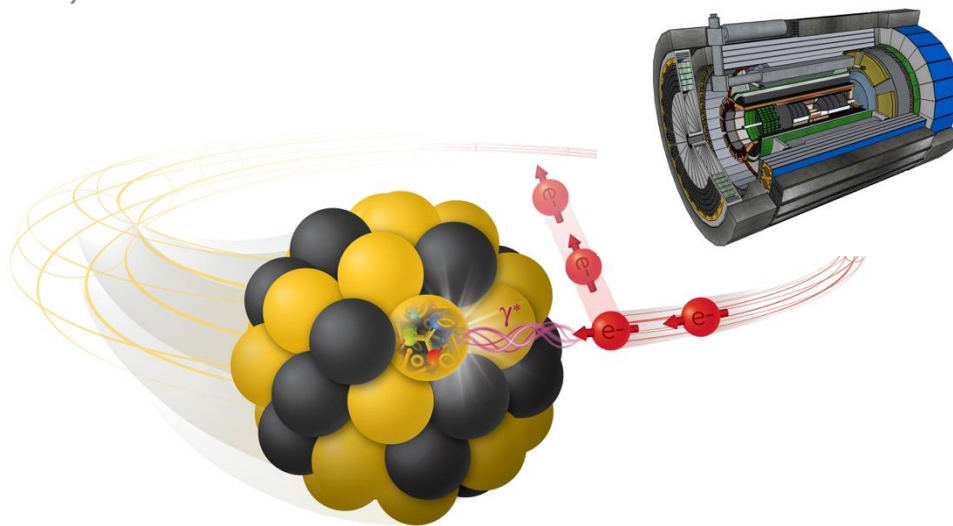


ePIC Italia meeting with INFN referees

Torino – July 25, 2025



General introduction

Domenico Elia, INFN Bari

Agenda today:

- Indico: <https://agenda.infn.it/event/47898/>
- (this) Introduction:
 - ✓ remind on the EIC schedule
 - ✓ activity report & plan 2026, general comments on requests in the DB
 - ✓ milestones 2026 (and status for 2025)
- Following presentations:
 - ✓ quick update on 2025 activities
 - ✓ planning and requests for 2026 (focus on “apparato” & most demanding requests)

Just for reference:

- ✓ activity in 2024 → [consuntivi](#)
- ✓ further details on EIC/ePIC/ePIC Italia & INFN IKC → [ePIC@CSN3 June 2025](#)

Agenda today:

