

LS3 activities and resources for WP6a installation

Y. Leclercq for WP6a

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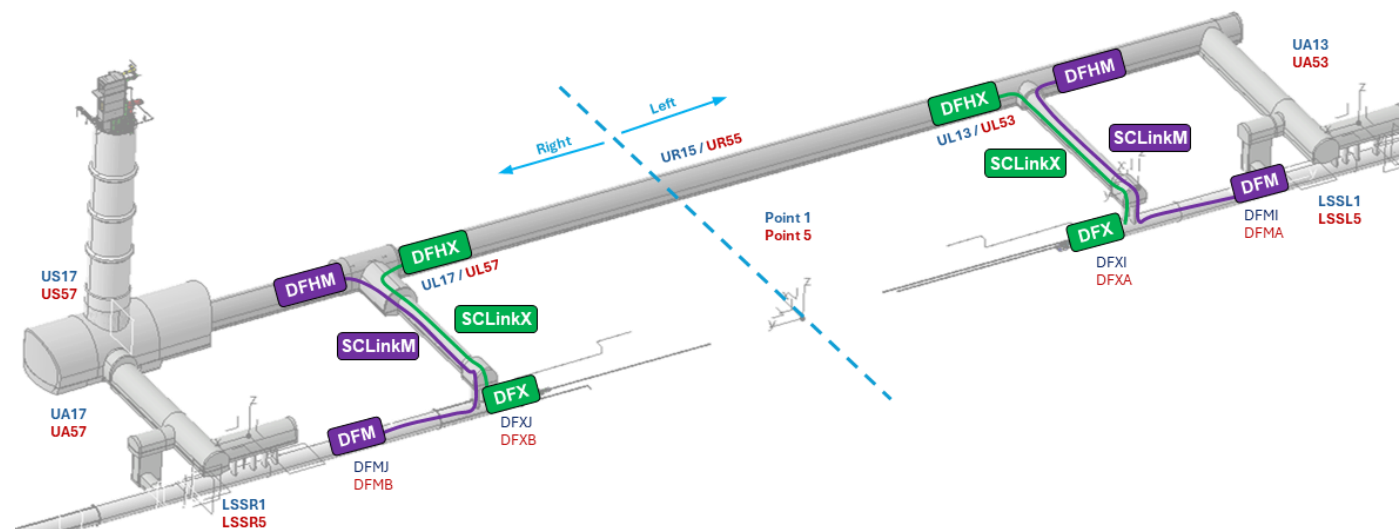
WP6a LS3 activities : Scope

4 cold powering systems per point : 2 types X&M

Installation from Q2-2028 to Q2-2029 (non-continuous)

Cold Powering System installation :

- Transport activities
- Mechanical activities : Welding, adjusting, forming, assembly
- Electrical activities : Instrumentation, soldering, routing, testing
- QC activities : HV, Instrumentation, Leak tests, dimensional



