ILD and the EU

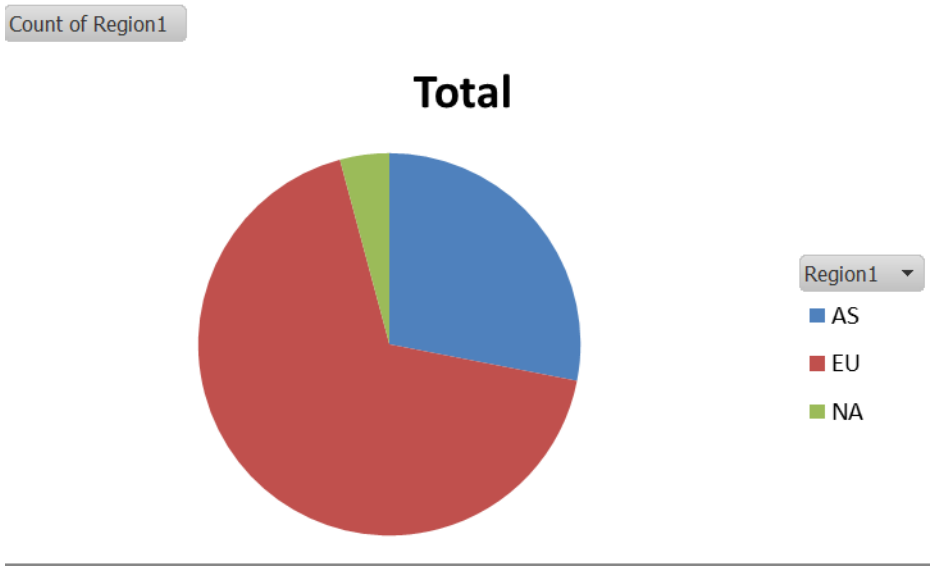
ILD Challenges

After the delivery of the DBD ILD

- Consolidate the detector design
    - Re-optimize also in view of costs/ performance
    - Critically look at performance requirements and definitions
- Improve the detector design and readiness
    - Improve engineering in particular of the integration
    - Improve understanding of costing
- Study the physics case
    - Make the physics case/ improve the physics case
    - Develop / provide the tools needed for physics studies with ILD

ILD and the EU

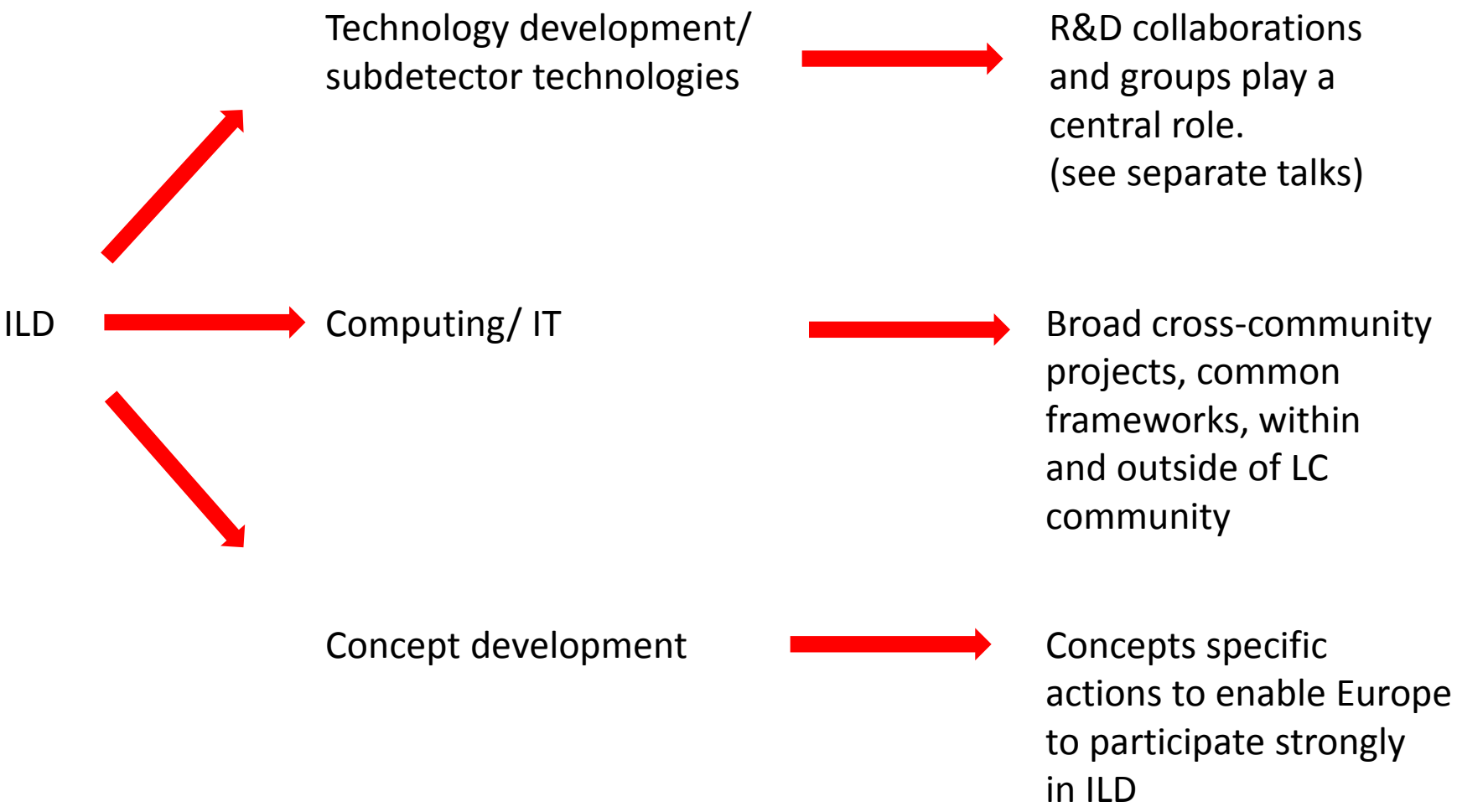
ILD has a strong European and Asian base:



