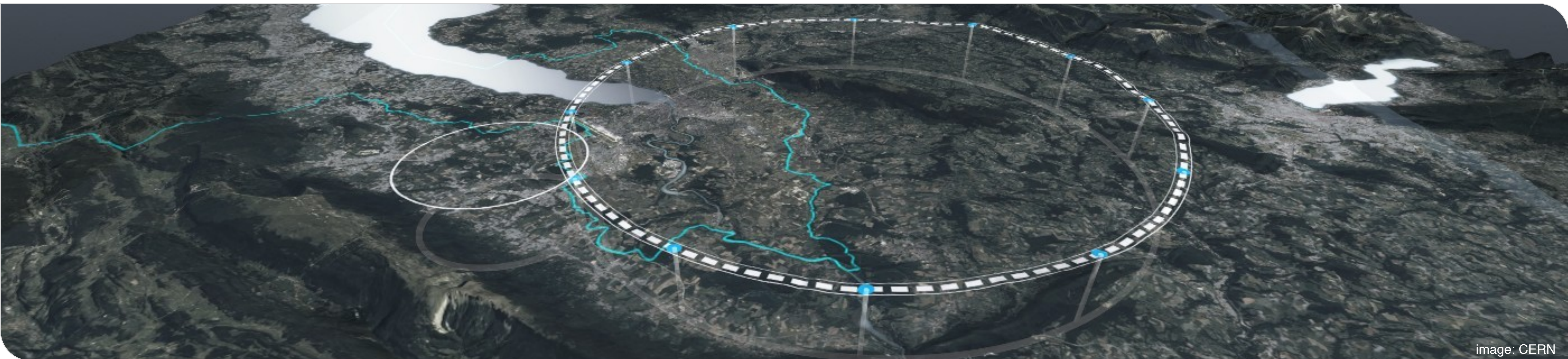


# Discussion: Community engagement in R&D for FC@CERN

Frank Gaede, Tilman Plehn, Frank Simon

FC@CERN, Bonn, May 2024



# Steps towards the next Project

*... and our contributions.*

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The current CERN timeline:

- FCC Feasibility Study: To conclude **March 2025**, with input to European Strategy
- “pre-TDR-phase”: **April 2025 - End of 2027**, to continue development until decision

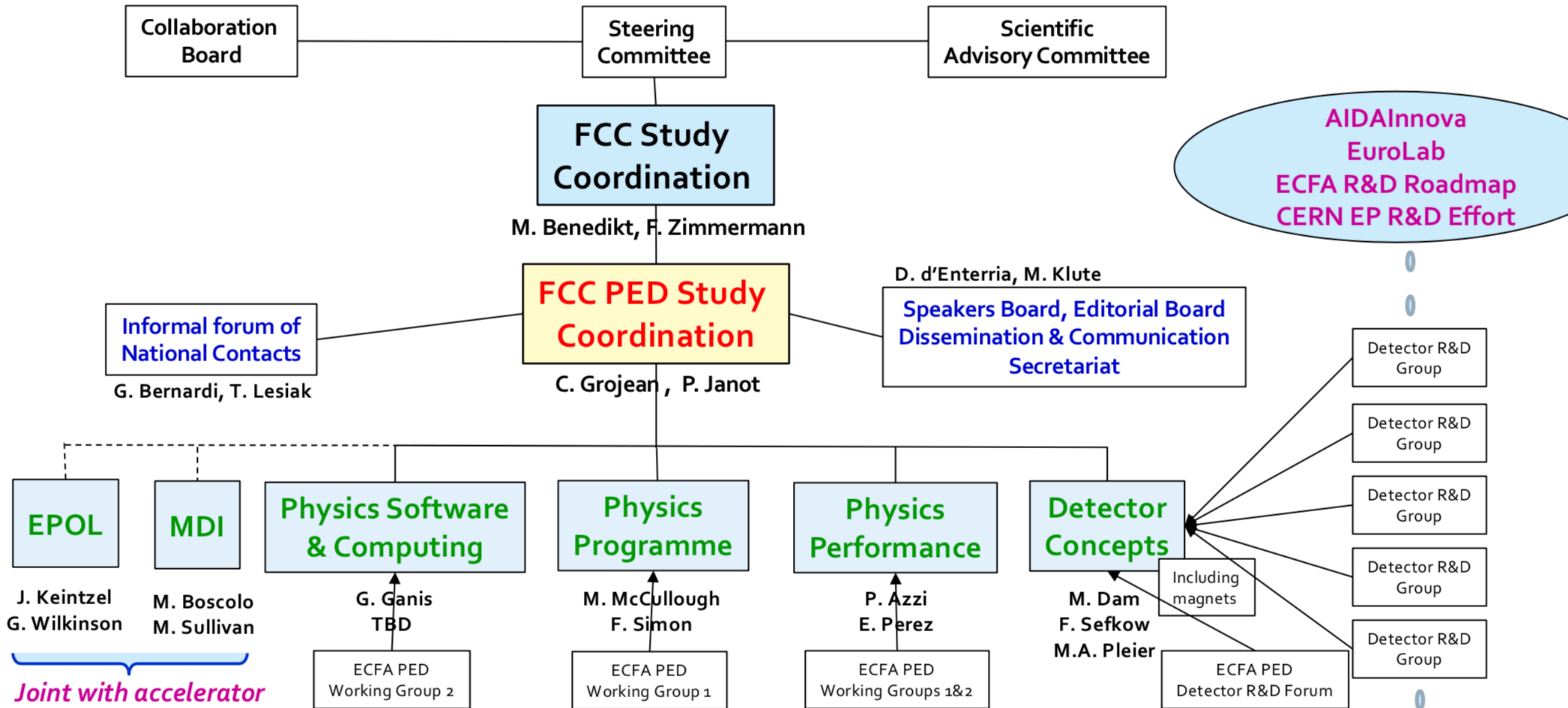
Beyond: A concrete, approved project?

How do we engage in this process as a community?

Focus of this discussion: Physics and Detectors, including Theory and Software.