1. Supports & Tooling installation

UR

UL

LHC

2. Lowering SCLink+DFH

Preparation

Lowering

Landing

3. Unspooling

Left -M

Left -X

Right -M

Right -X

4. Core insertion

M

X

5. UR Interface activity

Cryogenic interfaces

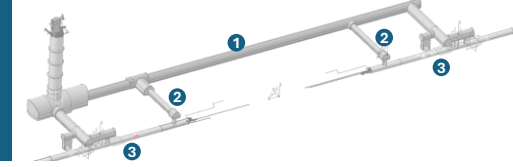
Electrical interfaces

6. LHC Interface activity

DFX assembly

DFM assembly

Supports & tooling installation



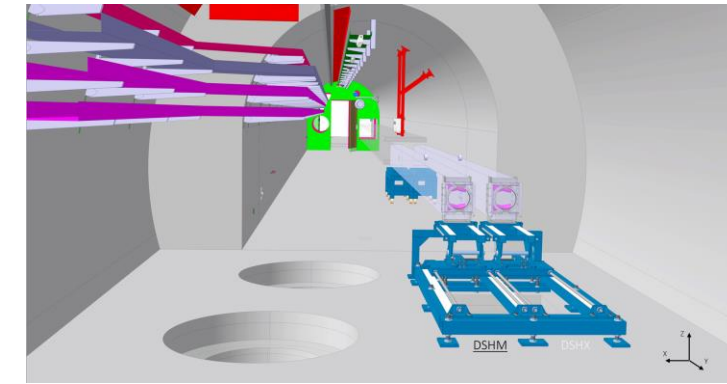
1. UR – service galleries

- Install cryogenic warm return lines supports
 - Use of EN-EL sub-contractor
- Install flexible busbars
 - EN-HE + MSC



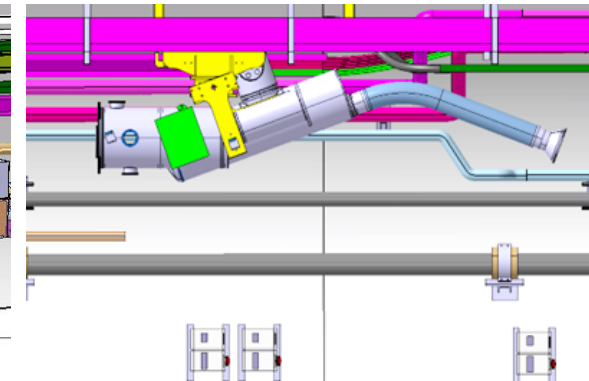
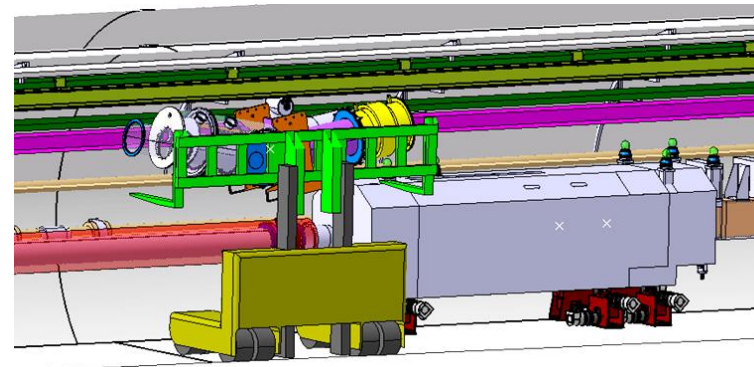
2. UL – connecting galleries

- Install shelves
 - EN-ACE-COS
- Install cable chains
 - EN-HE + MSC
- Install supporting structures
 - EN-ACE-COS



3. LHC tunnel

- Core location : DFX-DSHM tooling
 - EN-ACE-COS + MSC
- Tunnel : tray over QXL
 - EN-ACE-COSTBC
- D2 location
 - DFM support install. & transport
 - EN-ACE-COS + EN-HE + MSC

