

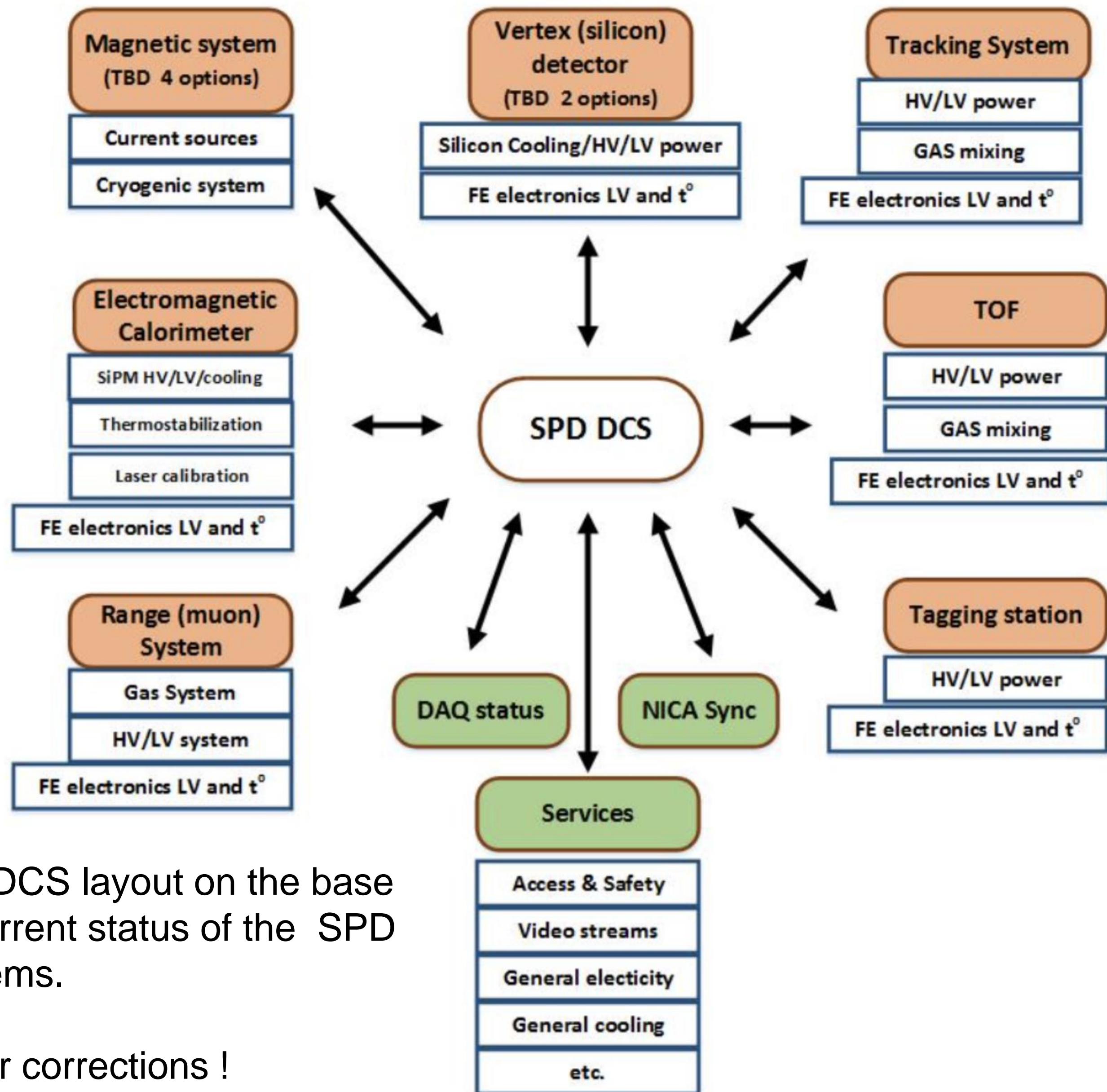
SPD DCS & BTZ

SPD detector control system and Beam Test Zone

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SPD detector