

*R&Ds after the Lol,  
focused on the  
engineering tasks*

*= technical coordinators =*

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# Imperfect list (23 items)

- I. Detector integration
- II. Machine Detector Interface
- III. Push-pull
- IV. Assembly
- V. Schedule and communication

# Detector integration

- Communication with sub-detector people to fix technical design (support, cabling, cooling, alignment, maintenance , ...)
- Yoke engineering design
- Endcap opening mechanics (to split or not to split)
- QD0 support
- Cryogenics design and risk evaluation

# Machine Detector Interface

- Vacuum along beam line up to QF1 (push-pull valve )
- MONALISA integration
- QD0 support
- Improved communication with machine people

# Push-pull

- Push-pull scenario (platform, rollers, air pads, cable-chains, electronics, cryogenics etc.)
- Shielding (pacman or ...)
- Hall design (space needed, crane, safety aspects, .....)
- Piping, cabling systems not covered by push-pull scenario
- Communication with other detector

# Assembly

- Installation scheme in surface building
- Tooling for installation
- Evaluate necessary space in surface hall
- Transport of detector sections through shaft into experimental hall
- Tooling for shaft transport
- Installation scheme in exp. hall
- Tooling for maintenance in exp. hall

# Schedule and communication

- Define time lines and mile-stones
- Improve decision making