



FIRENZE
CAPITALE
1865-2015

Workshop
Towards European Resilience Management Guidelines for
Urban Transport Systems
Florence December, 15th 2015



Florence Urban Transport Systems Resilience Planning & Pilot design

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www.resolute-eu.org #RESOLUTE

RESOLUTE Integrated approach in Florence Pilot



Civil Protection

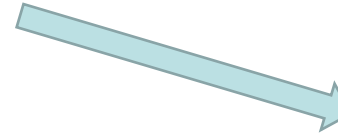
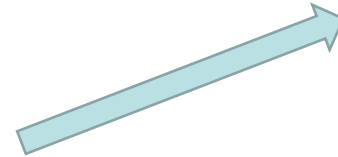
(Emergency Plans)

IT

(data&digital channels)

Mobility

(Traffic Supervisor, Mobility design)



**Integrated Planning process
(WP3)**

**Integrated actions in pilot execution
(WP6)**

Traffic Supervisor

Collection of sensor data

Traffic light control

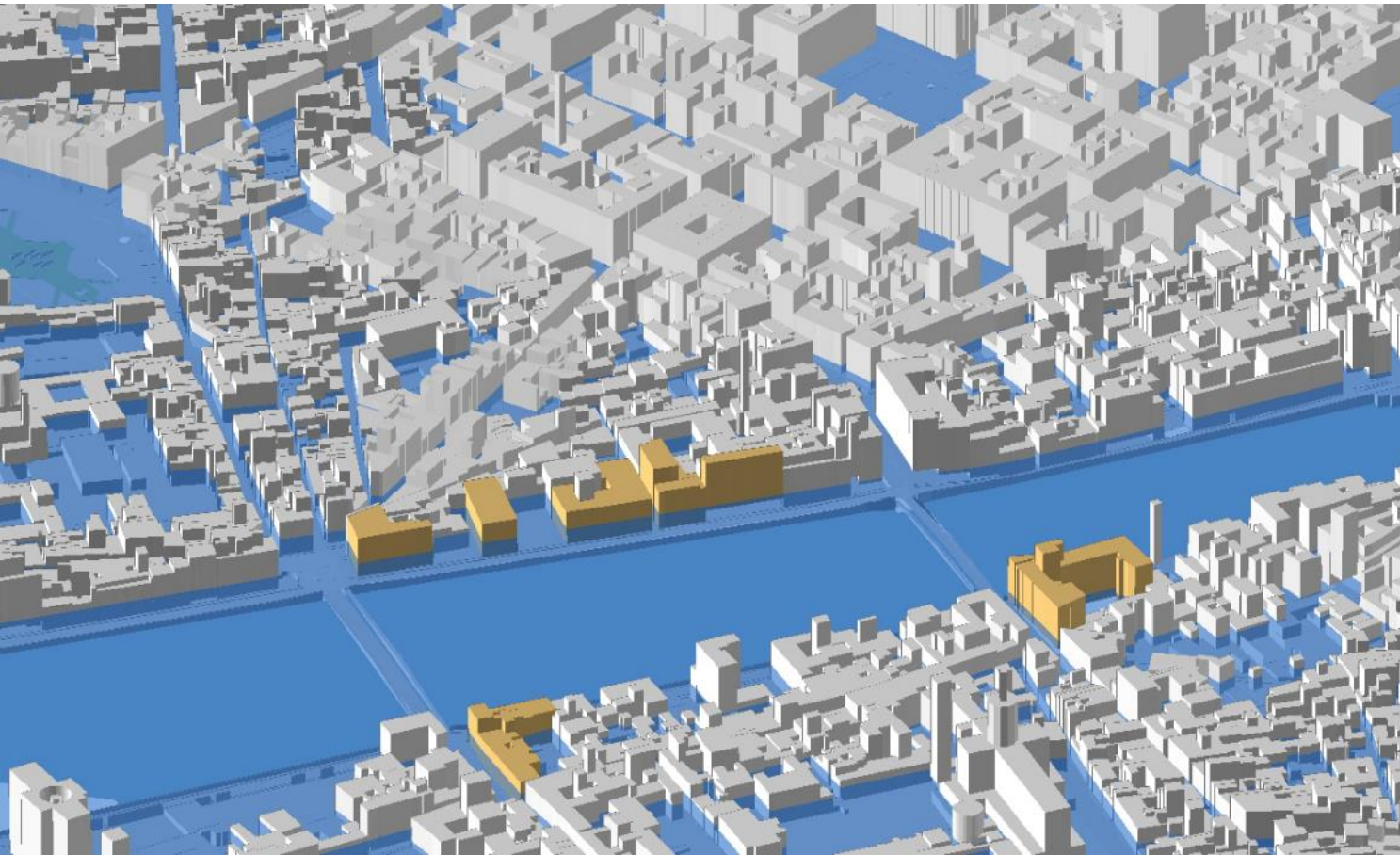
Distribution of messages to digital channels

