

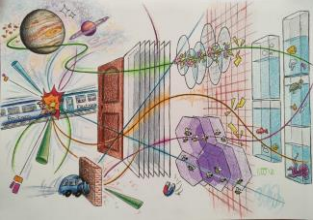


Community interests

Eva Vilella

University of Liverpool

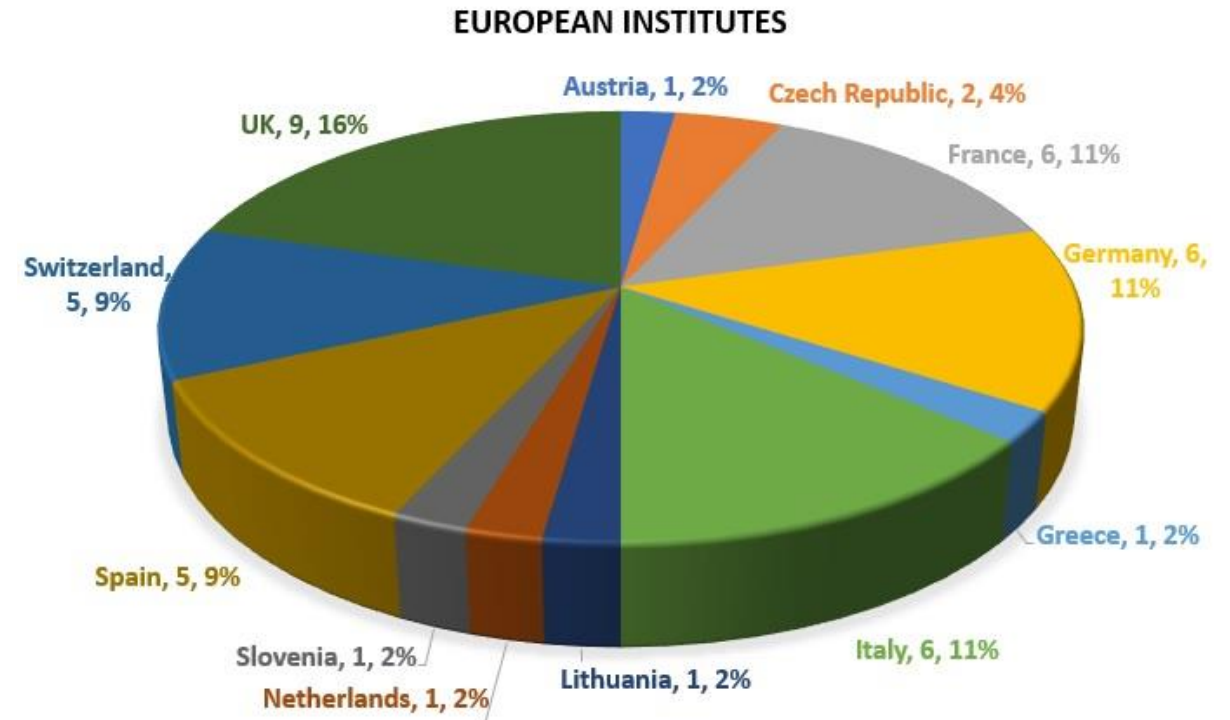
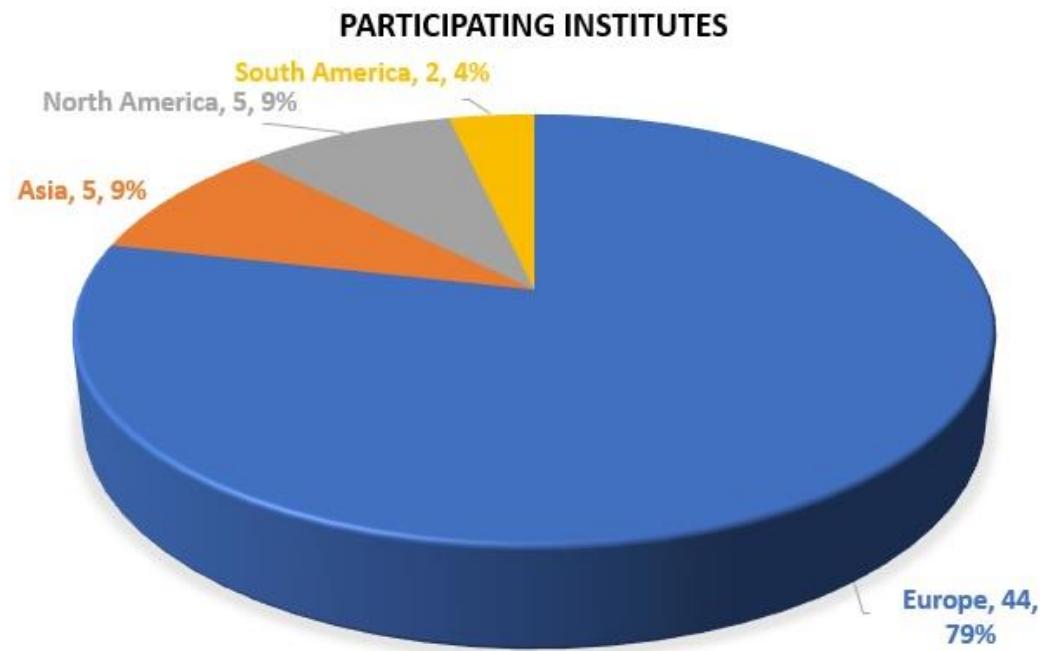
on behalf of the DRD3 proposal writing team

