

# **Planning for the TDR:**

## **Assessment exercise over the coming months, toward the January meeting**

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*Copied from collaboration meeting slides:*

## “Assessment”

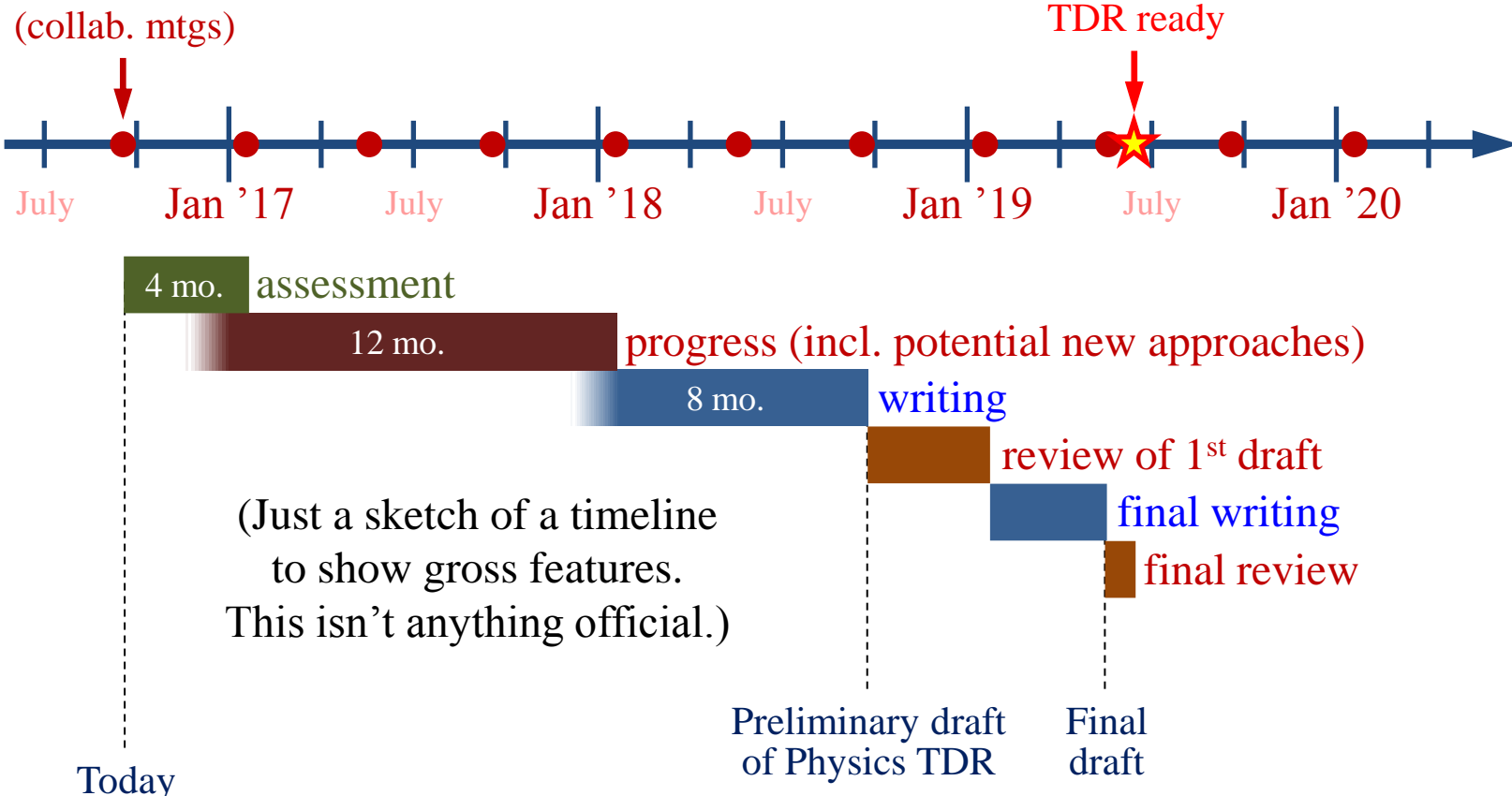
*An explicit exercise, but needn't be an onerous one. Two pieces:*

1. Which assumptions (from CDR or latest state-of-the-art) absolutely **must be replaced** with something “better”? Which ones **could be defended** as they stand, in a pinch?
2. For each thrust of work (most already underway): **What is the risk** that it simply **won't deliver/demonstrate** the required performance in 12 to 16 months?