Re-configuration of traffic flows/graph

Simulation of traffic scenarios



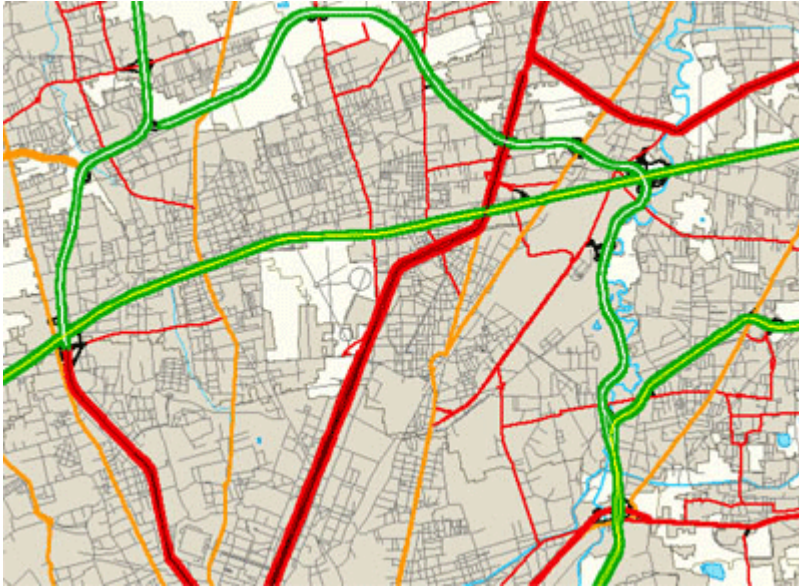
OpenData & GIS data management for Resilience



Tacheometric 1:500 mapping
+ LIDAR data + Ortophoto

used to analyse in 3D affected
buildings in '66 Arno flooding

Traffic Supervisor & Civil Protection



Matching
Traffic Monitoring & Management
With
Civil Protection flooding data
And many other data....



Re-engineering internal procedures of:
Civil Protection
Local Police
Mobility Offices

Supporting decisional processes

By offering data & information in realtime

Information retrieval for resilience

Knowing our territory
in emergency

strategic dataset assessment
from Civil Protection:
i.e., those dataset used for
planning & for emergency
reaction