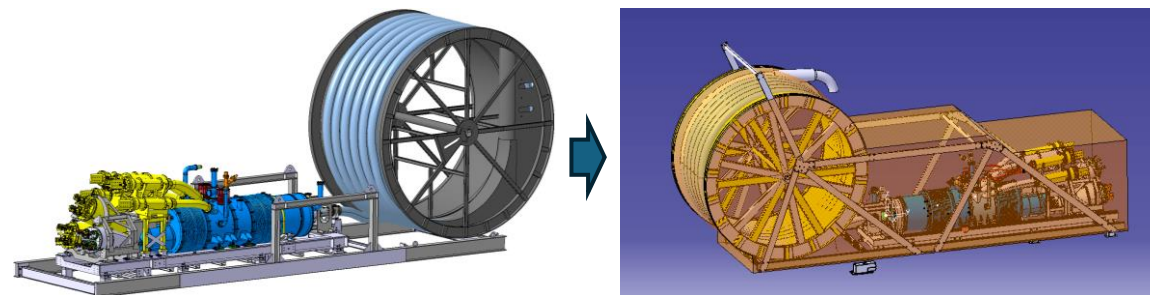


Lowering SCLink+DFH



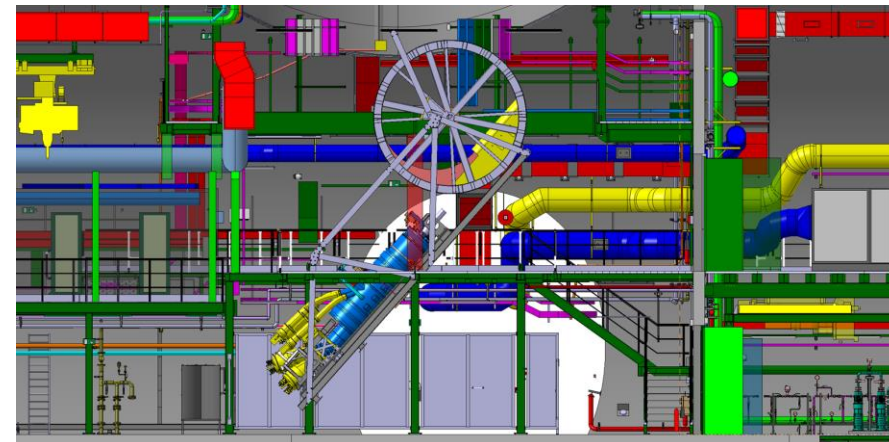
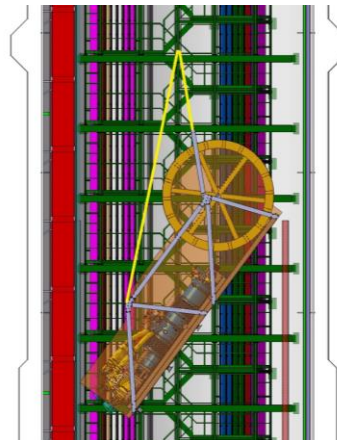
1. From Flex to pit

- Transfer to point 1/5
 - EN-HE
- Install lifting tool
 - EN-HE + MSC tbc



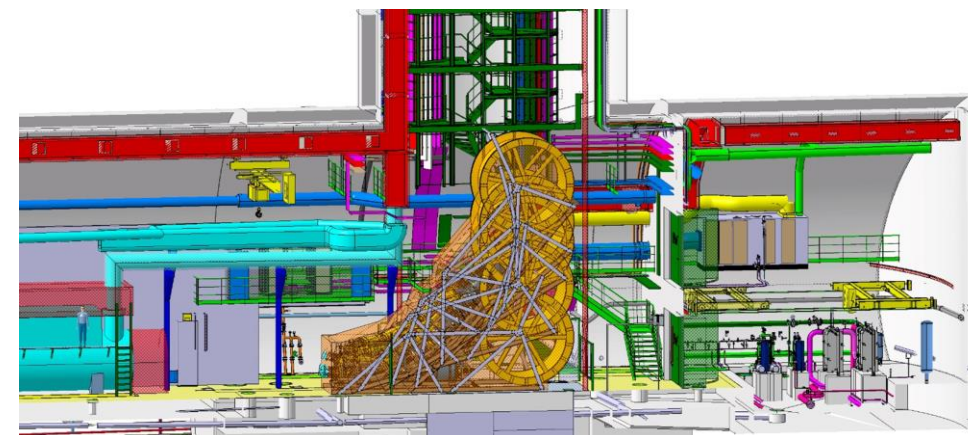
2. Lowering

- Install lifting tool
 - EN-HE
- Lower against wall
 - EN-HE

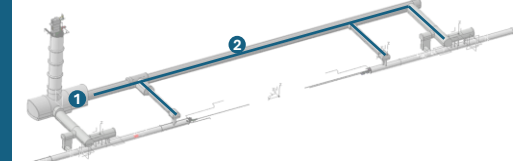


3. Landing

- Reception & load transfer to ground
 - EN-HE
- Disconnect overhead crane
 - EN-HE