In essence, this acts as a **requirements and risks assessment** for the physics studies themselves, which are tied to a **hard project deadline** with our CD-2/3 review

# Goal 1 – risks and direction changes

- Identify **high-risk** and **long-lead-time** items...
- If a **change of direction** is needed anywhere, need to react early



## Goal 2 – effort allocation

- **Prioritize effort:** can't pursue everything (not enough people)
- Where new personnel is needed: **plans to generate new interest?**

*Example:* LBL group planning a “hack days” just after the CERN mtg.

### Likely sequence for LBL:

1. **Assessment exercise:** identify where effort is most needed
2. **DUNE mtg. in January:** recruitment, setting of “homework assignments”, additional idea generation
3. **Then:** LBL Hack Days to get real work done and to establish momentum

## Goal 3 – TDR goalposts

- For the Physics TDR, we need to hit established **performance goals**
- **How we hit those goals is technically up to DUNE:**
- **Whether it's actually good enough is up to future reviewers:**
  - LBNC serves as (friendly) reviewers from outside of DUNE

→ **Your assessment should state initial goalposts:**

- What must get demonstrated with full reco?
- What can be parameterized / assumed / otherwise justified?
- What's realistic to achieve?

We should **start out aggressive**. If there's a **viable path to success** on some front, let's see how to achieve it.

The goalposts can always move later.

*(I don't like saying that in public for fear of breeding resignation!)*

## Goal 3 – TDR goalposts

- **My personal impressions on the goalposts:**
  - We need to demonstrate full performance with real reco for LBL, NDK, and SNB physics
  - If I were on an external CD-2 review panel for DUNE and the TDR hadn't demonstrated that the experiment will work, I'd be concerned
  - We should be able to cut corners judiciously in places, but probably not on the core elements of the above analyses
- **Also, I do think we have time** to achieve the above, through:
  - proactively directing effort
  - proactively ramping up new effort
  - avoiding solving a too-general problem if a specific one is easier
  - ensuring elegance does not become a goal unto itself.  
*(An ugly solution is still a solution)*

# Assessment: practical aspects (part 1)

## What form should it take?

- I don't want it to be a lot of work (measured in hours, not days):
  - *conveners carefully considering what the state of play is, looking at assumptions in the CDR that are hard to defend, etc.*
  - *no new studies are called for here; just assessing the status right now, not improving it*
  - *“not sure” or “probably okay” are fine where appropriate*
- **Slides, not a long-form write-up**
  - tables, supporting figures, thoughts
  - the format and primary content will be highly group-dependent  
*(contrast BSM and LBL)*
- Finally, **Goal 4**: providing an explicit exercise to make sure these issues are fleshed out and at the front of everyone's mind

## Assessment: practical aspects (part 2)

- **I will compile a short report** based on your assessments, for presentation or distribution at the CERN meeting (Jan 23+)

*This will allow for feedback on the goals and will provide some measure of what goals DUNE is comfortable with for the TDR.*

*This material will likely make its way to the LBNC, as well.*

- Your **complete assessment** should be sent to me and Elizabeth (or posted somewhere) by **Jan 13**.
- If you'll want to have some **discussion within your working group**, the holidays might back that discussion up to the week of **Dec 14**.
- *Also:* tentatively plan on **preliminary discussion / status check** at a Physics Conveners call **c. mid-December**