

EIC tracking WG meeting - 12 May 2021

Introduction

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Outline

- Meeting with EIC@IP6 Organizing Committee on May 11:
 - DWG deliverables
 - Timeline towards the proposal
- Tracking WG meeting organisation
- Today meeting:
 - simulation framework
 - plan for next week discussion

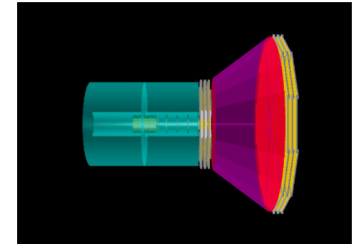
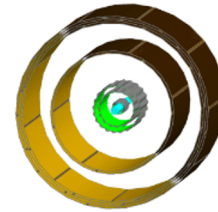
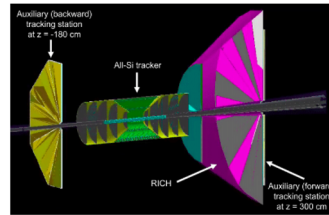
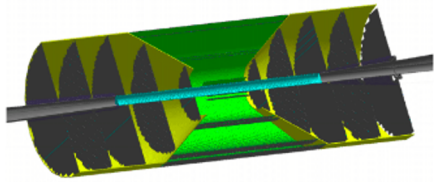
Detector working group deliverables

1. Technology choice

- Identify no more than two options from the various systems and technologies that will be costed and integrated into full simulation framework.
- The choice will depend strongly upon scientific input, assessments of technical capabilities, available workforce and technology readiness
- Technology choices should be supported with simulation work.

2. Estimate of services, supports + active materials

- Required services, readout, and mech. supports could play important role in selecting technologies.
- Experts are encouraged to work with tracking working group to provide information

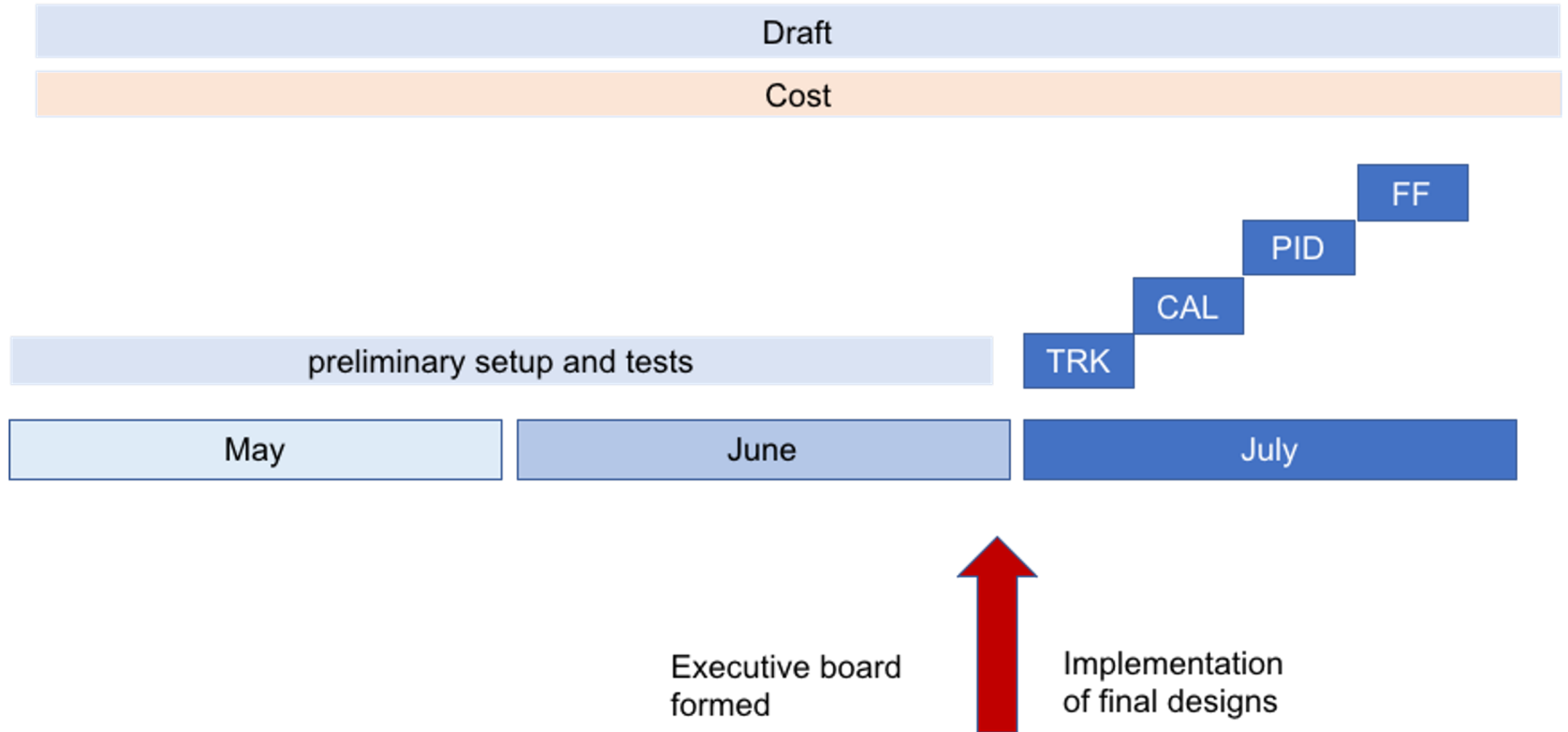


These are the most urgent items to address and will be the focus of the next few meetings

