



Maurizio Vretenar, CERN
Project Coordinator

15.07.2024

Programme of the Review

I.FAST Period 2 Review		
Monday 15 Jul 2024, 09:00 → 16:00 Europe/Zurich		
Videoconference I.FAST Period 2 Review Join		
09:00 → 09:10	Introduction Speaker: Sotirios Kakarantzas (EC)	10m
09:10 → 09:25	Introduction to I.FAST: goals and structure Speaker: Maurizio Vretenar (CERN)	15m
09:25 → 09:45	Status and achievements during Period 2, WP1 Report Speaker: Maurizio Vretenar (CERN)	20m
09:45 → 10:00	Report on WP2 (10' presentation + 5' questions) Speaker: Philip Nicholas Burrows (University of Oxford (GB))	15m
10:00 → 10:15	Report on WP3 (10' presentation + 5' questions) Speaker: Mauro Morandín (Universita e INFN, Padova (IT))	15m
10:15 → 10:30	Report on WP4 and Innovation Fund (10' presentation + 5' questions) Speaker: Dr Luca Garolfi (SEEIST Association (CH))	15m
10:30 → 10:40	Report on WP4: material studies (7' presentation, 3' questions) TBC Speaker: Marilena Tatiana Tomut (GSI Helmholtzzentrum Darmstadt, WWU Münster)	10m
10:40 → 11:00	Coffee Break	20m
11:00 → 11:10	Report on Task 5.1 (5' presentation + 5' questions) Speaker: Nadia Pastrone (Universita e INFN Torino (IT))	10m
11:10 → 11:20	Report on Task 5.2 and 5.3 (5' presentation + 5' questions) Speaker: Giuliano Franchetti	10m
11:20 → 11:35	Report on WP6 (10' presentation + 5' questions) Speaker: Dr Leonida Antonio (Leo) Gizzi (CNR, Istituto Nazionale di Ottica, Pisa, Italy)	15m
11:35 → 11:40	WP7 Introduction Speaker: Riccardo Bartolini (DESY)	5m

11:40 → 11:50	Report on Task 7.3 (7' presentation + 3' questions) Speaker: Yannis Papaphilippou (CERN)	10m
11:50 → 12:00	Report on Task 7.4 (7' presentation + 3' questions) Speaker: David Alesini	10m
12:00 → 12:10	Report on Task 7.5 (7' presentation + 3' questions) Speaker: Gerardo D'Auria (Elettra Trieste)	10m
12:10 → 12:25	Report on WP8 (10' presentation + 5' questions) Speaker: Ernesto De Matteis (INFN Milano - LASA)	15m
12:25 → 12:35	Report on Task 8.6 (5' presentation + 5' questions) Speaker: Dr Tiemo Winkler	10m
12:35 → 13:45	Lunch Break	1h 10m
13:45 → 14:00	Report on WP9 and Task 10.5 (10' presentation + 5' questions) Speaker: Dr Oleg Malyshev (UKRI/STFC Daresbury Laboratory)	15m
14:00 → 14:15	Report on WP10 (10' presentation + 5' questions) Speaker: Prof. Toms Torims (Riga Technical University (LV))	15m
14:15 → 14:20	WP11 Introduction Speaker: Mike Seidel	5m
14:20 → 14:30	Report on Task 11.2 (7' presentation + 3' questions) Speaker: Nuria Catalan Lasheras (CERN)	10m
14:30 → 14:40	Report on Task 11.3 (7' presentation + 3' questions) Speaker: Mr Ben Shepherd	10m
14:40 → 14:55	Report on WP12 (10' presentation + 5' questions) Speaker: Rob Edgecock	15m
14:55 → 15:10	Report on WP13 (10' presentation + 5' questions) Speaker: Dr Sylvie Leray	15m
15:10 → 15:25	Comments from Advisory Committee and concluding remarks Speaker: Maurizio Vretenar (CERN)	15m
15:25 → 15:55	Closing discussion	30m



To all speakers:

