

Storytelling about Industrial Territories in a Place using a 3D Urban Environment

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1. Context

TIGA project

- Study the industrialization and deindustrialization
- Reconnect inhabitants with their territory
- Different areas studied in Lyon and Saint-Étienne

GRAND LYON
la métropole

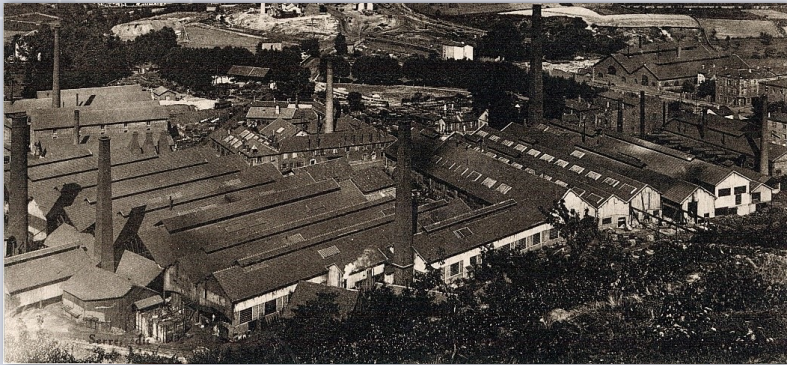
SÉM

SAINT-ÉTIENNE
la métropole



1. Context

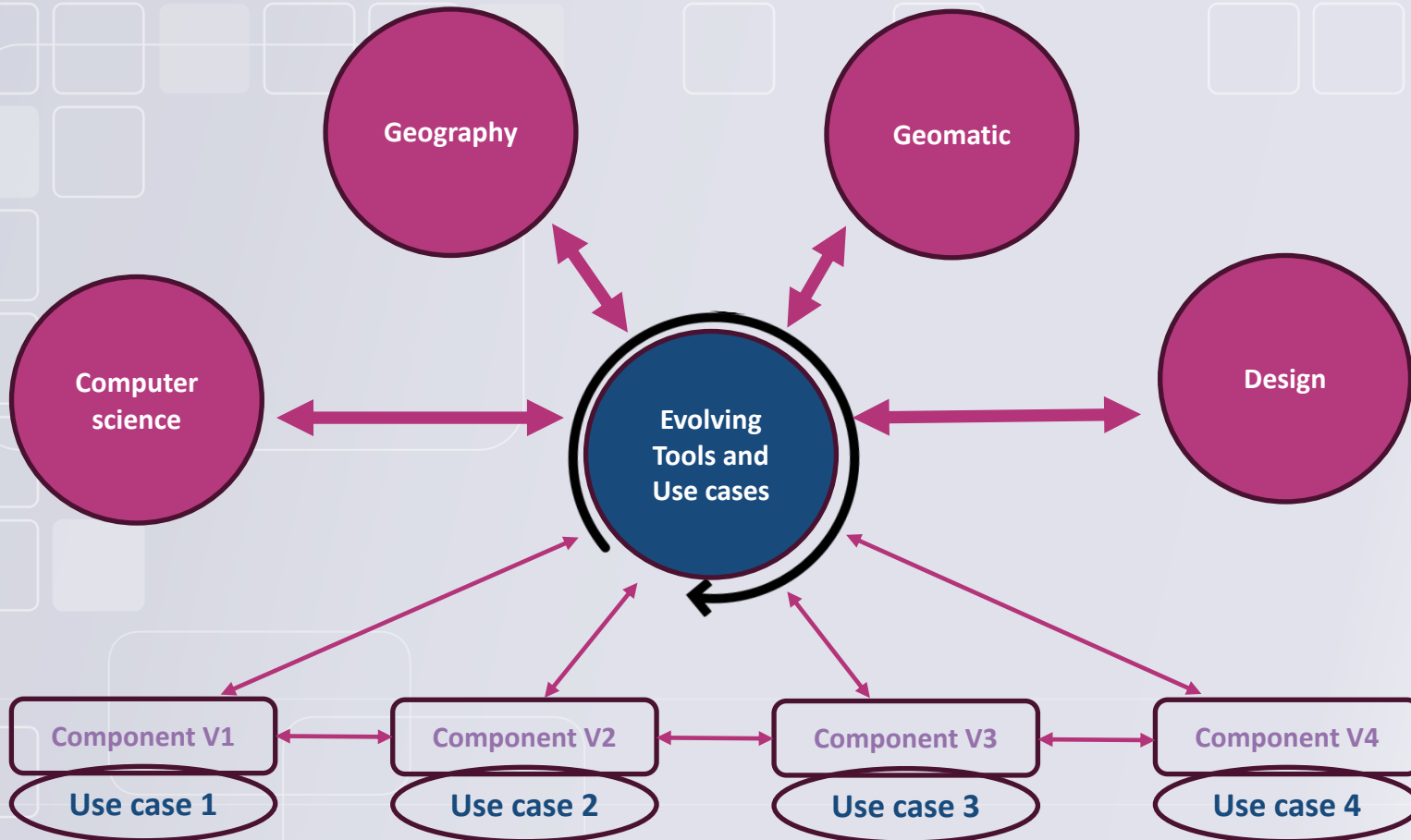
Gier valley: one of the oldest industrial valleys in France



