Following 236 successful and fruitful TCCs (and PLCs) since the first meeting in July 2012 (Indico)

HL-LHC PLC Core Membership

-Oliver Bruning (PLC chair & BE-ABP)	Alternates:
-Markus Zerlauth (PLC scientific secretary & TE-MPE))	
-Lucio Rossi (HL-LHC PL)	
-Mike Lamont (LHC operation & BE-OP)	
-Stephane Fartoukh (WP2 leader)	Bernhard Holzer
-Ezio Todesco (WP3 leader)	
-Erk Jensen (WP4 leader & BE-RF)	
-Stefano Redaelli (WP5 leader)	
-Jorg Wenninger (WP7 leader)	
-Roberto Kersevan (WP12 &TE-VSC)	Vincent Baglin
-Rhodri Jones (WP13 leader & BE-BI)	
-Sylvain Weisz (WP14 leader)	
-Hermann Schmickler (Technical Board)	
-Samy Chemli (EN-MEF-DC)	
-Gijs de Rijk (TE-MSC-LMF)	Ezio Todesco
-Anne-Laure Perrot (EN-MEF)	Dorothea Pfeiffer
-Volker Mertens (TE-ABT)	Brennan Goddard
-Jean-Paul Burnet (TE-PO)	Quentin King

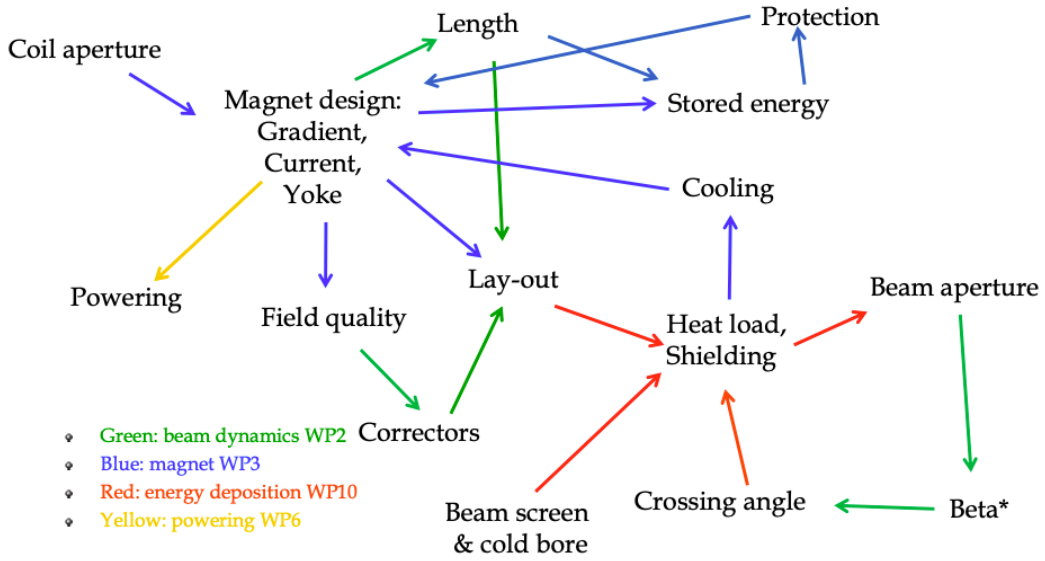
of this phase of the project….