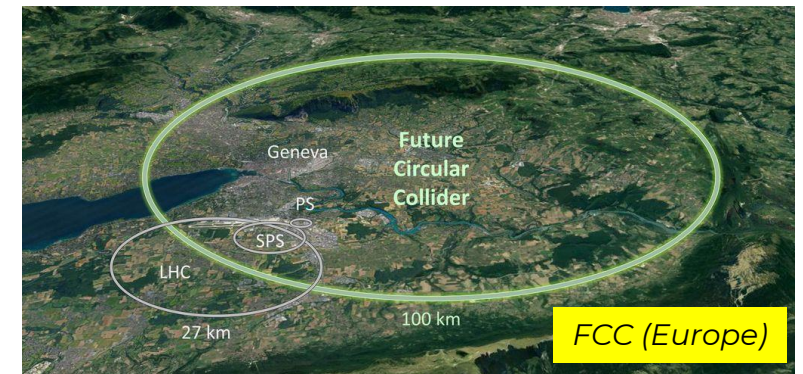
Please respect your time allocation and leave enough time for questions!

I.FAST in the context of European particle accelerator research

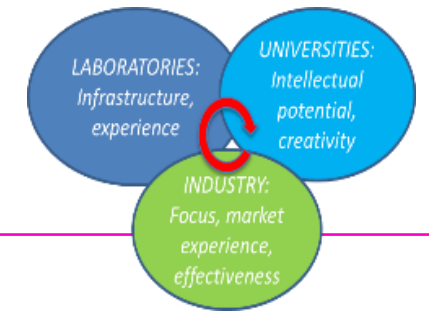
Innovation Fostering
in Accelerator Science
and Technology

Particle accelerators, at the core of modern science, are at a critical moment of their evolution.

- Today, **extrapolating** present technologies to reach new physics goals is bringing accelerators towards the **limits of sustainability** (dimensions, complexity, cost, energy consumption).
- In parallel, increasing demands are coming from accelerators for **applied science** (photon and neutrons) and **healthcare**, with new **societal applications** appearing.
- **New technologies** (both evolutive and disruptive) are emerging, with the potential to propel the evolution of large accelerator for particle physics and support the growth of applied science and applications.
- I.FAST aims at creating a collaborative ecosystem for **new sustainable technologies and ideas** to grow, in an **open-innovation** environment covering different accelerator types and platforms.



Goals and structure of I.FAST



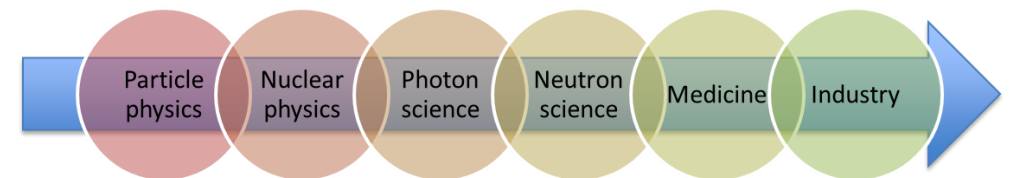
Goals:

- Foster innovation, leading accelerator technologies from **open science** to **open innovation** – sharing of ideas within academia, and between academia and industry.
- Cover a **portfolio of technologies**, not related to an individual project, and explore new opportunities.
- Build a **wide and open consortium** that can be the foundation for an innovation ecosystem.
- Promote **sustainability** as a primary objective of accelerator evolution.
- Create **synergies** between accelerator types and user communities and favour the **translation of accelerator technologies** to society.



Structure:

- Programme based on **9 thematic areas** strategic for the future of particle accelerators, transversal between accelerators for particle physics, photon and neutron sources, and applications.
- Large consortium with **strong industry participation**: 48 beneficiaries – 8 RI operators, 12 national research centres, 12 universities, 16 industrial partners (11 SMEs) - from 15 European Countries, supported by 12 partner organisations and >20 collaborating institutions.
- Use an **Innovation Fund** (cascade funding tool) for fast-track support of innovation.

