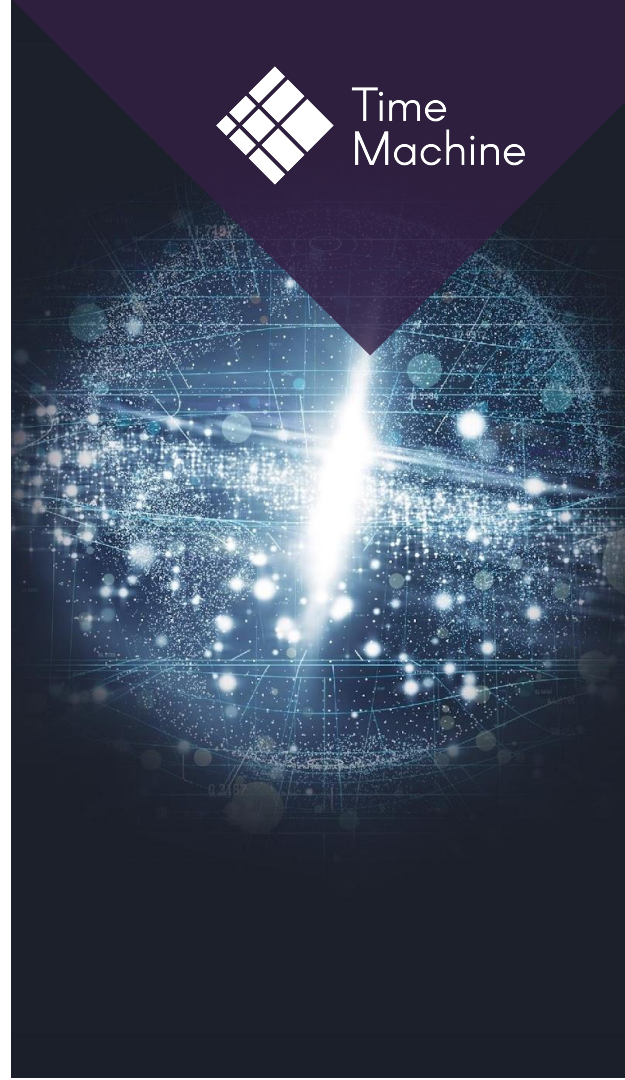# Time Machine Organisation
Introduction

28 May 2025

Time Machine

The beginning…

Time Machine

UNLEASHING BIG DATA OF THE PAST – EUROPE BUILDS A TIME MACHINE

The European Commission has chosen Time Machine as one of the six proposals retained for preparing large scale research initiatives to be strategically developed in the next decade.

€1 million in funding has been granted for preparing the detailed roadmaps of this initiative that aims at extracting and utilising the Big Data of the past. Time Machine foresees to design and implement advanced new digitisation and Artificial Intelligence (AI) technologies to mine Europe's vast cultural heritage, providing fair and free access to information that will support future scientific and technological developments in Europe.
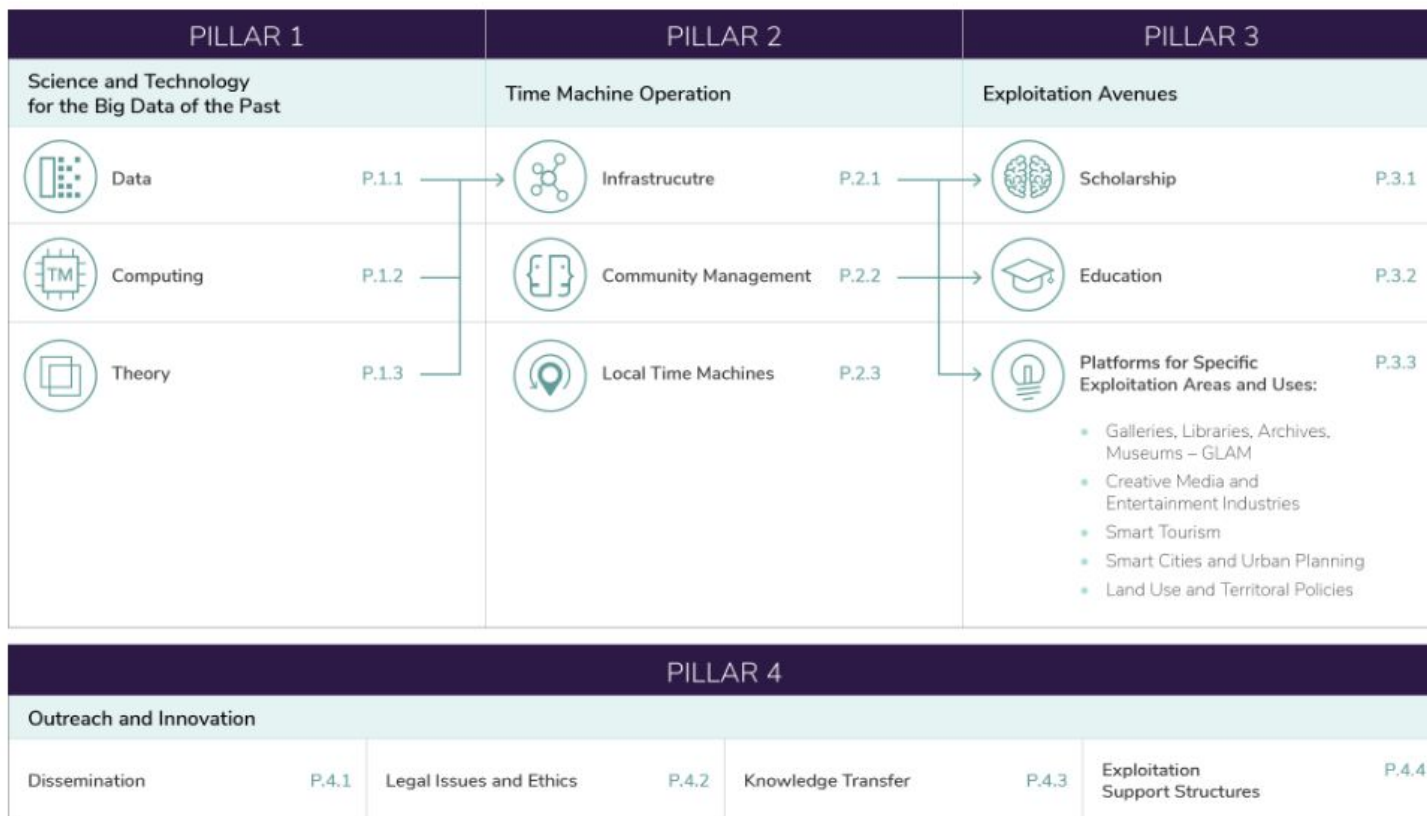
One of the most advanced Artificial Intelligence systems ever built