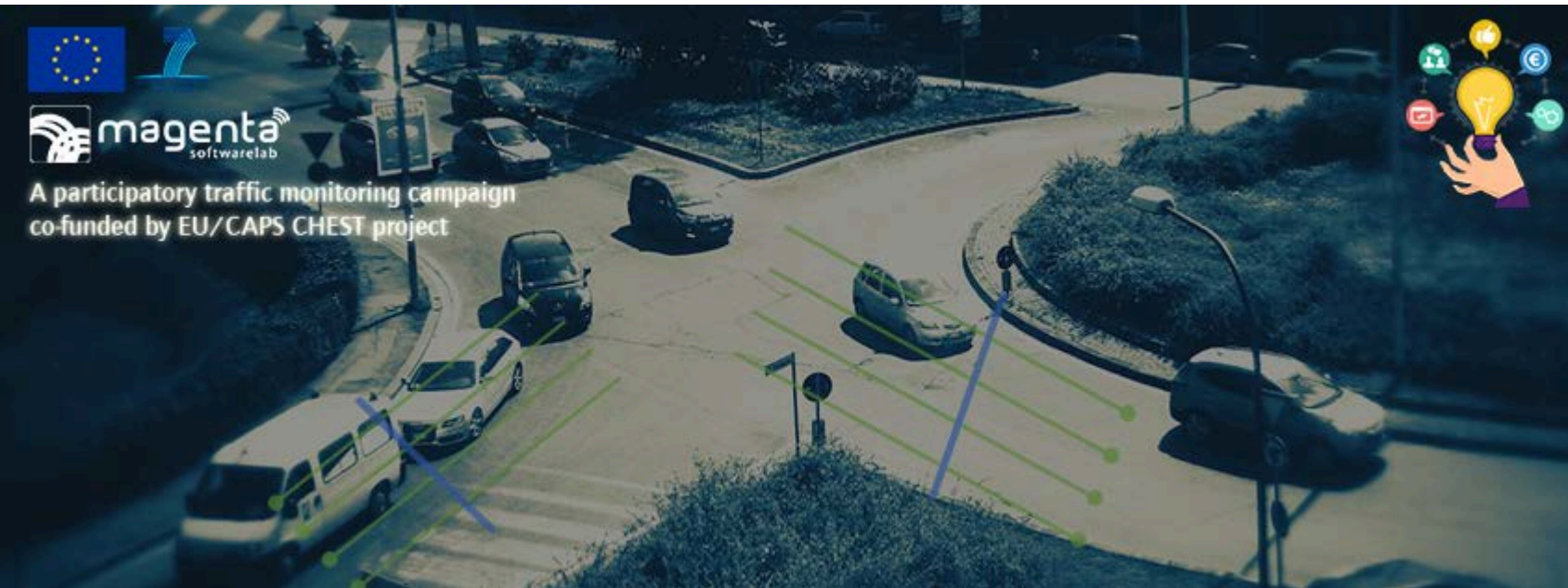
For internal «manual» dataset:
Awareness enforcement on data quality via
formal communications to data owners from
IT and Civil Protection to each data-owner
dept

For internal «realtime» sensor dataset:
Collection of different sensor data to Civil
Protection CRAMMS RESOLUTE
dashboard

For external dataset:
New contacts with external data-owners to
raise awareness on the importance of
sharing and maintaing with us those data

using resilience as a trojan horse
to promote
Internal & external processes integration

Realtime mobility data



First dataset within EU-funded project CHESTRFLOW with a local startup & Florence Metropolitan City Authority