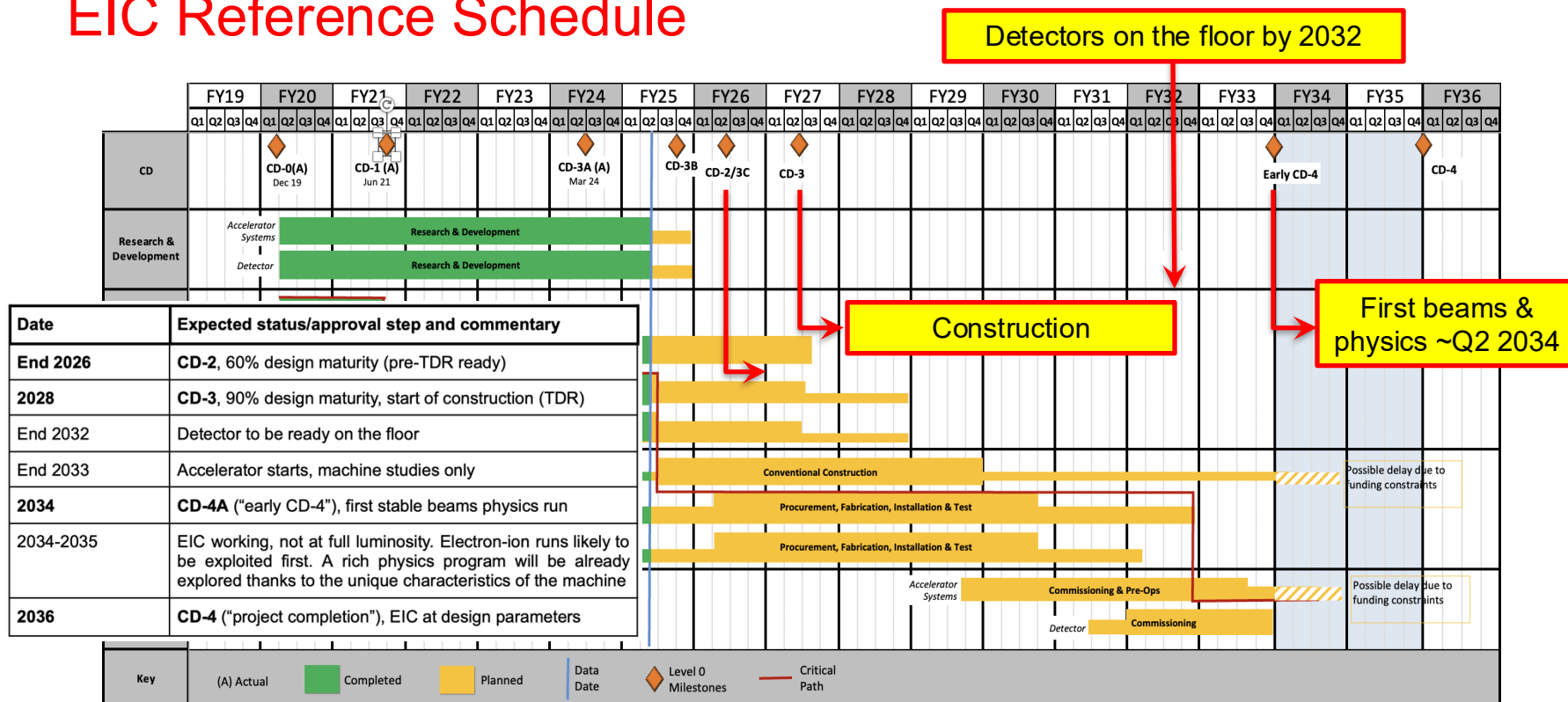
- Indico: <https://agenda.infn.it/event/47898/>

11:00 → 11:20	Introduzione generale a richieste ePIC 2026	🕒 20m	📄
	Speaker: Domenico Elia (Istituto Nazionale di Fisica Nucleare)		
11:20 → 11:40	Fisica: overview attività e richieste 2026	🕒 20m	📄
	Speaker: Salvatore Fazio (Università della Calabria ed INFN-Cosenza)		
11:40 → 11:55	dRICH: overview progetto e richieste 2026	🕒 15m	📄
	Speaker: Marco Contalbrigo (Istituto Nazionale di Fisica Nucleare)		
11:55 → 12:10	dRICH: ALCOR	🕒 15m	📄
	Speaker: Fabio Cossio (Istituto Nazionale di Fisica Nucleare)		
12:10 → 12:30	dRICH: SiPM and FE integration	🕒 20m	📄
	Speaker: Roberto Preghenella (Istituto Nazionale di Fisica Nucleare)		
12:30 → 12:45	dRICH: RDO and DAQ	🕒 15m	📄
	Speaker: Pietro Antonioli (Istituto Nazionale di Fisica Nucleare)		
12:45 → 13:00	dRICH: interaction tagger	🕒 15m	📄
	Speaker: Marco Battaglieri (Istituto Nazionale di Fisica Nucleare)		
13:00 → 13:15	dRICH: gas system and monitoring	🕒 15m	📄
	Speakers: Fulvio Tassarotto (Istituto Nazionale di Fisica Nucleare), Silvia Dalla Torre (Istituto Nazionale di Fisica Nucleare)		
13:15 → 13:30	dRICH: sensor QA	🕒 15m	📄
	Speaker: Daniele De Gruttola (Istituto Nazionale di Fisica Nucleare)		

13:30 → 14:30	lunch break	🕒 1h	
14:30 → 15:00	uRWELL-ECT: overview progetto e richieste 2026	🕒 30m	📄
	Speaker: Annalisa D'Angelo (Istituto Nazionale di Fisica Nucleare)		
15:00 → 15:20	SVT: overview progetto e richieste 2026	🕒 20m	📄
	Speaker: Rosario Turrisi (INFN-PO)		
15:20 → 15:40	SVT: inner barrel bending and assembly	🕒 20m	📄
	Speaker: Domenico Colella (INFN and University of Bari)		
15:40 → 16:00	Conclusions (and buffer)	🕒 20m	📄

EIC project status and timeline

EIC Reference Schedule



Planning and requests for 2026

The “Preventivi Games” are over!

