

# AIDA

Advanced European Infrastructures  
for Detectors at Accelerators

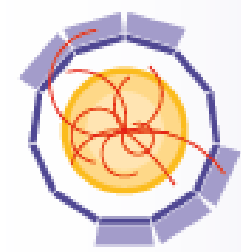
# Working for a detector project: A message from AIDA

AIDA is co-funded by the European Commission within the Framework Programme 7 Capacities Specific Programme, Grant Agreement 262025



David Cussans, ISOTDAQ , Budapest, 28 January – 5 February 2014





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## What is it?

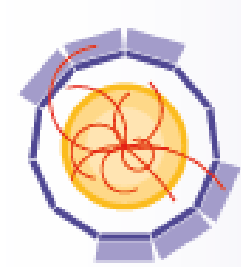
- Upgrade, improve and integrate European research infrastructures
- Develop advanced detector technologies for future particle accelerators (LHC upgrade, Linear Colliders, Neutrino facilities and Super-B factories) in line with the European Strategy for Particle Physics.
- <http://aida.web.cern.ch/>

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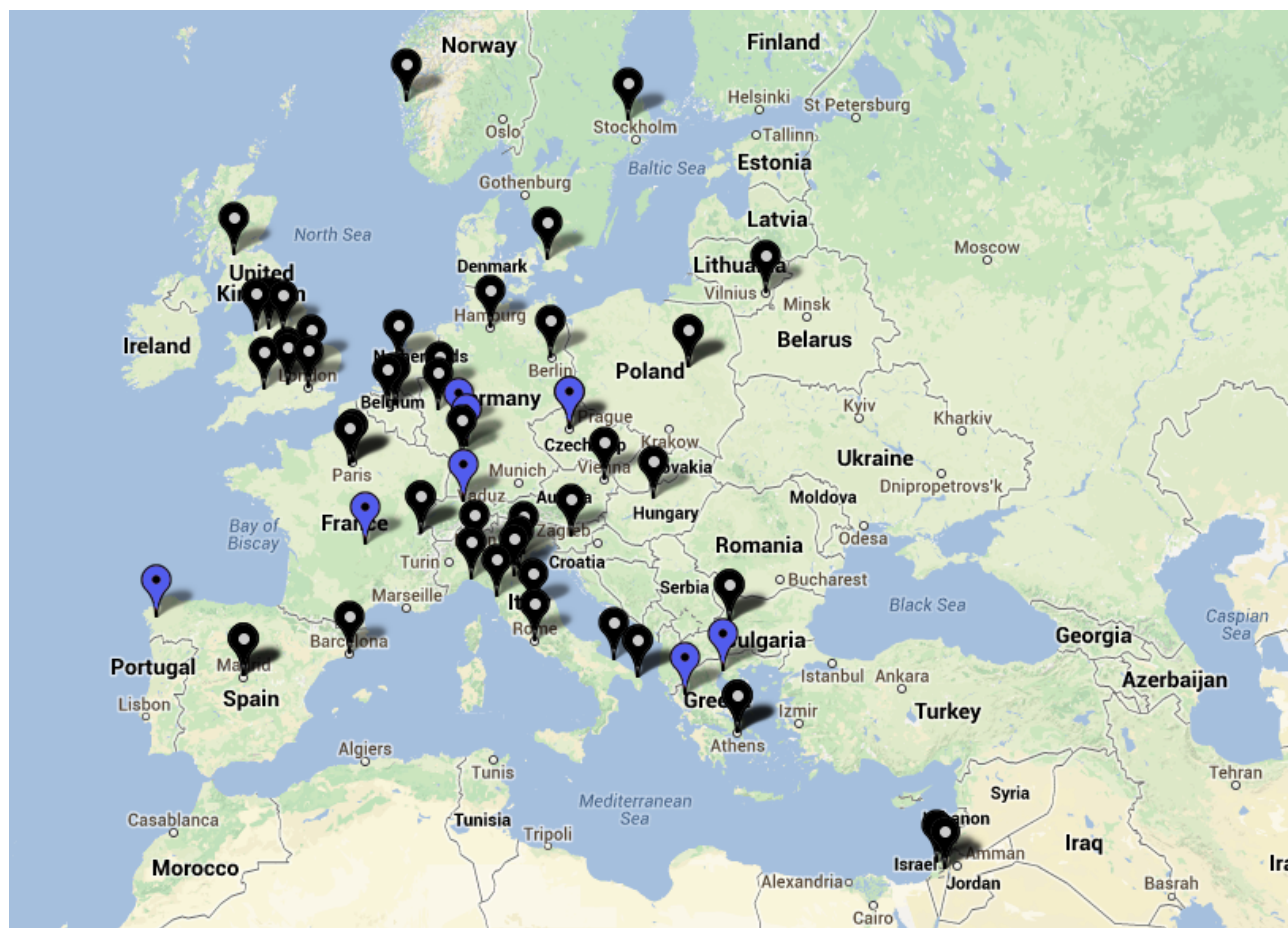


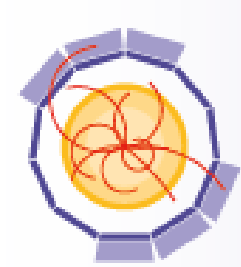
## How Much (and who pays?)

