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## *Towards the TDR*

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PBS

# From Barcelona: TDR Tentative lifecycle

Configuration

Baseline Configuration
PBS units functional parameters
PBS Units integration parameters
PBS cross analysis for interfaces
Roles definition
Change process



We are here

Requirements

Requirements
KPP
Requirements hierarchy and constraints definition
Traceability
Functional PBS units Requirements
Interfaces Requirements
Safety constraints
Installation and integration requirements
Roles definition

Project Definition

PM
WBS
Master schedule
Cost estimate
Safety agreement
Risk register

Specification

Specifications
Engineering units specifications
As design Configuration
Safety constraints
Installation and integration plan

TDR

TDR
Roles definition
Editing
Verification
Validation

## In Barcelona we presented a TDR template proposal

- 1) Introduction
  - 3.2.3) Experimental results obtained and TRL evolution
  - 3.2.4) Expected impact
- 2) Science case overview
  - 2.1) Observing scenario
- 3) Detector CDR Executive summary
  - 3.1) Main PBS systems design criteria summary (methodology, adopted constraints...)
  - 3.2) Description (overview) of the main PBS systems- sub systems functional layouts and their characteristics
  - 3.3) Integration and installation requirements
  - 3.3) Main elements (cost driver, or technology challenges) functional and interfaces requirements definitions
  - 3.4) Results of the R&D activity
    - 3.2.1) Expected results
    - 3.2.2) Characterization methodology
- 4) PBS elements specifications and applied standards (following the PBS structure)
  - 4.1) PBS elements specifications
  - 4.2) PBS elements needed services and maintenance (When Applicable)
  - 4.3) PBS elements safety needs (When Applicable)
  - 4.4) Technical risk analysis of the PBS element
- 5) Detector global risk analysis
- 6) Detector general safety analysis
- 7) Detector environment and sustainability policy
- 8) PBS based hardware costing

## We are at the PBS - Status

- HF and LF - Triangle (more this afternoon)
- Civil Infrastructures - Triangle
- E - infrastructures
- Dynamical tool. Still to be developed.

The **2L configuration** is missing. Our present proposal is to work in 'differential' mode, i.e. to have PBS reviews with the systems responsible, and proceed in identifying the eventual differences between  $\Delta$  and 2L

All PBSs and documentation are on the ET wiki:

<https://wiki.et-gw.eu/Main/PBSWorkingGroup/WebHome>

Attention, these are read only files (but can be downloaded). PBS change requests have to be addressed to A. Rocchi.

## *From Cagliari: configuration*

- In SE the configuration is defined as a snapshot of the project, in ALL its phases. In the preliminary phase it is so important to freeze a baseline 'as designed' configuration to have a well-defined reference. (Base for the change process!!!!)
- For this reason, it is a  $f(t)$ !
- It is represented by a set of characteristics and functional relationships that DEFINE a final deliverable.
- In this framework the configuration assures the ACCURACY and CONSISTENCY of our deliverable knowledge, during the project lifecycle
- It is therefore mandatory that the configuration assures that, in the lifecycle, changes are managed by processes that guarantee their individuation, analysis, proposal, approval, integration and record for their traceability as an  $f(t)$

## *First step: baseline configuration*

- Main topic for this afternoon and tomorrow morning PO sessions
- Define a baseline proto - configuration (final configuration will have more configuration Items):
  - CDR as reference
  - PBS as hierarchy backbone
  - Fill in functional parameters tables
  - Fill in integration parameters tables
  - Produce functional layouts
  - Set up change request process

Goal : provide a baseline design and alternative solutions

Deliverables : baseline and alternative configuration (datas), CDR n.0 - approved (document)

## Next steps

- 1) The parameters definitions needs PBS elements responsibilities established
- 2) The parameters tables has to be filled providing also the appropriate references  
The parameters Table template (and an example) are in the ET wiki  
<https://wiki.et-gw.eu/Main/ParamWorkingGroup/WebHome>
- 3) The verification and validation loop has to be triggered. The flux is described in the slides, TDS reference: [ET-0280A-23](#)
- 4) After validation the Tables have to be loaded following the instructions described in the document: [ET-0358A-23](#)

The project Office will set the database for the PBS and the associated parameters

## *Further Next steps*

- REQUIREMENTS activity
- Risk methodology definition and workflows
- Interfaces
- Interfaces requirements
- ...

