

DAC report and eRD awards

L. Gonella

EIC UK WP1 meeting

25 October 2023

EIC project R&D

- EIC Project R&D - DAC Meeting (Aug 2023) and DAC Report available via: <https://indico.bnl.gov/event/20113/>
- Rolf Ent discussed awards during past Friday's ePIC General Meeting, <https://indico.bnl.gov/event/20857/>
 - eRD104 awarded as requested - main contact Laura Gonella (U. of Birmingham)
 - eRD111 awarded as requested - main contact Nicole Apadula (LBNL)
 - Oxford - 40.0k\$
 - eRD113 reduced to R&D tasks only in consultation with PI(s) - main contact Grzegorz Deptuch (BNL)
- Next steps: work with main contact, Laura, and Ernst to get the paperwork done expediently

Bottomline:

Oxford received funding for eR111 and eRD104

(the latter via PED, request already sent)

CD3A review implications for SVT

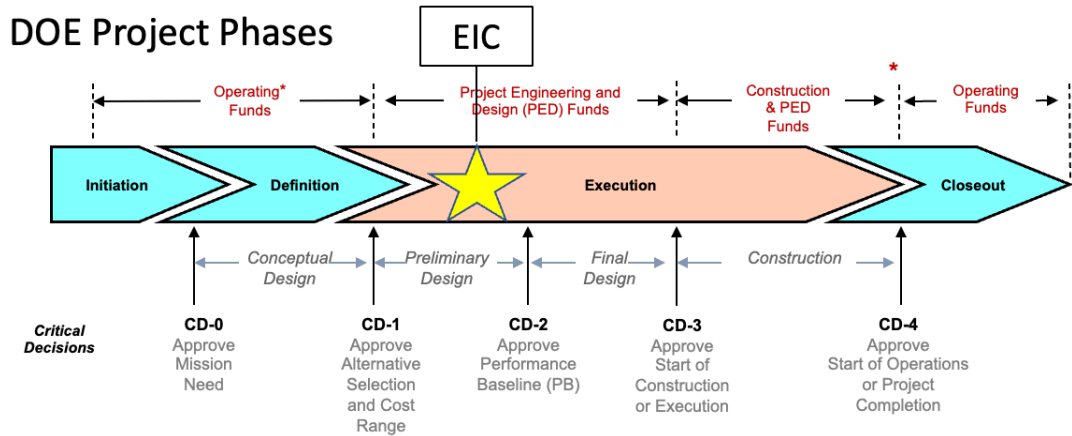
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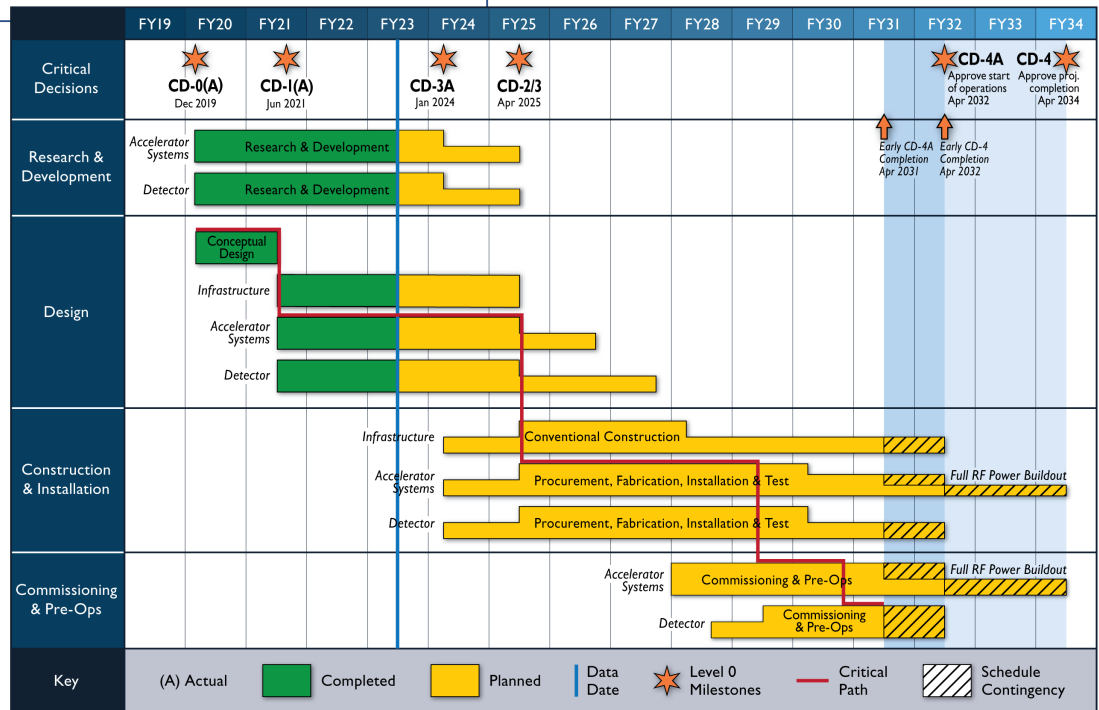
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CD3A

