M. Vretenar, CERN, Project Coordinator

30 January 2025

1. Consequences of the prolongation and programme for 2025
2. Missing Deliverables and Milestones, critical deliverables
3. Format and programme of Annual Meeting in Krakow
4. Status of I.FAST2 preparation

I.FAST is extended till end of October 2025

Many thanks to all for your support during the difficult negotiation with the Project Officer, and in particular to Cloé for the administrative follow-up. Reminder: the extension was granted because of "force majeure" events: impact of Covid at start, impact of Ukraine war on materials and prices, loss of critical contributors.

Consequences:

- ❑ End of Project **30 October 2025**.
- ❑ Final Report to be delivered by **31 December 2025**: Preparation in October-December 2025.
- ❑ Final I.FAST meeting in October at CERN (**Tuesday 21 – Wednesday 22 October at the Globe**).
- ❑ Last payment (final instalment) only in Spring 2026.

Meetings 2025:

- ❑ February 2025: Steering Committee meeting for WP Coordinators to finalise programme of Annual Meeting.
- ❑ April 2025: Annual Meeting in Krakow (technical progress, SAC, Governing Board, etc.).
- ❑ July-August 2025: Last Steering Committee meeting (open) to review work and prepare Final Meeting

Missing Deliverables

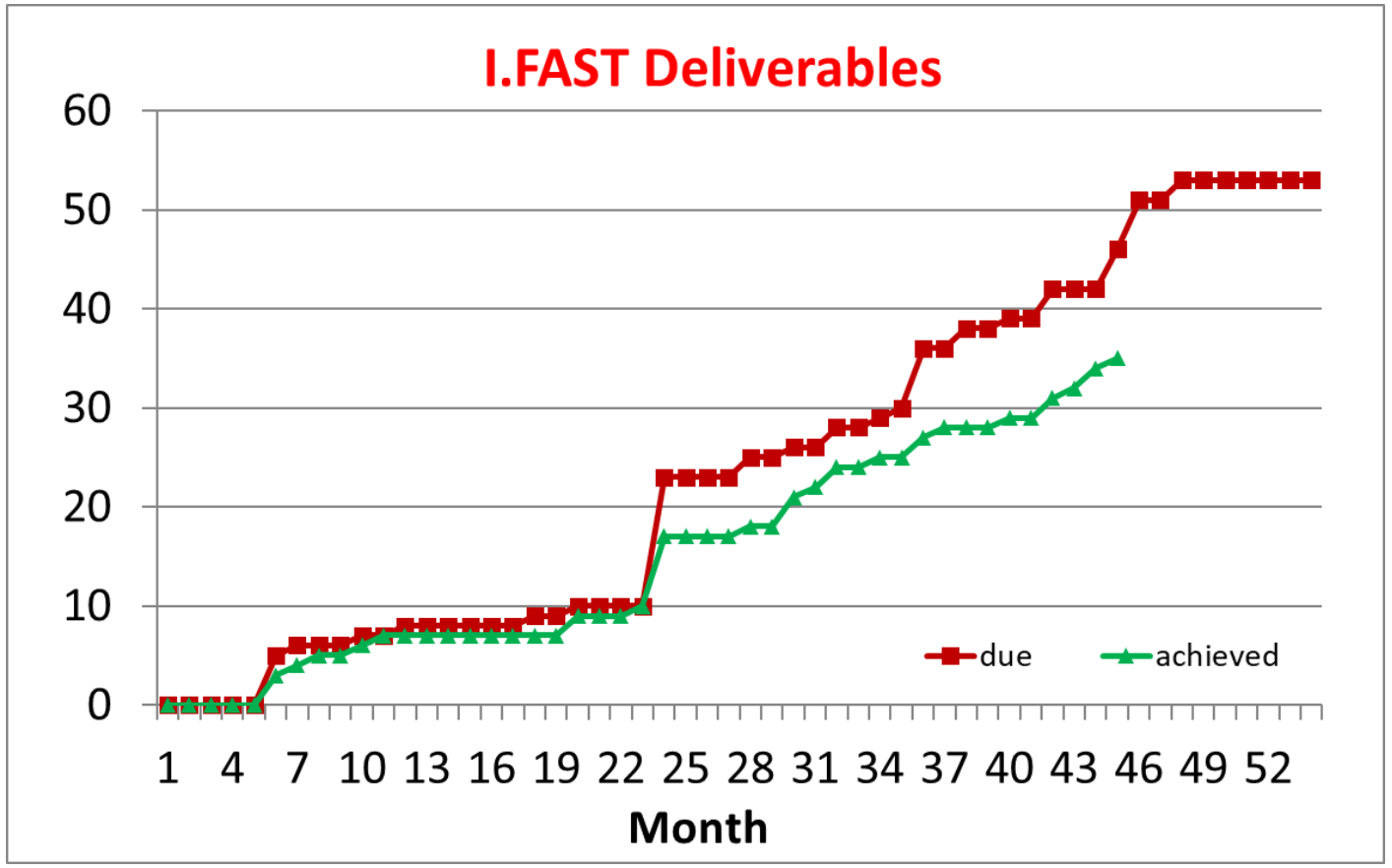
			Resp.	M old	M new	Due	Status
1	D7.5	Construction of the XLS accelerating structure pre-prototype	ELETTRA	24	**44**	31/12/24	Draft received – in work …
2	D11.2	Klystron prototype completed and validated	CERN	36	**45**	31/01/25	In work …