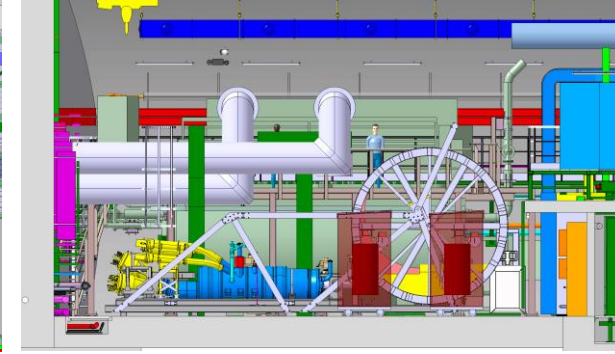
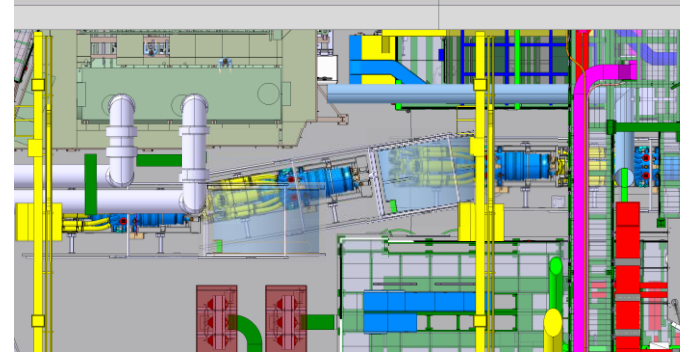


Unspooling