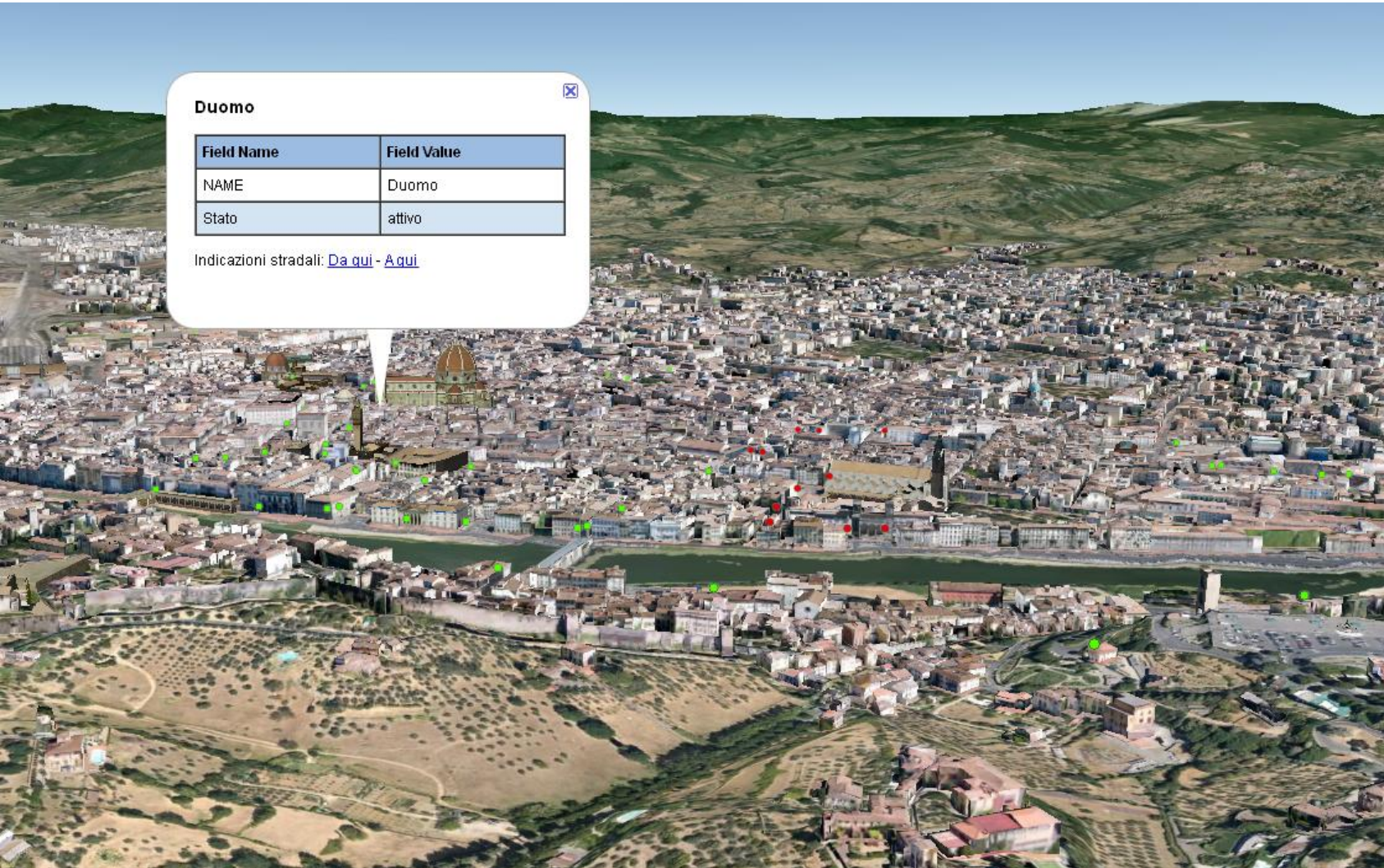
7 sensors in Florence collecting traffic data each hour

To be published within days:
realtime indoor parking
availability

Next: ongoing partnerships with other utilities to collect
realtime data from their operational car fleet

Public WiFi as a strategic asset for resilience

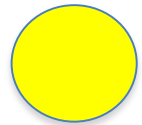
People flow analysis for
evacuation planning



Captive page for
broadcast&localised alerting



Civil Protection & Digital channels selection

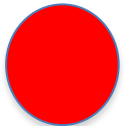


Yellow-level
emergency alert

Channel	IN: only internal staff OUT: citizens
SMS	IN
INFOSOC system -> (Facebook, Twitter, App Infosoc)	OUT
Press release	OUT



Orange&Red-level
emergency alert



Channel	IN: only internal staff OUT: citizens
SMS	IN
FAX	IN
EMAIL - PEC	IN
INFOSOC -> (Facebook, Twitter, App Infosoc, Home page CdF website)	OUT
Press release	OUT
Variable Mess Display (Silfi – Ataf)	OUT
Alert System (upon decision)-> App Alert System	OUT
Alert System message on Civil Protection website	OUT
Splash page FirenzeWiFi city & tramline	OUT

