



Service Management during OS integration

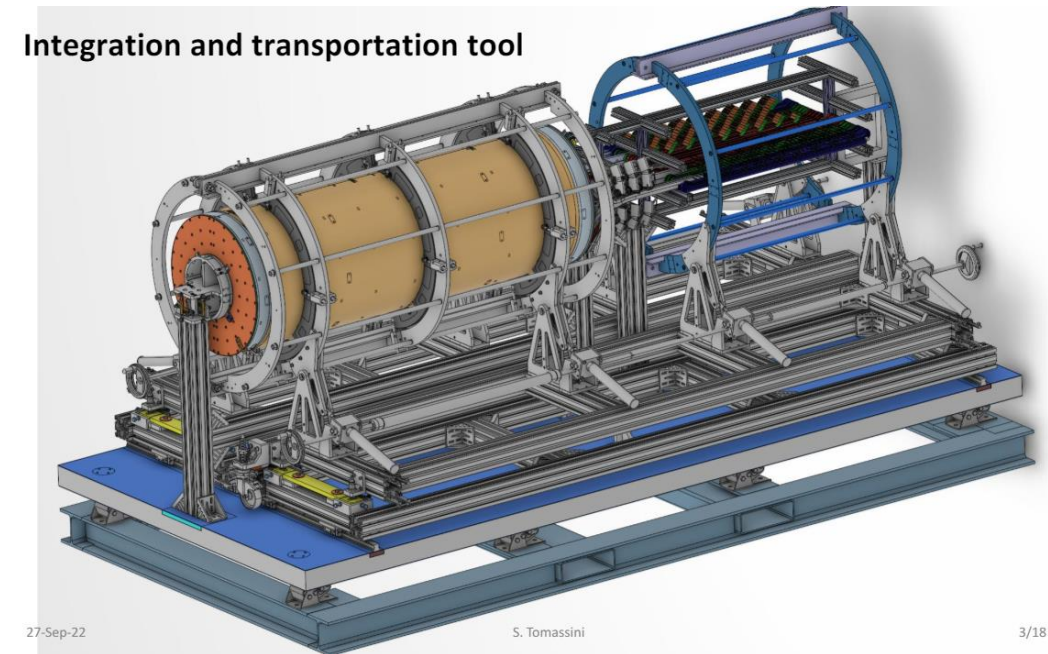
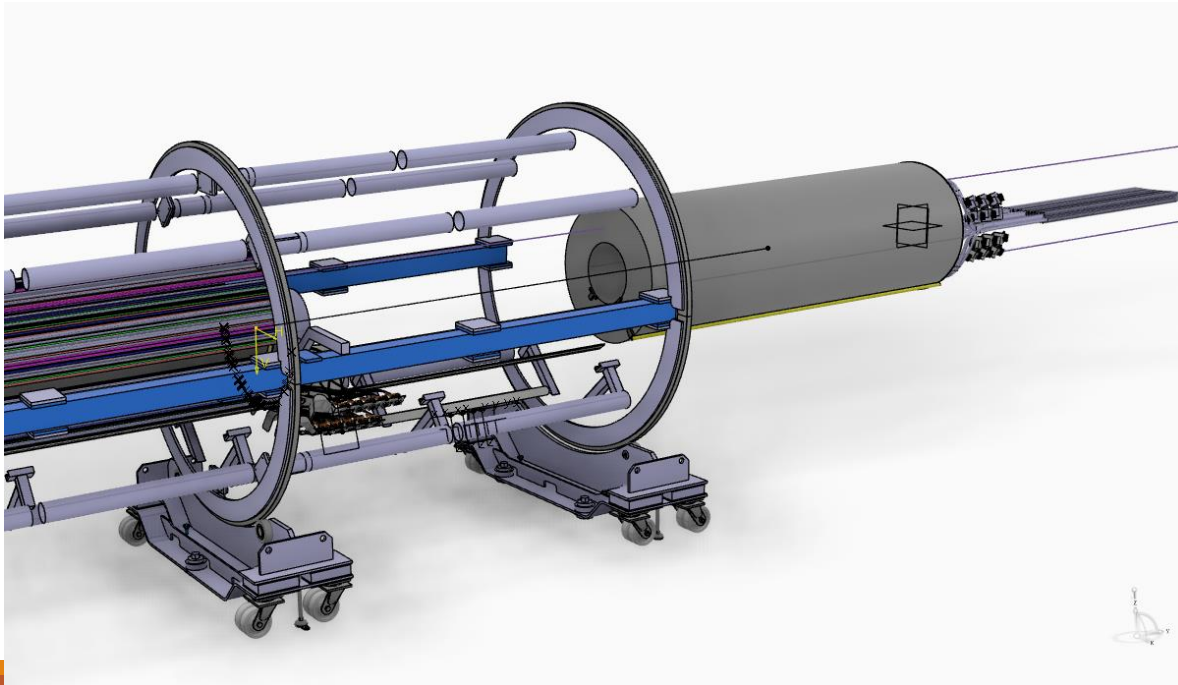
ERIC VIGEOLAS OEC OTRANTO 2024

Overview

- ❑ I will not cover the full services layout at SR1, I will focus mainly on the OE insertion inside OB in the OS Integration tool
- ❑ This will give us a picture of how services from OB will be managed, and the interactions between OE trolley and OB trolley

Before insertion

- ❑ OE will face the OS Integration tool in its Integration tool
- ❑ Both OS Integration and OE Integration tool will have to be aligned → **OS Integration tool will be consider as a static object, OE tool will be moved for alignment**