- €26M project.
  - €8M from EU under the FP7 Research Infrastructures programme.
  - Rest as matching contribution from other projects.

### Who is Involved?

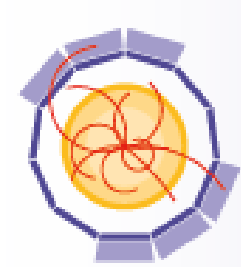
- 80 Institutes  
from  
23 countries



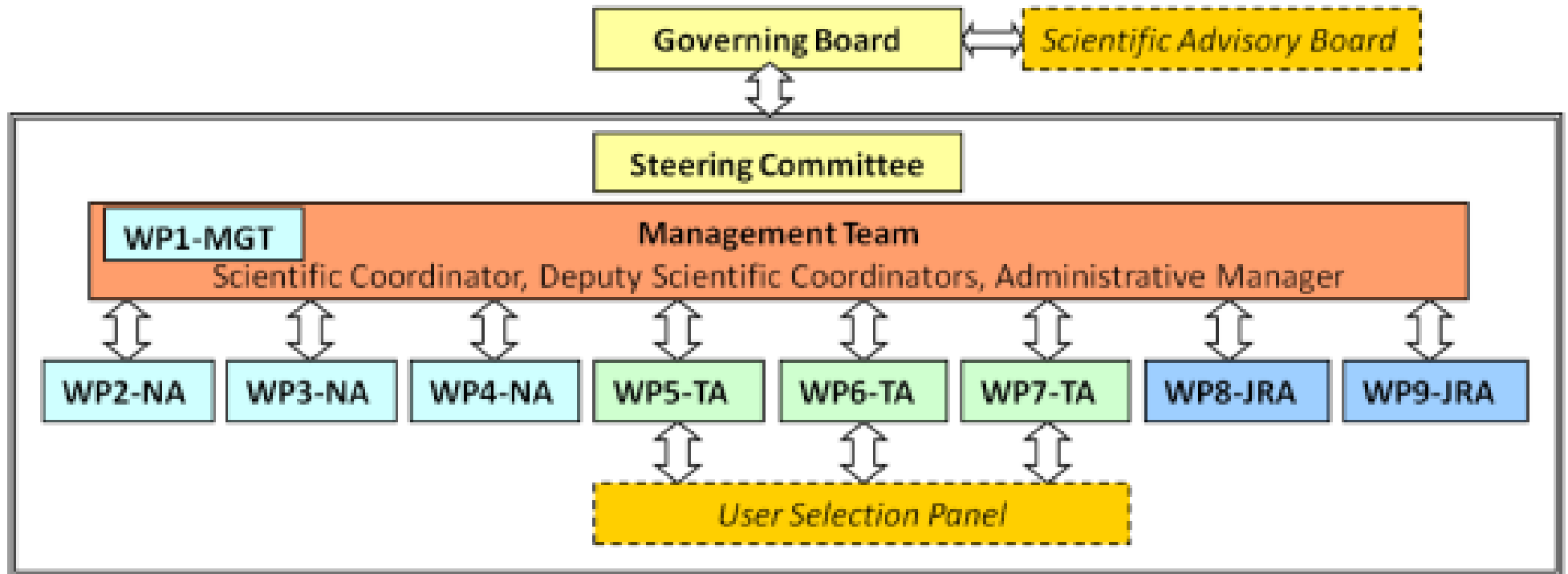


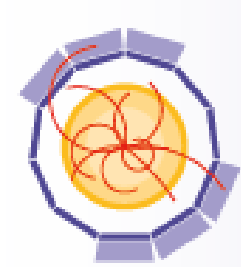
## How is it Organized?

- Divided into Work Packages
- Three different types
  - Networking
    - “Foster a culture of cooperation”
  - Joint Research
    - “Improve the quality/quantity of services provided”
  - Transnational Access
    - “Improve access to research infrastructures”