The Time Machine will create advanced AI technologies to make sense of vast amounts of information from complex historical data sets. This will enable the transformation of fragmented data – with content ranging from medieval manuscripts and historical objects to smartphone and satellite images – into useable knowledge for industry. In essence, a large-scale computing and digitisation infrastructure will map Europe's entire social, cultural and geographical evolution. Considering the unprecedented scale and complexity of the data, The Time Machine's AI even has the potential to create a strong competitive advantage for Europe in the global AI race.
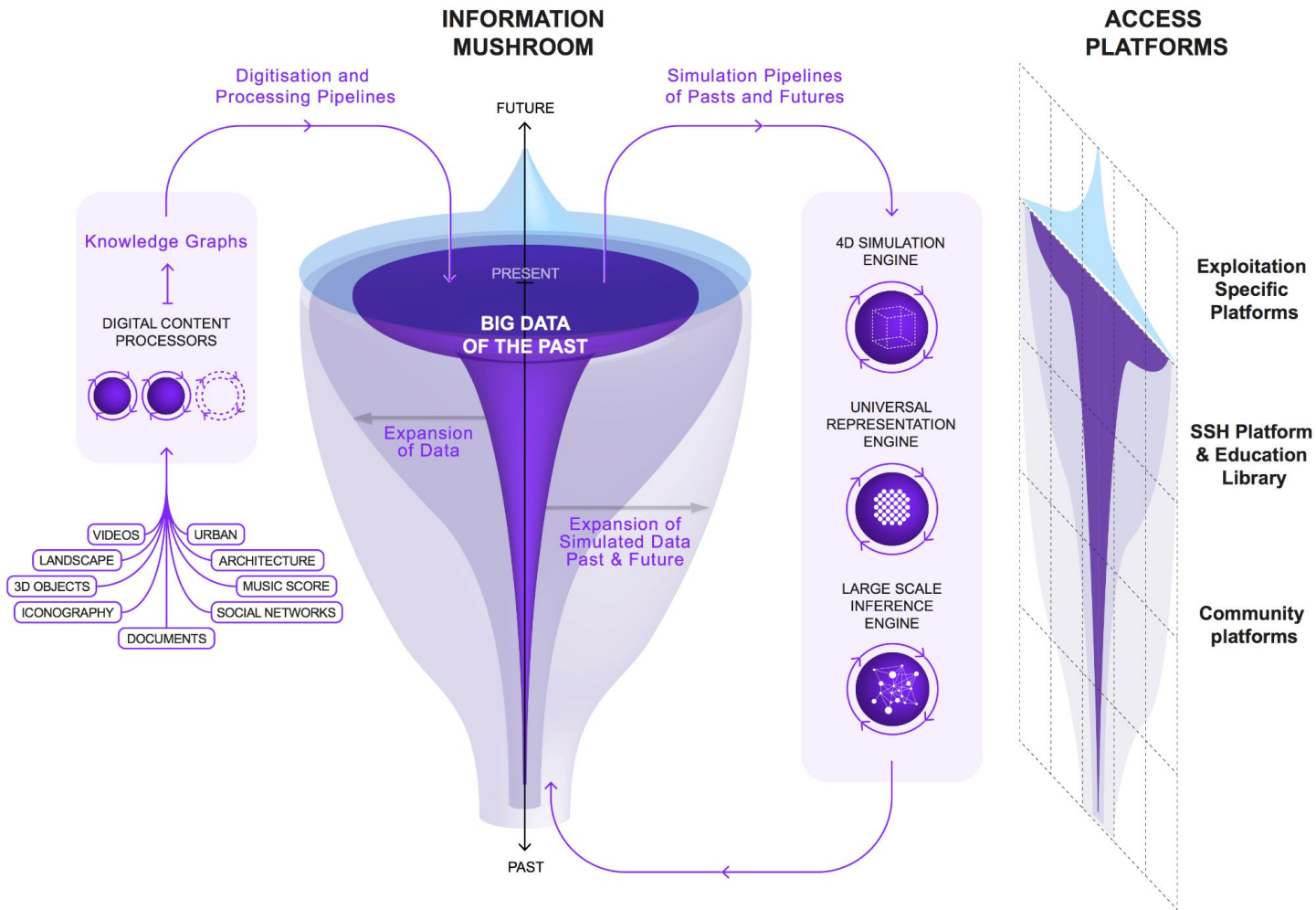
"Time Machine is likely to become one of the most advanced Artificial Intelligence systems ever built, trained on data from wider geographical and temporal horizons", explains Frederic Kaplan, Professor of Digital Humanities at the Ecole Polytechnique Fédérale de Lausanne (EPFL) and Coordinator of the Time Machine Project.

Cultural Heritage as a valuable economic asset

Cultural Heritage is one of our most precious assets, and the Time Machine's ten-year research and innovation program will strive to show that rather than being a cost, cultural heritage investment will actually be an important economic driver across industries. This constant source of new knowledge will be an economic motor, giving rise to new professions, services and products in areas such as education, creative industries, policy making, smart tourism, smart cities and environmental modelling. For example, services for comparing territorial configurations across space and time will become an essential tool in developing modern land use policy or city planning. Likewise, the tourism industry will be transformed by professionals capable of creating and managing newly possible ex-
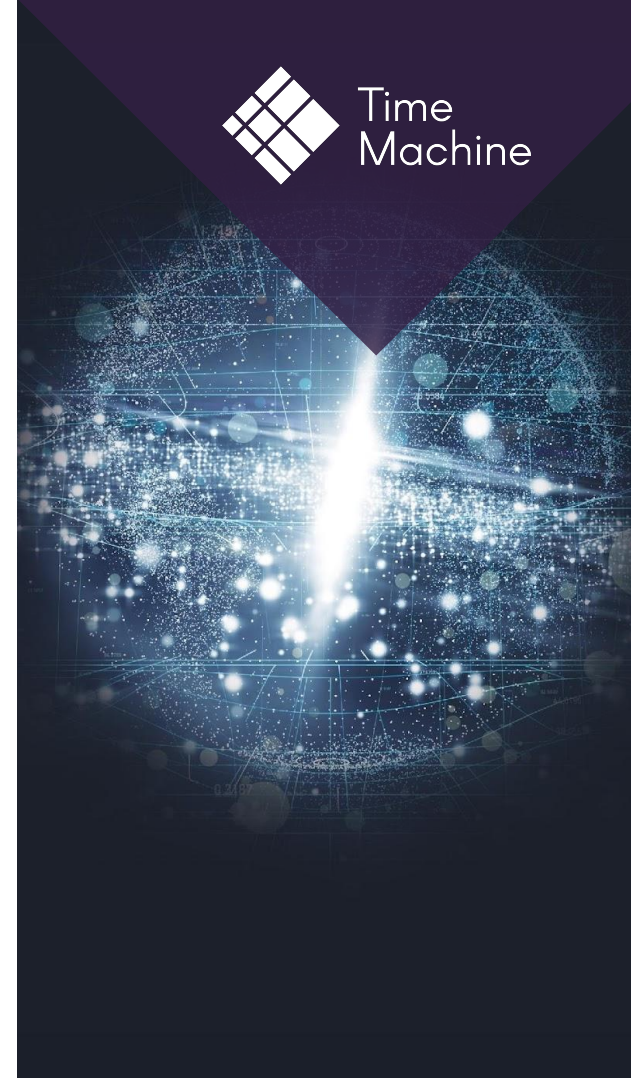
2018

