



CAP to protect Cultural Heritage in Italy

Gathering and sharing data in emergency between rescue services and cultural heritage protection bodies

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Italian National Fire Corps (CNPVVF)



Italian National Fire Corps (CNPVVF)



- Fire protection rules
- Fire safety controls on high fire risk buildings (> 100.000/year)
- Controls on “Seveso” plants (> 300)
- Fire safety controls on radioactive substances storage buildings
- Fire safety controls on Cultural Heritage buildings



- 16 Canadair CL 415
- AB 412
- 2 Piaggio P180
- Sikorsky
- Erickson S64F
- UAVs



3 central training centers

- Divers stations
- Floods rescue
- Harbors Fire service



CNVVF interoperability policy: CAP adoption



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115 Numero d'emergenza

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Dipartimento dei Vigili del Fuoco, del Soccorso Pubblico e della Difesa Civile

CORPO NAZIONALE DEI VIGILI DEL FUOCO

Emergenza e soccorso | Prevenzione e sicurezza | Difesa civile | Formazione

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Decreto 23 maggio 2011

È stato pubblicato nella Gazzetta Ufficiale n. 142 del 21 giugno 2011 Il decreto che definisce il profilo del protocollo CAP del Corpo Nazionale dei Vigili del Fuoco. Con questo decreto "Approvazione del profilo del protocollo per la trasmissione dei dati ai fini della cooperazione applicativa con i servizi di emergenza di cui al decreto 17 giugno 2008", il Dipartimento dei Vigili del Fuoco del soccorso pubblico e della difesa civile ha adottato il "Protocollo CAP Vigili del Fuoco". Grazie alle dettagliate specifiche contenute nel "Protocollo CAP Vigili del Fuoco e modalità preferenziali di trasmissione", pubblicato nella sezione apposita del sito, tutti gli Enti che operano nel soccorso potranno autonomamente dotarsi di strumenti per lo scambio di dati informatici con le sale operative del Vigili del Fuoco che rispettino gli standard prescritti. Il decreto ha lo scopo di presentare la tabella di validazione dei messaggi di allerta CAP ricevuti e inviati dai sistemi di Sala Operativa del Corpo Nazionale dei Vigili del Fuoco da/a Enti concorrenti nelle attività di soccorso e assistenza al cittadino, qualora siano in vigore convenzioni bilaterali conformi al modello approvato dal Ministero dell'Interno, Dipartimento dei Vigili del Fuoco, del Soccorso Pubblico e della Difesa Civile. La tabella riporta il comportamento dei sistemi di Sala Operativa del Corpo Nazionale dei Vigili del Fuoco nei casi di non conformità dei messaggi, siano essi messaggi di allerta CAP aderenti al "Profilo CAP Vigili del Fuoco" o meno.

Le nuove prescrizioni e requisiti del "Profilo CAP Vigili del Fuoco" non contraddicono i requisiti richiesti dallo standard CAP. I messaggi di allerta conformi al "Profilo CAP Vigili del Fuoco" sono tutti e sempre conformi allo standard CAP. Il Corpo

Allegati

- Decreto CAP n. 71 del 23-05-2011
- Profilo italiano VVF CAP e FEED
- Decreto 17 giugno 2008

Organizzazione

Corpo nazionale Version

Organigramma

Attività Istituzionale

Lavora con noi

Siti web VV.F.

Uffici sul territorio

Amministrazione Trasparente

Amministrazione On Line

Le APP del VV.F.

