

Status of the preTDR and Plans for CD-2

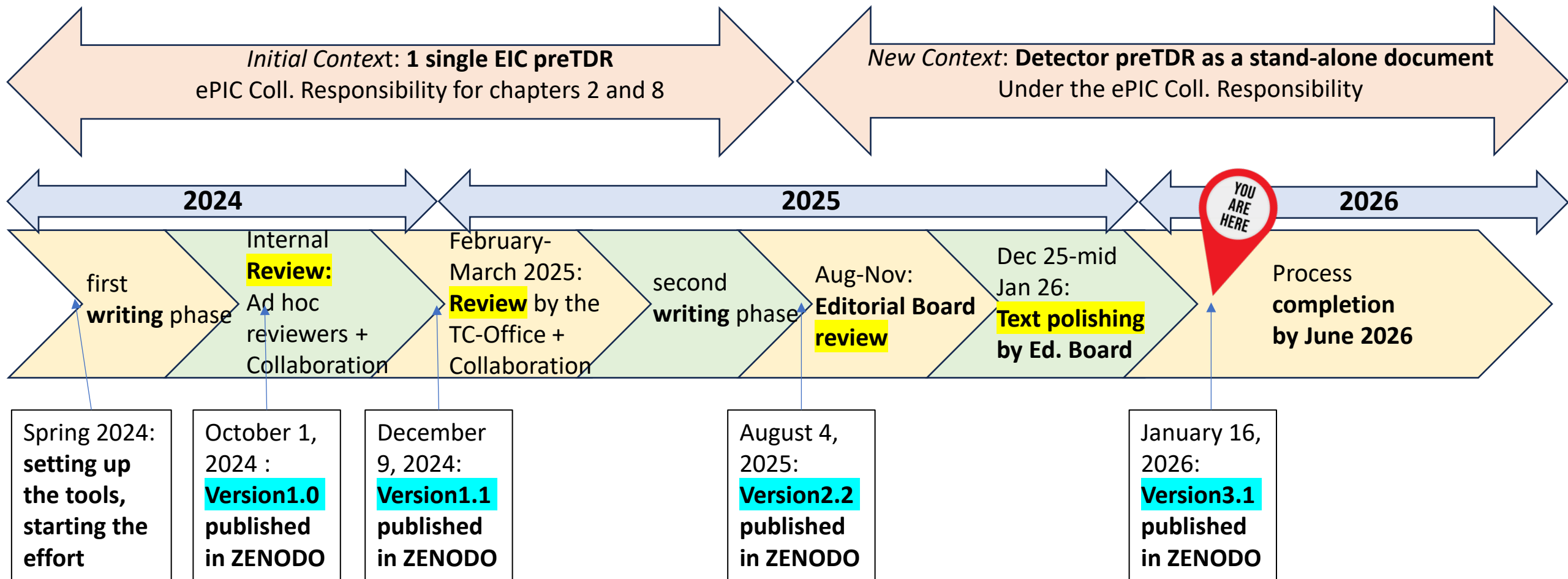
Silvia Dalla Torre, John Haggerty

ePIC meeting
BNL, January 20-23, 2026

BASIC CONSIDERATION

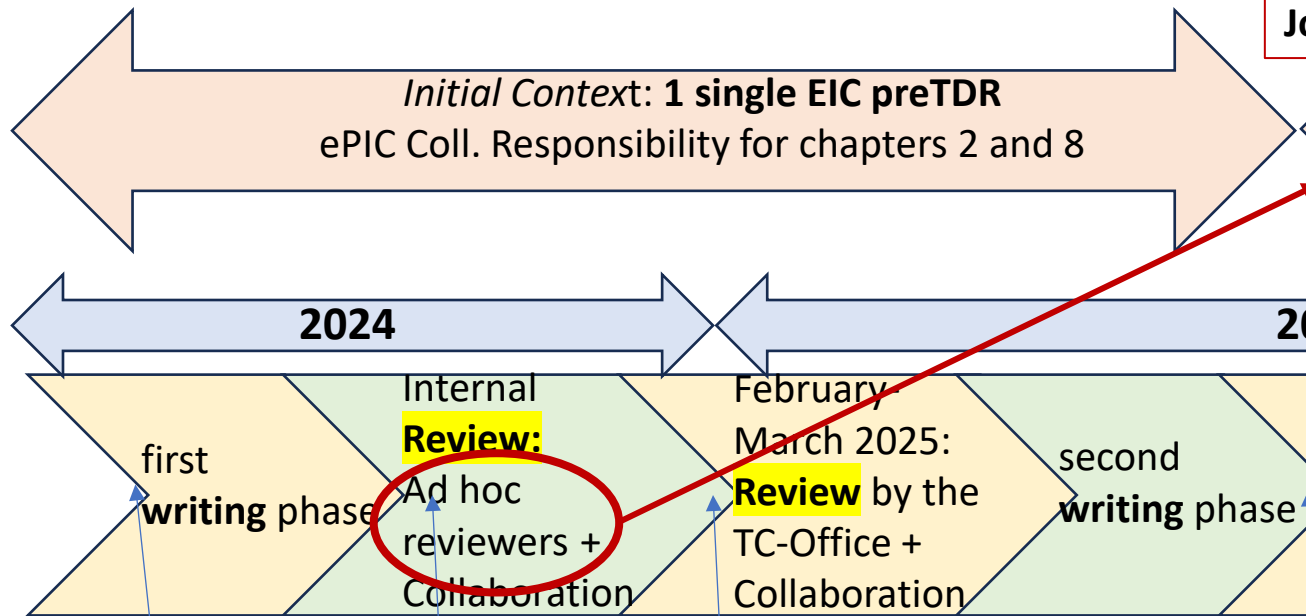
- **Reaching the Detector Readiness level for CD2 and Completing the preTDR are highly correlated efforts: two sides of the same coin**
