

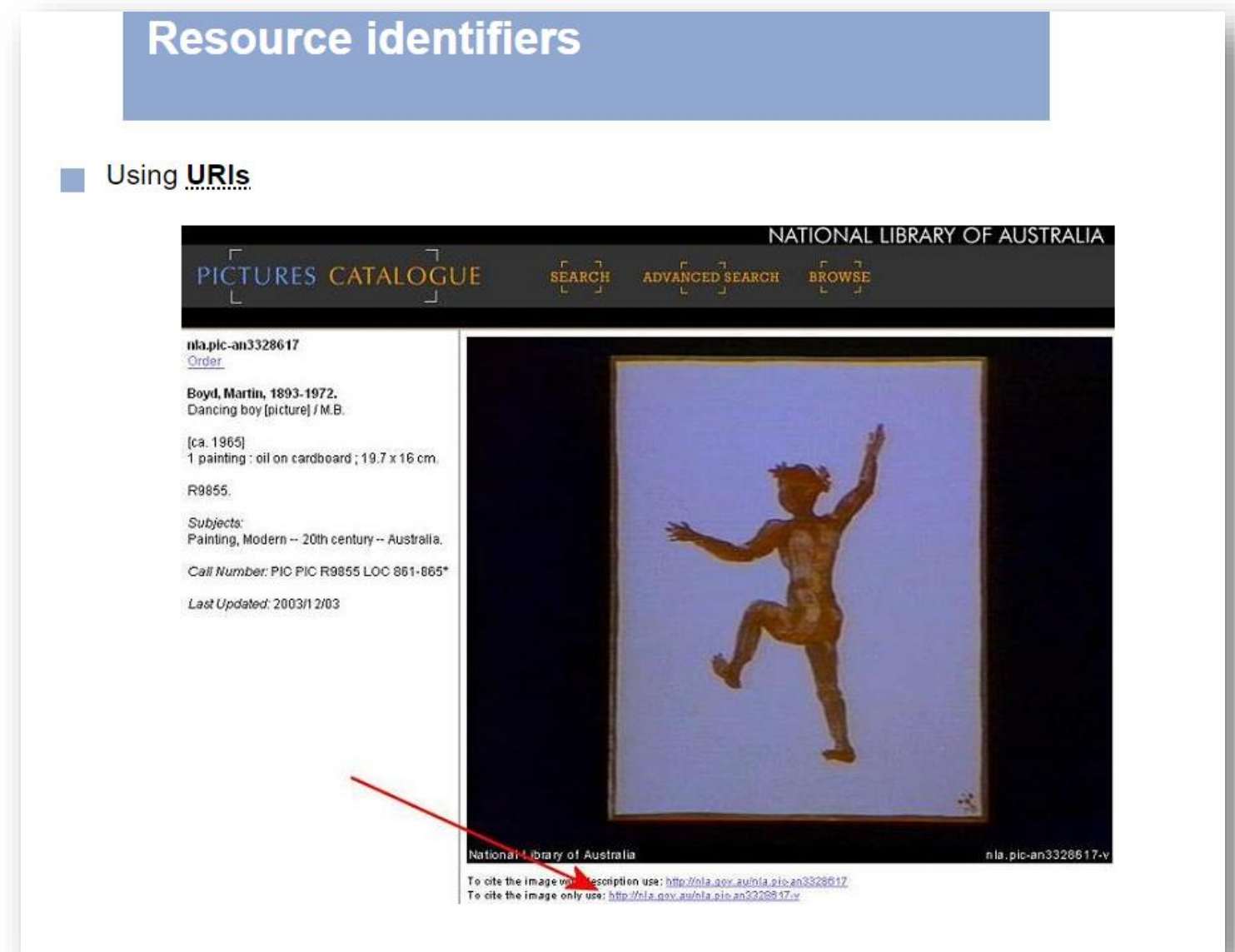
Digital cooperation for sustainable heritage preservation

Lightning Talk – Martin Alvarez-Espinar
25/06/2025

23–27 June 2025
Lillestrøm,
Norway

About me...

- IT Engineer
- Web Standards... W3C
- Open Data advocate
- Linked Data advocate...
- Local heritage enthusiast!



Communities are proud of their culture & history

Heritage is a shared resource that both reflects and influences the essence of the communities' identity.

Every community has dozens of items in their towns (artworks or not) representing its history

- Statues, old buildings, bridges... but also
- castles, vineyards, gardens...
- Artworks may be nice-looking, but the origin and the history are the most important part... unknown to most of visitors.
- Archives help, but also **the local experts**



'De Koeieschieter' ('Cow Shooter')