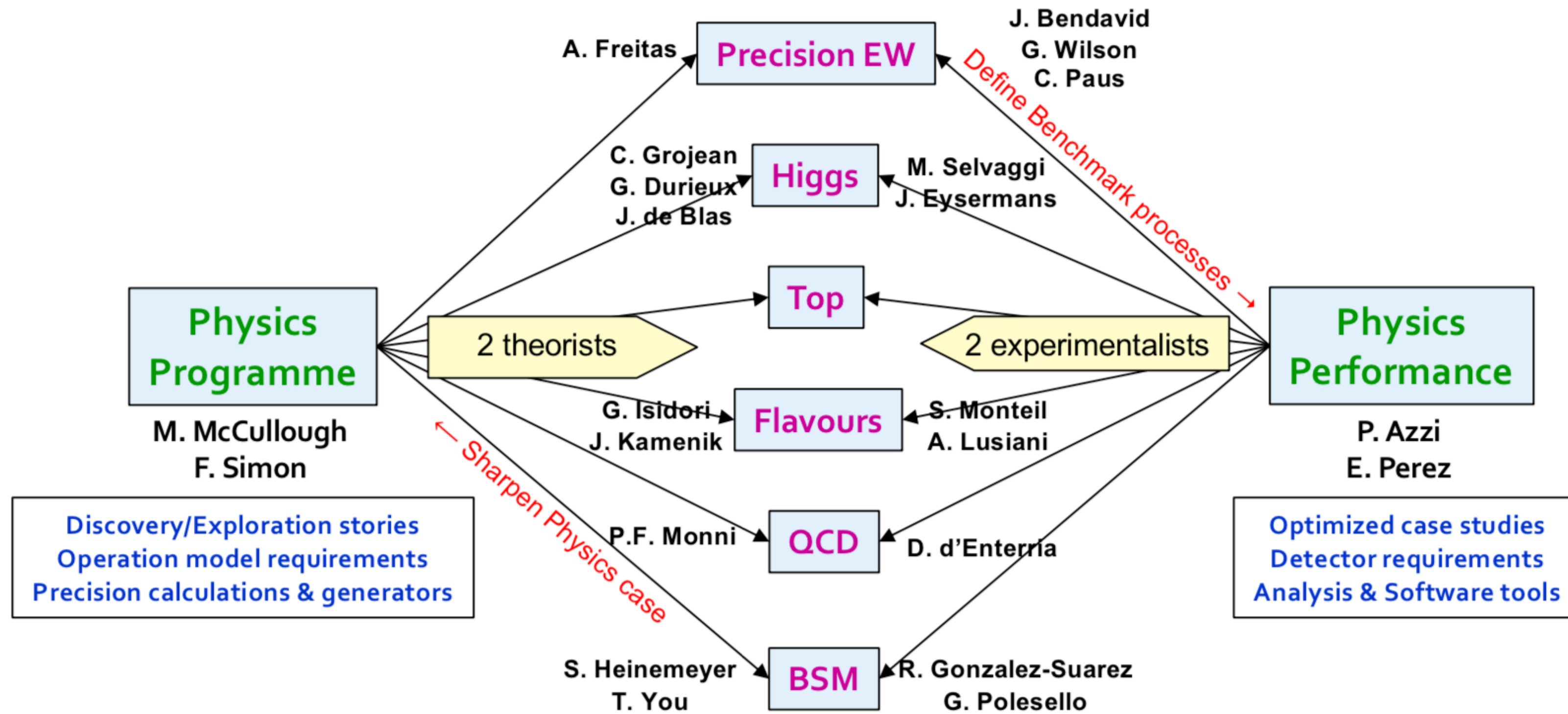
# Physics & Detectors at FCC

## Current Structure

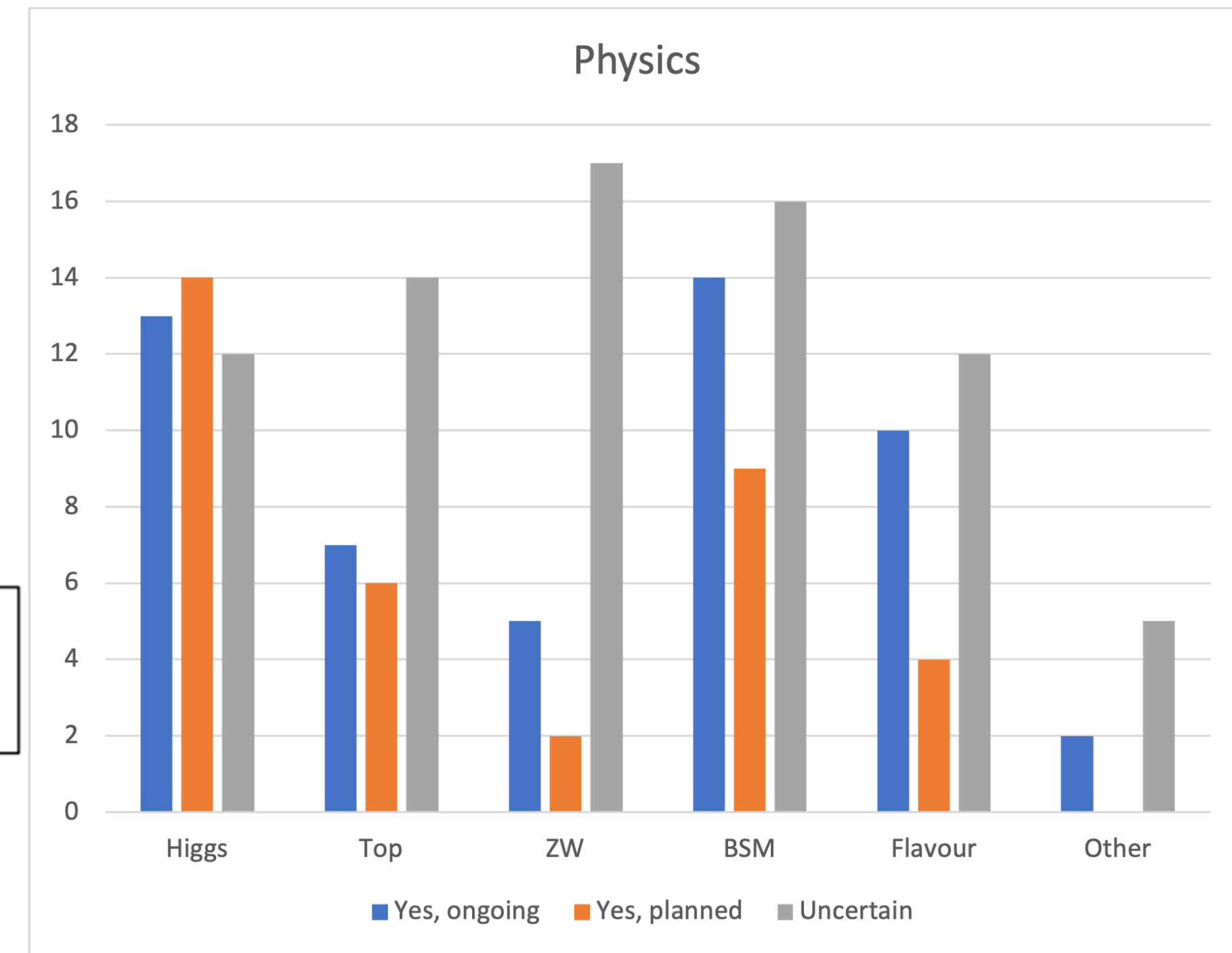


# The Physics Programme

Theory & Experiment



Community interest from survey:



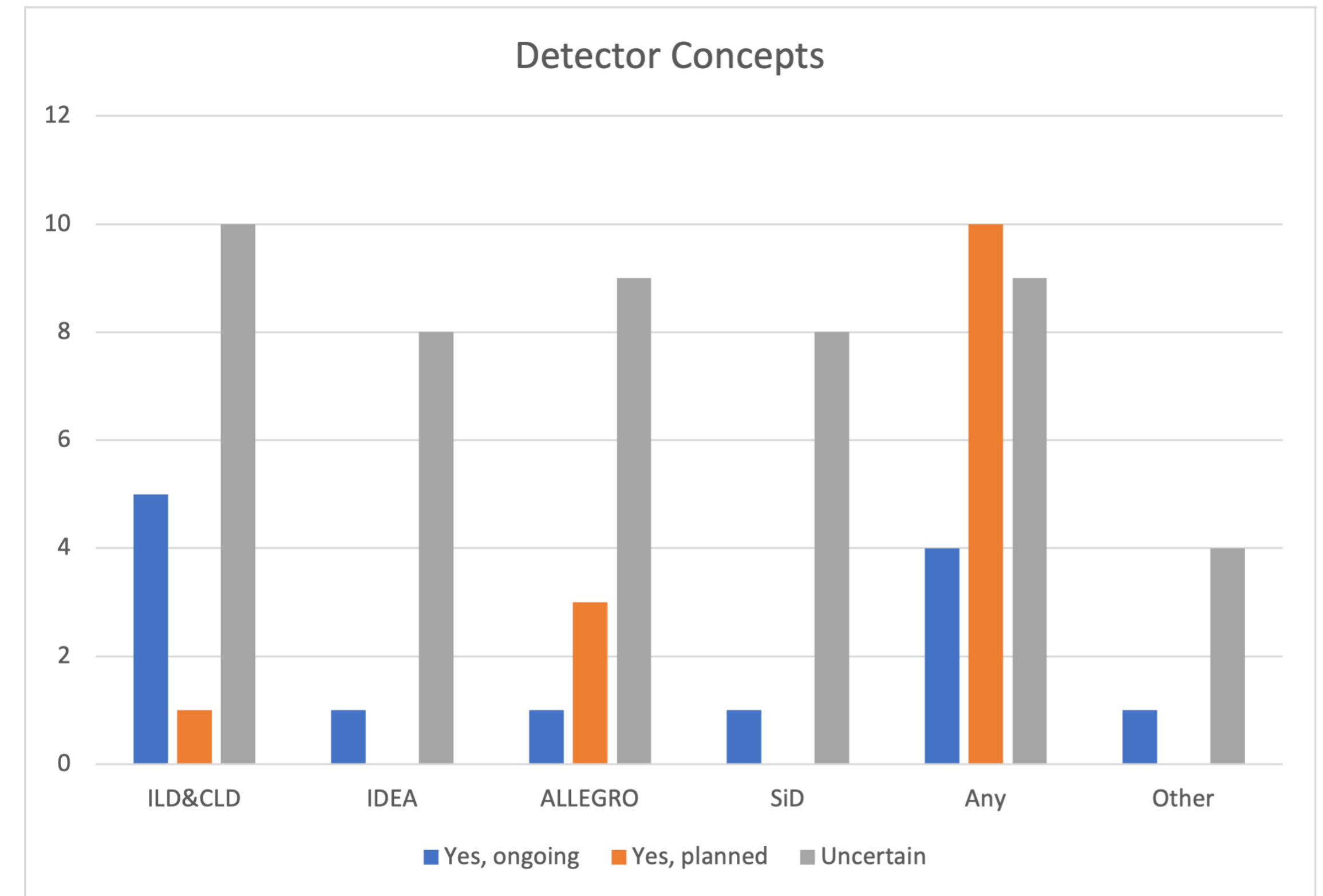
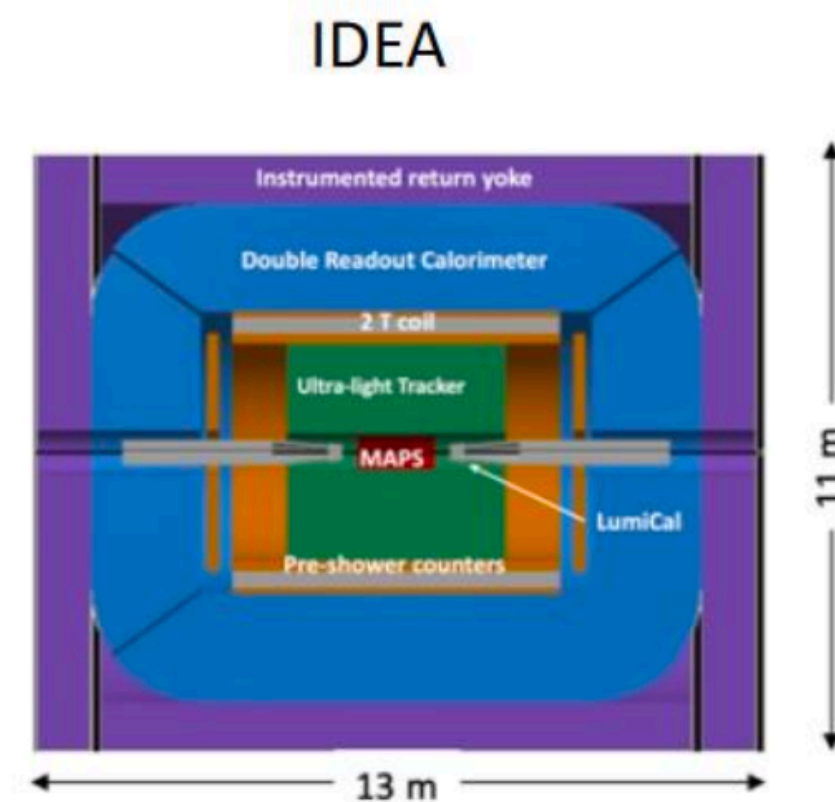
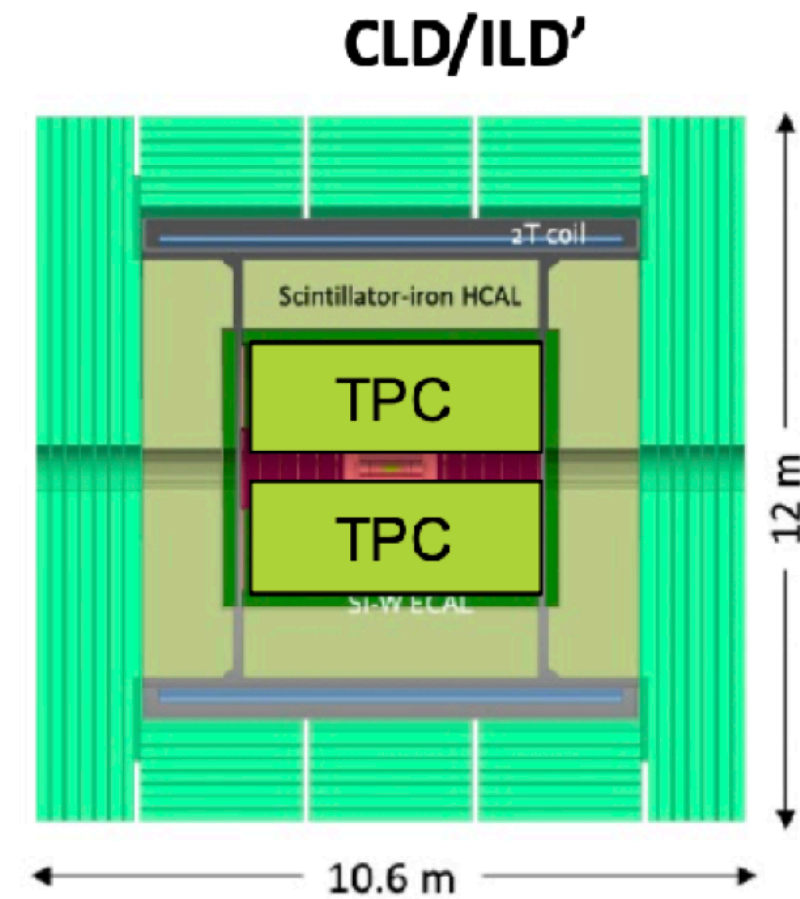