But we have come a long way since the 1st technical presentations…

Then…

THE FLOWCHART FOR THE DESIGN

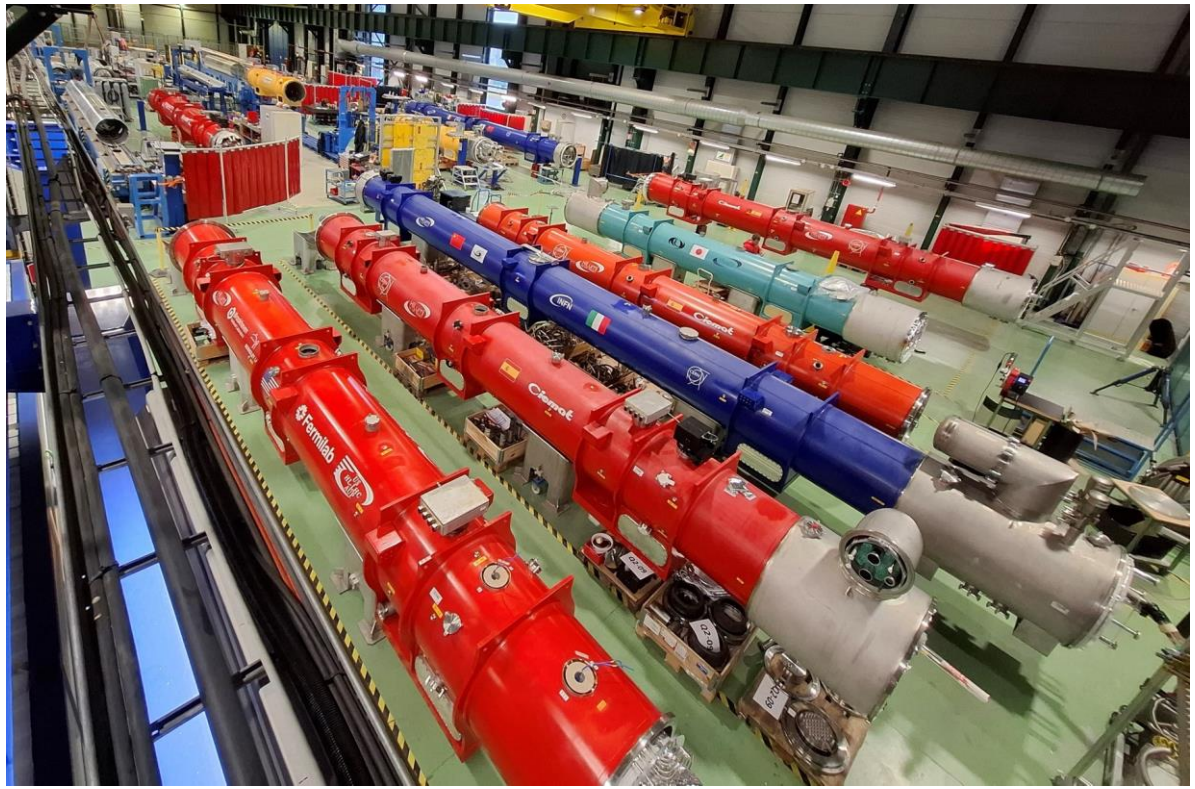
- Complex iteration between different aspects



