AIDAinnova 2nd project review
June 20th, 2024

AIDAinnova
an Overview

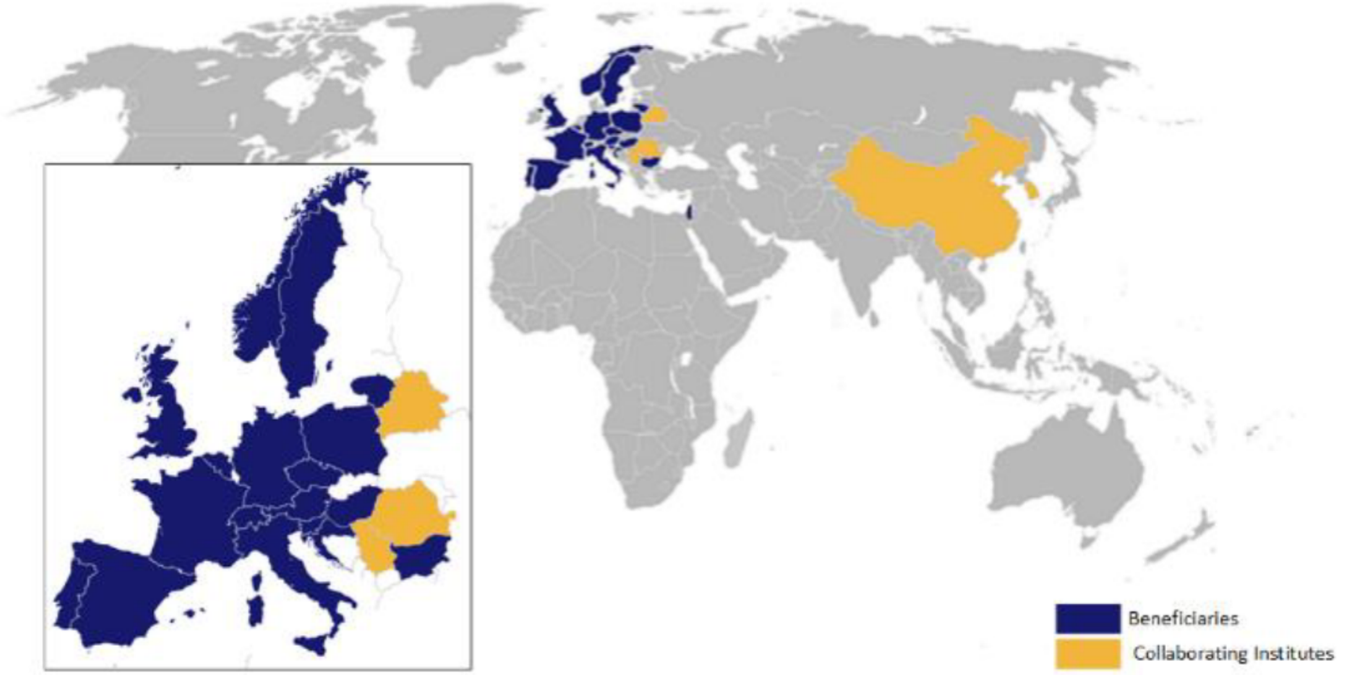
P. Giacomelli (INFN Bologna)
INFN Bologna
AIDAinnova Scientific coordinator

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004761.

Advanced European Infrastructure for Detectors at Accelerators

AIDAinnova is the **largest** European program on R&D for detectors for High Energy Physics (HEP)

- Collaborative framework
- Infrastructure: common interest
- 15 countries
- 46 beneficiaries
  - 35 academic + 11 industrial and RTOs
  - + 10 associated partners
- Duration: 01/04/2021 - 30/03/2025
- Coordinating institute: CERN
- Scientific coordinator: F. Sefkow (DESY) (first year), Paolo Giacomelli (INFN)
- EC contribution **10.0 M€**
- Total budget **~26 M€** (co-funding of **~16 M€)**
- Activities:
  - Joint Research & Networking activity
- Website: https://aidainnova.web.cern.ch



Participants bring in complementary competences and a balanced coverage of projects.