3	D11.1	Sustainable Accelerators report	PSI	45	45	31/01/25	In work …
4	D9.6	Test of thin-film samples	HZB	46	46	**28/02/25**	expected end January
5	D5.3	Ripple mitigation for slow extraction beam quality improvement	GSI	46	46	**28/02/25**	expected few weeks delay
6	D9.4	Deposition of SC multilayers on cavities	CEA	46	46	**28/02/25**	expected end January
7	D10.5	Technical Report on machine learning at ESS	ESS	34	**46**	**28/02/25**	no news
8	D5.1	International collaboration plans towards a multi-TeV muon collider	INFN	46	46	**28/02/25**	no news
9	D6.2	LASPLA Strategy	CNR	46	46	**28/02/25**	no news
10	D9.3	First 6 GHz cavity coated and characterised	UKRI	36	**50**	**30/06/25**	Delayed M50
11	D9.5	1.3 GHz Nb-coated cavity irradiated by laser in argon atmosphere and RF tested	RTU	45	**46**	**28/02/25**	waiting for cavity
12	D11.3	Prototype adjustable PM quadrupole and combined function magnets	UKRI	28	**46**	**28/02/25**	waiting for magnet
13	D7.1	Final report on the development of high brightness electron beams for light sources	DESY	48	48	**30/04/25**	
14	D9.2	RF test on coated resonant cavity	INFN	46	**50**	**30/06/25**	
15	D7.6	Construction of the XLS accelerating structure full prototype	ELETTRA	36	**50**	**30/06/25**	
16	D8.4	Construction of combined CCT demonstrator	INFN	42	50	30/06/25	
17	D7.3	Longitudinally variable bend prototype fabrication	CERN	40	**51**	**31/07/25**	
18	D2.3	Industrial training scheme	UU	24	52	**31/08/25**	
19	D8.5	Construction of HTS CCT demonstrator	INFN	38	**54**	**31/10/25**	