E. Todesco

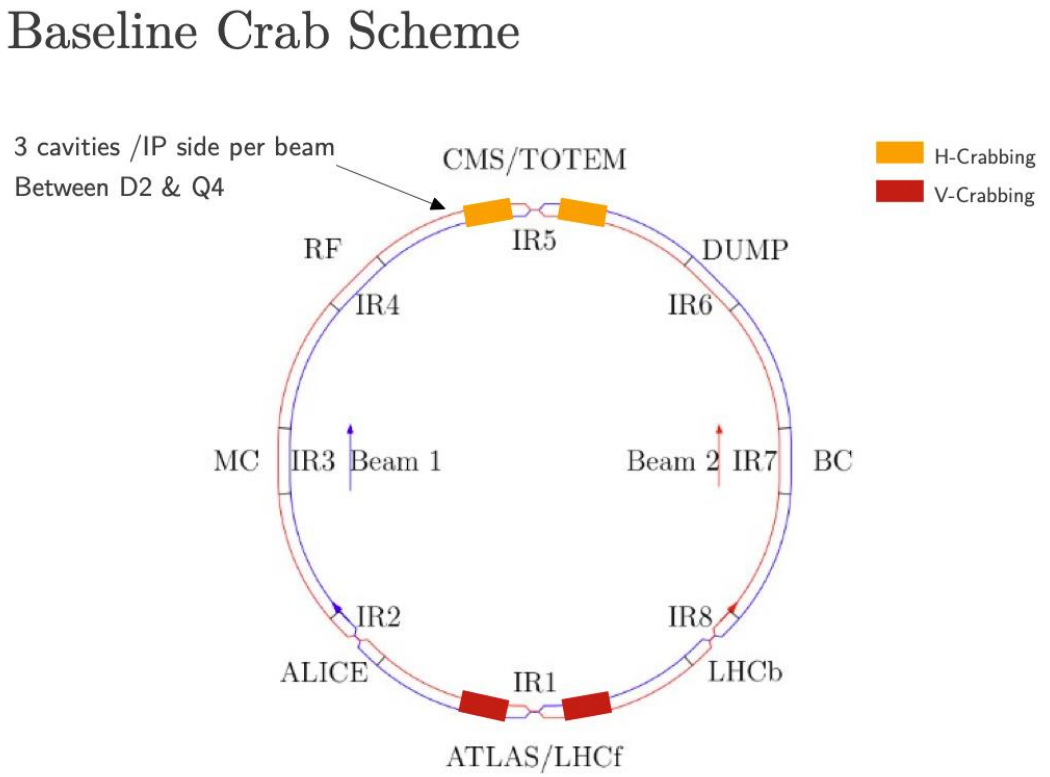
Flowchart between magnets, optics and energy deposition - 3

and now…



But we have come a long way since the 1st technical presentations…

Then…



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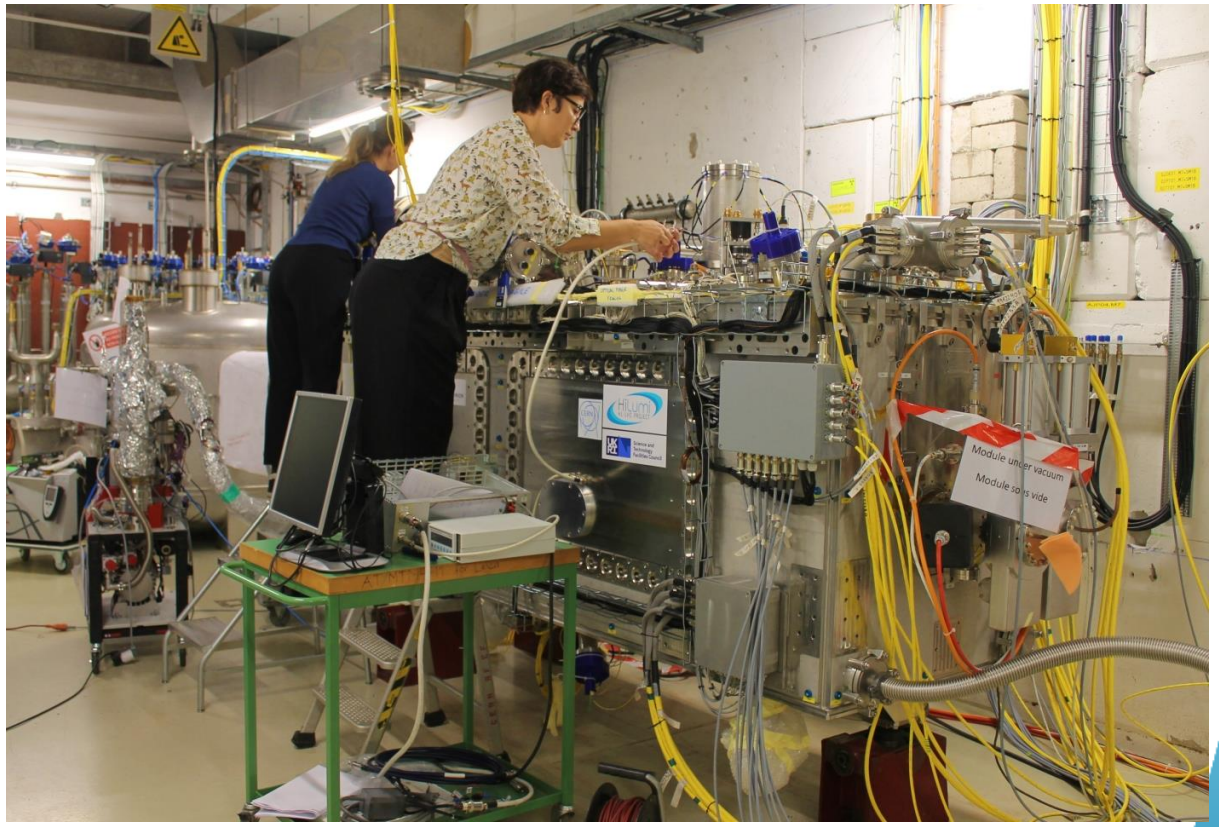

