Detector Development and Support

Detector Developments at the cutting edge of technology
geared towards a high precision experiment at an Lepton Collider

Integration of different technologies into a coherent overall detector design
technical integration (machine – detector interface)
Physics studies and Physics case

Support for DESY and external groups (Germany and beyond) for detector developments, detector test, detector integration

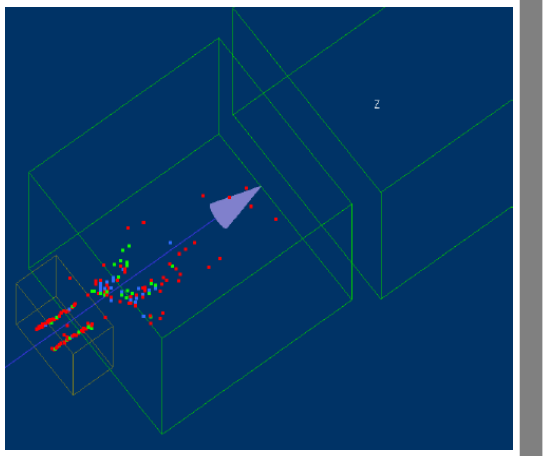
Well integrated into the German and the International landscape

Strategy Detector Development

Involvement in key parts of a future detector:

- Calorimetry
- Tracking (TPC)
- Vertexing
- Forward Calorimetry

Driving force is Particle Flow



Involvement of the critical machine- detector interface

- Detector Integration
- Beam Instrumentation for experiments

Foundation: Tools/ Software/ Infrastructure

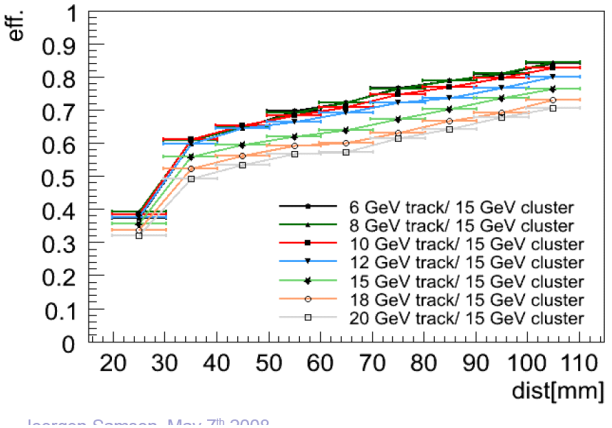
The next 5 Years

Do series of key experiments to establish

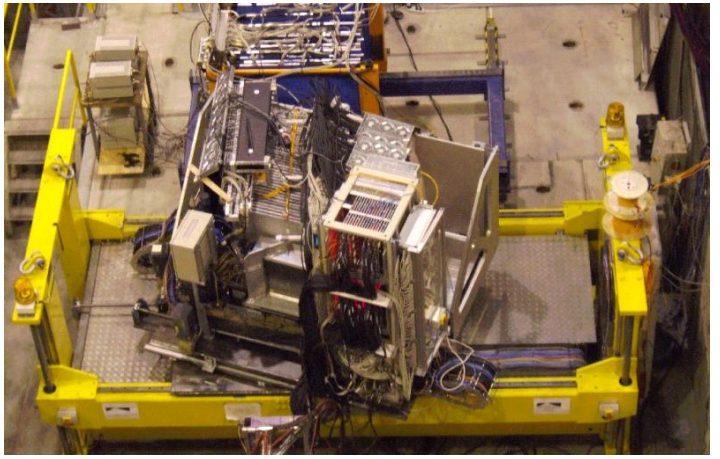
Key technologies

Particle flow as a means for reconstruction

Get a first solid idea how to construct a detector



Continuing technological development
Test beam experiments at increasing complexity