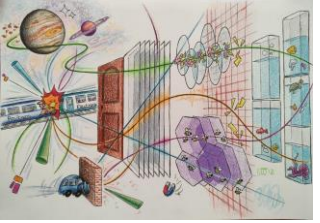


Community composition

56 institutes expressed interest in contributing to the monolithic CMOS sensors R&D

(increase with respect to RD50 CMOS Working Group – 17 institutes)





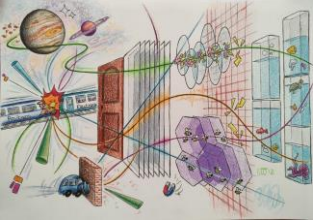
Questionnaire inputs

Diversity

- Some questionnaires were very detailed and specific
- Some questionnaires were more generic
- This is ok

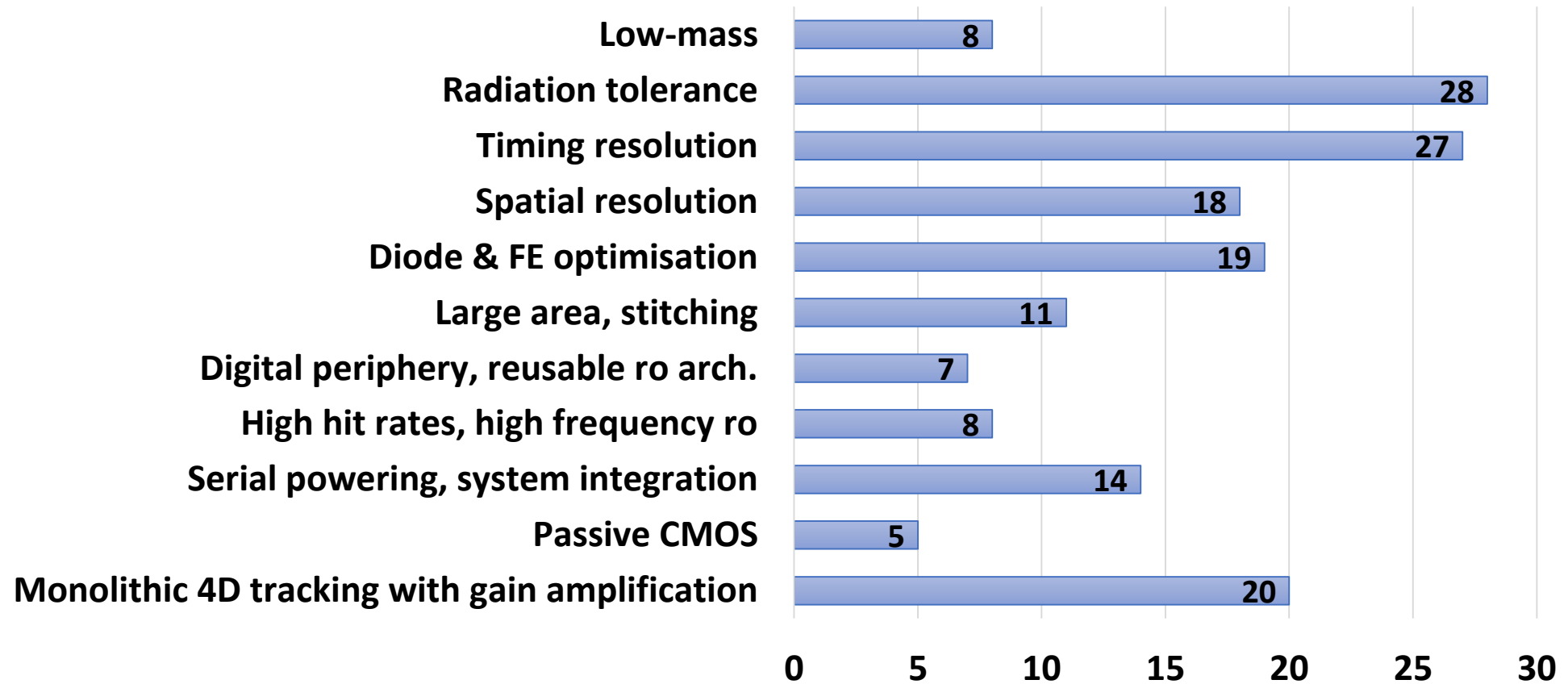
Questionnaire analysis

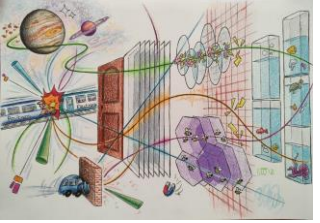
- The goal is to get an idea about the research interests of the community
- Also to understand if these agree with the '*strategic R&D that needs to be done*'
- We have extracted the information as best as we could
- Things are not written in stone at this point