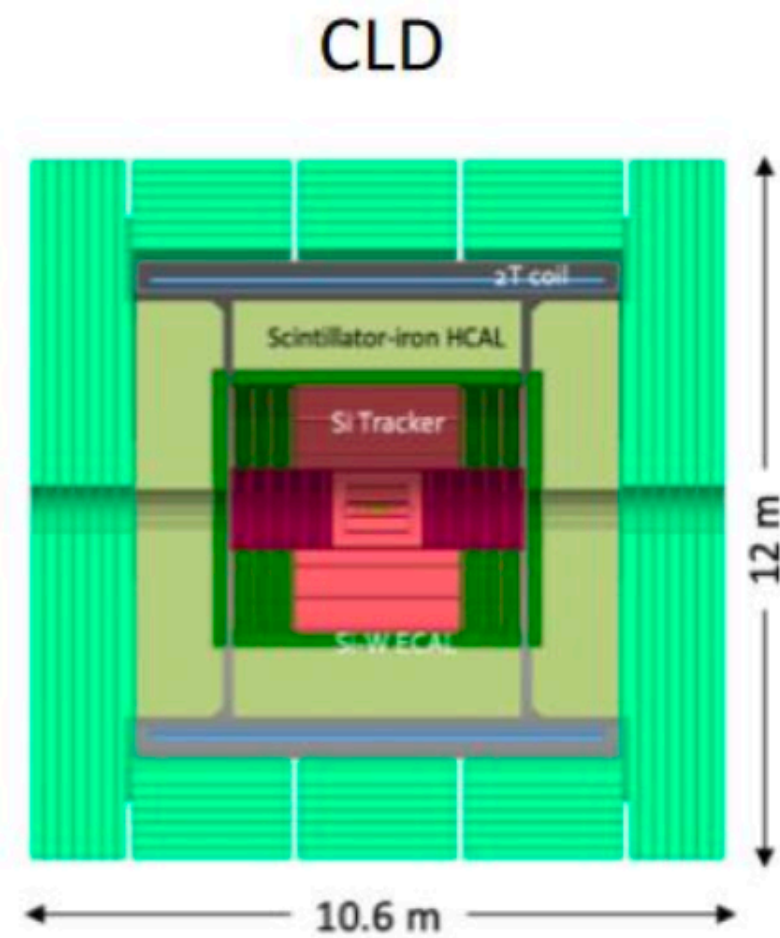
Where and how should we engage as a community?