EU-funded detector R&D projects

- **FP6: EUDET: 2006-2010**
  - Detector development for linear collider
- **FP7: AIDA: 2011-2014**
  - Detector development for LHC upgrades and linear colliders
  - Project-specific work packages
- **FP8: AIDA-2020: 2015-2020**
  - Common LC and LHC work packages
  - New communities: large cryogenic neutrino experiments, new topics
  - New innovation measures, with industry

Increasing level of integration

All had a strong leverage on matching funds from national sources, typically a factor of 3

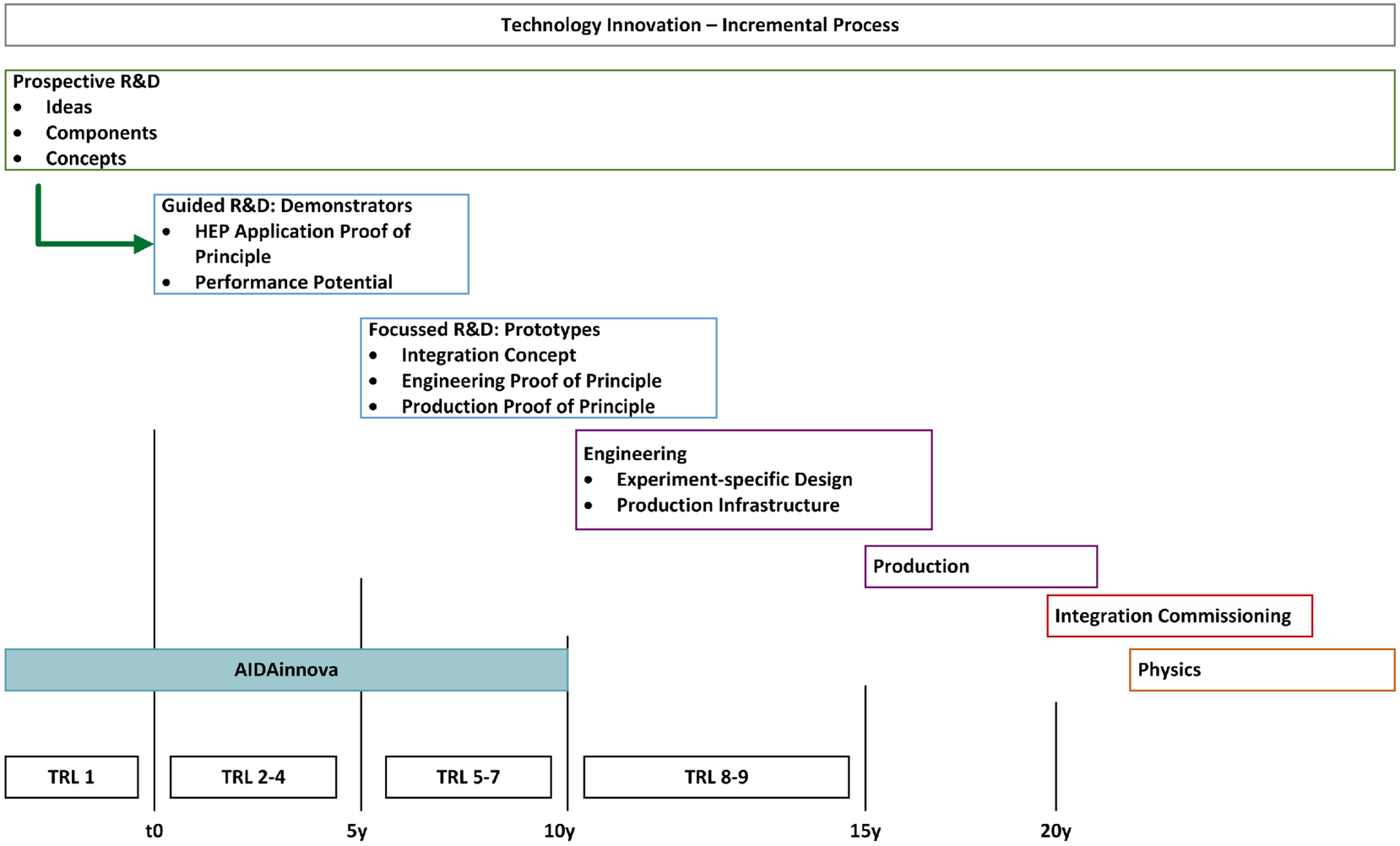
AIDAinnova scope

AIDAinnova focuses on Strategic R&D in the pre-TDR phase

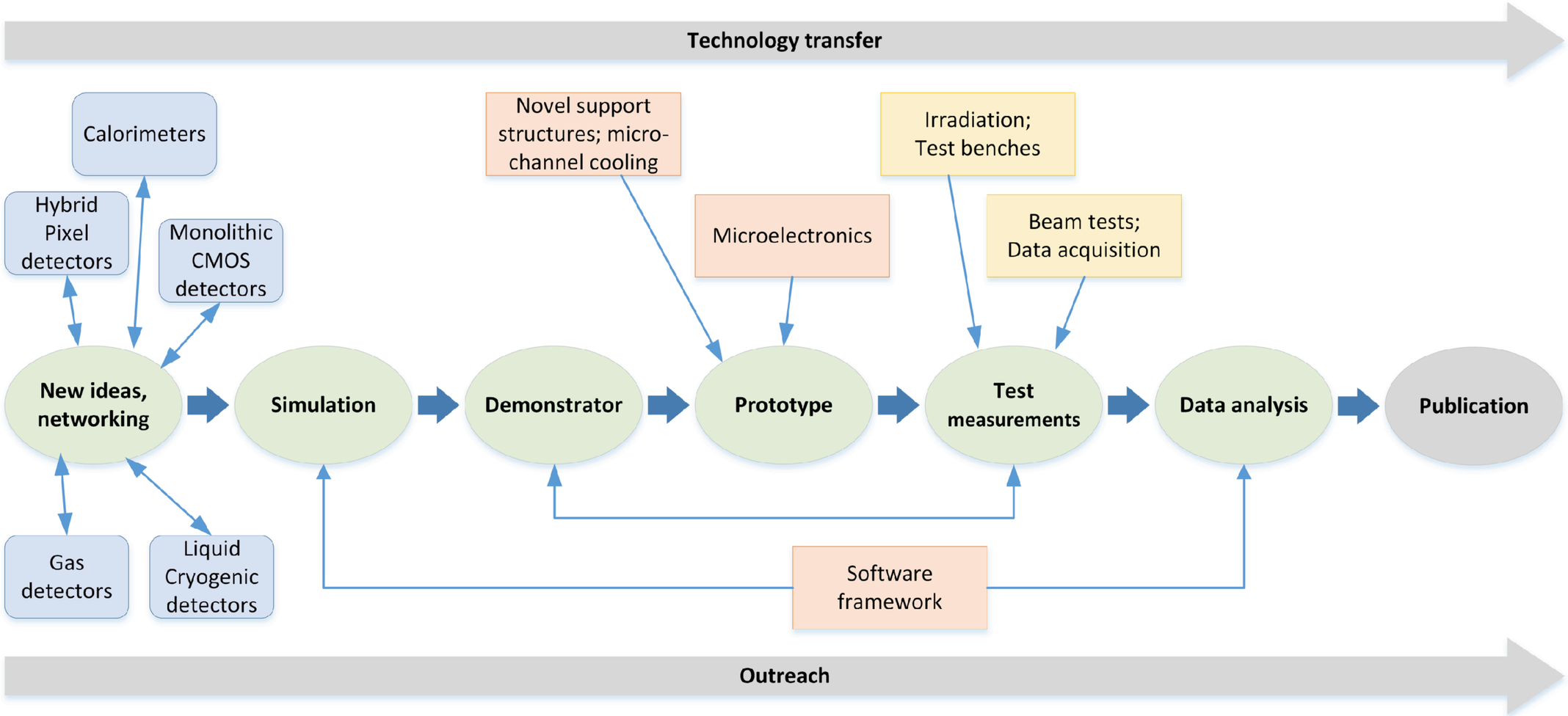
- Technology Readiness Levels 2-7
- Not yet experiment-specific: potential to unfold synergies
- **Include some prospective R&D**
- Competitive call at start of project
- “Blue Sky”, quantum sensors,…

