# 114th Plenary ECFA Meeting - Frascati

## Towards an EDP contribution to the ESPP process

Plenary ECFA meeting, LNF Frascati, 4-5 July 2024

P. Allport, D. Contardo, F. Sefkow on behalf of the EDP

# Outline

EDP highlights

topics towards an EDP input to the ESPP process

plan to prepare the input

# ECFA Detector Panel : web page

more on mandates in presentation of Paris Sphicas at this meeting

- represents the community in the CERN DRD collaboration framework
- help organise discussion of the common issues* through EDP - DRD Collaborations Managers Forum (mandate)
- advise DRDC on priorities wrt the Detector R&D roadmap
- helps plan future updates to the Detector R&D roadmap

New membership approved at this meeting

Felix Sefkow (DESY) replace Phil Allport as EDP co-chair

Jens Dopke (RAL) joining as mechanics & integration expert…

and as EDP secretary

Susanne Kuehn (CERN) replacing Doris Eckstein as SSD expert

Co-Chairs: Didier Contardo (IP2I Lyon) and Felix Sefkow (DESY) Scientific Secretary: Jens Dopke (RAL)

- Gaseous Detectors: Silvia Dalla Torre (Trieste)
- Liquid Detectors: Inés Gil Botella (CIEMAT, Madrid)
- Solid State Detectors: Susanne Kuehn (CERN)
- PID & Photon Detectors: Roger Forty (CERN)
- Quantum and em Tech: Steven Hoekstra (Groningen)
- Calorimetry: Laurent Serin (IJCLab)
- Electronics: Valerio Re (Bergamo)
- Mechanics & integration (DRD8) Jens Dopke (RAL)

Ex Officio:

- Thomas Bergauer (DRDC)
- Paris Sphicas (ECFA Chair)
- Ian Shipsey (ICFA Detector Panel)

Observer:

- Aldo Ianni (APPEC, LNGS),
- Eugenio Nappi (NuPECC, Bari)

also members of DRDC

** ex. cross-DRD areas, interfaces to: other R&D programs; ApPEC and NuPEC ; projects concept groups (of strategic physics programmes identified by ESPP)…*

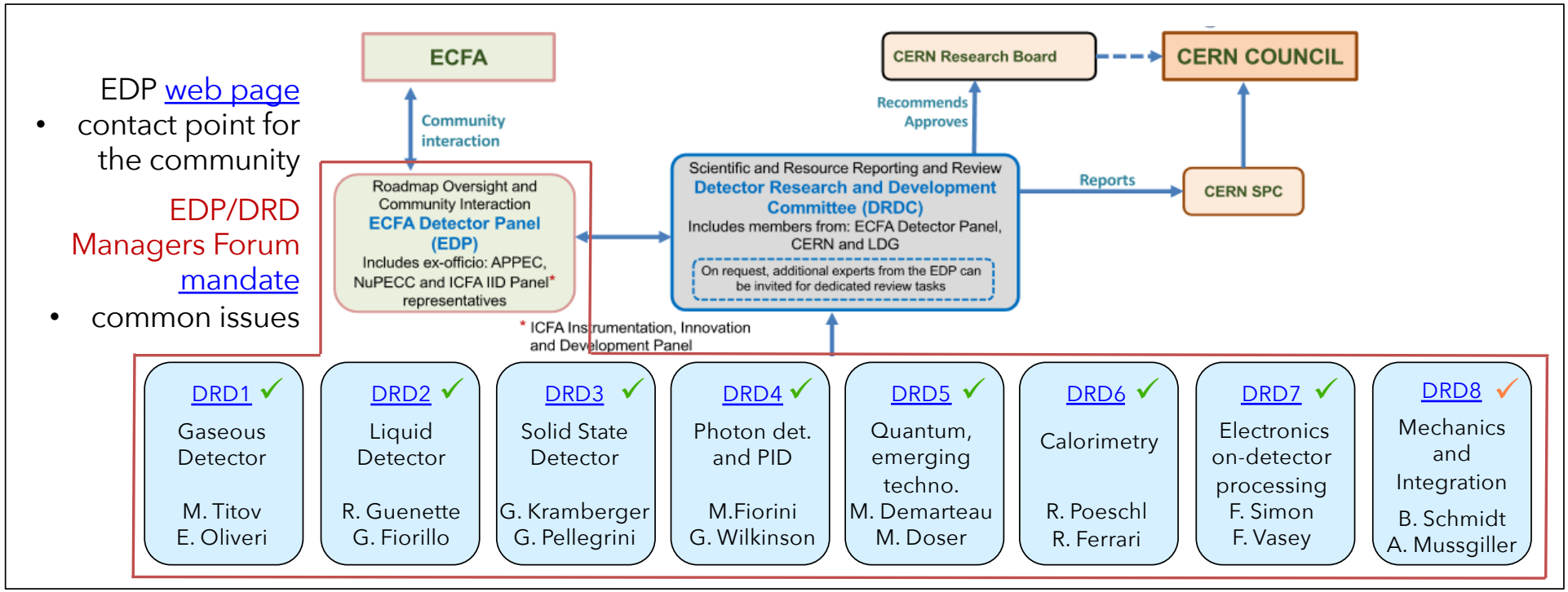
# DRD collaborations hosted at CERN (framework)