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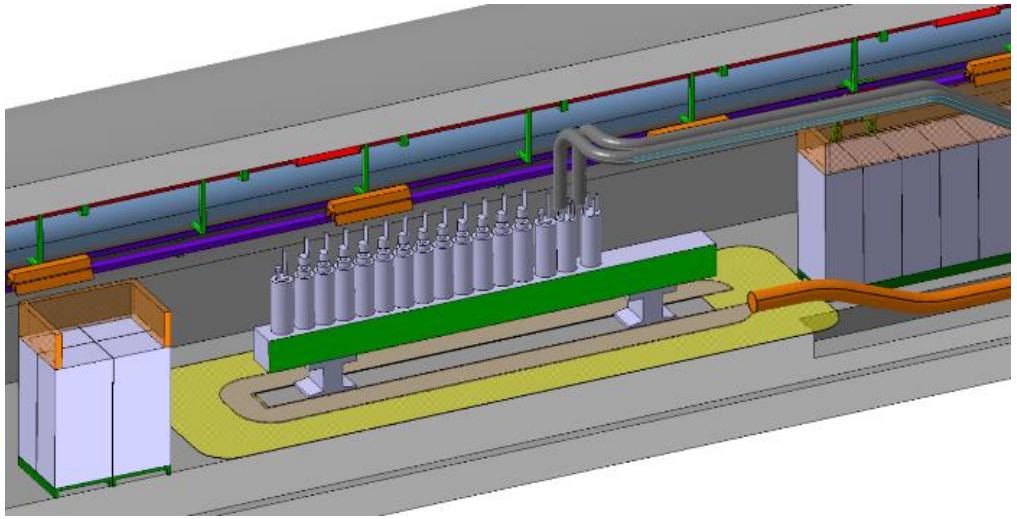
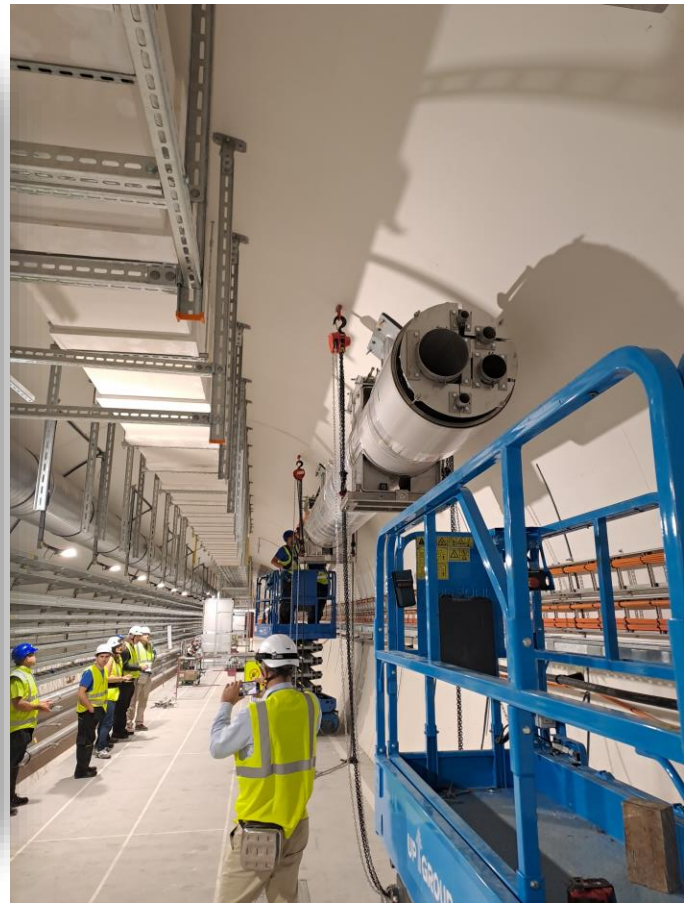