All these steps requires well defined responsables!

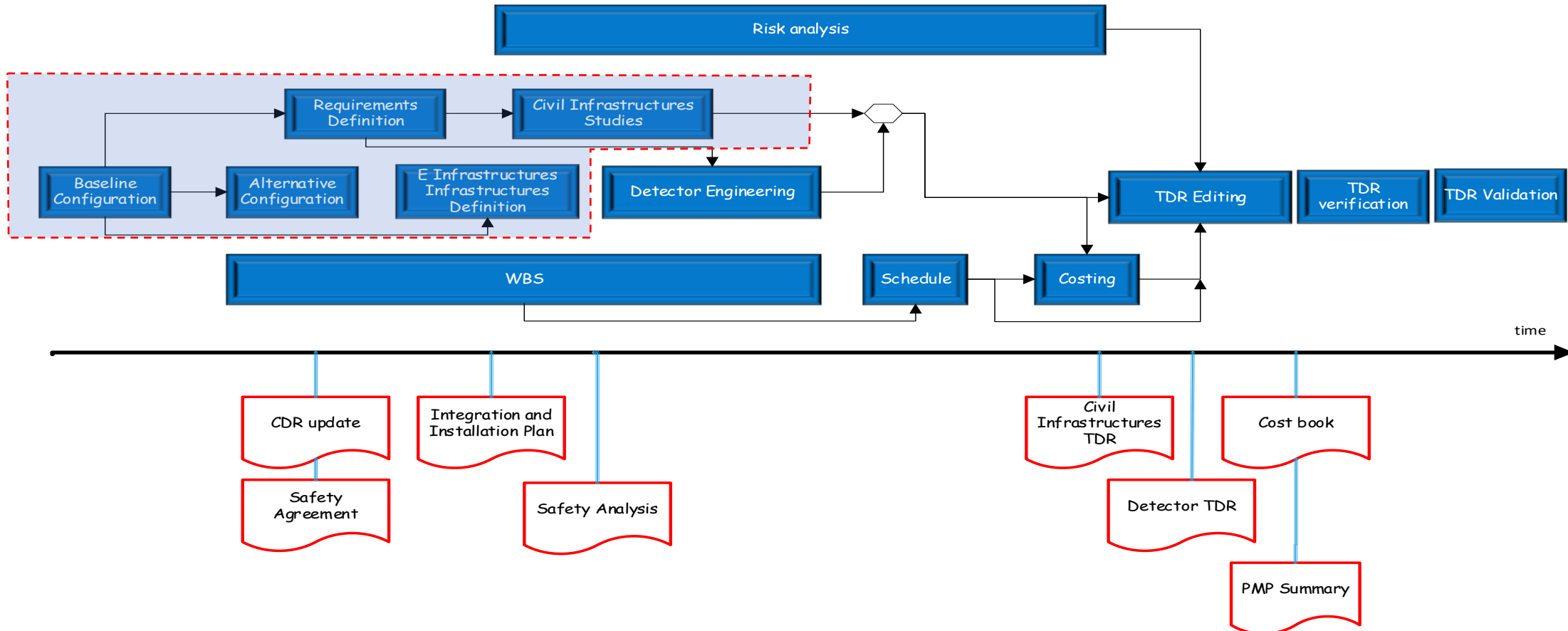


# Tentative Roadmap



TDR Process. The box length is proportional to the duration.

TDR Deliverables. Each deliverable is represented by a document



From the ET-PP Annual meeting in Barcelona (June 2023)