



POLITECNICO
DI MILANO



Research Group Cartography
at Department of Geodesy and Geoinformation
at Vienna University of Technology

Wien, January 16, 2015

Via Regina: using FOSS4G for slow tourism

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Marco Negretti and Giorgio Zamboni



The paths of Via Regina project

INTERREG project (Cross-border Co-operation Operational Programme Italy – Switzerland 2007-2013) which aims at valorizing the cross-border area between Italy and Switzerland covered by many historical paths departing from the old Via Regina.



Aims

- Valorization of the territory and cultural heritage through the preservation and enhancement of the available historical paths
- Use of geospatial technology for disseminating knowledge, protecting the natural resources and promoting tourism thanks to the environmental and cultural wealth of the territory
- Development and implementation of innovative technological tools such as:
 - multidimensional visualization
 - participation
 - augmented reality





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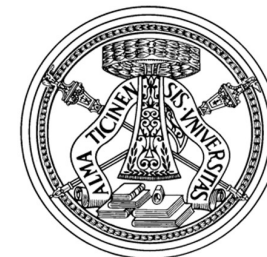
Partners



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Scuola universitaria professionale
della Svizzera italiana

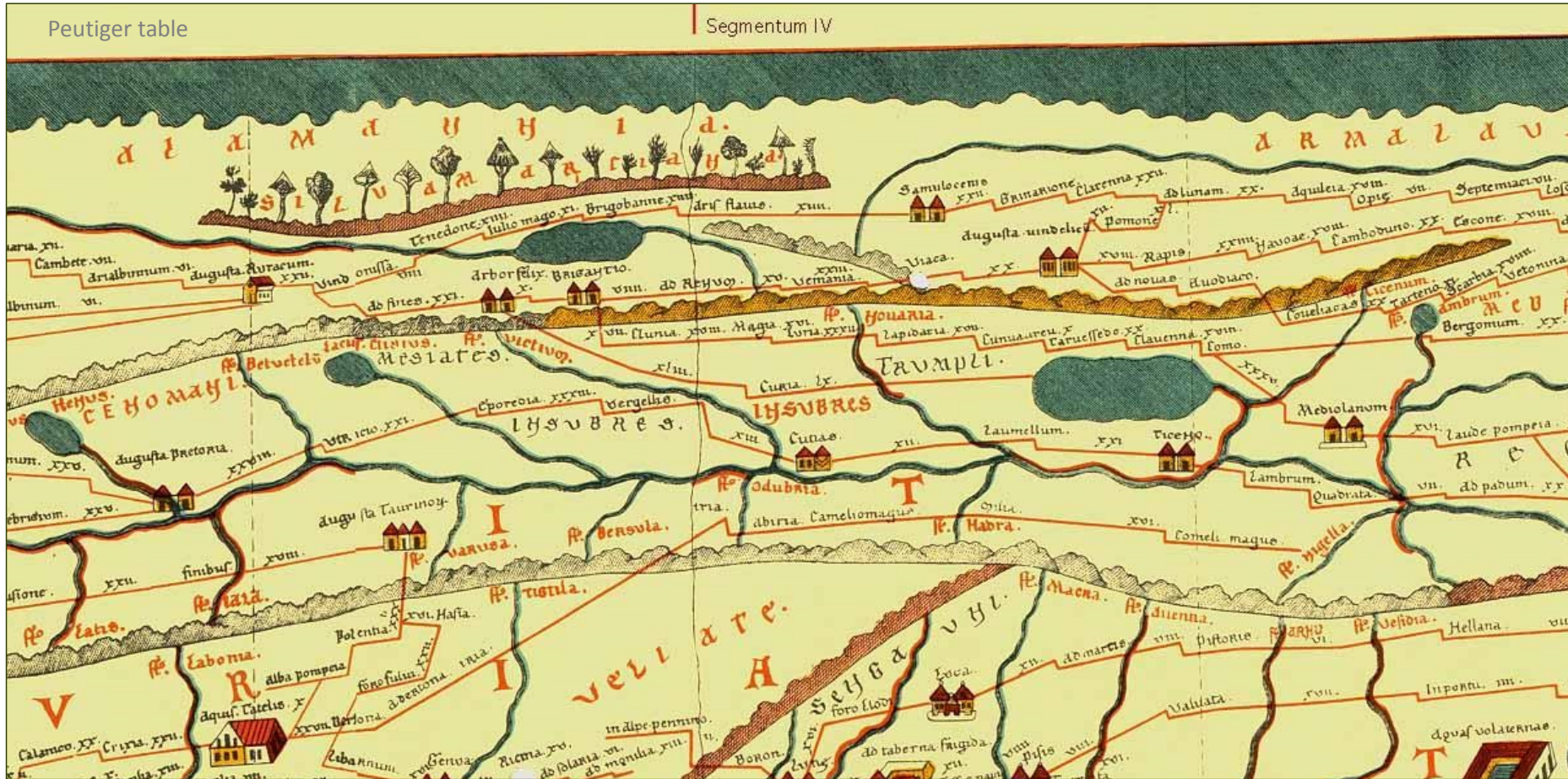
SUPSI



MU. V.I.S
Museo della Via Spluga
e della Val San Giacomo



What is Via Regina?



What is Via Regina?



Via Regina is one of the oldest paths for historical and cultural exchanges between

Italy and Switzerland.



I CAMMINI DELLA REGINA
percorsi transfrontalieri legati alla Via Regina

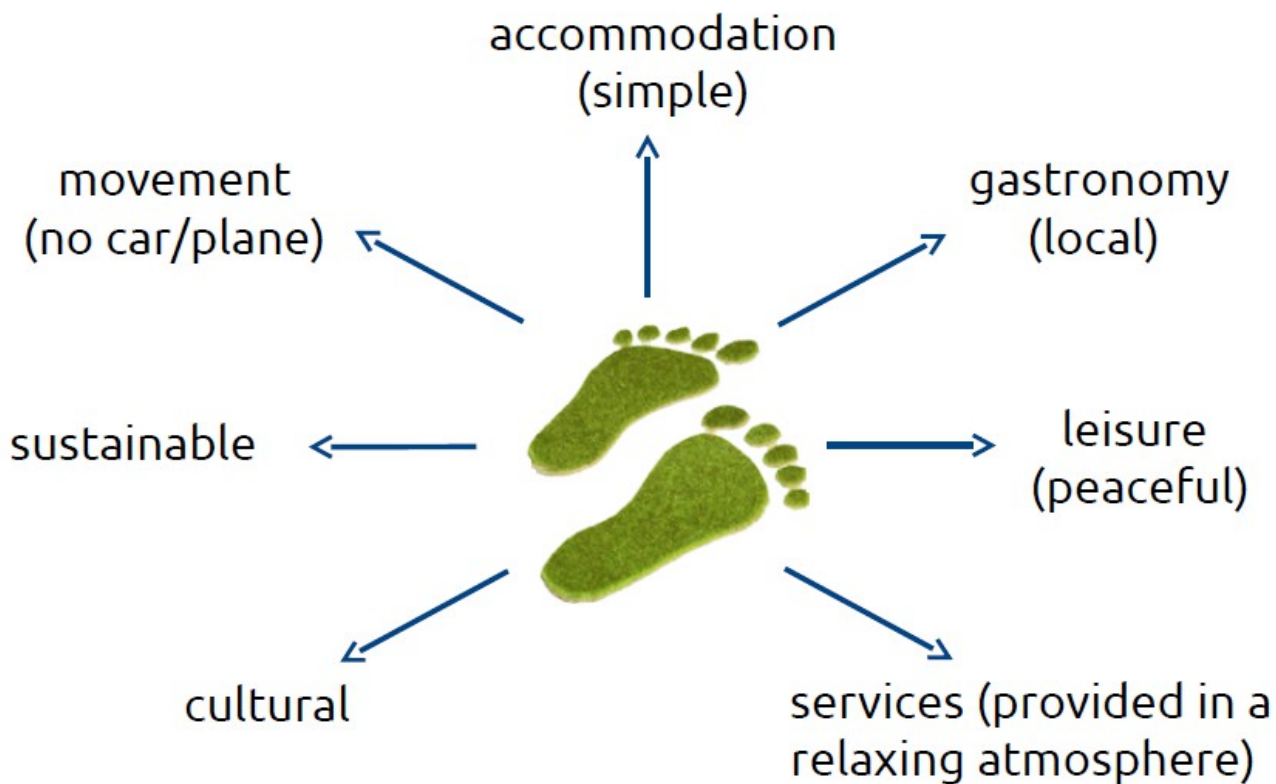
What is Via Regina?