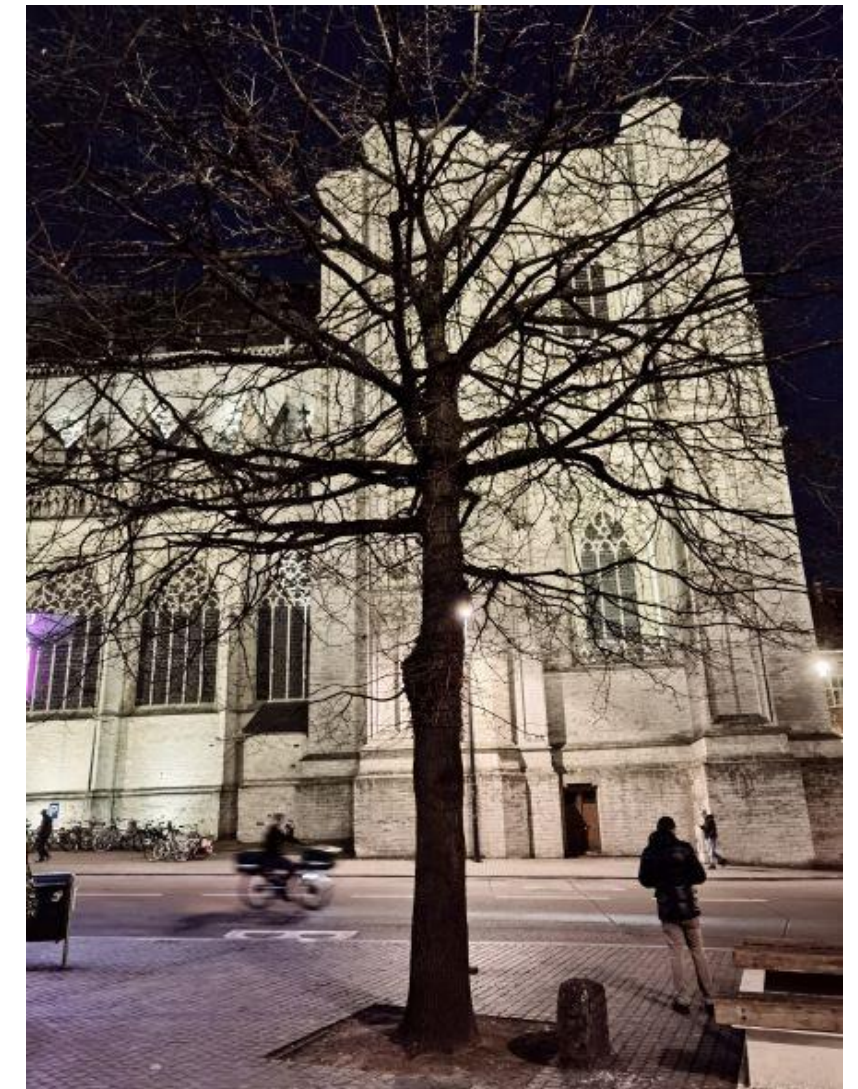
A story from 1691 that explains why Leuven's people were nicknamed *koeschieters* or cow-shooters, after ending a "surprising French invasion" (in reality it was a herd of cows returning to the stable).

Hidden (inaccessible?) gems

- Not accessible for everyone
- Physically hidden?
- Multilingual?
- Multisensorial info?