follows general conditions for execution of experiments at CERN

- EDP web page
- contact point for the community

EDP/DRD Managers Forum mandate

- common issues




✓ Approved by CERN RB*, ✓ DRD8 LoI submitted to DRDC, proposal aims end-2024

DRDC wep page, presentations of DRDs at open sessions
presentation of Ines Gil Botella at this meeting

** approvals cover a period of three years – to be renewed*

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The planned input to the ESPP aims to provide the EDP perspective on how the goals outlined in the ECFA Detector R&D Roadmap can be achieved by the DRD collaborations

as much as possible generic, although allowing to underline DRD specifics

(it is not an update of the ECFA detector roadmap and neither a review of the DRD proposals and achievements)

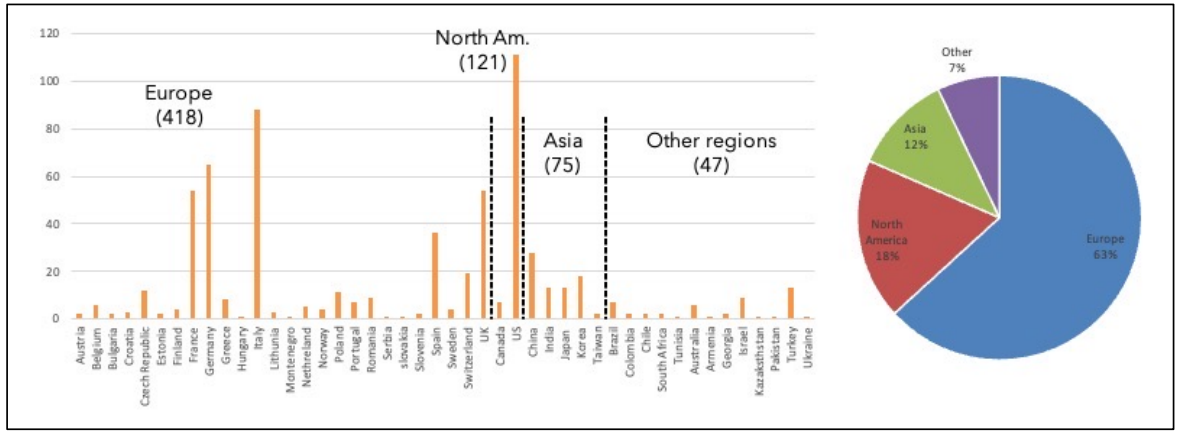
*note : input to 2020 ESPP process: survey of the community composition and of the R&D aspirations*