19 deliverables to be prepared in 10 months…

We are fed up with sending reminders and chasing the missing reports.

This is **your responsibility as WP Coordinators** – please remind the people in charge to write the reports and find solutions if needed. Remember: **no deliverables, no money**!

Status of Deliverables

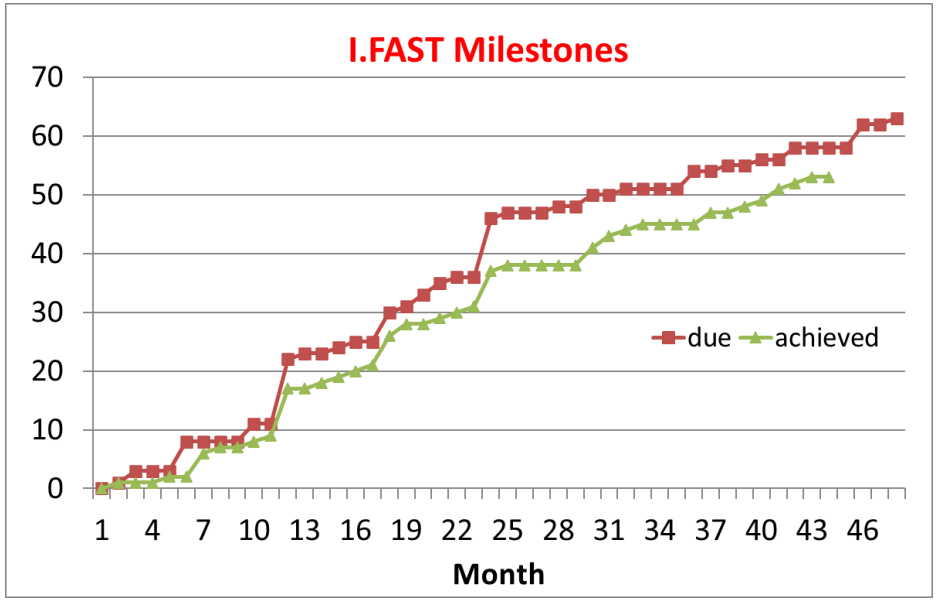


Reminder 1: if the Deliverable is not submitted, the EC services can refuse payment for all the costs related to the Deliverable: you can end up with your institute having to give money back to the Commission!

Reminder 2: the Coordinator is not responsible for the delays; this will be your problem with your institutes.

Missing Milestones

						Month	Due	Status
1	MS5	ACO workshop	2.2	18	31/10/22	24		Workshop in March
2	MS34	Construction of the combined formers for CCT winding	8.4	32	31/12/23	32		Promised end 2024
3	MS16	International workshop to define R&D plans	5.1	36	30/04/24	36	30/04/24	N reminders sent…
4	MS56	Magnets constructed and tested	11.3	25	31/05/23	38	30/06/24	With deliverable
5	MS3	Recommendations of RI-INNOV Coordination Group	1.1	46	28/02/25	46	28/02/25	In progress
6	MS12	IIF Projects final progress	4.2	46	28/02/25	46	28/02/25	In progress
7	MS27	Prototype acceptance tests	7.3	46	28/02/25	46	28/02/25	With deliverable
8	MS29	High-power test stand setup and final results of the high-power tests	7.4	46	28/02/25	46	28/02/25	2 months delay
9	MS19	Ultimate hadron-beam brightness	5.2	48	30/04/25	48	30/04/25	In progress
10	MS30	Construction and RF tests of CompactLight accelerating structure prototype	7.5	21	31/01/23	48	30/04/25	With deliverable



A reminder

- The I.FAST industry exchange programme: in April after the Annual meeting there were several ideas to use the remaining budget (exchanges of personnel industry / academia) but so far nothing materialized.
- Please move fast, the exchanges have to take place between now and October!

Tour de table on open issues and delays

The 2025 Annual Meeting

Amazing location

Great support by the local team

Only 27 registered so far!
Please remind your colleagues, we will send a reminder on Monday

Timetable - general

- Travel on Tuesday 8 April.
- Visit on Wednesday morning (cyclotron and assembly lab).
- Parallel sessions on Tuesday and if needed Wednesday morning.
- Plenary sessions from Wednesday 13:30 to Friday 10:30 (shorter than in Paris – we have less additional sessions, some WP are completed, and we want to give time to fly back home on Friday afternoon).
- Governing Board meeting on Friday 11 April at 11:00. No decisions to be taken, open meeting to all participants.
- Steering Committee lunch (with summary discussion) Friday 12:30-13:30.

Presentation by Valérie

Requests for Parallel Meetings and highlight talks

- WP11 (M. Seidel), 10 people, Wed. morning
- WP5.2 (F. Zimmermann) meeting in the (possibly late) afternoon of Tuesday 8 April

1. Electron-beam based neutron source, by Javier Olivares Herrador, CERN;
2. The P3 Experiment: A Positron Source Demonstrator for Future Lepton Colliders, by Nicolas Vallis or Mattia Schaer, PSI (ask Mike Seidel who of the two)
3. ThomX highlights and plans, by Iryna Chaikovska, IJCLab;
4. Xsuite packages and its applications to FCC and SuperKEKB, Jack Salvesen/Oxford& CERN or Giacomo Broggi/ Sapienza&CERN
5. RF reverse phase operation for FCC-ee and other colliders with variable beam current, Ivan Karpov/CERN

F. Carra: talk from Nikolina Vejnovic on the Results of the irradiation of material thin foils

Any other request?
(at Paris we had WP9 and WP10 meetings and many highlight talks)

Meeting agenda - introduction

- Goal of the meeting is to see progress on critical deliverables, give visibility to young collaborators, and introduce some topics of interest for I.FAST2.
- Proposed session on start-up creation, risk management and innovation.
- Proposed session of highlight talks for young researchers.
- Are we going to have a poster session, as proposed last year? – for a poster session, we need enough posters (>10).