and now…

But we have come a long way since the 1st technical presentations…

Then…

and now…

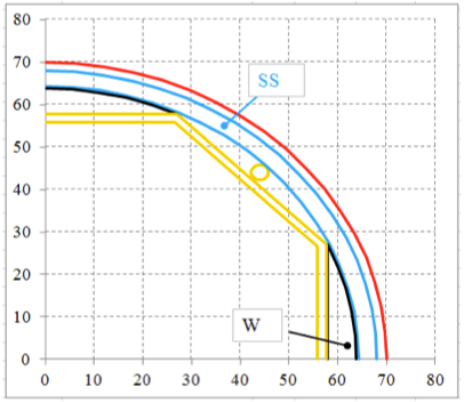


But we have come a long way since the 1st technical presentations…

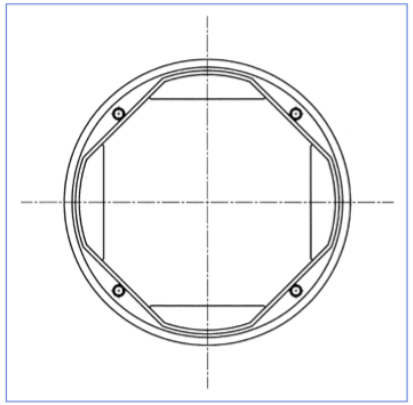
Then…

2nd HiLumi PLC3 – 24 Sept 2012

2. Triplet Region Lay-out, Lattice and Vacuum Model



1/4th of 2D model showing the cross-section of the 140 mm ID cold-bore
(E. Todesco, private comm. 10/7/12)



Starting point: drawing LHCVSSX_0004
6/10/2009, "Phase 1 Upgrade"
(re-scaled to 140 mm cold-bore ID, and 6mm W shielding)

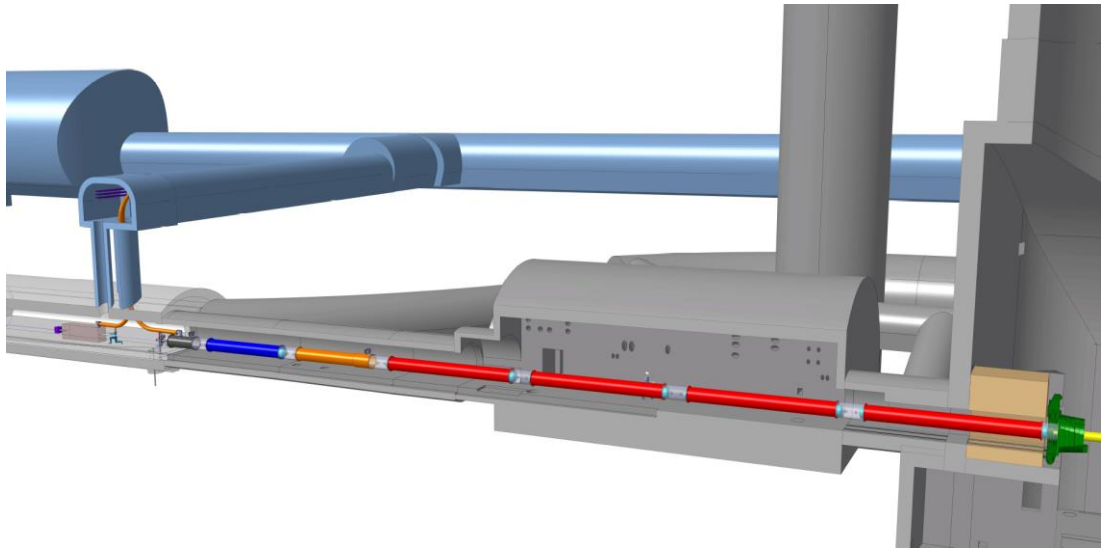
Conceptual 3D Model of 140 mm ID (cold bore, CD) Beam Screen (BS):