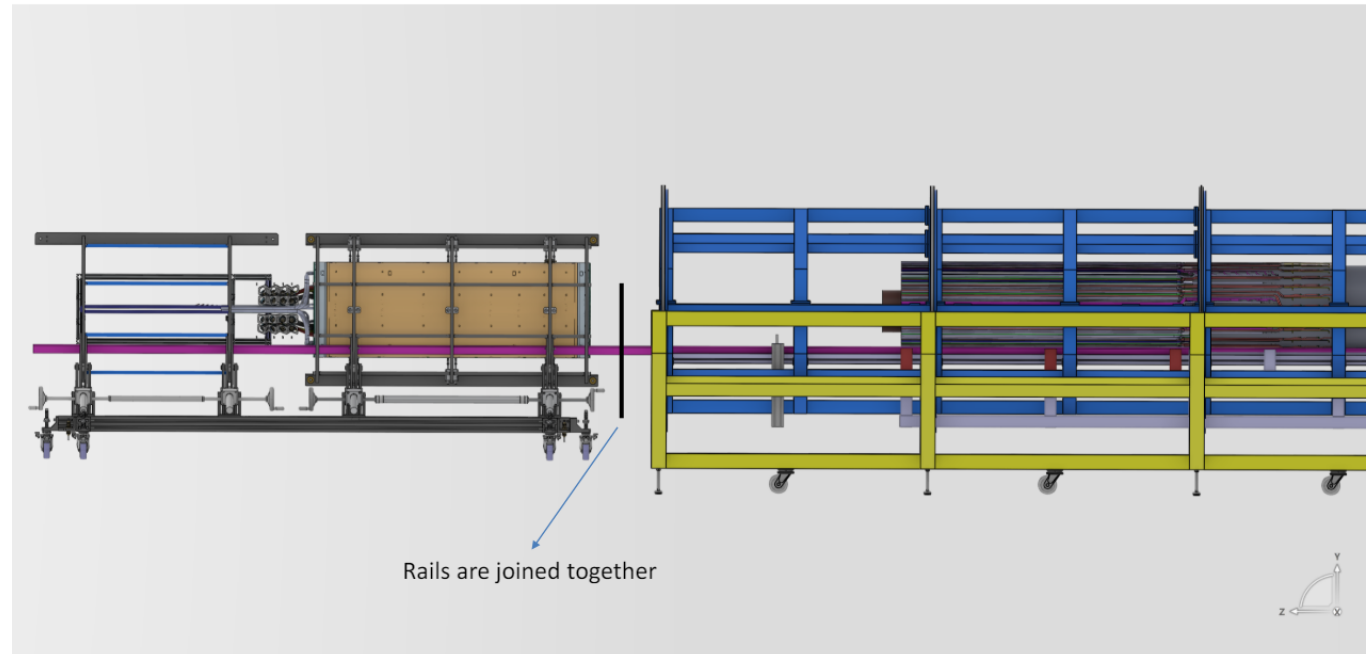
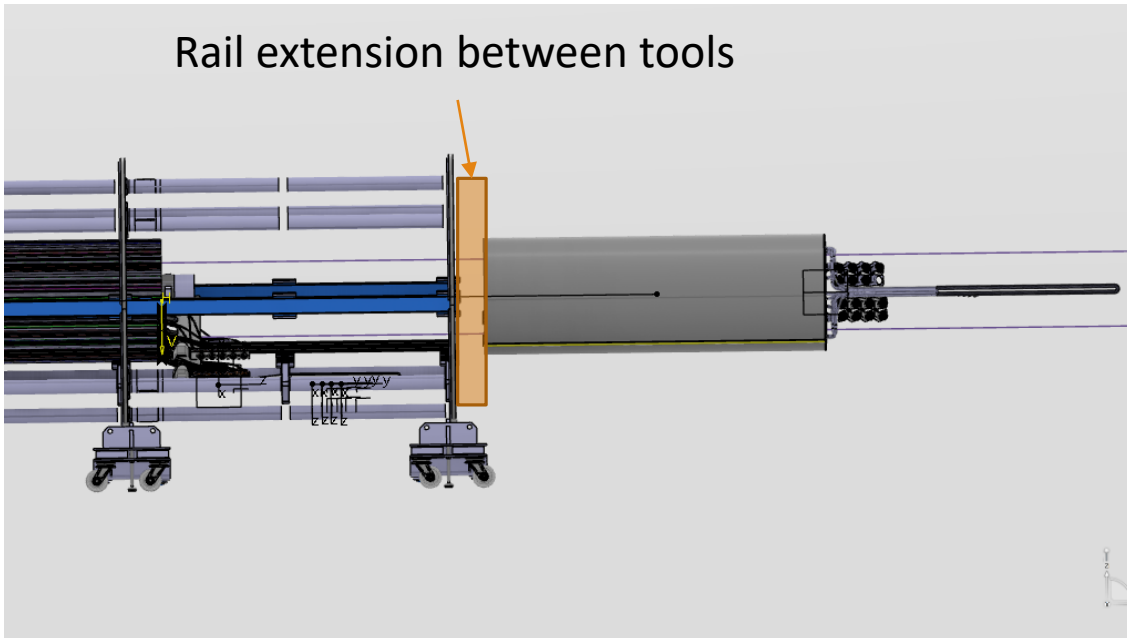