Resilience in Road underpasses

1. Maintenance of road paveway to prevent/reduce flooding
2. Awareness of citizens with alert signs
3. Reaction to flooding through sensor → red light alert & message to Traffic Supervisor
4. Control of the situation of the flooded underpass with videocameras



Critical System Functionalities for Florence Pilot

Power supply to Municipality Data Center & Civil Protection Headquarter
Data and their H24x7 availability to the Crisis Unit at Civil Protection HQ
Sensors on WiFi network, road underpasses, traffic monitoring
Traffic Supervisor
ATAF AVM & Tram Line Supervisor
Digital communication channels
(website, apps, digital signage)



Multi-department Resilience Planning



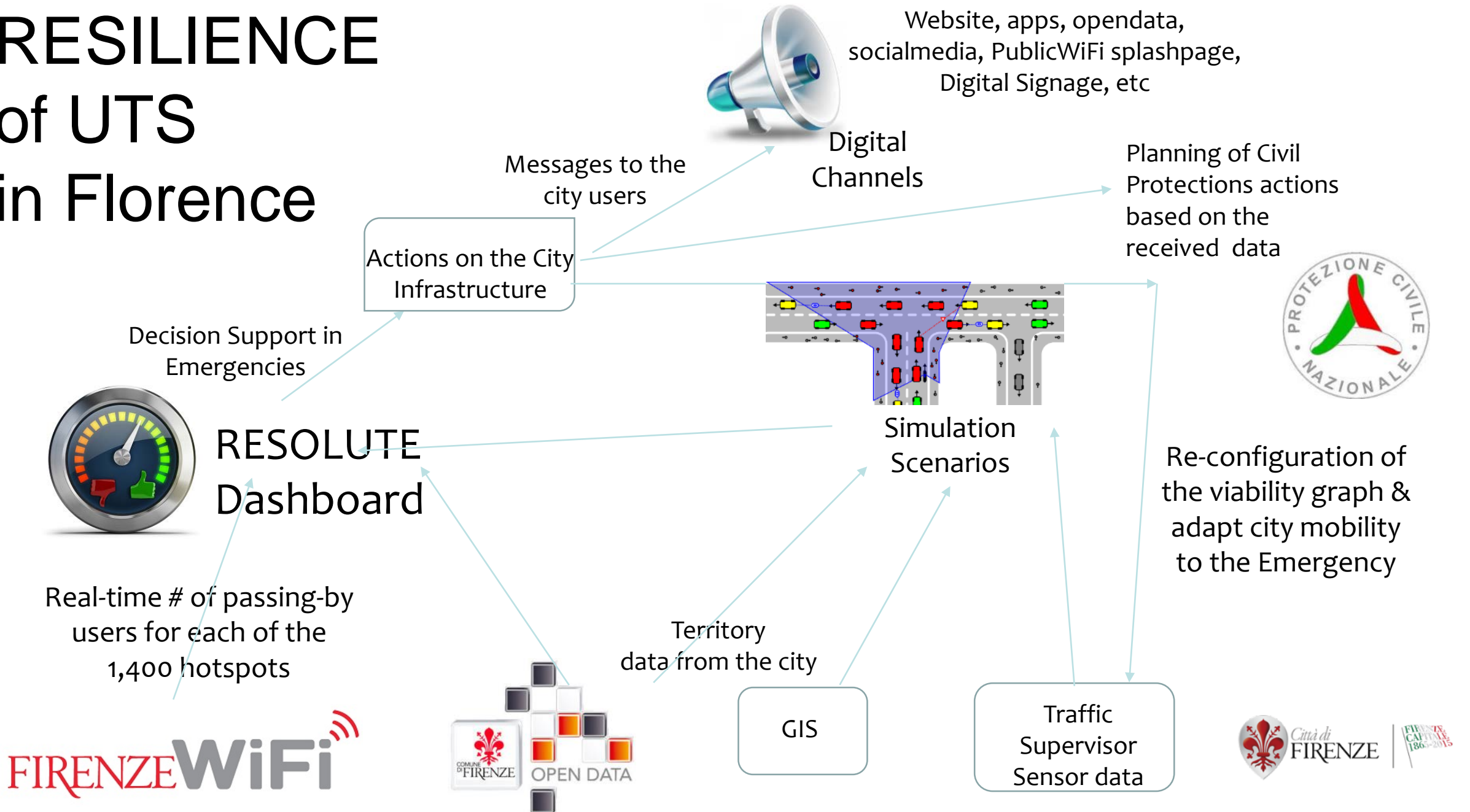
Mobility
GIS
IT
Civil Protection

Analysis of flooding
behavior

Scenarios definition

Street traffic graph
simulation &
modelling

RESILIENCE of UTS in Florence





Città di
FIRENZE

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SMART FLORENCE PLAN

**Vision: planning for a better
life**

targets for 2050

KPLs



COMUNE DI
FIRENZE



September 2015 (adopted)

MILESTONES in changing a mindset



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1966 – a 200-years scale flood in Florence, the first in our industrialized, urbanized era, attracting attention from world media

1970^s, 1980^s, attempts of national legislation about environment protection and emergency management

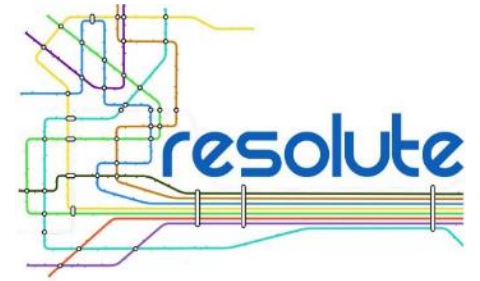
Law 225/1990 – the key role of the Municipality in emergency management is recognized

2010 – Zero Growth Structural Plan
(zero volume=zero emission)

2015 – Municipal Emergency Management innovative by law



Florence's Resolute partners work in progress



- Improving our capacity and ability of PREPARE – ABSORB – RECOVERY – ADAPT