Wednesday

WEDNESDAY 09/04/2023					
	08:30	11:30	03:00	*Visit Cyclotron Centre Bronowice (CCB) and Division of Scientific Equipment, Infrastructure Construction (DAI) Laboratory*	
	12:00	13:30	01:30	Lunch Break (free)	
	IFAST Meeting - Session 1 - Introduction, Communication, Training, Industry				
	13:30	13:50	00:20	Introduction by the Project Coordinator	M. Vretenar (CERN)
	13:50	14:05	00:15	Training in accelerator technology, report on CBI	P. Burrows (UOXF)
	14:05	14:20	00:15	I.FAST communication and outreach, ACO workshop	T. Brent (CERN)
	14:20	14:30	00:10	Update on IFAST internal communication and dissemination	P. Foka (GSI)
	14:30	14:50	00:20	IFAST and industry	M. Morandin (INFN)
	14:50	15:20	00:30	Coffee Break	
	IFAST Meeting - Session 2 - New concepts				
	15:20	15:35	00:15	Structure and progress of the International Muon Collider Collaboration	N. Pastrone (INFN)
	15:35	15:50	00:15	Progress at the accelerator frontier	F. Zimmermann (CERN)
	15:50	16:05	00:15	Novel particle accelerators, EuroNNAc and EuPRAXIA	M. Ferrario (INFN)
	16:05	16:20	00:15	Lasers for Plasma Accelerators, targets and local spot stabilisation	L. Gizzi (CNR)
	16:20	16:35	00:15	Slow extraction improvement	P. Forck (GSI)
	16:35	17:25	00:50	Local talk	D. Bocian (IFJ-PAN)
	18:00	20:00	02:00	*Welcome cocktail*	

Thursday

THURSDAY 10/04/2023					
	IFAST Meeting - Session 3 - Accelerator technologies				
	09:00	09:20	00:20	Innovative Superconducting Magnets	E. De Matteis (INFN)
	09:20	09:30	00:10	Development of ReBCO HTS nuclotron cable	T. Winkler (GSI)
	09:30	10:00	00:30	Recent Progress with Superconducting Thin Film Coated Cavities	?
	10:00	10:20	00:20	Results with Additive Manufacturing of accelerator components	M. Vedani (Polimi)
	10:20	10:35	00:15	Machine learning at ESS	?
	10:20	10:50	00:30	**Coffee Break**	
	10:50	11:05	00:15	Beam windows and materials	F. Carra (CERN)
	11:05	11:25	00:20	High Efficiency Klystron Prototype	N. Catalan (CERN)
	11:25	11:55	00:30	The I.FAST Innovation Fund projects	L. Garolfi (TERA)
	11:55	12:25	00:30	Accelerators for the environment	A. Chmliewski
	12:25	13:30	01:05	**Lunch Break (at Conference centre)**	
	IFAST Meeting - Session 4 - Light sources and sustainability				
	13:30	13:40	00:10	Overview of Ultra-low Emittance Rings	R. Bartolini (DESY)
	13:40	13:55	00:15	Progress with the Longitudinally Variable Dipole	Y. Papaphilippou (CERN)
	13:55	14:10	00:15	C-band Very High Gradient Guns	D. Alesini (INFN)
	14:10	14:25	00:15	Status of CompactLight Prototype Structures	G. Dauria (Elettra)
	14:25	14:40	00:15	Permanent magnet quadrupole	A. Hinton (UKRI)
	14:40	15:10	00:30	Update on sustainability	D. Volker (DESY)
	15:10	15:40	00:30	**Coffee Break**	
	IFAST Meeting - Session 5 - Innovation and highlights				
	15:40	16:00	00:20	From high-tech ideas to start-ups: the Swiss experience	E. Benedetto (TERA)
	16:00	16:20	00:20	Accelerating Innovation: Supporting Startups in Science and Technology	C. Welsch
	16:20	16:40	00:20	*Risk management in industrial projects*	R. Geometrante ?
	16:40	16:55	00:15	*talk 1*	
	16:55	17:10	00:15	*talk 2*	
	17:10	17:25	00:15	*talk 3*	
	17:25	17:40	00:15	*talk 4*	
	17:40	18:40	01:00	*Poster session*	
	20:00	22:00	02:00	*Banquet*	

