

**ECFA**

European Committee for Future Accelerators



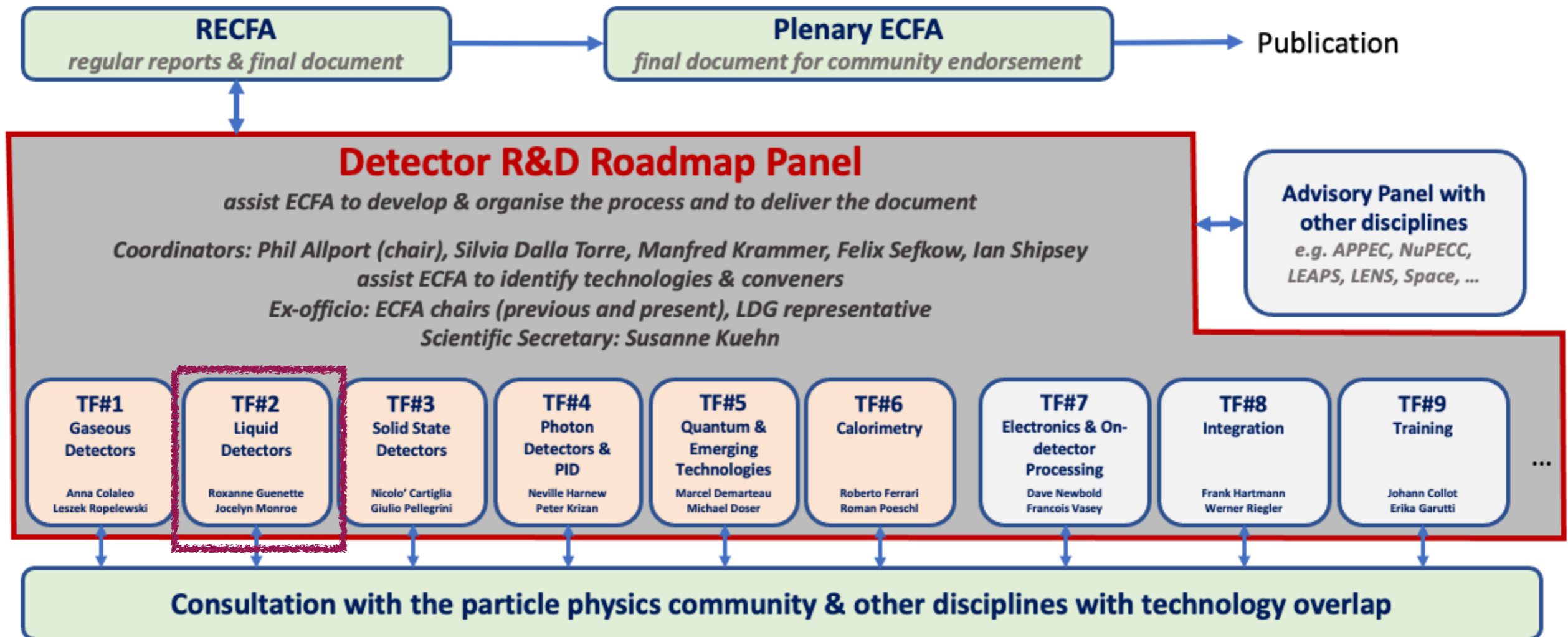
# Implementing the ECFA Detector R&D Roadmap: A new RD Collaboration for Liquid Detectors

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TF#2: Liquid Detectors Group

# ECFA Detector R&D Roadmap

## Organization to structure the consultation with the community



# ECFA Detector R&D Roadmap

**Process involved: 67 authors; 12 expert Input Session speakers; ECFA National Contacts; respondents to the Task Force surveys; 121 Symposia presenters; 1359 Symposia attendees and 44 APOD TF topic specific contacts.**

## ECFA Detector R&D Roadmap Symposium of Task Force 2 Liquid Detectors

Friday Apr 9, 2021, 11:00 AM → 6:00 PM Europe/Zurich

Jocelyn Rebecca Monroe (University of London (GB)), Roxanne Guenette (Harvard University)