# Topics towards the EDP input content : DRD collaboration facts

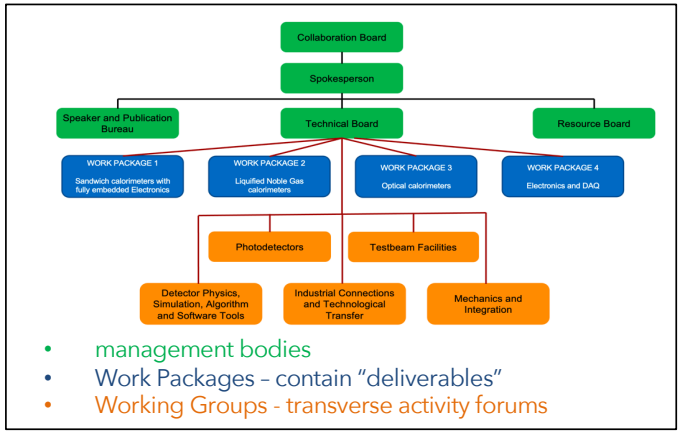
- Preamble referring to the [ECFA Detector R&D Roadmap]
- DRD collaboration implementation
  - referring to CERN hosting framework
  - work organisation to fulfil the ECFA detector roadmap DRDTs
  - community building
    - establishing areas of collaborative effort / common projects

} still an ongoing process, also in preparation of MoUs

  - balance achieved in community aspirations and R&D roadmap priorities
  - outreach, training and early career efforts




661 institute contributions in 46 countries
summed over DRD1, DRD2, DRD3, DRD4, DRD6 and DRD7