Difficulties to understand foreign languages

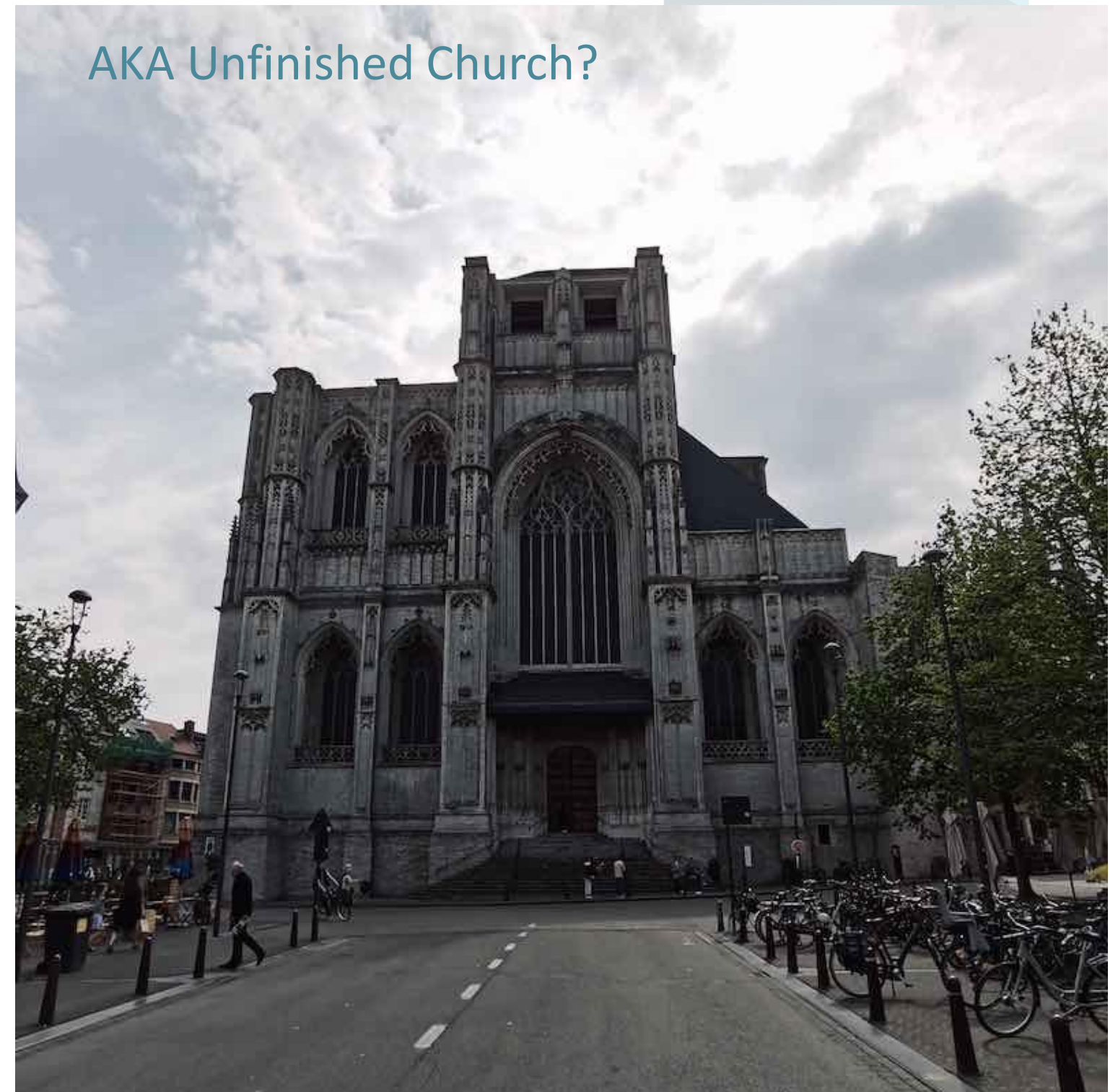


Not easy to discover the non-popular monuments

ICT... our ally to preserve & understand heritage

Easy to collect contextual information

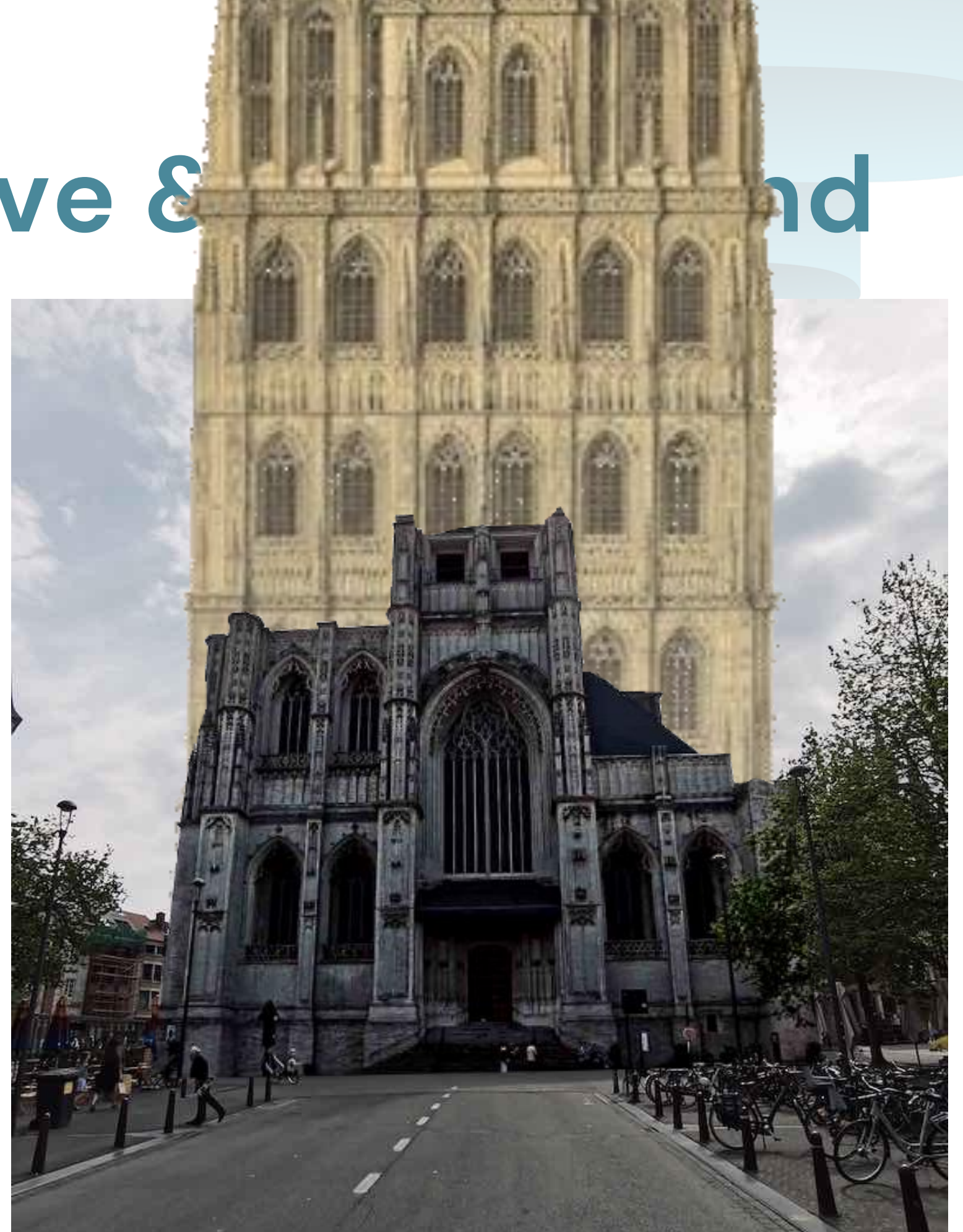
- Geolocation, environment...
- Type of user (visitor, expert, citizen...)
- Increase accessibility (images, audio, text...)
- Large cities already have tourism apps/tools
- But most of small/medium cities usually do not have enough IT resources... **but citizens are also experts and... enthusiasts.**



ICT... our ally to preserve & heritage

Easy to collect contextual information

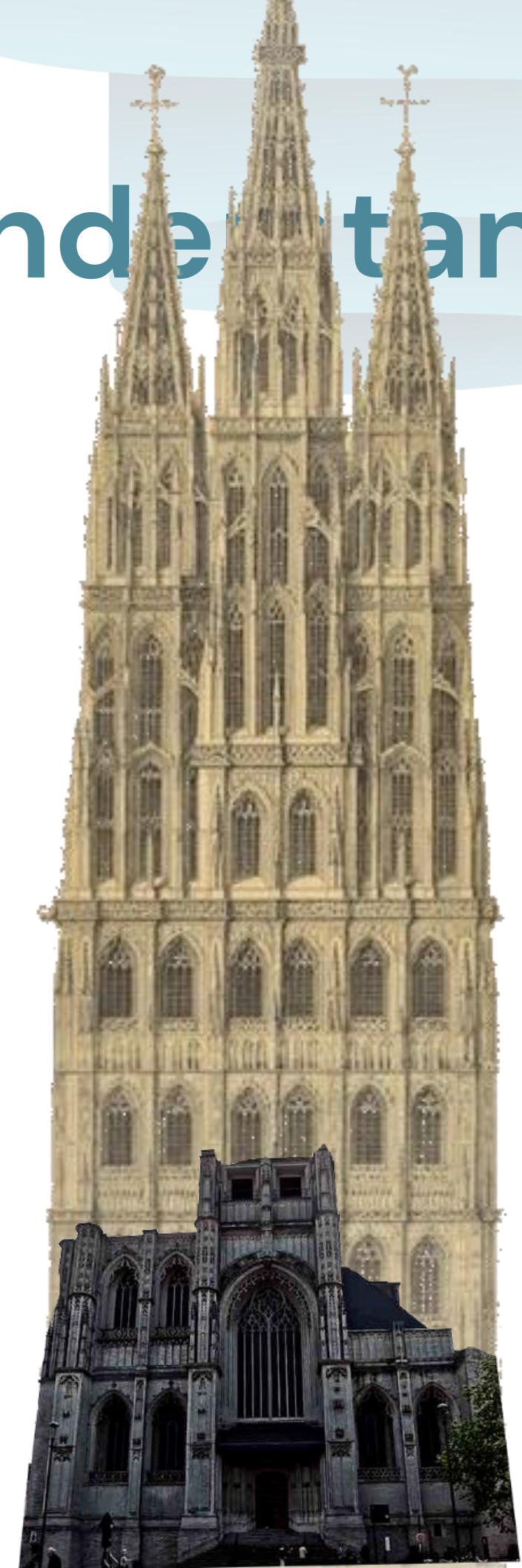
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Heritage in... A collaborative methodology & toolset to support local heritage preservation