Needs

- Narrating the (de)industrialization of the territory
- Showcasing industrial heritage
- Tools for public mediation

2. Methodology



Key requirements: **reusability** and **reproducibility**

2. Methodology

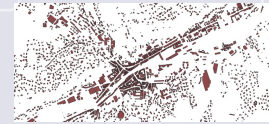
GRAND LYON
la métropole

SAINT-ÉTIENNE
la métropole

SÉM

Identify needs

with local authorities



Open data

Information about existing buildings



Company surveys

Information about companies



Archive data

Historical information and media

Collect data

from surveys and open data

Research

T|B|A

Design a tool

with design specialists

LIRIS

Berger
Levrault

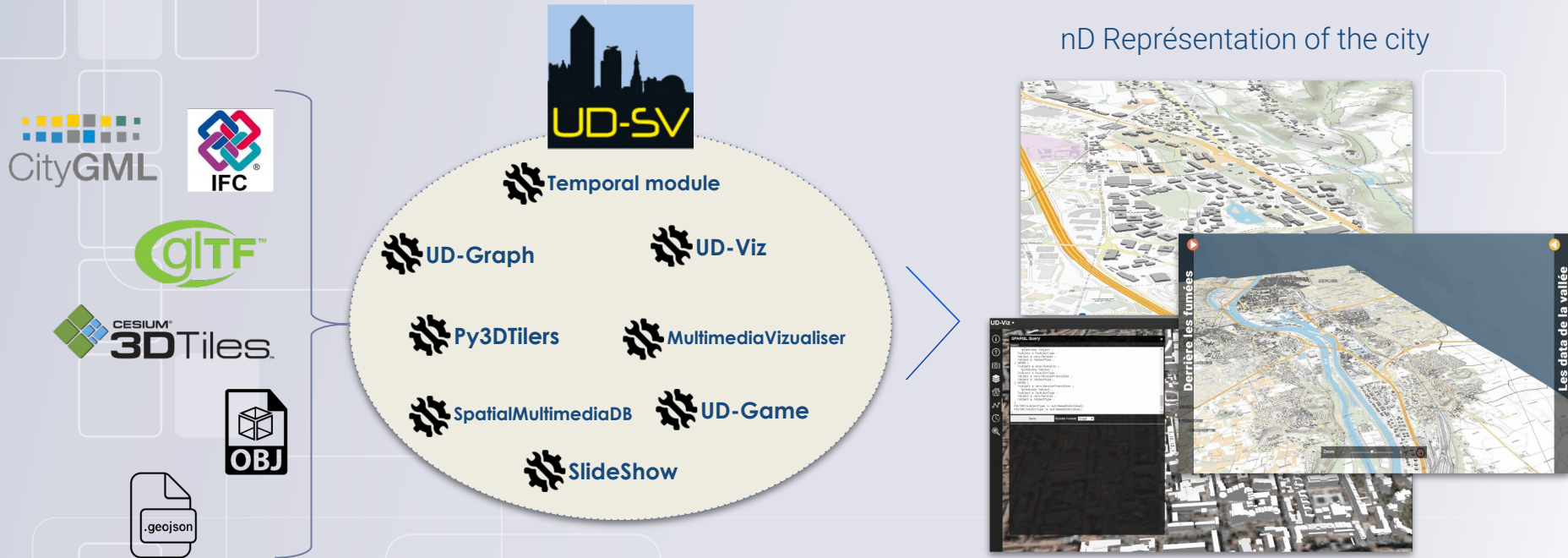
Develop

components and applications



3. Tools – UD-SV

Platform for the multidimensional navigation of urban data