Community interests - I

Sensor aspect





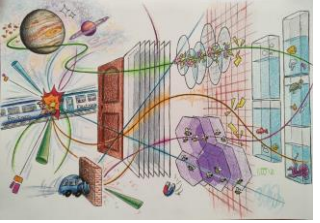
Community interests - I

DRD3

The challenges of radiation tolerance and timing resolution attract most of the interest

The development of monolithic 4D tracking sensors is a *'hot topic'* too

- Strong relationships with DRD3 WG2 (next session)



Milestones, as in previous talk

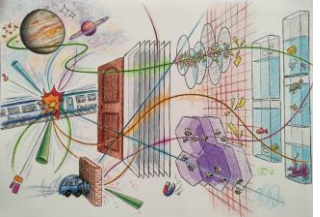
DRD3

1st R&D phase, up to 2028-29

- **Milestone 1** Highest position precision at lowest power dissipation up to large wafer size
- **Milestone 2** Implementation of precision timing
- **Milestone 3** High density and rate readout architecture
- **Milestone 4** High radiation tolerance

2nd R&D phase, up to 2034-35

- **Milestone 5** Further improvement of position precision
- **Milestone 6** Further improvement of timing resolution and steps toward 4D-tracking
- **Milestone 7** Extend performance capabilities at very high rates
- **Milestone 8** Extreme radiation tolerance