PILLAR 1		PILLAR 2		PILLAR 3	
Science and Technology for the Big Data of the Past		**Time Machine Operation**		**Exploitation Avenues**	
Data	P.1.1	Infrastrucutre	P.2.1	Scholarship	P.3.1
Computing	P.1.2	Community Management	P.2.2	Education	P.3.2
Theory	P.1.3	Local Time Machines	P.2.3	Platforms for Specific Exploitation Areas and Uses:	P.3.3
				• Galleries, Libraries, Archives, Museums – GLAM	
				• Creative Media and Entertainment Industries	
				• Smart Tourism	
				• Smart Cities and Urban Planning	
				• Land Use and Territoral Policies	

PILLAR 4							
Outreach and Innovation							
Dissemination	P.4.1	Legal Issues and Ethics	P.4.2	Knowledge Transfer	P.4.3	Exploitation Support Structures	P.4.4

2018

INFORMATION MUSHROOM

ACCESS PLATFORMS

Digitisation and Processing Pipelines

Simulation Pipelines of Pasts and Futures

FUTURE

Knowledge Graphs

4D SIMULATION ENGINE

DIGITAL CONTENT PROCESSORS

PRESENT

BIG DATA OF THE PAST

Exploitation Specific Platforms

UNIVERSAL REPRESENTATION ENGINE

Expansion of Data

SSH Platform & Education Library

VIDEOS   URBAN
LANDSCAPE   ARCHITECTURE
3D OBJECTS   MUSIC SCORE
ICONOGRAPHY   SOCIAL NETWORKS
DOCUMENTS

Expansion of Simulated Data Past & Future

LARGE SCALE INFERENCE ENGINE

Community platforms

PAST

2016-2018

The TMO and projects…

Executive Board

Time Machine

Frédéric Kaplan
President TMO

Isabella di Lenardo
Local Time Machines

Thomas Aigner
Vice president TMO

Sander Münster
Project Scouting Service Lead Strategist and Secretary TMO

Robert Sablatnig
Treasurer TMO

Martina Bolom-Kotari
Deputy Secretary TMO

Valérie Gouet-Brunet
Deputy Treasurer TMO

Team Members

Ágnes Telek
Social Media Officer

Antonia Bobik
Communications Officer

Atıl Büyükburc
Project Manager

Caroline Maximoff
Administration Officer / Communications Officer

Daniel Jeller
Chief Technical Officer

Juha Henriksson
Partnership Manager

Kerstin Muff
Chief Communications Officer

Kevin Baumer
Programme Manager

Manuel Ehrenfeld
Software Engineer

Raimund Schnürer
Project Officer

Time
Machine

Alliance Members

Institutions

Alliance Members

Individuals

574
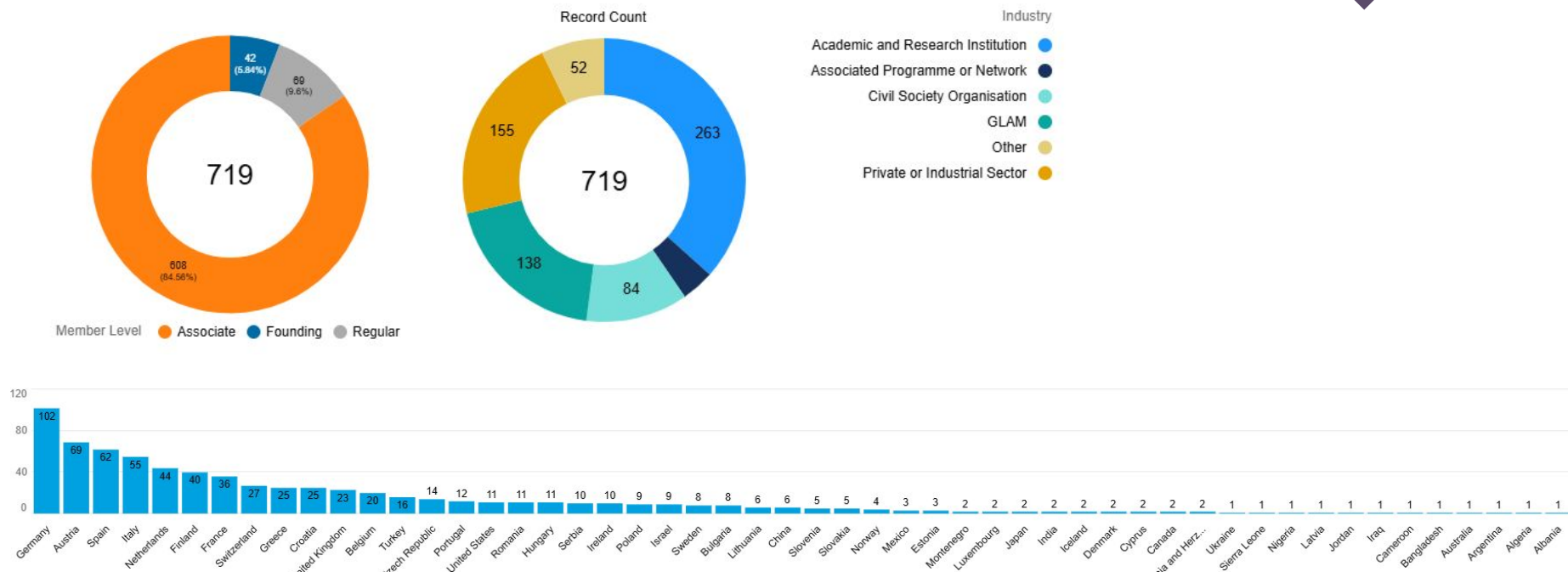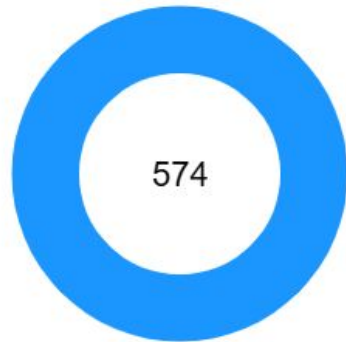
TMO Supporter ● true

TMO Project Participation

ARCHE   (2022-2025)
C4Education   (2022-2024)
Common European Dataspace for CH   (2022-2026)
EIT Culture & Creativity   (2022-   )
5DCulture   (2023-2024)
ECHOES (ECCCH)   (2024-2029)
3DBigDataSpace   (2025-2026)
MetaHeritage   (2025-2026)
3D-4CH   (2025-2028)
… and more to come soon!

Time Machine

Time Machine Academies

Build your 4D Time Machine Atlas – Digitizing Historical Maps

Last installment on 18 October 2024

Time Machine Academy: Lillo 1640 – Methodology and Workflow of Virtual Reconstruction

Last installment on 7 July 2023

Recogito: Online OS Tool for Collaborative Document Annotation

Last installment on 19 May 2023
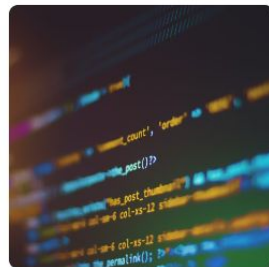
IIIF: Open standards for inter-operable functionality in digital asset repositories

Last installment on 4 November 2021
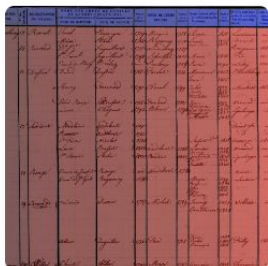
dhSegment: A generic deep-learning approach for document segmentation

Last installment on 3 June 2021

and more to come…

Time Machine

Events

Time Machine

ABOUT US   BUILDING A TIME MACHINE   TIME MACHINE ACADEMIES   NEWSROOM   EVENTS   JOIN US

3 June 2025 09:30 – 18:00
DIGITISATION, CULTURAL HERITAGE AND SMART TOURISM

MATCH & FUND 2025: CULTURAL HERITAGE & INNOVATION MATCHMAKING

Date: *3 June 2025*
Time: *9:00 – 18:00 CET*
Venue: *Online*
Participation: *registration kindly requested here.*
Language: *English*

Ready to turn your project idea into a funded EU collaboration?
Join us for *Match & Fund 2025: Cultural Heritage & Innovation Matchmaking*, a pan-European online event on *3 June 2025*, hosted by the *Time Machine Organisation*.