What about visibility on the coordination level?

# Detector Concepts

*Ultimately the Path to Collaborations*

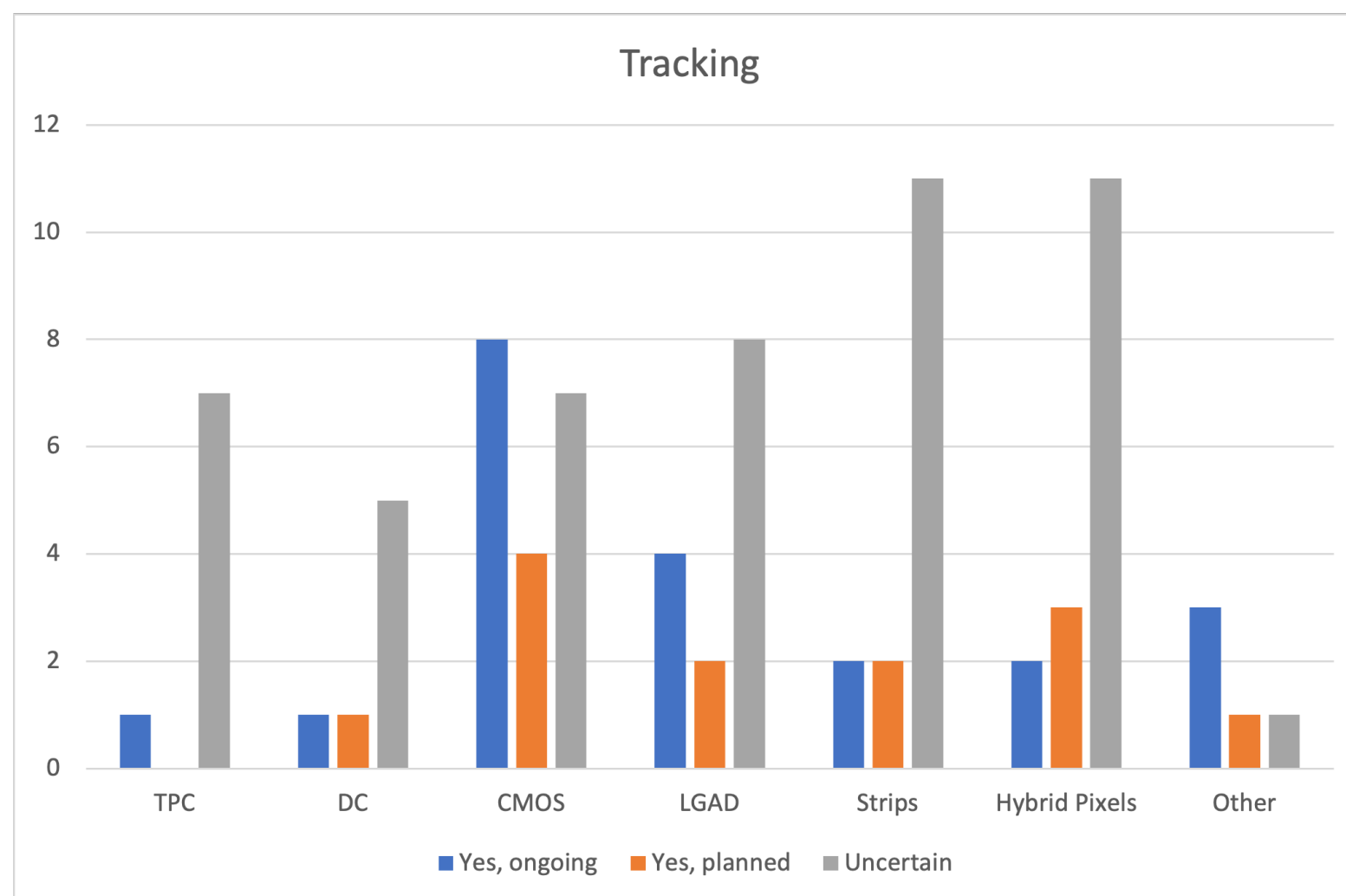