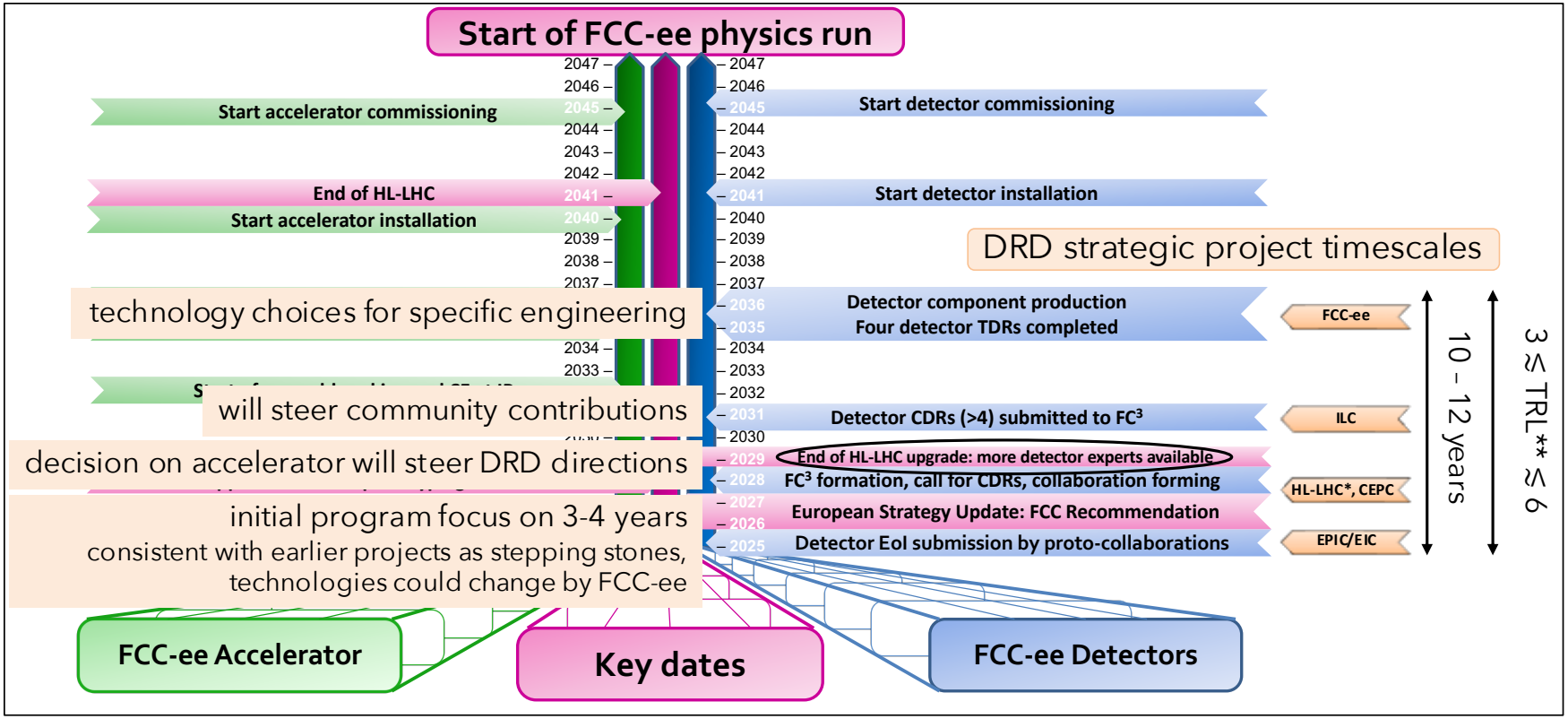



- management bodies
- Work Packages – contain "deliverables"
- Working Groups - transverse activity forums

typical organisation, ex. DRD6

# Topics towards the EDP input content : DRD programme deployment

- Scientific outcome expected in the 1st phase of the R&D programs (3-4 years)
  - evaluation of technology areas performance potential
  - technical solution for medium term strategic projects; consider transitions to specific engineering (TRL ≳ 6)
- Preparation of 2nd R&D phase
  - ex. longer term collider term FCC-ee project; consider opportunities for new technology (TRL ≲ 3)