GitHub VCityTeam/UD-SV

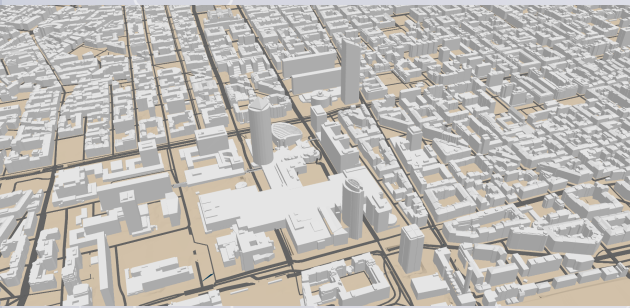
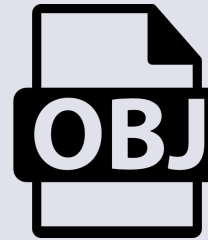
Samuel, J., Jaillot, V., Colin, C., Alvarez, D. V., Boix, E., Servigne, S., & Gesquière, G. (2023). UD-SV: Urban data services and visualization framework for sharing multidisciplinary research. Transactions in GIS.

3. Tools – Py3DTilers

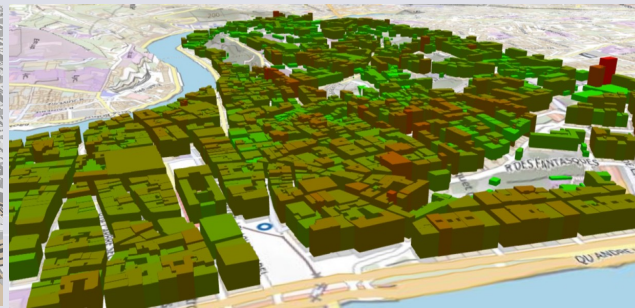
Open source Python toolkit to create 3D Tiles



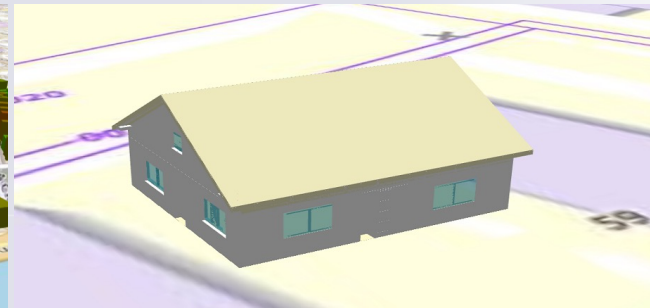
GEOJSON



Created from CityGML



Created from GeoJSON



Created from IFC

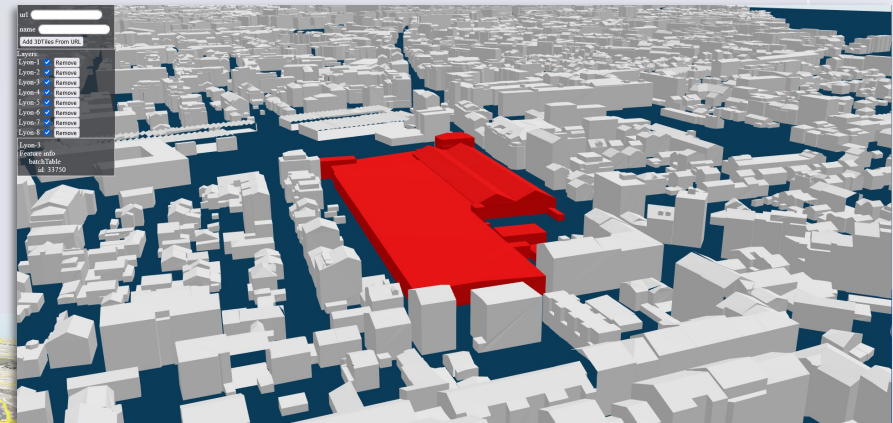


Marnat, L., Gautier, C., Colin, C., & Gesquière, G. (2022). PY3DTILERS: An Open Source Toolkit for Creating and Managing 2D/3D Geospatial Data. ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences, 10.