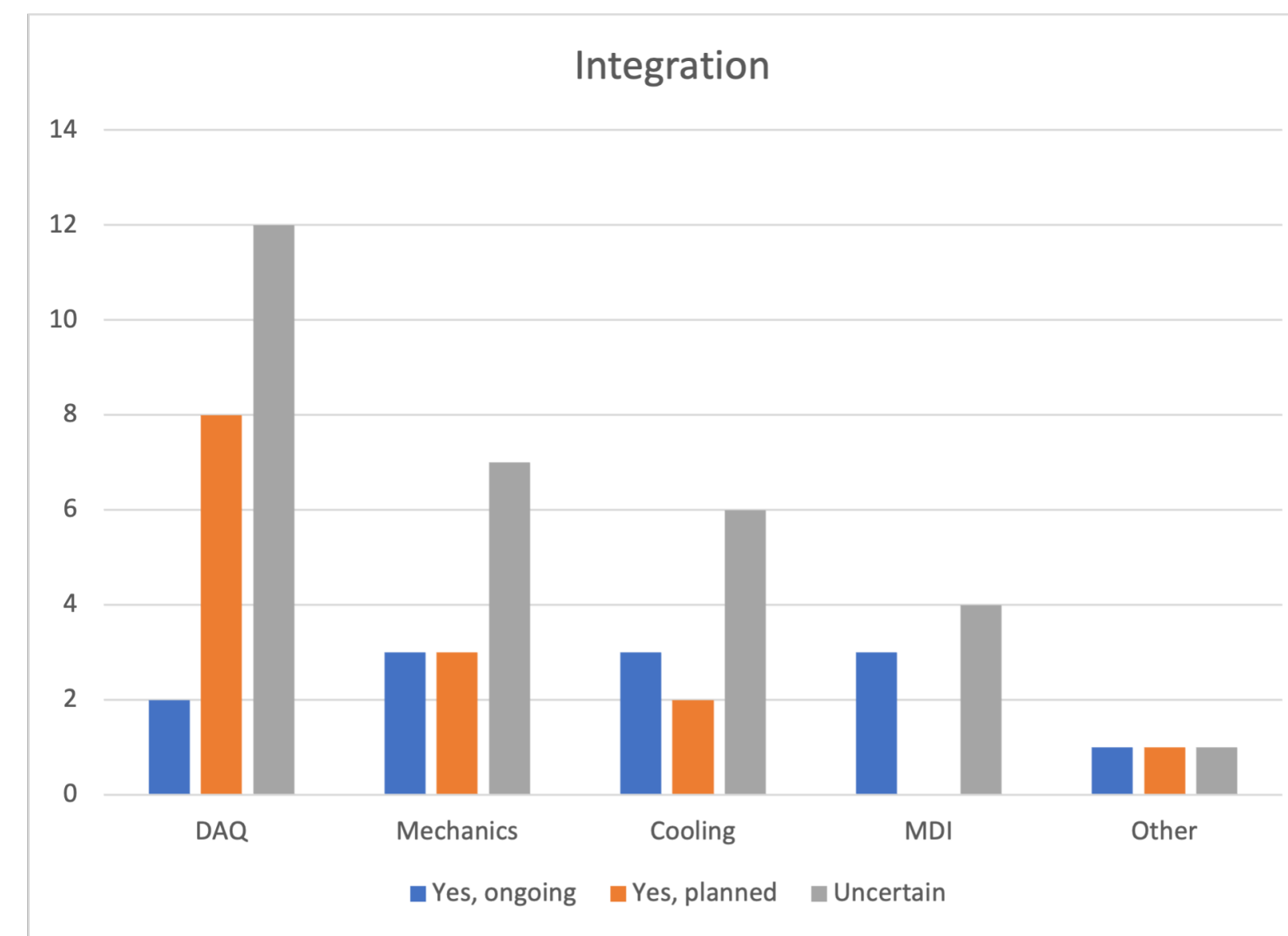
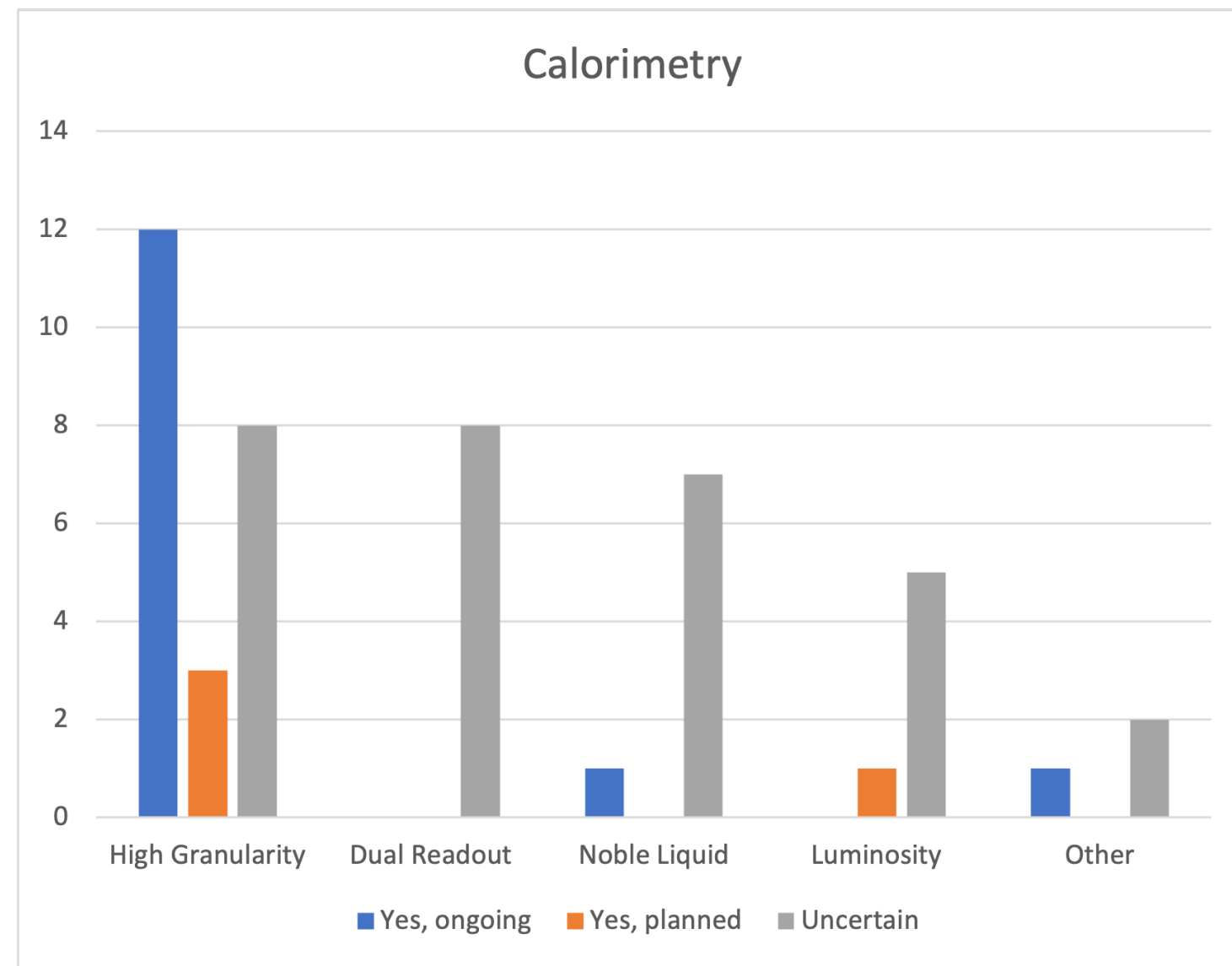
**Detector concepts:**  
Development, Optimisation