This dynamic full-day event connects creatives, researchers, and innovators working at the intersection of *culture, technology, and heritage* — helping you discover funding opportunities, meet potential partners, and kickstart future-proof projects.

WHAT'S IN IT FOR YOU?

Morning insights (09:30–12:30 CET)
Get the lowdown on *Horizon Europe Cluster 2, Creative Europe, Digital Europe, EIT Culture & Creativity*, and more. Discover the right programme for your idea and hear about the *TMO Synergy Grants*.

Afternoon matchmaking (13:00–18:00 CET)
Use the *B2Match platform* to meet potential partners one-on-one. Build strategic partnerships across Europe's culture and innovation ecosystem. The full agenda is available via the link below.

Project Scouting

FUNDING OPPORTUNITIES

As member of our Time Machine network you are warmly invited to get in touch with our Project Scouting Service team in case any of the below-mentioned funding opportunities spark your interest!

Also note the easy to use interactive search tool for funding opportunities recently published by the European Commission to "find the right funding opportunity for you, based on the sector you are working in, type of organisation and the support you are looking for."

PROJECT IDEAS

If you have an idea for a project matching a funding opportunity feel free to register it from within the individual funding opportunity detail pages. To directly browse all currently open ideas, please visit the project ideas page.

CURRENT OPEN CALLS

RESEARCH ON SOCIETAL TRANSFORMATION THROUGH CREATIVTE APPROACHES AND CULTURAL PRACTICES

EIT CULTURE & CREATIVITY Transformation programme

Opening date: *7 May 2025*

VISEGRAD FUND

Strategic Grants (Czechia, Hungary, Poland, Slovakia)

Opening date: *1 February 2025*

Closing time: *1 June 2025 23:59 (Europe/Brussels)*

Total budget: *€ 500 000*

Official website

Local Time Machines

Today 145 Local Time Machine Projects
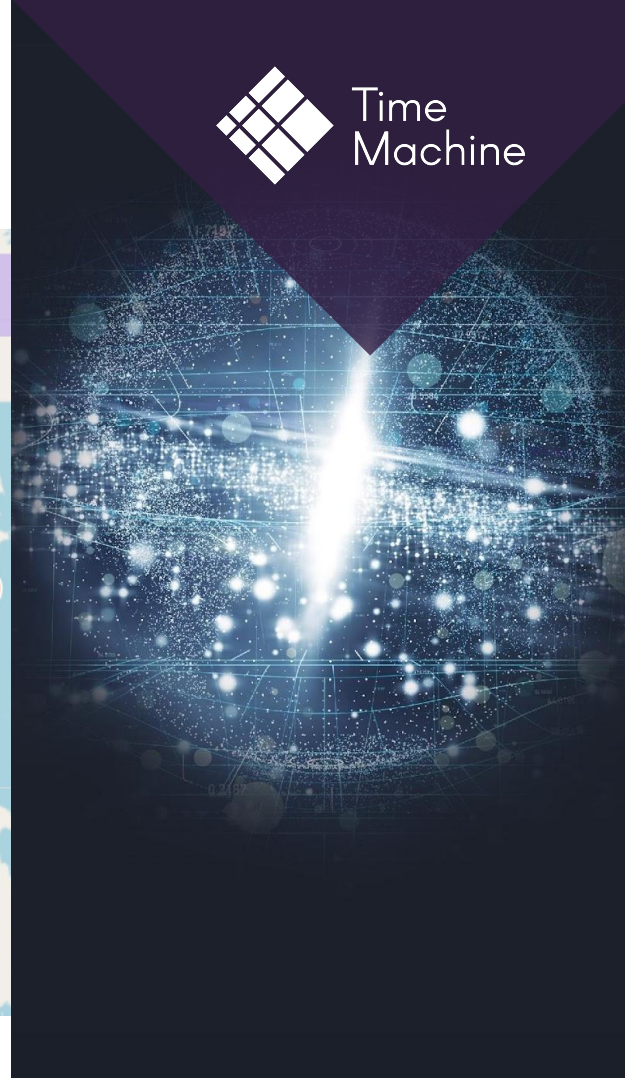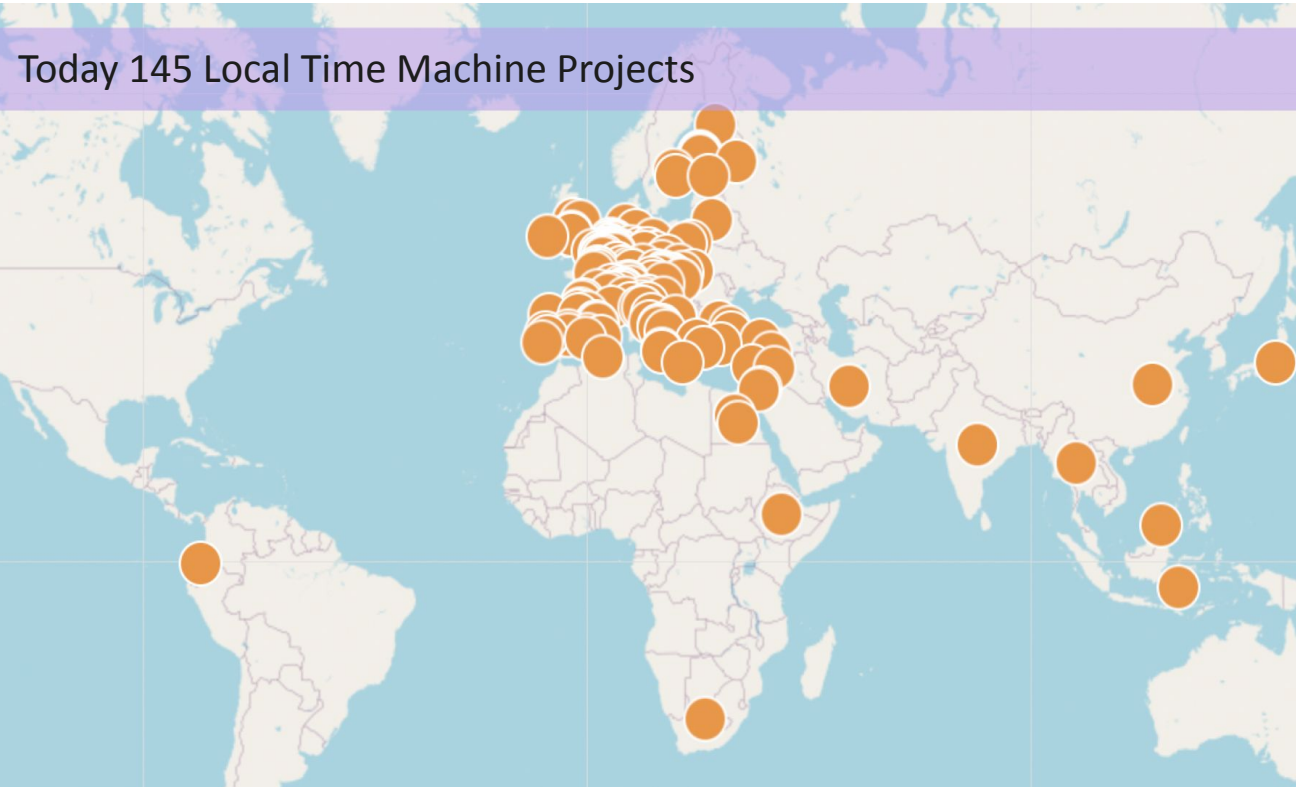
Time Machine

