

# Which devices/tools/algorithms would you like to connect to middle layer ?

# **Observables (Read Only)**

 BPM, Current, Beamloss, Beam spot (transverse & longitudinal], Vacuum gauges
Including archiving

# Variables (Read Write):

• RF frequency & voltage, Magnet power supplies

#### Unit conversion:

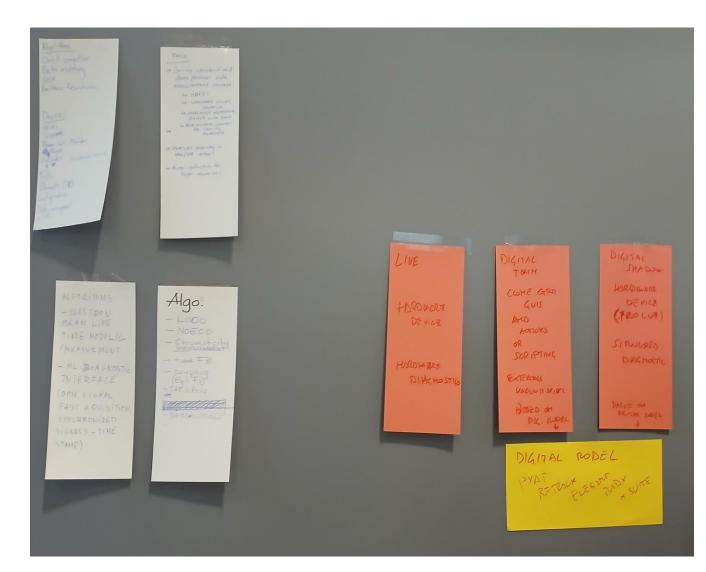
- Calibration curves
- Combined function magnets with nxm strengths/currents relationship

# Algorithms:

- SOFB , FOFB configuration
- BBA
- LOCO
- Tune
- LT optimization using machine learning
- Amplitude dependent tune shift
- Impedance
- Emittance, bunch length (FWMH + calibration)

### Measurements/Scan:

- ORM
- Chromaticity
- Emittance & Bunch length



#### Storage:

- Orbit response matrix
- Tune response matrix
- Golden points

# **Configuration:**

- Quad for tunes
- Valid BPM
- Various element family

# Abstractions:

- Control system: ECPIS, Tango, DOOCS
- Tracking code: AT Elegant

# Digital twin/shadow/simulator

Agree on terminology

# **Versioning control**

• gitlab, github

# Migration from Matlab middle layer

• Convenience functions