUTE system

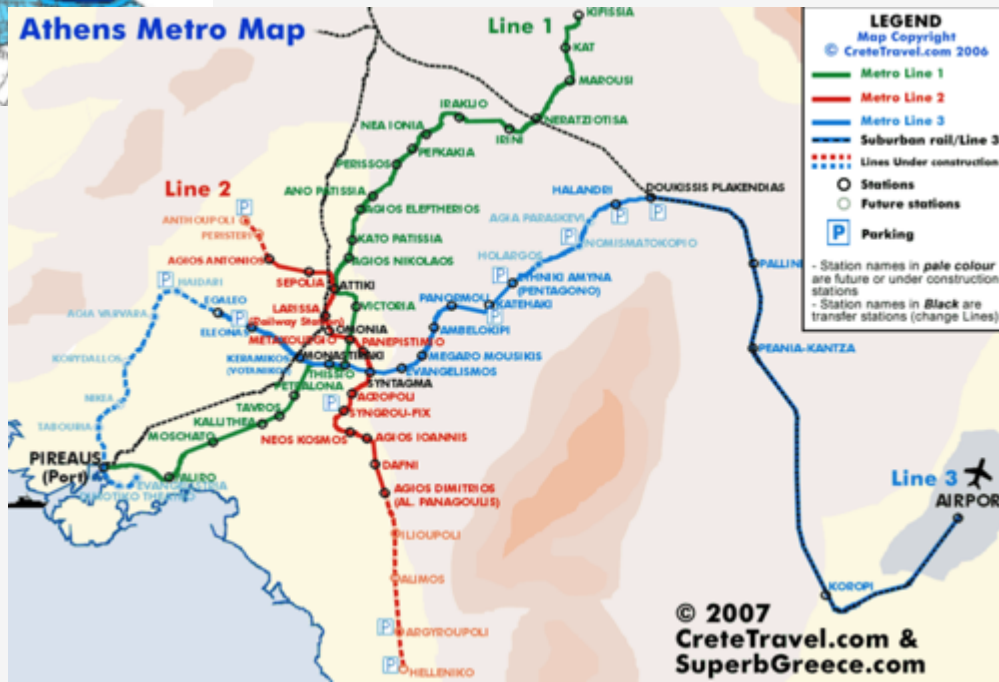
Obj5 – **ERMG wide dissemination, acceptance and adoption** at EU and Associated Countries level