Local Time Machines

Today 85 Local Time Machines

GLOBALISE
1600 - 1800

Leaflet | © OpenStreetMap contributors
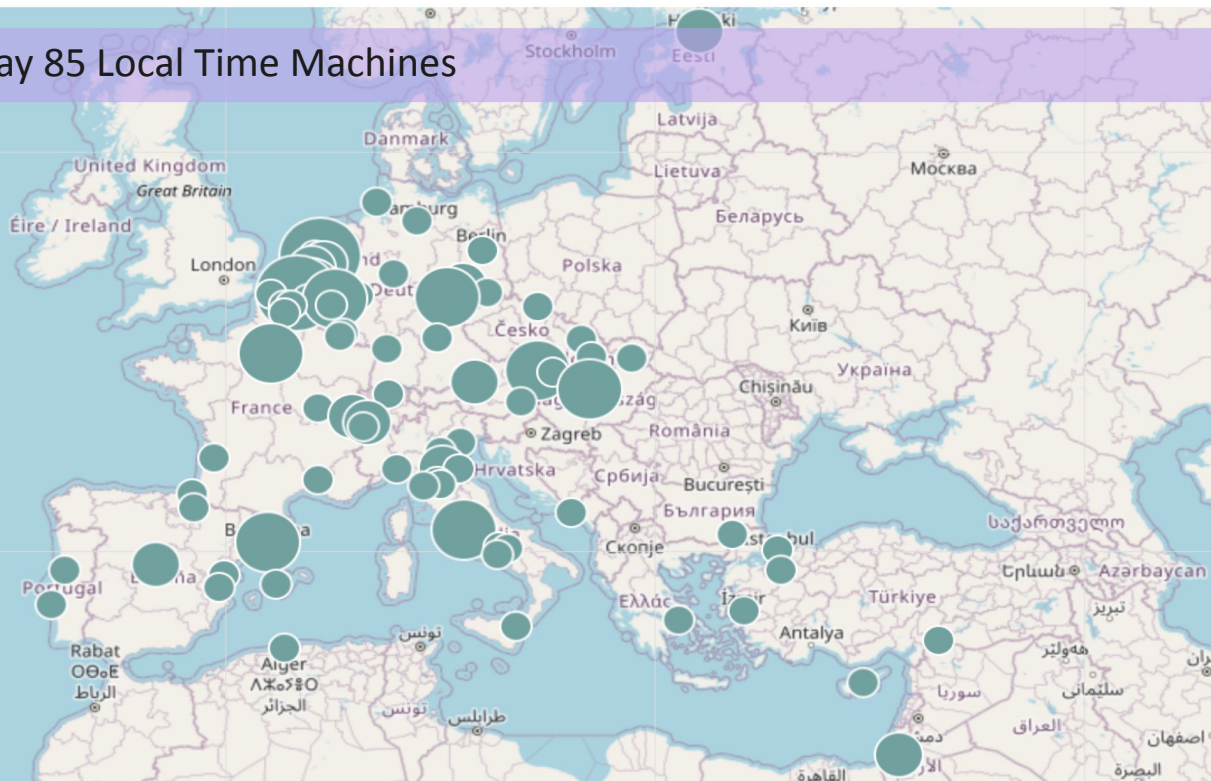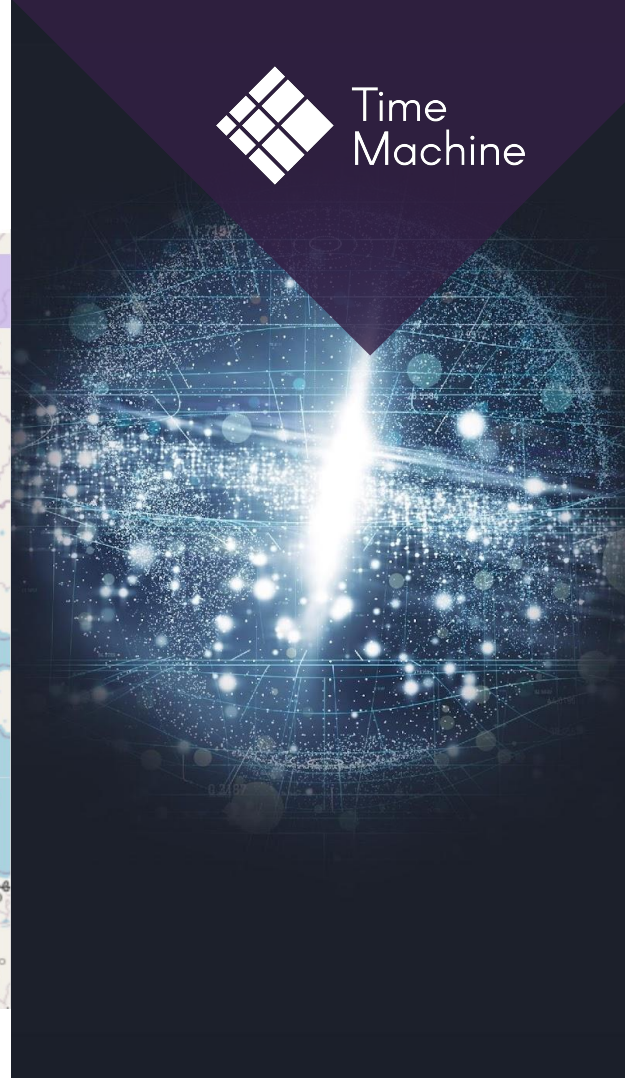
GLOBALISE (General Letters Ontology-Based AccessibiL-ity InfraStructurE, 2022-2026) aims to unlock the key series of documents and reports in the archives...

AI   ARCHIVE

CROWDSOURCING / CITIZENS' SCIENCE

DIGITAL HUMANITIES

DIGITAL INFRASTRUCTURE

HISTORICAL DOCUMENTS (E.G. NOTARIAL SOURCES; CENSUS RECORDS; ECCLESIASTICAL DOCUMENTS; CORRESPONDENCE)

KNOWLEDGE GRAPH   LINKED DATA

MACHINE LEARNING

NATURAL LANGUAGE PROCESSING (NLP)

OCR / HTR   PALEOGRAPHY   PERSONS DATA

SOCIO-ECONOMIC HISTORY

TOOLS FOR DATA MINING/EXTRACTION

LOCAL TIME MACHINES

Amsterdam

READ MORE

HISTORICAL AMSTERDAM IN 3D/4D – PILOT STUDY
1500 - 1700

Leaflet | © OpenStreetMap contributors

One of the aims of the Amsterdam Time Machine is to de-velop a 3D/4D urban model where socio-historical data about...