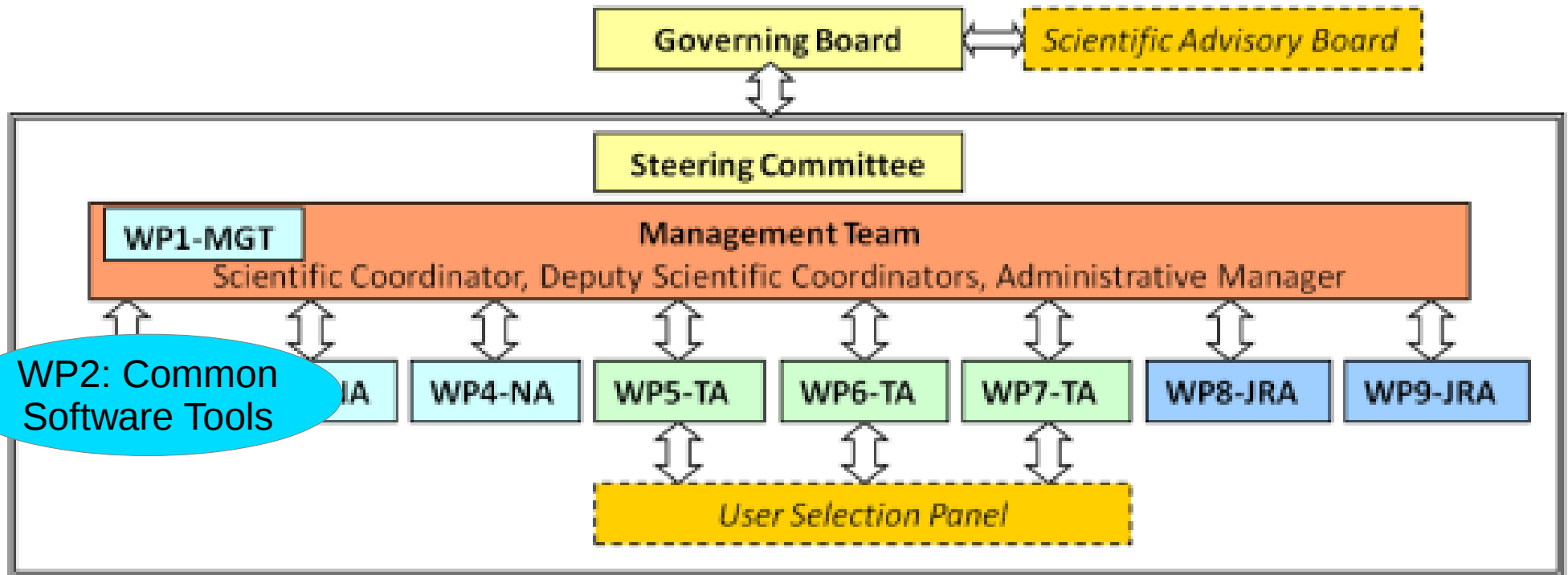


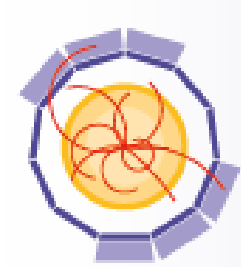
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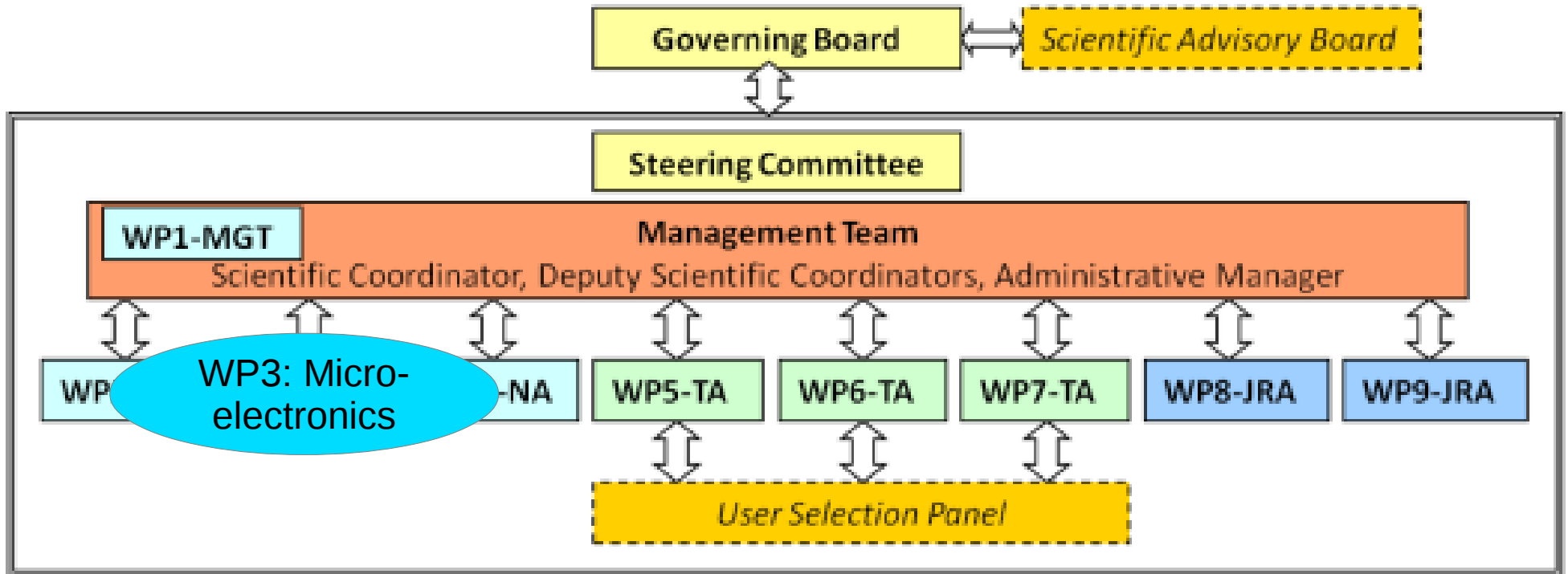


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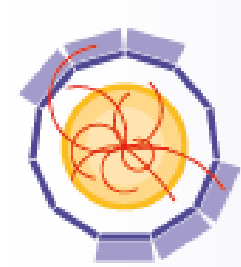