- W radiation shield is placed EXTERNALLY to the BS (see next slide)
- 4x4 Pumping Slots, racetrack-shaped like in the LHC arcs' BS have been added (see below), with a longitudinal spacing of 16 mm.

and now…

But we have come a long way since the 1st technical presentations…

Then…



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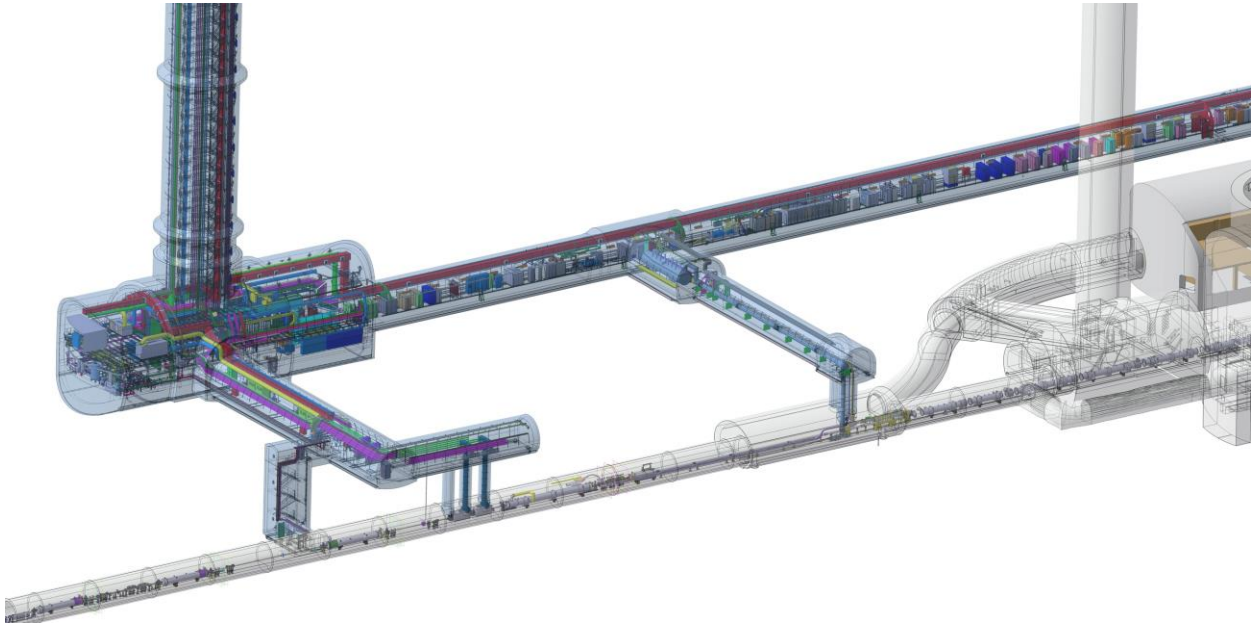
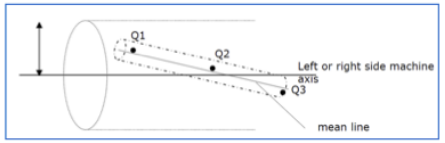


