Frederic Kaplan

Job title: Digital Humanities Chair

Organisation: Ecole Polytechnique Federale de Lausanne

Abstract:
Title : Time Machine: Big Data of the Past for the Future of Europe

Abstract: The Time Machine FET Flagship, a European project involving more than **160 institutions,** in competition for a **1 billion euros funding** from the European Commission, is structured around the development of a **large-scale digitisation and computing infrastructure** mapping millennia of European historical and geographical evolution, transforming kilometres of archives, large collections from museums and other geohistorical datasets into a distributed digital information system. Through the development of a new Super Computing architecture dedicated to cultural heritage, Time Machine ambitions to reach the following goals by the year 2030:

1. **To move through time as easily as we move through space.** Time Machine's multifaceted architecture is conceived to integrate the unique amount of multi-temporal, multi-source and multimodal data about our past into a continuous pan-European multiscale information source, rendering virtual time travelling as easy as consulting a digital map: a "slider" for digital 3D maps will show how a place was in the past, according to one or more criteria, and how it might be in a foreseeable future.

2. **To change the nature and scale of research methods in Social Sciences and Humanities.** Today, an informed usage of data is still restricted to a specialised audience, while reproducibility is possible only within a very specific data context. Time Machine inaugurates an era of open access to sources, making past and ongoing research open

science, allowing bolder questions to be asked, new kinds of understanding to be reached, and large-scale collaboration between scholars, citizens and decision makers.

3. **To simulate possible futures / possible pasts.** Time Machine designs a new generation of Artificial Intelligence (AI), harnessing long-term time series to reach superior forms of predictive understanding of social, cultural and economic patterns. This technology, capable of representing and exploring the multiplicity of hypothetical pasts and futures, will inform our choices for evaluating possible paths, helping citizens, companies, states and Europe itself to make better decisions for the future.

Based on this unique ambition and design, the proposed FET Flagship will make Europe the leader in the extraction and analysis of a new kind of strategic resource, **Big Data of the Past**, making it feasible to use our cultural heritage, Europe's most precious political, economic and social asset, to envision a common future.

Bio:
Prof Frederic Kaplan holds the Digital Humanities Chair at Ecole Polytechnique Federale de Lausanne (EPFL) and directs the EPFL Digital Humanities Laboratory (DHLAB). He conducts research projects combining archive digitization, information modeling and museographic design. He is currently directing the "Venice Time Machine", an international project in collaboration with the Ca'Foscari University in Venice and the Venice State Archives, aiming to model the evolution and history of Venice over a 1000 year period, He is a member of the steering committee of "Time Machine FET Flagship", a European project involving more than 160 institutions, in competition for a 1 billion euros funding from the European Commission. In parallel of his scientific work, Frederic Kaplan participated to exhibitions in several museums including the Centre Pompidou in Paris and the Museum of Modern Art in New York.

Frederic Kaplan graduated as an engineer of the Ecole Nationale Supérieure des Telecommunications in Paris and received a PhD degree in Artificial Intelligence from the University Paris VI. Before founding the Digital Humanities Laboratory, he worked ten years as a researcher at the Sony Computer Science Laboratory and six years at the EPFL pedagogical research laboratory. He was also the founder and president of OZWE, now one of the worlds leading studios in immersive gaming.