Which detector concepts do we engage in?  
Where do we lead?

# Detector R&D

## Subsystems, overarching Themes

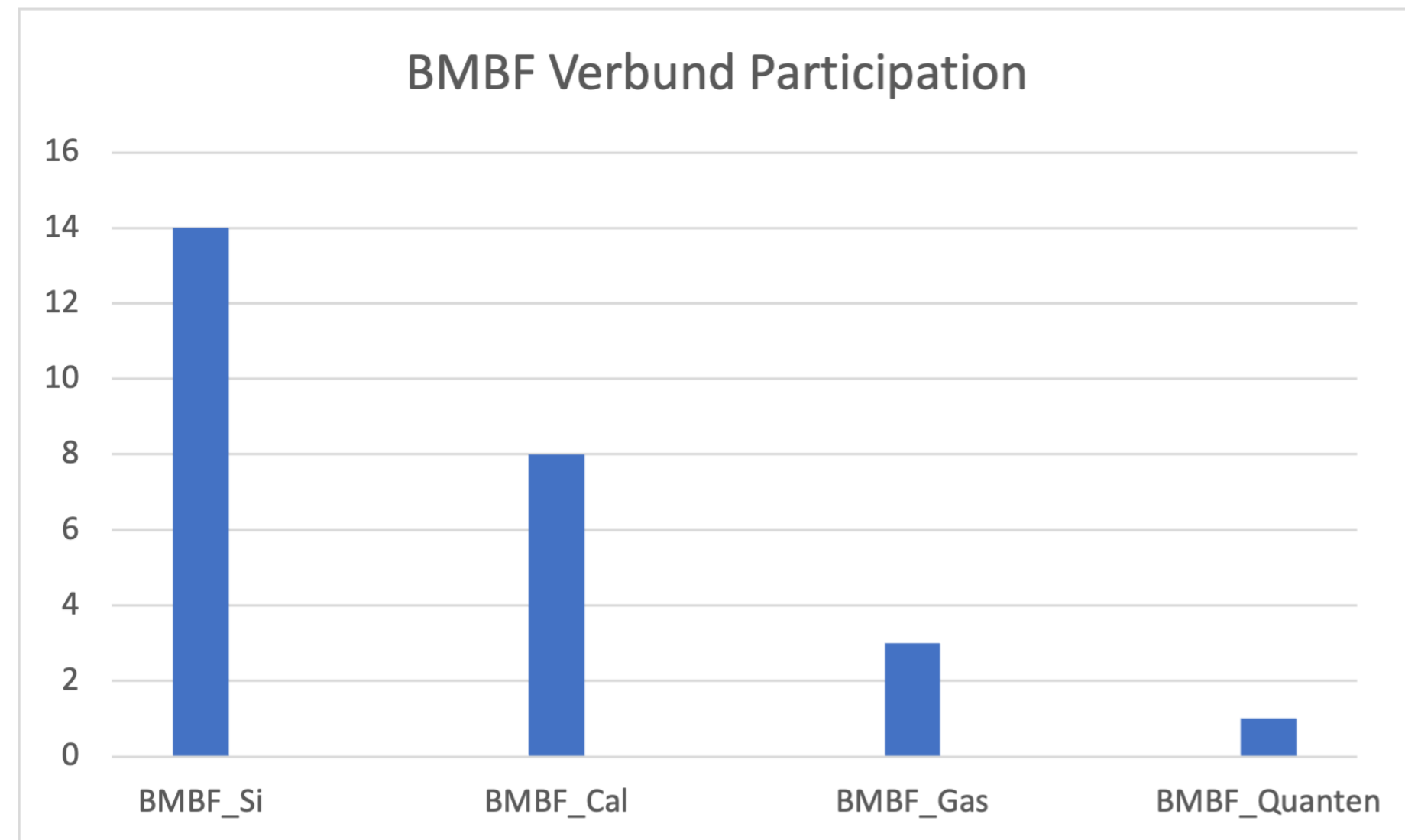


Does our Concept interest match our technology expertise and preference?  
Can we engage in overarching themes with high relevance on overall system design?