Extra Investment: Plans

Base budget: flat development until 2014

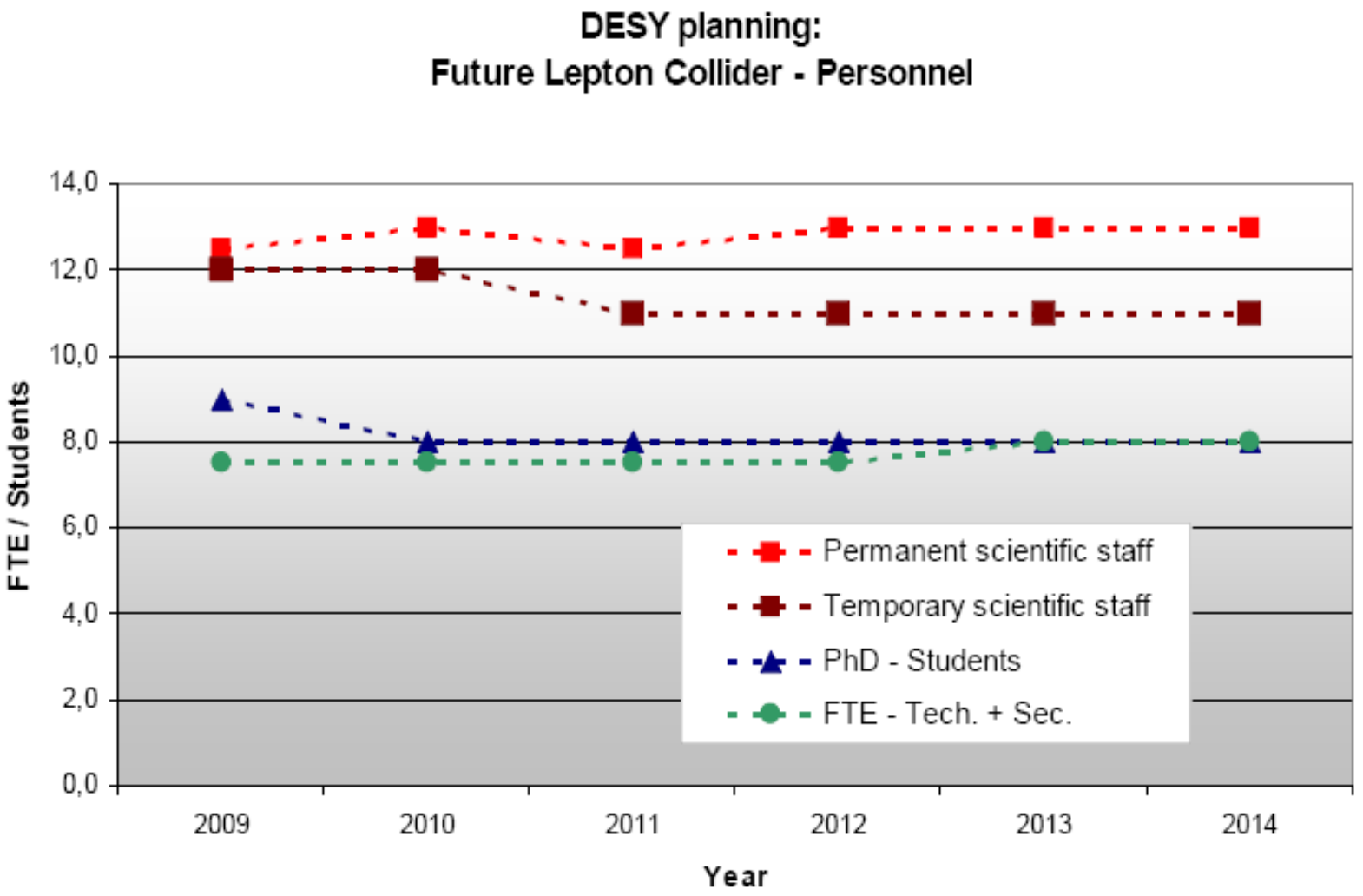
Extra Investment:

More effort into overall integration of the detector effort
→ ILD project office

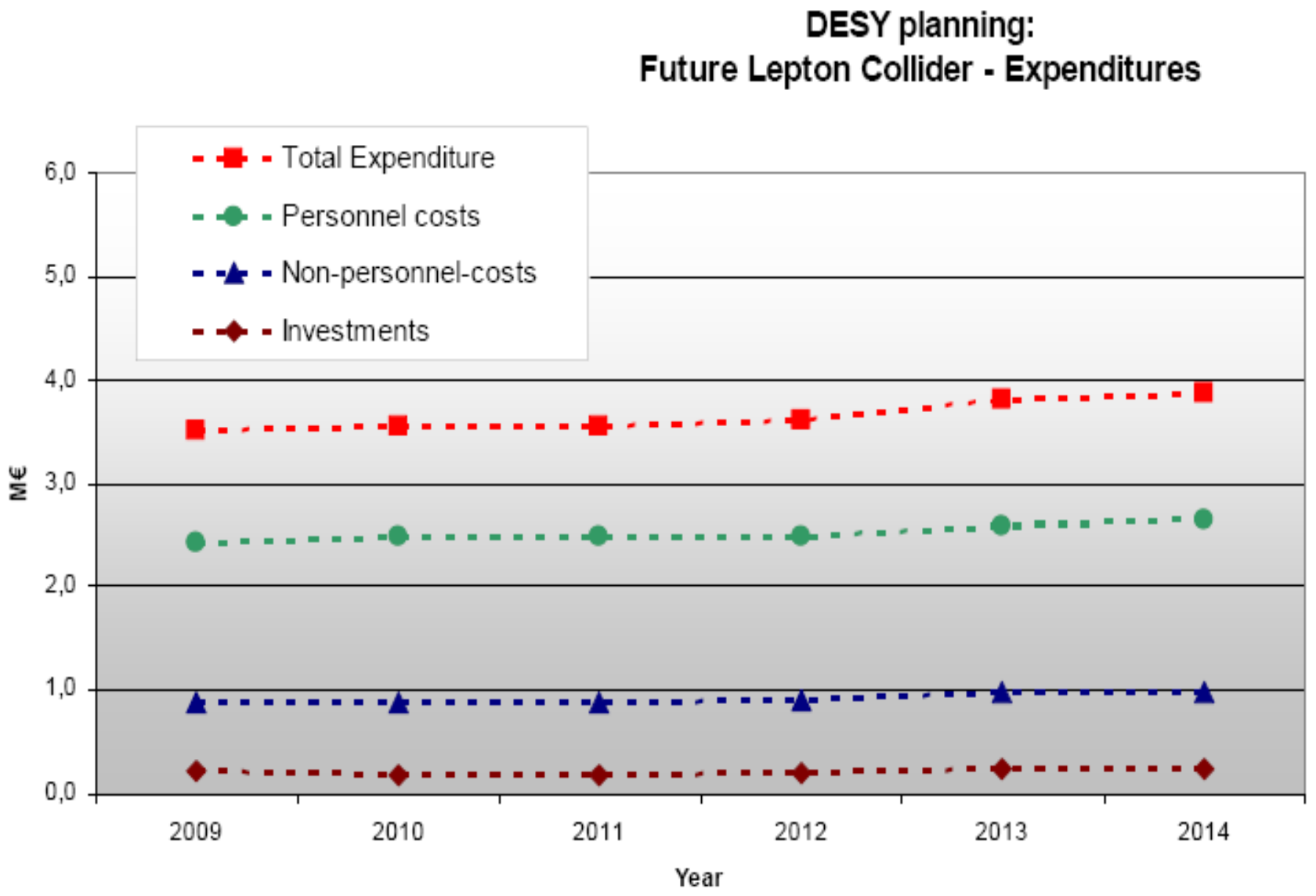
Place to coordinate detector activities in Europe
(possibly together with CERN, or other places)

Setup an integrated test beam facility for overall system test of an ILC detector: unique facility in the world.
Close synergy with CLIC effort / CERN groups

