DUNE DAQ WBS Status

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Reminder of WBS Process

- In DUNE, WBS is (unhelpfully)

  ‣ A task list; The basis for costing

- Initial DAQ WBS produced last year: scary numbers involved -> no feedback

- New attempt for a 'DUNE module #1 WBS'

  ‣ Further guidance on costing given, uniformised across subsystems

  ‣ First updated information collected by Giovanna

    - No radical changes, but the scope of the project grew in past months (i.e. software tasks)

- DAQ is – as usual – different and special

  ‣ Most consortia focussed on series production materials / labor costs

  ‣ DAQ is completely labor-dominated, and not really 'series production'

  ‣ We have many 'infrastructural' items

    - Either include in module #1 cost (e.g. software)… or spread evenly across modules (e.g. facility)

    - Should not forget that module #2 will be much cheaper

Current Status

- As a task list, the WBS appears to be in good shape

- Estimates are in some cases looking high / low, but mostly not wildly off

- The resource numbers are still very large

  ‣ M&S $8.387M (up by 30%); Labor 434 SY, or ~$40M (up by 30%)

  ‣ For a ~five year project implies 80FTE, which is probably not plausible

- What now?

  ‣ Need to be very sure that numbers are correct and justified before publicising
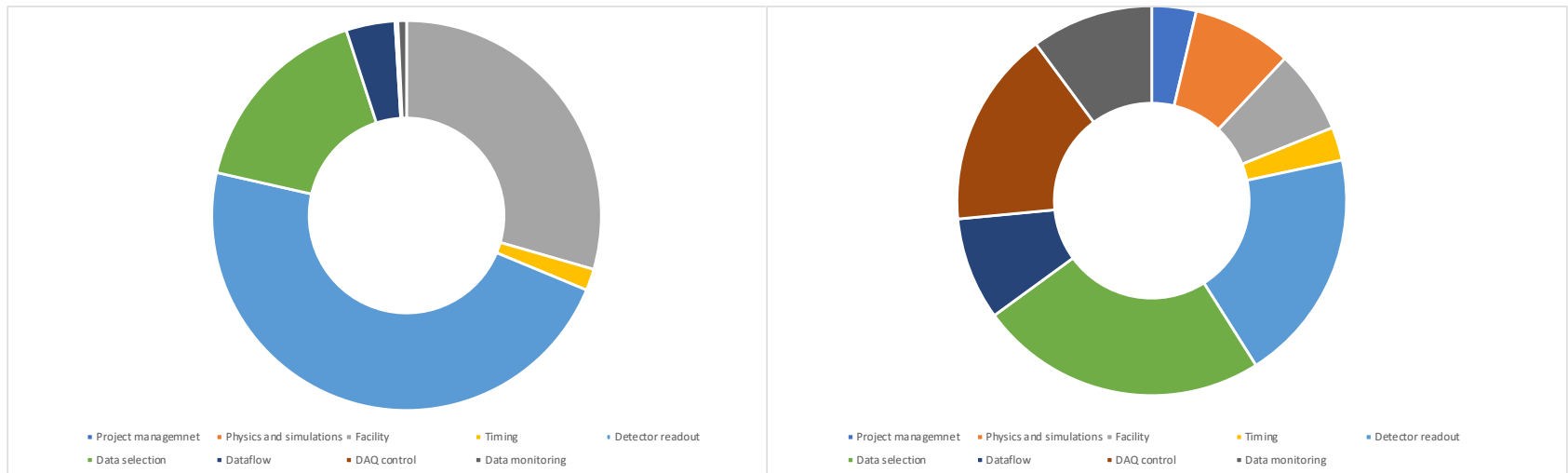
Checking and Justification

- The exact definition of some tasks is not clear (even to me!)

- There are possibly overlaps between activities -> double counting

  ‣ e.g. who is responsible for specification / installation of computers?

  ‣ e.g. who is responsible for planning the data flow network?

  ‣ e.g. we are not building software systems 'from scratch', but in layers

- Similar tasks in different areas are estimated very differently

  ‣ But they may *not* be similar, since no definitions

- The amount of grad student effort is surprising (are these people guaranteed?)

- The basis of M&S costs is not explained in some cases

  ‣ Makes it impossible to challenge / review

  ‣ This might seem like a good thing; others will not think so

    • Clearly, our costs are more volatile than nuts and bolts, but need to make a central estimate

Actions

- Provide WBS dictionary, explaining each task in more detail
  - ▸ The concrete deliverable (study, software, hardware, firmware?)
  - ▸ The boundaries and interfaces with other tasks

- Provide a full Basis-of-Estimate for all hardware items
  - ▸ Listing the unit cost, cost certainty and quantity of each item
  - ▸ Essential to make sure things have not been duplicated / lost

- What next?
  - ▸ We will add this information to the WBS – can we get final input by Monday?
  - ▸ Review WBS to identify / remove overlaps, and to compare similar tasks
  - ▸ Hand over to cost group

- Next stage
  - ▸ Attribution of costs to groups, with definite statements on funding
  - ▸ Going to be difficult, but let's understand the aspiration before we start descaling

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