Friday

FRIDAY 11/04/2023					
	IFAST Meeting - Session 6 - Future programmes and concluding remarks				
	09:00	09:30	00:30	The new proposal for accelerator R&D	M. Vretenar (CERN)
	09:30	10:00	00:30	Discussion	
	10:00	10:20	00:20	*Presentation by the SAC*	
	10:20	10:30	00:10	**Concluding remarks**	M. Vretenar (CERN)
	10:30	11:00	00:30		
	IFAST Meeting - Session 8 - EU projects, Conclusions				
	11:00	12:30	01:30	Governing Board Meeting	
	12:30	14:00	01:30	Steering Committe Meeting (lunch)	
End of I.FAST Annual Meeting					

SAC Recommendations

- Two SAC members present in 2025: M. Minty and C. Welsch.
- Need to take into account their 2024 recommendations.

Advice and Suggestions

- If a task is foreseen to run late, the SAC advises to consider a grant agreement amendment to better reflect expectations.
- The SAC strongly encourages I.FAST and its partnerships integrate the methodologies and tools highlighted in the sustainability session into all activities.
- The SAC endorses the industry-academia exchange program and encourages more I.FAST partners to engage with it.
- At the next and final I.FAST annual meeting, the SAC will appreciate for each presentation including:
  - Impact statements achieved to date and projections for the anticipated impact of their work (i.e. foreseen applications), and
  - Elaborating on achieved Technical Readiness Levels (TRLs).
- The SAC strongly supports the 2025 Challenge Based Innovation (CBI) and recommends that I.FAST explore opportunities to continue CBI beyond the lifetime of the I.FAST project e.g. through institutional and industry support.
- The SAC suggests consideration of a post-I.FAST survey, to better understand the time needed to reach TRL9 (highest level) across the innovation portfolio, where relevant.

Done

Ongoing
Critical!

Between now and October

Done

For final report

Preparation of the next accelerator R&D proposal

No more “**Innovation Pilot**” but “**Implementing research infrastructure technology roadmaps**” – but the new call incorporates many aspects and results of I.FAST.
Name still to be defined, for the moment “I.FAST2”

HORIZON-INFRA-2025-01-TECH-02

Implementing research infrastructure technology roadmaps

Expected EU contribution: 10 – 15 MEUR (*funding is still under discussion in Brussels!*)

Total budget for the call: 45 MEUR (between 3 and 4 projects can be supported).

Deadline for submission: **18 September 2025**

For infrastructure and technology communities with already developed research infrastructure technology roadmaps: accelerators, light sources, astronomy, etc.

Projects should implement significant parts of, or entire research infrastructure **technology roadmaps** through co-creation with industrial partners from the earliest possible stage. The technology roadmaps should be the result of a community or cross-community effort already undertaken. The technological solutions developed should respond to the needs of several research infrastructures, and in some cases the needs of different types of research infrastructures.

Timeline

- The EC Research Infrastructure Work Programme is not out yet, expected for February – early March. At that moment, total budget and final requirements will be known.
- The call with all details should be out in May.
- **Deadline** for submission is 18 September 2025: project structured in May-June, writing during summer (no holidays for those involved…).
- There will be **competition**: 4 communities invited to submit, plus some outsider, for 3 (or 4) projects accepted.

6 requirements, from the call description

All R&D topics included in the portfolio must:

1. implement significant parts of a research infrastructure technology roadmap (ESPP, LEAPS, others) or develop new advanced applications.
2. address prototyping of high-performance systems needed to upgrade the involved research infrastructures or construct their next generation.
3. Include co-creation with industrial partners from the earliest possible stage (as beneficiaries, subcontractors, PCP partners, or with letters of engagement) .
4. respond to the needs of several research infrastructures, possibly of different types.
5. possibly build on results from previous projects and avoid overlaps with ongoing projects.
6. consider resource efficiency (e.g. raw material and energy consumption) and environmental (including climate-related) impacts.