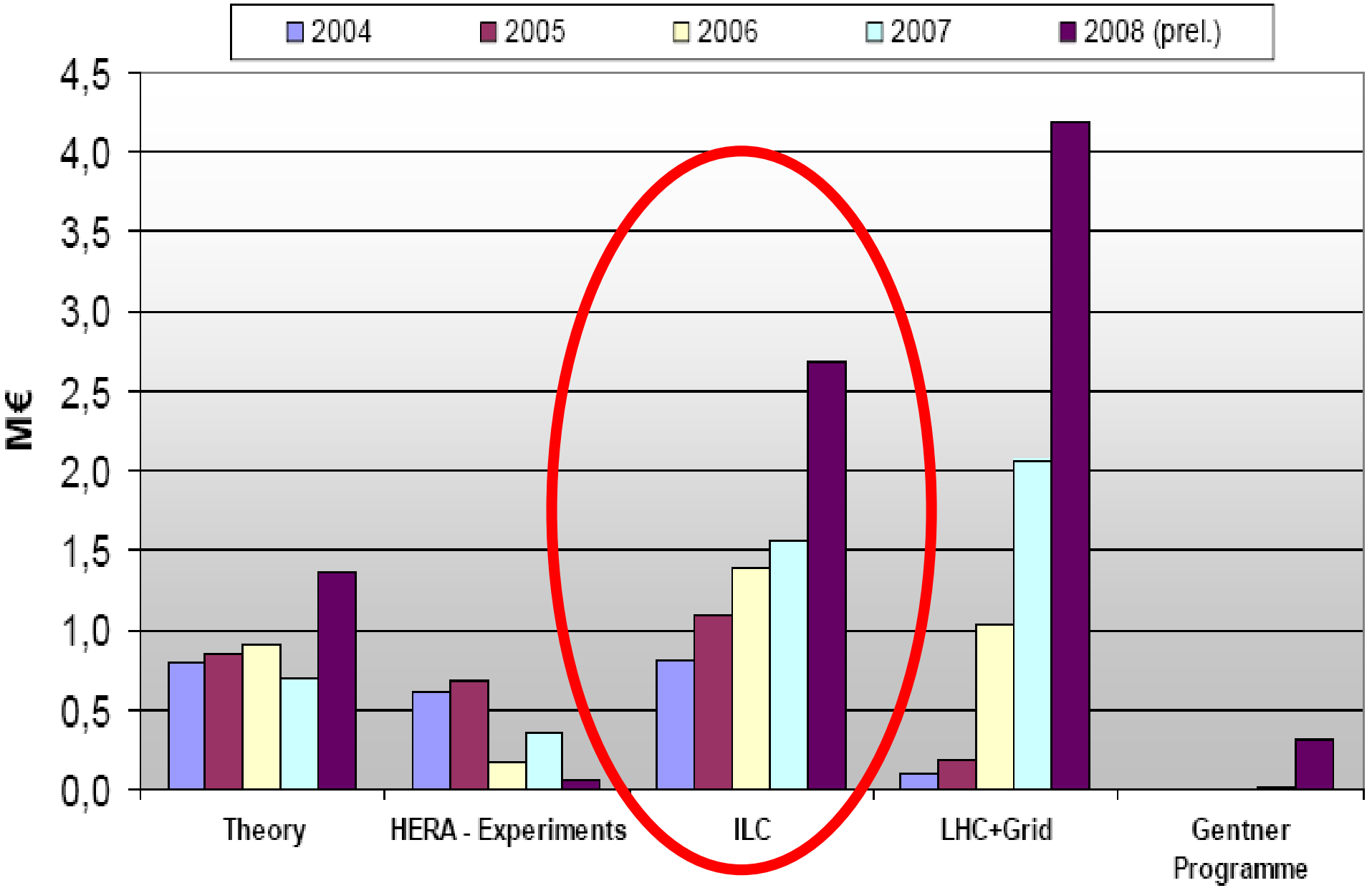
Base Budget: Personpower



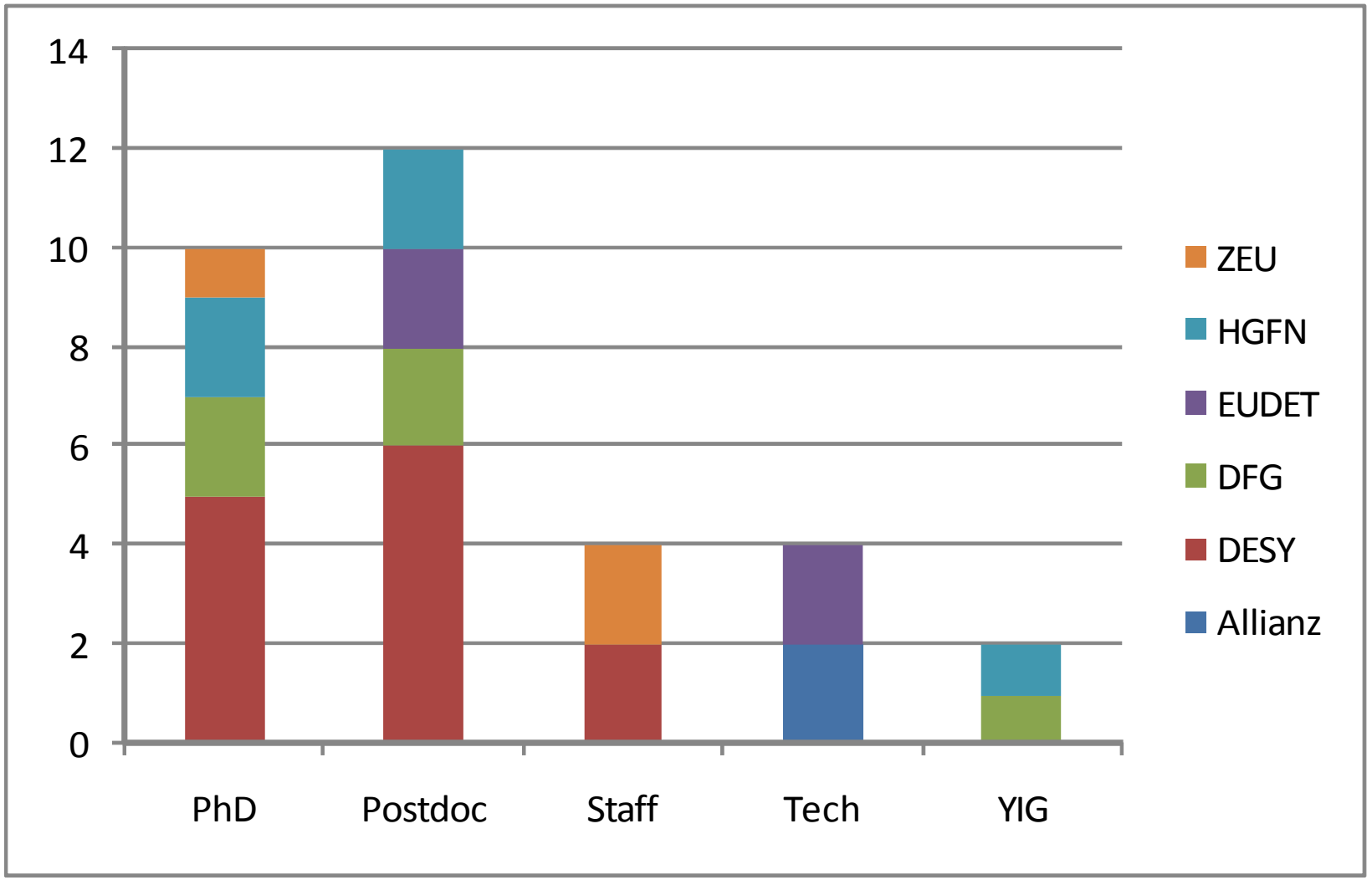
Base Budget


DESY planning:
Future Lepton Collider - Expenditures
Total Expenditure
Personnel costs
Non-personnel-costs
Investments
6,0
5,0
4,0
3,0
2,0
1,0
0,0
M€
2009
2010
2011
2012
2013
2014
Year