Maximizing the efficiency and effectiveness of the institutions & individual actions with **minimum costs**

- **Open (Linked) Data** (official archives as the basis)
- **Community-driven** (popular anecdotes, stories...)
- **Open Source** (based on templates, code in Github)
- **Sustainable** (low-code approach)
- **Accessible** (ICT supporting diverse needs)
- **Extensible** (standards, adaptable to any scenario)

Promotion of heritage in a feasible and realistic way, under low cost measures



Make cities and human settlements inclusive, safe, resilient and sustainable

TARGETS

11.4

Strengthen efforts to protect and safeguard the world's cultural and natural heritage

Also linked to some points and indicators of **SDG4** through leveraging the cultural assets for education, and involving students in the participatory actions to digitize, store and protect the heritage locally.

Heritage in... The Methodology

1. Clone & configure the project (git repository)
2. The database (from spreadsheets to linked data in one file)
3. Customize the app (i.e., colors, logos, attributions,... even new sections)
4. Upload and publish content (ready to use Github actions)
5. Run the app (test, publish, open it)

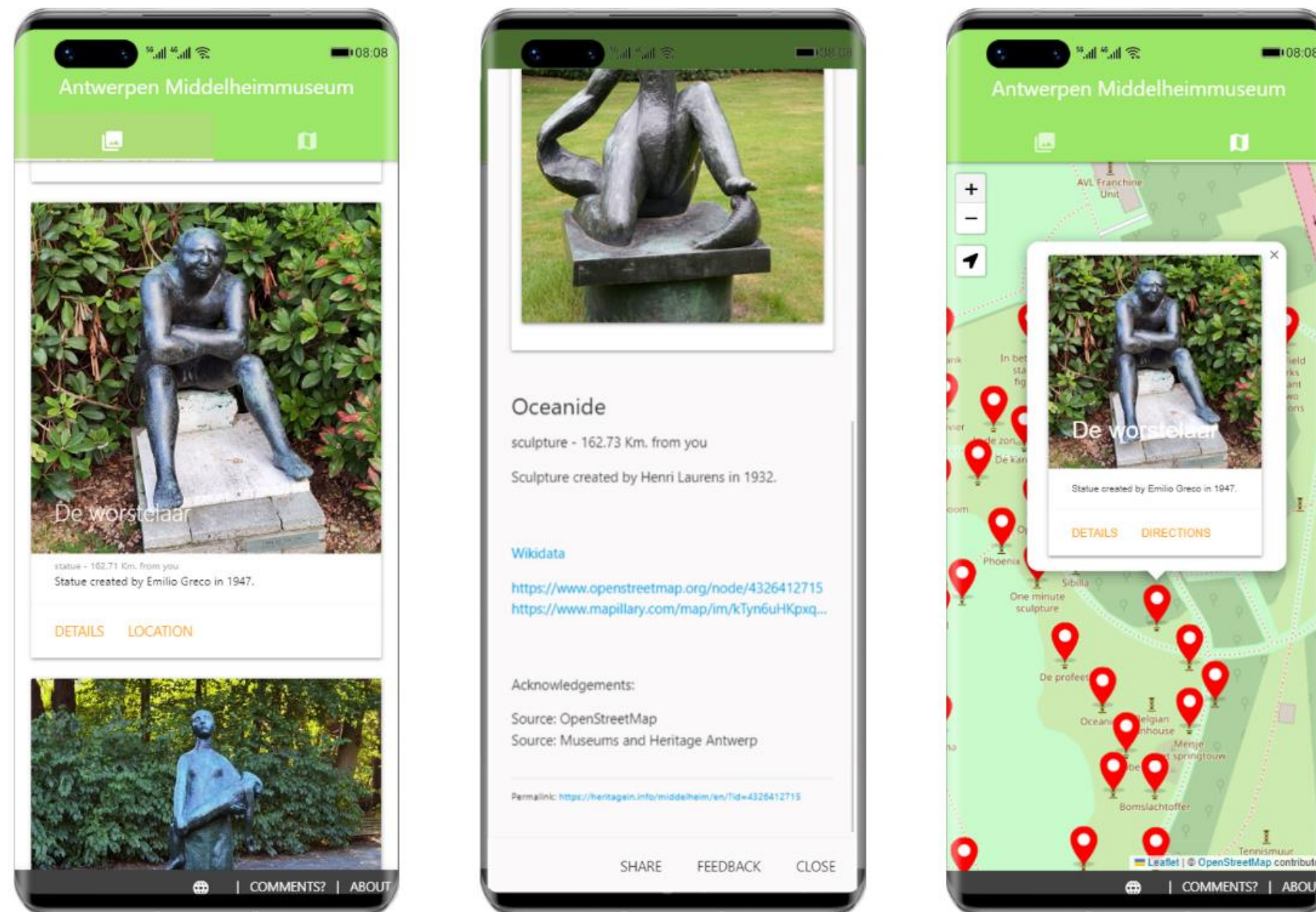
<https://ow2-miniapp-initiative.github.io/poi-miniapp/>