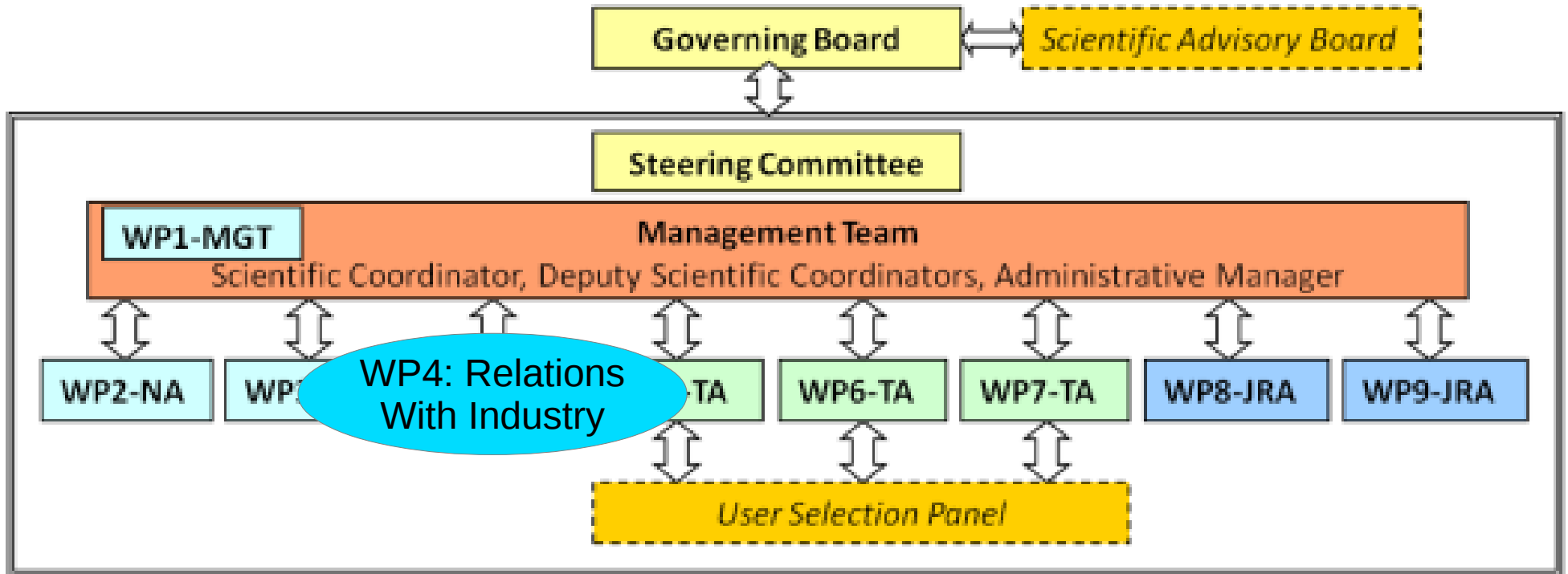
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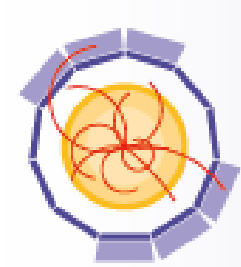