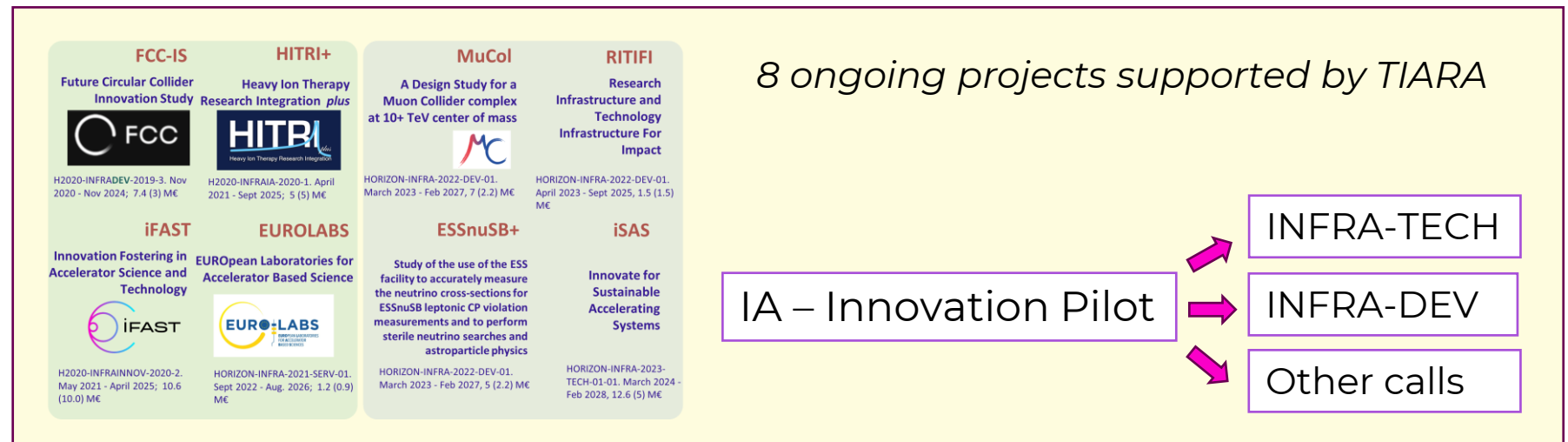


Genesis of I.FAST and coordination with other accelerator initiatives

- Accelerator proposals to EC calls coordinated by the **TIARA Collaboration Council**, representing the community involved in accelerator R&D.
- The **Innovation Pilot I.FAST** as a pillar of TIARA strategy follows 4 successful Integrating Activities (CARE – EuCARD – EuCARD2 – ARIES).
- In 2019, TIARA has coordinated the **internal call** that has selected for I.FAST 37 proposals (Tasks), then grouped in the 9 thematic areas.
- In the TIARA vision, Integrating Activities and Innovation Pilots are the **cradle of new ideas** and the places to **generate collaborations** that will evolve into dedicated high-level proposals.
- TIARA guarantees the **coherence** of the overall strategy, defines the **boundaries** and controls that there are **no overlaps** between projects.



The cost and time for development of “deep-tech” accelerator technologies requires a long-term strategy articulated among different projects and funding structures

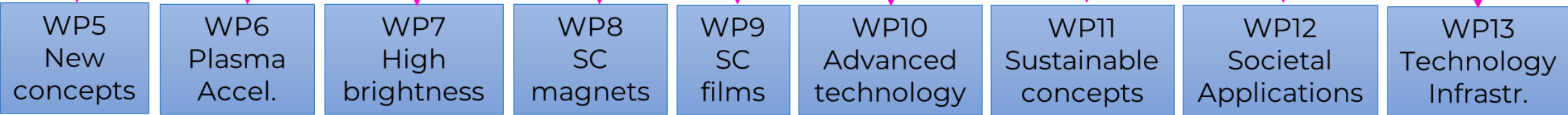
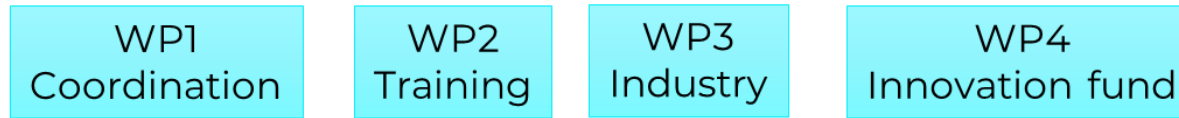


Workpackages and content of I.FAST

Mixture between exploratory work and prototyping of deep-tech technologies to higher TRL

iFAST activities cover 9 thematic areas, strategic for the future of particle accelerators.