Transverse Areas
DRD5, DRD7, (DRD8)
also cover lower TRLs

** "blue sky" TRL ≲ 3 and speific experiment engineering TRL ≳ 6 at boundaries of DRD coverages

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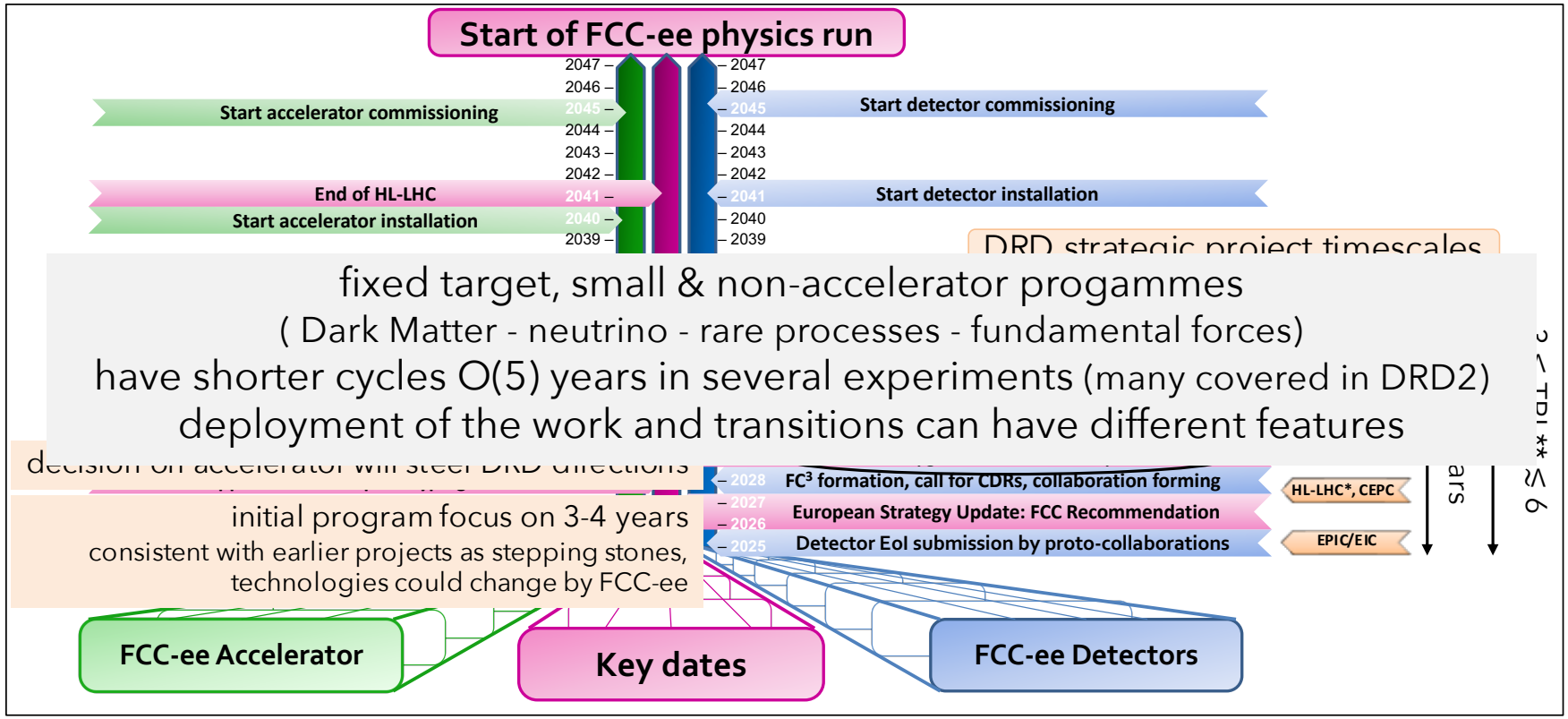


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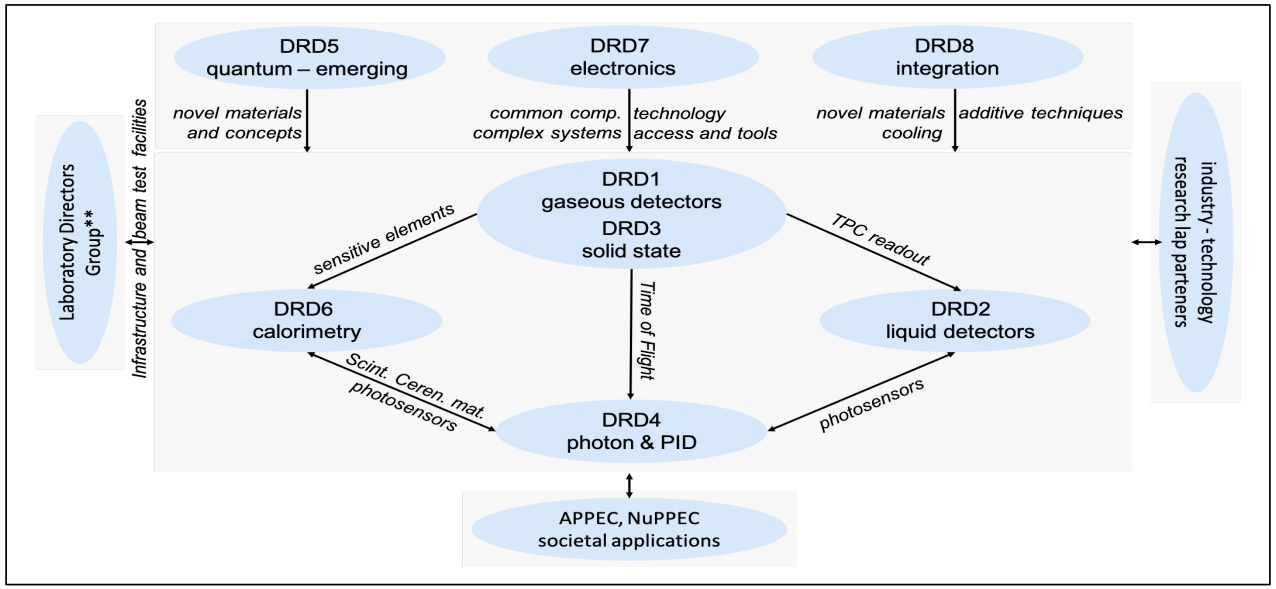
# Topics towards the EDP input content : DRD interfacial areas