- In fact, the preTDR documents the Detector Readiness
- In the following, the matter is discussed in term of preTDR status and progress; this is largely equivalent to discuss it in term of progressing in the Detector Readiness level

preTDR STEPS



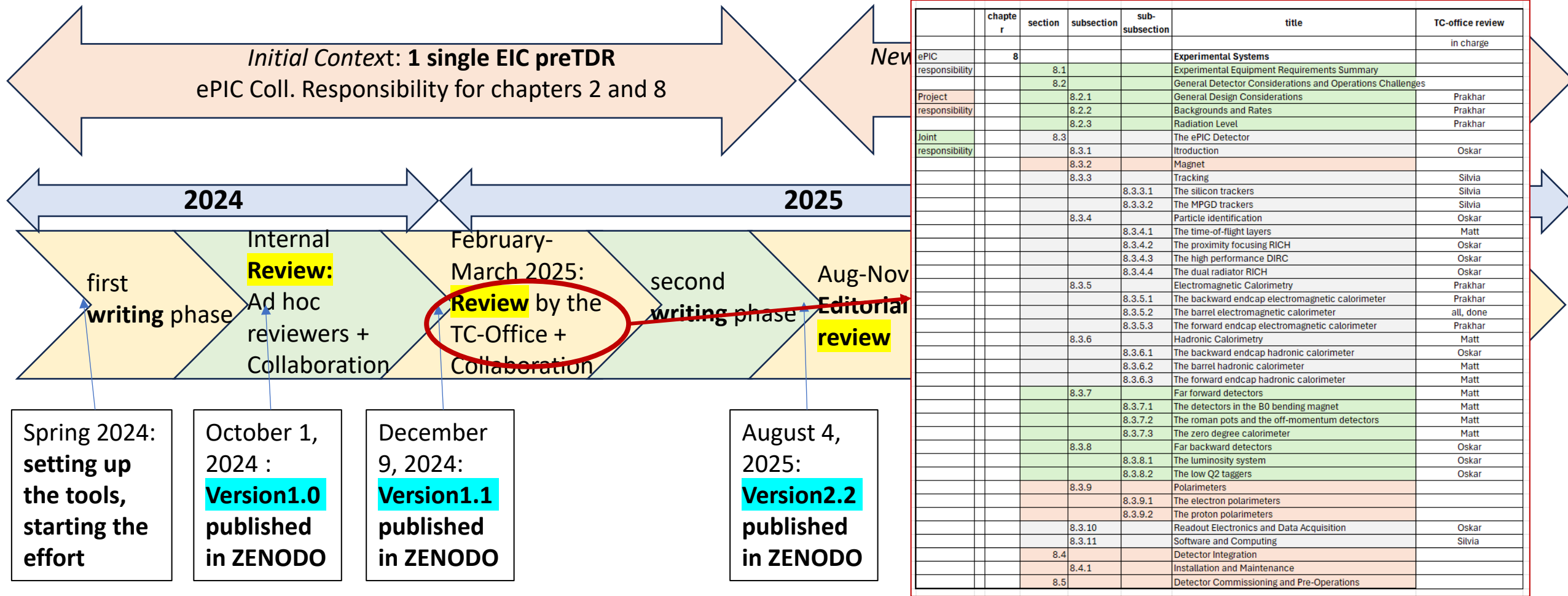
preTDR steps, complementary information and acknowledgements