Before insertion

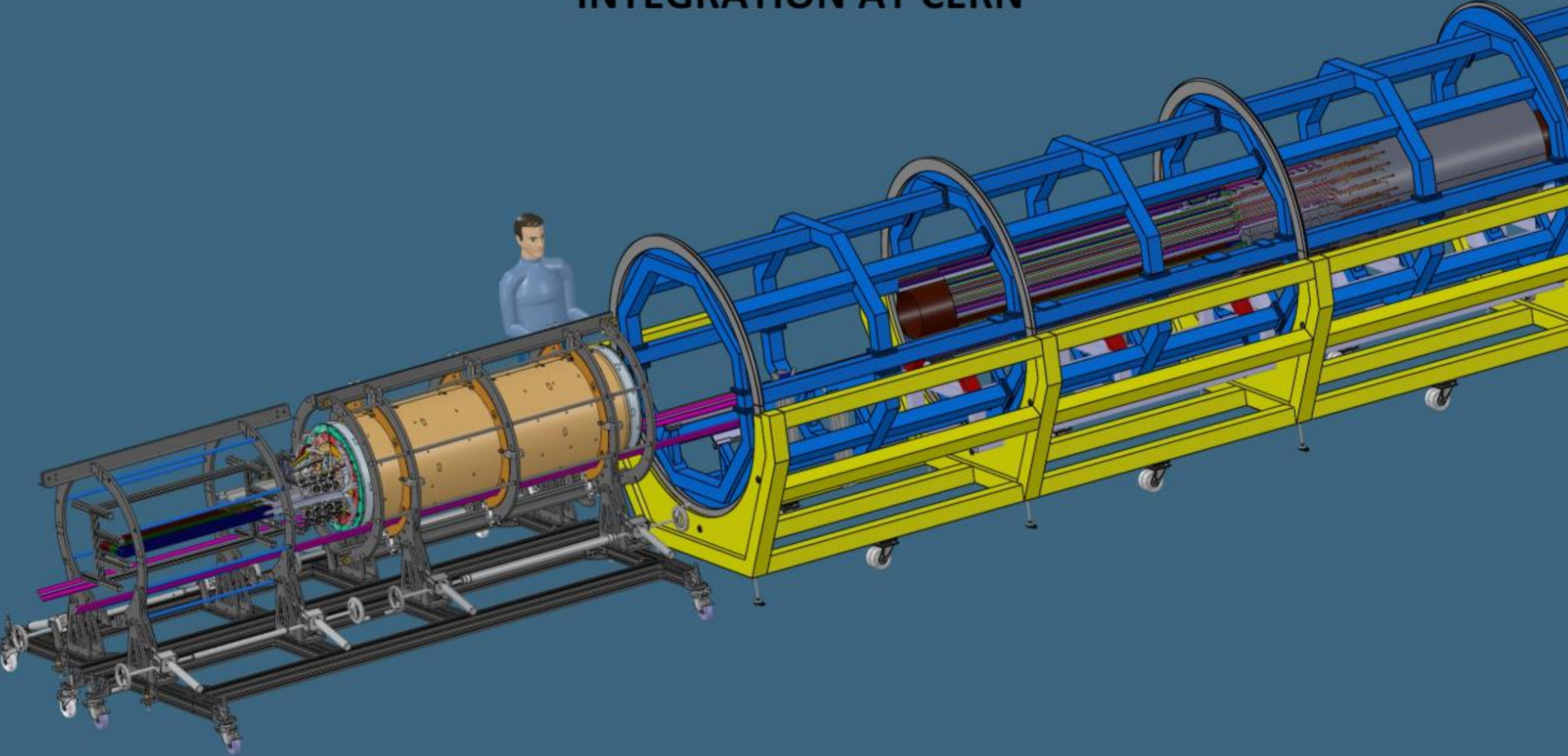
- An interface tool is required to extend OS tool rails to OE tool rails → Interfaces on OS tool and OE Toll will have to be defined → **Who is designing this interface?**

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Rail extension between tools