- Cross-DRD aeras (when DRDx can benefit from DRDy progress)
  - typical ex. 1 implementing new sensitive components provided by other DRDs in DRD6
  - typical ex. 2 implementing new electronics components provided DRD7 in any other DRDs
- Interface to other national or international programs (ex. US CPAD, AIDAInnova…)
- Relation and collaboration with industrial or academic partners & technology access
- Relation and collaboration with other scientific disciplines
- Availability of infrastructure for characterisation - in conjunction with LDG*

➢ Mechanisms to ensure coherence and synchronization of the above aspects

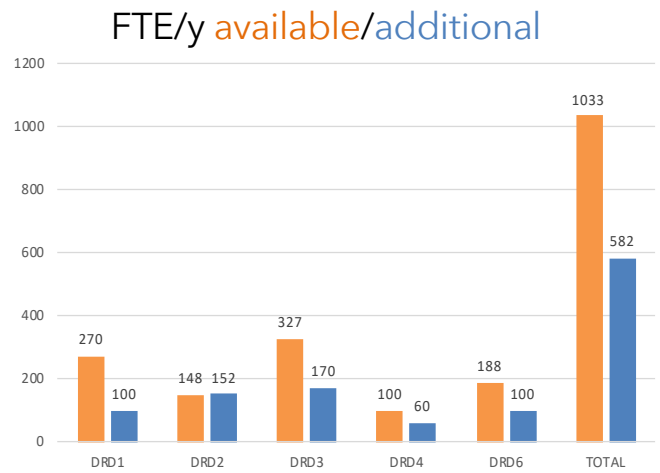


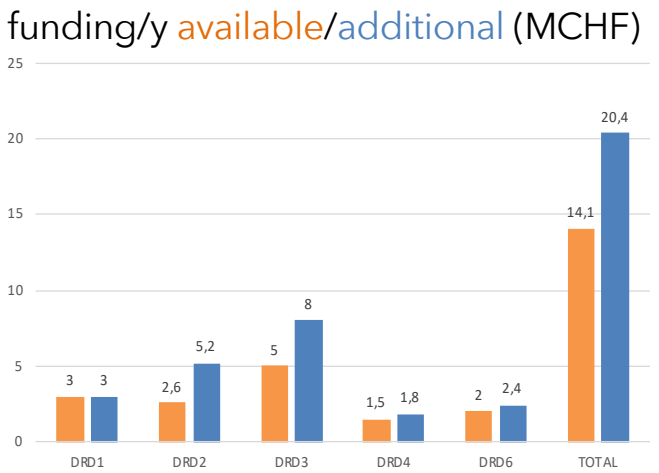

** CEA/IRFU-France, CERN-EU, CIEMAT-Spain, DESY-Germany, IJCLab-France, LNF-Italy, LNGS-Italy, Nikhef-Netherlands, PSI-Switzerland, STFC/Daresbury-UK, STFC/RAL-UK*

# Topics towards the EDP input content : DRD resources

- Initial estimates of resources in DRD proposals
  - based on a bottom-up approach (not commitments)
  - needs and pledges to be consolidated with MoU preparation
    - sufficient flexibility to accommodate progress & timeline evolutions & different sources and cycles of resources
- Resources appear to be on low side to fulfill entire program ≃ 2/3 & 1/2 for manpower & funding*
  - potential ramp-up, ex. expected with completion of on-going projects (HL-LHC upgrades…)
  - access to new technologies can be expensive, needing to widely gather contributions

expected FTE/y & funding/y
≃ average over 3 first years
available ≃ current situation
additional ≃ expected to fulfil progr.
break-down of FTE exists
Physicists/PhD/Technical Staff