27 ePIC Colleagues who accepted to serve as internal reviewers;
Job completed in < 1 month; a success thanks to their dedication



| subsystems | subsection | subsection title | Reviewers |
|--------------------|----------------------|---|---|
| SVT | 8.3.3.1 | The silicon trackers | Taku Gunji Rachel Montgomery |
| MPGD | 8.3.3.2 | The MPGD trackers | Fulvio Tessarotto Yan Bedfer |
| Cherenkov-PID | 8.3.4.2, 8.3.4.3, | The proximity focusing RICH; The high performance DIRC; The dual radiator RICH | Prakhar Garg Chandray Chatterjee |
| ToF | 8.3.4.1 | The time-of-flight layers | Dominique Marchand Nick Apadula |
| HCAL | 8.3.6 | Hadronic Calorimetry | Sevil Salur Anthony Hodges |
| ECal-w/o-BIC | 8.3.5.1, 8.3.5.2 | The backward endcap electromagnetic calorimeter; The forward endcap electromagnetic calorimeter | Caroline Riedl Sean Stoll Craig Woody |
| BIC | 8.3.5.2 | The barrel electromagnetic calorimeter | Mathieu Benoit Jin Huang |
| FF | 8.3.7 | Far forward detectors | Zhenyu YE Frank Geurts |
| Luminosity | 8.3.8.1 | The luminosity system | Oleg Tsai Miguel Arratia |
| low-Q2-taggers | 8.3.8.2 | The low Q2 tagger | Oskar Hartbrich Manoj Jadhav |
| eL/r-o/DAQ | 8.3.10 | Readout Electronics and Data Acquisition | Pietro Antonioli Irakli MANDJAVIDZE Marco Battaglieri |
| software/computing | 8.3.11 | Software and Computing | Domenico Elia Peter Jones David Abbott |