It represents a fundamental transalpine system of **soft** mobility links especially for slow tourism

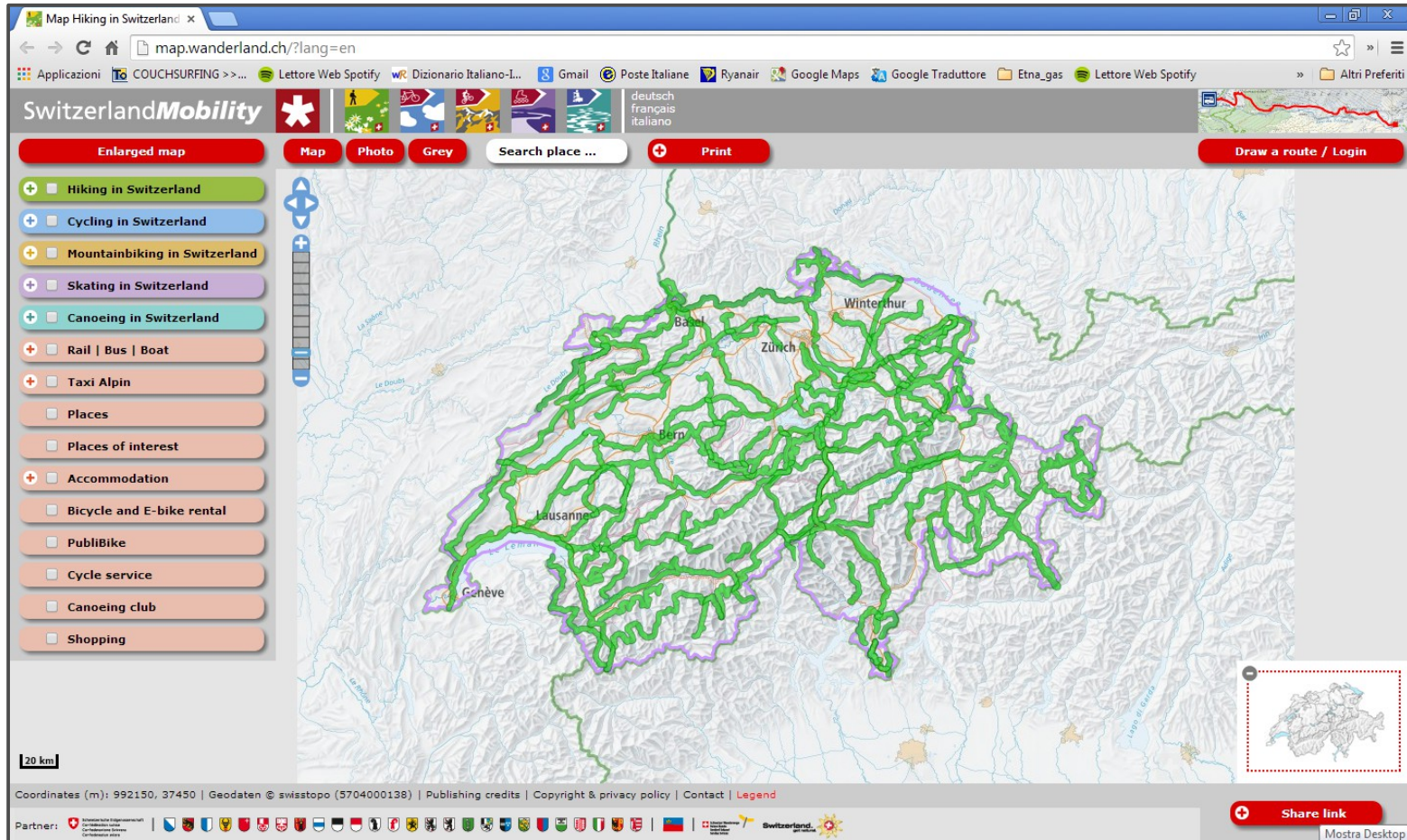


Slow tourism at a glance

- ❖ A special case of sustainable tourism focused on:
 - environmental friendliness
 - rediscovery of local traditions and cultural knowledge



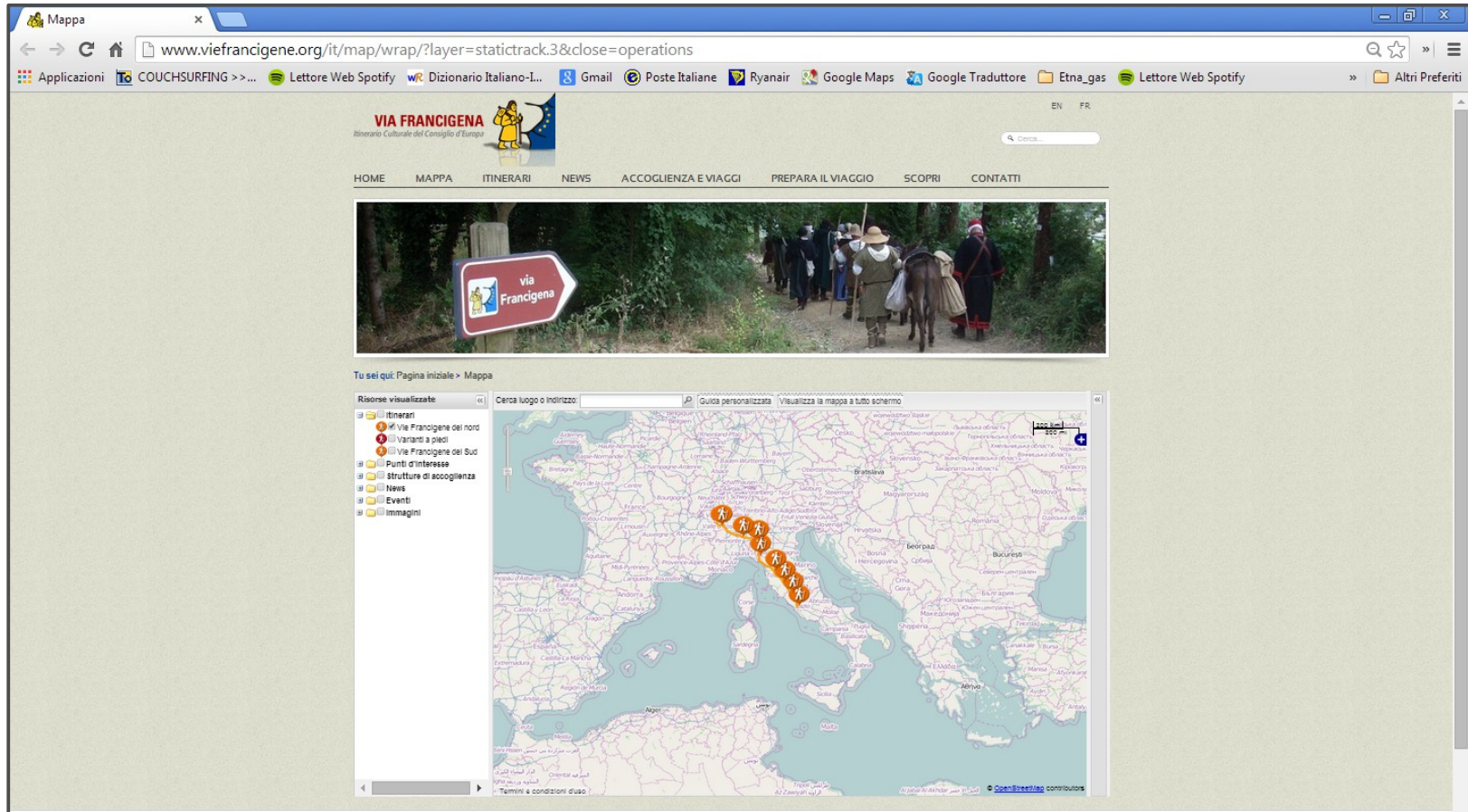
Switzerland Mobility



The screenshot shows the 'Switzerland Mobility' website interface. The browser address bar displays 'map.wanderland.ch/?lang=en'. The website features a top navigation bar with the 'Switzerland Mobility' logo and a search bar. Below this, there are several red buttons: 'Enlarged map', 'Map', 'Photo', 'Grey', 'Search place ...', 'Print', and 'Draw a route / Login'. A left sidebar contains a list of mobility options with checkboxes: Hiking in Switzerland, Cycling in Switzerland, Mountainbiking in Switzerland, Skating in Switzerland, Canoeing in Switzerland, Rail | Bus | Boat, Taxi Alpin, Places, Places of interest, Accommodation, Bicycle and E-bike rental, PubliBike, Cycle service, Canoeing club, and Shopping. The main area is a map of Switzerland with green lines indicating hiking routes and purple lines indicating other routes. Major cities like Zurich, Bern, Lausanne, and Geneva are labeled. A scale bar at the bottom left indicates 20 km. The footer contains coordinates, geodata information, publishing credits, and a list of partner logos.