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Configuration file & database



Native App (OpenHarmony) & Web App

```
1 {
2   "app": {
3     "theme": {
4       "brand": "#9ce668",
5       "complementary": "#00ccf6"
6     },
7     "repository_url": "https://github.",
8     "text_info": "This app was created",
9     "text_acknowledge": "Thanks to Ope",
10    "text_feedback": "Please let us kn",
11  },
12  "pois": [
13    {
14      "id": "2376124830",
15      "type": "statue",
16      "lon": "4.4041079",
17      "lat": "51.1796373",
18      "name": "Oceanide",
19      "description": "Sculpture created",
20      "images": ["https://example.org/i",
21      "attributions": ["Source: Museums",
22      "wikidata": "id00293",
23      "urls": ["https://www.openstreetma",
24    ]
25  }
26 }
27 }
```

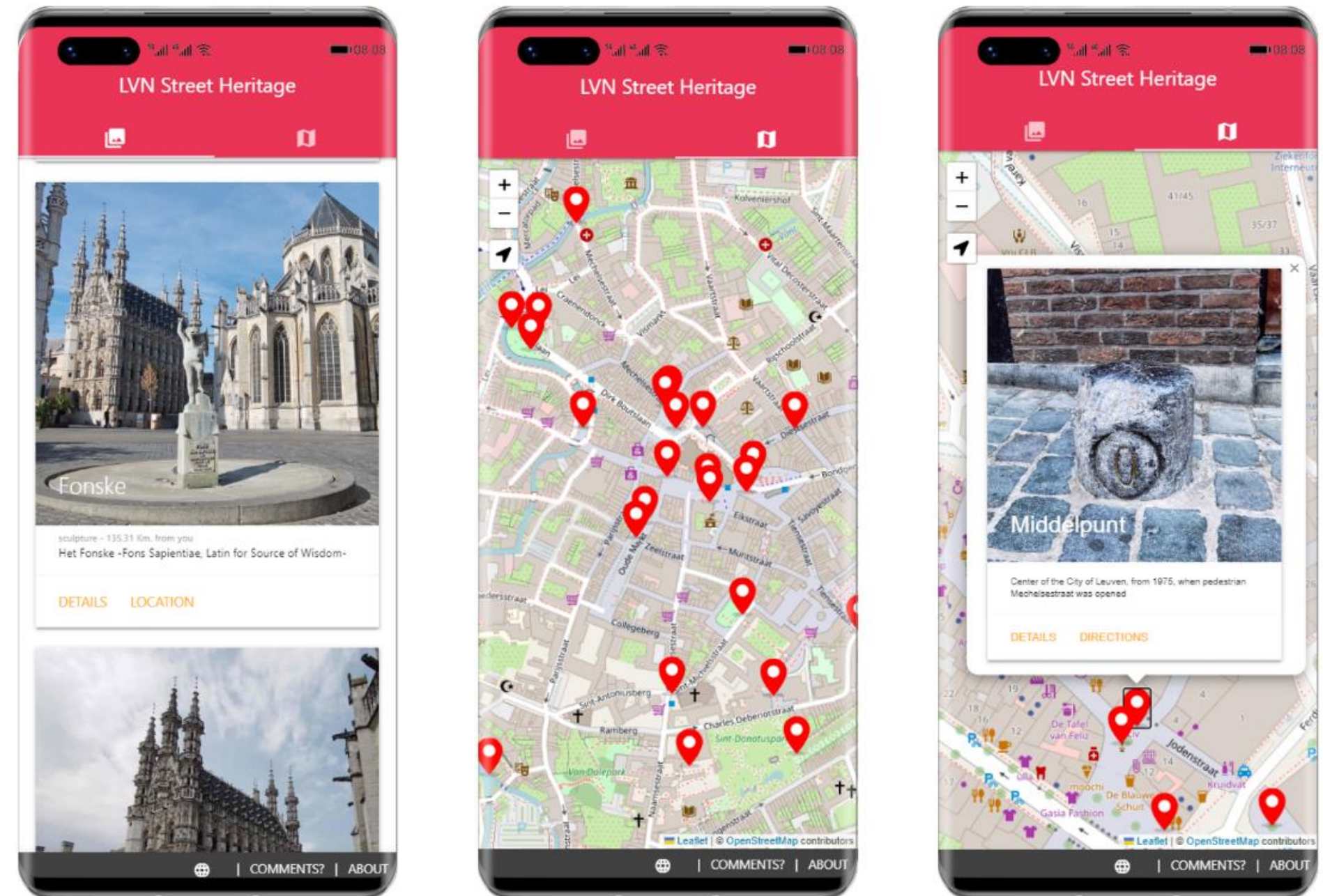

Customize color, languages, icons...

```
"content": {
  "en": {
    "app": {
      "theme": {
        "brand": "#071F32",
        "complementary": "#FAFAFA"
      },
      "repository_url": "https://github.com/ow2-quick-app-initiative/poi-quick...",
      "text_info": "This app is created by local experts, so it ...",
      "text_acknowledge": "This is open-source and enriched by the community...",
      "text_feedback": "Please let us know if you want to contribute ....",
      "feedback_url": "https://ow2-quick-app-initiative.github.io/.../#get-involved",
      "issue_url": "https://github.com/ow2-quick-app-initiative/issues/new?labels=fr/paris"
    },
    "pois": []
  }
}
```

The app is ready in seconds...

Standards + Open-Source

- Progressive Web Application
- Native App (OpenHarmony)
- MiniApp (QuickApp)



The app is ready in seconds...