preTDR steps, complementary information and acknowledgements



preTDR steps, complementary information and acknowledgements

The **preTDR Editorial Board** formed by the SP-Office

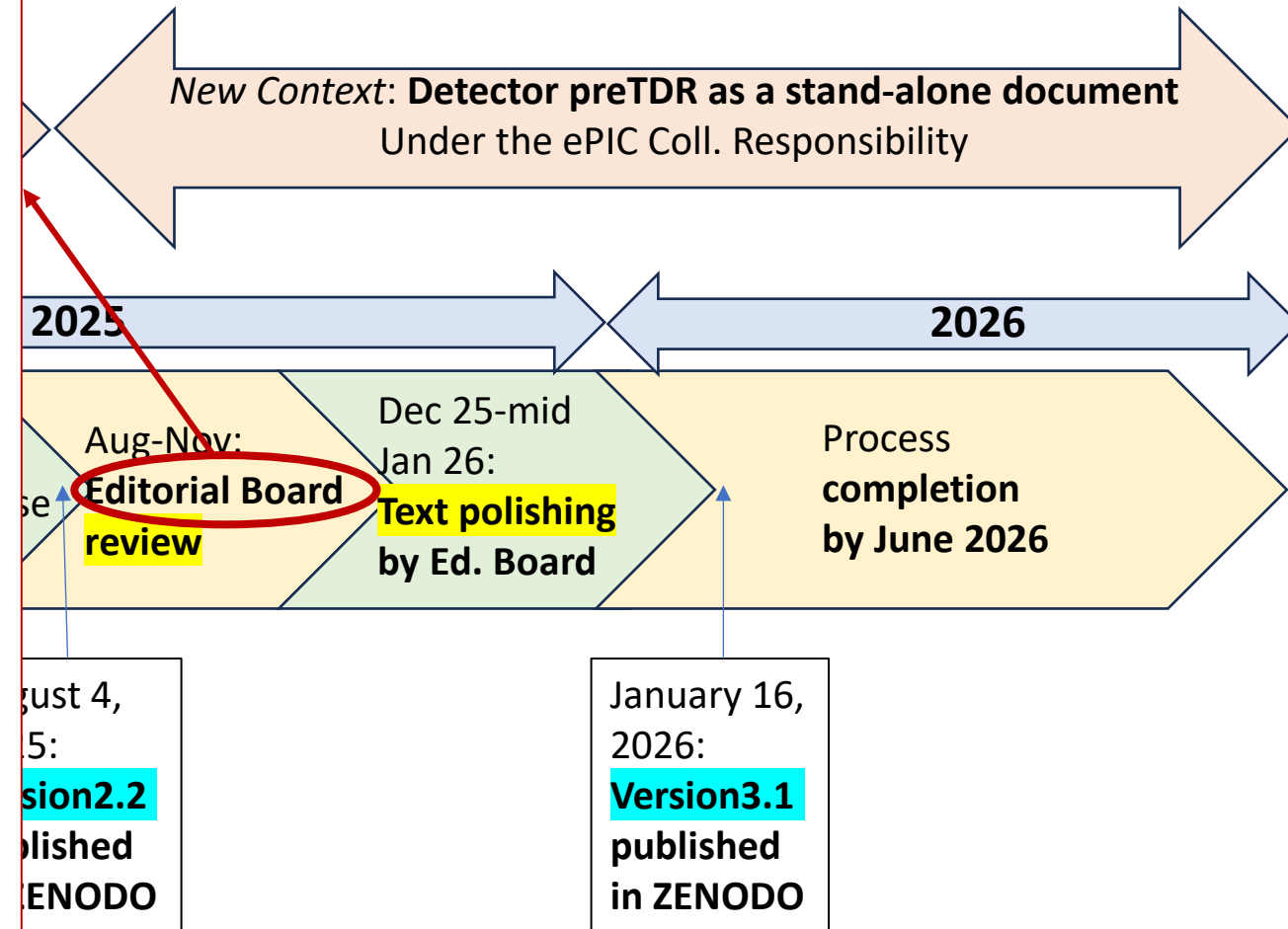
- Editorial Board composition

- Board co-chairs: Silvia Dalla Torre and John Haggerty
- Ex-officio members: Spokesperson, CC Chair and Deputy, PM Representative in the TIC
- Members:
 - Olga Evdokimov
 - Yulia Fullertova
 - Peter Jones (*)
 - Yongsun Kim (*)
 - Rosario Turrisi
 - Zhenyu Ye
 - (*) later they had to step back

Thanks to them all for serving ePIC within this demanding task!