4 support Work Packages and 9 thematic Work Packages



new ideas *integration* *new concepts* *HTS* *new techniques* *additive manufacturing, ML* *strategies* *strategies* *policy, procedures*

slow extraction *targets, stabilization* *deposition techniques* *SC AM cavities ML models* *biohazards med. cyclotron* *SS RF amplifier*



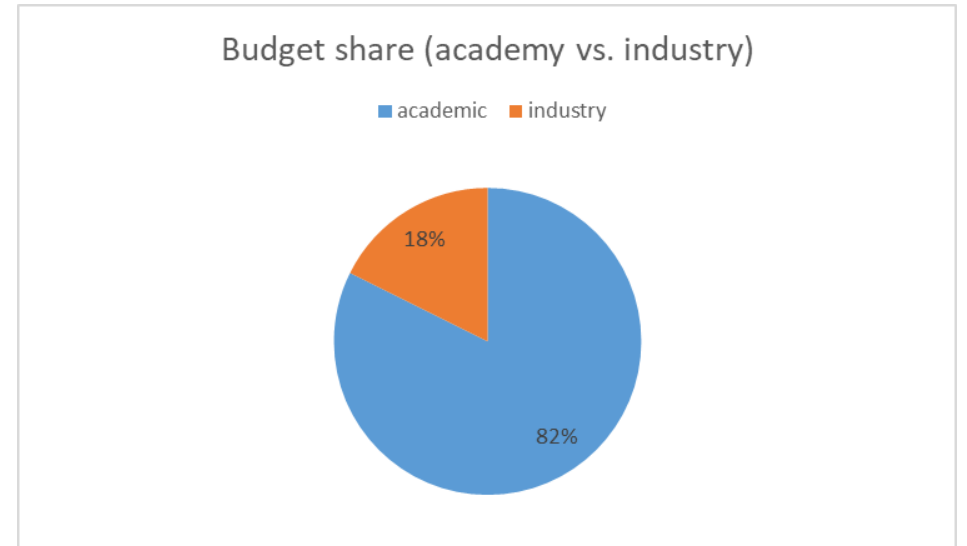
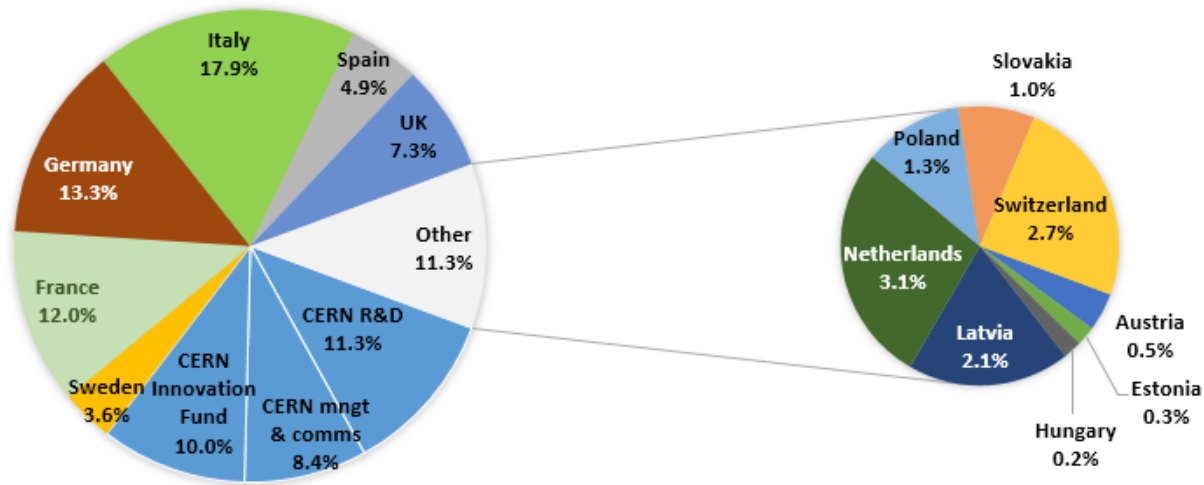
exploratory work