Well... in minutes 😊

(tried yesterday in Oslo)

Please, list the most important touristic resources in Oslo



Oslo, the capital of Norway, is a vibrant city surrounded by nature, offering a mix of cultural, historical, and outdoor attractions. Here are some of the most important tourist resources in Oslo:

Cultural & Historical Attractions

1. **Viking Ship Museum (Vikingskipshuset)** – Home to remarkably preserved Viking ships and artifacts. *
(Note: Temporarily closed for renovation as part of the new Museum of the Viking Age, reopening around 2026-2027.)*
2. **Munch Museum** – Dedicated to Edvard Munch, Norway's most famous painter, featuring *The Scream* and other masterpieces.
3. **Norwegian Museum of Cultural History (Norsk Folkemuseum)** – An open-air museum with historic buildings, including a stave church, showcasing Norwegian life through the centuries.
4. **Fram Museum** – Exhibits the *Fram*, the strongest polar exploration ship, used by Amundsen and Nansen.
5. **Kon-Tiki Museum** – Displays Thor Heyerdahl's legendary expeditions, including the *Kon-Tiki* raft.
6. **The Royal Palace (Slottet)** – The official residence of the Norwegian monarch, surrounded by the beautiful Slottsparken.
7. **Akershus Fortress** – A medieval castle and military base with museums and panoramic views of the harbor.
8. **Oslo Opera House** – A stunning modern architectural masterpiece where visitors can walk on the roof.



Please create a table with that information, one row per point of interest, and with the following columns: name of the Poi, description (1 paragraph), more (1 or 2 paragraphs with more detailed info), latitude, longitude, url to the wikipedia page, img (URL to an image), license (of the image, if known), type (the category of the POI as listed in the list already)



Here’s a structured table with Oslo’s top tourist attractions, including descriptions, coordinates, Wikipedia links, image URLs, and categories:

Name	Description	More Details
Viking Ship Museum	Houses three original Viking ships and artifacts from burial sites.	Currently closed for r new Museum of the 1 and Gokstad ships.
Munch Museum	Dedicated to Edvard Munch, featuring <i>The Scream</i> and other expressionist works.	The new museum (of including rotating dis
Norwegian Folk Museum	Open-air museum with 160 historic buildings, including a stave church.	Hosts cultural events, culture. One of Europ
Fram Museum	Showcases the <i>Fram</i> , the ship used by polar explorers like Amundsen.	Interactive exhibits or can board the ship.
Kon-Tiki Museum	Displays Thor Heyerdahl’s <i>Kon-Tiki</i> raft and <i>Ra II</i> papyrus boat	Focuses on his 1947 asc Fram Museum

D



Generate a JSON file with the Poles inside an array using following template: { "pois" : [

```
{
  "id" : "{id autogenerated in the form 00001, 0002, 0003 etc.}",
  "type" : "{type}",
  "lon" : "{longitude}",
  "lat" : "{latitude}",
  "name" : "{title of Pol}",
  "description" : "{Description}",
  "more" : "{more description}",
  "images" : ["{the image URL}"],
  "attributions": ["{source where you found the resource or image license in text}" ],
  "URLs": []
}
```

}}



Here's the JSON file with Oslo's points of interest (POIs) structured according to your template:

json Copy Download

```
{
  "pois": [
    {
      "id": "00001",
      "type": "Cultural & Historical"
```

Message DeepSeek

DeepThink (R1)

Search





Here's the JSON file with Oslo's points of interest (POIs) structured according to your template:

json



```
{
  "pois": [
    {
      "id": "00001",
      "type": "Cultural & Historical",
      "lon": 10.6844,
      "lat": 59.9048,
      "name": "Viking Ship Museum",
      "description": "Houses three original Viking ships and artifacts from burial sites.",
      "more": "Currently closed for renovation (reopening as part of the new Museum of the Viking Age). Known for the Oseberg and Gokstad ships.",
      "images": ["https://upload.wikimedia.org/wikipedia/commons/thumb/7/7d/Viking_Ship_Museum_Oslo.jpg/640px-Viking_Ship_Museum_Oslo.jpg"],
      "attributions": ["CC BY-SA 4.0"],
      "URLs": ["https://en.wikipedia.org/wiki/Viking_Ship_Museum_(Oslo)"]
    },
    {
      "id": "00002",
      "type": "Cultural & Historical",
      "lon": 10.7606,
      "lat": 59.9072,
      "name": "Munch Museum",
      "description": "Dedicated to Edvard Munch, featuring The Scream and other expressionist works.",
      "more": "The new museum (opened 2021) has 11 floors of exhibits, including rotating displays of his 28,000 works.",
      "images": ["https://upload.wikimedia.org/wikipedia/commons/thumb/3/3f/Munchmuseet_2021.jpg/640px-Munchmuseet_2021.jpg"],
      "attributions": ["CC BY-SA 4.0"],
      "URLs": ["https://en.wikipedia.org/wiki/Munch_Museum_(Oslo)"]
    }
  ]
}
```



Message DeepSeek



DeepThink (R1)



Search



Oslo Attractions



National Museum

Cultural & Historical - 14 m. from you
Norway's largest art collection, from ancient to modern (including The

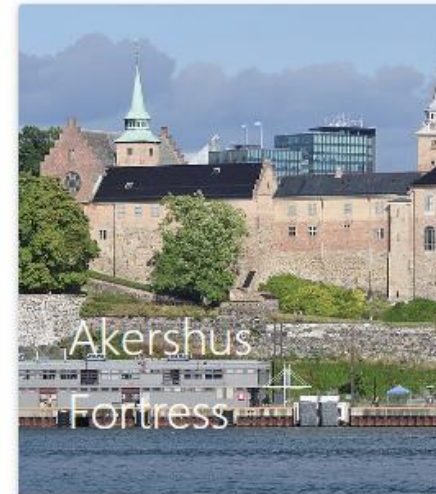
[DETAILS](#) [LOCATION](#)



Royal Palace

Cultural & Historical - 715 m. from you
Official residence of Norway's monarch, set in Slottsparken park.

[DETAILS](#) [LOCATION](#)



Akershus Fortress

Cultural & Historical - 1.18 Km. from you
Medieval castle with museums and views of the fjord.