11:00 AM	→ 11:15 AM	<b>Introduction</b>	15m
Welcome, introduction, description of the day and reminder of the Physics scope of the European Strategy <b>Speaker:</b> Ines Gil Botella (Centro de Investigaciones Energéticas Medioambientales y Tecnol.) Generale_ECFA TF2... TF2Intro_ECFA Dete...			
11:15 AM	→ 11:30 AM	<b>Liquid Properties of Noble liquids</b>	15m
HV, calibration, doping... <b>Speaker:</b> k Mavrokoridis (University of Liverpool (GB)) NobleLiquids_Mavr...			
11:30 AM	→ 11:45 AM	<b>Charge collection in Noble liquids</b>	15m
Charge production, propagation, extraction and readout <b>Speaker:</b> Igor Kreslo (Universitaet Bern (CH)) ChargeReadout_Kre...			
11:45 AM	→ 12:00 PM	<b>Purification, Cryogenics, infrastructure and integration for Noble liquids</b>	15m
In context of scalability <b>Speaker:</b> Christian Philipp Weinheimer (Westfaelische Wilhelms-Universitaet Muenster (DE)) ecfa_tf2_weinheim...			
12:00 PM	→ 12:10 PM	<b>Coffee break (preparation of breakout rooms)</b>	10m
12:10 PM	→ 12:40 PM	<b>Breakout rooms discussion sessions (Experts: Nuno Barros, Sander Breur, Clara Cuesta, Elena Gramellini, Marcin Kuzniak, Teresa Marrodan, Vicente Pesudo, Marie-Cecile Piro, Tina Pollman, Andrzej Szelc, Laura Zambelli)</b>	30m
Experts: Nuno Barros, Sander Breur, Clara Cuesta, Elena Gramellini, Marcin Kuzniak, Teresa Marrodan, Vicente Pesudo, Marie-Cecile Piro, Tina Pollman, Andrzej Szelc, Laura Zambelli			
12:40 PM	→ 1:00 PM	<b>Summary and recap of breakout room discussions</b>	20m
5 mins per rooms			
1:00 PM	→ 2:00 PM	<b>Lunch</b>	1h
2:00 PM	→ 2:15 PM	<b>Light collection in noble and other liquids</b>	15m
Light production and propagation, properties and readout (focus on nobles, but address some liquid scintillators, water) <b>Speaker:</b> Giuliana Fiorillo (Universita e sezione INFN di Napoli (IT)) Fiorillo090421.pdf			
2:15 PM	→ 2:30 PM	<b>Challenges related to Liquid Scintillator and Water detectors</b>	15m
Presentation of the challenges associated in future liquid scintillator and water based detectors, including liquid properties and doping, specific light propagation challenges, purification... <b>Speaker:</b> Michael Wurm (Johannes Gutenberg Universitaet Mainz (DE)) wurm_wis_ecfa_apr...			
2:30 PM	→ 2:45 PM	<b>Readout challenges</b>	15m
Processing, trigger and DAQ electronics (nobles, liquid scintillators, water) <b>Speaker:</b> Giovanna Lehmann Miotto (CERN) 2021 ECFA TF2 DA... 2021 ECFA TF2 DA...			