- Activity report & plan available [here](#)

Index

The EIC, the ePIC experiment and the INFN contribution

- [Introduction](#)
- [The international project and the ePIC Collaboration](#)
- [The INFN contribution to the ePIC Collaboration](#)
- [ePIC Italia status and internal organisation](#)
- [INFN relevant contacts and roles in the EIC governance](#)

ePIC activities: 2025 updates and planning for 2026

- [Physics and software/computing coordination](#)
 - [Semi-inclusive DIS \(BO CS FE GE LNS SA PV TO TS\)](#)
 - [Diffractive physics \(CS, TO\)](#)
 - [Heavy Flavour meson production \(BA\)](#)
 - [Generalized Parton Distribution \(CS\)](#)
 - [Computing \(BA BO GE TS\)](#)
- [Detector simulation \(BA SA TS\)](#)
- [Detector R&D: dRICH \(BA BO CS CT FE GE LNS RM1 RM2 SA TO TS\)](#)
 - [dRICH prototype](#)
 - [SiPM studies and PDU integration](#)
 - [The ALCOR ASIC as SiPM front-end](#)
 - [dRICH DAQ \(RDO, DAM and interaction tagger\)](#)
 - [High pressure Argon as gaseous radiator](#)
 - [Aerogel studies](#)
 - [dRICH radiator gas system and studies](#)
 - [LAPPD/HRPPD studies](#)
- [Detector R&D: SVT \(BA PD PV TIFPA TS\)](#)
- [Detector R&D: uRWELL-ECT \(CT GE RM-TV\)](#)
- [Detector R&D: streaming readout \(CT GE\)](#)
- [MARCO Superconductive Solenoid \(GE\)](#)
- [Outreach](#)

Financial requests for 2026

- [Introduction](#)
- [Support to the Detector R&D activities and in-kind contribution](#)
- [Missioni budget](#)

Appendix A: Multi-year financial plan

Appendix B: Synergies with other INFN initiatives

Appendix C: Milestone 2025 update and proposal for 2026

Appendix D: Supporting reference table for missioni

EIC, ePIC and INFN contribution

**Activity in 2025 only
(avoid to repeat “consuntivi”)
+ planning for 2026**

**General comments to the
financial requests for 2026 +
refs to presentations today**

Appendices



Data 24/7/2025



ePIC Italia
2025 Annual Report
Activity plan for 2026

Autore/i	Verificato da	Approvato da
Domenico Elia	Commissione Scientifica Nazionale 3	P. Giubellino

Oggetto
Activity report & plan document for preventivi 2026.

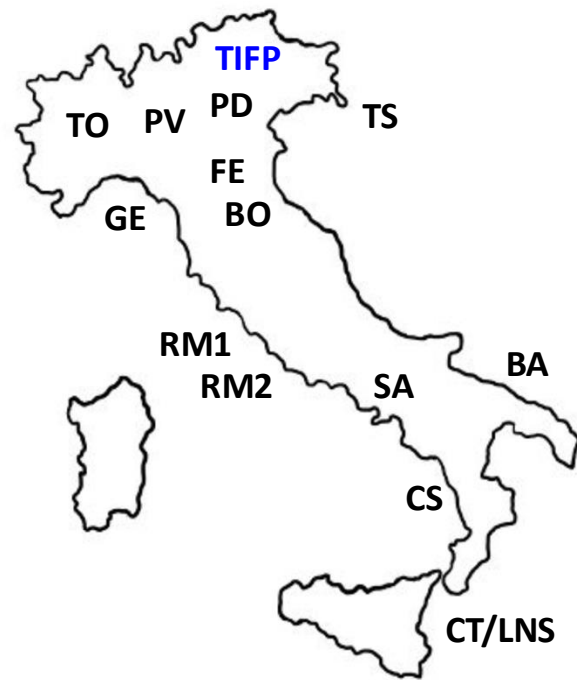
Planning and requests for 2026

INFN groups and coordination team:

- **15 INFN units:** largest cluster within CSN3
 - ✓ 14 units till 2025, **TIFPA** officially joining from 2026
- **CEI (Comitato ePIC Italia):**
 - ✓ RN, 15 RLs and 1 Theory representative: M. Radici (PV)
- **Coordination team:**
 - ✓ **dRICH:** M. Contalbrigo (FE)
 - ✓ **SVT:** R. Turrisi (PD)
 - ✓ **uRWELL-ECT:** A. D'Angelo (Roma TV)
 - ✓ **Physics:** S. Fazio (CS) + SIDIS subgroup: S. Costanza (PV)
 - ✓ **Computing:** A. Bressan (TS) + deputy: F. Noferini (BO)
 - ✓ **Streaming RO:** M. Battaglieri (GE)
 - ✓ **Outreach:** M. Ruspa (TO)



ePIC Italia INFN units in 2026



Planning and requests for 2026

Anagrafica and international responsibilities:

Unit	Local Responsible	2nd Repres. ePIC CC	R&T	FTE	FTE syn	FTE tot
BA	D. Colella	D. Elia	24	7.8	0	7.8
BO	R. Preghenella	P. Antonioli	16	6.0	2.0	8.0
CS	M. Capua		5	2.4	0	2.4
CT	G. Verde		8	1.8	0	1.8
FE	M. Contalbrigo		7	3.1	0	3.1
GE	M. Osipenko		12	3.3	0	3.3
LNS	F. Noto		5	3.4	0	3.4
PD	R. Turrisi		10	2.6	0	2.6
PV	S. Costanza		4	1.0	0	1.0
RM1	E. Cisbani	G. Urcioli	15	2.5	0.2	2.7
RM2	A. D'Angelo		9	3.1	0	3.1
SA	D. De Gruttola		7	1.8	0	1.8
TIFP	E. Serra		4	1.0	0	1.0
TO	M. Ruspa	M. Chiosso	15	4.15	0.15	4.3
TS	A. Bressan	S. Dalla Torre	16	6.8	0	6.8
ePIC Italia tot in 2026			157	50.75	2.35	53.1
ePIC Italia tot in 2025			126	34.5	4.3	38.8

$\Delta FTE \sim 37\%$

FTE/R&T
0.31 \rightarrow 0.34

- Deputy Spokesperson (S. Dalla Torre, TS)
- Technical coordinator (S. Dalla Torre, TS)
- Analysis (Physics) co-coordinator (S. Fazio, CS)
- Streaming Computing Model co-coordinator (M. Battaglieri, GE)
- PID co-coordinator (U. Tamponi, TO)
- dRICH DSC Leader (M. Contalbrigo, FE)
- SVT DSC Technical coordinator (L. Gonella, TS)
- SVT Inner Barrel coordinator (D. Elia, BA)
- uRWELL-ECT DSC coordinator (A. D'Angelo, RM-TV)
- Publication Committee Deputy Chair (A. Mastroserio, BA)
- Diversity Equity and Inclusion Committee Deputy Chair (S. Costanza, PV)
- Conference Committee member (N. Rubini, BO)
- Election Committee member (D. Elia, BA)
- Publication Committee member (M. Chiosso, TO)
- Heavy-Flavour and Jets WG co-convener (S. Kumar, BA)
- dRICH photo-detector WG convener (R. Preghenella, BO)
- dRICH FE ASICS WG convener (F. Cossio, TO)
- dRICH DAQ WG convener (P. Antonioli, BO)
- dRICH mechanics WG convener (A. Saputi, FE)
- dRICH gas radiator WG convener (F. Tessarotto, TS)
- dRICH aerogel radiator WG convener (G. Volpe, BA)
- dRICH high-pressure radiator WG convener (S. Dalla Torre, TS)
- dRICH simulation WG convener (C. Chatterjee, TS)
- SVT layer and disks WG co-convener (D. Elia, BA)