Additional conditions

- include at least two research infrastructures (ESFRI infrastructure, or ERIC infrastructure, or International European research organisation).
- Cascade funding admitted, support to third parties in the form of grants.
- when appropriate, make use of large-scale platforms combining R&D, integration and validation for technological developments (technology infrastructure).
- Different ways of involving industry: consortium members, commitment via engagement letters, identified at a later stage, Pre-Commercia Procurement subcontracting, …
- Should build on results from previous INFRAINNOV projects (I.FAST) or INFRA-TECH projects but avoid overlap with them.

Path to the new proposal

I.FAST works well, but is very **dispersed** (48 beneficiaries, 12 partners, 9 Work Packages – average 200 k€/beneficiary). For the next proposal (INFRA-TECH-02), a **more impactful and inclusive approach** is proposed:

1. The topics are divided in two parts: few **top-down** selected topics at higher TRL with larger funding, and the usual **bottom-up** part at lower TRL and lower funding.
2. Involve the **accelerator user communities** and not only the accelerator labs represented in TIARA in the **selection** for the top-down part and in the **evaluation** for the bottom-up part, in coordination with the **roadmaps** of the different communities.

- As usual, TIARA will guide and coordinate the proposal preparation. M. Vretenar in charge of structuring it, waiting to collaborate with a new perspective Coordinator to be nominated by TIARA.
- Initial project structure approved by TIARA on 29.10.24.
- Enlarged TIARA Meeting with accelerator communities (particle physics, light sources, nuclear, neutrons, energy, industry) on 20 January, to coordinate roadmaps and identify priority topics.

General guidelines

- Mixture of top-down and bottom-up: explore recognised critical R&D topics with appropriate funding, while keeping the creativity and innovation dimension.
- Less partners than in I.FAST, avoid beneficiaries with less that 100k or 50k EC funding. Ideal team one or 2 academic, one industry.
- Rate of matching funds (now 50% for academia, 30% for industry) reduced to 30-35% for academia, 20-25% for industry.
- Less space for Networks, possibly only in the frame of defining Technology Roadmaps – with some space in the general part.

Structure

Based on the experience of I.FAST and on our discussions with the EC
Project based on **4 pillars (groups of Work Packages)**:

	Pillar	Content	EC contribution per activity	Total EC contribution (with 15M)
1	**Instruments**	General WP's covering all activities		*3 M€ ?*
2	**Enabling technologies**	6 key technologies, selected top-down, higher TRL	1 M€	*6 M€ ?*
3	**Emerging technologies**	About 10 selected technologies after bottom-up call, lower TRL	200-500 k€	*4 M€ ?*
4	**Innovation Fund**	Internal call after project start	100-200 k€	*2 M€ ?*
				15 M€

Note 1: if the budget is only 10M, all figures will be reduced proportionally (800k for enabling technologies, 200-400k for emerging)
Note 2: EC contribution given as total cost, including 25% overheads

The Instruments Pillar

4 Work Packages, supporting all other activities

WP	Task	Title	Content
1	1	Management, coordination	
	2	Dissemination	
	3	Risk Management ?	
2	1	Training	
	2	Communication, outreach	CBI, Acc. News, Social media
3	1	Industry	Support to AIPF
	2	Technology transfer	Support start-ups
	3	Societal applications	Medical industrial
4	1	Future accelerators	Exploratory work
	2	Sustainability	Methodologies (LCA)
	3	Roadmap follow-up	Contact with communities.

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The Enabling Technologies pillar

Breaking news (this morning) – the consultation of the communities gave priority to the following 4 topics:

1. Superconducting thin films for RF cavities
2. Additive manufacturing of accelerator components
3. Superconducting magnets at High Temperature (HTS)
4. Surface treatments for Superconducting RF cavities

The remaining 2 topics will be selected by the TIARA management in a list of priorities identified by the communities:

Permanent magnet dipoles and quadrupoles
Laser driven accelerators
High intensity proton and ion injectors (sources and linacs)
High-power targetry,
Beam dynamics and stability
High precision diagnostics
Artificial intelligence/Machine learning

6 thematic Work Packages

Proposals for these WP's must include production of high-level prototypes (TRL to be clearly specified) with some engagement of industry (as beneficiary, partner, user)

The Emerging Technologies Pillar

Proposals to be submitted based on a template in preparation, to be approved by TIARA on 6 March and widely distributed within the accelerator community.

Will be selected by an Evaluation Committee nominated by TIARA.