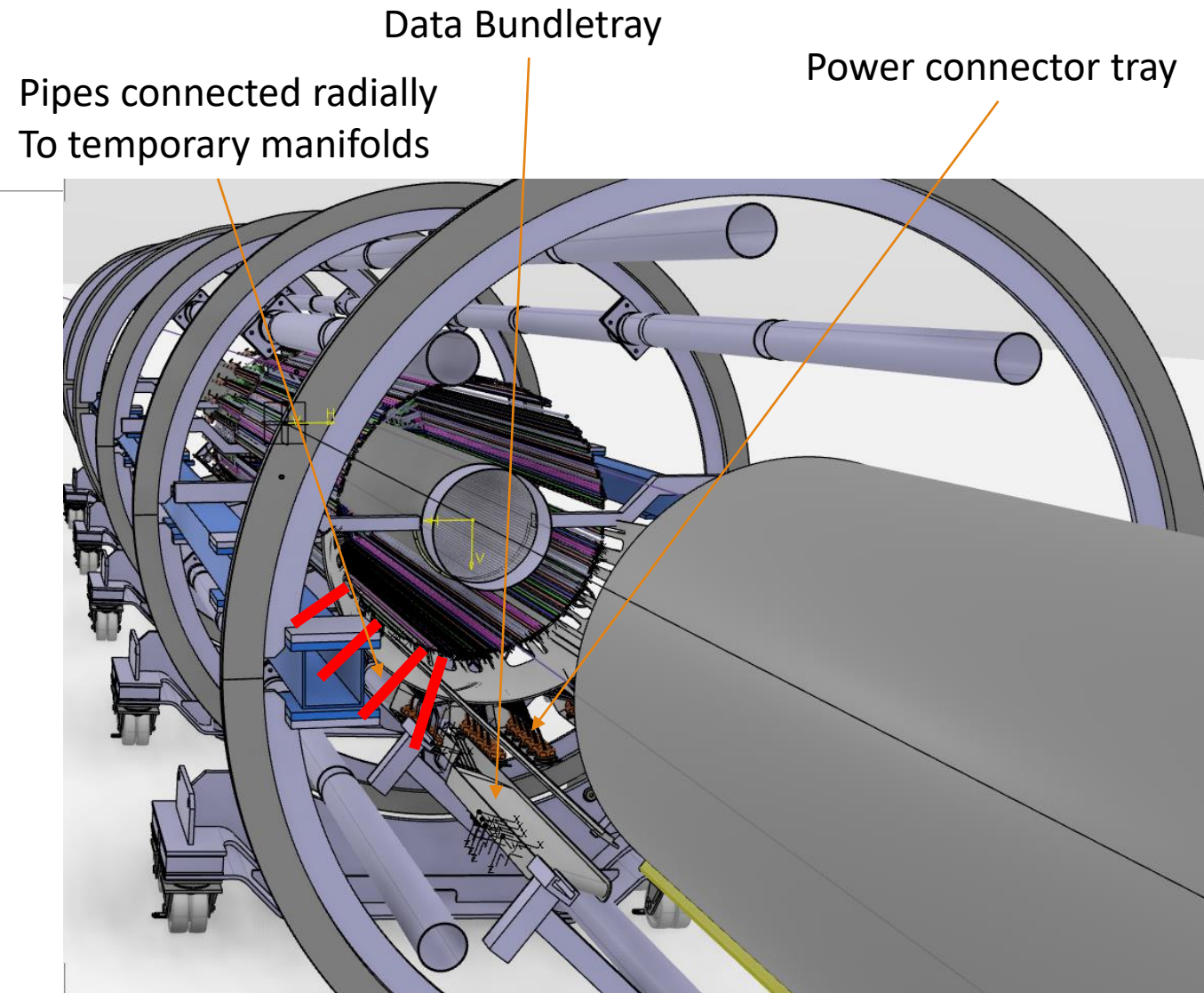
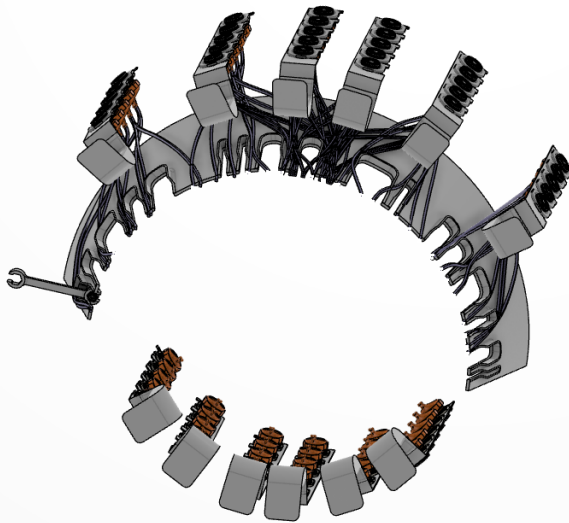


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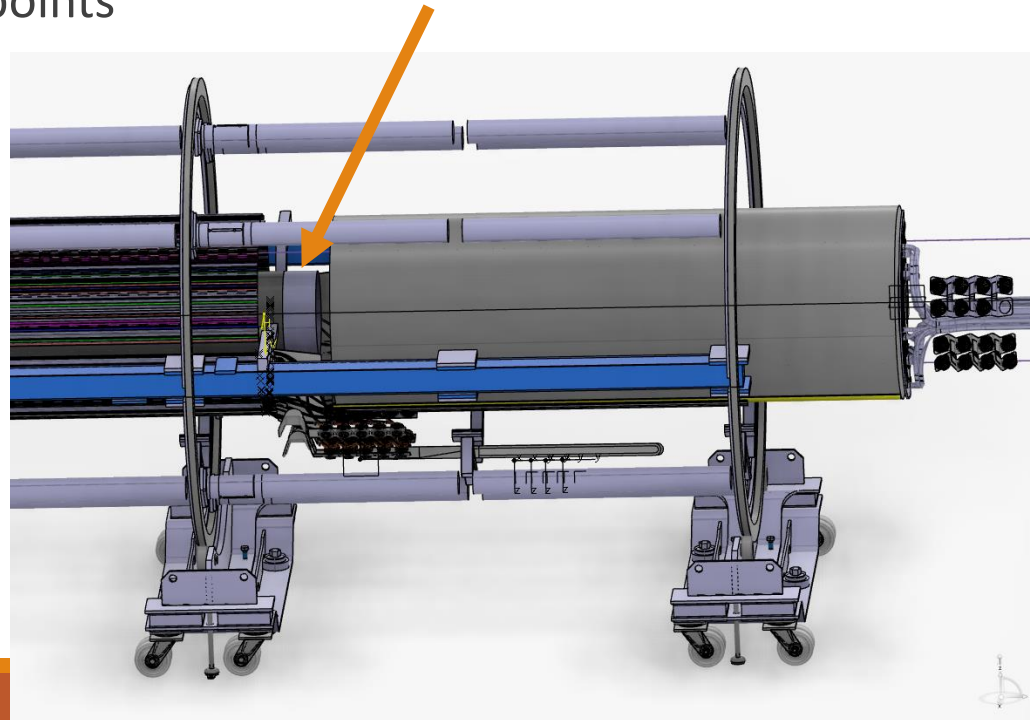
OB configuration

- ❑ OB SSS are in opened configuration to provide OE insertion clearance of few mm
- ❑ OB service trolley is in opened configuration, all OB services are out of the insertion volume → This is the only configuration which permit OB testing