ILD and the European LC community have profited largely from EU actions:

ILD has a strong interest in a continued and successful participation in EU projects.

ILD


ILD
Technology development/
subdetector technologies
R&D collaborations
and groups play a
central role.
(see separate talks)
Computing/ IT
Broad cross-community
projects, common
frameworks, within
and outside of LC
community
Concept development
Concepts specific
actions to enable Europe
to participate strongly
in ILD

ILD “Slice Test”

Need a better name for this!

Idea: do an integration exercise to bring together parts of ILD into a “slice”

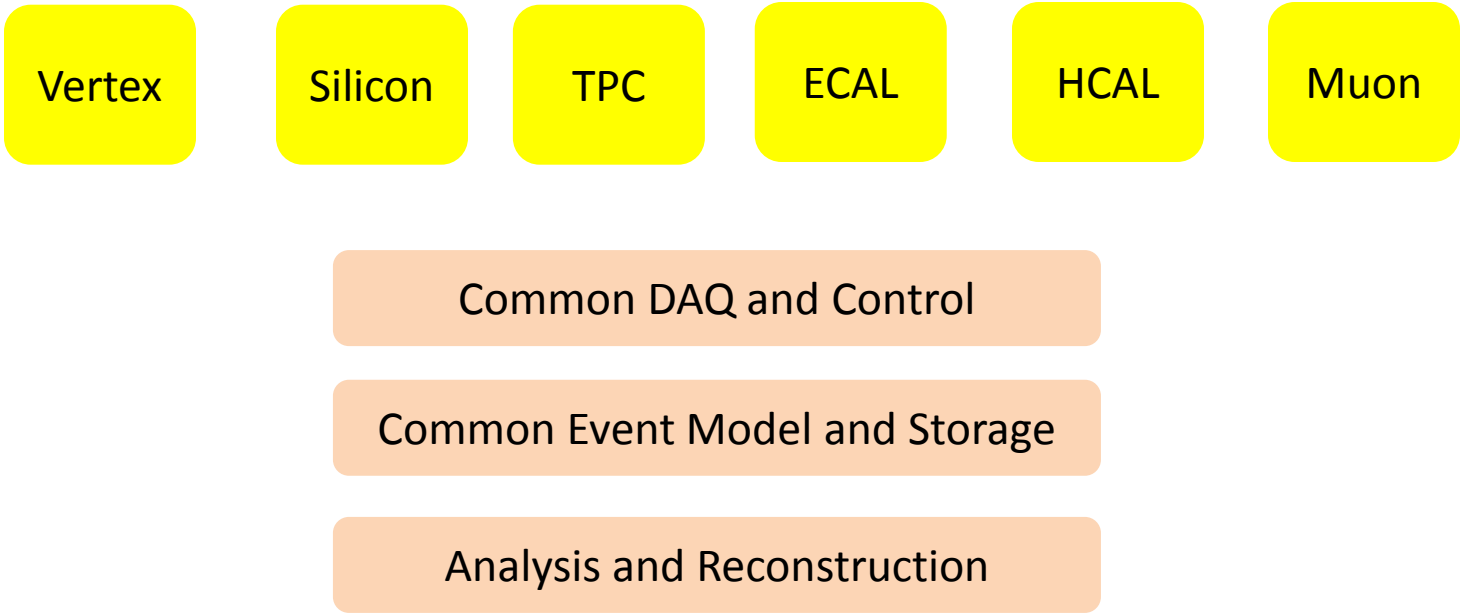
- Main focus would be on the development of proper methods and protocols to allow the sub-detectors to talk to each other:
  - Starting point for a common DAQ
  - Starting point for the development of a common and structured environment/ framework which could
    - Provide an ILD test beam DAQ
    - Be a test bed for ideas for an ILD DAQ