Servizi di Prevenzione Incendi

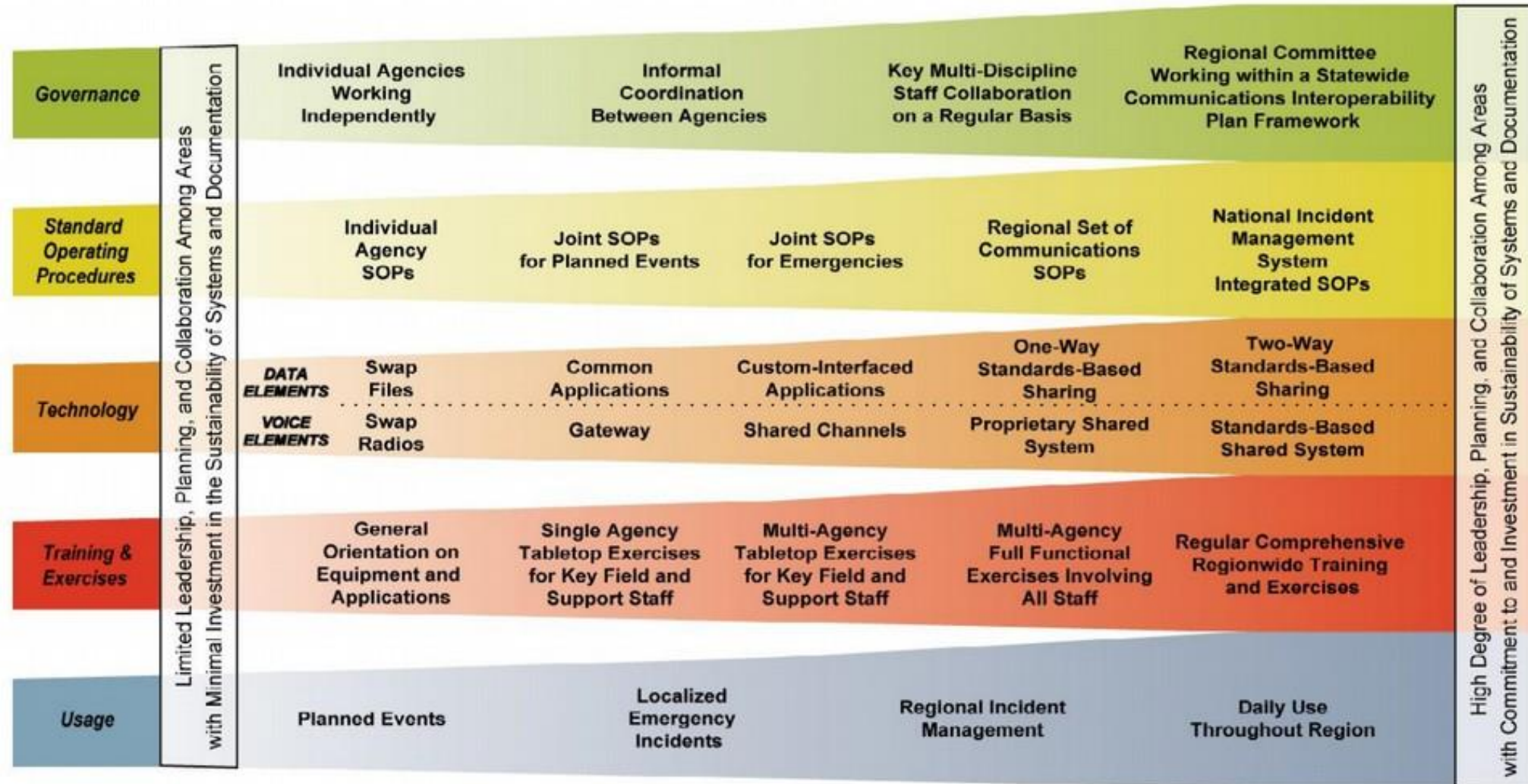
Relazione Tecnica on-line

Norme di Prevenzione Incendi

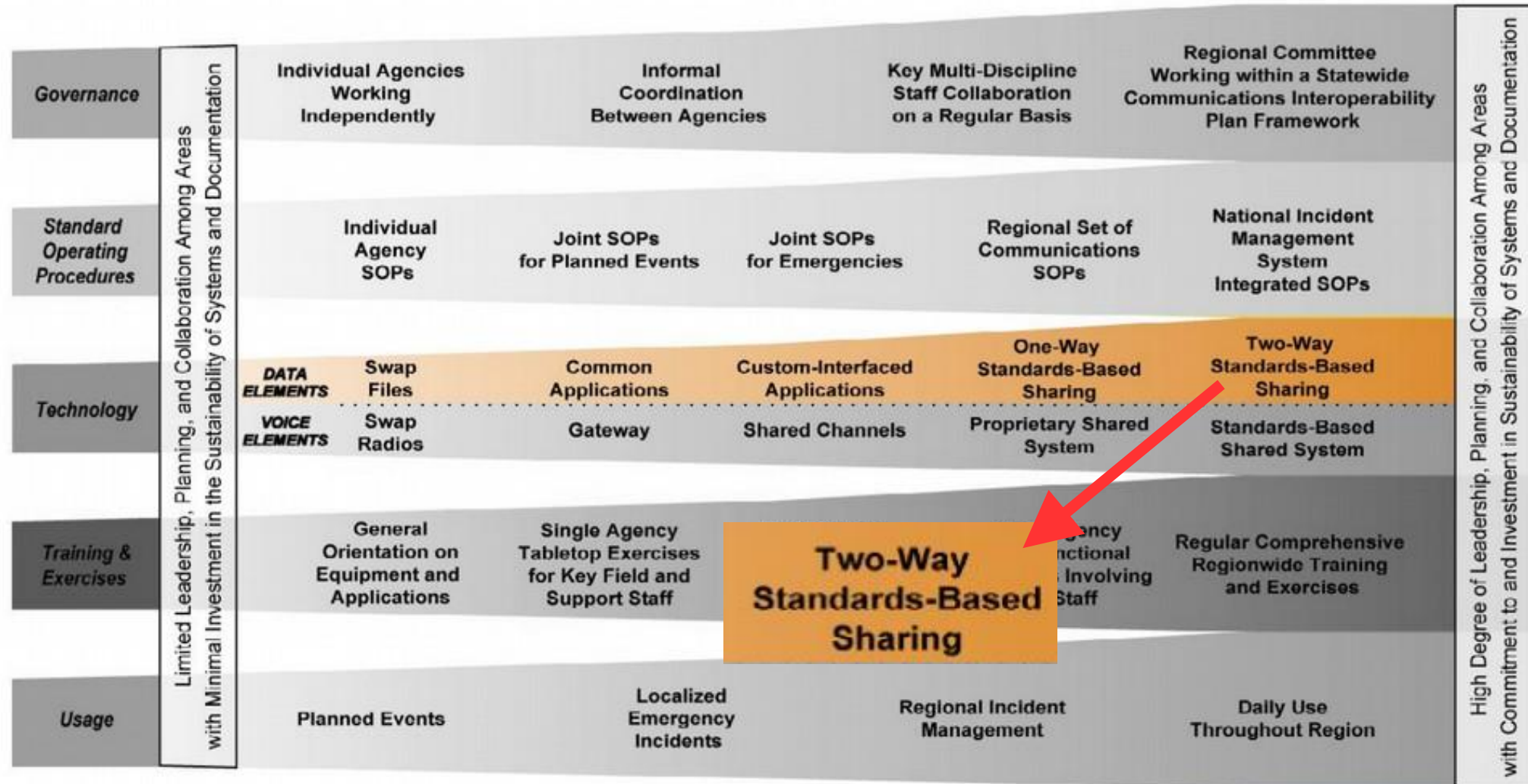
Quesiti di Prevenzione Incendi

Agenda on-line

Interoperability between emergency stakeholders. U.S. DHS interoperability continuum



Interoperability between emergency stakeholders. Focussing on data interoperability



Interoperability btw emergency stakeholders: Cultural Heritage data sharing



The Italian National Fire Corps operational data sharing initiative is continuously progressing since 2008

The number of rescue Authority and stakeholders which share operational data with CNVVF increase constantly

Each data sharing is based on a formal agreement and often raises issues which call for specific activities to speed up further deployments.

We will present here a new initiative aimed at gathering and sharing data in emergency between the Italian National Fire Corps and Cultural Heritage (CH) protection bodies

Data sharing for Cultural Heritage



The first attempt to implement interoperability into emergency management processes was focused on data exchange between Fire Corps officers and Cultural Heritage experts, to facilitate cooperation when designing and deploying provisional works on the damaged listed buildings and churches in the aftermaths of L'Aquila 2009 earthquake



Sharing data with Ministero dei Beni Culturali (Cultural Heritage Authority)



A formal agreement **is going to be negotiated**

The EU Innovation Action IN-PREP includes research to improve preparation to protect Cultural Heritage

- Cultural Heritage Authority (MIBAC) will provide real-time access to Cultural Heritage geo-referenced lists (Vincoli in Rete) to Italian National Fire Corps (CNRVVF) Control Centres
- CNRVVF will notify MIBAC in real-time details of emergency-related activities which could impact specific Cultural Heritages



