CLONETS – Clock Network Services

Strategy and innovation for clock services over optical-fibre networks

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What is the CLONETS project?

A scientific and technological paradigm change is taking place, concerning the way that very high performance time and frequency reference signals are distributed, moving from radio signal broadcasting to signal transport over optical fibre networks. The latter technology demonstrates performance improvements by orders of magnitude, over distances up to continental scale. Research infrastructures are developing several related technologies, adapted to specific projects and applications.

The present project aims to prepare the transfer of this new generation of technology to industry and to strengthen the coordination between research infrastructures and the research and education telecommunication networks, in order to prepare the deployment of this technology to create a sustainable, pan-European network, providing high-performance "clock" services to European research infrastructures. Further this core network will be designed to be compatible with a global European vision of time and frequency distribution over telecommunication networks, enabling it to provide support to a multitude of lower-performance time services, responding to the rapidly growing needs created by developments such as cloud computing, Internet of Things and Industry 4.0.

The project aims at partnership building and innovation for high performance time and frequency (clock) services over optical fibre networks and to prepare the implementation of such a European backbone network.

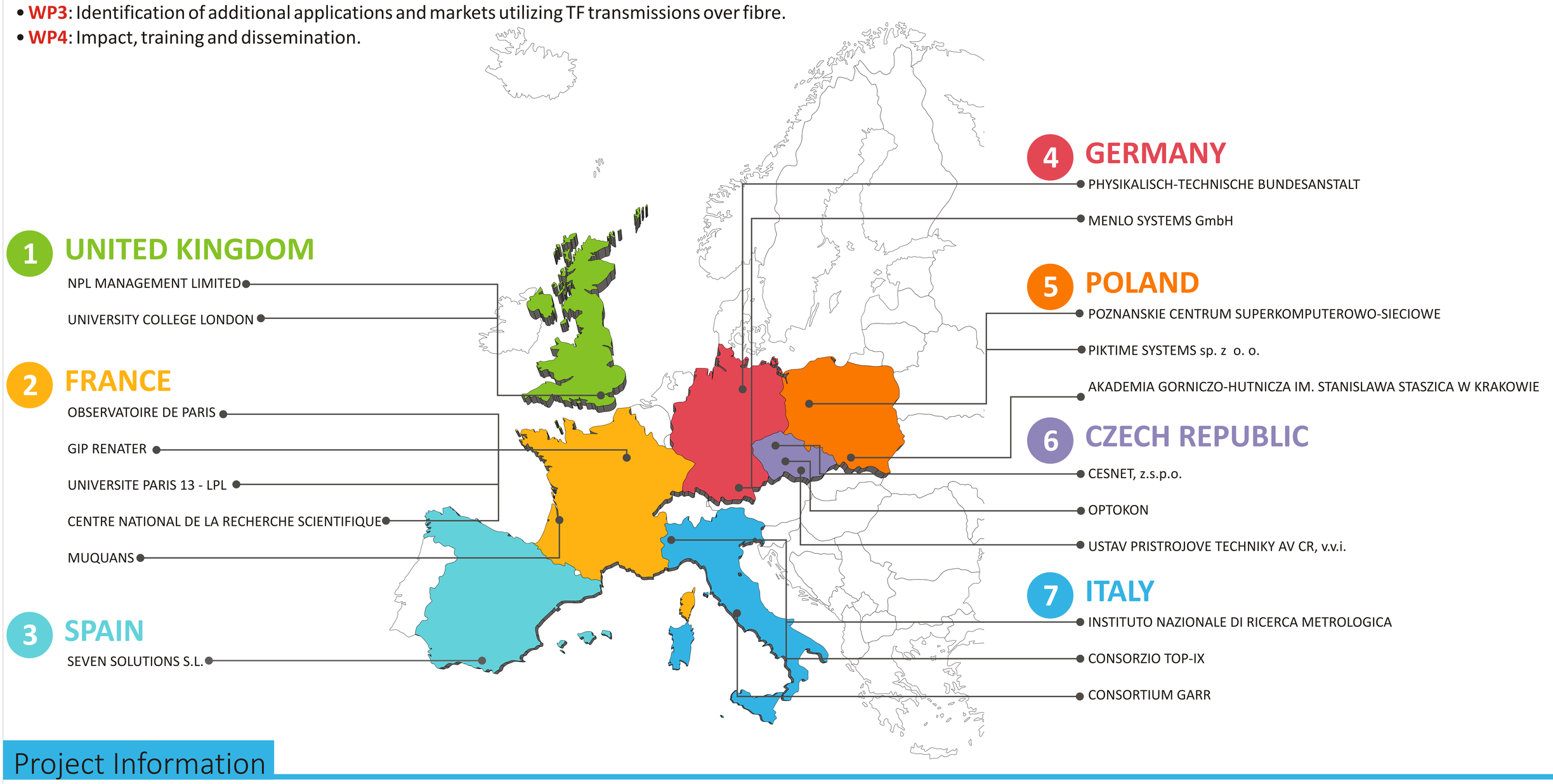
Who are we?

Project CLONETS involved 16 partners from 7 European countries. Partners represent 4 main areas:
- **National Measurement Institutes**: OBS PARIS (FR), NPL (UK), PTB (DE), INRIM (IT)
- **National Research and Education Network**: RENATER (FR), CESNET (CZ), PSNC (PL), GARR* (IT)
- **Academic Laboratories**: AGH (PL), UP13 (FR), UCL (UK), ISI (CZ), CNRS* (FR)
- **Industrial**: MUQUANS (FR), MENLO (DE), PIKTIME (PL), SEVEN SOL (SP), OPTOKON (CZ), TOP-IX* (IT)

* Third-party members

Project structure

- **WP1**: Definition of key technologies and trends, collecting information from research infrastructures, NRENs and the TF community as input for the formulation of roadmaps.
- **WP2**: Definition of technology development roadmaps and strategic agenda, developing of a global vision for TF services over fibre in Europe leading to necessary pan-European roadmaps and deployment strategies.
- **WP3**: Identification of additional applications and markets utilizing TF transmissions over fibre.
- **WP4**: Impact, training and dissemination.



Project Information

Acronym: **CLONETS** Proposal ID: **731107** Topic: **INFRAINNOV-2016** Duration: **30 months** Start date: **1st January 2017**
Web page: **http://www.clonets.eu**

Project Participants