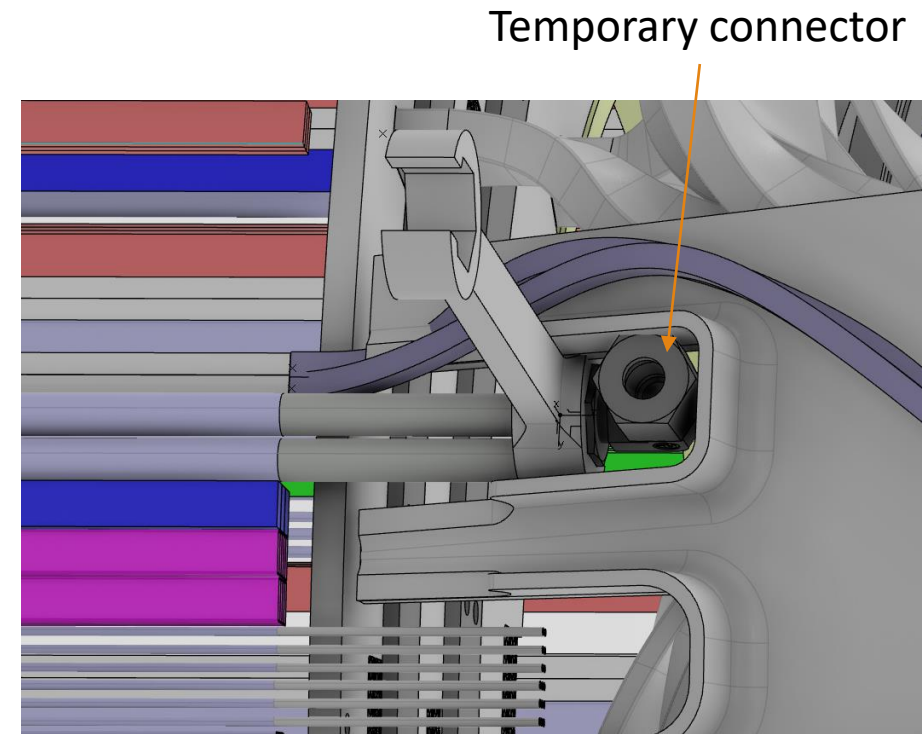
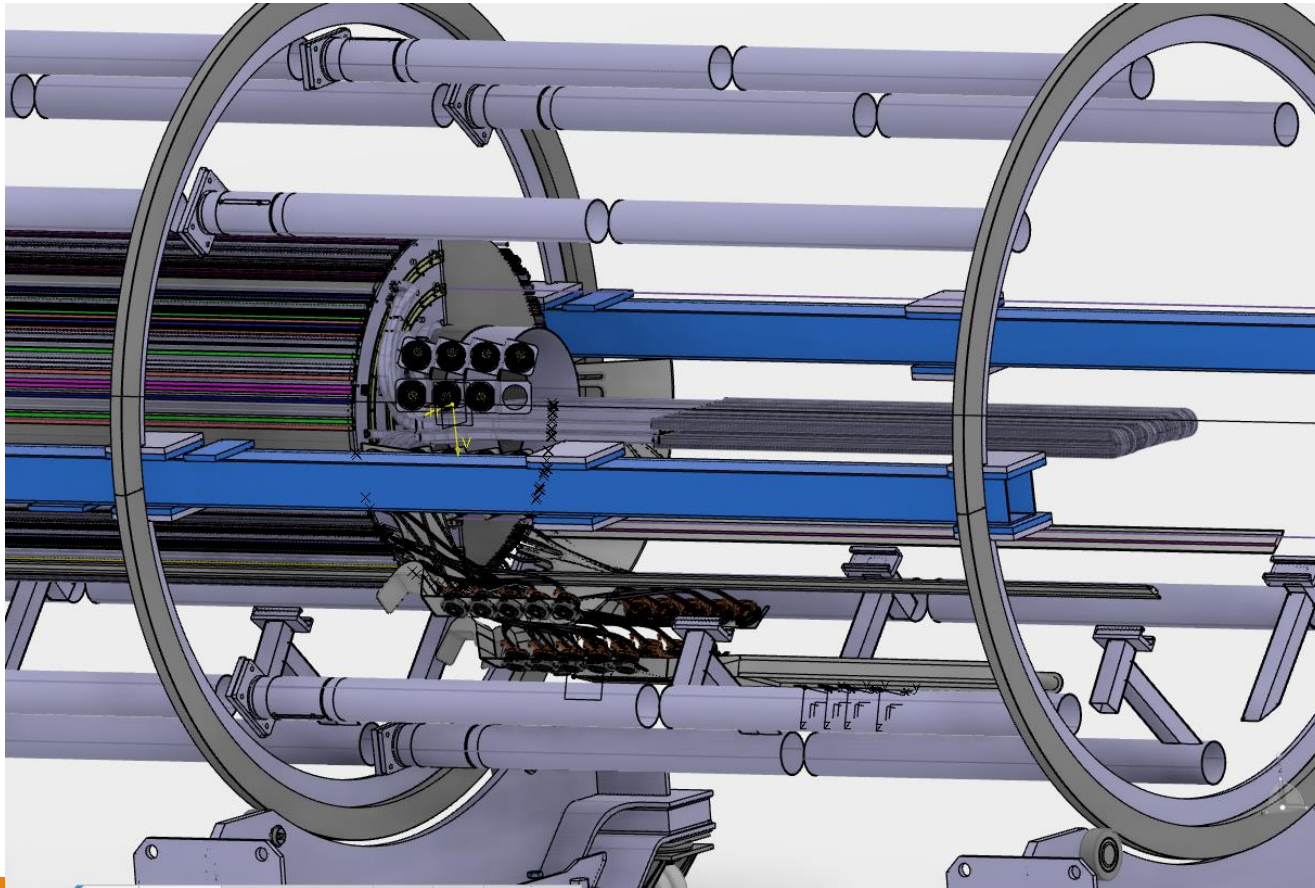
OE Insertion