Cultural heritage and Fire Corps operations. Daily emergencies. Rationale

Whenever a cultural heritage asset is involved into an emergency (e.g., flood, fire, earthquake, collapse,...), the acting first responders should be fully aware of it, so as to steer their decisions accordingly.

Unfortunately, this is not always the case. In fact, sometimes the involvement of cultural heritage assets is not easy to spot.

All of the following scenarios highlight the level of damages which could be avoided if first responders are aware a cultural heritage asset is involved.



Cultural heritage and Fire Corps operations. Use case #1: Daily emergencies

Summertime. Multiple wildfires rage across the area. Firemen are not enough to extinguish all of them, so that they place themselves near a cluster of houses to protect them. Waste burn here and there within the fields. They could not be aware that a specific bunch of wood and plastic which is on fire in the middle of nowhere is indeed the provisional roof of valuable archaeological excavations, which will remain vulnerable to weather elements from now on.



Villa Faragola,
Ascoli Satriano,
6 September 2017



Cultural heritage and Fire Corps operations. Use case #2: Daily emergencies

Autumn. Firemen help citizens escaping from their cars stuck into a road flooded due to the rupture of a water conduit. The water is flooding into the neighboring nondescript field. They are not aware that that same field is indeed part of an important archaeological site which will remain flooded for long.



Cultural heritage and Fire Corps operations. Use case #3: Daily emergencies

Downtown. Firemen fight against fire within an apartment and pump water which soon after leach down to the apartment below. They could remain unaware that water is damaging a ceiling with valuable frescoes and paintings held by a private owner.