Planning and requests for 2026

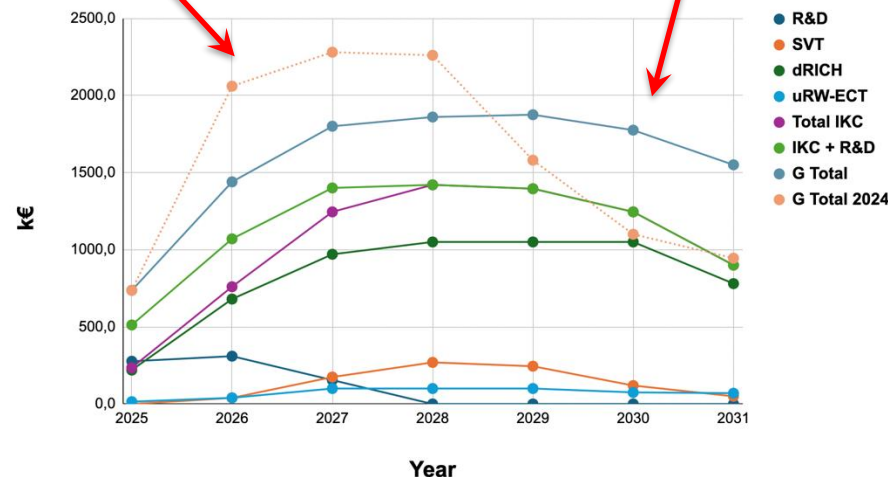
Global picture: updated multi-year financial plan

- extended by one year (to 2031) to take into account official schedule delay
 - better distribution of the IKC to mitigate yearly cost to CNS3 (→ CSN3 chair's input)
 - basic constraints:
 - ✓ total IKC for each detector, in total 7.2 M€
 - ✓ detector readiness by 2031
 - ✓ procurement / tender constraints etc
- see Roberto and Fabio's talks for 2026 IKC

	Missioni	EIC_NET										Totale
		SVT	dRICH	uRW-ECT	SRO	Tot. R&D	SVT	dRICH	uRW-ECT	Tot. IKC	Tot. non-miss	
2019	46,0	0,0	19,0	0,0	5,5	24,5	0,0	0,0	0,0	0,0	24,5	70,5
2020	15,5	0,0	33,5	0,0	6,5	40,0	0,0	0,0	0,0	0,0	40,0	55,5
2021	46,0	0,0	72,0	0,0	6,0	78,0	0,0	0,0	0,0	0,0	78,0	124,0
2022	90,5	0,0	149,5	0,0	0,0	149,5	0,0	0,0	0,0	0,0	149,5	240,0
2023	119,0	0,0	198,5	0,0	6,0	204,5	0,0	0,0	0,0	0,0	204,5	323,5
2024	169,0	15,0	349,0	5,0	15,0	384,0	0,0	0,0	0,0	0,0	384,0	553,0
						880,5						1366,5
		ePIC										Totale
		SVT	dRICH	uRW-ECT	SRO	Tot. R&D	SVT	dRICH	uRW-ECT	Tot. IKC	Tot. non-miss	
2025	224,5	49,0	205,0	19,5	3,5	277,0	0,0	220,0	15,0	235,0	512,0	736,5
2026	370,0	60,0	200,0	30,0	20,0	310,0	40,0	680,0	40,0	760,0	1070,0	1440,0
2027	400,0	30,0	100,0	20,0	5,0	155,0	175,0	970,0	100,0	1245,0	1400,0	1800,0
2028	440,0	0,0	0,0	0,0	0,0	0,0	270,0	1050,0	100,0	1420,0	1420,0	1860,0
2029	480,0	0,0	0,0	0,0	0,0	0,0	245,0	1050,0	100,0	1395,0	1395,0	1875,0
2030	530,0	0,0	0,0	0,0	0,0	0,0	120,0	1050,0	75,0	1245,0	1245,0	1775,0
2031	650,0	0,0	0,0	0,0	0,0	0,0	50,0	780,0	70,0	900,0	900,0	1550,0
							900,0	5800,0	500,0	7200,0		