(SEMI-)AUTOMATED PIPELINES/WORKFLOWS

3D / 4D MODELLING AND RECONSTRUCTION

GIS / HGIS   MAPS

LOCAL TIME MACHINES

Amsterdam

READ MORE

CINEMA CONTEXT
1890 - 2021

Leaflet | © OpenStreetMap contributors

Cinema Context is a historical data collection for the his-tory of film culture, in particular the screening and distri-bution of...

PLATFORM FOR DATA AGGREGATION OR RETRIEV-AL

PERSONS DATA   NEWSPAPERS AND MAGAZINES

LOCAL TIME MACHINES

Amsterdam

READ MORE

FEEDING THE CITY
1550 - 1800

Leaflet | © OpenStreetMap contributors

Feeding the City: A Bird's-Eye View over Amsterdam's Food Supply from Its Hinterlands, c. 1550-1800 It is widely accepted that...

URBAN HISTORY

HISTORICAL DOCUMENTS (E.G. NOTARIAL SOURCES; CENSUS RECORDS; ECCLESIASTICAL DOCUMENTS; CORRESPONDENCE)

SOCIAL NETWORK ANALYSIS

SOCIO-ECONOMIC HISTORY

LOCAL TIME MACHINES

Amsterdam

READ MORE

AMSTERDAM TIME MACHINE

PUBLIC DATASETS

3D MODELS (4) OF HISTORIC BUILDINGS MARINE ETABLISSEMENT AMSTERDAM

These are some rough 3D models of buildings that used to stand at the Marinewerfkade (now around Oosterdok). These historic buildings used to be part of the Marine Etablissement Amsterdam but were demolished in the 1960s for the construction of the IJtunnel. The 3D models were made in Blender and based on historic maps and images from the Amsterdam City Archives, which are referenced in the CSV. The models include (Screenshot_Front from right to left) the MarinePalace (Marine sleeping barrack called the Marine Palace, Dutch: 'Marinepaleis' or 'Officierspaleis', which existed roughly between 1882 and juli 1968); the MarineBetween (small factory building in between MarinePalace and MarineExercise, which existed roughly between 1942 and 1965); the MarineExercise (Exercise Barrack, Dutch: 'Exercitieloods', which existed roughly between 1909 and 1965); and the MarineSchool (School for the marine, Dutch: 'Marinemonteursschool' or 'Opleidingsschool', which existed roughly between 1909 and 1965). The 3D models were used in a thematic standalone version of https://3d.amsterdam.nl/ during an exhibition in the Architecture Centre of Amsterdam (Arcam).

License: CC BY

DOWNLOAD

AMSTERDAM HUURWAARDEN 1832

Interpolation map between modern value taxes, as found in data from the woningwaardekaart, and historic value taxes found in the 1832 cadastral data or the verpondingskohieren from the 17th century.

License: CC BY

DOWNLOAD

TMO-Europeana Pilots

∧ postcard

308 RESULTS FOR postcard ✕

Karlsbad. Blick von der Maurighütte

Deutsche Fotothek
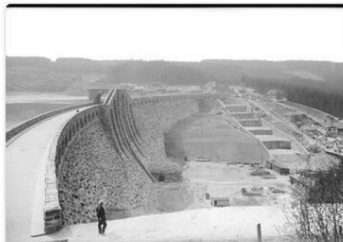
Talsperre Klingenberg

Deutsche Fotothek

Dahlen. Zissen

Deutsche Fotothek

Bad Gottleuba mountain gable. View of Bad Berggiehübel
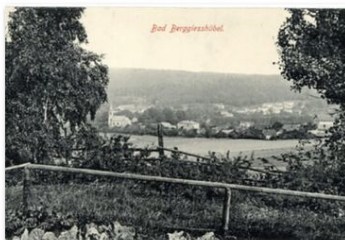
Deutsche Fotothek

Bad Gottleuba mountain gable. View of Bad Berggiehübel

Deutsche Fotothek

Weltbad Karlsbad. Talsperre Pirkenhammer (1937)

Deutsche Fotothek

Pendleton, Oregon. Umatilla River Scene

Deutsche Fotothek
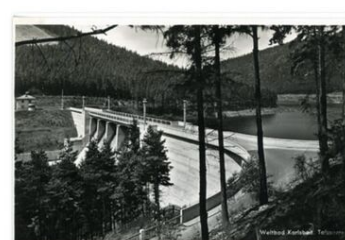
Weltbad Karlsbad. Talsperre Pirkenhammer (1937)

Deutsche Fotothek

Cullera
Spain

Carcaixent
Spain

Alicante
Spain

Alicante
Spain

Denia
Spain

Denia
Spain

Rennes

Nantes

Bay of
Biscay

Bordeaux

Santiago de
Compostela

Oviedo

Vitoria-Gasteiz

Zaragoza

Porto

Spain

Madrid

Murcia

2

30

Seville

Oran

Tiaret

Melilla

2

Rabat

Casablanca

4

Morocco

Bechar

TMO-Europeana Pilots

- A first pilot study was conducted in spring 2023 to see how many postcards could be placed automatically on a map for the city of Jerusalem.

- A second pilot study was conducted in autumn 2023 to check if it is possible to recognize postcard location (without using metadata). Recognition of place : 76.1%

- Refinement and expansion ongoing via the Common European Dataspace project

Time Machine

Time Machine Atlas

Data integration across sources
Bringing together data—census records, address directories, and transcribed textual documents—directly linked to time and space.

Historical image integration
Connecting photos, postcards, and floor plans to the city's past and visualize how neighborhoods, homes, and institutions evolved.

Original documents
View archival sources directly through IIIF protocols, preserving provenance and encouraging reusability across projects.

Historical maps and vector layers
Overlay precise cadastral plots and urban development layers with georeferenced historical cartography.

3D reconstructions
The platform supports the integration of **point clouds, photogrammetric surveys**, and **3D reconstructions**. Thanks to researchers, contributions from public stakeholders and institutional repositories can creates a direct bridge between archival memory and spatial experience

Data enrichment through AI Using large language models (LLMs)
TimeAtlas supports the enrichment and interpretation of historical records—by identifying professions, standardizing names, or detecting recurring social structures across diverse textual sources.