experimental activities

high-level prototyping



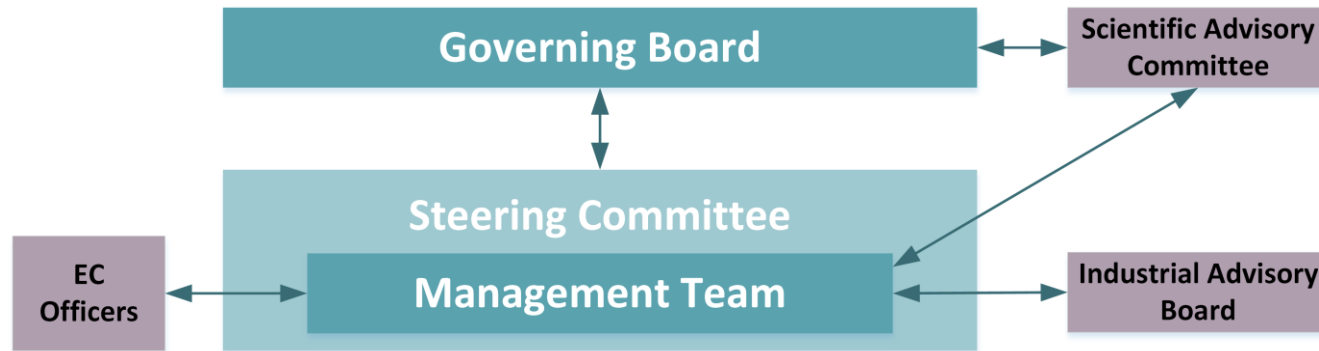
Original budget and industry role



Counting only the R&D WPs (4-13), industry share is 24%

Management and coordination

Challenge: Management of a large consortium mixing scientific and industrial partners and procedures



J.M. Perez, Chair of Governing Board
(and Coordinator of TIARA)

M. Vretenar, CERN, Project Coordinator

T. Torims, RTU, Deputy Coordinator

V. Brunner, CERN, Project Assistant













S. Stavrev, CERN, Administrative Manager

Scientific Advisory Committee

- **Akira Yamamoto (KEK)**, Head of Linear Collider Project Office at KEK, expert in applied superconductivity, already member of EuCARD2, ARIES and AMICI SAC.
- **Michiko Minty (BNL)**, Head of Accelerator Division at the BNL Collider Accelerator Department, with wide experience in accelerator design and beam optics.
- **Carsten Welsch (U. Liverpool)**, Head of Physics Department at U. Liverpool, has participated in many accelerator projects, with expertise in beam instrumentation and optics, science communication and outreach, etc.



IAB Members

	Spela Stres IAB Chair - Director of the Center for Technology Transfer and Innovation (CTI)		Olivier Tasset - Maye Sales Manager - Sigmaphi
	Miguel Angel Carrera Founder and CEO of AVS		Charles Mangeot Senior R&D Engineer, Product Specialist, Piezoelectric Actuators - CTS Corporation
	Ronald Dekker CEO - Demeco		Ziad Melhem Founder and CEO - Oxford Quantum Solutions Ltd
	Francesco Fantini Sales manager Big Science Division - Fantini Sud S.p.A.		Michael Peiniger Managing Director - Research-Instruments
	Pavel Hedbavny CEO - Vakuum Praha		François Sylla Co-founder and CEO of SourceLAB
	Rok Hrovatin Senior BD advisor - Cosylab		Josef Troxler Business Development Manager, Ampegon & OCEM, Power Electronics

iFAST

Thank you for your attention!



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