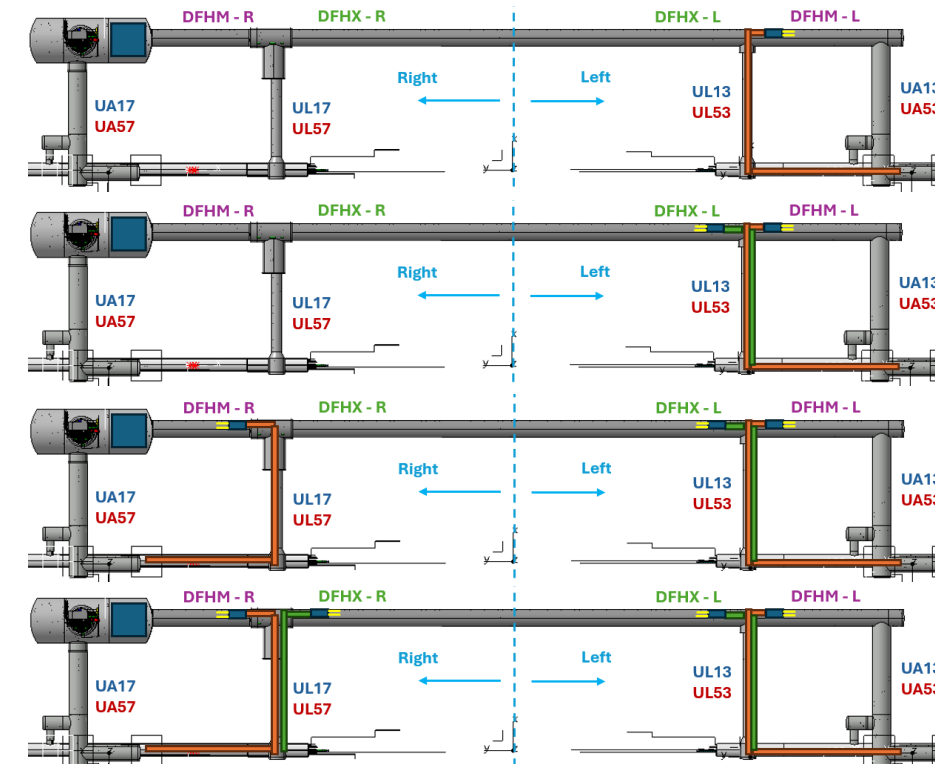
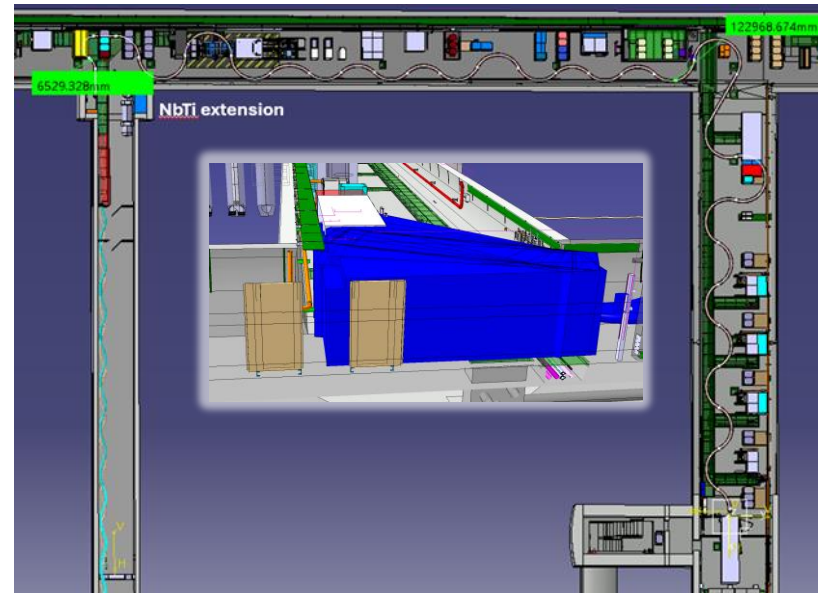
1. Position SCLink+DFH