DOE Project Phases



CD-0, Mission Need Approved	December 2019
DOE Site Selection Announced	January 2020
CD-1, Alternative Selection and Cost Range, Approved	June 2021
CD-3A, Long Lead Procurement	January 2024
CD-2/3, Performance Baseline/Construction Start	April 2025
RHIC Shut Down	June 2025



Timeline of CD3A

- **August 29-30: EIC Detector Comprehensive Design Review by DAC**
- **October 10-12: DOE CD-3A Director's Review**
 - Folds in Design Review reports of DAC, MAC, Infrastructure Committee
 - Concentrates on CD-3A Long Lead Procurement Items
 - Detector Reviewers: Rik Yoshida (ANL), Gabriella Carini (BNL), Luciano Musa (CERN), Tim Whitlatch (JLab)
- **November 14-16: DOE CD-3A Independent Project Review**

- Project News at <https://indico.bnl.gov/event/20857/>

CD-3A Director's Review – SC-3 Detector System

We do need to urgently follow up on the following comment

“Upfront discussion of risks of R&D not coming to a favorable conclusion, and mitigation plans in this case, should be more clearly documented and presented. Where appropriate, for example for the tracking detector, more detailed plans should be developed.”

for the CD-3A review in November

- We started discussion with ePIC tracking WG conveners & tracking DSCs
- Remember that this is **ONLY** a mitigation plan (a what-if scenario)
- There is **NO** change to the current baseline layout of the tracker

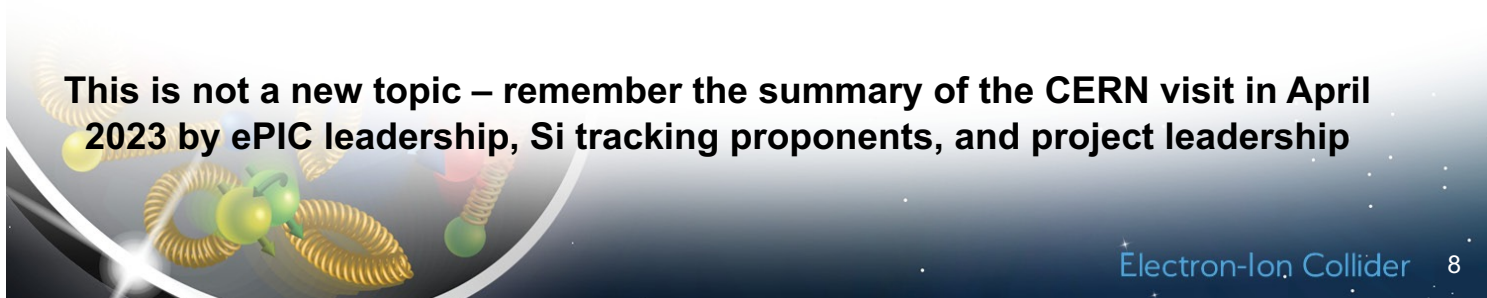
Further Timeline:

Thursday 26th Tracking WG meeting first discussion of a possible backup solution and timeline to possible branching points.

Monday 30th Discussion in TIC meeting

Follow up meetings as needed

This is not a new topic – remember the summary of the CERN visit in April 2023 by ePIC leadership, Si tracking proponents, and project leadership



- Project News at <https://indico.bnl.gov/event/20857/>

Summary on ITS-3 ALICE –EIC SiC

Overall a very positive and successful meeting → clear goal to cooperate as much as possible in boundary conditions.