3. Tools – UD-Viz

JavaScript library for interacting with geospatial data

- Creates a 3D scene
- Displays data layers
- Allows to interact with data

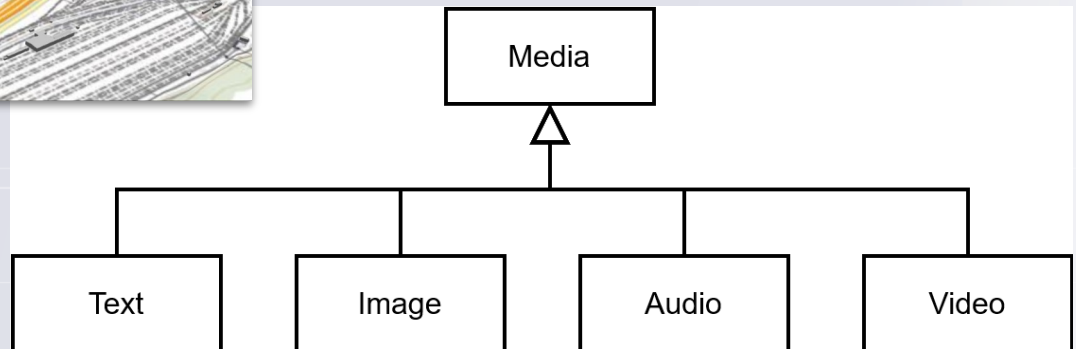
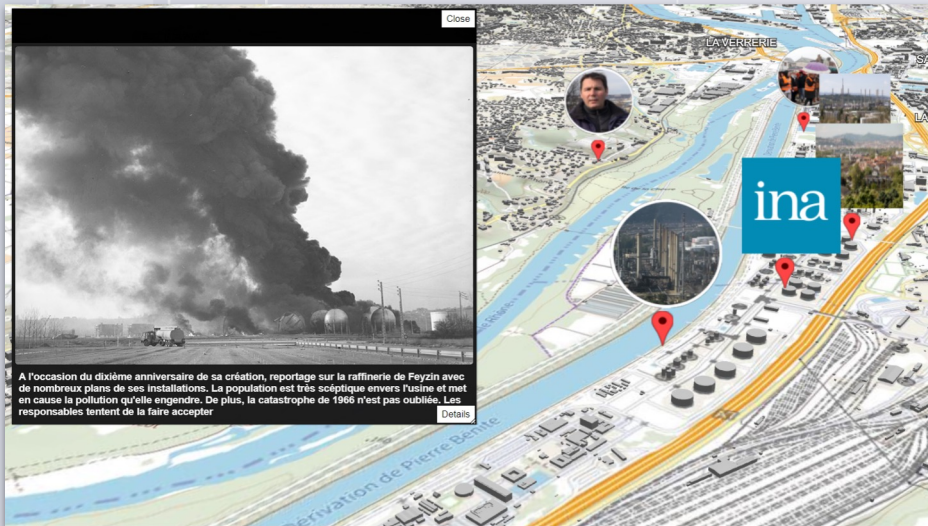




Open source library based on iTowns

 VCityTeam/UD-Viz
GitHub iTowns/itowns

3. Tools – Media

Media enhance the storytelling and give additional information



  Gautier, C., Delanoy, J., & Gesquière, G. (2022). Integrating Multimedia Documents in 3d City Models for a Better Understanding of Territories. ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences, 10.