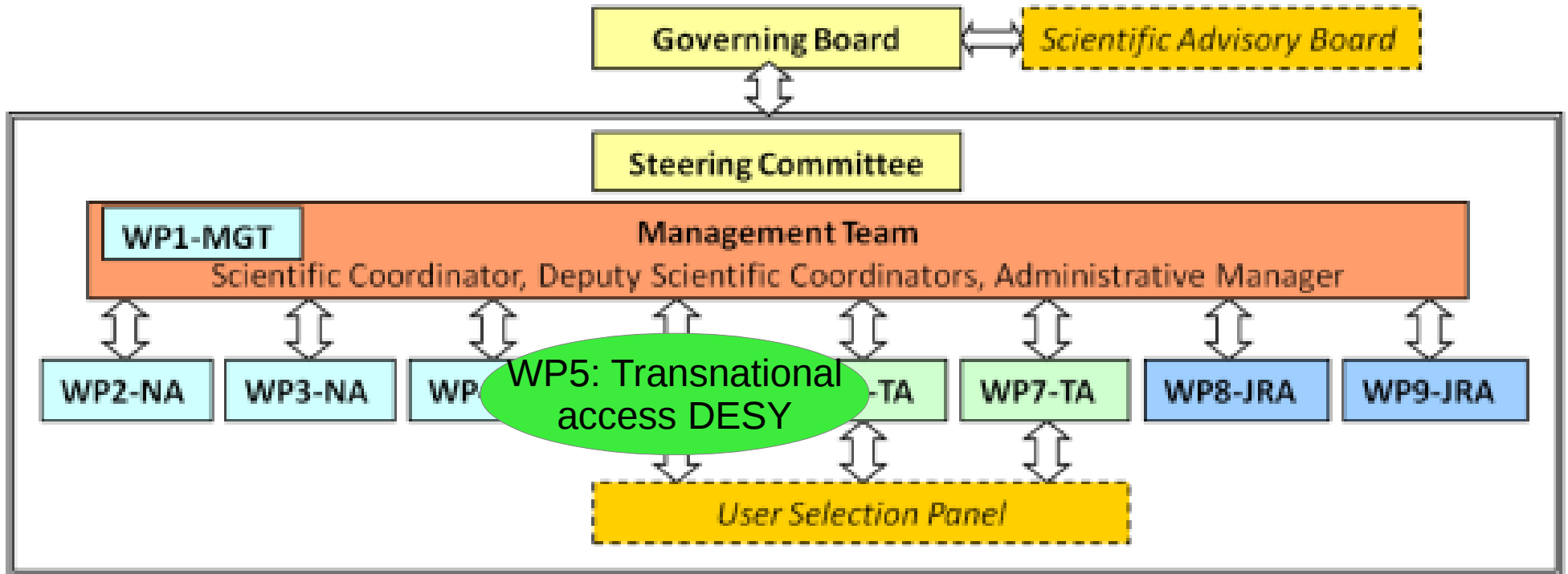


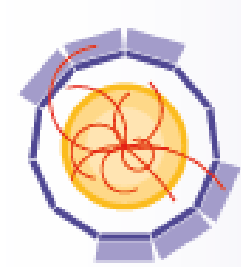
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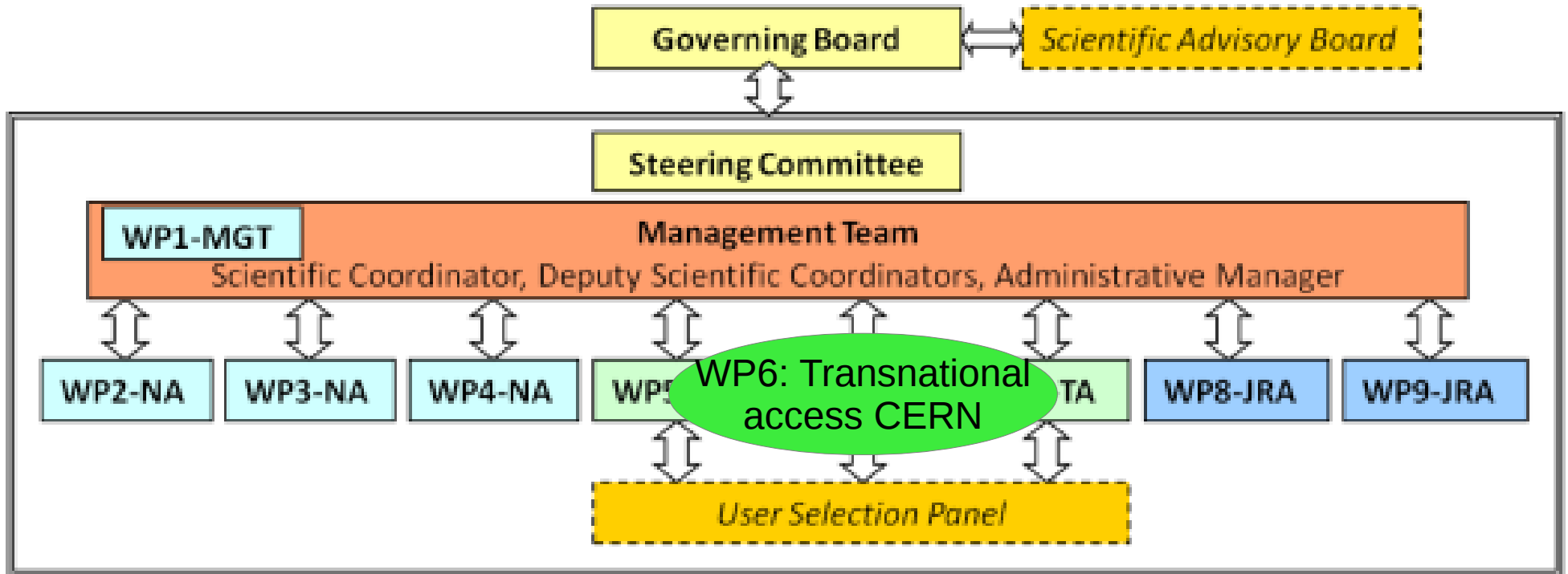


