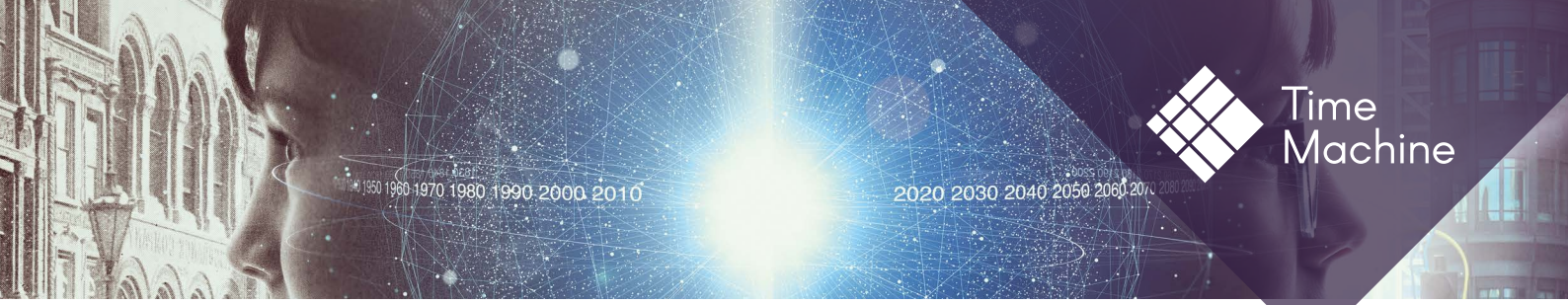

Time Machine

Big Data of the Past for the Future of Europe

Why Europe should invest to preserve its cohesion and identity

- The cohesiveness of European cultural identity is being threatened by the resurgence of unresolved conflicts deep-seated in European memory.
- Democratic dialogue is endangered by the dominion of private platforms over historical and cultural data.
- Managed by proprietary algorithms, such platforms may prioritise popularity and personal agendas, opening the way to fake news.

Time Machine allows Europe to restore its engagement with its past and use it as a vital resource for a common future

- Time Machine is a large-scale research initiative aiming to develop the big data of the past, creating a huge distributed digital information system mapping the European social, cultural and geographical evolution across times.
- By designing and implementing advanced new digitisation and Artificial Intelligence (AI) technologies to mine Europe's vast cultural heritage, Time Machine will provide fair and free access to information that will support future scientific and technological developments.
- Open platforms for navigating the multicultural and multilingual perspectives of our common past will turn our long history into a pan-European cultural, economic and social asset.

CONCRETE OUTCOMES AND EXPECTED IMPACTS FOR SOCIETY AND ECONOMY

Creating new disruptive business models in key economic sectors

- Time Machine will act as an economic motor for new professions, services and products, impacting key sectors of European economy (ICT, creative industries and tourism, the development of Smart Cities and land use).
- The European creative industries contribute 6.8% of GDP and 6.5% of employment in the EU. Europe is the most visited tourism region in the world, and in the EU, tourism contributes 10% to EU GDP and creates jobs for 26 million people. Cultural Heritage is a unique asset for European businesses.
- Time Machine develops a franchise model for cities that wish to make a creative use of their historical past.

Making education more accessible, interactive and diversified

- Time Machine will offer more depth to educational curricula, sharpening the critical thinking of learners, and contributing to informed decision-making at all levels.
- The resulting online courses, materials, simulations and other experiences will promote active engagement with our combined cultural heritage and make continuous learning more accessible and inclusive.
- Time Machine will create a dynamic new industry for the production of educative digital material based on aligned massive cultural datasets.

A transformational impact on Social Sciences and Humanities

- Identifying larger patterns, correlations and connections will open new frontiers in our capacities for in-depth analysis and informed decision making.
- Sharp increase in the demand for digital and traditional humanists and social scientists at a time where these disciplines and corresponding university degrees do not guarantee jobs in these fields.

A strong boost in EU competitiveness in AI and ICT

- An AI trained on Big Data of the Past will offer a strong competitive advantage for Europeans in the global AI race.
- Time Machine will also introduce disruptive technologies in machine vision, linguistic and knowledge systems, multimodal (4D) simulation, HPC and long-term data storage, strengthening the competitive position of EU industry in these fields.

Building a cornerstone for international European excellence

- Time Machine comes at a time where culture occupies a central role in the UN 2030 Agenda for Sustainable Development.
- Europe has a leading role in the digitisation of culture and Artificial Intelligence for Cultural Heritage. Time Machine will strengthen this role at a time where this field gains momentum in Asia and the USA.

KEY FACTS

Key dates in the development of Time Machine

2019 Europe invests in Time Machine
The European Commission chose Time Machine as one of the six proposals retained for preparing large-scale research initiatives.

2018 Time Machine develops algorithms that outperform humans in transcription of Venetian handwriting
AI methods open new way to search in ancient documents.

2016 Manifesto "L'Europe doit construire la première Time Machine", published in 'Le Temps', then translated in 9 languages
A call for action to invite Europe to invest in an infrastructure for mining 'Big Data of the Past'.

2014 Increasing interest
Frédéric Kaplan's TED Talk "How to build a Time Machine" reaches more than 1 Million views.

2013 Venice Time Machine starts
EPFL and University Ca'Foscari launch a project that aims at building a multidimensional model of Venice and its evolution covering a period of more than 1000 years.

As of May 2019, the Time Machine partnership comprises 300 organisations from 34 countries together with the 33 CSA partners.

These include:

- An impressive list of reputable academic institutions and research centres
- Leading European enterprises and innovative small and medium-sized enterprises in the fields of ICT, culture and creative industries
- Key European museums:
  Louvre, Rijksmuseum, Belvedere
- 7 national libraries:
  Austria, Belgium, France, Israel, Netherlands, Spain, Switzerland
- 19 state archives:
  Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Lithuania, Malta, Norway, Poland, Romania, Slovenia, Spain, Slovakia, Sweden and Switzerland
- 18 governmental bodies

Local Time Machines:

Antwerp (1500–2000)
Amsterdam (1550–2000)
Budapest (1680–1990)
Dresden (1200–2000)
Ghent-Bruges (800–2000)
Jerusalem (2000 BCE–2000)
Limburg (1775–2000)
Lower Austria (800–2000)
Naples (800–2000)
Nuremberg (1000–2000)
Paris (1000–2000)
Regensburg (1200–2000)
Utrecht (40–2000)
Venice (1000–2000)

> The Time Machine community is currently expanding to create a dense Time Machine ecosystem of leading scientists, innovators and other key players of the civil society, having as target to reach the number of 2000 supporting organisations in the beginning of 2020.

TIME MACHINE IS AN INTEGRATED PROGRAMME WITH CLEARLY DEFINED PILLARS AND THEMATIC AREAS

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

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