



**UNIONE EUROPEA**  
Fondi Strutturali e di Investimento Europei

# FLORENCE

## DIGITAL TWIN EXPERIENCE

### The Urban Digital Twin & practical use cases

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*Municipality of Florence*

Smart City Expo World Congress | Barcelona, 7-9 novembre 2023

Firenze



# Data All Together

Databases and DWH

Geographical database

Big Data & data from Smart City

Survey with Flights (e.g. LIDAR)

Survey with DRONES

Satellite Images

Survey «by walking»

Survey with car (and other)



# Processing survey/satellite images With AI/ML/DL:

Buildings, streets, pavements, parkings, sport areas, trees, solar panels, driveways and so on...



# Data all together & new sources: considerations

[scheduled] **Flights survey**

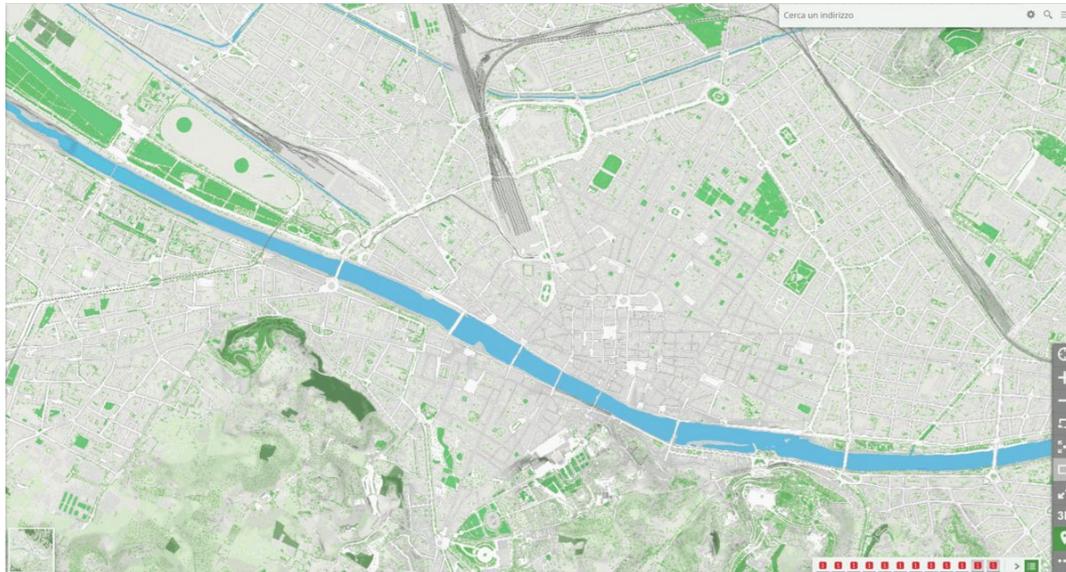
**Survey with drones: ...a fine grained approach !**

