Expected Contributions to the Taskforce for Detector Layout

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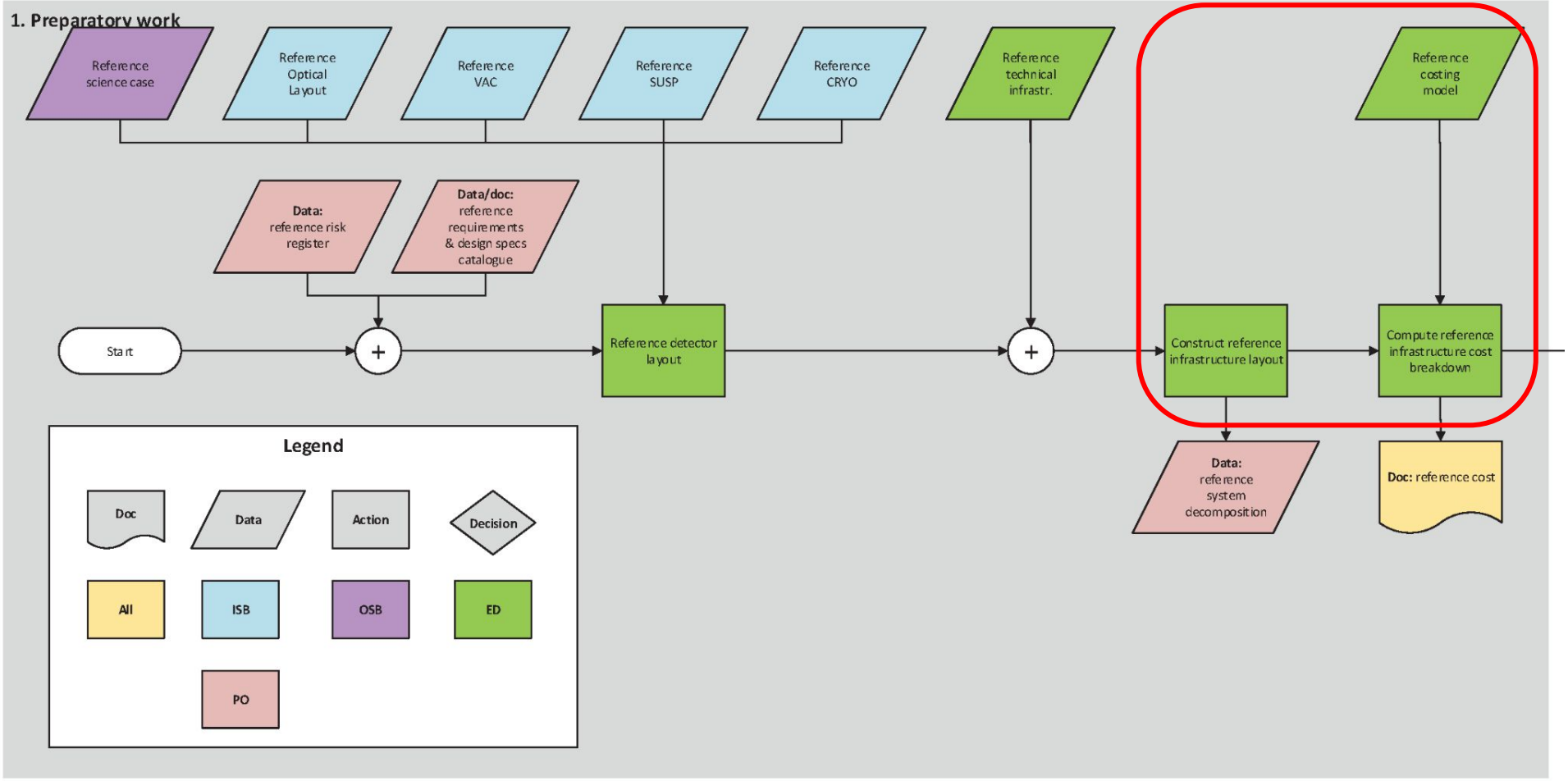
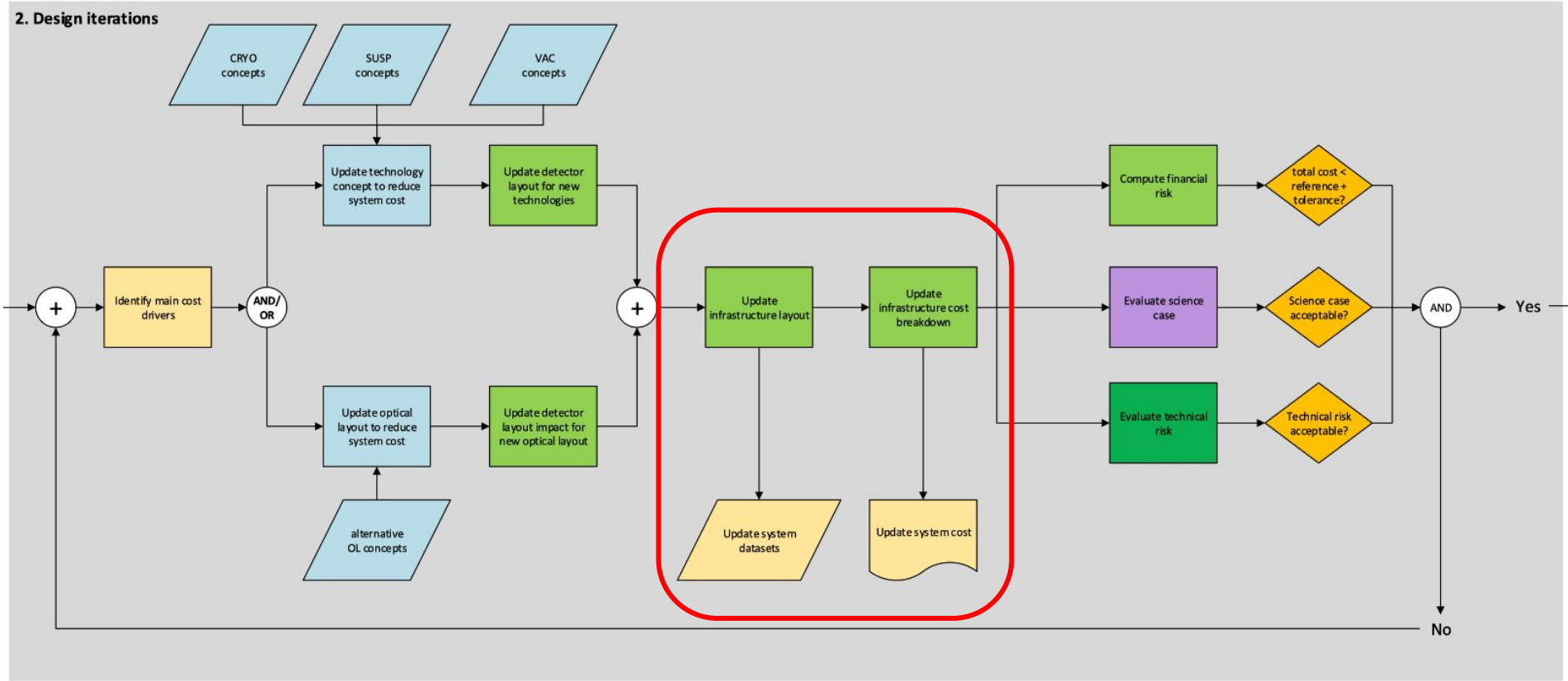
Configuration options