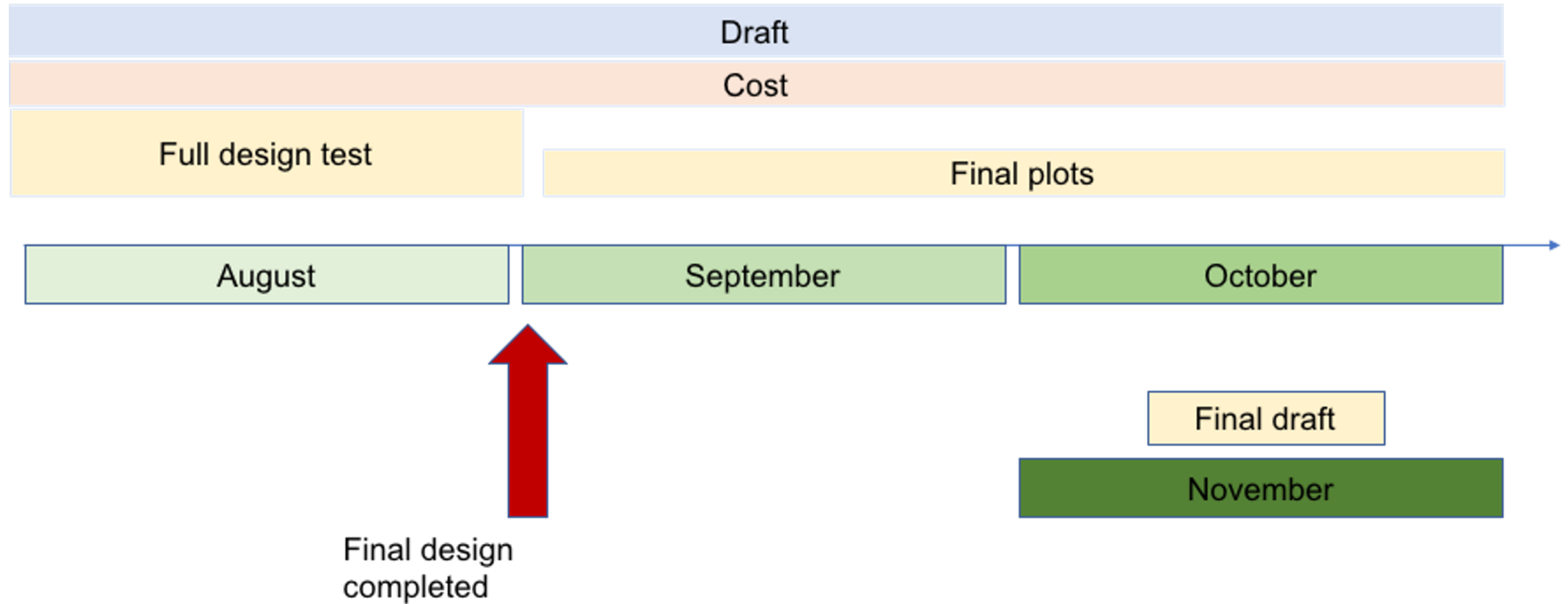
Detector working group deliverables

3. Implementation into the global experiment model
 - Integration group will be formed: member from each detector WG, experts on IR, physics, and engineers
4. Simulation of subsystems performance in the global experiment
 - Integrated detector concept will be implemented into full simulation framework (central DD4HEP-based development by the SWG)
 - Assess performance and quantify impact of active and non-active materials on the physics performance.
 - WG should assign someone to take lead on overseeing this is done accurately.
5. Costing of each sub-system
 - Costing group will be formed consisting of at least one member per detector WG and costing experts.
6. Consider what else the WG can contribute to help producing a winning proposal
 - Identify the number of anticipated readout channels, data rate, readout electronics used, etc.

Timeline towards the proposal



Timeline towards the proposal



Tracking Working Group meeting organisation

- We propose to hold a weekly meeting, 1-1.5 hour long at maximum
- Going forward the frequency can switch to bi-weekly but a lot of work is needed between now and June!
- Wednesday is a temporary slot: we will circulate a doodle to find the best time to meet for everybody and take into account some concurrent meetings (eg SWG)
- We will have thematic meetings
 - Today the focus is on simulation tools, see next slide
 - Next week we would like to concentrate on updated (post YR) simulation results of various concepts
 - One teaser talk this week
 - After that we will have a discussion on technology options for silicon and gas detectors
 - The aim is to converge within a month on some initial layouts

Today's meeting: simulation frameworks

- Simulations work needs to start immediately
 - Already a lot ongoing following on from YR work
 - Most of the studies on the two YR detector concepts done within Fun4All, with geometry implementation imported from EicRoot
- Work can proceed for now in Fun4All as most people are familiar with it
 - ...with updated B-field maps, 25mrad crossing angle, non-active material, ...
 - Bypass the link with EicRoot (vertex) detector implementation?
- DD4HEP is expected to be available soon and we might need to switch
 - Portability between frameworks should be discussed today
- Today we will hear about:
 - experience with Fun4All for the YR all-silicon and hybrid concepts + EICToyModel
 - teaser talk on mutual impact of tracking, PID, B-field (more next week)