<http://map.wanderland.ch/?lang=en>

Via Francigena

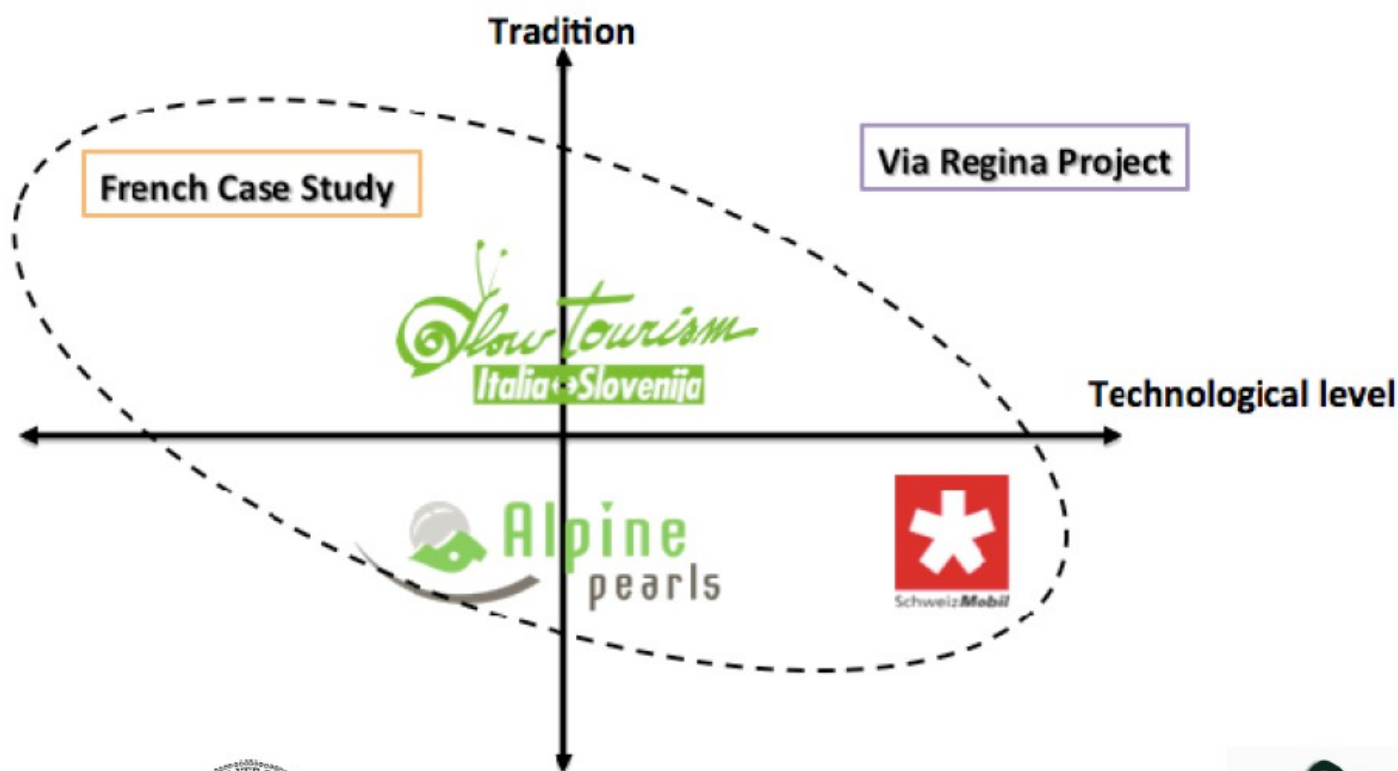


<http://www.viefrancigene.org/it/map/wrap/?layer=statictrack.3&close=operations>

Positioning

❖ Focus on 2 main domains:

- **tradition**: use of cultural heritage and local traditions as a marketing leverage, and emphasis on the authentic aspect of the experience
- **technology**: development of a website/WebGIS to enhance tourist experience



Authoritative Data

- Regional Map (scale 1:10 000 - 1:25 000)
- Digital Terrain Models (DTMs) res. 2 m; 20 m
- Town Maps at scale 1:1 000 - 1:5 000
- Maps of path networks
- Maps of thematic paths
- Aerial images
- National maps
- Historical maps
- Hiking trails
- Geological Atlases
- Inventory historical routes
- Land cover

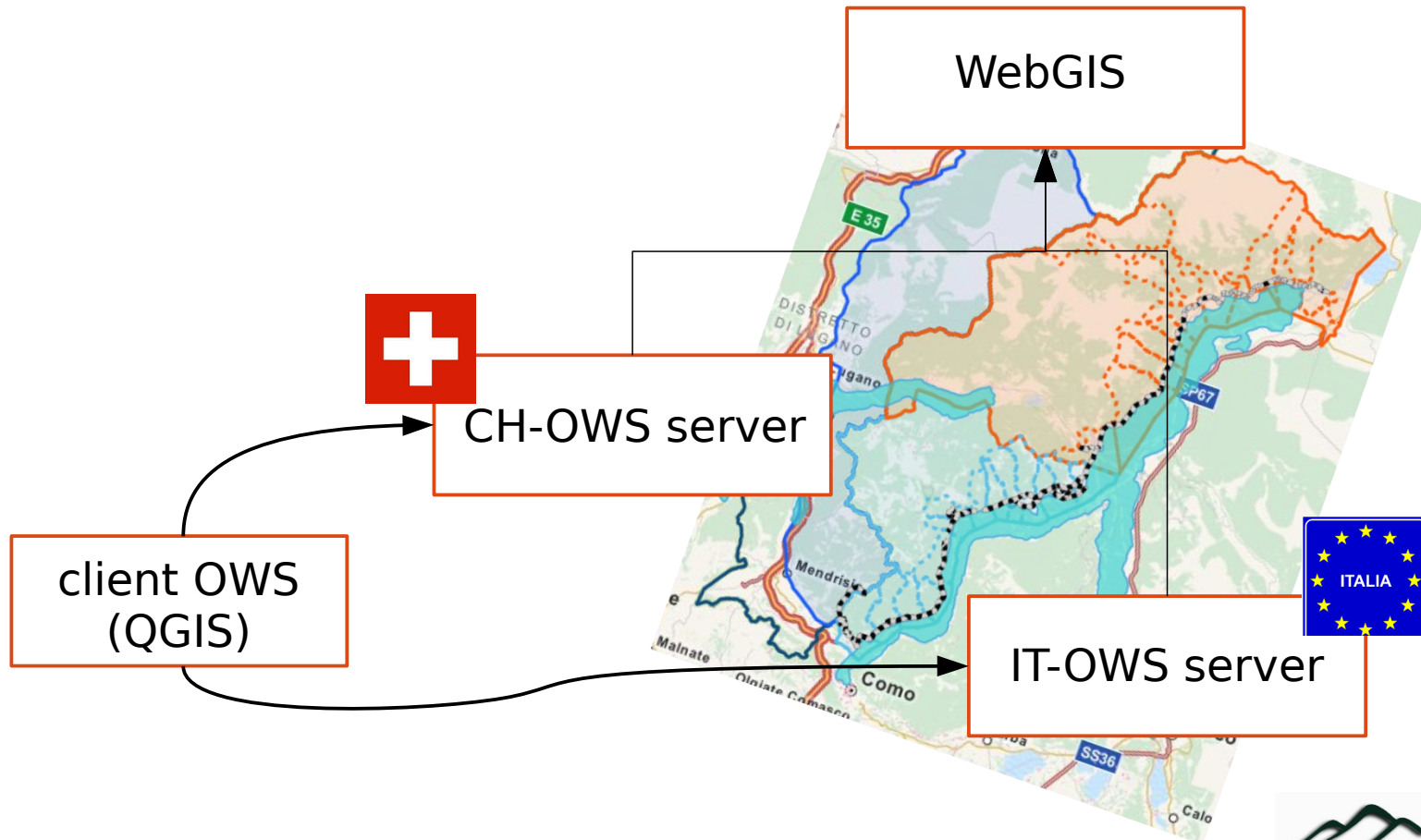


Open Problems/ solutions

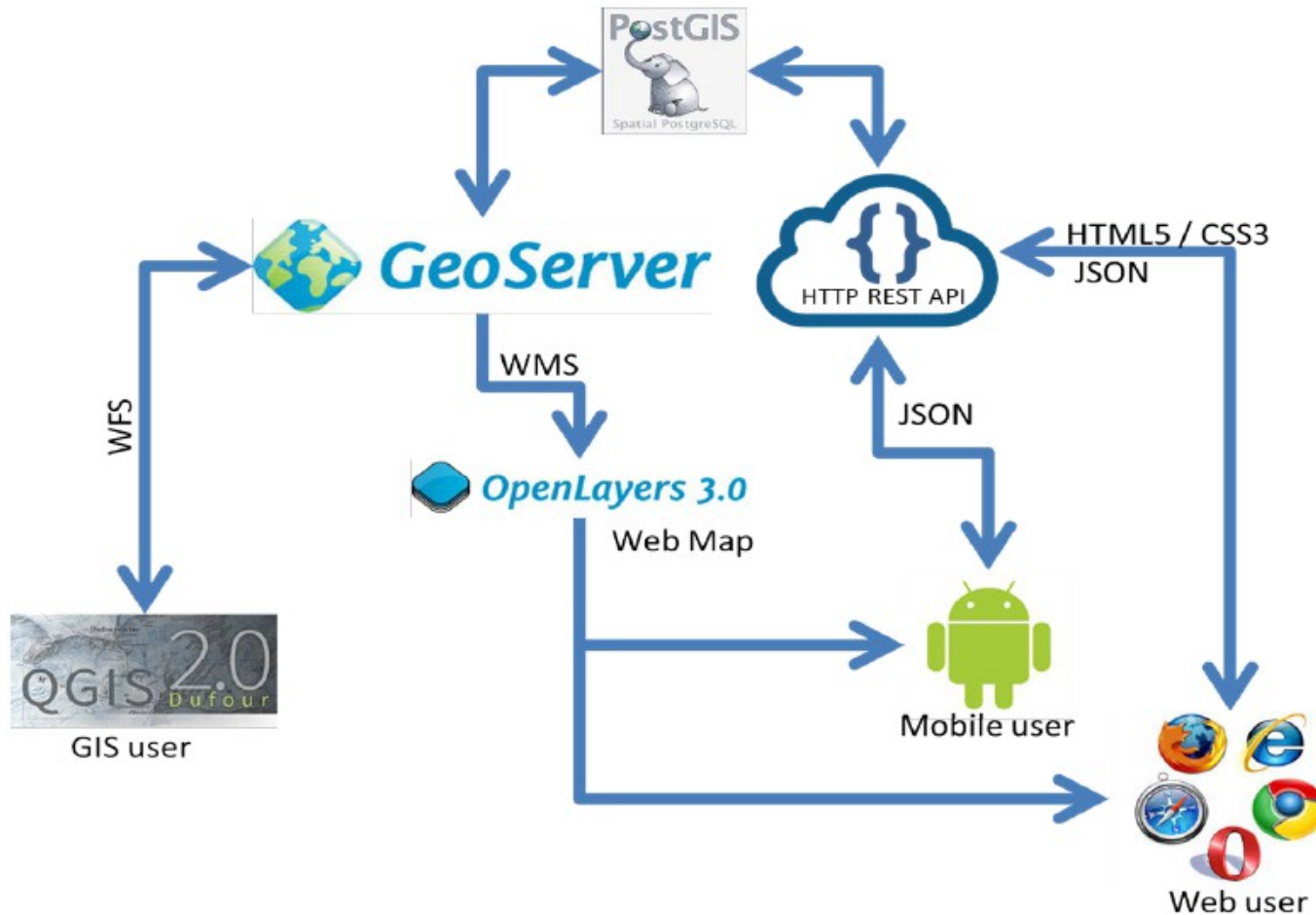
- Reference systems, projections, models
 - Geo-Services
- Data License
 - Italian data are open and available free of charge
 - Swiss data must be paid
 - Openstreetmap