Cultural heritage and Fire Corps operations. Use case #4: Daily emergencies

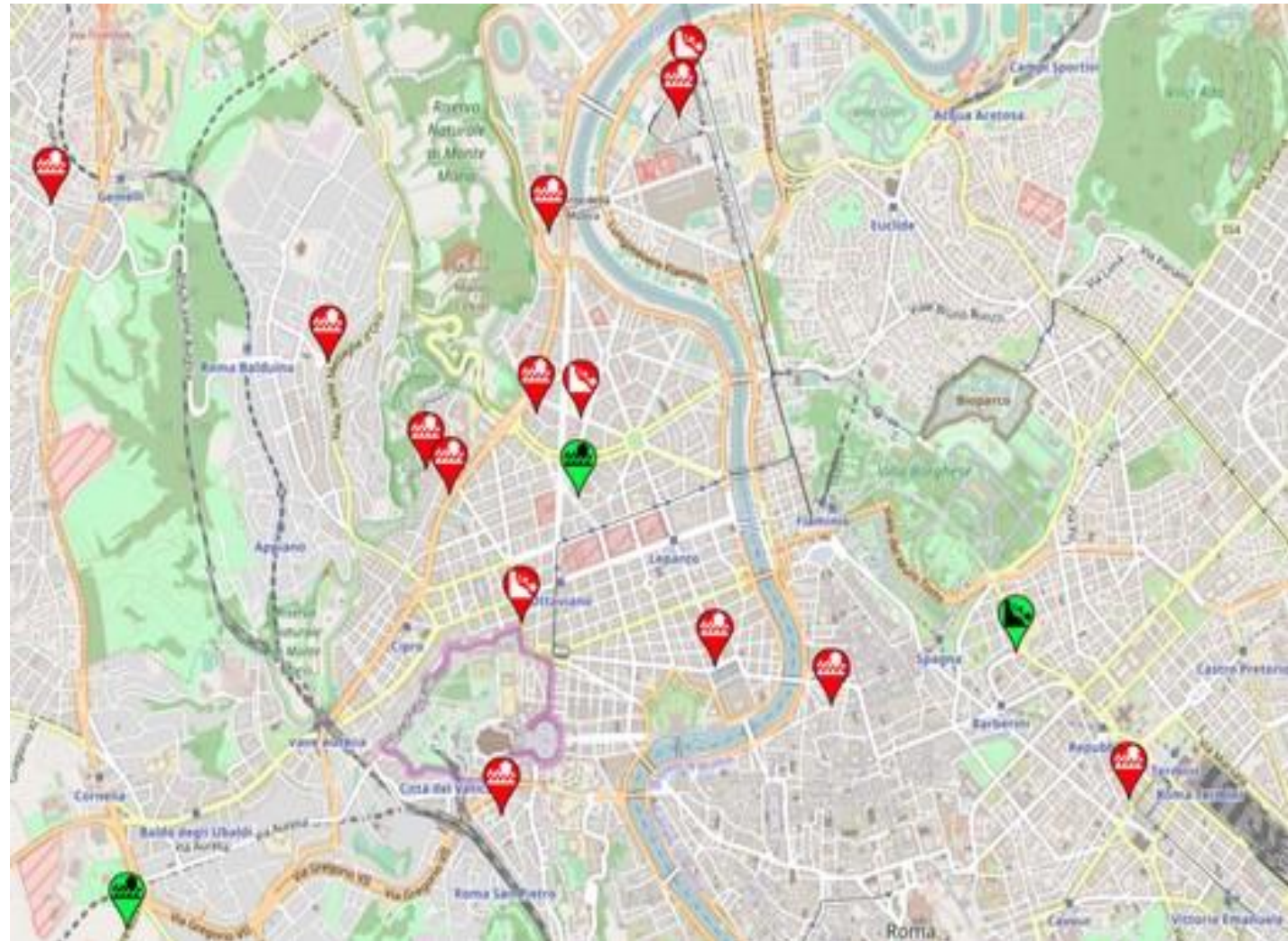
Downtown. A suicide attempt causes the explosion of gas accumulated into the kitchen and a partial collapse of the small building. Firemen excavate to ensure no one could be trapped below. Unaware that the building includes part of an ancient monument, firemen could procure unnecessary damages to the monument.



Cultural heritage and Fire Corps operations. Daily emergencies. Rationale (1)

First responders awareness (that a cultural heritage asset is involved) would be systematically improved if their Control Centres implemented a service able to raise an alert whenever an incident falls within a certain distance from cultural heritage assets.

Such alert will be presented to the Control Centre operator and sent to previously identified contact points into the Authority competent over the concerned Cultural Heritage asset.



Cultural heritage and Fire Corps operations. Daily emergencies. Rationale (2)

Competent Authorities over the different type of Cultural Heritage assets are numerous and often not ready to answer to calls anytime, anywhere.

As soon as first responders will be notified of the involvement of cultural heritages, they will look for specialised expertise.

Real-time access to CH list will provide details of the concerned Authority, so that precious time will not be wasted.



Cultural heritage and Fire Corps operations. Gaps

Lists of Cultural heritage assets are stored in several databases, which overlaps, and use different formats, protocols and access policies.