[DETAILS](#) [LOCATION](#)



Mathallen Oslo

Modern & Unique - 1.20 Km. from you
Food hall with 30+ vendors selling Norwegian and international delicacies.

[DETAILS](#) [LOCATION](#)



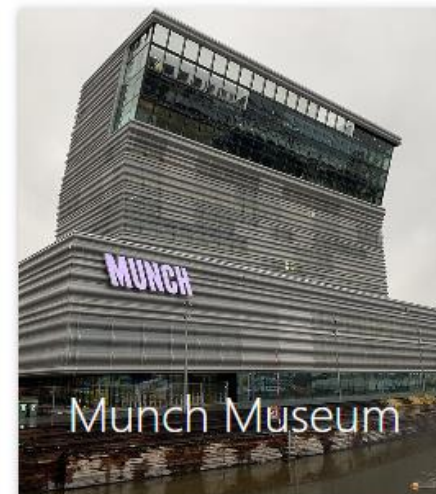
Oslo Opera House

Cultural & Historical - 1.34 Km. from you



Astrup Fearnley Museum

Modern & Unique - 1.63 Km. from you



Munch Museum

Cultural & Historical - 1.65 Km. from you



Vigeland Sculpture Park

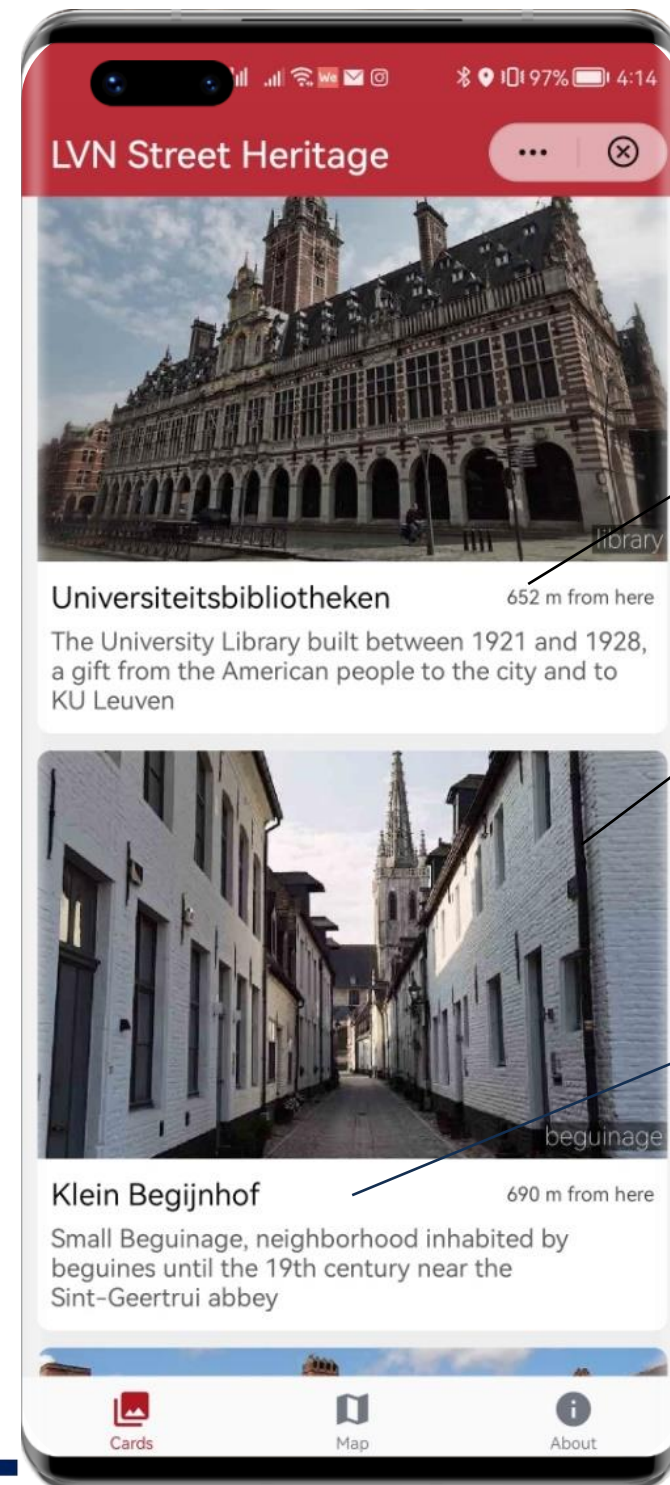
Outdoor & Scenic - 2.49 Km. from you



<https://heritagein.info/oslo/>



The App



CONTEXTUAL

Points of Interest shown by current distance

CROWDSOURCED

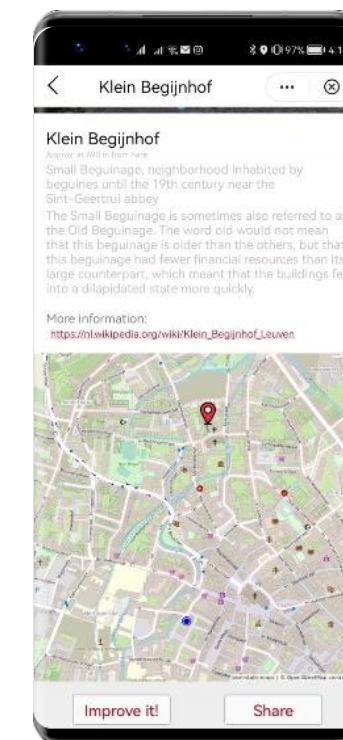
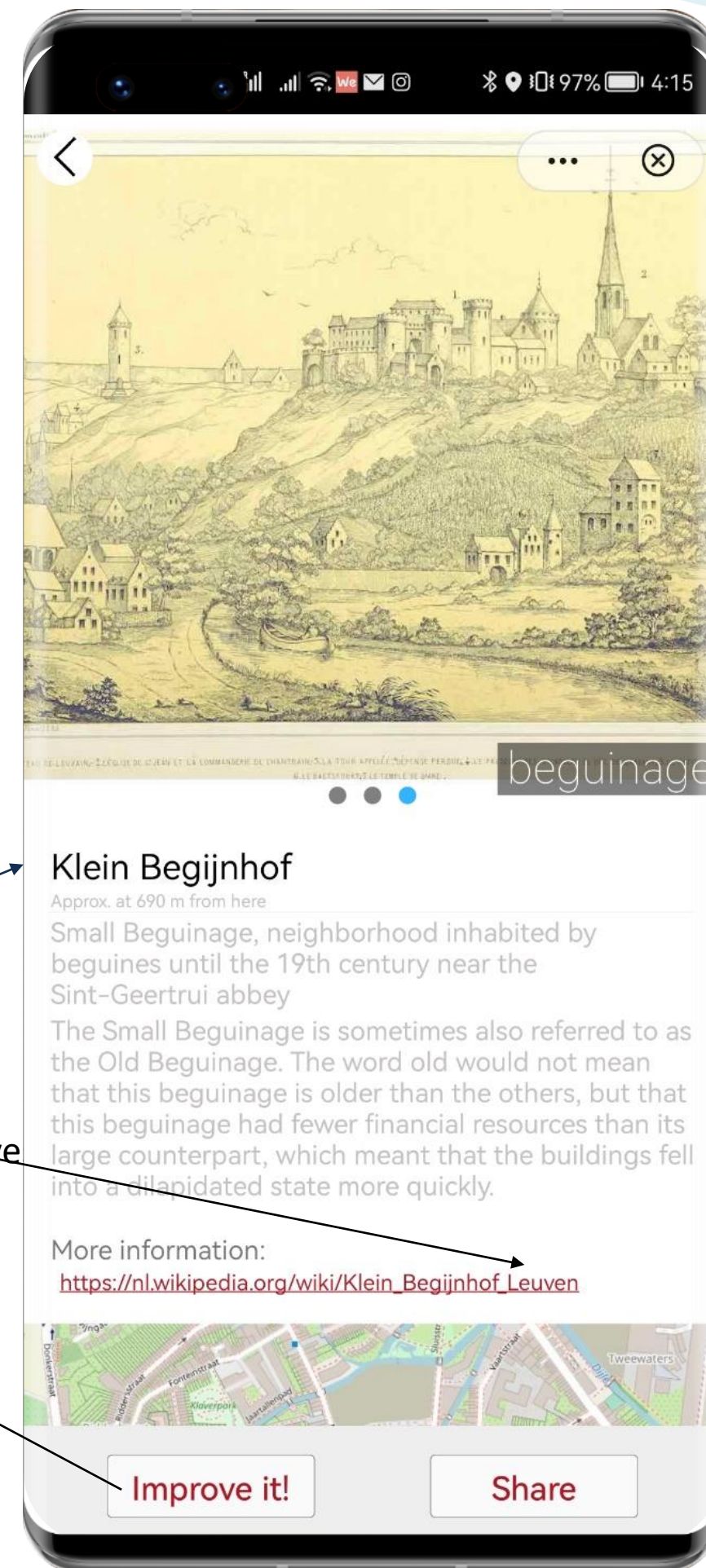
Images submitted by citizens, tourists...

OPEN DATA

Public information and images from local archive open data initiatives

EXPERT'S INPUT

Anyone can share their knowledge and enrich the database



USEFUL

User's position on the map and the PoI



PROMOTION



Users can share the content and a link with their friends (Twitter, WeChat, etc.)


Open to any type of heritage



<https://heritagein.info/women/>

Illustrious Parisian Women






Eugénie Cotton

Scientist - 396.15 Km. from you
A pupil of Marie Curie at the École normale supérieure de jeunes girls, Eugénie Cotton was received first in the female competition for the


DETAILS LOCATION



Maryse Hilsz

Sports - 396.59 Km. from you
Pioneer of French aviation and holding many speed and distance records, Maryse Hilsz is also a strong figure in resistance during


DETAILS LOCATION



Levha

Illustrious Parisian - 398.00 Km. from you
At 32 rue Saint-Maur is the restaurant of the Sisters Levha, the Double Dragon.