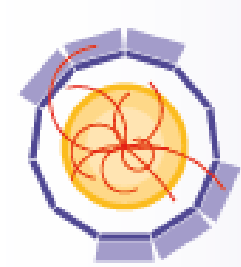
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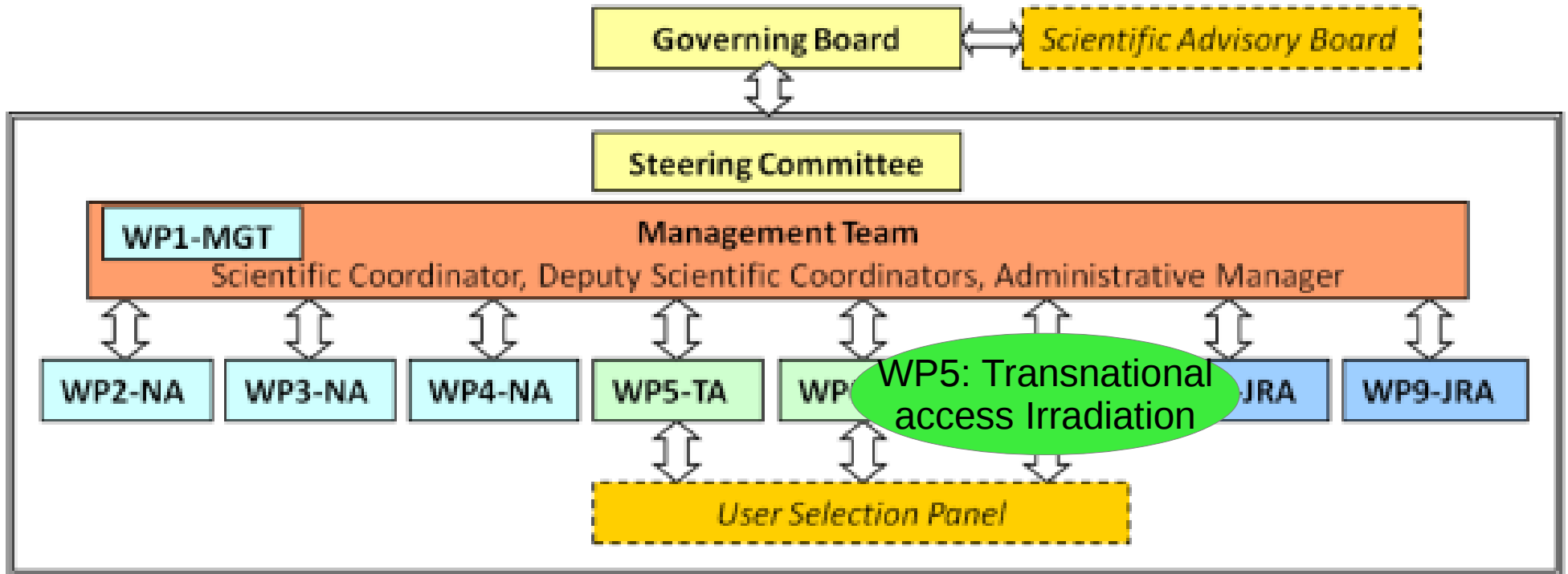


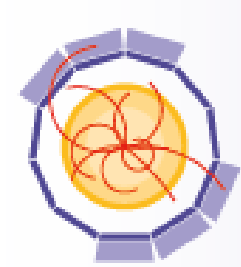
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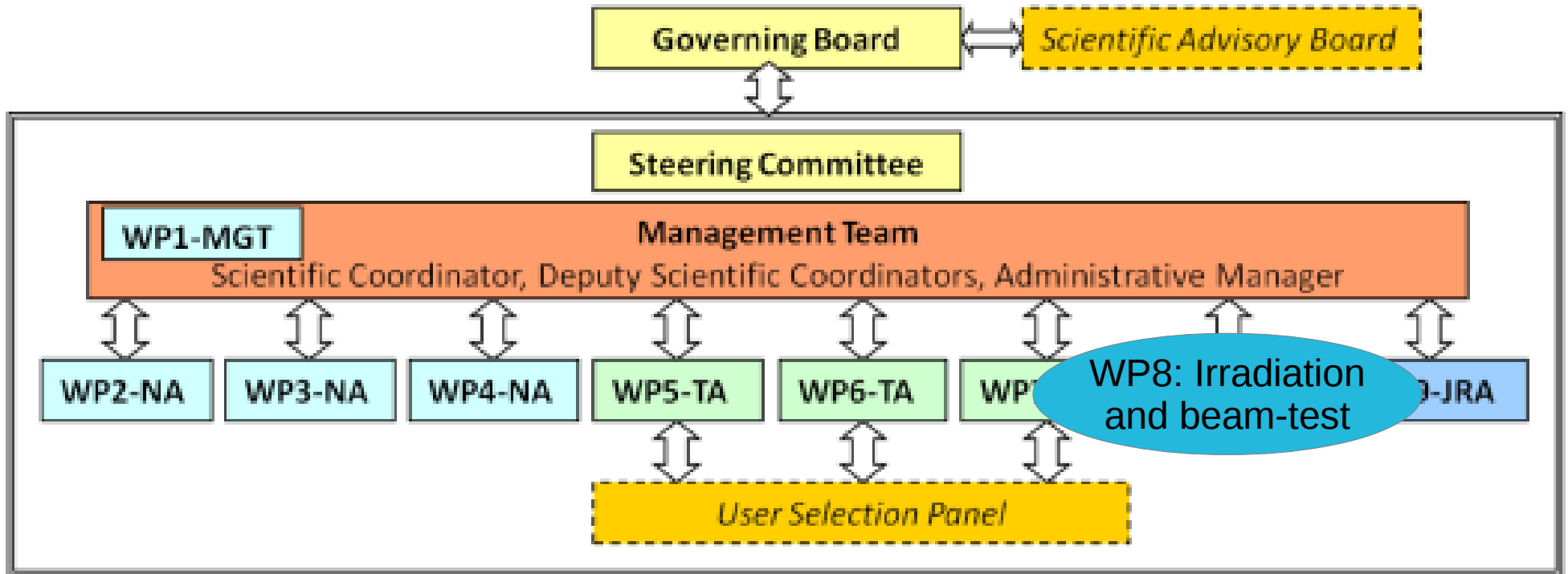