Third party funding

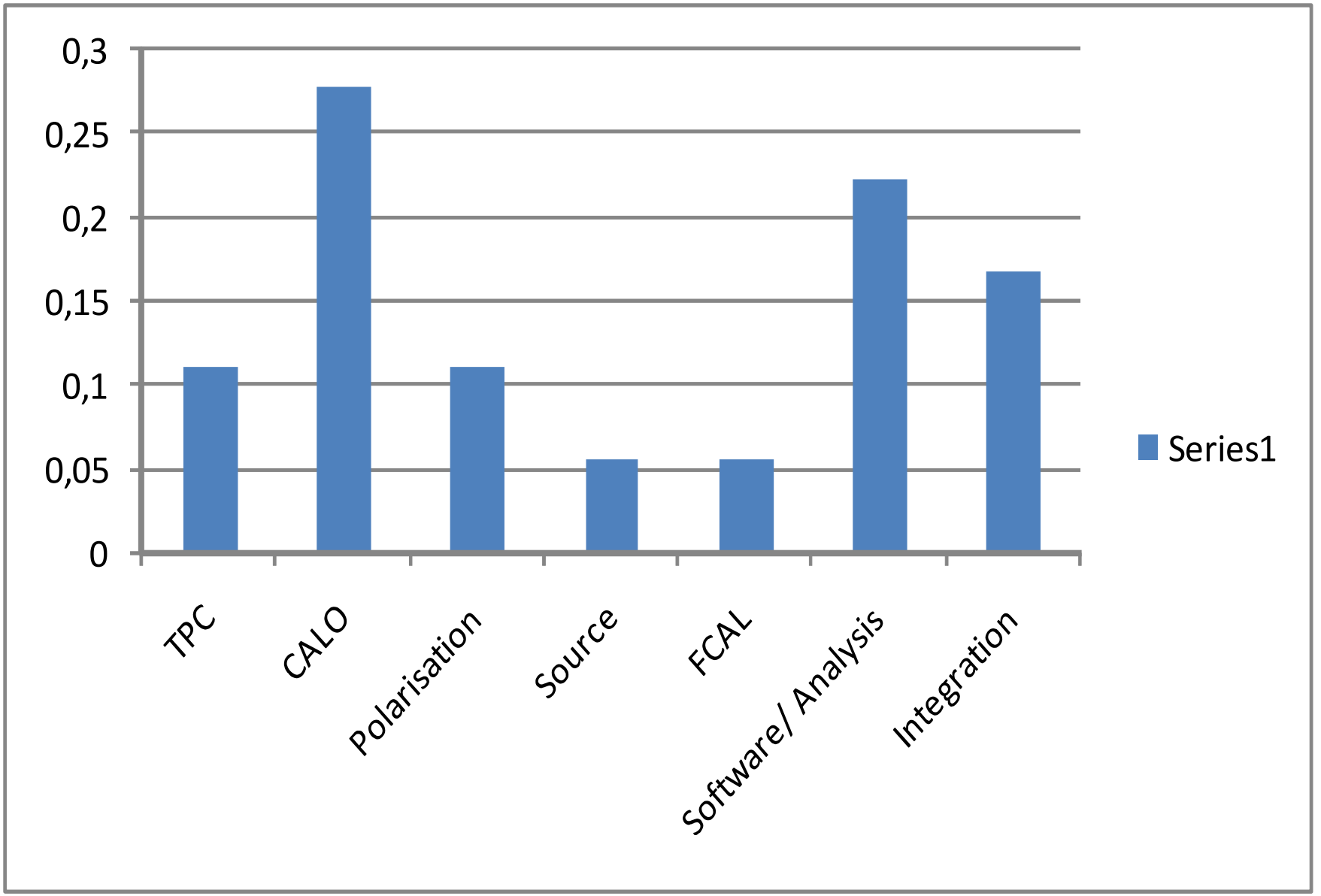


Composition of the Group



Detector Development including 3rd party funding

Distribution into topics



Experimental Facilities

Support for the development and construction of HEP detectors

- Test beams/ Test facilities
- Remote control center
- Virtual laboratory for detector technologies
- Coordination center for large scale detector tests

Support for the analysis of data from HEP detectors (non IT aspects)

- Analysis center

DESY's role

Built upon the well developed DESY infrastructure

vast experience by DESY staff from building and running large HEP detectors for many years

Provide infrastructure not tightly connected to a specific project: sustainability

Integral part of the concept of the Helmholtz Alliance to create a structured network for particle physics in Germany

Technical support/ test beam/ facilities at DESY
Virtual Laboratory for Detector Technologies
Analysis center