DETAILS LOCATION



Eleonora Zullani

Illustrious Parisian - 398.19 Km. from you
Italian trattoria, he Baccaro is between Place Voltaire and Father Lachaise and is held by the Eleonora Zullani head.


DETAILS LOCATION



Louise Michel

Politician - 398.81 Km. from you
Clémence-Louise Michel is one of the major figures in the town of Paris, she was a teacher but also an anarchist militant with feminist


DETAILS LOCATION



George Sand

Illustrious Parisian - 399.03 Km. from you
George Sand was born at 46 rue de Meslay, a commemorative plaque is affixed on the facade of the building paying tribute to him.


DETAILS LOCATION



Annie Girardot

Illustrious Parisian - 399.26 Km. from you
The 25 place des Vosges was the place of residence of Annie Girardot and Renato Salvatori from 1961.





DETAILS LOCATION




Silvia Monfort

Actress - 399.33 Km. from you
Silvia Montfort was born at 11bis rue Elzévir in 1923.

DETAILS LOCATION



 | [COMMENTS?](#) | [ABOUT](#)

Customized and enriched by the experts (the locals)



Adapted to
specific
artworks,
resources...
Astronomy →



Preserve local, promote global

ICT enables universal local heritage preservation and global outreach, but...
minimum toolsets, resources and policies are needed.

- **Open Data:** facilitate access to existing datasets/records;
- **Open Source:** tools and sample code to adapt/modify based on needs;
- **Policies and infrastructure:** leverage non-commercial solutions, initiatives
- **Crowdsourcing:** tools and support to engage local individuals... the real **experts**;
- **Standards for accessibility and inclusivity:** universal access by default.

Thank you