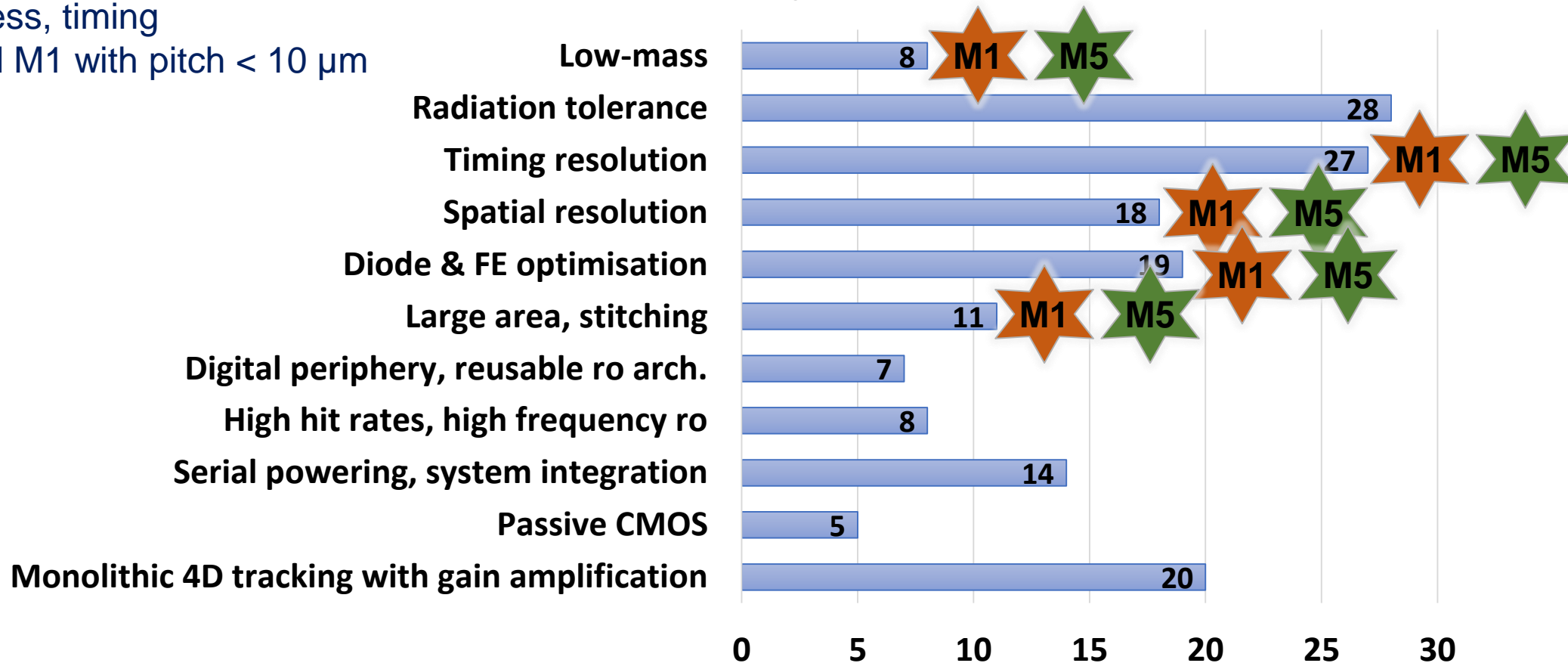


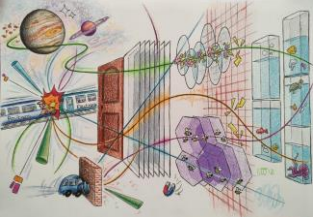
Community interests - I

M1 Position precision, lowest power, pitch > 10 μm , thickness, timing

M5 Extend M1 with pitch < 10 μm

Sensor aspect





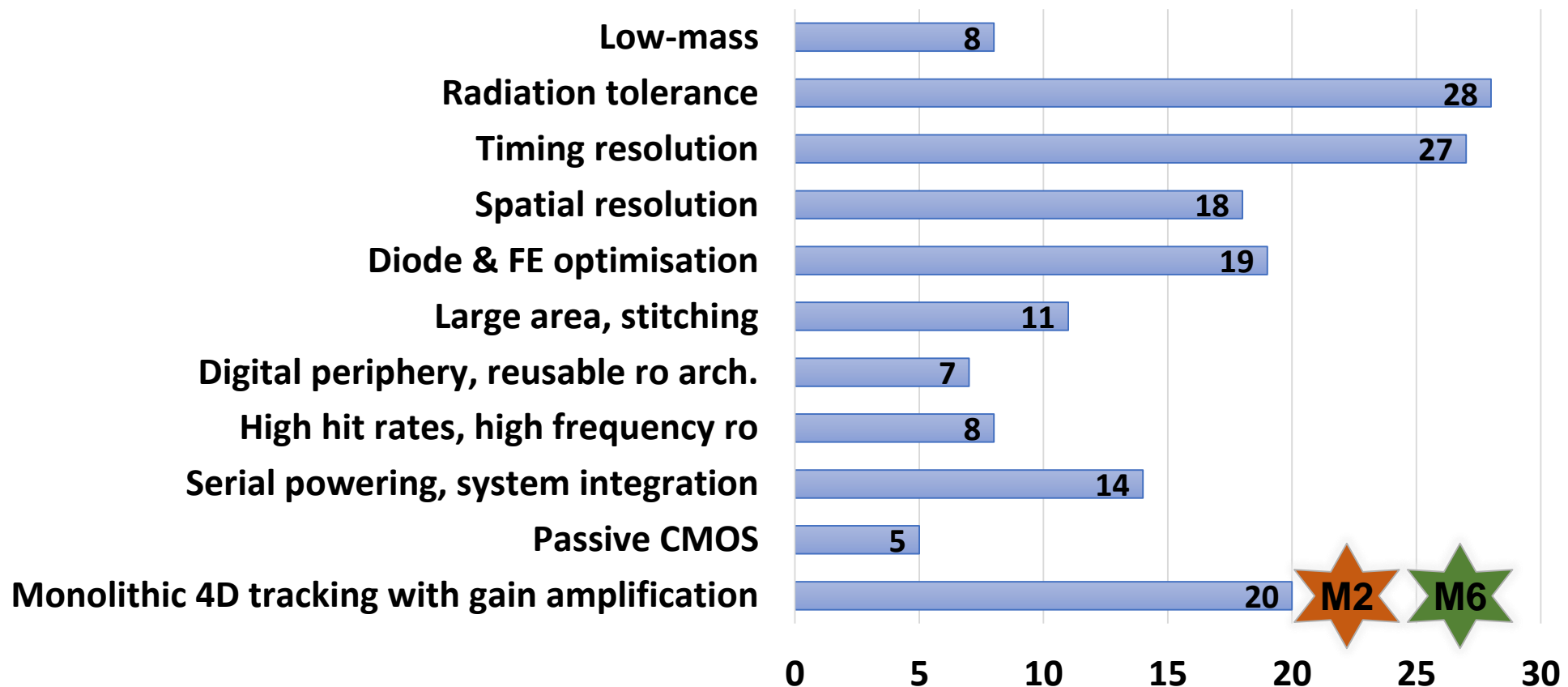
Community interests - I

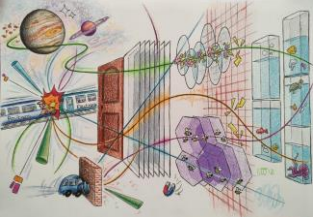
DRD3

M2 Precision timing

M6 Extend M2