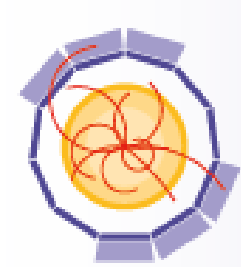
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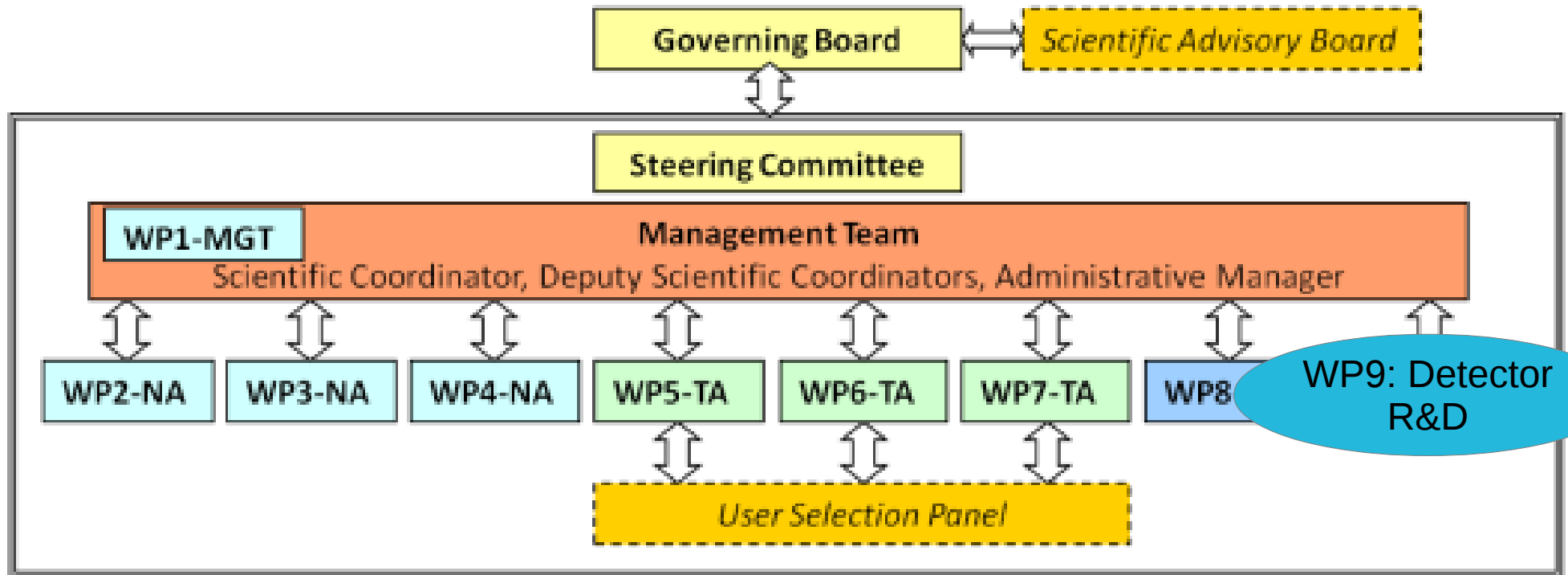


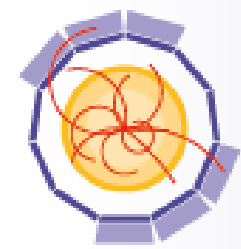
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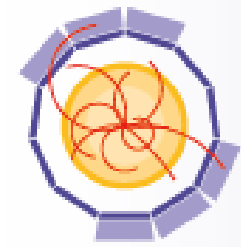
## Networking Work Packages

- **WP2 – Common software tools**
  - USolid library of geometrical shapes
  - DD4Hep geometry tool-kit
  - Particle Flow Algorithms
- **WP3 - Microelectronics and interconnection technology**
  - Investigation of “3D” technologies
  - Common microelectronics ASIC library
  - 65 nm IP blocks.
- **WP4 – Relations with industry**

## Trans-national Access Work Packages

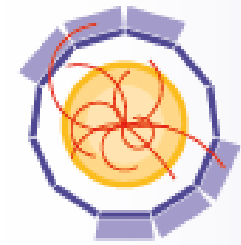
- Getting access to infrastructure
- Provides travel funds to beam test
- Applications judged on scientific merit
- WP5 – Beam Test at DESY
- WP6 – Beam Test at CERN
- WP7 – Irradiation facilities (JSI - Slovenia , UCL – Belgium )





## Joint Research: WP8 Improvement of Irradiation and Test-beam lines

- 8.1 Coordination and Communication
- 8.2 Test beam infrastructure at CERN, Frascati
- 8.3 Upgrade PS proton & mixed field irradiation @CERN
- 8.4 Qualification of components (rad-hardness)
- 8.5 General beam test infrastructure
- 8.6 Coordination of combined beam tests and common DAQ



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## Joint Research: WP9 Advanced Infrastructures for Detector R&D

- 9.1 Coordination and Communication
- 9.2 Gaseous detector facilities
  - Develop ways to manufacture MPGD
- 9.3 Precision Pixel Detector Infrastructure
  - Pixel beam telescope
- 9.4 Silicon Tracking
- 9.5 Granular calorimeter studies infrastructure