Comparison between authoritative data and OSM

Server architecture

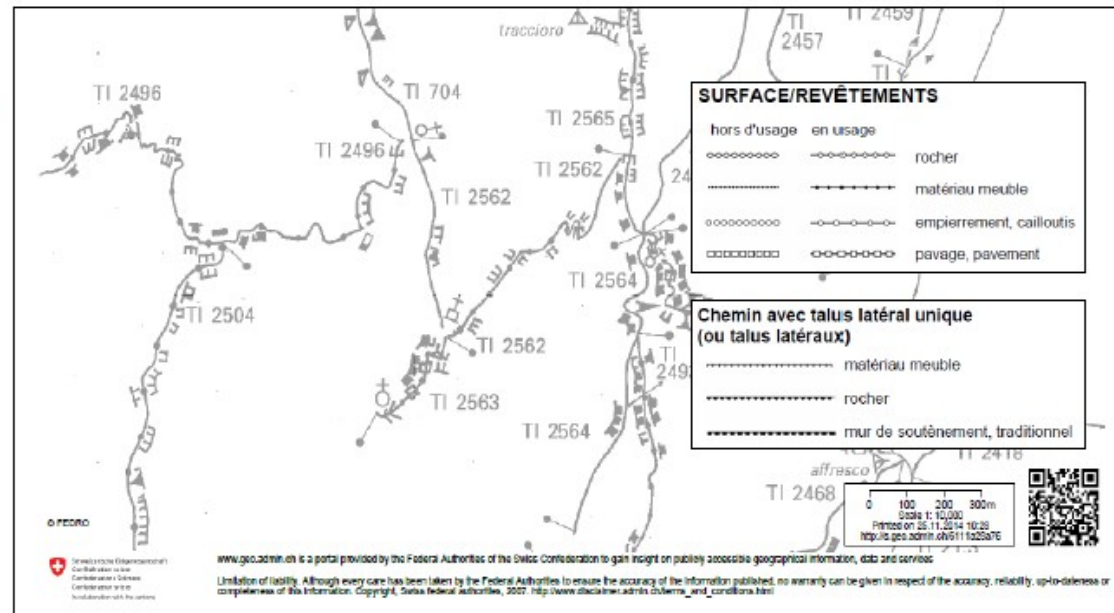


CH-OWS architecture



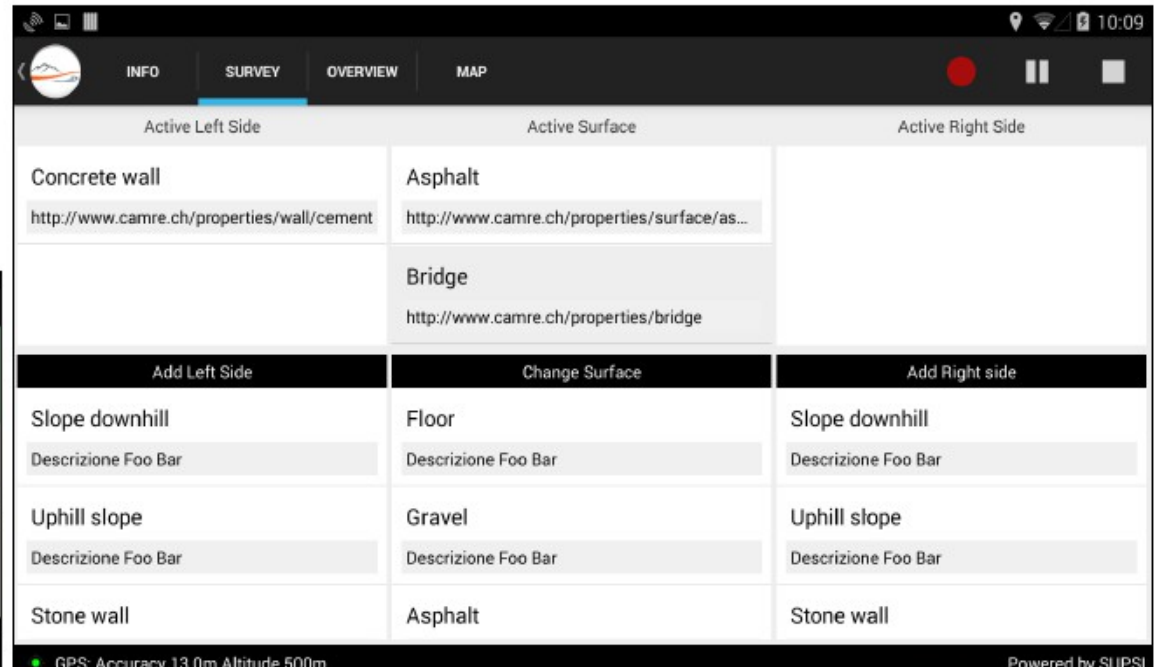
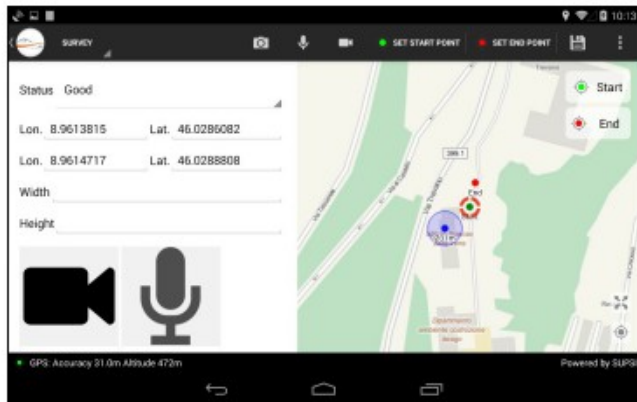
The inventory of historical routes

- ❖ Consolidated Swiss procedure for mapping historical routes and characteristic elements: used for landuse planning as they are considered historical heritage
 - Completely handwork without any support



Path survey with Android

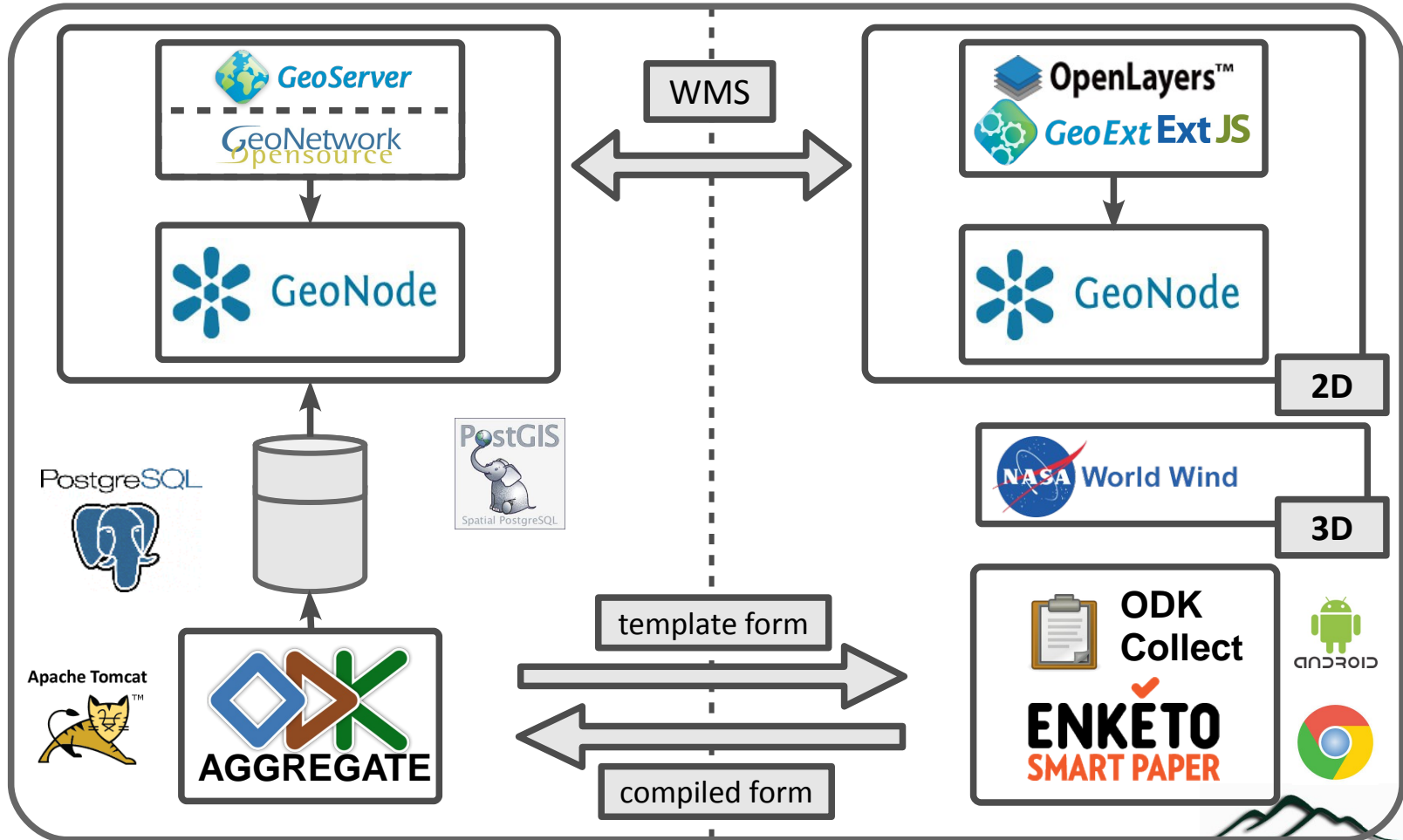
- ❖ Developed in Java with AndroidStudio using Android SDK and JTS topology suite
- ❖ JSON object are locally stored and will be sent to a python webservice.