Selection Criteria (giving points to the proposal):

1. Scientific and technological excellence, methodology and innovation.
2. Coherence with accelerator roadmap or application.
3. Quality of the prototyping.
4. Involvement of technology infrastructure.
5. Involvement of industry.
6. Covering needs of several research infrastructures.
7. Connection with previous projects (ARIES, I.FAST,...).
8. Reduce resource efficiency and environmental impact.

Full cost EC contribution (including overheads) 200-500k plus some matching funds from partners.
Minimum 2 participants from different countries.
Industry participation not mandatory but recommended (gets more points in the selection).

Timeline for the new proposal

Tentative Timeline: Enabling technologies

- **January 2025:** define common roadmap with other accelerator communities, with priority topics and guidelines for internal call.
- **Early February** nominate WP Coordinators for enabling technologies and invite to set up collaborations.
- **March** deadline for presenting WP's to TIARA, first reactions.
- **30 April** content and budget approved by TIARA.
- **May** start writing.

Tentative Timeline: Emerging technologies call.

- **Early March 2025** send letter and submission form to all institutes having participated in previous programmes.
- **15 April** submission deadline, nominate selection committee.
- **30 April** pre-analysis and classification of submissions completed.
- **31 May** selection of projects completed, start writing.

iFAST

Thank you for your attention!

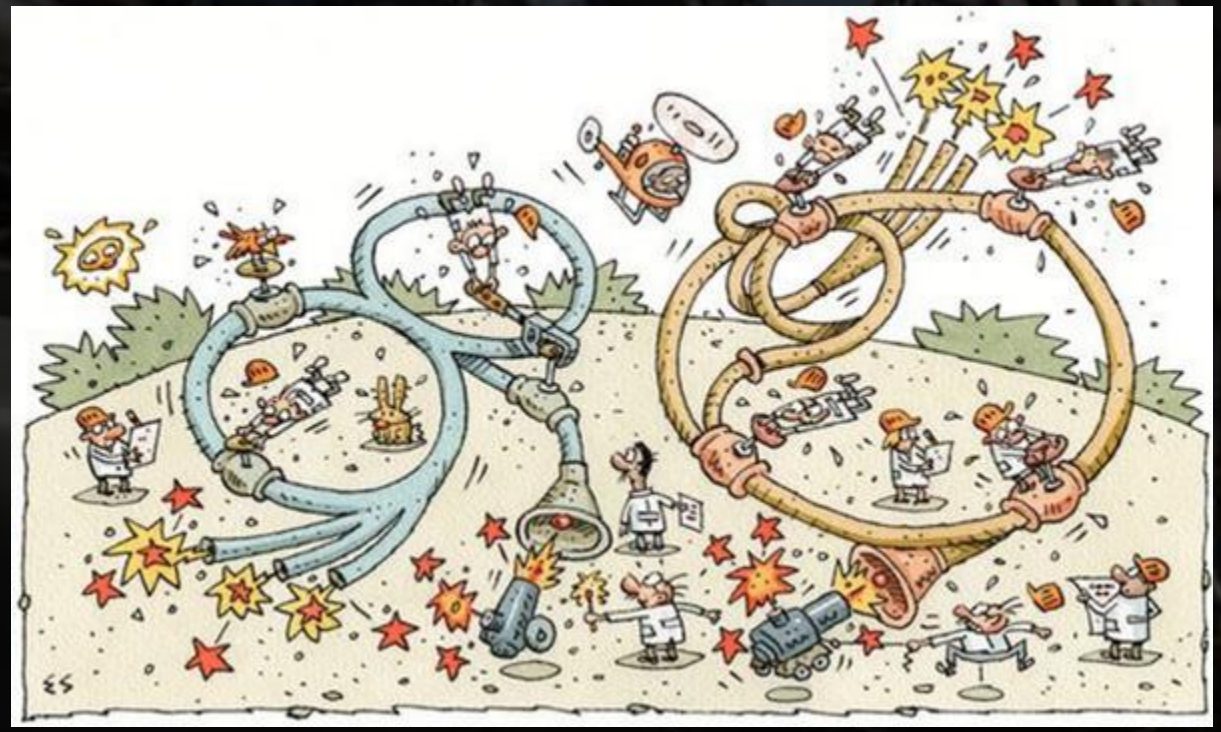

Image credit: Elwood H. Smith, The New York Times

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under GA No 101004730.