Lol June 2024 profile

ePIC funding profile 2026-2031



Planning and requests for 2026

Global picture: requests for next year

- overall ePIC request ~1600 k€ (~30 k€ are DRD4 tags, not to be funded via CSN3)
- in good agreement with the financial plan and anticipated envelope to CSN3 in June
 - ✓ missioni **370** k€: takes into account increasing FTE, responsibilities etc → see next slide
 - ✓ consumo/inventario **390** k€ → need to proceed to R&D finalisation towards engineered solutions

Richieste ePIC 2026			
	Rich (k€)	Rich sj (k€)	Tot
Missioni	281,5	87,5	369,0
Consumo	222,5	47,0	269,5
Inventario	122,5	1,0	123,5
Apparato	514,0	330,0	844,0
Trasporto	12,0	0,0	12,0
Licenze	4,0	0,0	4,0
SPServizi	0,0	7,5	7,5
G Tot	1156,5	473,0	1629,5

	Missioni	R&D				Tot. R&D	In-kind INFN			Tot. IKC	Tot. non-miss	Totale
		SVT	dRICH	uRW-ECT	SRO		SVT	dRICH	uRW-ECT			
2026	370,0	60,0	200,0	30,0	20,0	310,0	40,0	680,0	40,0	760,0	1070,0	1440,0

Planning and requests for 2026

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- ✓ apparato **840** k€: 770 k€ dRICH, 20 k€ SVT, 50 k€ ECT
 - ALCOR packaging 320 k€ (→ 20% increased offer)
 - SiPM tender supplying profile 330 k€
- **key core items 2026, more in Roberto and Fabio's talks**

Main messages (to CSN3):

- need to move ePIC towards the construction phase
- need to keep the (approved) IKC in the available timeline (<2032)
- given the current mitigated profile, **funding delays will imply peaks!**

	Missioni	R&D				Tot. R&D	In-kind INFN			Tot. IKC	Tot. non-miss	Totale
		SVT	dRICH	uRW-ECT	SRO		SVT	dRICH	uRW-ECT			
2026	370,0	60,0	200,0	30,0	20,0	310,0	40,0	680,0	40,0	760,0	1070,0	1440,0

Planning and requests for 2026

Missioni and strategy for Collaboration meetings

- sizeable fraction for Collaboration meetings (100 k€) and ePIC Italia (40 k€):
 - ✓ increase in FTE and large active participation by INFN with individual commitments
 - ✓ requests linked to responsibility role → aim to maximize coherence (and prioritize motivations)
 - international roles → both ePIC (winter) and EICUG/ePIC (summer) Collaboration meetings
 - internal coordinators → only one of the two meetings
 - participation to Giornate Nazionali ePIC Italia (3 days since 2025) → based on FTE

Planning and requests for 2026

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 - participation to Giornate Nazionali ePIC Italia (3 days since 2025) → based on FTE
- dedicated pots (40 k€):
 - ✓ tasca RN (2 x RRBs outside EU + RN mobility + support to small groups): 25 k€
 - ✓ tasca PHYS milestone (support to Early Science related activities): 10 k€ → **Salvatore's talk**
 - ✓ mobility Deputy Spokesperson (including 2 x RRBs): 7.5 k€
- remaining budget (190 k€): (→ **Salvatore and detector talks**)
 - ✓ large fraction for test beams @CERN, irradiation tests, international contacts/meetings: 140 k€
 - ✓ internal contacts within the groups for detector (35) and physics related activities (10): 45 k€
 - ✓ contribution to outreach activities for involved groups: 5 k€