- Transfer to unspooling location
 - EN-HE
- Install spooler
 - MSC

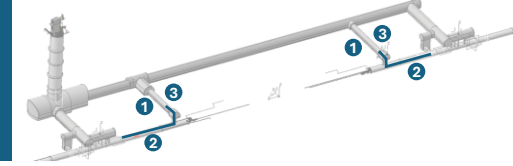


2. Unspooling in UR

- P1 then P5 : M-left/X-left/M-right/X-right
 - EN-HE + MSC

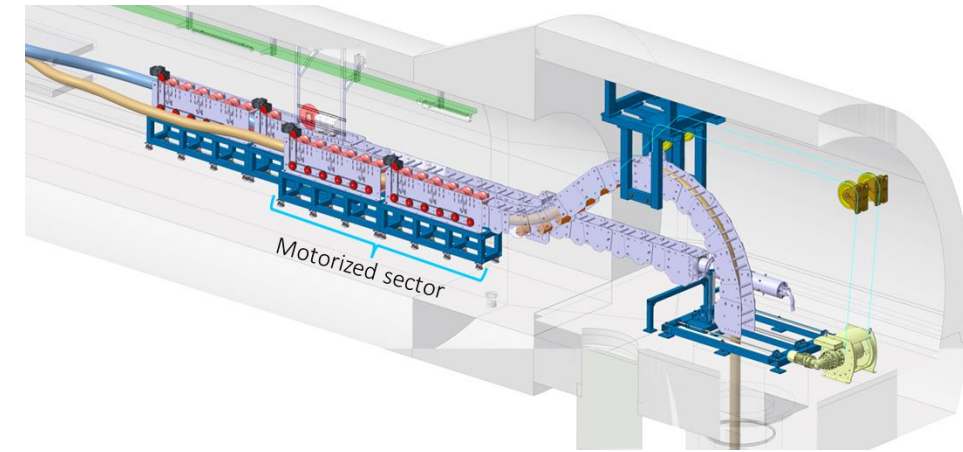


Core insertion



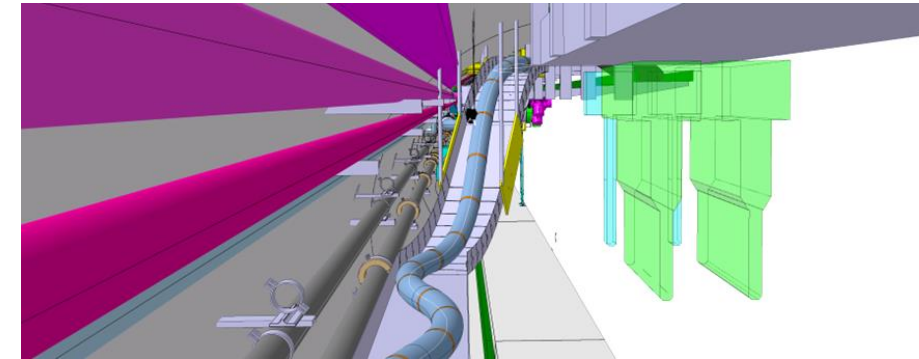
1. M-type insertion

- Install on shelves
- Install cable chain horizontally
- Form the SCLink
- Lower the SCLink head
 - EN-HE + MSC



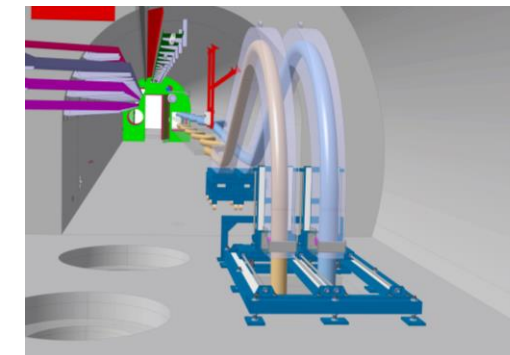
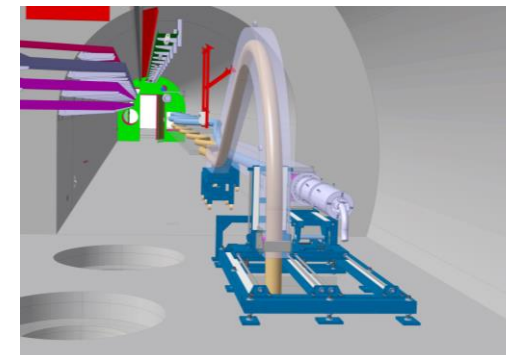
2. M-SCLink routing to DFM

- Transfer from core to QXL tray
- Route to DFM area above QXL
- Store on the wall
 - EN-HE + MSC
- QC : Leak & HV test #1
 - EIQA + TE-VSC + MSC

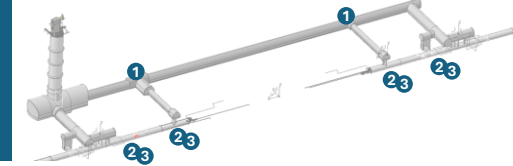


3. X-type insertion

- Install on shelves
- Install cable chain horizontally
- Form the Sclink
- Lower the Sclink head
 - EN-HE + MSC
- QC : Leak & HV test #2
 - EIQA + TE-VSC + MSC