control system (DCS)



SPD DCS basic principles and rules

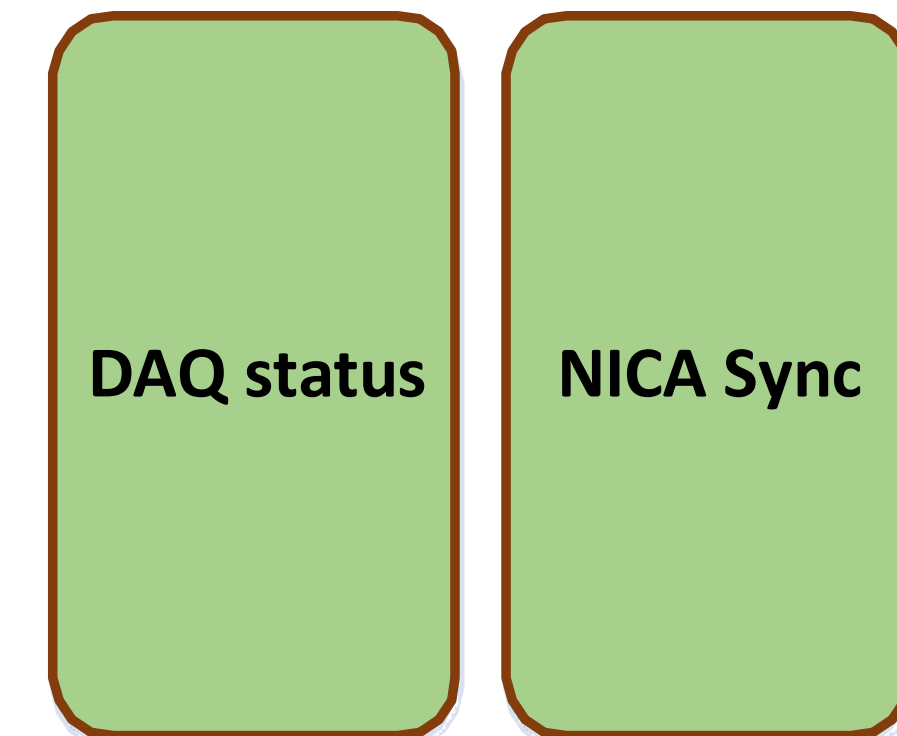
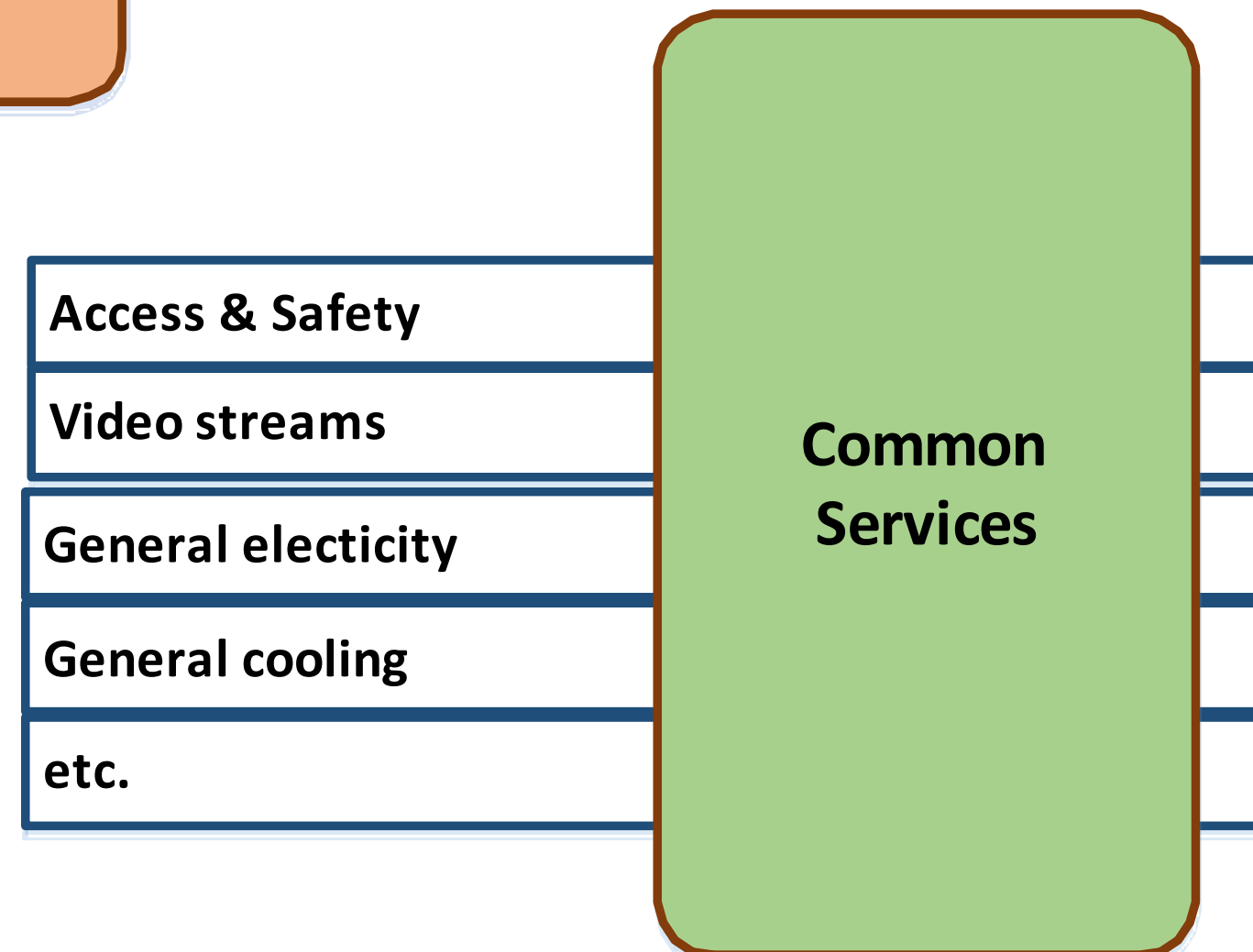
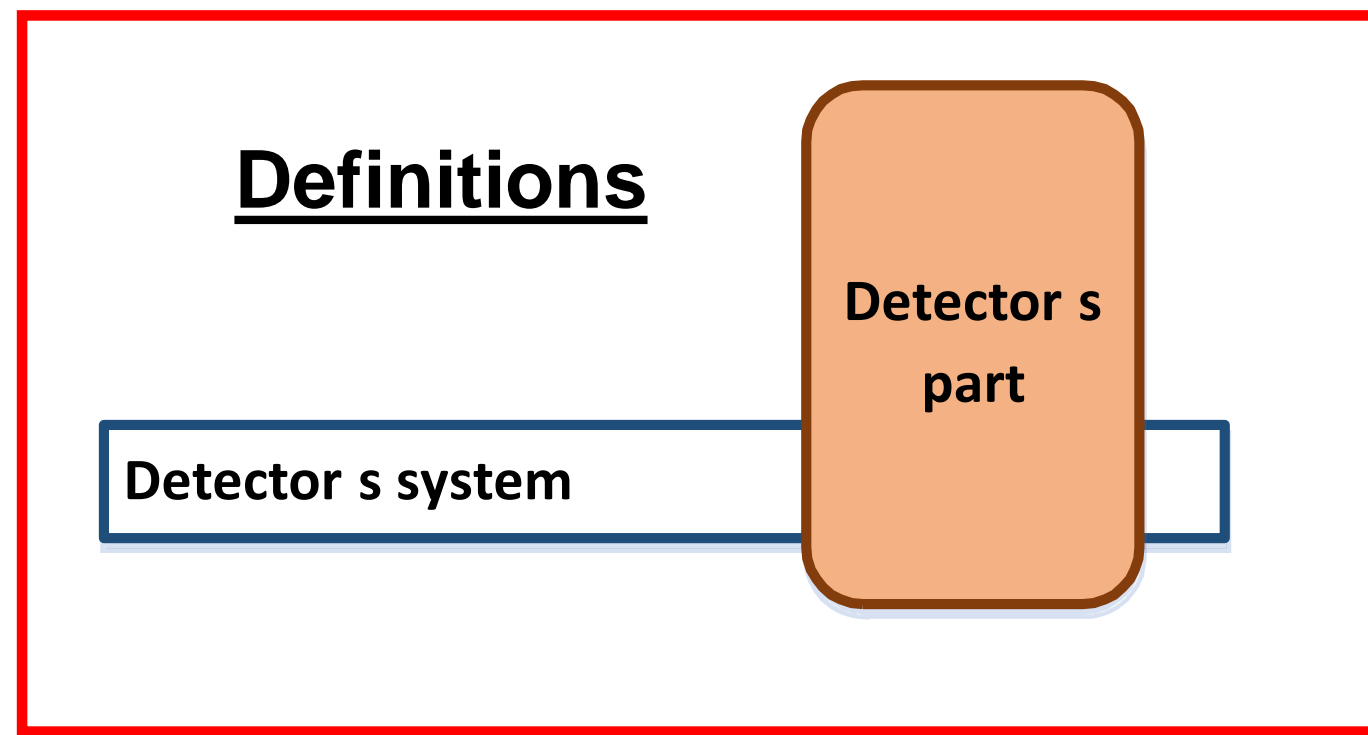