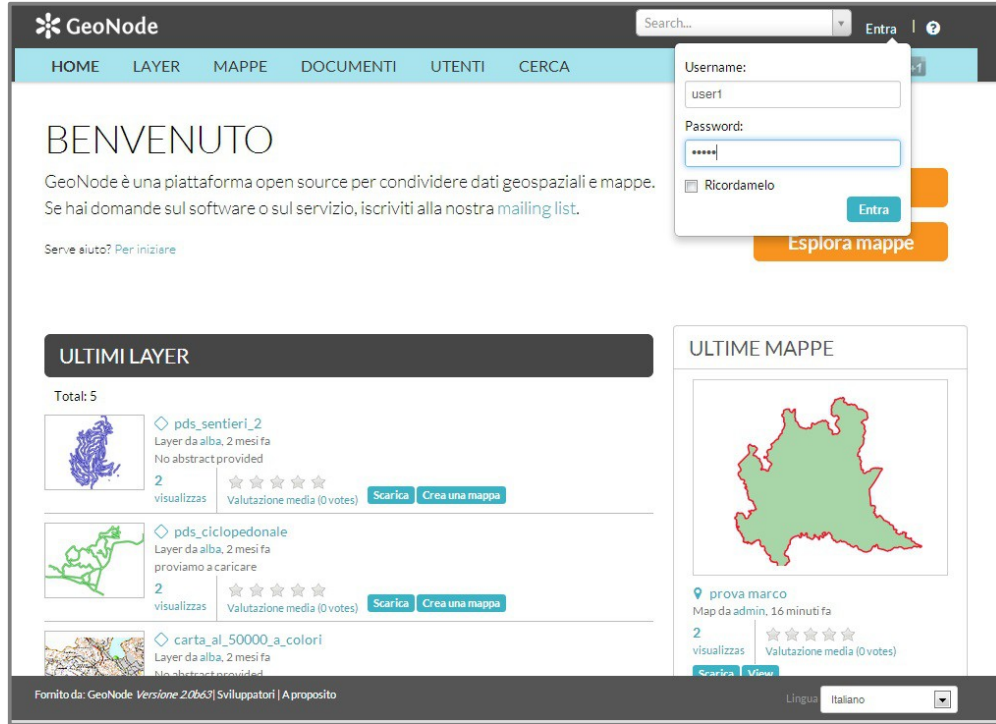
IT-OWS server architecture

SERVER

CLIENT



Data sharing tools for local administrations



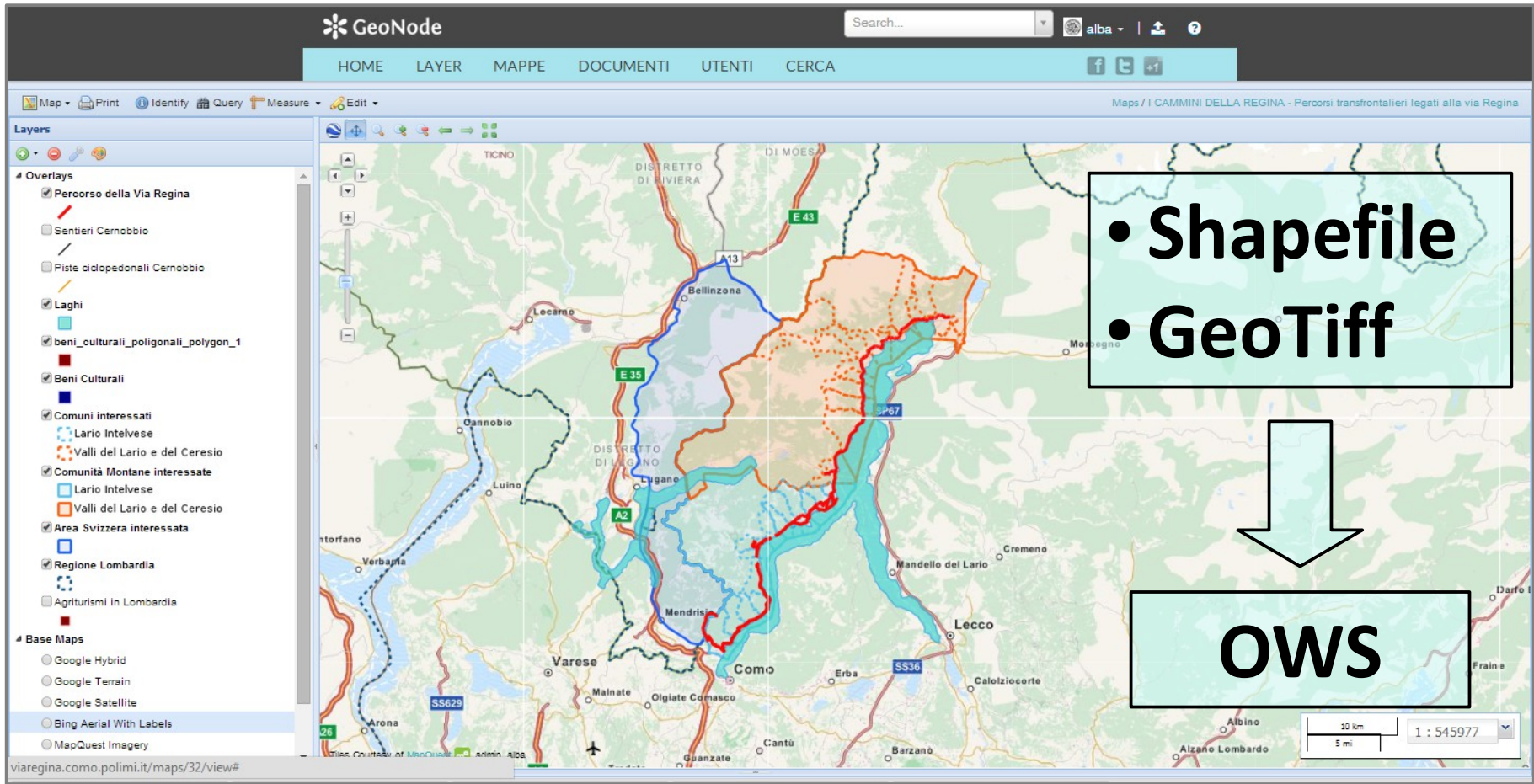
Open source platform for:

- creation
- management
- publication
- sharing

of interactive maps and
geospatial information.

Usable also by non expert users.

Data sharing tools for local administrations



GeoNode

Search...