RESOLUTE Pilots



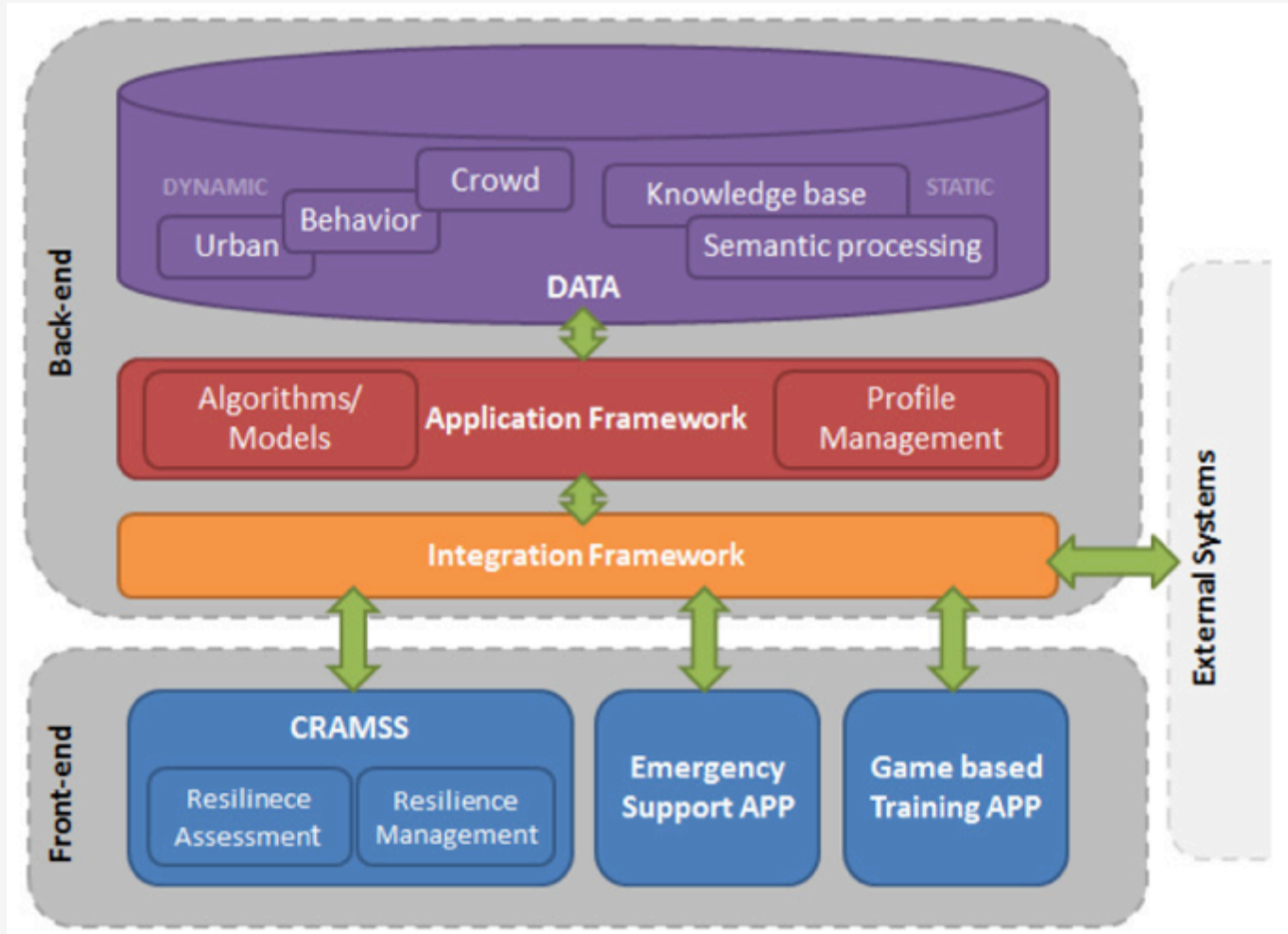
Over 70% of the city infrastructures are at Hidrogeological risk