- **Activity:**

- **27 meetings since the first one (Aug 6, 2025)**
- **Meeting individually with all text authors**
- **3 times with PACs**
- **Whole text reviewed**
- **Whole text polished**



Detector preTDR, document layout

- **Executive Summary**
- **CHAPTER 1 – Introduction**
 - The EIC project and the accelerator complex (high level approach)
- **CHAPTER 2 – Requirements**
 - Present requirements resulting as the evolution of the YR ones
- **CHAPTER 3 – Experimental Systems**
 - Presenting the detector subsystems matching the requirements (mainly individual performance)
- **CHAPTER 4 – Detector Performance for the EIC physics program**
 - Presenting the holistic detector performance by the performance for key physics measurements
- **CHAPTER 5 – Detector-Accelerator interfaces**
 - Integration into the facility

Advanced version
in Version 3.1

Detector preTDR, document layout

- **Executive Summary**
- **CHAPTER 1 – Introduction**
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 - Present requirements resulting as the evolution of the project
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 - Integration into the facility

Important note:
This layout changes the scope of the chapter dedicated to physics (now chapter 4)

- No longer extracting “Requirements’ from physics studies (old YR approach)
- Requirement are given as educated evolution of YR findings and match the Project requirements
- Physics studies prove in a holistic approach the detector capabilities with subsystems matching the Requirements

Detector preTDR, Version3.1

[https://zenodo.org/records/18271602/files/ePIC Preliminary Design Report 3.1.pdf?download=1](https://zenodo.org/records/18271602/files/ePIC_Preliminary_Design_Report_3.1.pdf?download=1)

DRAFT
ePIC PDR
January 16, 2026

The ePIC Detector

Preliminary

Technical Design Report



Version 3.1 also to be posted in the pre-brief material for the coming Director's Review of the EIC Detector (ePIC) Subproject to Assess Baseline Readiness

ePIC meeting, January 20-23, 2026

Experimental Systems

Detector performance for EIC Physics

Requirements

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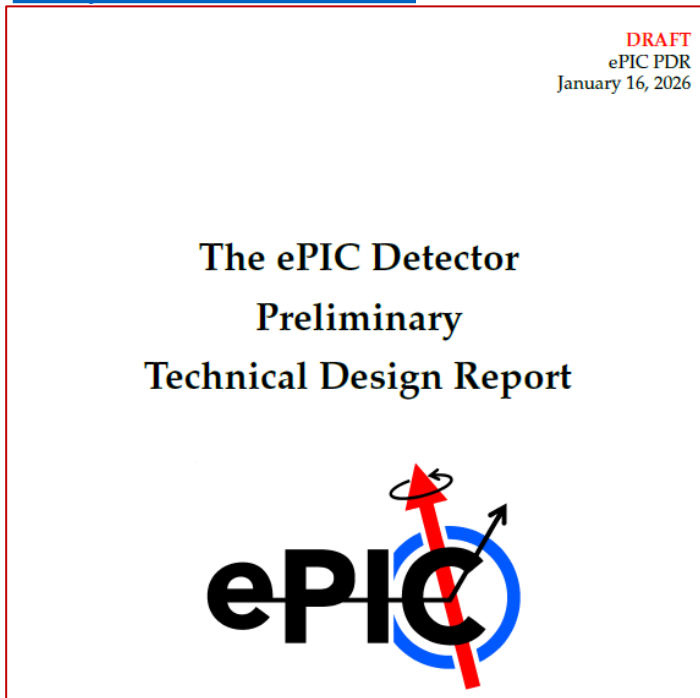
References

- 395 figures
- 96 tables
- 553 pages

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Detector preTDR, Version3.1

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Some more relevant parameters:

- **Technical consolidation of the document** (John H, Dave M.)
 - All latex errors cured
 - Compilation messages are now limited to warnings, also been fixed
- **Plots**
 - 48% accompanied by the requested metadata
 - Need to improve !