Respect for data rights and access control
Assigning different levels of access and visibility depending on copyright and archival agreem ____ ____ ____ lity.
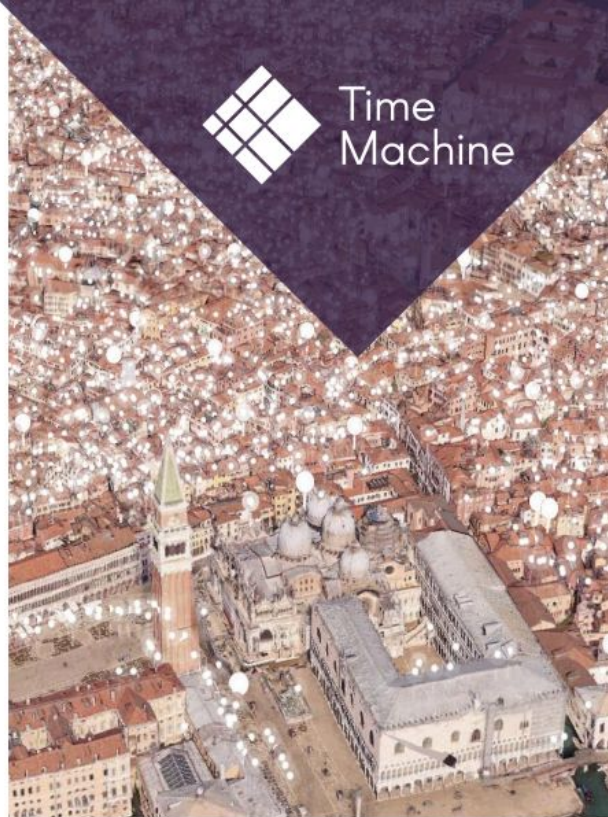
Reusability and citation Integrating
datasets already available on platforms like Zenodo, GitHub, or institutional repositories—with proper attribution and citation mechanisms.

Time Machine Atlas
Calendar of further developments

Late June 2025

- **Pre-public release of demo version** of TimeAtlas
  Showcasing cadastral browsing, owner data, and integrated historical layers

Summer 2025

- **DATASPACE Project** integration toolkit : Completion of **integration of historical postcards** from **Europeana**
  Linked to maps and Data enrichment through AI
  Using large language models (LLMs)

September 2025

- Launch of a **call for collaborative taskforce of Local Time Machines Project**
  Focus: aggregation of open datasets (census records, cadastral registers, iconography)
  → Aimed at projects that have already published datasets online (e.g., Amsterdam, Antwerp, Ghent, Brussels, Paris…)

Time Machine Atlas

The interface enables users to navigate fluidly between different scales of information in time and space, continuously shifting from macro views to micro details
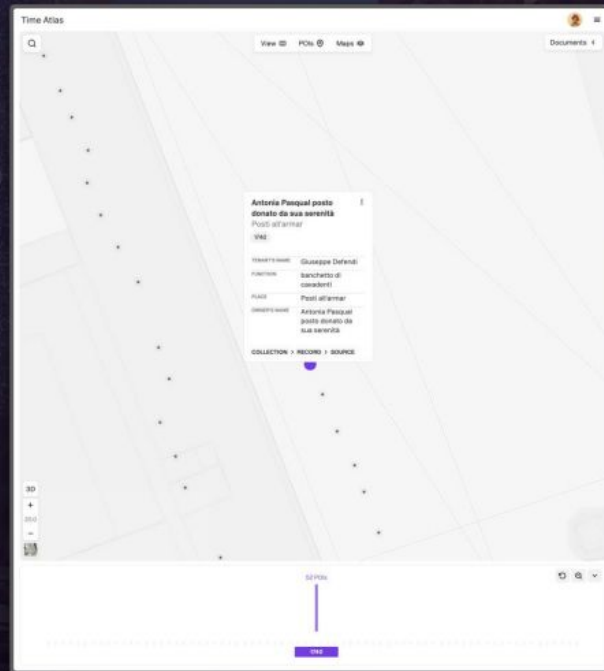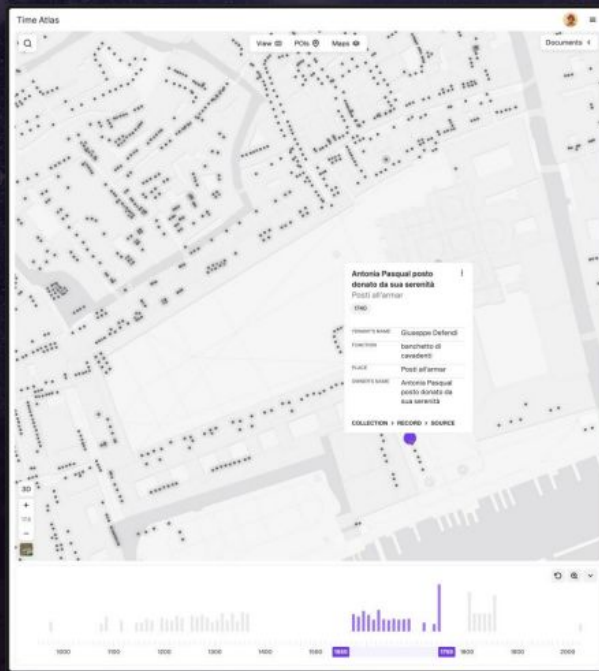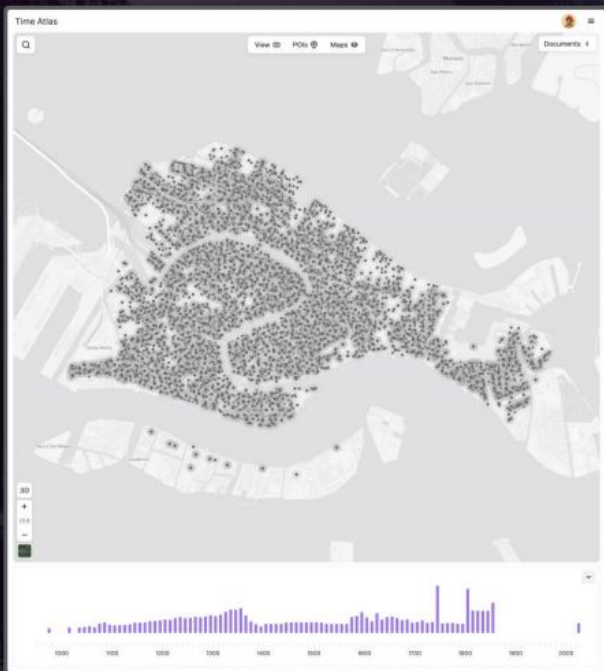
Time Machine Atlas

Handles dense datasets efficiently and transparently, ensuring every map point remains traceable to its historical source.

Time Machine Atlas

Makes historical data accessible to both specialists and non-specialists, reducing complexity without losing the richness of the data.