Main lessons learned and next steps

From ePIC general meeting of May 11

- ITS3 open to sharing their sensor design with EIC → necessary agreements will need to be put in place in the next month.
 - ITS3 development made significant progress → received a lot of critical technical information to guide the next steps in R&D for both sensor and system design/integration of the ePIC SVT
 - but there remains still some risk in the ITS development → ALICE team will need to remain focused on their requirements and timeline challenges
 - ITS3 welcomes/seeks partnership in development with EIC designers contributing to ITS3
 - Received extremely valuable input to overall schedule and workforce needs for EIC SVT
 - Example: relation between schedule for ITS3 ER2/ER3 submission and evaluation and the EIC/LAS development schedule → adjust our schedule to give more time for the sensor modifications and the schedule and integrate lessons learnt from ITS3
 - ITS3 suggests we put in place a backup plan as our workforce is still growing, and the overall EIC SVT schedule is aggressive
 - All the inputs are currently folded in an updated plan by the EIC SVT team
- Updates will be presented in the respective ePIC meetings (TIC & TWG) by the SVT team

Email to SVT DSC WPCO and IB



Ernst Sichtermann via Epic-svt-wpco-l

[Epic-svt-wpco-l] CD-3A Director's REview and upcoming ePIC meetings

To: Ernst Sichtermann via Epic-svt-wpco-l,

Reply-To: Ernst Sichtermann

EIC 20 October 2023 at 12:32



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Dear All:

We would like to update you with some news from the recent Director's Review in preparation for the CD-3A review and also as a preview of some upcoming meetings within the ePIC collaboration.

Unsurprisingly, the Director's Review Committee has among its findings for the ePIC detector that "Tracking detector systems still have many key elements that are not finalized: ITS3 not being available in time, may have significant implications. ITS2 is being considered as back up. Conflict between beampipe baking needs and the tracker system thermal sensitivity is an open issue to be addressed." The committee recommends to proceed to CD-3A (i.e. proceed with the actual CD-3A review) and to "Quantify (time, cost, performance) and document, before CD-2, mitigation plans for the possibility that some R&D components will not meet expectations." [Note: CD-3A on long-lead items is later this Fall, while CD-2 on baseline is projected for Spring 2025. SVT does not currently have long-lead items.]

This has led to renewed and broadened interest in back up scenario planning for the SVT with an outcome that is in essence unchanged from the considerations after the ALICE-ePIC meeting at CERN last April.

The baseline remains ITS3 and two branch points are considered by the project and collaboration management:

1. ITS3 technology works with a timeline compatible with the EIC project, but the EIC-LAS fork-off has a delay which makes its time line incompatible with the EIC project timelines,

2. ITS3 technology works for the inner barrel, but there is delay which makes the timeline incompatible with the EIC project timelines.

In scenario 1, the SVT Inner Barrel will be as in the baseline, while the Outer Barrel and Disks would initially be constructed using MGPD technology adapted from the outer tracker and with minimized R&D,

In scenario 2, the SVT Inner Barrel would be replaced with an ITS2-based solution derived from the existing ITS2 and sPHENIX MVTX with minimized R&D, The Outer Barrel and Disks would be as in scenario 1.

Either branch point, if realized, would obviously have significant implications for the EIC science reach in the early stage of EIC operations, but the approach keeps focus on the ITS3 based tracking solution and eases any required upgrade path to it.

We hope this preview of the risk mitigation plan outline is helpful and note that the further worked-out plan will be needed in the lead up to CD-2, in about a year from now. Of course, we can also discuss this some more in our meeting upcoming Tuesday.

Kind regards, Laura and Ernst

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Epic-svt-wpco-l mailing list

Epic-svt-wpco-l@lists.bnl.gov

<https://lists.bnl.gov/mailman/listinfo/epic-svt-wpco-l>

What does this mean?

Nothing changes for the ePIC SVT collaboration, and for the UK groups in particular. We continue work on the current SVT baseline design with ITS3 technology

- The backup options will need to be spelled out in more details for the CD3A review in a few weeks and their cost, timeline, performance will need to be evaluated by CD2 (April 2025)
- This is work that will be done between the Tracking WG coordinators (Ernst, Matt), the MPGD SVT leadership (Kondo, Maxence) and ePIC SVT leadership (Ernst, Laura)
- If you want to follow this topic, you can join these meetings
 - Tracking WG meeting Thursday 26 November <https://indico.bnl.gov/event/20915/>
 - TIC meeting Monday 30 November <https://indico.bnl.gov/event/20920/>