Detector preTDR, Version3.1

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DRAFT
ePIC PDR
January 16, 2026

A major success of the whole collaboration
by all its components

Version 3.1 also to be posted in the pre-brief
material for the coming
Director's Review of the EIC Detector (ePIC)
Subproject to Assess Baseline Readiness

ePIC meeting, January 20-23, 2026

Experimental
Systems

Detector performance
for EIC Physics

Requirements

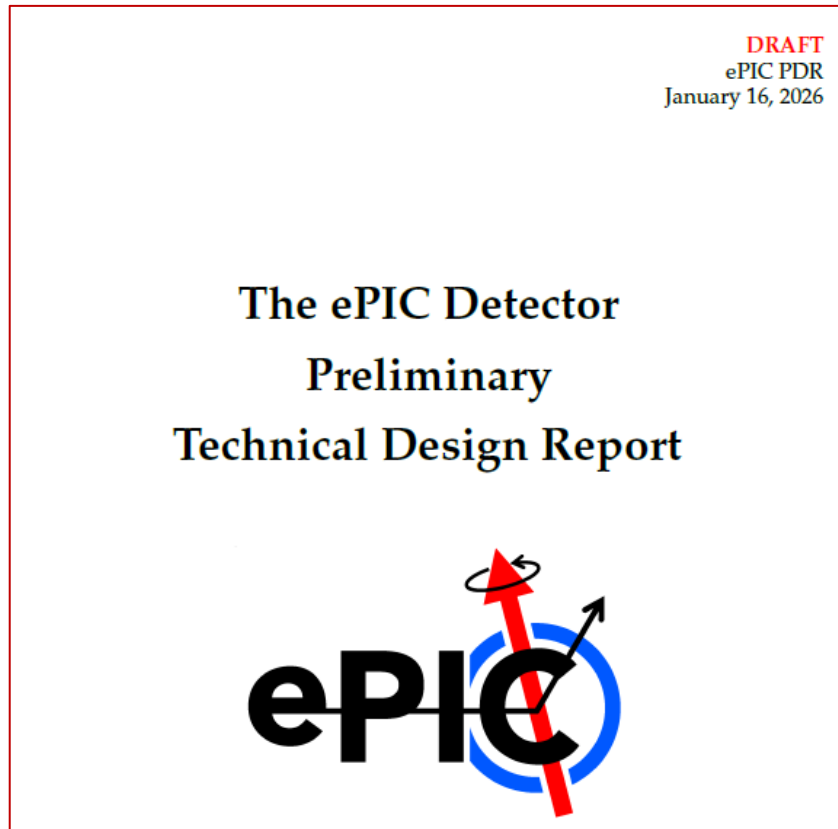
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Detector preTDR, Version3.1, a note

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The inclusion of an author's list is an **element of robustness** of the preTDR.

The author's list is a **DRAFT**.

It was extracted from the ePIC phonebook on January 6th, 2026. The analysis of the 2026 SoS is ongoing and the phonebook is being correspondingly updated.

The intent is that the ePIC preTDR is a work of the collaboration and should reflect **collaboration authorship**.

Due to the nature of the preTDR there is a **need to recognize contributions that are not from ePIC Collaborators** (engineers, etc.) A process needs to be defined to capture and recognize these contributions. (CC working with the Publications Committee).

preTDR, what next? 1/5

Complete the document adding the missing texts:

- **Executive Summary**
- **Chapter 1 – Introduction**
- **Chapter 5 – Detector-Accelerator interfaces**

Needed to have a self-consistent document

- **Executive Summary**
- **CHAPTER 1 – Introduction**
 - The EIC project and the accelerator complex (high level approach)
- **CHAPTER 2 – Requirements**
 - Present requirements resulting as the evolution of the YR ones
- **CHAPTER 3 – Experimental Systems**
 - Presenting the detector subsystems matching the requirements (mainly individual performance)
- **CHAPTER 4 – Detector Performance for the EIC physics program**
 - Presenting the holistic detector performance by the performance for key physics measurements
- **CHAPTER 5 – Detector-Accelerator interfaces**
 - Integration into the facility