As it stand, most databases are not able to share their data with rescuers in a standard and automatic way.

Luckily, Vincoli in Rete - <http://vincoliinrete.beniculturali.it> – features a single access interface and assign a unique identifier to each asset.

Cultural heritage and Fire Corps operations. Vincoli in Rete (1)

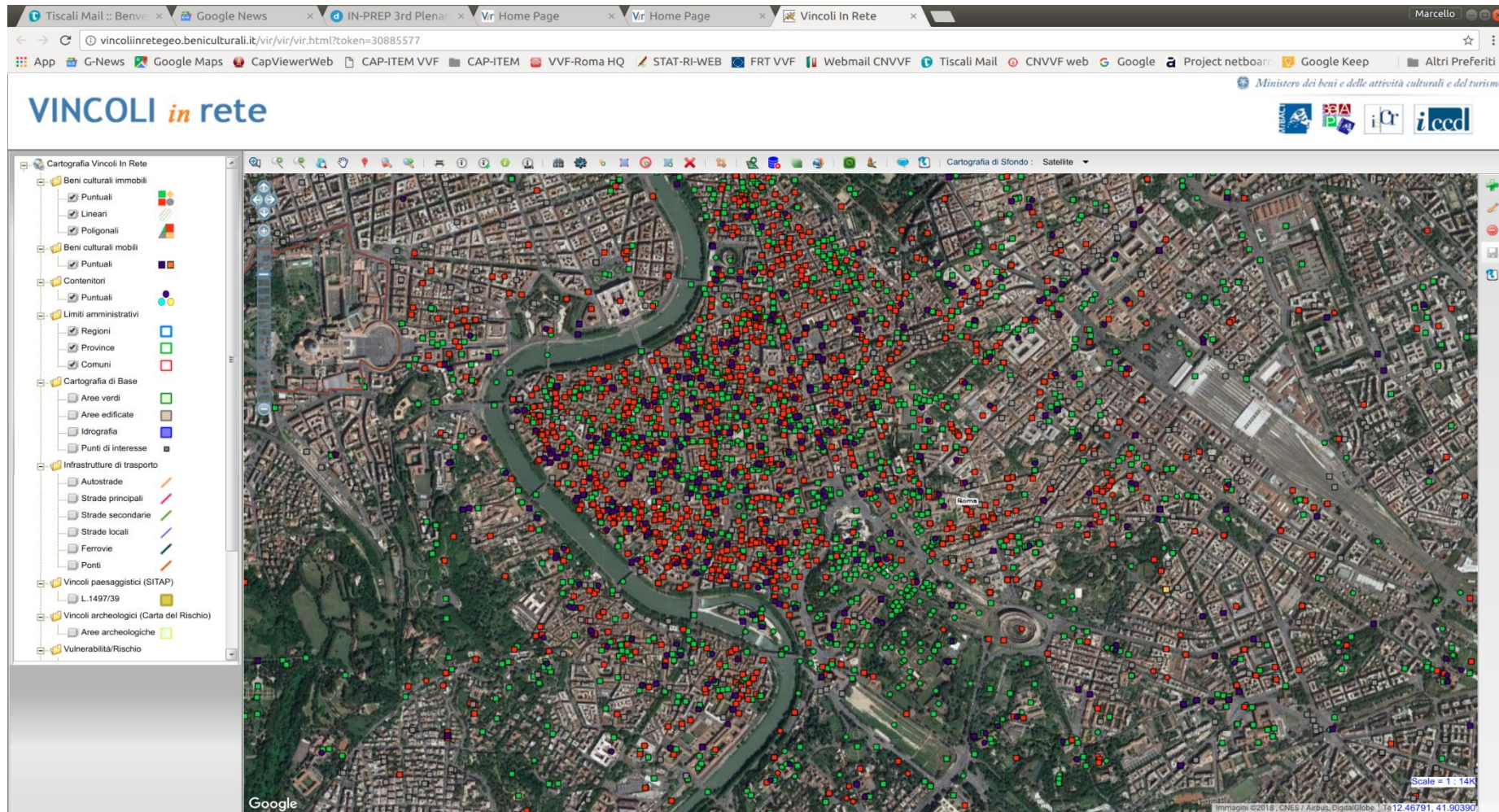
The *Vincoli in Rete* system (www.vincoliinrete.beniculturali.it) is run by the *Istituto Superiore per la Conservazione ed il Restauro* - Ministero dei Beni e delle Attività Culturali (MIBAC) to provide services to access CH lists.