98Km metro line
65 stations
1M passenges daily



RESOLUTE Solution

ERMG





RESOLUTE Coordinator

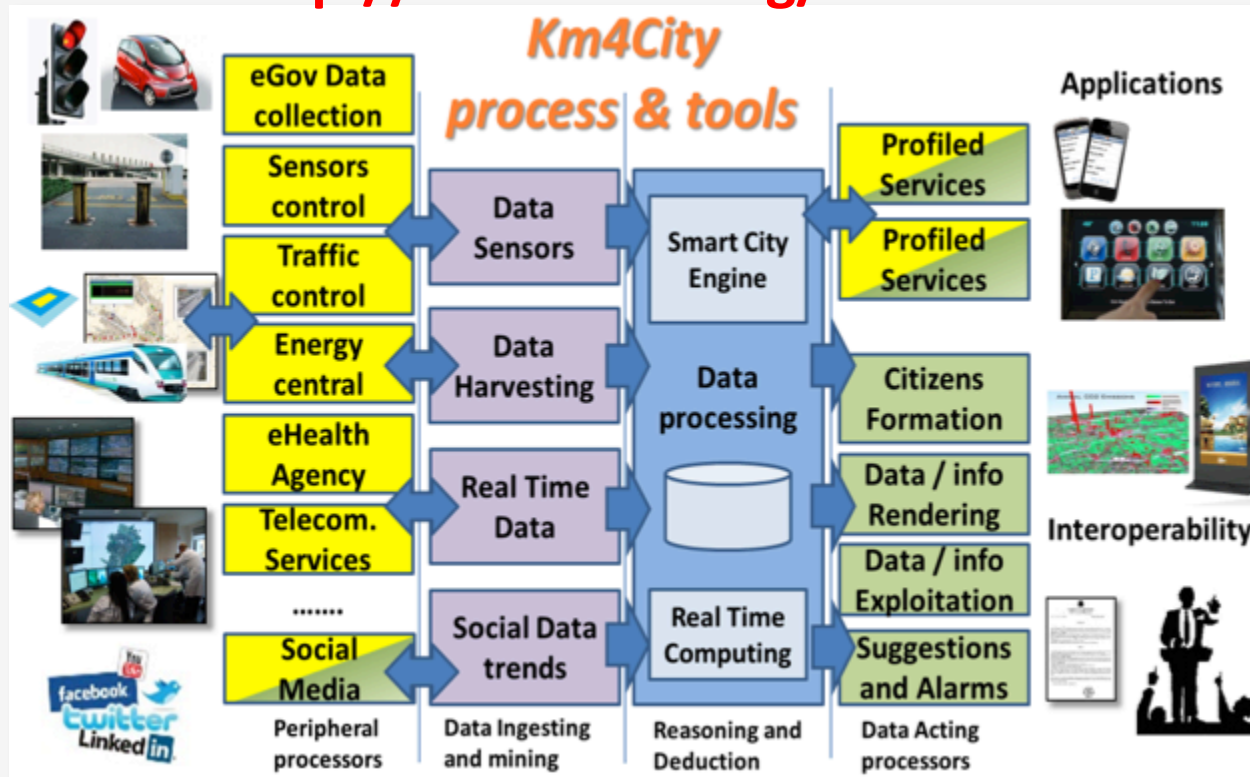
www.disit.org

Publications: <http://www.disit.org/5487>

Tools: <http://www.disit.org/5489>

- **Research areas:** big data, semantic models and computing, knowledge mining and representation, artificial intelligence, natural language processing, high performance distributed systems, ontology modelling, metrics definition and assessment, data mining and understanding, content and data licensing and protection,
- **Techniques:** data analytic, clustering, indexing and search, link discovering, regression, holistic regression, machine learning, prediction, inference, deduction, recognition, disambiguation.
- **DISIT solutions for:** user behaviour analysis, recommendation, multilingual and cross media indexing, user and collective profiling, indoor/outdoor navigation, media synchronisation, matchmaking, audio transcoding, decision support, sentient and autonomous agents and tools, open data, linked open data.

<http://www.disit.org/6056>

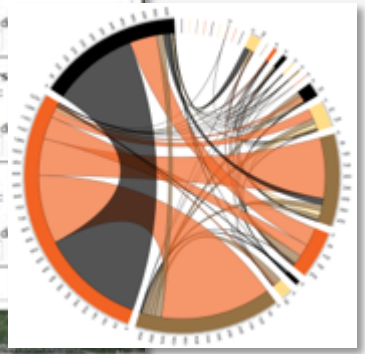


- **Open Ontology:** *Km4City*
- Aggregation Tools, Dev. Tools, Tutorials, ..
- Open Roadmap, connected projects:
 - **Sii-Mobility SCN**
 - **Resolute H2020**

- **Florence / Tuscany**
 - Static Data + Real Time Data
 - > 120 Millions of triples
- **Data:** streets, sensors, services of several kind (Gov and commercial), parking, busses, digital locations, charge points, events, weather forecast, cultural,

<http://www.disit.org/6056>

Development
tools
for km4city



<http://servicemap.disit.org>

Smart City API: <http://www.disit.org/6597>

Smart City Engine & Data Analytics

- DSS: Extended System Thinking
- Execution of algorithms and strategies
- Open Tools and APIs

km4City Browser: <http://log.disit.org>

Mobile App Demo: <http://www.disit.org/6595>

Documentation: <http://www.disit.org/6056>

Aggregation tools: <http://www.disit.org/6566>