HOME LAYER MAPPE DOCUMENTI UTENTI CERCA

Maps / I CAMMINI DELLA REGINA - Percorsi transfrontalieri legati alla via Regina

Layers

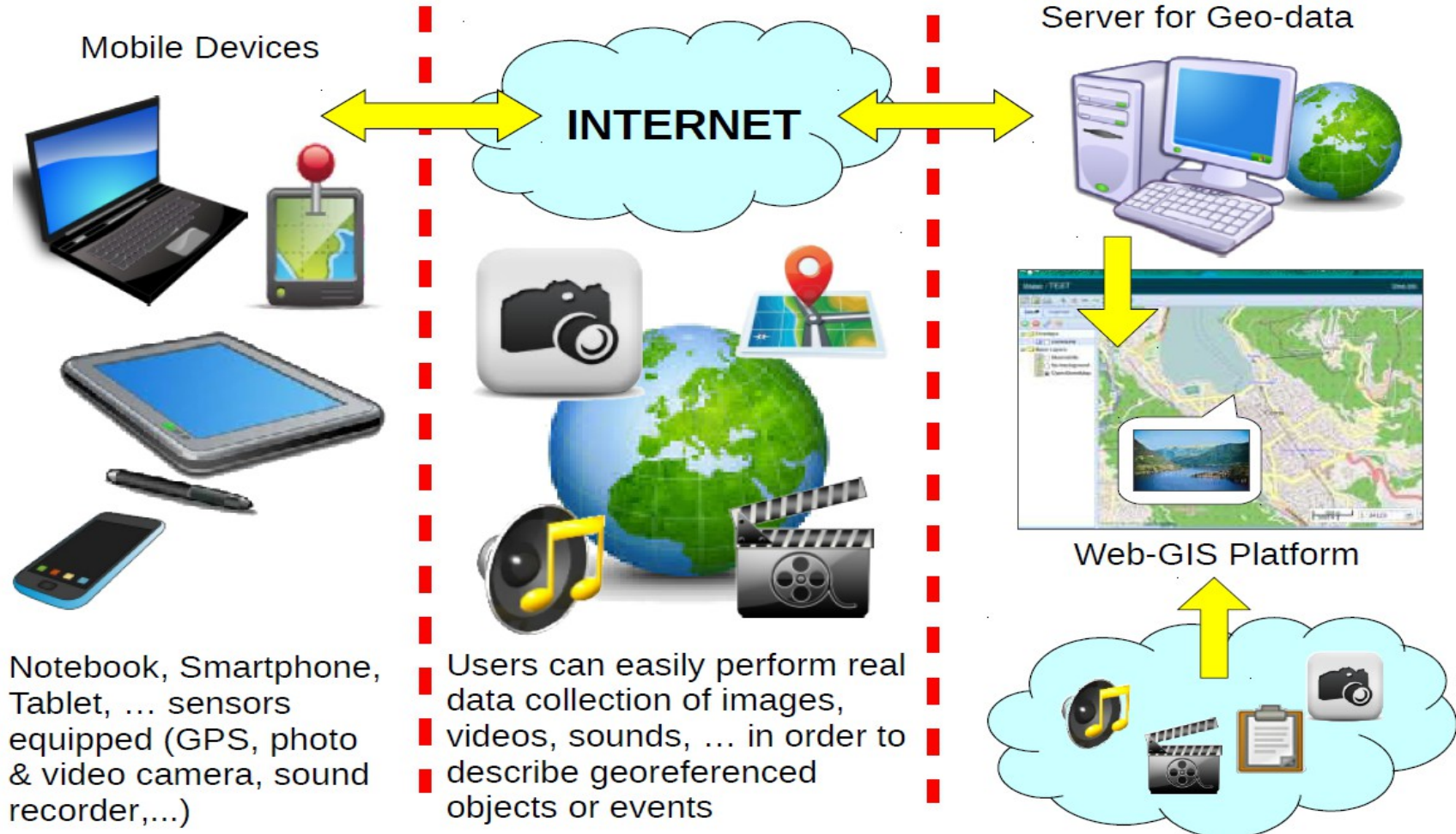
Overlays

- ☒ Percorso della Via Regina
- ☐ Sentieri Cernobbio
- ☐ Piste ciclopedonali Cernobbio
- ☒ Laghi
- ☒ beni_culturali_poligonal_polygon_1
- ☒ Beni Culturali
- ☒ Comuni interessati
- ☒ Lario Intelvese
- ☒ Valli del Lario e del Ceresio
- ☒ Comunità Montane interessate
- ☒ Lario Intelvese
- ☒ Valli del Lario e del Ceresio
- ☒ Area Svizzera interessata
- ☒ Regione Lombardia
- ☐ Agriturismo in Lombardia

Base Maps

- ☐ Google Hybrid
- ☐ Google Terrain
- ☐ Google Satellite
- ☐ Bing Aerial With Labels
- ☐ MapQuest Imagery

OWS



Data sharing tools for citizen



- ➔ Suite providing a set of tools for managing mobile data collection
 - <http://opendatakit.org>
 - free and open source under Apache2 license
 - developed by University of Washington - Department of Computer Science & Engineering

Data sharing tools for citizen



➤ form authoring tools:

- **ODK Build:** graphical drag-and-drop tool for creating simple forms
- **XLSForm:** form design via Excel spreadsheet

➤ ODK Collect:

- Android app for filling forms (which can contain multimedia and locations)

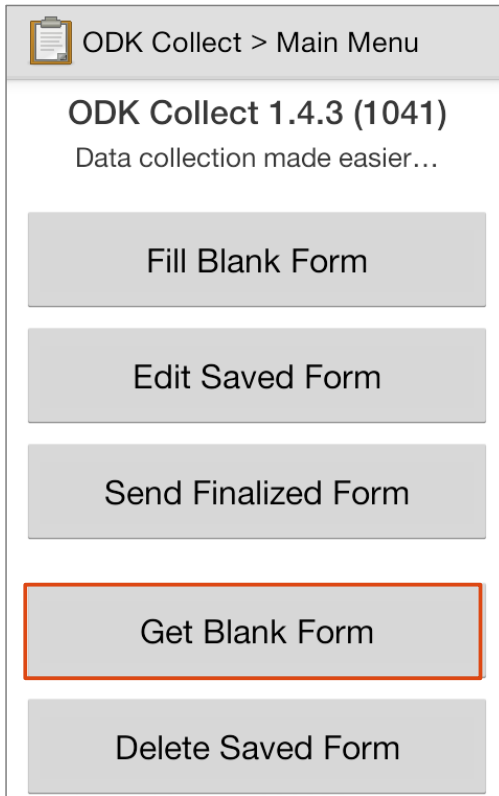
➤ ODK Aggregate:

- repository of the data sent by ODK Collect
- can run in the cloud, on a virtual machine or on a private server (i.e. a Tomcat server backed with a PostgreSQL database)

Data sharing tools: ODK Collect

✓ Application main menu

✓ Download of form template



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



ODK Collect > Get Blank Form

I Cammini della Regina ☒

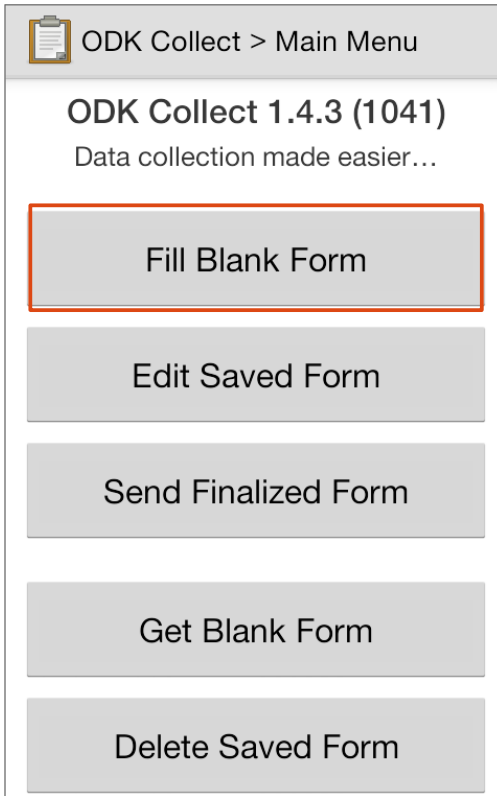
ID: regina_v9

Toggle All Refresh Get Selected

Data sharing tools: ODK Collect

✓ Application main menu

✓ Guided form compilation



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

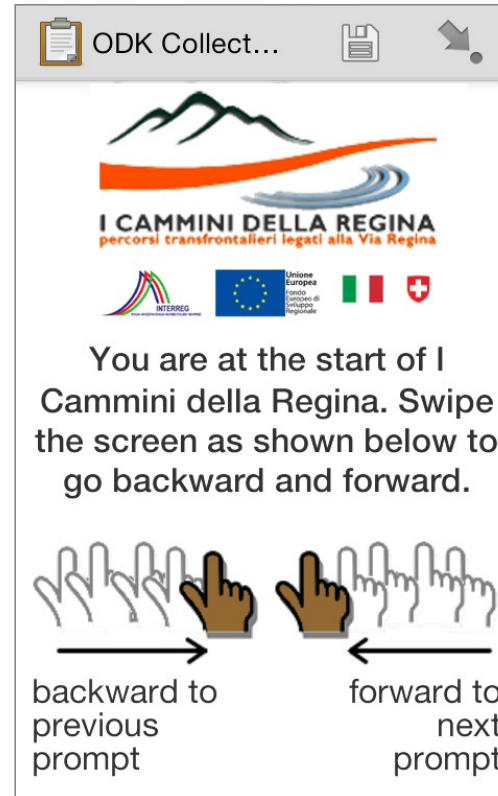
Fill Blank Form

Edit Saved Form


Send Finalized Form

Get Blank Form

Delete Saved Form




ODK Collect...


I CAMMINI DELLA REGINA
percorsi transfrontalieri legati alla Via Regina

Un logo con il titolo "I CAMMINI DELLA REGINA" e il sottotitolo "percorsi transfrontalieri legati alla Via Regina". Sotto il titolo ci sono i loghi di INTERREG, l'Unione Europea, l'Italia e la Svizzera.

You are at the start of I
Cammini della Regina. Swipe
the screen as shown below to
go backward and forward.


backward to previous prompt forward to next prompt

Data sharing tools: ODK Collect

✓ Guided form compilation

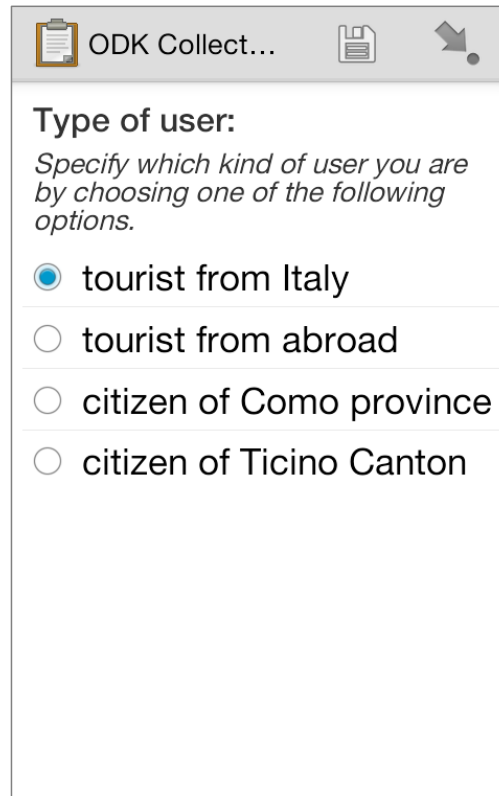


ODK Collect...

Date of report

Aprile 2014

D	L	M	M	G	V	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

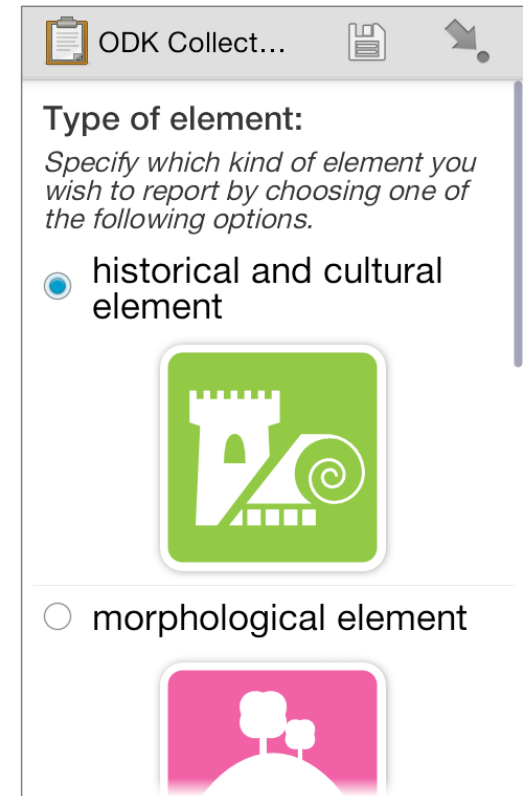


ODK Collect...