4. Our proposition

Tour

Data and media in a 3D scene

Guided Tour

- Use of steps for a narrative
- Content is predetermined

Open Tour

- Free navigation
- Access to all data and layers

Quiz Tour

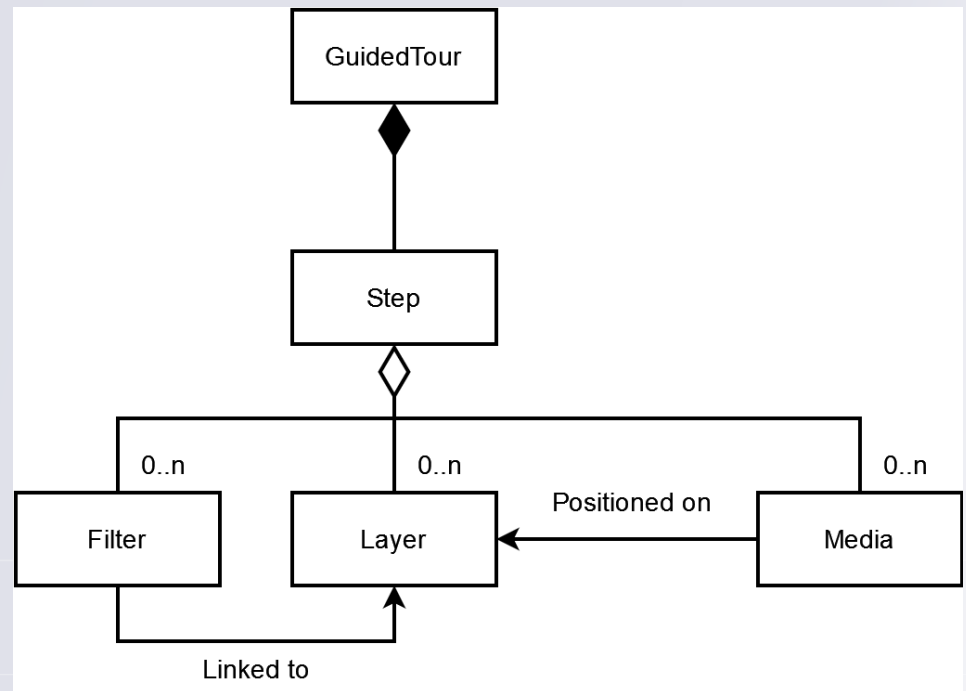
Historical Tour

4.1. Guided Tour

A Guided Tour is a sequence of *Steps*

Each step can have:

- Displayed data layers
- Filters on layers
- A 3D position/rotation
- Associated media



4.1. Guided Tour – Types

Quiz tour

Bienvenue à Lorette

Lorette est aussi célèbre pour Mavlor, qui signifie...

Manufacture des Viticulteurs de Lorette

Manufacture des Vins de Lorette

Manufacture des Vilebrequins de Lorette

Dans les années 30, on fabriquait à Lorette des vilebrequins de moteurs ; il s'agit d'une pièce maîtresse du moteur diesel et du moteur à explosion. L'usine, basée à l'Herme, devenue ThyssenKrupp Mavlor, a cessé son activité en juin 2010 : 373 personnes ont perdu leur emploi.

Le vilebrequin figure sur les armoiries de la ville de Lorette.

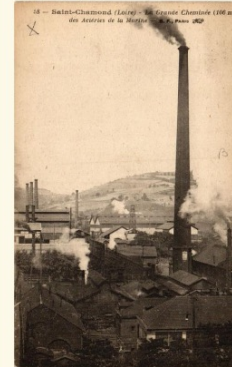


- Short interactive tour
- Targets the general public
- Offers concise information

Historical tour

Un siècle d'industrialisation

Comparez l'urbanisation et l'industrialisation de la vallée du Gier en 1812 et en 1932.



- Long detailed tour
- Targets a public interested in the territory
- Presents historical research