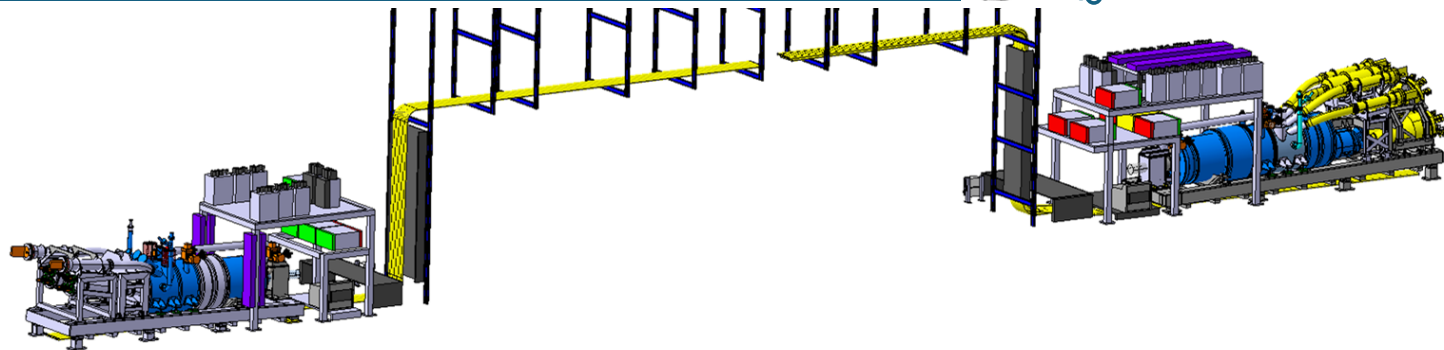


Interfaces



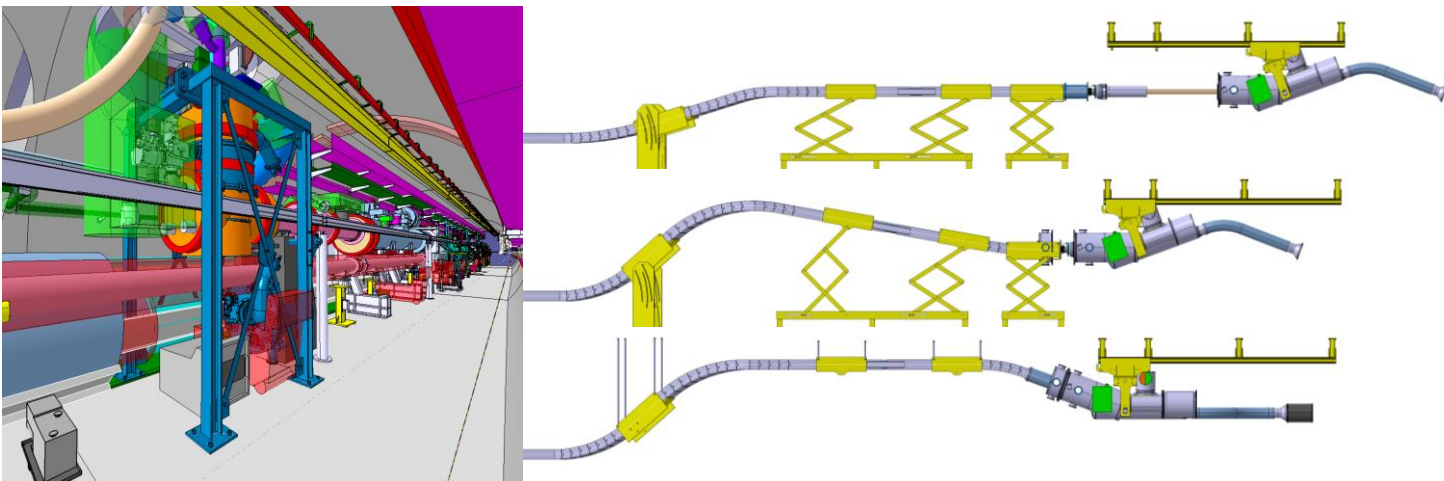
1. UR galleries

- Cryogenic interfaces
 - Warm return lines to GMS / MSC
- Electrical interfaces
 - Busbars, proximity equipment / MSC
- Quality controls
 - EIQA + TE-VSC + MSC



2. LHC Tunnel

- DFX assembly
 - EN-MME + EN-HE + MSC
- DFM assembly
 - EN-MME + EN-HE + MSC
- Cryogenic transfer lines
 - EN-MME + EN-HE + MSC
- Quality controls #2
 - EIQA + EN-MME + TE-VSC + MSC



3. LHC tunnel – post magnet installation

- IT DFX-DCM interconnect closure
 - Instrumentation continuity : MSC
 - Vessels closure : EN-MME + MSC
- MS DFM-DQM interconnect closure
 - Instrumentation continuity : MSC
 - Vessels closure : EN-MME + MSC