Planning and requests for 2026

Missioni and strategy for Collaboration meetings

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 - ✓ increase in FTE and large active participation by INFN with individual commitments
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Proposta richieste missioni ePIC meetings 2026																		
	BA	BO	CS	CT	FE	GE	LNS	PD	PV	RM1	RM2	SA	TIFPA	TO	TS	Tot	Costo (k€)	Commenti
FTE	7,80	8,00	2,40	1,80	3,10	3,30	3,40	2,60	1,00	2,70	3,10	1,80	1,00	4,30	6,80	53,1		
DSC Leader/TC	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	3		Contalbrigo, D'Angelo, Gonella
Top Coordinators	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	3		Fazio, Battaglieri, Tamponi
WG/PWG Conveners	2	2	0	0	1	0	0	0	0	0	0	0	0	0	2	7		Volpe, (Elia), Kumar, Pregonella, Antonioli, Saputi, Cossio, Tessarotto, Chatterjee
ePIC Committee members	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	4		Mastroserio, (Elia), Rubini, Costanza, Chiosso
Deputy SP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		Dalla Torre
RN	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		Elia
ePIC Italia coordinators	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	3		(Fazio), (Contalbrigo), (Battaglieri), Turrisi, (D'Angelo), Ruspa, Bressan
EICUG SC members	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Costo miss USA/Asia																	2,5	
Costo miss EU																	1,5	
Missioni per ePIC	4	3	1	0	2	1	0	1	1	0	1	0	0	3	5	22	55	Coordinatori ePIC Italia solo meeting ePIC
Missioni per ePIC/EICUG	4	3	1	0	2	1	0	0	1	0	1	0	0	2	4	19	47,5	Membri EICUG SC solo meeting ePIC/EICUG
Tot Missioni per ePIC Coll	8	6	2	0	4	2	0	1	2	0	2	0	0	5	9	41	102,5	
Costo miss ITA																	0,75	
Missioni per ePIC Italia	8	8	3	2	3	3	3	3	2	3	3	2	2	4	7	56	42,0	Rapportato a FTE, almeno 2 partecipanti anche per FTE<2
Special miss DSP															3	3	7,5	2 riunioni RRB + mobilità DSP
Tasca workshop Early Science																	10,0	supporto miss gruppi per Early Science workshop (milestone 2026)
Tasca RN																	25,0	2 riunioni RRB + mobilità RN + supporto miss piccoli gruppi
																Tot. missioni	187,0	

Planning and requests for 2026

Status of milestones 2025:

No issues, everything on track!

Aerogel characterisation ongoing in FE and BA on mid-size samples (18x18cm² tiles), to be completed with larger tiles

→ more in the detector reports

Due date	Scope	Milestones 2025	Status
31.12.2025	PHYS	Realizzazione di studi di performance dei PID detectors nella estrazione delle TMDs	30%
30.6.2025	dRICH	Caratterizzazione campioni aerogel di grande area	70%
31.12.2025	dRICH	Finalizzazione disegno PDU secondo specifiche ePIC	70%
31.12.2025	dRICH	Sviluppo misure di trasparenza del radiatore gassoso nel visibile e vicino UV	50%
31.12.2025	SVT	Realizzazione prototipo termo-meccanico half-barrel strati interni L0-L1	30%
31.12.2025	SVT	Realizzazione prototipo e simulazioni termo meccaniche struttura di supporto globale SVT	50%
30.6.2025	ECT	Studio ricostruzione tracce "uTPC" nei prototipi GEM-uRwell	100%
30.6.2025	ECT	Disegno e ordine di produzione del "First Engineering Test Article"	100%

Planning and requests for 2026

Proposed milestones for 2026:

**Connected to the main
requests/activities**

→ more in the detector reports

Due date	Scope	Milestones proposed 2026
31.10.2026	PHYS	Contributo a studi di physics performance per Early Science Report: documento iniziale dovuto per maggio 2026, con ulteriori elaborazioni in ottica pubblicazione nei mesi successivi
31.7.2026	dRICH	Caratterizzazione ALCOR a 64 canali
31.7.2026	dRICH	Disegno preliminare dRICH detector box
31.12.2026	dRICH	Verifica funzionalità RDO e sviluppo firmware per lettura chip ALCOR
31.12.2026	dRICH	Realizzazione sistema per test separazione criogenica del gas C2F6
31.12.2026	SVT	Realizzazione prototipo half-barrel SVT L0-L1 integrante struttura supporto locale in carbon foam, prototipo FPC e procedura di wirebonding, struttura di supporto globale in composito
31.12.2026	SVT	Realizzazione test termici per definizione parametri sistema di raffreddamento prototipo half-barrel SVT L0-L1
31.12.2026	ECT	Caratterizzazione del primo set di ECT "First Engineering Test Article"
31.12.2026	ECT	Disegno e ordine di produzione di un secondo set di ECT "Engineering Test Article" su supporti a bassa massa ed ottimizzati per l'integrazione nel rivelatore ePIC