4.1. Guided Tour – Demonstration



Part of an historical guided tour available in the online demo

https://www.imuvirtuel.fr/vcity/valleedugier/html/parcours_histo_2.html

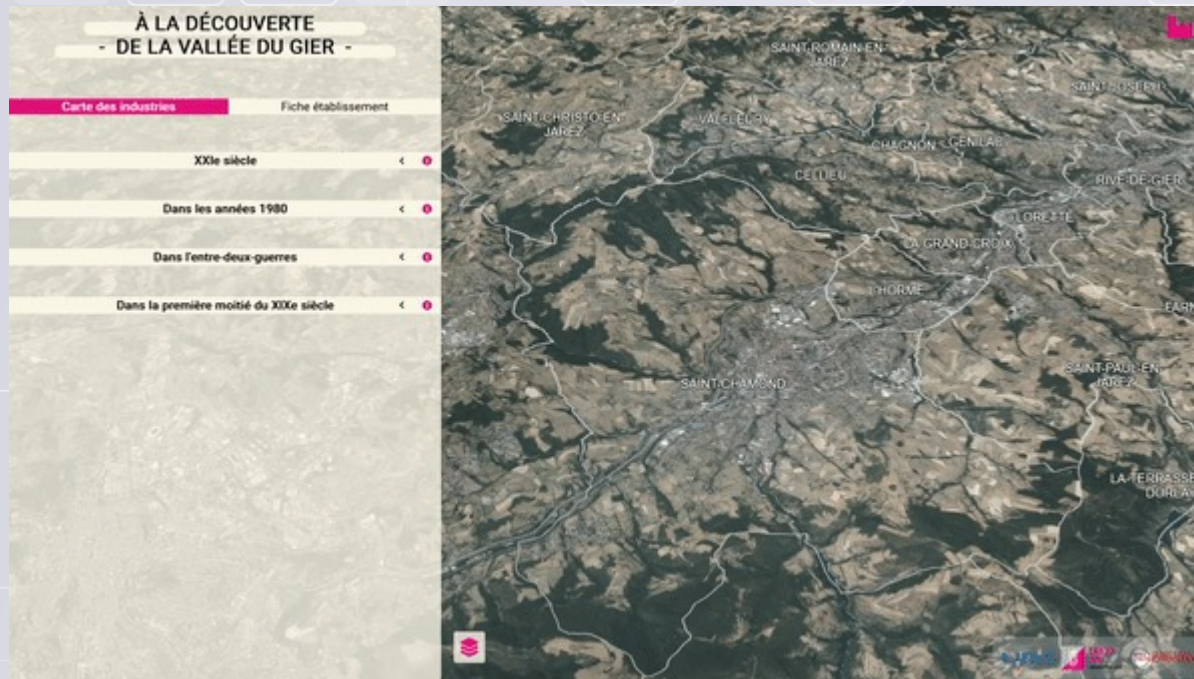
4.2. Open Tour

Navigate freely in data and the 3D scene

- Explore the 3D scene without constraints
- Access all data about buildings and industry
- Choose which layers to display
- Click on buildings for more information



4.2. OpenTour – Demonstration



Part of the open tour available in the online demo

https://www.imuvirtuel.fr/vcity/valleedugier/html/open_visit.html

5. Reusability and reproducibility

Open source project

Components and data can be reused:

- On new territories and themes
- As a base for new projects
- For creating a stand-alone demonstration

Use case

Co-creation



Components

Find code, data, documentation, docker and demo online

- Code & data: <https://github.com/VCityTeam/UD-Demo-TIGA-Vallee-Du-Gier>
- Docker: <https://github.com/VCityTeam/UD-Demo-TIGA-Vallee-Du-Gier-docker>
- Demo: <https://www.imuvirtuel.fr/vcity/valleedugier/>

6. Public demonstration

Presentation to the general public

- Test the tours
- Collect feedback
- Refine the approach



Pop'Science festival at Villeurbanne, 2023

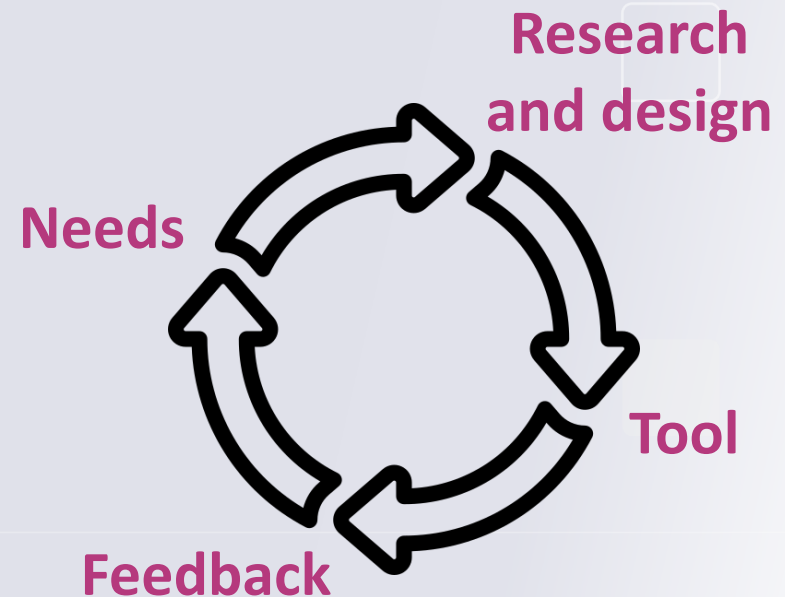
7. Conclusion

Open source tool to create historical narratives

- Modeling and development for storytelling of (de)industrialization
 - Guided Tour: sequence of steps
 - Open Tour: free navigation
- Reusable and reproducible components

Future works:

- Enhance the tool to create and edit tours
- Extensions of mediation tools (tangible representation, gamification, ...)



Thank you for your attention

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<https://github.com/VCityTeam/UD-Demo-TIGA-Vallee-Du-Gier>