The available CH data is actually stored and maintained by several National and local Authorities in the following systems:

- Carta del Rischio (www.cartadelrischio.it)
- Sistema Informativo Beni Tutelati (www.benitutelati.it)
- SITAP (www.sitap.beniculturali.it)
- SIGEC Web (www.sigecweb.beniculturali.it)
- Geoportale nazionale (www.pcn.minambiente.it)

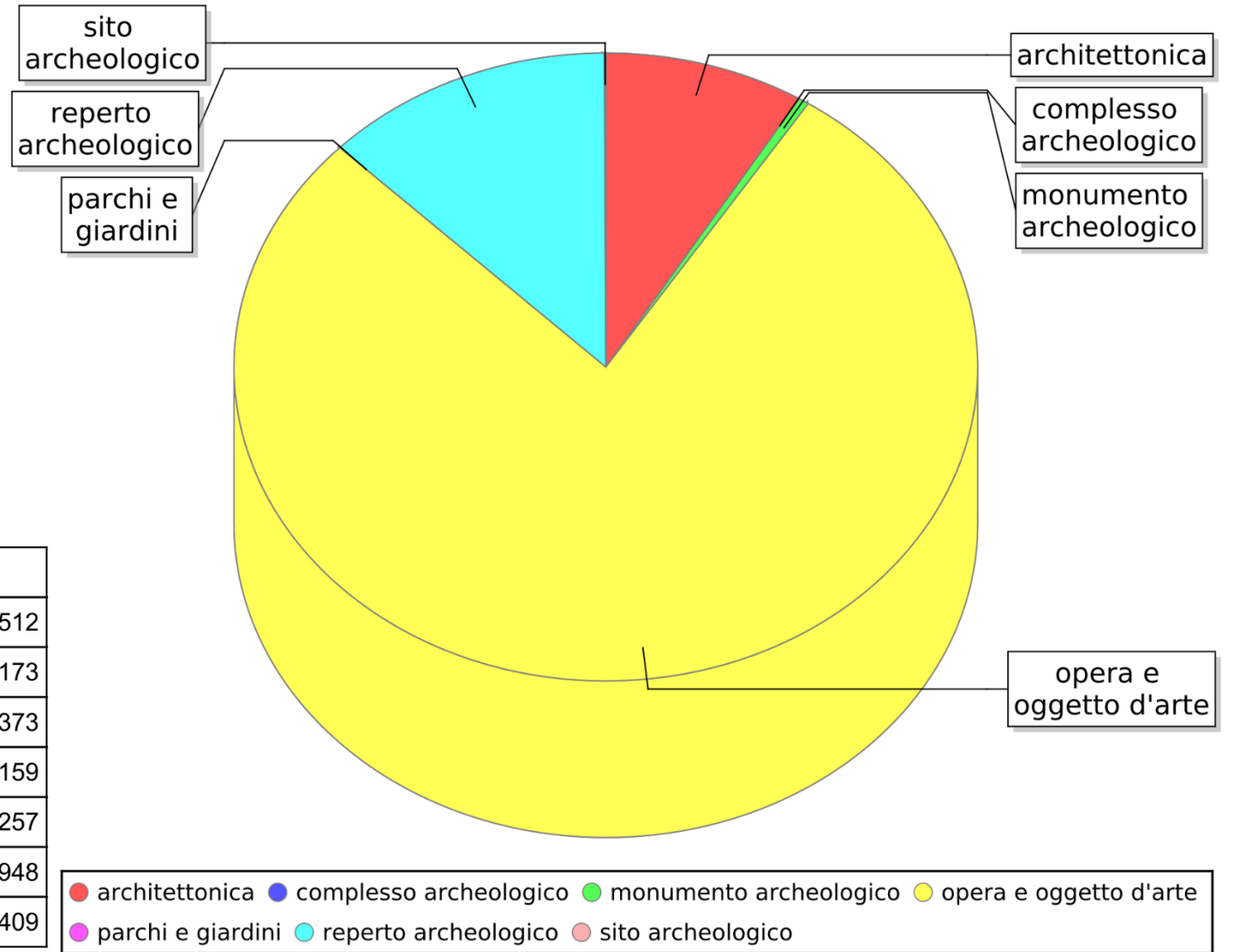
Cultural heritage and Fire Corps operations. Vincoli in Rete (2)

www.vincoliinrete.beniculturali.it



Cultural heritage and Fire Corps operations. Vincoli in Rete (3)

www.vincoliinrete.beniculturali.it



Tipo scheda	Totale
architettura	198512
complesso archeologico	173
monumento archeologico	10373
opera e oggetto d'arte	1783159
parchi e giardini	257
reperto archeologico	287948
sito archeologico	1409

Cultural heritage vs. Fire Corps interoperability service. Functional description.

The CH interoperability service is part of the Fire Corps interoperability system. The following steps apply:

- Whenever a CAP issued by any Fire Corps Control Centre meet the predefined rule (e.g., the incident type is fire, flood, explosion, WUI fire), its coordinates and accuracy (circle parameters) are extract to call the dedicated Beni Vincolati web service.
- The Beni Vincolati web service apply an algorithm to extract the nearest 5-10 Cultural Heritage sites and provides their details back to the Fire Corps service.
- The list is proposed to the concerned Control Centre operator, who cross-check it with the information provided by the citizens and the officers in place. When he receives a confirmation that one or more of those CH assets are potentially impacted, he selects it/them.
- Such selection triggers the generation of dedicated CAP messages addressed to the CH Authority.