- ❑ OE is pulled inside OB SSS
- ❑ During this phase all OB temporary cooling connection needs to be removed
- ❑ Close to the IST flange, a transfer is needed from IST temporary supporting features and OE supporting points



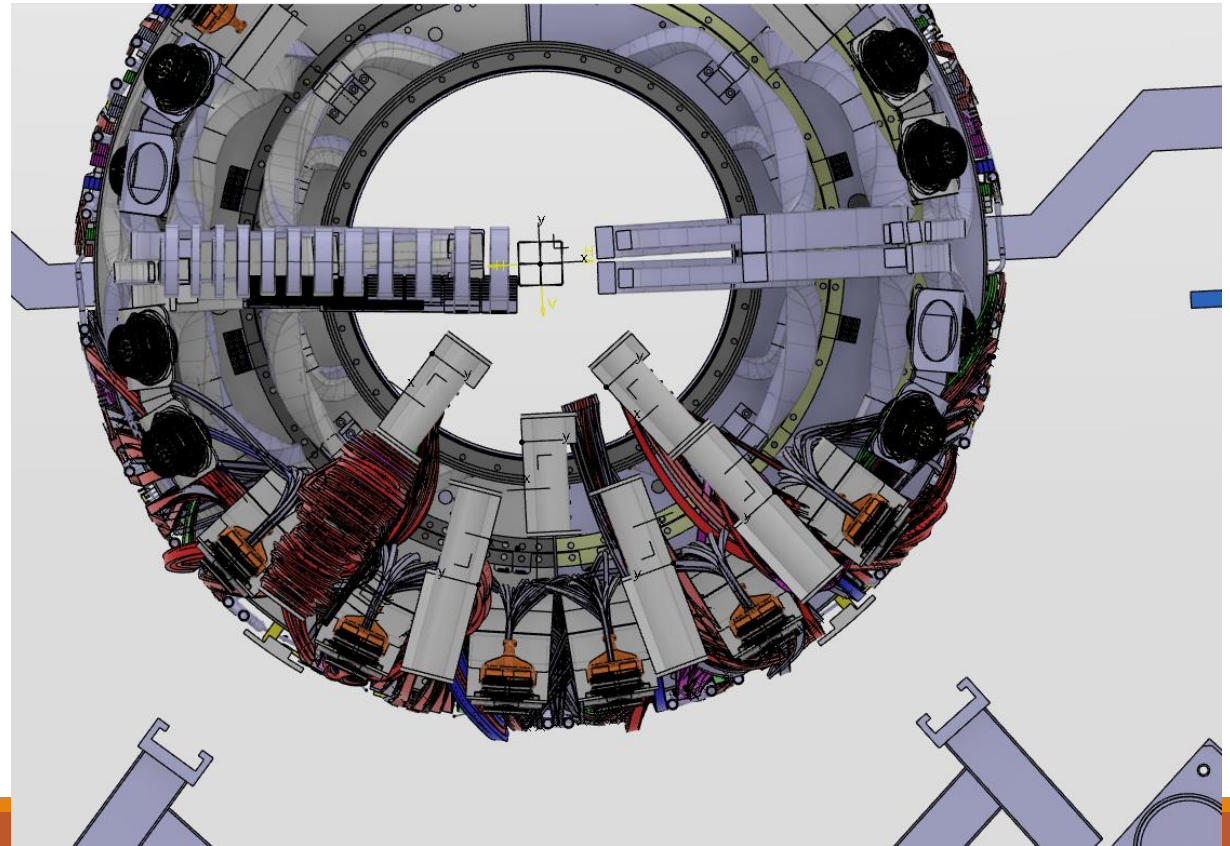
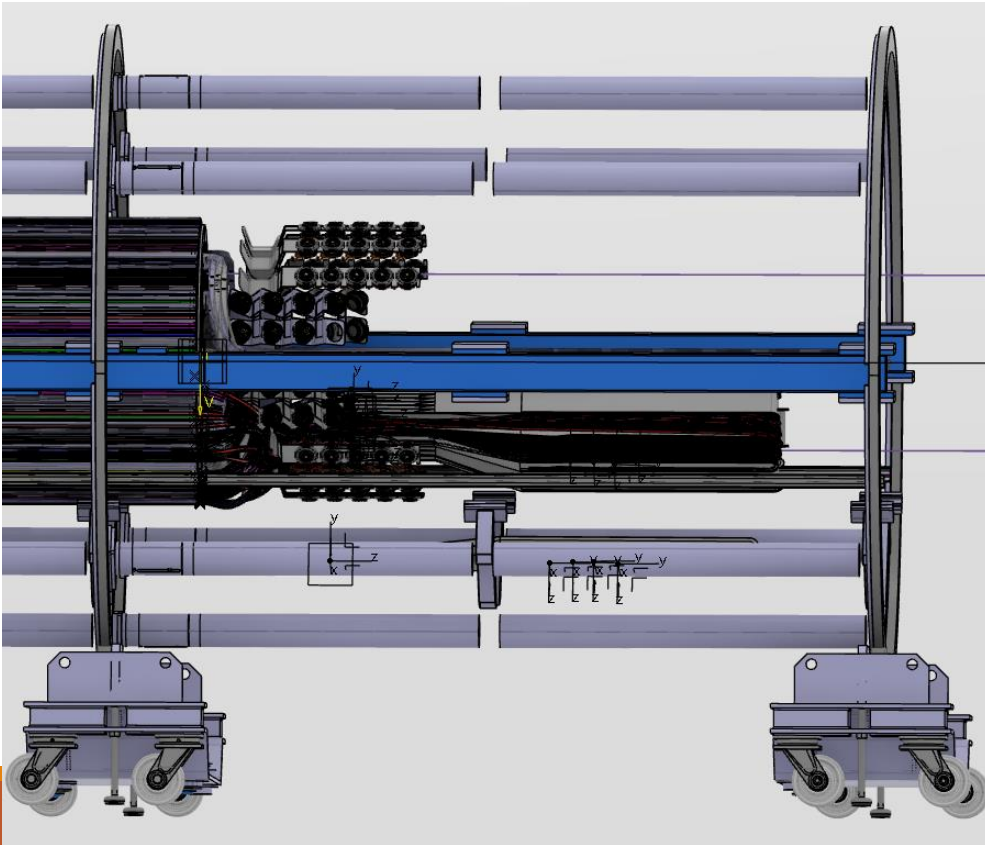
OE insertion end

