



CLUSTER OF RESEARCH INFRASTRUCTURES  
FOR SYNERGIES IN PHYSICS



# CRISP

## A Quick Overview





CLUSTER OF RESEARCH INFRASTRUCTURES  
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# Cluster of Research Infrastructures for Synergies in Physics

*Build up collaborations and create long-term synergies between research infrastructures on the ESFRI roadmap in the field of physics, astronomy and analytical facilities to facilitate their implementation and enhance their efficiency and attractiveness.*



# Facts And Figures

- 11 research infrastructures
- 16 participating institutions
- Project start: 1 October 2011
- Project duration: 3 years
- 12 M€ funding from EC within FP7



# Infrastructures



- European Synchrotron Radiation Facility (ESRF)
- Facility for Antiproton and Ion Research (FAIR)
- Institut Laue–Langevin (ILL)
- Super Large Hadron Collider (SLHC)
- SPIRAL2
- European Spallation Source (ESS)
- European X-ray Free Electron Laser (XFEL)
- Square Kilometre Array (SKA)
- European Free Electron Lasers (EuroFEL)
- Extreme Light Infrastructure (ELI)
- International Liner Collider (ILC)



# Partners



- European Synchrotron Radiation Facility (ESRF)
- Deutsches Elektronen Synchrotron (DESY)
- European Organisation for Nuclear Research (CERN)
- European Spallation Source (ESS)
- Grand Accélérateur National d'Ions Lourds (GANI)
- GSI Helmholtz Centre for Heavy Ion Research (GSI)
- Institut Laue-Langevin (ILL)
- European X-ray Free Electron Laser (XFEL)
- The University of Rome La Sapienza
- The Foundation for Research and Technology Hellas
- The Instituto Superior Técnico (IST)
- Istituto Nazionale di Fisica Nucleare (INFN)
- MTA SZTAKI
- The Horia Hulubei National Institute of Physics and Nuclear Engineering (IFIN-HH)
- The University of Oxford
- The Paul Scherrer Institut (PSI)



# Relationships

	ELI	ESRF	ESS	EuroFEL	FAIR	ILC	ILL	SKA	SLHC	SPIRAL2	XFEL
ESRF		coord									
DESY				coord		coord					Part
CERN									coord		
ESS			coord								
GANIL										coord	
GSI					coord						
ILL							coord				
XFEL											coord
ROMA1	Part			Part							
FORTH	Part										
IST	Part										
INFN	Part			Part	Part				Part		
MTA SZTAKI	Part										
IFIN-HH	Part									Part	
U. OXFORD								coord			
PSI				Part							



## Accelerators



## Instruments & Experiments



**Development and implementation of common solutions  
Harmonisation, cost-efficiency and interoperability**

## Detectors & Data Acquisition



## IT & Data Management









## User Identity



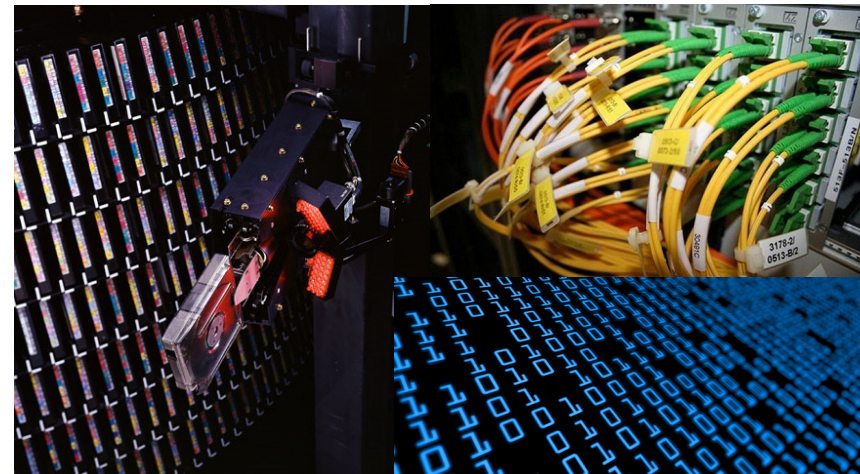
## Metadata and Catalogues



## High-speed Data Recording



## Distributed Data Infrastructure





# Common User Identity Systems

- A pan-European system for identification
  - Authentication and authorisation infrastructure
  - Users of the participating RIs
  - Management of local and remote access
    - Facilities, Experiments, Data, and IT resources
- Identify and exploit synergies
  - Umbrella, TERENA, eduGAIN, Shibboleth, Internet2, etc.

Contact: Heinz Weyer <heinz-josef.weyer@psi.ch>



# Metadata Management and Data Continuum

- Metadata management and mining
  - Evaluate and select metadata catalogues
  - Enhance and deploy at the participating RIs
  - Connect as one seamless resource.
- Data continuum
  - From raw data to publications
  - Persistent Identifiers for experimental data
  - The participating RIs are the data producers
  - Need to persistently identify their data sets

Contact: Jean-François Perrin <perrin@ill.eu>



# High-speed Data Recording

- High-speed Recording of Data
  - Data rates that exceed tens of GB/s
    - In some cases from multiple sources
    - To permanent storage and archive
    - Cost-effective method
- Optimised and secured access
  - To data using standard protocols

Contact: Krzysztof Wrona <[krzysztof.wrona@xfel.eu](mailto:krzysztof.wrona@xfel.eu)>



# Distributed Data Infrastructure

- Support the expanding data management needs
  - Of the participating RIs
- Analyse the existing distributed data infrastructures
  - From the network and technology perspective
- Plan and experiment their evolution
  - Potential use of cloud providers
    - Understood the related policy issues

Contact: Laurence Field <laurence.field@cern.ch>



# Summary

- Three year project starting 1 Oct 2011
- Four Areas
  - Accelerators
  - Instruments and Experiments
  - Detectors and Data Acquisition
  - IT and Data Management
- Four Sub Areas with IT and DM
  - Common User Identity Systems
  - Metadata Management and Data Continuum
  - High-speed Data Recording
  - Distributed Data Infrastructure