Sensor aspect



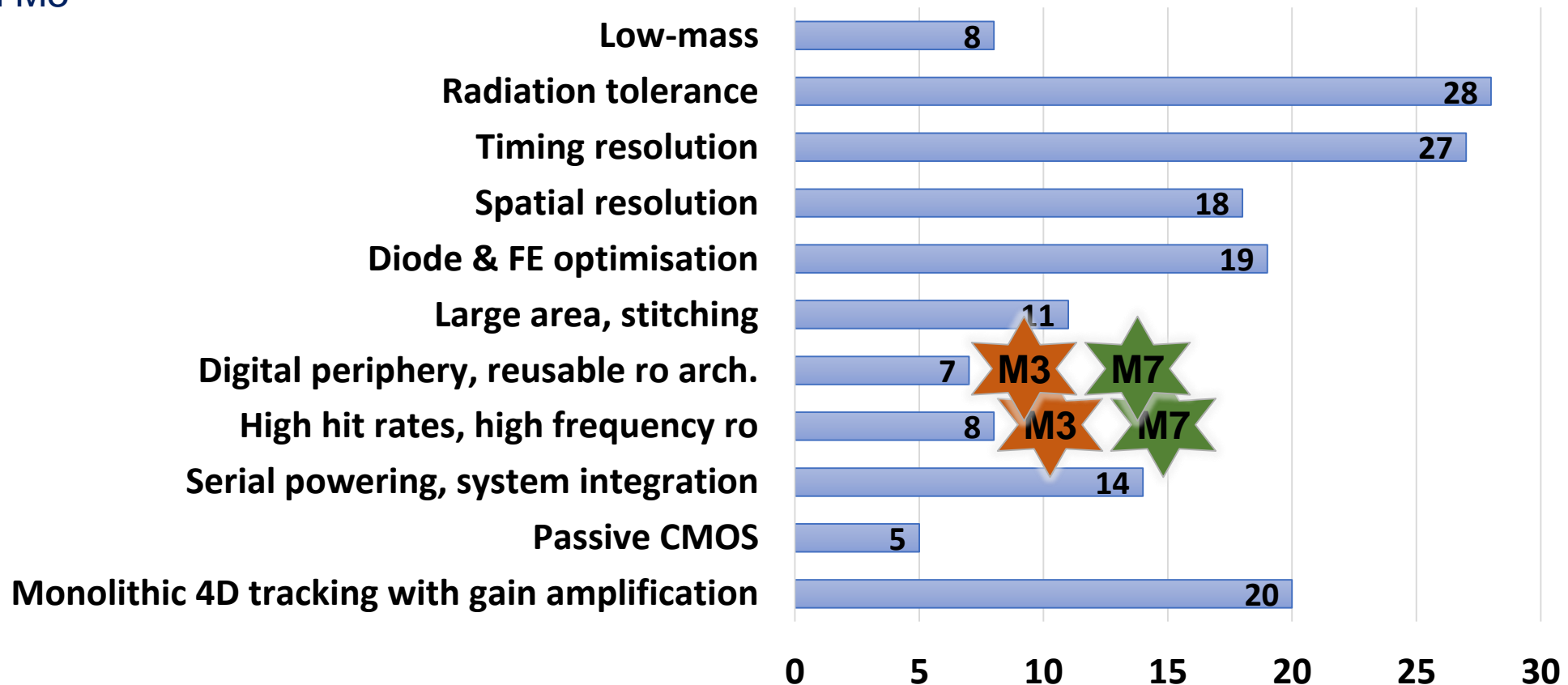


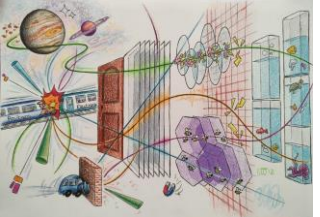
Community interests - I

M3 High density rate and readout architecture

M7 Extend M3

Sensor aspect





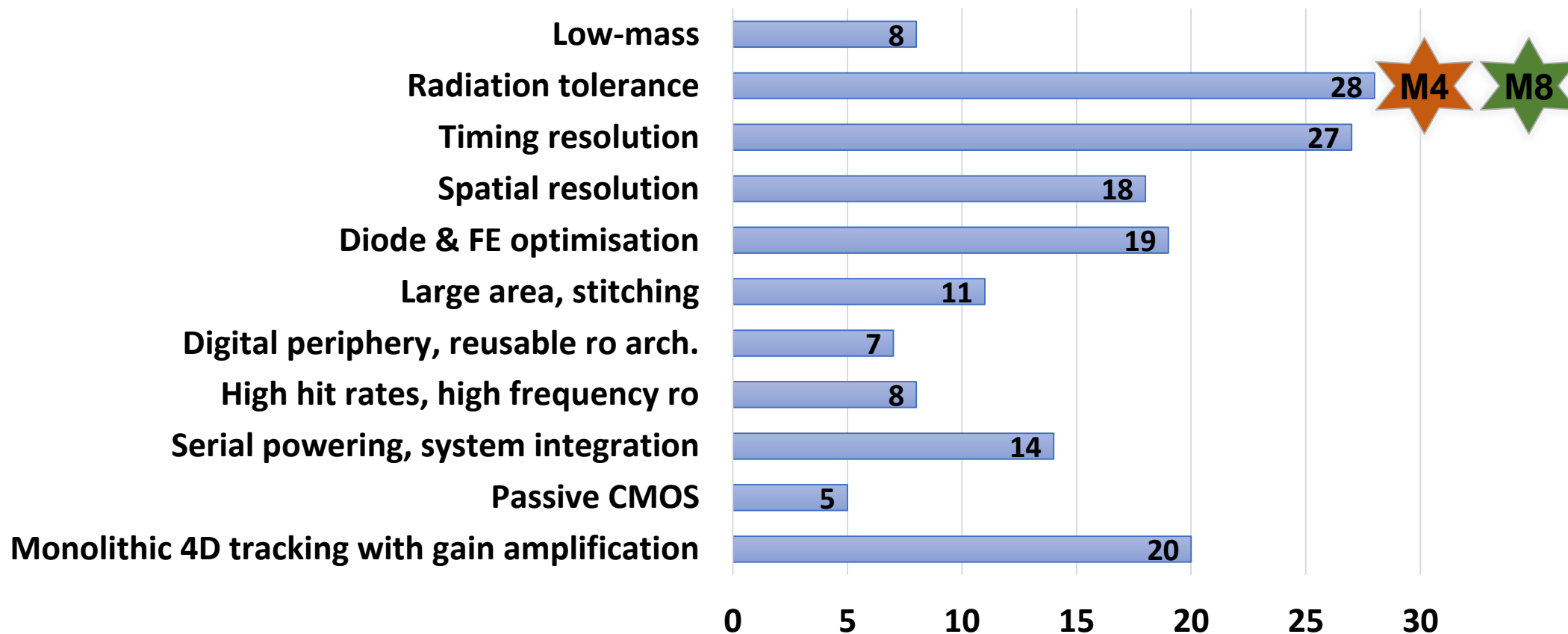
Community interests - I

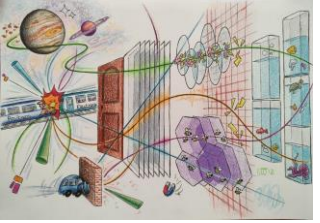
DRD3

M4 High radiation tolerance

M8 Extend M1

Sensor aspect