Type of user:

Specify which kind of user you are by choosing one of the following options.

- ☒ tourist from Italy
- ☐ tourist from abroad
- ☐ citizen of Como province
- ☐ citizen of Ticino Canton



ODK Collect...

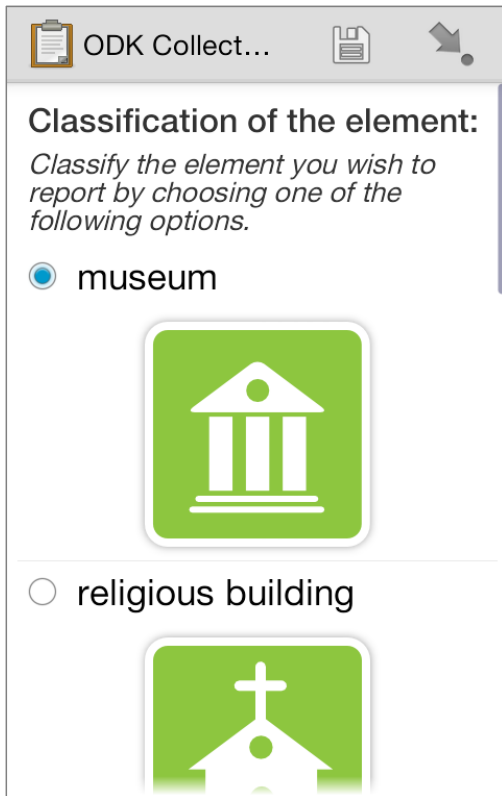
Type of element:

Specify which kind of element you wish to report by choosing one of the following options.

- ☒ historical and cultural element
- ☐ morphological element

Data sharing tools: ODK Collect


✓ Guided form compilation



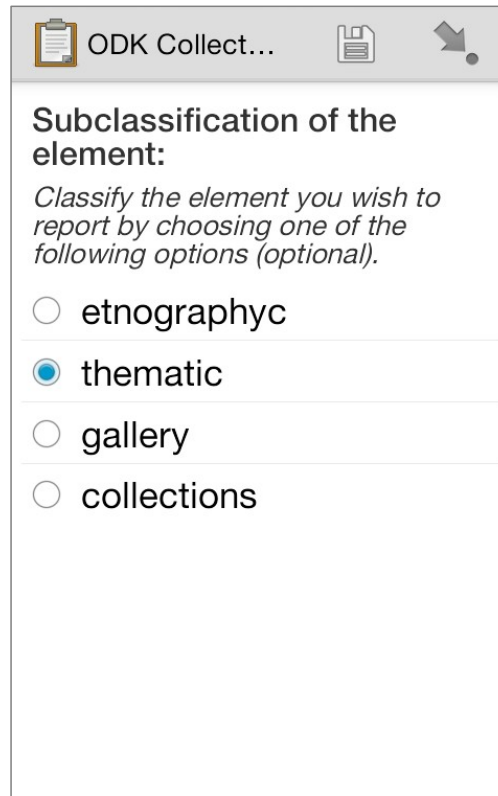

ODK Collect...

Classification of the element:
Classify the element you wish to report by choosing one of the following options.

☒ museum



☐ religious building



ODK Collect...

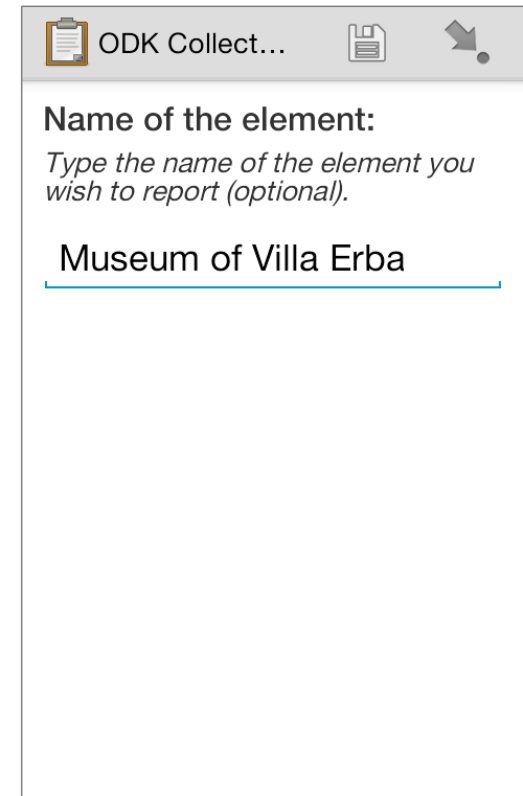
Subclassification of the element:
Classify the element you wish to report by choosing one of the following options (optional).

☐ ethnographyc

☒ thematic

☐ gallery

☐ collections



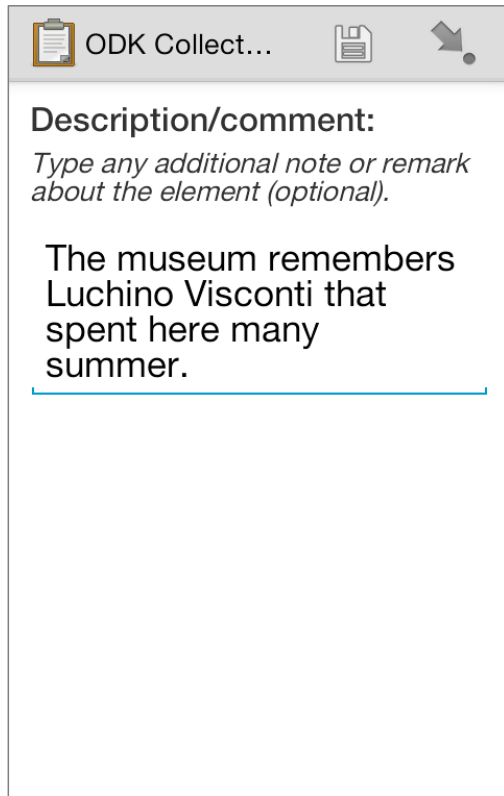
ODK Collect...

Name of the element:
Type the name of the element you wish to report (optional).

Museum of Villa Erba

Data sharing tools: ODK Collect

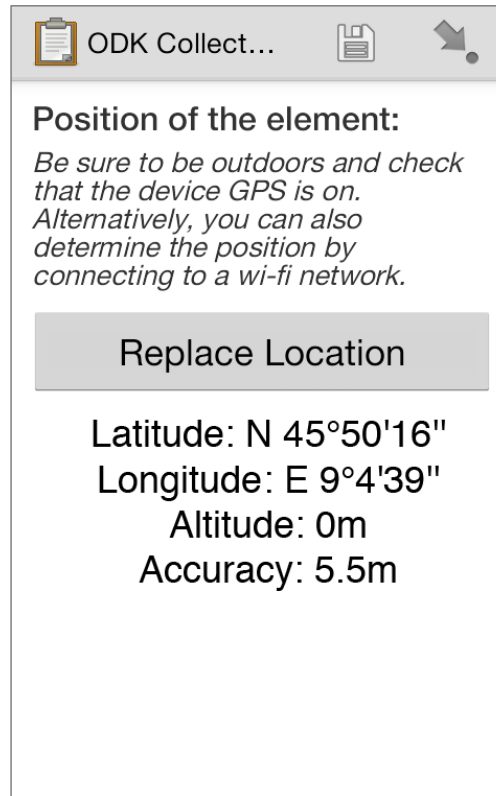
✓ Guided form compilation



ODK Collect...

Description/comment:
Type any additional note or remark about the element (optional).

The museum remembers Luchino Visconti that spent here many summer.

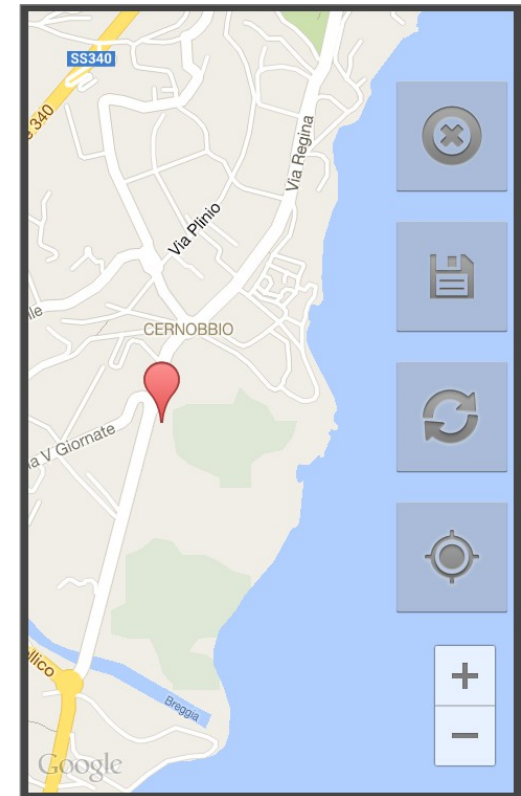


ODK Collect...

Position of the element:
Be sure to be outdoors and check that the device GPS is on. Alternatively, you can also determine the position by connecting to a wi-fi network.

Replace Location

Latitude: N 45°50'16"
Longitude: E 9°4'39"
Altitude: 0m
Accuracy: 5.5m



Data sharing tools: ODK Collect


✓ Guided form compilation

ODK Collect...

Picture showing the element:
Take a picture of the element using the device camera or upload a picture available on the device.