Advanced version
in Version 3.1

Internal feedback to Version 3.1

- **Collect the comments from the collaboration via a google form at:**
<https://forms.gle/83NY4BYo5FARViD29>
 - **Comments to be analyzed and answered / valid suggestions to be implemented**
 - **The list of received input as well as feedback to them can be found at:**
https://docs.google.com/spreadsheets/d/1DPnkMLDAyGt_M8LixKvIS6YEBEfFpB9IfDtMUpPXWtk/edit?usp=sharing
- **About the Experimental Systems (Chapter 3), collect the feedback from the CAMs**
 - *Please, confirm that the preTDR is in line with the project*
 - *Any further comment more than welcome*

Editorial Board editing phase

- *So far, Ed. Board has mainly engaged in*
 - *Reviewing*
 - *Basic text polishing*
- *A true editing effort will start now*
 - *The editorial privileges will be restricted to the Ed. Board*
- *The availability of the Editorial Board members to continue has to be checked*
 - *enlarging the team (when needed)*

Aspects needing consolidation

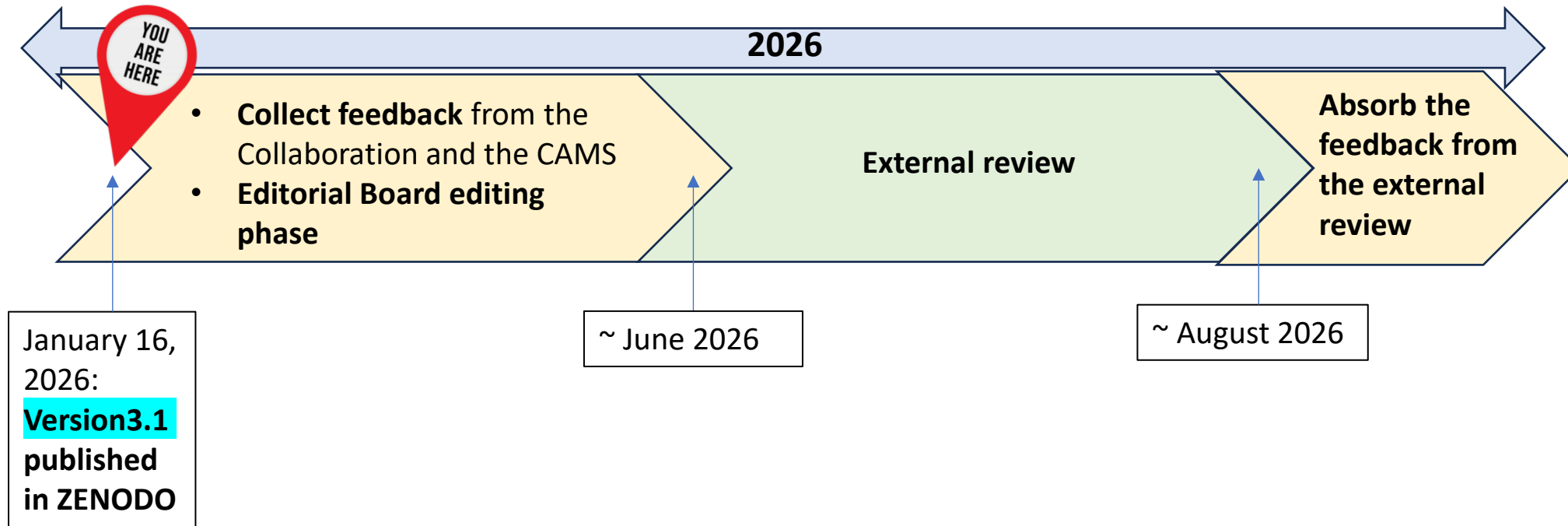
- **Subsystem performance** extracted
 - With consolidated detector parameters
 - In the context of the overall detector (= within EICRecon);
 - Using physics events (not only particle guns)
 - Including background
 - *At present, different status for the various subsystems, goal have all of them aligned with the above list*
- **Detector holistic performance** studying key physics channels
 - Move the weight from studies without background complement by a preliminary exploration of the results obtained with background to **making the studies with background the backbone of chapter 4**