- When OE have been fully inserted, testing remain possible by reconnecting OB cooling



Trolley closing

- The last action will consist to close the OB trolley and put it into the OE trolley (Interfaces and supporting scheme need to be defined)

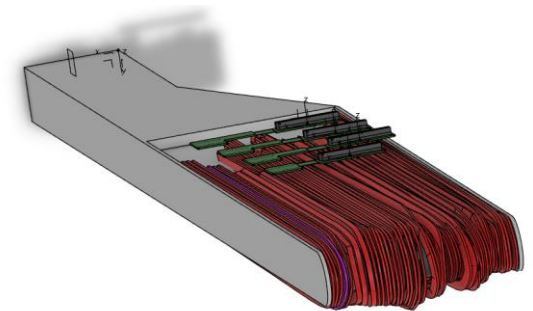
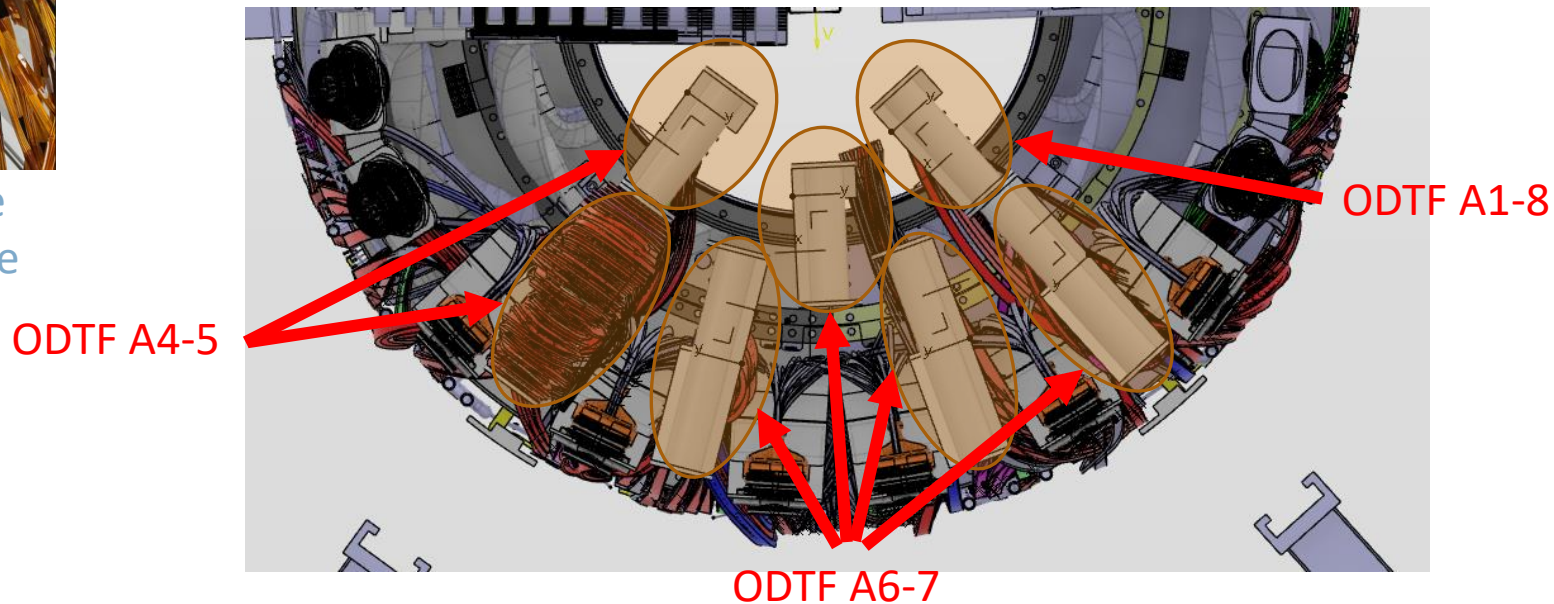


OB Trolley Data bundle routing rules

- 7 trays will be used to store the data bundles
- All bundles inside a tray will be allocated to the same ODFT, no mixing allowed → this will simplify cable handling during PP1 wrapping