Cultural heritage vs. Fire Corps interoperability service. Benefits (1)

The CH interoperability service provides the following benefits:

- The Beni Vincolati system obtains a continuous flow of information on incidents impacting Cultural Heritage assets. Registering them on the asset record will surely facilitate restoration activities planning and implementation.
- The Beni Vincolati system obtains confirmation of the location of the concerned asset. In fact, the system contains hundreds of thousands of assets, some of which are located through inaccurate texts provided tens of years ago. The service will provide systematic updates of the asset location, sanctioned by a public officer, overall the Country.

Cultural heritage vs. Fire Corps interoperability service. Benefits (2)

The CH interoperability service provides the following benefits:

- The Fire Corps officers obtain reliable information on the potential impact of any incident over Cultural Heritage assets. Having such information, the officers can – between others - modify the incident priority, raise the awareness of the officers in place and/or contact straight away the competent Authority.

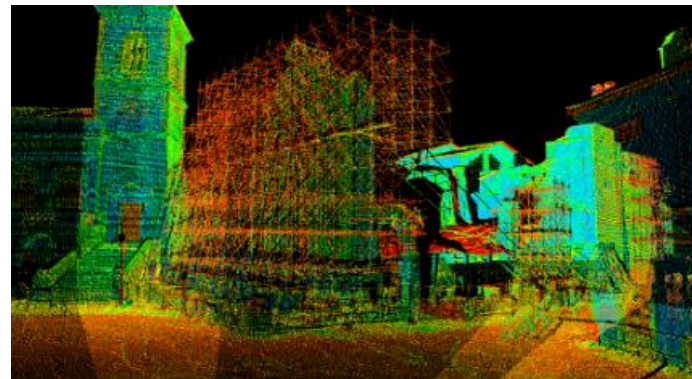
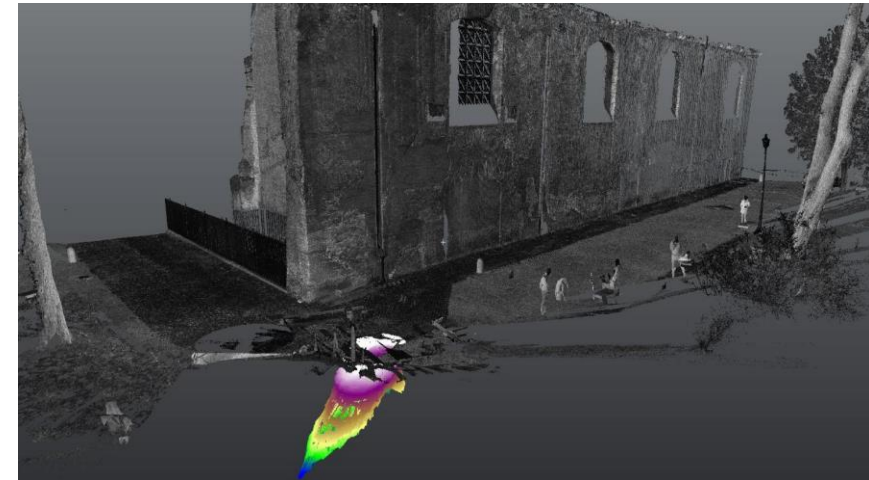
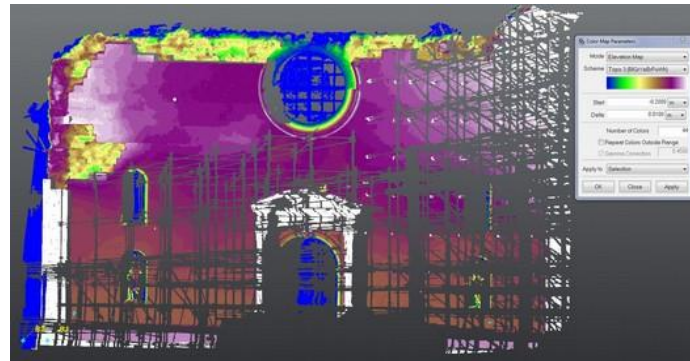
In the near future, the service will be able to provide the following benefits too:

- The Fire Corps will automatically forward Cultural Heritage assets-related photos and videos captured in the very first phase of the emergency, and as such facilitating the restoration activities to come.

Cultural heritage vs. Fire Corps interoperability service. Benefits (3)

In the near future, the service will be able to provide the following benefits too:

- The Fire Corps will automatically forward Cultural Heritage assets-related 3D point clouds retrieved through Laser Scanner and Imaging systems as recently tested.