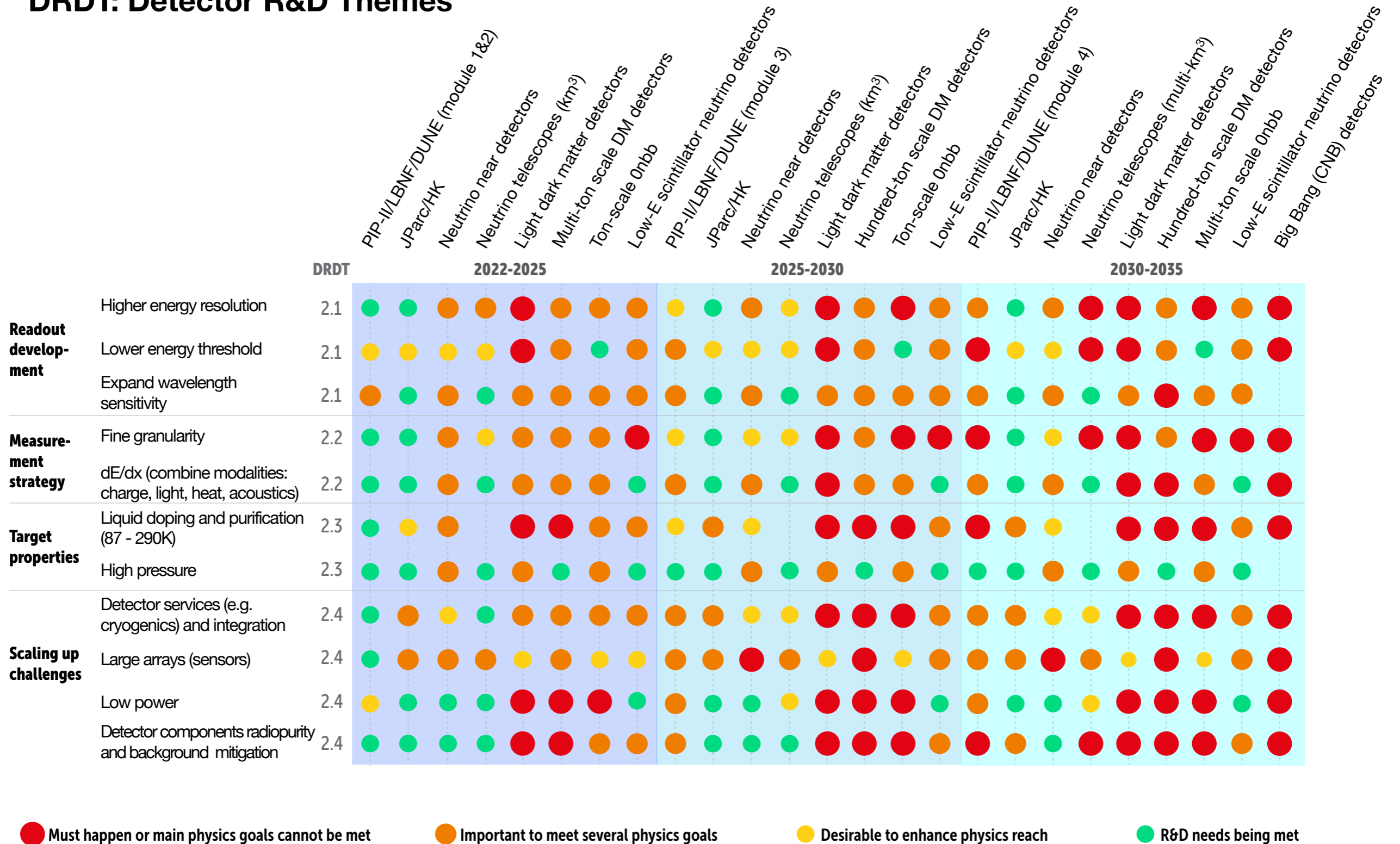
<https://cds.cern.ch/record/2784893>



**Task Force 2 Liquid Detectors:** Roxanne Guenette<sup>7</sup>, Jocelyn Monroe<sup>8</sup> (*Conveners*)  
Auke-Pieter Colijn<sup>9,10</sup>, Antonio Ereditato<sup>11,12,28</sup>, Inés Gil Botella<sup>13</sup>,  
Manfred Lindner<sup>14</sup> (*Expert Members*)

# Liquid Detectors DRDTs\*

\*DRDT: Detector R&D Themes



# ECFA Implementation strategy

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- ECFA presented an implementation strategy: [link](#)
- Require new RD collaboration (structure and budget) proposals by Roadmap Task Forces by Summer 2023
  - Assuming the new DRDs need to come into existence **by the start of 2024**, the Detector R&D Roadmap Task Forces will need to start organising open meetings to establish the scope and scale of the communities wishing to participate in the corresponding new DRD activities **from Autumn of this year**.  
(Where the broad R&D topic area has one or more DRDs already covered by existing CERN RDs or other international collaborations these need to be fully involved from the very beginning and may be best placed to help bring much of the relevant community together around the proposed programmes.)
  - **Through 2023**, mechanisms will need to be agreed with funding agencies, in parallel to the below, for country specific DRD collaboration funding requests for Strategic R&D and for developing the associated MoUs.
  - **By Spring 2023**, the DRDC mandate would need to be formally defined and agreed with CERN management; Core DRDC membership appointed; and EDP mandate plus membership updated to reflect additional roles.
  - To allow sufficient time for reviewing and iteration, DRD proposals will need to be submitted by **early Summer 2023**.
  - Formal approval should be given by the CERN Research Board **in Autumn 2023**.
  - New structures operational and new R&D programmes underway **from beginning 2024**.
  - **Through 2024**, collection of MoU signatures will need to take place, with defined areas of interest per institute.
  - Ramp up of new strategic funding and R&D activities **2024-2026** in parallel to completion of current deliverables.

# Implementing a new Liquid Detector RD collaboration

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- With the community's inputs, we identified the DRDTs in the Roadmap
- We need to decide how to organize the different themes into efficient “working groups” to propose for the new RD collaboration
- All DRDTs may not have the same engagement and the same amount of funding
- **We ask for community input for expressions of interest to determine the “working groups” and funding needs of the new collaboration: [link](#)**

# Next steps

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- Input survey deadline: 15 November 2022
- Implementation Task Force forms “working group” teams based on input survey
- Workshop on structure for the RD collaboration: December 2022 (TBC)
- Proposal drafting by teams: January to June 2023
- Final RD proposal presented to CERN: July 2023
- **We need people to be involved in this! Please contact Jocelyn Monroe (email) and Roxanne Guenette (email) if you want to participate**