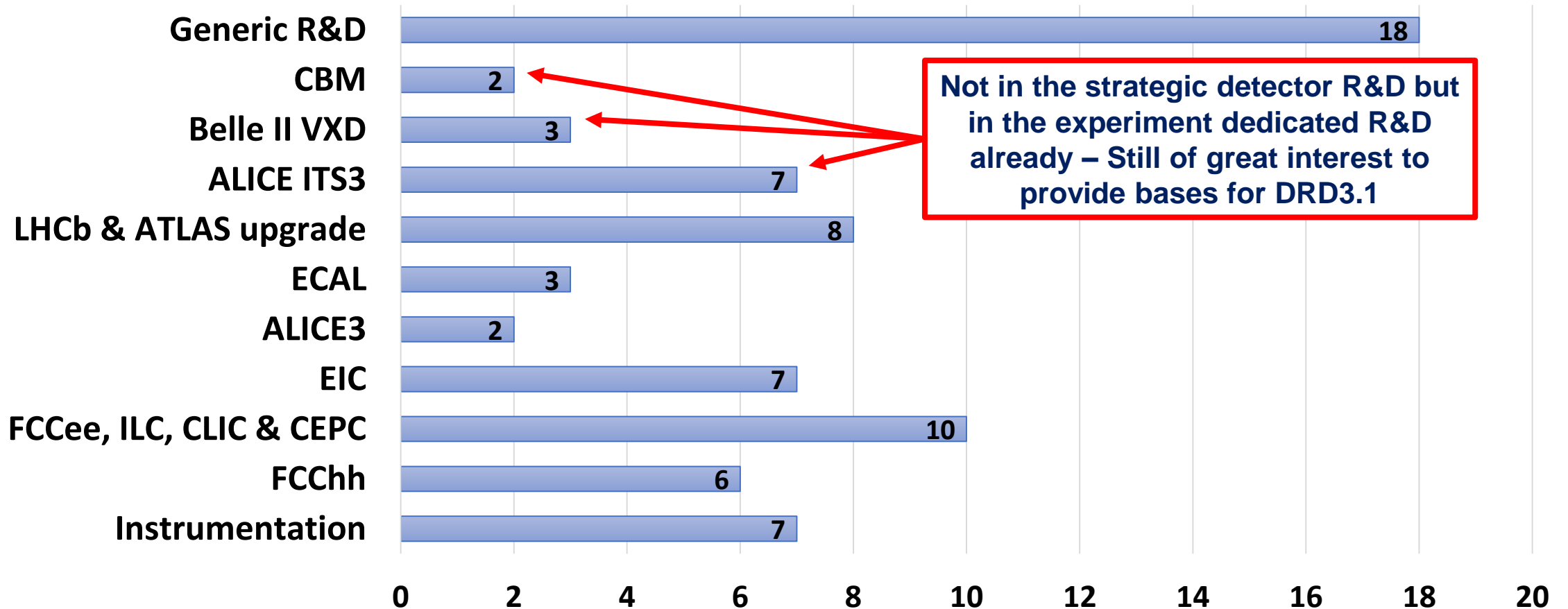


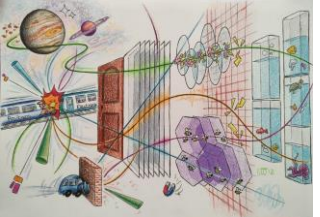


Community interests - II

DRD3

Projects of interest R&D





Strategic programme, as in previous talk

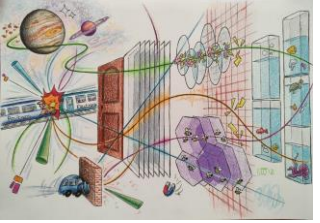
DRD3

1st R&D phase, up to 2028-29

- **Milestone 1** ALICE-3, LHCb-2, Belle-3, EIC
- **Milestone 2** ALICE-3, LHCb-2, Belle-3, EIC, ATLAS/CMS Timing Layers, Calorimeters