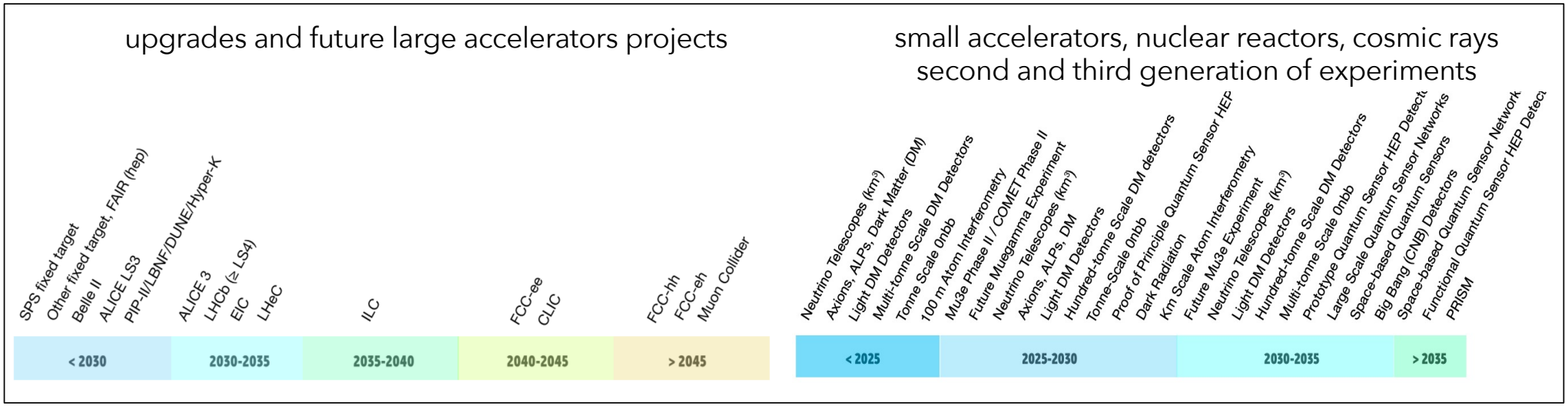



** R&D programmes are running so far on presently available resources*

# Topics towards the EDP input content : Strategic Projects*

- Significant evolution (if any) since ESPP 2020
  - requirements and operating conditions, conceptual designs
  - timeline and priorities for R&D
- Simulation progress
  - guiding R&D for specific technology parameters
- Involvement in DRD collaborations




** future physics programmes identified in the ESPP and ECFA detector R&D roadmap that are adressed by the DRD collaborations*

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# Plan to prepare the EDP input and beyond

- Further develop the input content and format during summer with EDP
- Collect Actors' views by end-Oct.
  - DRD collaborations,  EDP - Collaboration Managers Forum
  - Strategic Projects concept groups (all strategic areas), ECFA WG3 and ECFA Workshop on e+e- HET Factories  2024 @ Paris (FR), 9-11 Oct, 2024, EDP experts
  - ApPEC and NuPEC, EDP ex-officio members
  - Institutional ECFA or non-ECFA DRD National Contacts to Funding Agencies
  - ECFA ECR panel
- Compile material and draft input to ESSP by end-2024
- Submit input (after iteration) end-March 2025
- Beyond the ESPP conclusion mid-2026
  - prepare incremental update of the ECFA Detector R&D Roadmap as needed (requested by the ESPP conclusion)

Your feeback is welcomed

Deep thanks to Phil and Doris for many years of dedicated, hard and effective service:

Phil Allport
University of Birmingham
Co-chair, EDP

Doris Eckstein
DESY
Scientific Secretary, EDP