Take Picture

Choose Image



ODK Collect...

Record audio:
Record or upload an audio using your device (optional).

Record Sound

Choose Sound

Play Sound

ODK Collect...

Capture video:
Capture or upload a video using your device (optional).

Record Video

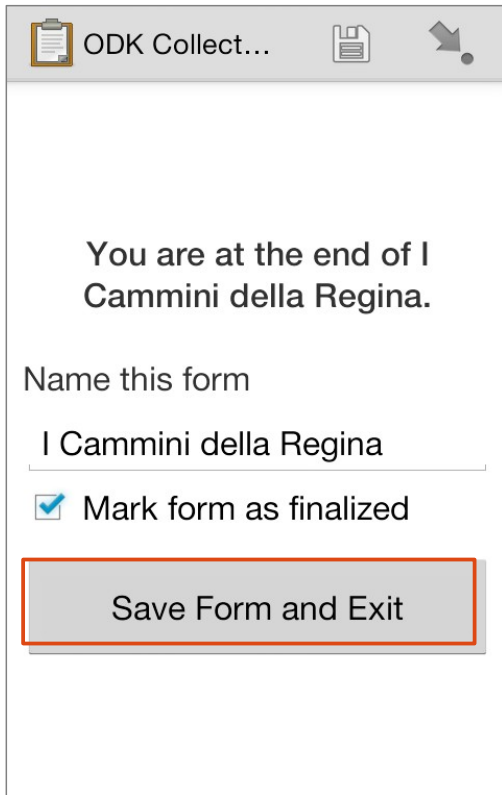
Choose Video

Play Video

Data sharing tools: ODK Collect

✓ Guided form compilation

✓ Application main menu



ODK Collect...

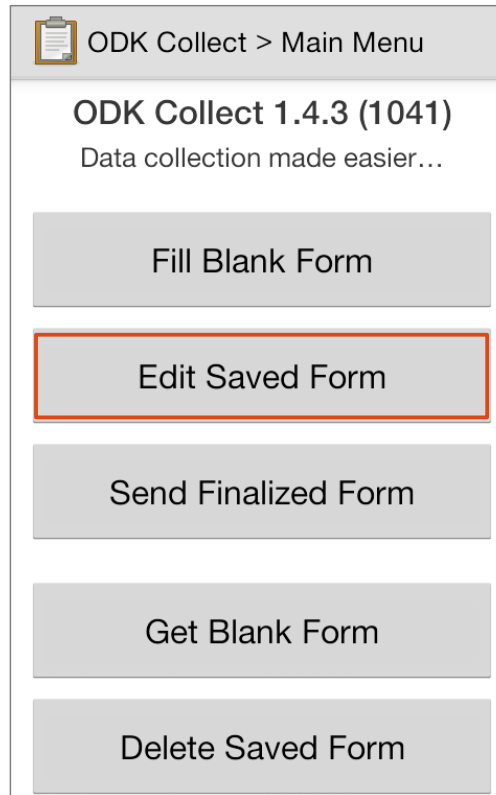
You are at the end of I Cammini della Regina.

Name this form

I Cammini della Regina

☒ Mark form as finalized

Save Form and Exit



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

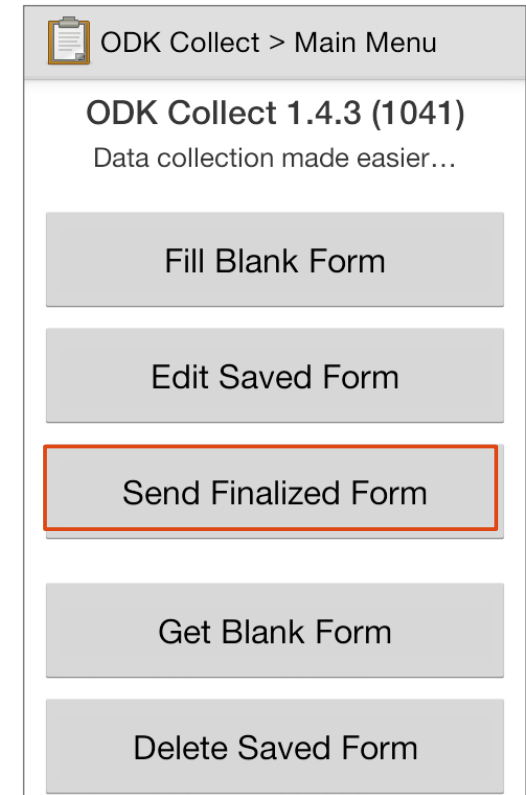
Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form



ODK Collect > Main Menu

ODK Collect 1.4.3 (1041)
Data collection made easier...

Fill Blank Form

Edit Saved Form

Send Finalized Form

Get Blank Form

Delete Saved Form

SATURDAY MAY 3 2014

MapParty!



WALK, OBSERVE, DRAW, MAP ALONG THE VIA REGINA
FOR A CULTURAL, SENSORY AND PLAYFUL EXPERIENCE

Stories on the road between Italy and Switzerland with the Brigata dei novellatori senza frontiere



MapParty!

3 MAGGIO 2014



CN25 © swisstopo

<http://viaregina.como.polimi.it/mapparty>



The screenshot shows the MapParty! web application interface. At the top, there is a navigation bar with the title "MapParty! 3 MAGGIO 2014" and several icons representing different map features: a shoe, a puzzle piece, a camera, a location pin, and a notepad. Below the navigation bar is a map of the area around Maslianico, Italy. The map displays various geographical features, including roads, rivers, and buildings. A legend on the left side of the map provides information about the different elements shown. A pop-up window titled "Map party - Punto segnalato" is displayed over the map, showing details about a specific point of interest. The details include the date (11/04/2014), the user (turista italiano), the element name (undefined), the element type (elemento turistico), the classification (servizi), and the sub-classification (fonte). A small photograph of a stone structure is also shown. The bottom of the map displays a scale bar (200 m, 1000 ft) and coordinates (lon: 9.0619, lat: 45.8438).

Legenda

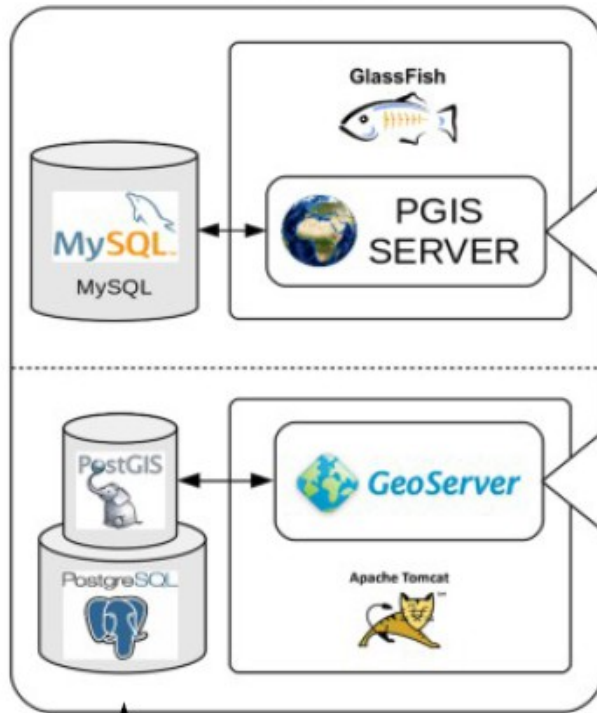
- Mappe di base
- Dati amministrativi
 - Area svizzera del progetto
 - Comune di Cernobbio
- Elementi naturali
 - Aree boschive
 - Aree verdi
 - Aree di pascolo
 - Fiumi
- Elementi antropici
 - Edifici
 - Patrimonio architettonico
- Map Party 03/05/2014
 - Percorso
 - Punti segnalati
 - Elemento storico-culturale
 - Elemento morfologico
 - Elemento turistico
 - Elemento critico
 - Segnalazione

Map party - Punto segnalato

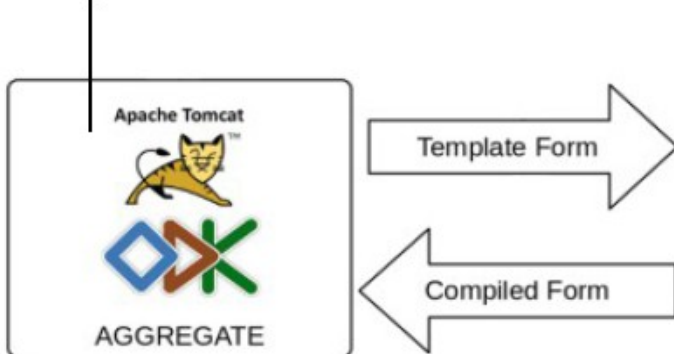
Data: 11/04/2014
 Tipologia di utente: turista italiano
 Nome dell'elemento: undefined
 Tipologia dell'elemento: elemento turistico
 Classificazione dell'elemento: servizi
 Sottoclassificazione dell'elemento: fonte

Scale = 1 : 14K
 lon: 9.0619, lat: 45.8438

SERVER



CLIENT




PoliCrowd2.0

In addition to the WMS servers, PoliCrowd 2.0 has also the innovative capability to directly connect with any Open Data Kit (ODK) server available on the network and publish the related data collected by the community




Policrowd2.0



A Social World Wind Platform

Developer Team

- ★ Giorgio Zamboni (Mentor)
- ★ Luca Poddigue
- ★ Andrés Quiñones

 POLITECNICO
DI MILANO
Polo Territoriale di Como

This research has been funded by the INTERREG “I cammini della Regina – Percorsi Transfrontalieri legati alla Via Regina (The paths of Regina – Crossborder paths departing from Via Regina)” 2007-2013 project.

Thanks for your attention!

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