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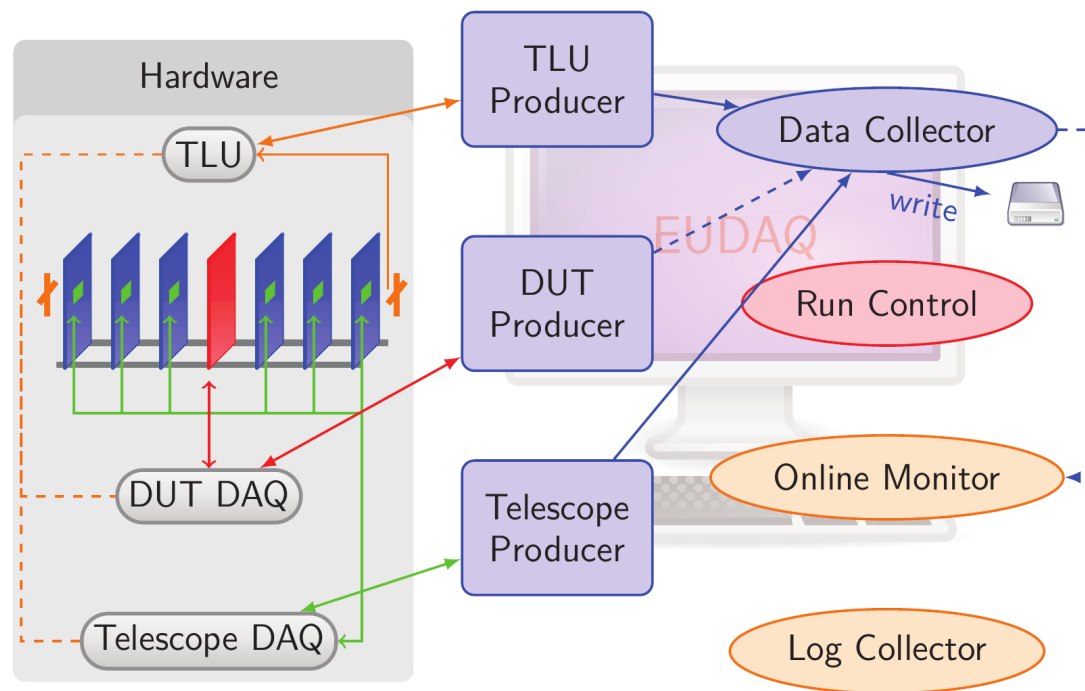
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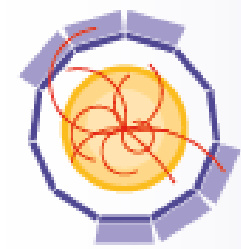


### Common DAQ: WP8.6.2

- Light-weight DAQ system well integrated with beam-test infrastructure (Pixel Telescope)
- EUDAQ - <http://eudaq.hepforge.org/>
- 

Triggering and Synchronization signals from a low cost “Triggering/Timing Logic Unit” (TLU)





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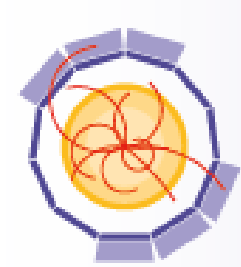
- ... and also
- Outreach and education
- AIDA has supported
  - EDIT schools (Excellence in Detectors and Instrumentation Technologies Schools)
  - ESI (EIROforum School on Instrumentation)
  - ICFA Schools (International Committee for Future Accelerators)
  - ... and of course ISOTDAQ

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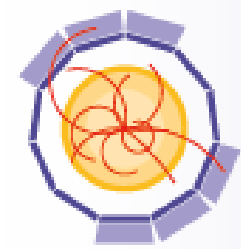
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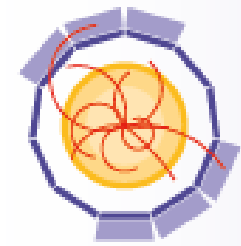
## What are the Challenges?

- A wide ranging programme
  - Issues of coherence.
- Relatively small funding
- Scheme intended for infrastructure not direct science research.
- EU systems of accountability and reporting not always a good fit with institutes doing the work.



## What Next?

- AIDA finishes February 2015
- A new call funding call (Horizon 2020 ,  
<http://ec.europa.eu/programmes/horizon2020/>)
- A proposal to develop infrastructure for Detectors for Future Accelerators being prepared.
  - Level of funding likely to be similar to AIDA
  - Expression of interest collected (Dec 2013)
  - Open meeting to organize proposal (Feb 2014)
  - Proposal for last AIDA annual meeting (April 2014)
  - Success rate estimated at ~ 50%



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## How is it Relevant?

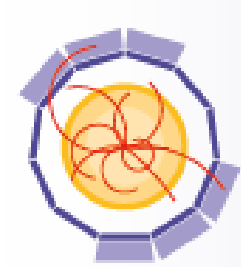
- AIDA (and hopefully H2020 scheme) provides way of collaborating with a community different from a detector/project based programme.
- Make sure that any area is well aligned with work you want to do anyway (3:1 “matching funds”)
- Make sure you can cope with significant administrative overhead.

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## What Good did it do?

- Overall funding small, but...
- Upgraded beam-test and irradiation areas
- Provided opportunities for “networking” that might otherwise not have happened.
- Many activities will produce results close to end of project (Feb 2015)
- Biggest benefit will hopefully be the infrastructure left behind.