Targeted applications

- Higgs Factories
- ALICE LS3, LHCb LS4 pre-TDR, ATLAS & CMS LS4
- Accelerator-based neutrino experiments
- and others…



AIDAinnova activities



- Technology transfer to and from industrial partners happens throughout the development cycle
- Same is true for outreach

AIDAinnova structure

- 13 Work Packages (WPs)
  - 2 Administration WPs
  - 10 Scientific WPs
  - 1 “Blue-sky” WP
- 2 coordinators/WP

- Scientific and Industrial Advisory Panel
  - I. Ionak-Auer (AMS AG)
  - D. Fournier (LAL)
  - M. Kasemann (DESY)
  - P.S. Marrocchesi (Univ. Siena)
  - P. Merkel (FNAL)
  - J. Strait (LBNL)

- WP1: Project management and coordination
- WP2: Communication, Education and Innovation
- WP3: Test beam and infrastructure
- WP4: Upgrade of Irradiation and Characterization Facilities
- WP5: Depleted Monolithic Active Pixel Sensors
- WP6: Hybrid pixels sensors for 4D Tracking and Interconnection Technologies
- WP7: Gaseous detectors for frontier science
- WP8: Calorimeters and Particle Identification detectors
- WP9: Cryogenic neutrino detectors
- WP10: Advanced mechanics for tracking and vertex detectors
- WP11: Microelectronics
- WP12: Software
- WP13: Prospective and Technology-driven Detector R&D