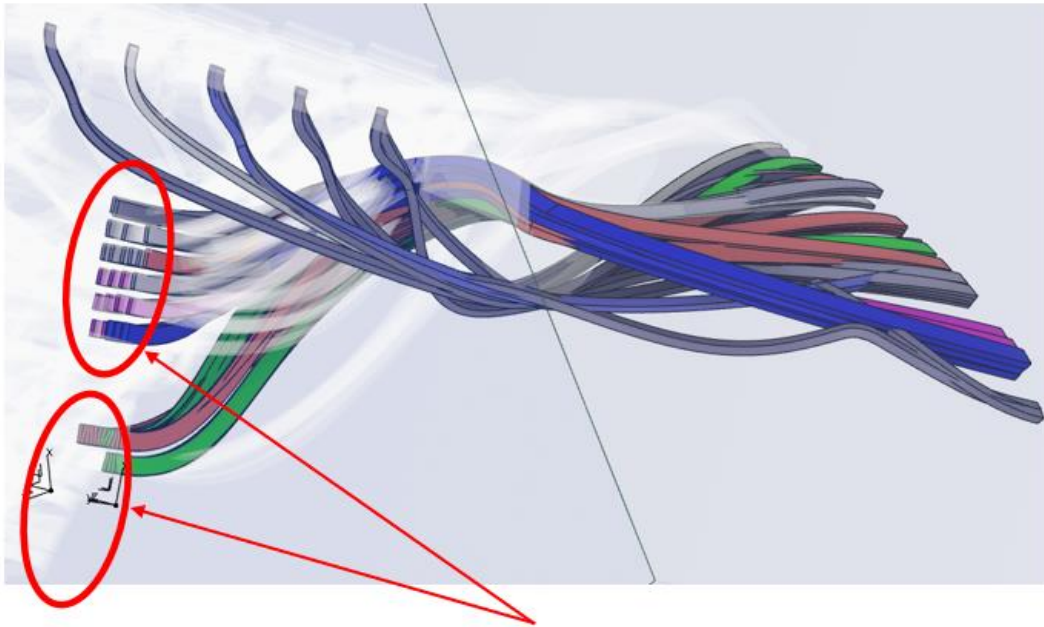


CERN SSS service routing prototype



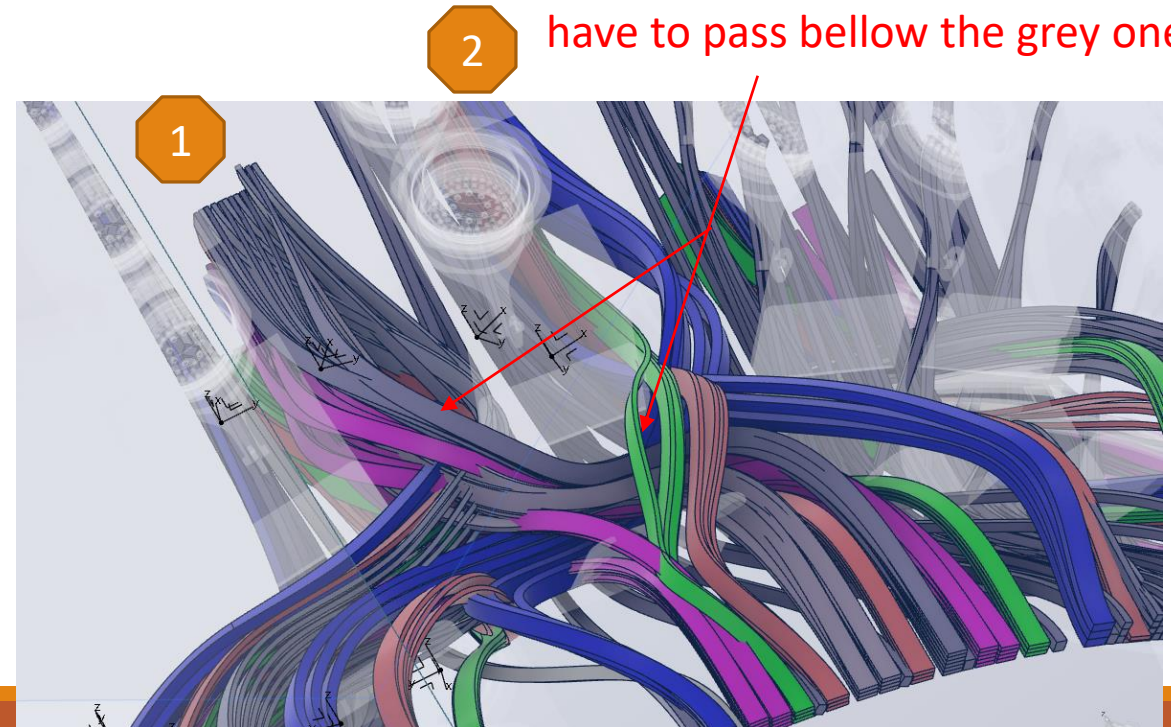
Routing rules

- All bundles, data and power will be routed respecting radial position rules:
 - Power bundles will be at low radius (last cable to move during PP1 wrapping)
 - Data bundles will be routed at higher or lower radius depending on the tray radial position



Cables in the upper tray are routed on top of
The lower tray cables even in the R/phi groove

For example here the green cables
have to pass below the grey ones



Summary

- ❑ A lot remain to be done especially on the OB trolley:
 - ❑ Interfaces between OB trays and OS tool
 - ❑ Interfaces between OB Trays and OE trolley
- ❑ We will route full A side to get a full numerical mock-up of the bundle management
- ❑ Regarding the insertion phase we need to design the rails extension systems and define who will be in charge to design this interface
- ❑ We will need to look at the cable unwrapping at PP1 and the pipe welding sequence