



Contribution ID: 1940 Contribution code: THPB020

Type: Poster Presentation

## Continuous improvement in long-term multi-phased complex projects: insights from the HL-LHC case study

Thursday 5 June 2025 15:30 (2 hours)

The High Luminosity Large Hadron Collider (HL-LHC) project includes several phases of installation and commissioning, spanning over multiple years, with the Inner Triplet (IT) String test as the first milestone for an overall system validation. In parallel, installation is ongoing in the new HL-LHC Technical Areas, in particular the two 300-meter-long service tunnels, and in the new surface buildings, while the integration studies are still ongoing in the LHC tunnel areas.

The paper investigates the iterative processes of improvement of the HL-LHC project. The lessons learned from the IT String installation and test, as well as the discrepancies encountered during the HL-LHC galleries installation, provide key insights for the future LHC tunnel activities. Applying lean and agile methodologies, we present how adaptive strategies and iterative feedback loops are employed to address critical points and maintain consistency across various project components. Finally, we highlight the importance of incorporating continuous improvement principles throughout the lifecycle of a large-scale scientific installation, offering valuable lessons for future projects of similar complexity.

### Footnotes

### Paper preparation format

### Region represented

Europe

### Funding Agency

**Author:** NICOLETTI, Francesca Paola (European Organization for Nuclear Research)

**Co-authors:** RAMREKHA, Darshana (European Organization for Nuclear Research); BOZZINI, Davide (European Organization for Nuclear Research); DE MAYNARD, Henry (European Organization for Nuclear Research); BAJKO, Marta (European Organization for Nuclear Research); MODENA, Michele (European Organization for Nuclear Research); NAVARRO BAEZA, Miguel (European Organization for Nuclear Research); FESSIA, Paolo (European Organization for Nuclear Research)

Organization for Nuclear Research); YAMMINE, Samer (European Organization for Nuclear Research); BLANCHARD, Sebastien (European Organization for Nuclear Research); BAULER, Thomas (European Organization for Nuclear Research)

**Presenter:** NICOLETTI, Francesca Paola (European Organization for Nuclear Research)

**Session Classification:** Thursday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T37 Innovation Processes