- MATCHING “old” (CO2 emissions, residents, commuters, energy use, public utilities availability and efficiency, etc.) and “new” INDICATORS (people connected to wifi hotspots, disabled or elder people living alone, smart meters coverage, trees' health, etc.)
- Facing not only national and European legislation, but also social, environmental and sustainability challenges for which smart and resilient city plans should be a container par excellence
- Improving Emergency Management Plans, relying on Resolute ERMG



RESOLUTE Methodology in Florence Pilot

Resilience Phase	Main actions
PREPARE	<ul style="list-style-type: none">• Definition of Strategic Dataset for Civil Protection• Collection of people flow data through Public WiFi network• Optimization of sensors data collection• Simulation & Emergency Mobility Graphs definition• Check of digital channels available to alert people of upcoming dangerous weather conditions
ABSORB	<ul style="list-style-type: none">• Use of digital channels to alert people to avoid dangerous areas (underpasses flooded, parks with strong wind, etc) during natural events• Analysis of people flow data to manage evacuation• Sensor data analysis for decision support• Crisis Unit gathering & decisional process
RECOVER	<ul style="list-style-type: none">• Application of Emergency Mobility Graph• Re-routing of traffic• Re-routing of Tram Line during Arno River flooding at Tram Line bridge in Cascine park
ADAPT	<ul style="list-style-type: none">• Frequent adaptation of Civil Protection Plans according to RESOLUTE working actions• Suggestions for strategic urban planning (long-term policies for urban sustainability and resilience)



020
-20
CO2

Adaptation and Mitigation
Plan (under construction)

Towards FLORENCE Resilient city



Mayor's Adapt
(october 2015)



Compact of Mayors
(october 2015)



100 Resilient Cities
(proposal submitted –
under evaluation)



*The challenge to become a city more resilient
to environmental, economic and social changes*