- Task force works have just started (kick-off on December 18), too early to distribute possible configurations
  - preliminary set of configurations in ~2 weeks from now
- However the study will address quite different aspects:
- Geometry-independent
  - optical layout, e.g.
    - Number of core/auxiliary optical elements to reduce the amount of cavern excavation
    - IMC folding (triangle -> bowtie) to reduce IMC tunnel length
    - Get rid of filter cavities
  - design of instrument elements
    - reduced footprint of LF TM cryostat
    - reduced height for LF TM towers
      - folded IP
      - active platform
    - reduced height of HF core optics towers (sticking to HF requirements)
- Geometry-dependent
  - Optical layout
    - position of filter cavities and mode cleaner cavities (in main tunnel, in same tunnel, etc.); to reduce the amount of tunnel excavation
    - Arm cavity folding to reduce tunnel length?
    - separate depth for HF and LF
  - design of instrument elements
    - vacuum tank access (lower vs lateral)
  - structure of caverns, e.g. stacked caverns to reduce amount of cavern excavation

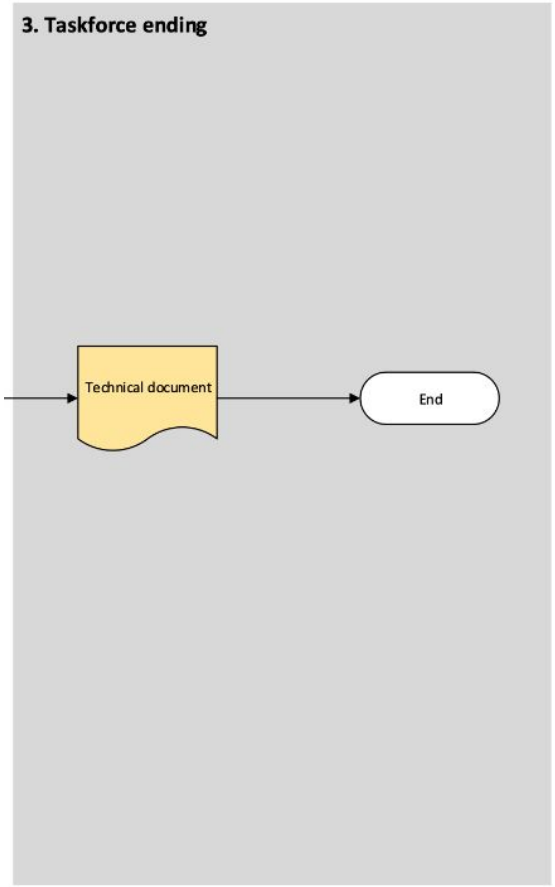
Draft workflow -1



Draft workflow - 2



Draft workflow - 3



Interplay with local teams

- Requested connection with both TETI and EMR
  - Permanent liaison within task force
    - to join weekly meetings + in-person workshops
    - to allow a smooth and fast exchange of critical information between task force and local team
  - Periodic (biweekly?) meetings with engineers from the companies in charge of the civil engineering study
    - to validate/amend the set of criteria the task force will propose and use to identify the main cost drivers from the detector layout
    - to properly set up the flexibility envelope of the detector layout for optimal use in the civil infrastructure engineering design