All this requires coordination with simulation campaigns

External Review

- **By a set of qualified external experts**
 - **An option: DAC members**

preTDR, what next? Summarizing



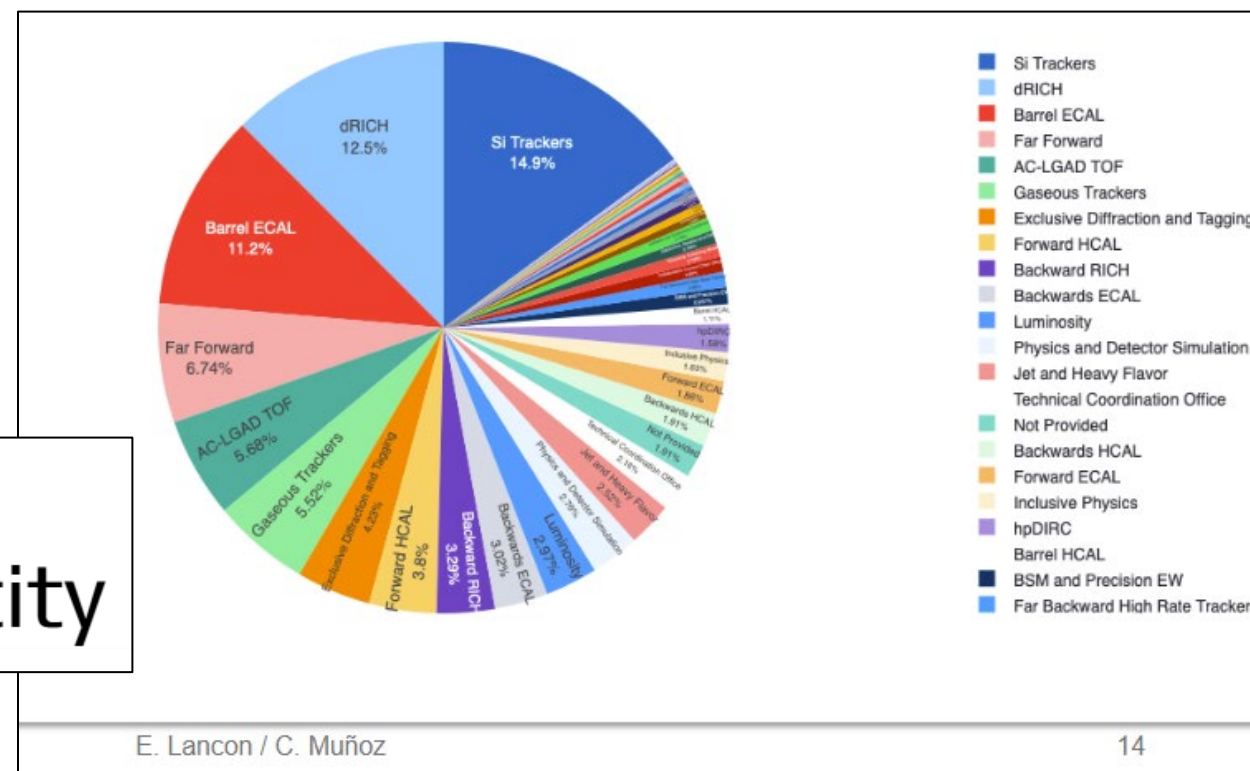
Parallel to the preTDR process by the ePIC management

More to be written:

- The Editorial Board has asked the DSC to remove from their text:
“Collaborators and their role,
resources and workforce”
- There was obvious non-homogeneity in the provided information for this CRITICAL item
- A dedicated document envisaged, based on the SoS_2026 survey and under the responsibility of ePIC management

2025 SoS **preliminary**
Distribution by ePIC entity

This slide shown at the yesterday CC meeting indicates that the raw survey data do not offer a fully consistent picture ... more work needed



Thank you