THE MOST RELEVANT SHOCKS AND STRESS

SHOCK

Hurricane, Typhon, Cyclone

Heat wave

Rainflad fooding

Earthquake



STRESS

Lack of affordable housing

Overtaxed/ under developed /
unreliable transport system

Poor Air Quality/Pollution

Intractable homelessness



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PIONEERED BY THE
ROCKEFELLER FOUNDATION

100

RESILIENT CITIES



WHAT'S FOR THE 100 RESILIENT CITIES

Establishment of Chief Resilience Officer (CRO)

CRO Service for coordination of projects on resilience

Membership in the 100 Resilient Cities network to share knowledge and practices with other member cities

Access to an innovative platform of services to support strategy development and implementation



Covenant of Mayors:
Sustainable Energy
Action Plan



-21% CO₂
(target)

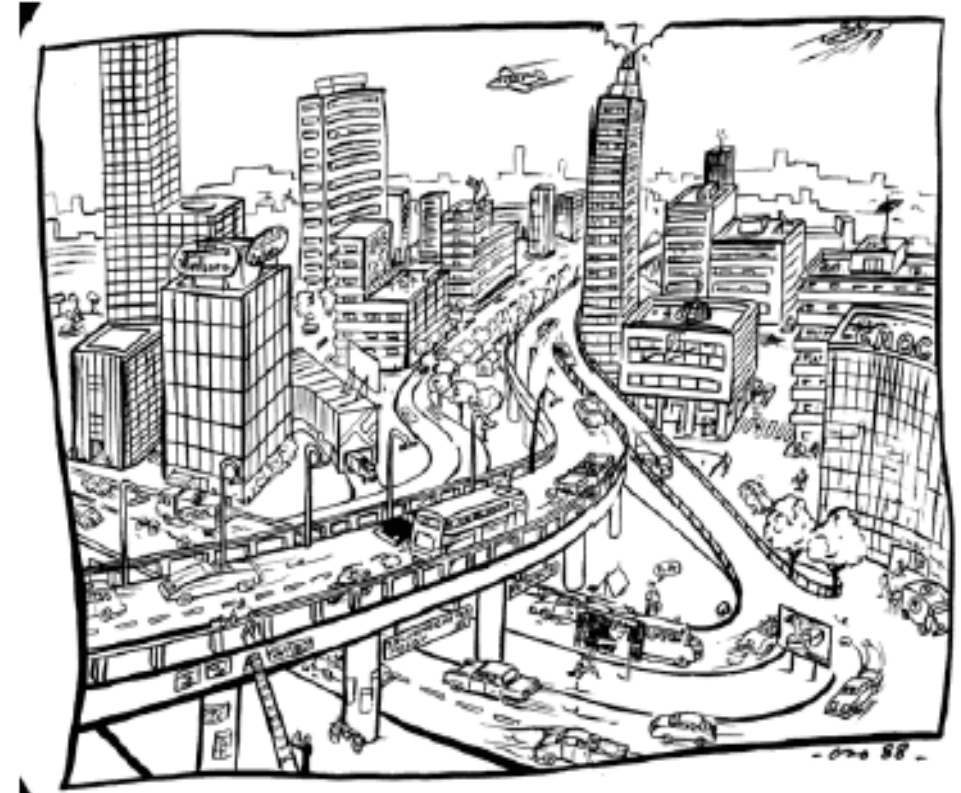
Mayors Adapt

Reducing emissions into
atmosphere

and make the city able
to react immediately to
the big events



Not only mitigate but
Adapt to climate changes





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EXCHANGE BEST PRACTICE: READY TO LEARN AND TEACH



THE COVENANT OF MAYORS INITIATIVE
ON ADAPTATION TO CLIMATE CHANGE

TWINNING MAYOR ADAPT

CITY TWINNING

Florence

Lisbona



THE CLIMATE CHALLENGES

Extreme temperatures

Flooding

Storms



Thank you!

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for any further info



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