Time Machine Atlas

Makes historical data accessible to both specialists and non-specialists, reducing complexity without losing the richness of the data.
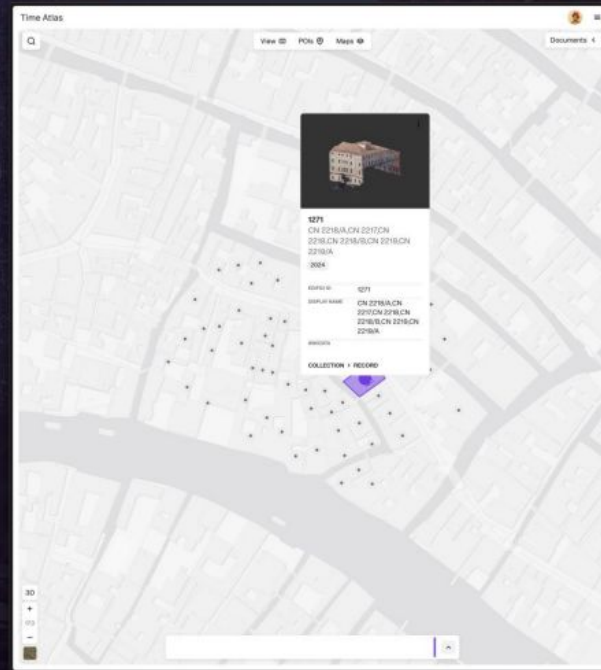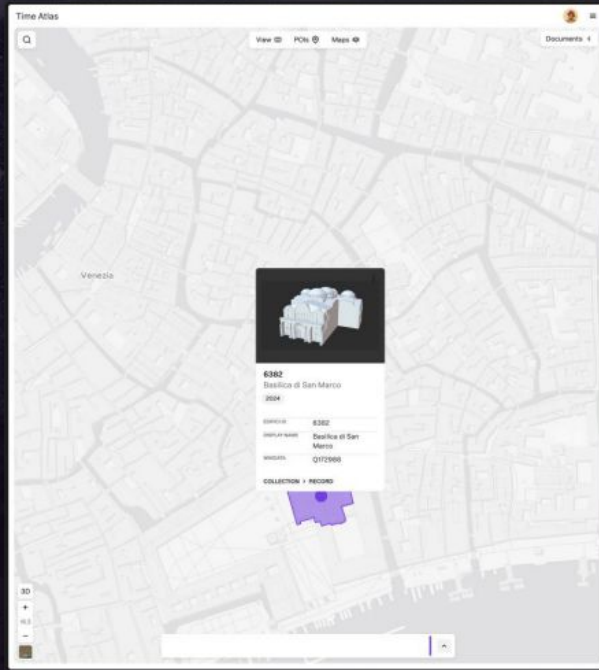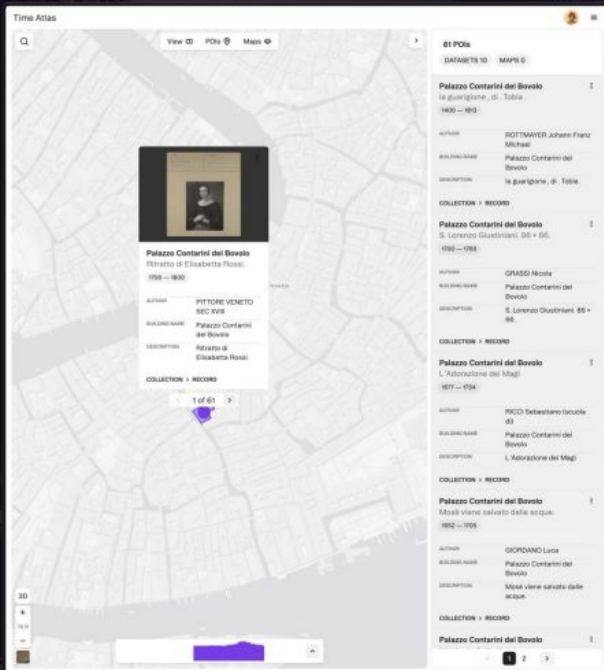
Features: Historical maps and vector layers
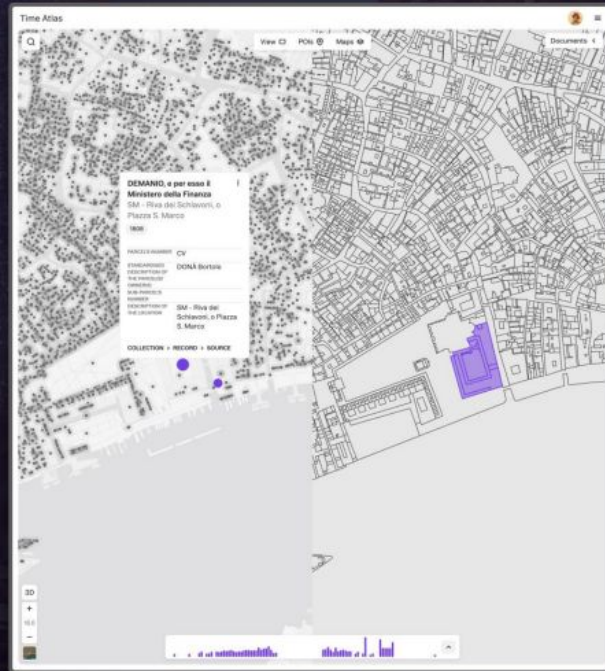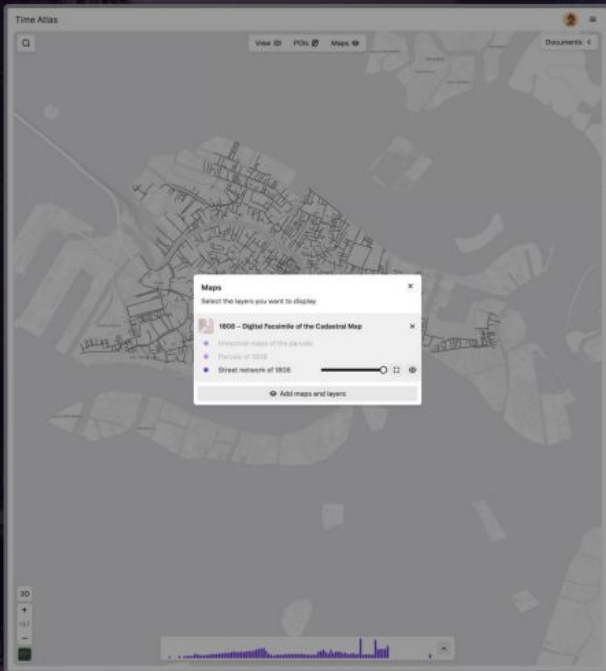
Time Machine Atlas

Makes historical data accessible to both specialists and non-specialists, reducing complexity without losing the richness of the data.

Features: Image galleries and 3D reconstructions

Time Machine Atlas

Originally developed for the Venice case, the application can now handle multiple cities simultaneously.
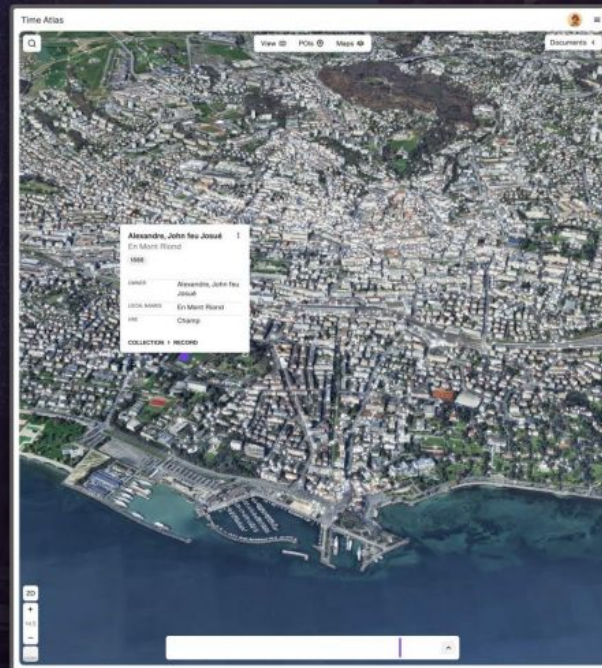
timemachine.eu

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