**Survey with car or by walking: DPIA**

**Use of Artificial Intelligence:  
Algorithm Register &**

**FRAIA= Fundamental Rights and Algorithms Impact  
Assessment**

## Data all together: opportunities

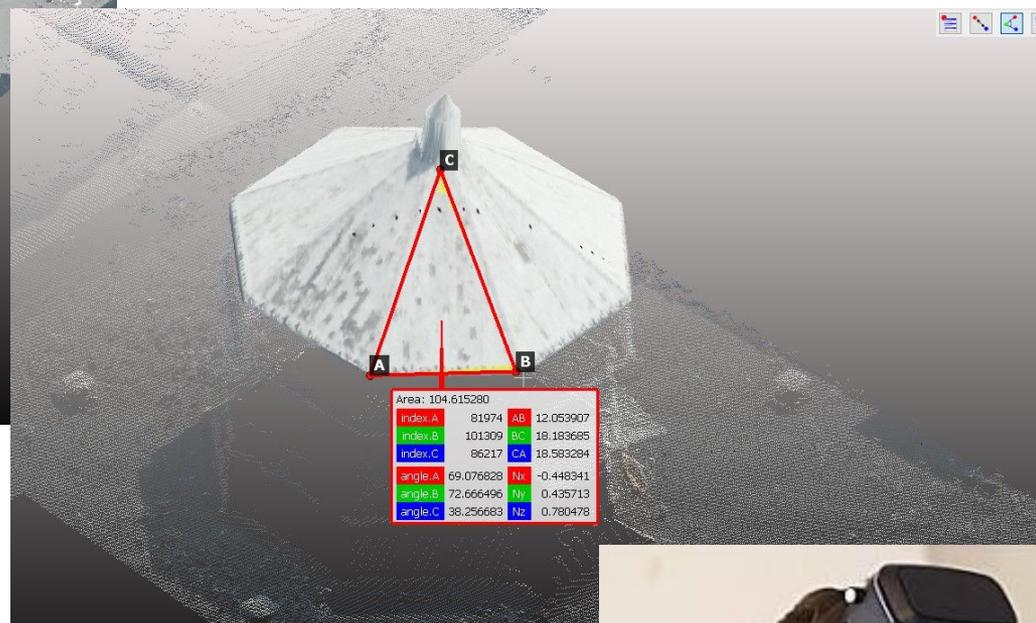
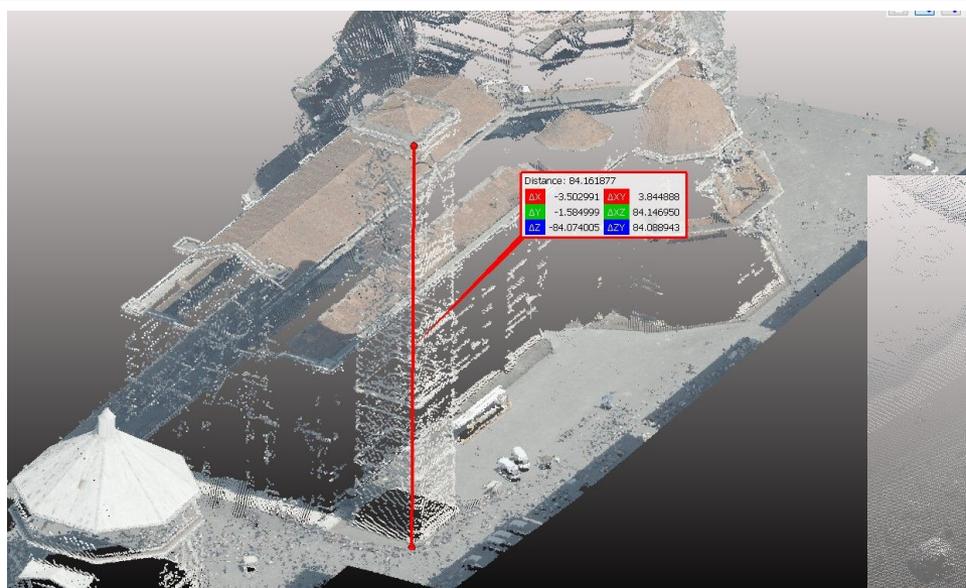


- Mobility
- Historical buildings
- EcoSustainability and Energy
- Smart City (and the SCCR)
- Design and Planning
- Taxation
- Social Issues

...

## Construction of digital scenarios (or digital twins)

## USE CASE (for public works): site inspection and measurements



Safe and ecologic, from your  
desktop:  
no stairs, no scaffolding, no  
cars, no pollution...