- **Milestone 3** LHCb-2, ATLAS/CMS Timing Layers
- **Milestone 4** LHCb-2, ATLAS/CMS Timing Layers

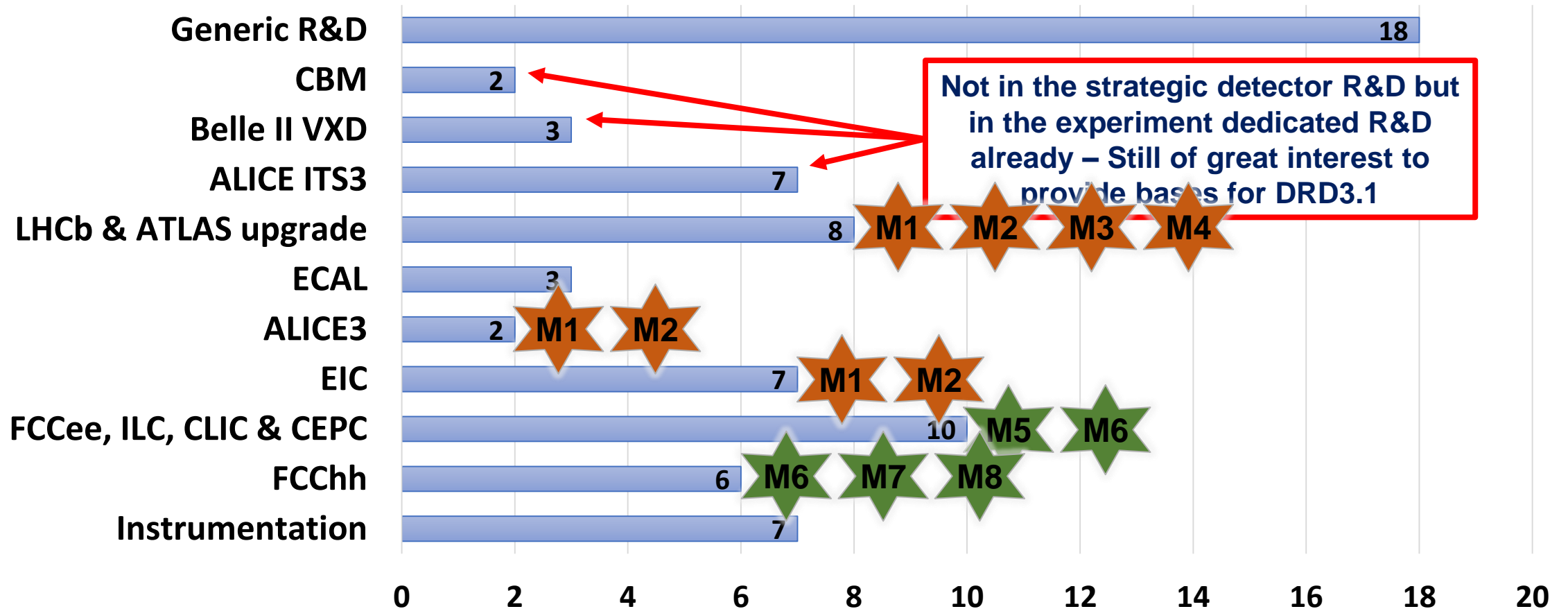
2nd R&D phase, up to 2034-35

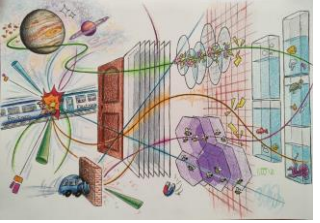
- **Milestone 5** ILC, CLIC, FCCee, MC
- **Milestone 6** ILC, CLIC, FCCee, MC, FCChh
- **Milestone 7** CLIC, MC, FCChh
- **Milestone 8** MC, FCChh



