

Ties Behnke
ILD meeting
Nov 12, 2024





The FCC EOI (DC) process



The Physics, Experiments and Detectors (PED) Pillar of the FCC DC: Detector concept Study invites Expressions of Interest (EOIs) by groups of institutes to pursue the development, or further development, of an integrated conceptual detector design for FCC experiments. EOIs for the development of sub-detector designs are being invited in a separate call.

In this phase of the FCC project, the work of concept groups should primarily focus on

- A consistent simulation model with full simulation in all sub-systems, and the support of high-level reconstruction tools for full-event properties like di-jet masses or flavour tagging, to evaluate the full-event performance of the detector as a whole
- An overall engineering model informing the simulations, simplified, but with realistic material budget and dead spaces,
 - to guide the optimisation of the global detector parameters and structures
 - to support the development of the machine detector interface (MDI)
 - to provide boundary conditions for sub-detector integration

These concepts should be well connected to the developments of sub-detector systems and to technological R&D pursued in the framework of the CERN-anchored DRD collaborations, and complement these with studies at the full-detector level.

Source: e-mail from 11.10.2024

P. Janot and C. Grojean for the FCC Physics Experiments and Detectors

M. Dam, M.-A. Pleier and F. Sefkow for the FCC Detector Concepts



The FCC EOI (DC) process



The Physics, Experiments and Detectors (PED) Pillar of the Future Circular Collider (FCC) Study invites Expressions of Interest (Eois) by groups of institutes to pursue the development, or further development, of an integrated conceptual detector design for FCC experiments. Eois for the development of sub-detector designs are being invited in a separate call.

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Simulation and reconstruction software should be integrated into the Key4HEP system, provide an interface to the sub-detector developments and an environment for studying their integration, and enable full-simulation-based physics studies.

The forming of (proto-) collaborations will start at a later stage, while presently the combination of different sub-detector technologies inside a given concept should remain open where technically reasonable and supported by the common software framework.

We welcome Eois for work both on already existing detector concepts as well as new concepts, which are not variants of existing ones; in that case we rather encourage to intensify collaboration.

Eois should be compact documents (3-6 pages) including

- The scope of planned activities over the next 3-5 years, as well as the partner institutes and their expertise, and the names of one or two contact persons.
- The connection with technological activities in the DRD framework
- References to relevant more detailed documentation of the technologies

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The EOI (SD) process



SC: Subdetector Technologies

With this we encourage the federation of international efforts focussing on one or more technologies for a given sub-detector. These activities are expected to be well connected to technological R&D pursued in the framework of the CERN-anchored DRD collaborations and complement these with a focus on system integration aspects at the level of the sub-detector as well as its integration into one or several overall detector concepts. They should support the R&D with simulation and optimisation of system performance and, together with detector concept groups, provide guidance to the R&D via feedback on system design and performance.

Both processes are meant to run in parallel

It is expected that groups submitting an DC EOI support this by submissions in the SD EOI process



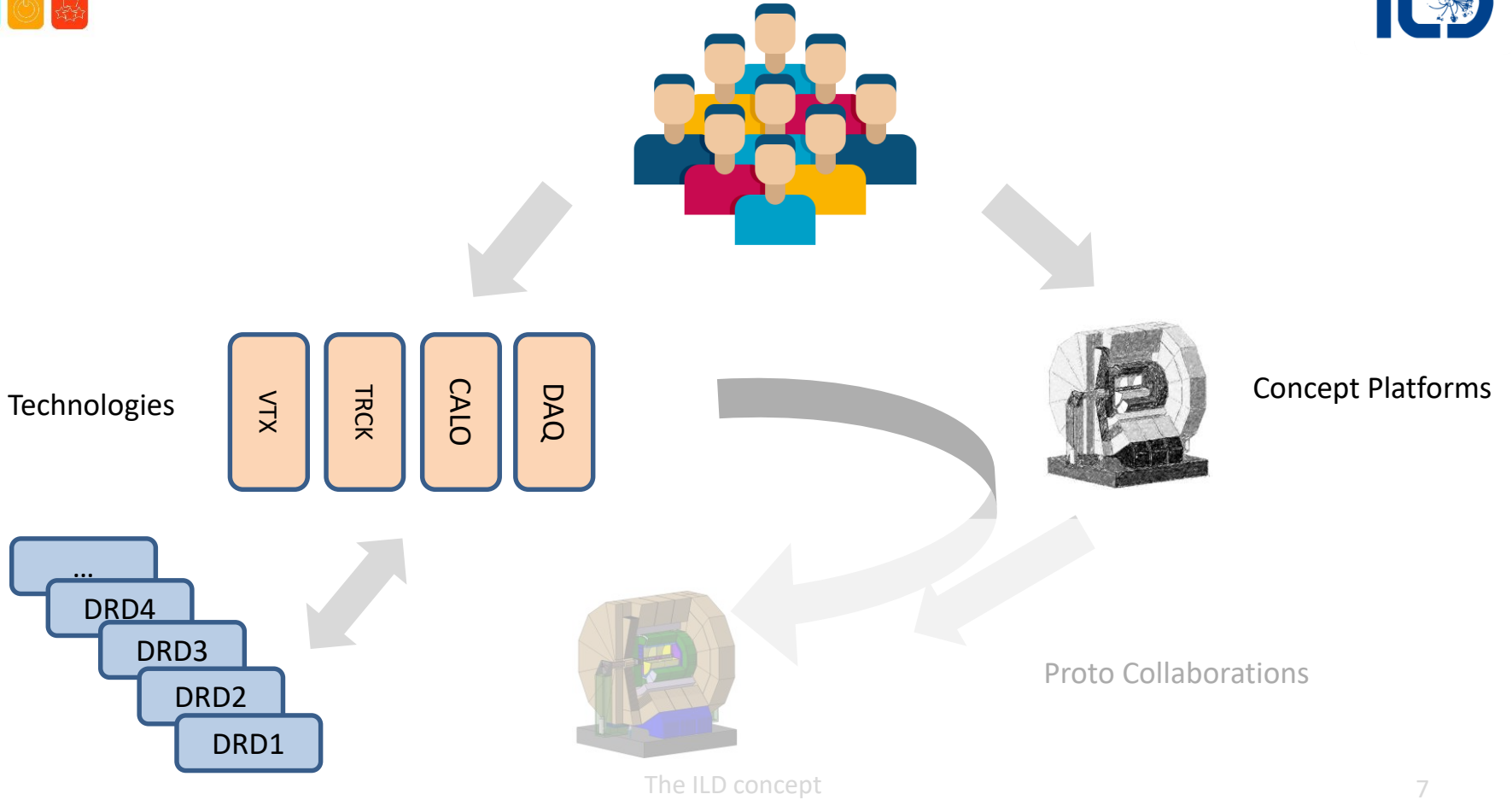
The EOI (SD) process



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ILD and the EOI



Following our strategy paper in 2023

- We want to participate in FCC studies
- We should submit an EOI

This does not change our plans towards an ILD contribution to the EPPSU

ILD EOI



- Short description of ILD
 - Layout
 - Major design philosophy
- The ILD environment
 - Simulation
 - Reconstruction
- The ILD group and structure