- Hardware would be of second importance:

  - It is too early for a “real” slice test with “final” ILD components
  - Still combining existing prototypes will teach us a lot and drive the common DAQ developments.

The proposed Slice test is really a project to develop common tools and mechanisms to make sure our sub-detectors can talk to each other, and that we can analyze the data from all sub-detectors.

ILD “Slice Test”



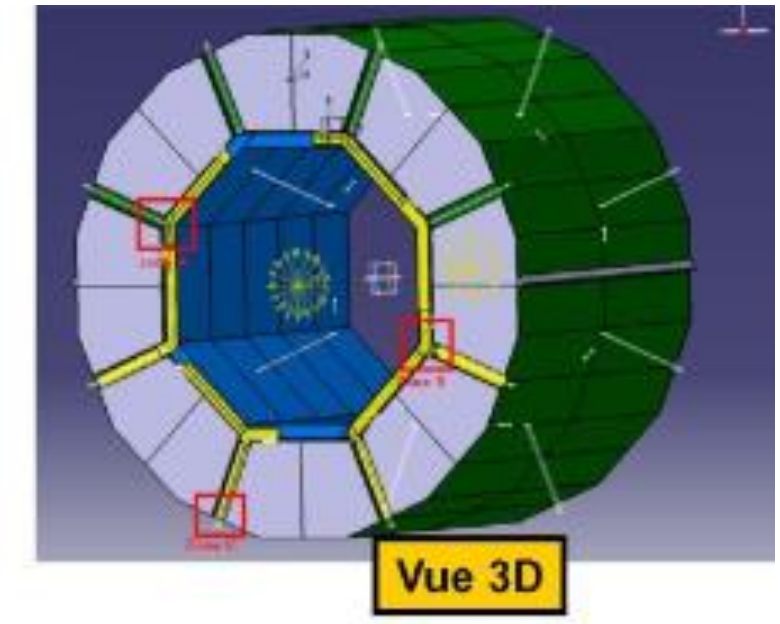
SLICE I

Possibility of “pre-test”
(connection to TPC project)
TPC integrated with SI tracking

SLICE II

Combination of Tracking and Calorimeter for common readout and analysis

ILD Integration



Integration of ILD is highly non-trivial

We need

- Excellent engineers
- Good tools to manage the integration

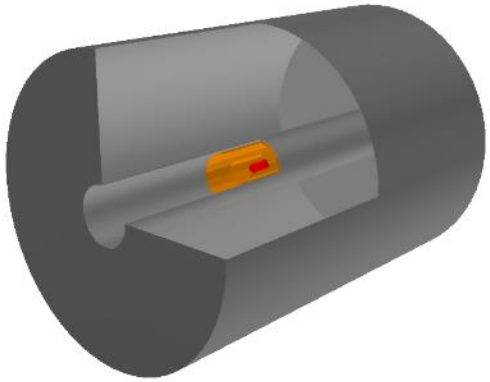
Project: setup a common integration project

- Engineering resources to support integration studies
- Provide the infrastructure (CAD, EDMS, etc) to help the integration and document it
- Develop collaborative tools to support a coherent but distributive integration effort

ILD Software / IT

From AIDA:

- Generic tracking
- DD4HEP as a general geometry toolkit



DD4HEP realization of VTX/ TPC

Next step:

DD4HEP

Full detector simulation engine

- Geometry description
- Detector simulation
- Detector digitization
- Integration into GEANT4

Turn the AIDA tool into a full blown simulation engine eventually suited to replace MOKKA/ SLIC

Project carried by DESY/ CERN/ LLR(?)/ LAL(?)/ others?

Summary

Three ideas for ILD focused participation in the next EU project:

- "Slice" test (a la common DAQ)
- ILD Integration
- ILD Simulation (Software)

Technology specific projects: see presentation by CALICE, LCTPC etc.

In addition:

Access:
Transnational access / infrastructure support:

- Support for DESY and CERN test beams
- Make sure this includes necessary upgrades / maintenance to the infrastructure

Wish:
Find ways to provide funding for a high field test facility (3-4 T large bore magnet)