**NEXT STEPS: do this in metaverso !!!**

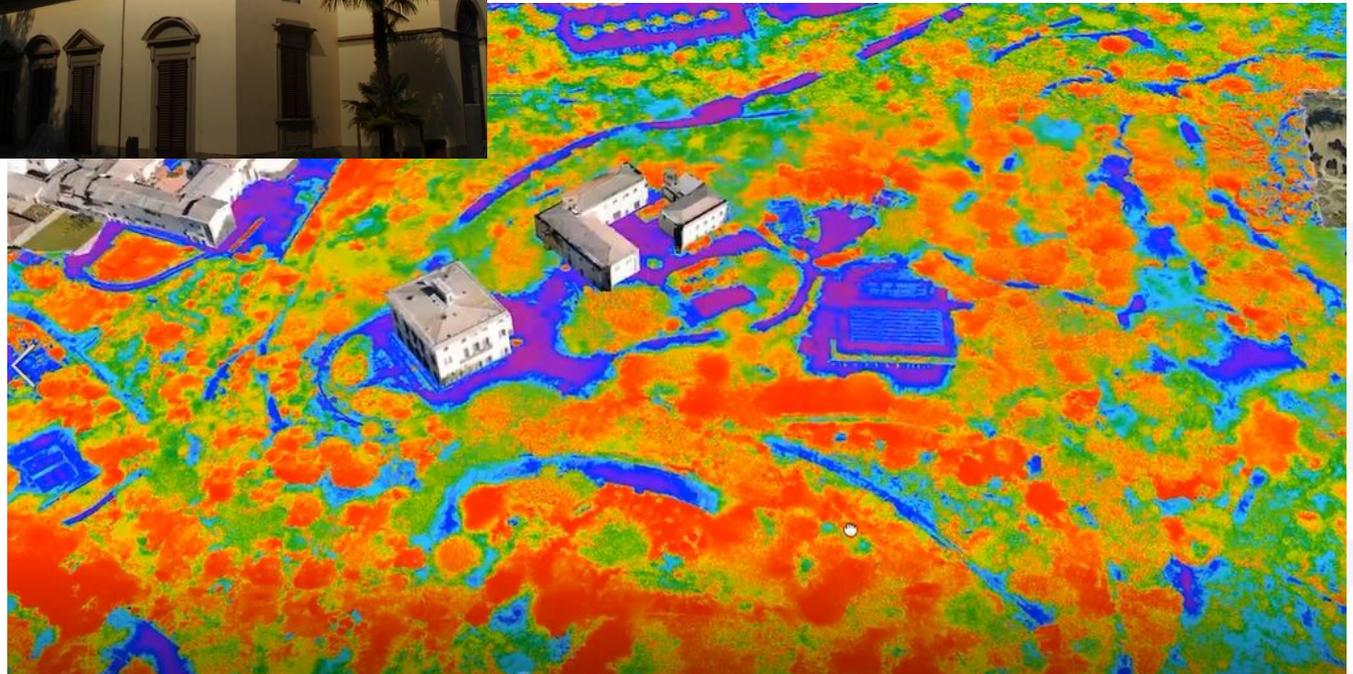
PROJECT:  
MULTISPECTRAL SURVEY  
NDVI ANALYSIS OF VEGETATION

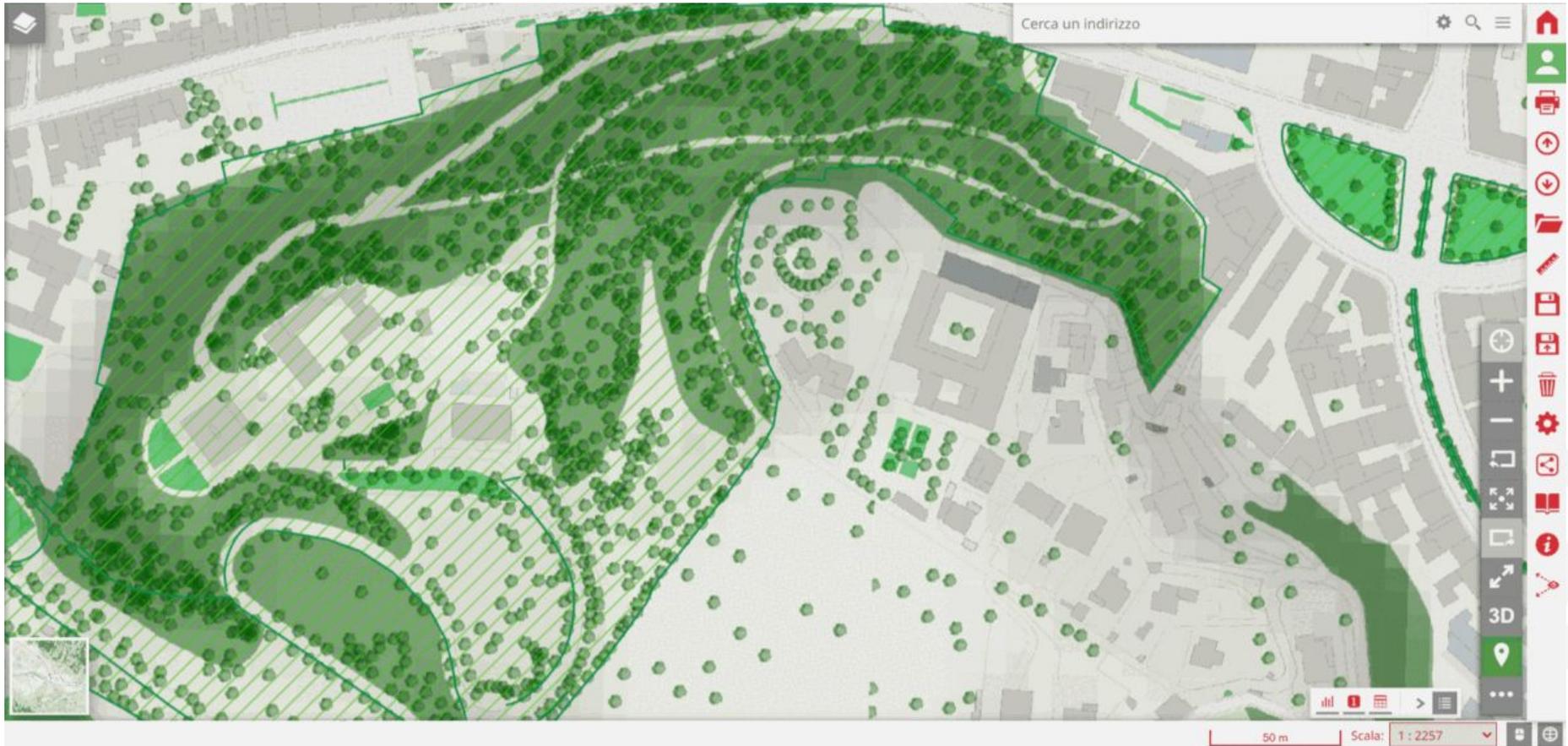
Villa Strozzi, FLORENCE

VILLA-STROZZI



# USE CASE: (local) trees health inspection





## □ Health inspection species by species

# USE CASE: energy communities, photovoltaic panels installation



Roofs: southern exposure

Roofs: degrees of inclination

PROJECT:  
PHOTOGRAMMETRIC - LASER SCANNER  
SURVEY

Stibbert Museum, FLORENCE

## USE CASES: historical heritage maintenance



## State of conservation of the facades of UNESCO buildings





# Florence Digital Twin Basilica Santissima Annunziata

# Data All together: opportunities

**Open Data**  
i dati aperti del Comune di Firenze

1933 DATASET PUBBLICATI FINO AD OGGI

**In evidenza**

**News**

**Temi DCAT-AP\_IT**

**FIRENZE DIGITALE**

Il piano - Cittadini - Imprese - Pubblica amministrazione

**Dieci anni di open data del Comune di Firenze!**

18.10.2021

**10 ANNI DI DATI APERTI!**

Don't forget  
Open Data  
Pillar of  
European Data  
Strategy

**Linked Open Data**

**Bilancio Open**

**Spazi Pubblici**

**ARCHIVIO**

**TUTTI I TEMI DCAT-AP**

**I dieci anni del portale Open Data del Comune di Firenze**

Home > Open Government > Open Data > I dieci anni del portale Open Data del Comune di Firenze

I portale Open Data del Comune di Firenze compie 10 anni. In questo articolo ripercorriamo i presupposti strategici alla base della sua attivazione, le tipologie di dataset pubblicati e le attività di animazione e collaborazione sui dati che hanno contribuito, anche quest'anno, a collocare Firenze sul podio della classifica dei Comuni digitali italiani

15 Dicembre 2021

## New Data Sources □ New Open Data



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# Grazie per l'attenzione! Thanks for your attention!

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Firenze