Community interests - II

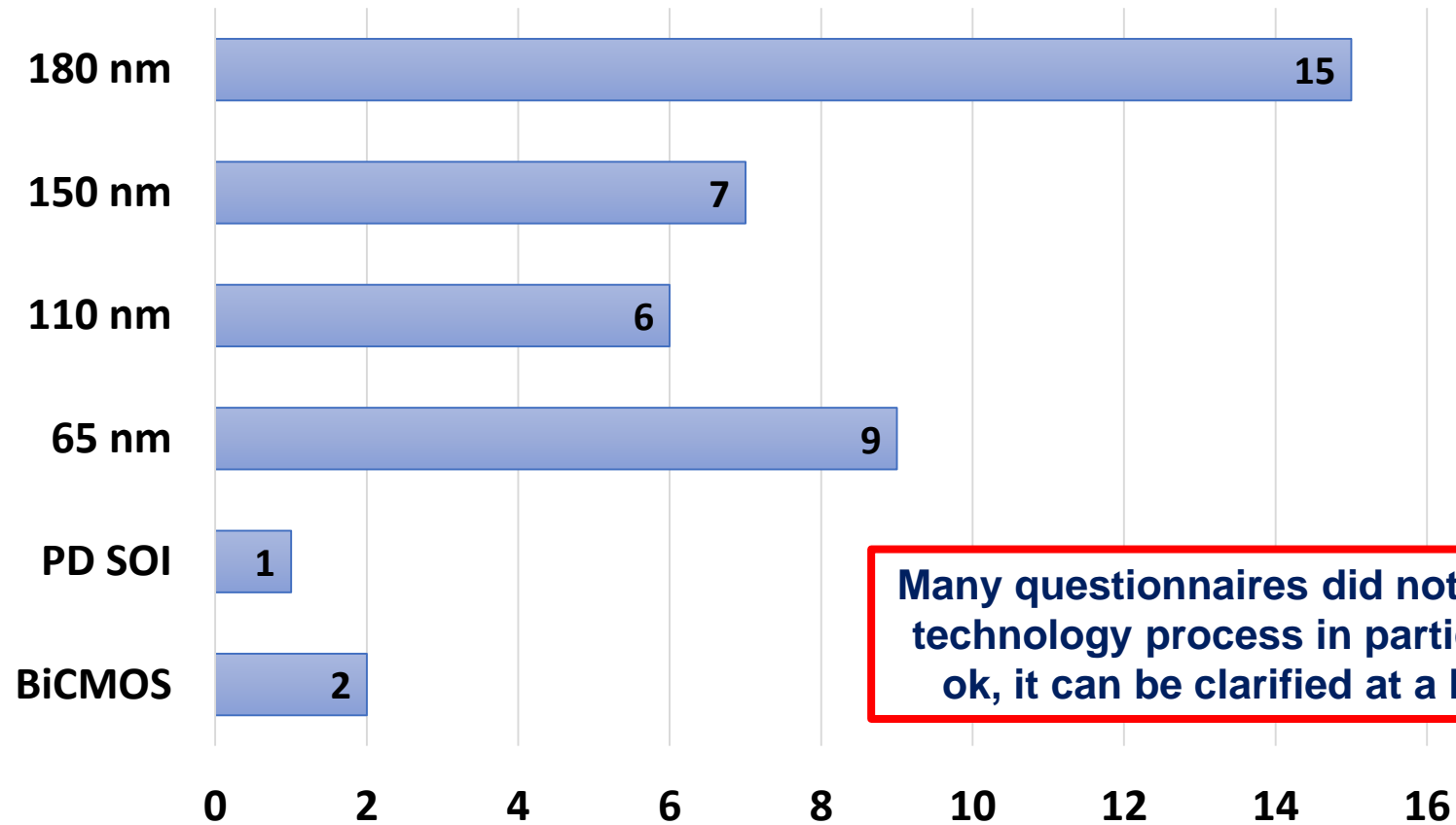
Projects of interest R&D



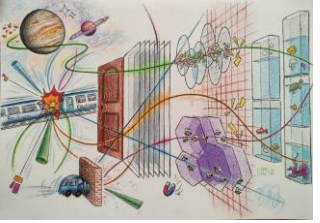


Community interests - III

Technology nodes



Many questionnaires did not mention any technology process in particular (this is ok, it can be clarified at a later stage)



Community interests - IV

DRD3

Necessary tasks with support

- Chip design
- TCAD simulations (and also Geant4 simulations)
- DAQ development

Necessary task with lots of support

- Evaluation