# Detector R&D

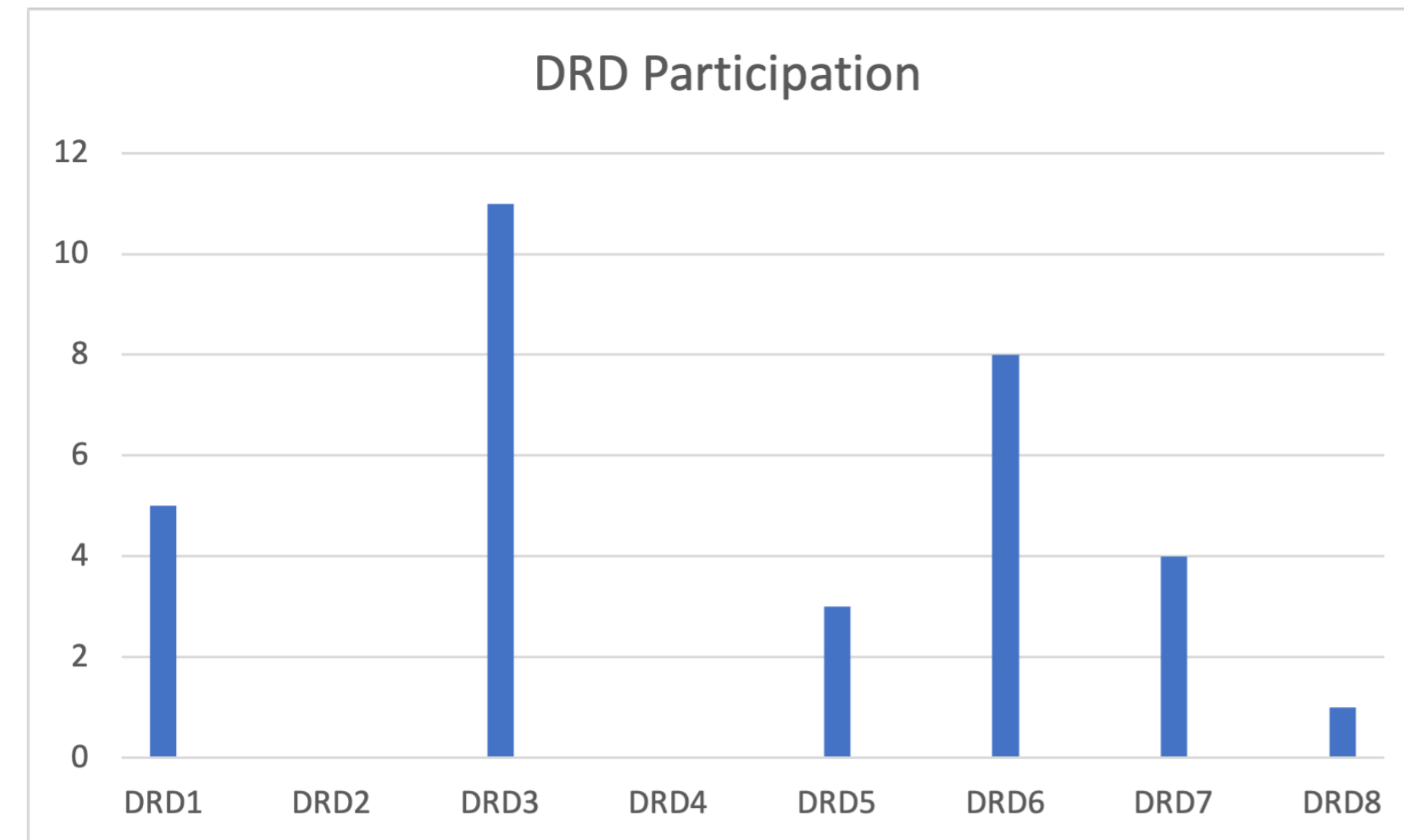
## BMBF Funding

- Three BMBF - Verbünde have been funded for the period 2024-2027 - albeit with significant cuts:



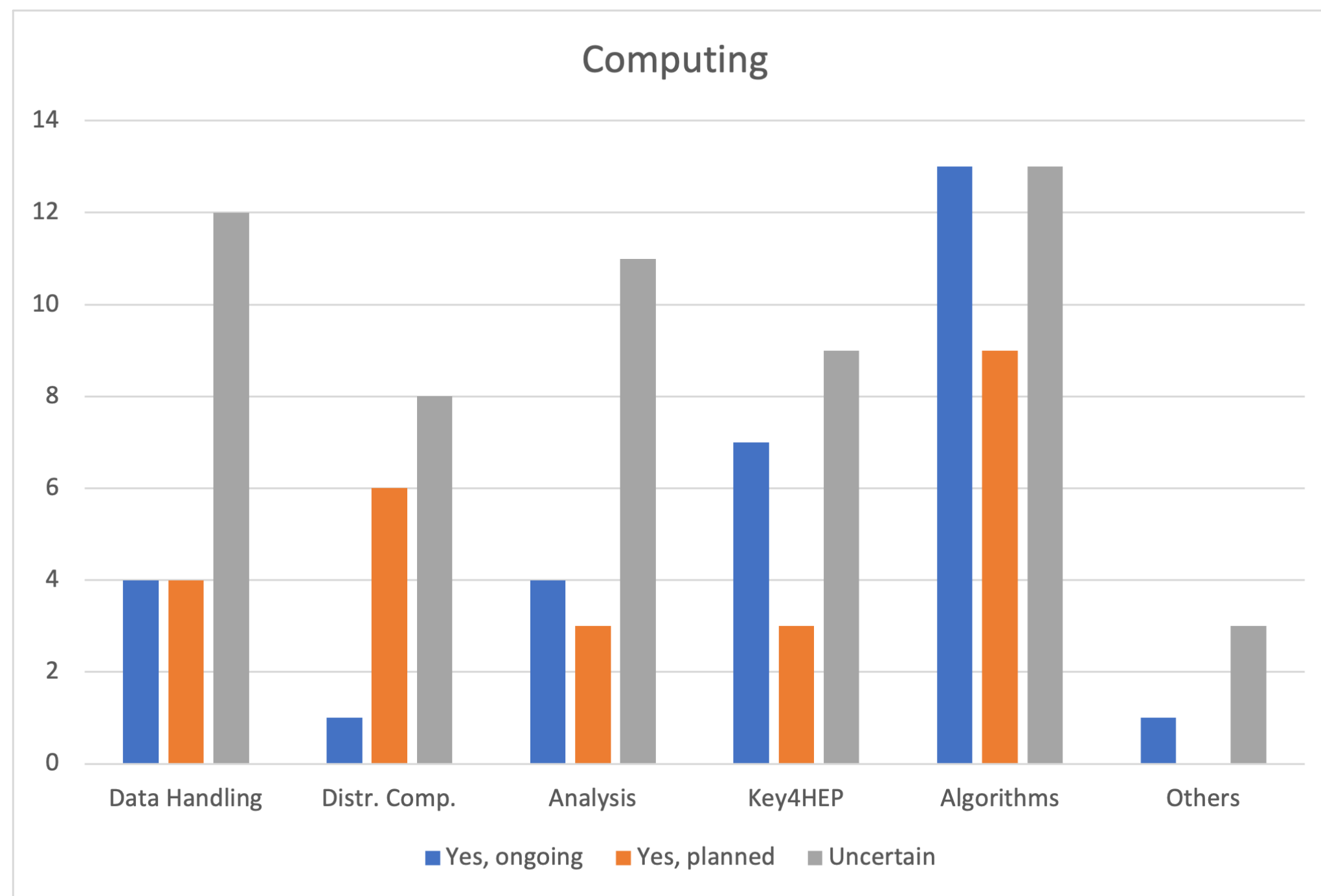
Quantum sensors not funded

Participation in DRD Collaborations:



Establish an overarching coordination of DE FC activities, including BMBF Verbund coordination, key FC actors?

# Software & Computing



- how to we organise ourselves to contribute with maximum impact to the FCC study ?
- do we need an additional (thin) layer of the German community contributing to FCC ?
- should we jointly join one detector concept for FCC ?
  - probably want to coordinate this w/ detector R&D groups (and theory) ...
- general concern: funding opportunities:
  - can we form a consortium for ErUM-data w/ (some) future collider software/computing topics ?
- efficient (sustainable) computing need to be designed into the framework (Key4hep) from the start



# Theory