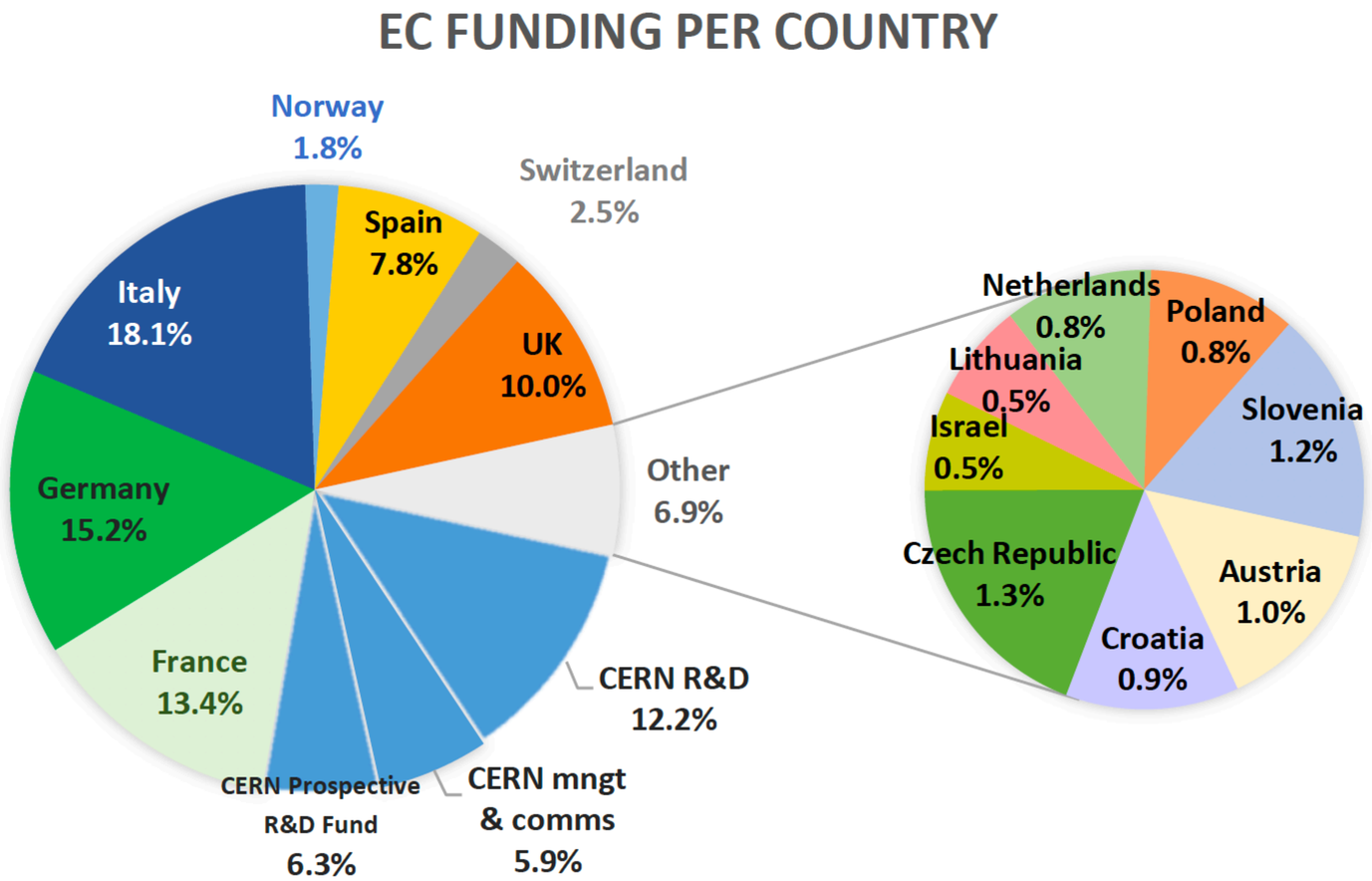
AIDAinnova structure

- **Advanced R&D and infrastructure** for detectors at future colliders
  - Lepton colliders
    - Circular
    - Linear
  - Hadron colliders
- **Novel detector technologies** for large-scale particle physics experiments
- **Innovative software** solutions (ML, etc.) for future detectors
  - Triggering
  - Tracking
  - Calorimetry
- Extended neutrino WP with also short baseline neutrino detectors
- **Joint R&D** programmes with **industrial beneficiaries**
- “Blue sky” R&D (competitive allocation after start of project) higher risk projects

AIDAinnova budget

Full costs budget AIDAinnova = **~ 24 M€**

EC contribution = **10 M€**



AIDAinnova Management Team

All the administrative and financial aspects of the project are handled with great competence by the CERN EU office: S. Stavrev, S. El Yacoubi and C. Levointurier-Vajda

Paolo Giacomelli
(INFN Bologna)
Scientific Coordinator

Daniela Bortoletto
(Univ. of Oxford)
Deputy Scientific Coordinator

Giovanni Calderini
(CNRS, LPNHE)
Deputy Scientific Coordinator

Summary

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- Increased focus on integration with **industrial partners**
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  - Had many meetings and organised together 2-3 workshops and events (Lund 2022, Valencia 2023 and Paris 2024)

Backup

Genesis of AIDAinnova

Consultation with the community

- Call for Expressions of Interest in May 2019
- Overwhelming response: 162 EoIs

Structuring the Input: Topic Convenors*

- Reports at 1st Open Meeting September 4, 2019

Proposal Structure, Work Package definition

- Presented at 2nd Open Meeting October 23, 2019

Deadline March 17, 2020 (postponed to May 14)

- proposal was submitted within deadline, and resubmitted with minor improvements

Approval November 3, 2020

- Prepare Grant Agreement, Consortium Agreement

Start: April 1, 2021

CERN-EU Office:

Livia Lapadatescu
Sabrina El Jacoubi
Coralie Hunsicker
Laëtitia Veyrat

Hard and intense work by many people!

Proposal Preparation Team:

Felix Sefkow (DESY)
AIDA-2020 Scientific Coordinator
Daniela Bortoletto (U Oxford)
AIDA-2020 Deputy Coordinator
Giovanni Calderini (LPNHE Paris)
AIDA-2020 Governance Board Chair
Paolo Giacomelli (INFN Bologna)
AIDA-2020 Deputy Coordinator
Svetlomir Stavrev (CERN)
AIDA-2020 Administrative Coord.
Anne Dabrowski (CERN)
CERN representative in the PPT
Thomas Bergauer (HEPHY Vienna)
Lucie Linssen (CERN)
Ivan Vila Alvarez (CSIC Santander)
Morgan Wascko (IC London)