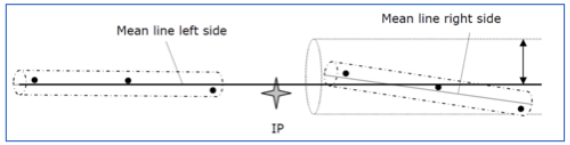
But we have come a long way since the 1st technical presentations…

Then…

Survey needs → initial alignment

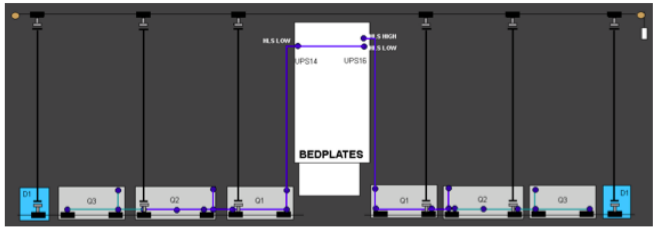
- ✓ For each component, SU needs to know its tolerance of alignment, and prepare its associated budget of error





- ✓ Because of radiations, access to LSS will be more and more restricted, with shielding added along the tunnel around the components, which will complicated the standard measurements. It is proposed to extend the stretched wire (or alternative solution) from Q3 to Q5, and the same for the HLS system.

- ✓ Develop another solution to link radially the tunnel references on both sides of ATLAS and CMS experiments through the UPS galleries. The same problem is raised for CLIC and ILC: two collaborations are under preparation with JINR and NPL



10

and now…

A Big
thanks
to you All!

But discussions on the technical baseline will (have to) continue…

- This will take place under the new format of the HLMC (HiLumi LHC Machine Committee) as a common technical forum for the LHC because…
- With the start of LS3, technical baselines of LHC and HL-LHC will merge
- There is an increasing overlap of topics to be discussed (installation NCR follow-up, ECRs, consolidation, preparation of re-commissioning activities)
  - In particular re-commissioning will have to be organised jointly for the entire machine

- The new joint formal will allow to
  - rationalise meeting structures and time for attendees; avoid duplication of discussions
  - Increase the knowledge-transfer within groups and to operational teams
  - Better delimit/complement the LS3C. LS3C to focus on resources, schedule and priority aspects while HLMC will be the forum for technical/operational discussions

HLMC Mandate

- The High-Luminosity LHC Machine Committee (HLMC) is the executive committee for the technical and performance aspects of the LHC machine for the high luminosity era. With the start of the LS3 activities and the LHC upgrade it will combine the activities previously managed by the LMC and the HL-LHC TCC under one common committee. It defines, maintains and evolves the LHC operational baseline covering the machine parameters, operational configurations and the associated hardware layout and options. The overall coordination of the LS3 schedule and interventions remains with the LS3C. The HLMC monitors, endorses and recommends changes to the baseline, based on technical discussions and input from the relevant CERN Groups. The HLMC is established for the LS3 and recommissioning period.

- It has the mandate to:
  - Establish and maintain coherent sets of operational parameters, machine configurations and associated hardware layout options for the LHC machine.
  - Support the decision-making process for changes affecting the LHC operational baseline, in collaboration with the relevant groups, projects and management bodies.
  - Ensure that the operational scenarios, beam parameters and performance projections remain coherent across systems and compatible with the programme of the LHC experiments.
  - Define clear goals and objectives for the injector complex in terms of requested LHC beam parameters.
  - Examine and endorse the priorities for consolidation of the LHC equipment, controls, and infrastructure, including the associated resources and workplan where changes to the operational baseline are required.
  - Oversee the definition and implementation of a coherent hardware commissioning strategy for the post LS3 operation of the LHC.
  - To assist in this, a number of study groups, working groups and panels will report directly to the HLMC and provide interim reports, recommendations and technical input as required.

- Chairs: R. Jones, M. Zerlauth ; Scientific secretaries: G. Papotti, G. Lerner