Cultural heritage vs. Fire Corps interoperability service. Benefits (4)

In the near future, the service will be able to provide the following benefits too:

- Fire Corps and MIBAC will be able to cooperate remotely accessing Cultural Heritage assets-related 3D point clouds retrieved through Laser Scanner and Imaging systems.



Cultural heritage and Fire Corps operations. Interoperability service. Open issues (1)

The CH interoperability service raises a number of issues to be tackled in time:

- Quality of geodata: how to deal with the different level of location accuracy?
- Completeness of the data: how to assess if the CH asset is vulnerable to specific hazards?

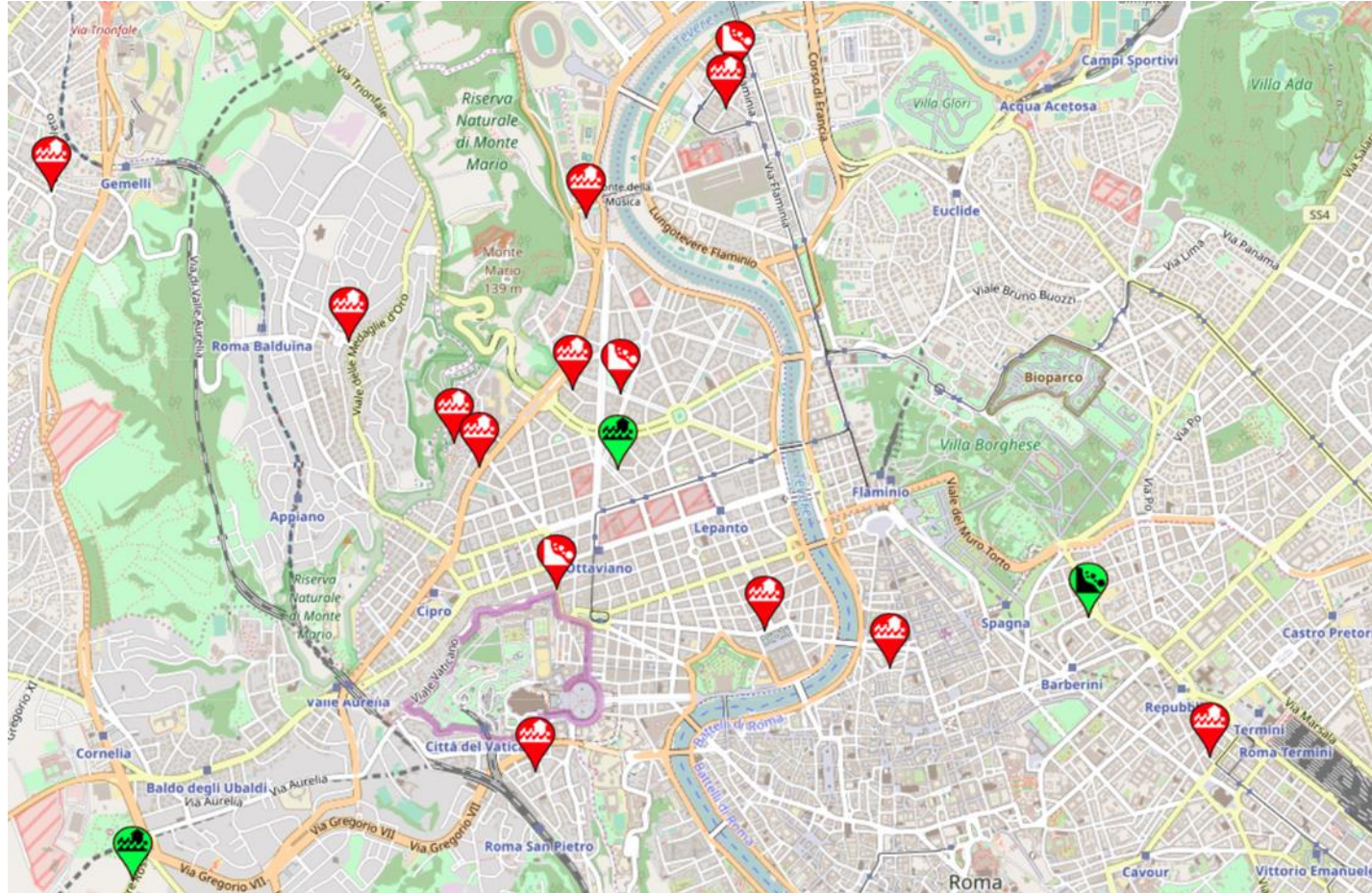
E.g.,

- Is it vulnerable to fire?
- Is it hypogean? Is it vulnerable to water/flood?
- How to ensure security for CH assets (e.g., paintings) owned by private citizens?



MINISTERO DELL'INTERNO

DIPARTIMENTO DEI VIGILI DEL FUOCO DEL SOCCORSO PUBBLICO E DELLA DIFESA CIVILE



Thank you