WBS Example : EIC

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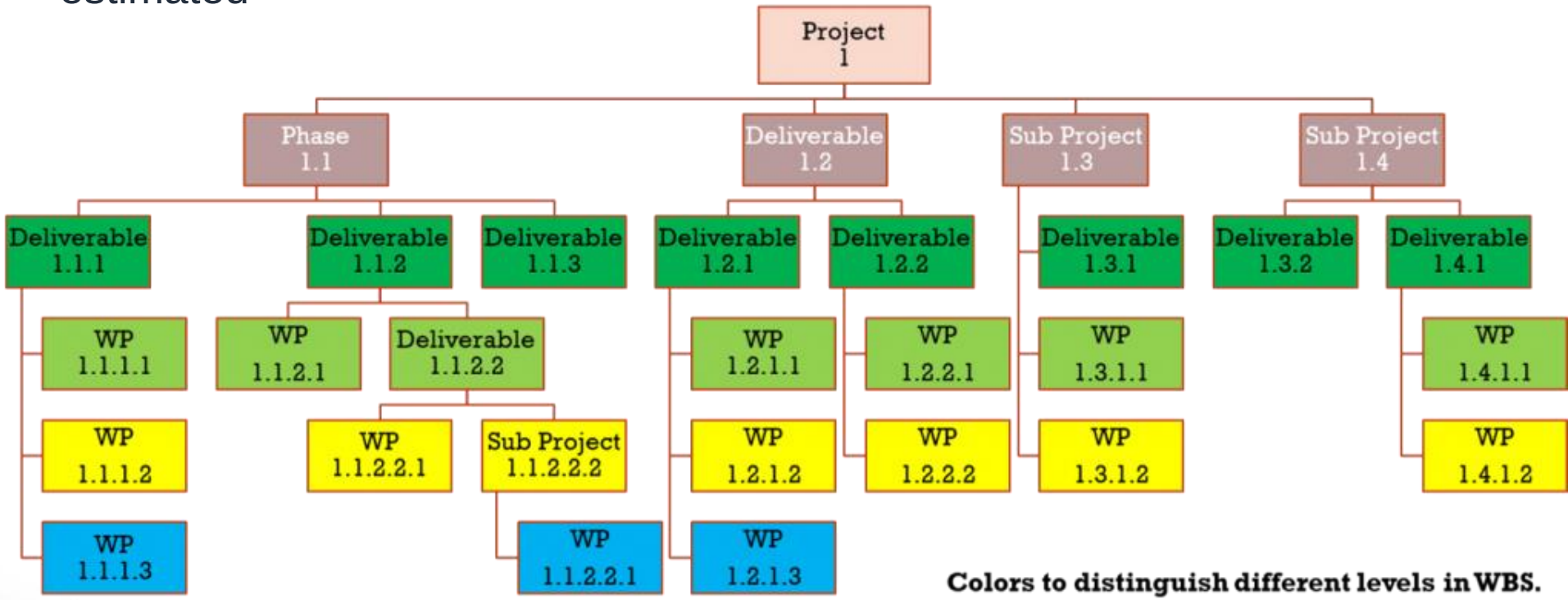
(EIC Electron Injector Level 2 Deputy Manager)

ILC WG2 Meeting, 6/7/21

Work Breakdown Structure

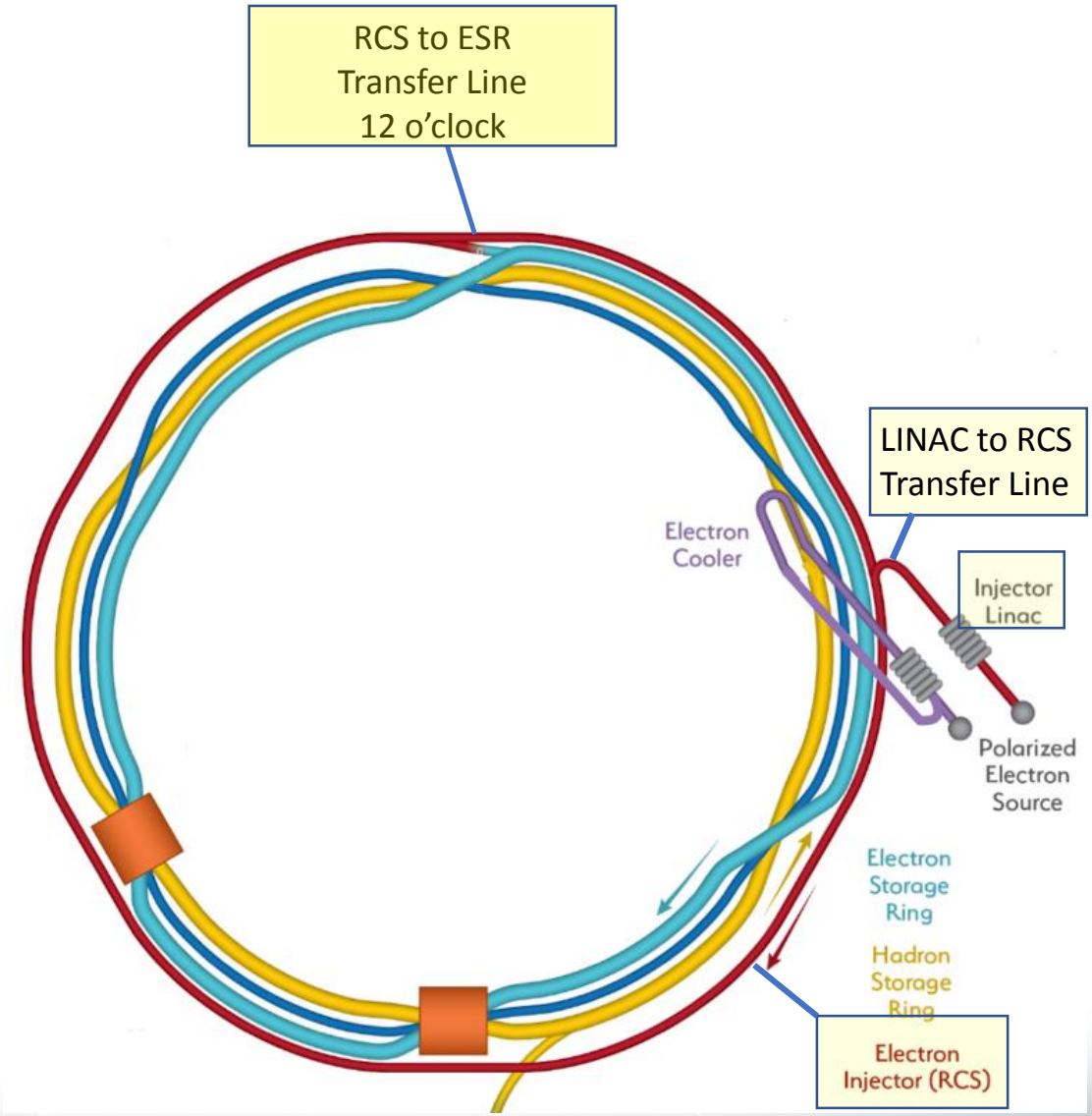
- Breaks down 100% of the work into a structure
- Provides a graphical representation or outline of the project scope
- Larger tasks are broken into manageable parts, that can be supervised & estimated