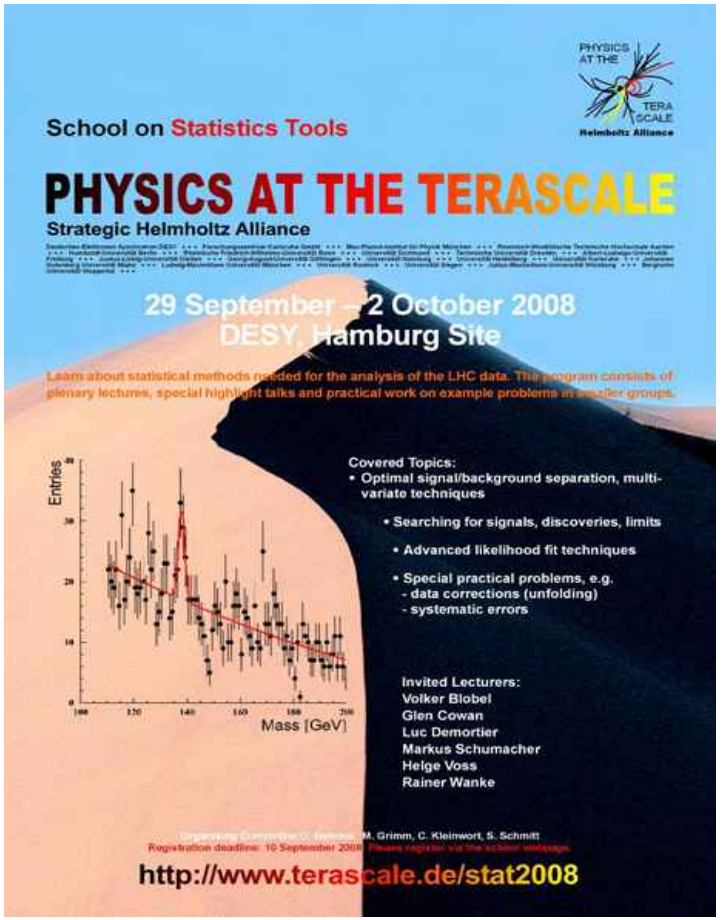
Analysis Centre

Center at DESY to support analysis of groups within the Alliance

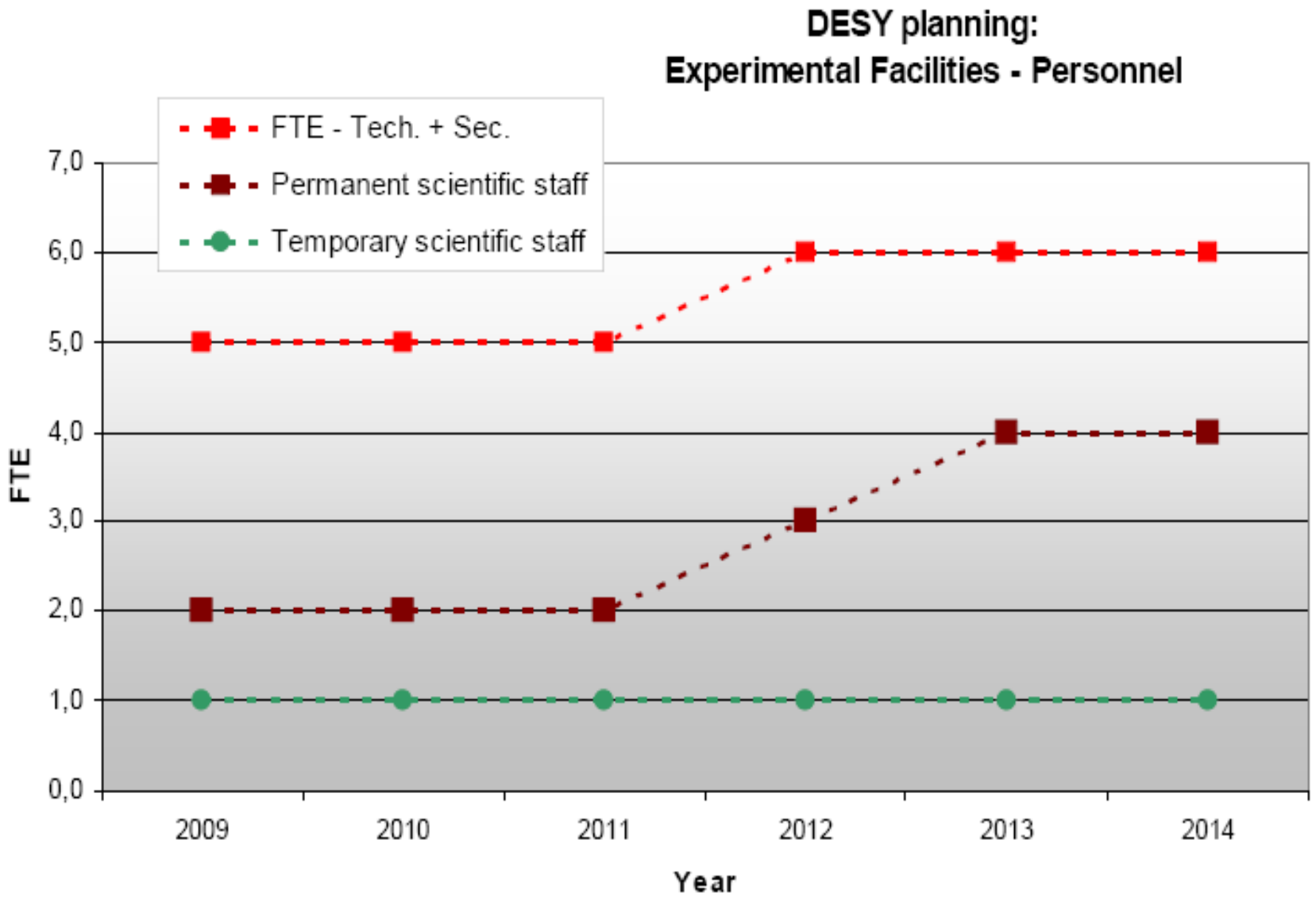
Concentrate on common tasks:

- Monte Carlo generators
- Statics Tools
- PDF's from HERA

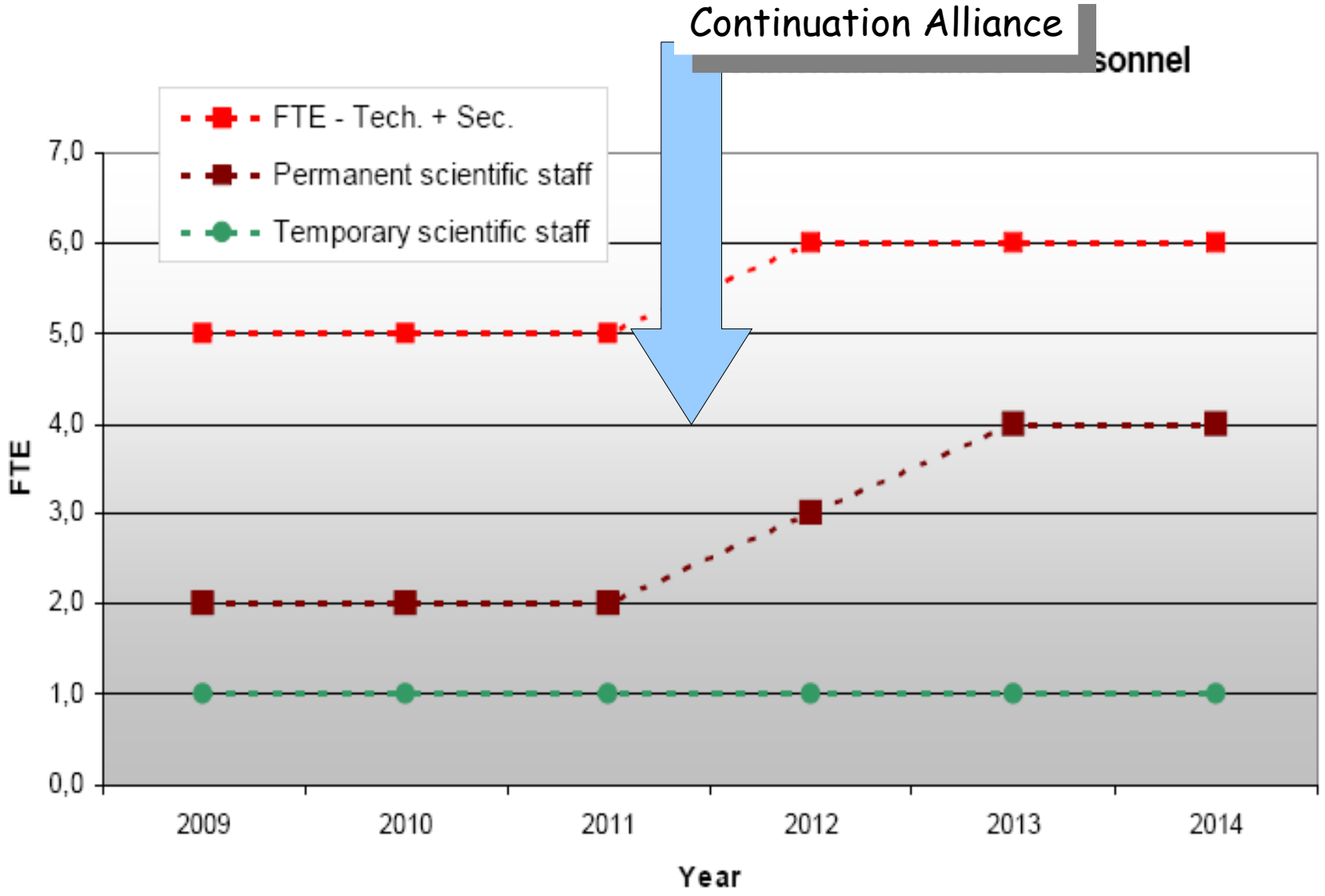
Education of Students
Development of basic tools
Development of a pool of know how for analysis
"help line"
Organisation of workshops, working weeks, etc



Experimental Facilities



Experimental Facilities



Experimental Facilities