Sample Work Break Structure with Branches Decomposed at WP levels.

Example: EIC

Management
R&D
Electron injector
Electron storage ring
Hadron Ring
Interaction Regions
Support Systems
Infrastructure
Pre-Operations
Detectors



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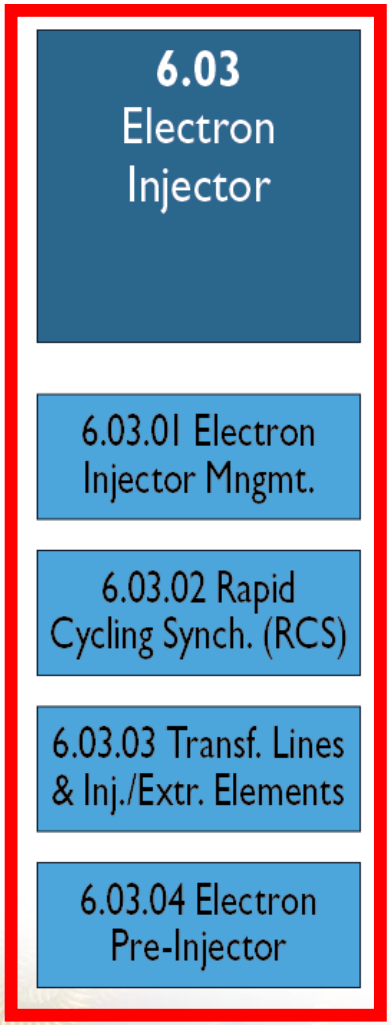

Scope

- 6.03 Electron Injector

  Design, procure and assemble the electron injector chain, which generates and accelerates polarized electron beam up to 5, 10 and 18 GeV. It will deliver 2 electron bunches of up to 28 nC with polarization of up to 85% at a rate of 1 Hz to the Electron Storage Ring.

- 6.03.01 Level 2 manager responsibility.

6.03.02 - Rapid Cycling Synchrotron

Design, procure and assemble the Rapid Cycling Synchrotron, which accelerates polarized electron beam injected from a 400 MeV injector for subsequent extraction at 5, 10 and 18 GeV to an extraction line. It will accelerate two polarized electrons bunches of up to 28 nC with polarization losses less than 5% over a 100 msecs with a repetition rate of 1 second.

- 6.03.02.01 RCS Magnets
- 6.03.02.02 RCS Power Supplies
- 6.03.02.03 RCS Vacuum
- 6.03.02.04 RCS RF Systems
- 6.03.02.05 RCS Instrumentation

6.03.03 - Transfer Lines and Injection/Extraction

Design, procure and assemble the transfer beam lines from the 400 MeV electron LINAC to the RCS and the RCS to the electron Storage Ring for 5, 10 and 18 GeV operation

- 6.03.03.01 Transfer Lines Magnets
- 6.03.03.02 Transfer Lines Power Supplies
- 6.03.03.03 Transfer Lines Vacuum
- 6.03.03.04 Transfer Lines Instrumentation
- 6.03.03.05 Pulsed Devices

6.03.04 Electron Pre-Injector

Design, procure and assemble the EIC pre-injector system, which generates and accelerates an electron beam for subsequent injection into the RCS ring. The injection system includes polarized electron gun, a 400 MeV linear accelerator (the linac).

- 6.03.04.01 400 MeV Injector
- 6.03.04.02 Polarized Electron Source

Input to WBS planning

- WBS Level 2 Summary
  - Requirements
  - Scope
  - Assumptions
  - Cost
  - Schedule
  - Environment, Healthy, Safety Concerns
  - Highest Risk Areas

<u>WBS is 100% - must be defined by Level 1 Management</u>