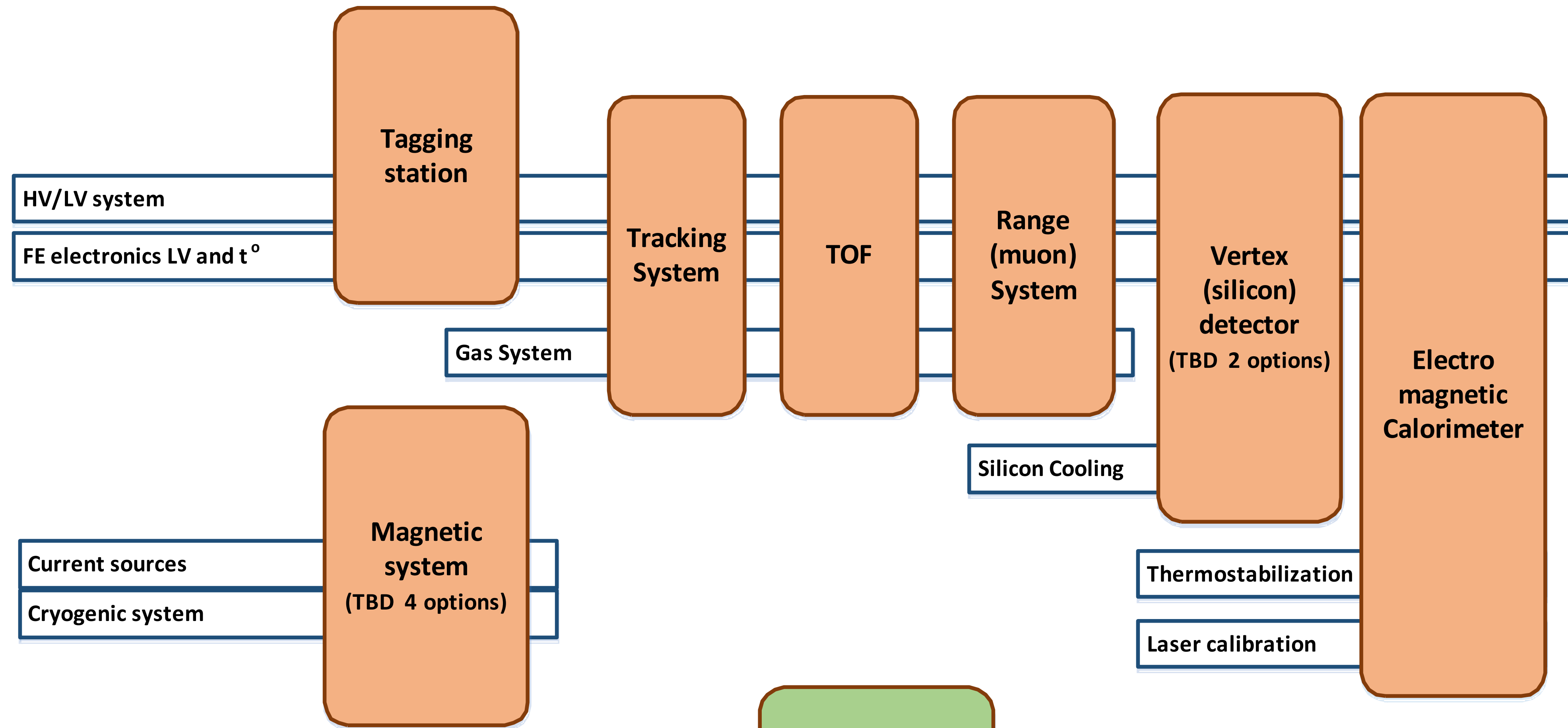
Control system of each SPD system should be developed according to the predefined rules and principals described in SPD CDR

Used (or planned to use) technologies, software and hardware components should fulfilled predefined rules and agree with the SPD DCS responsible persons.

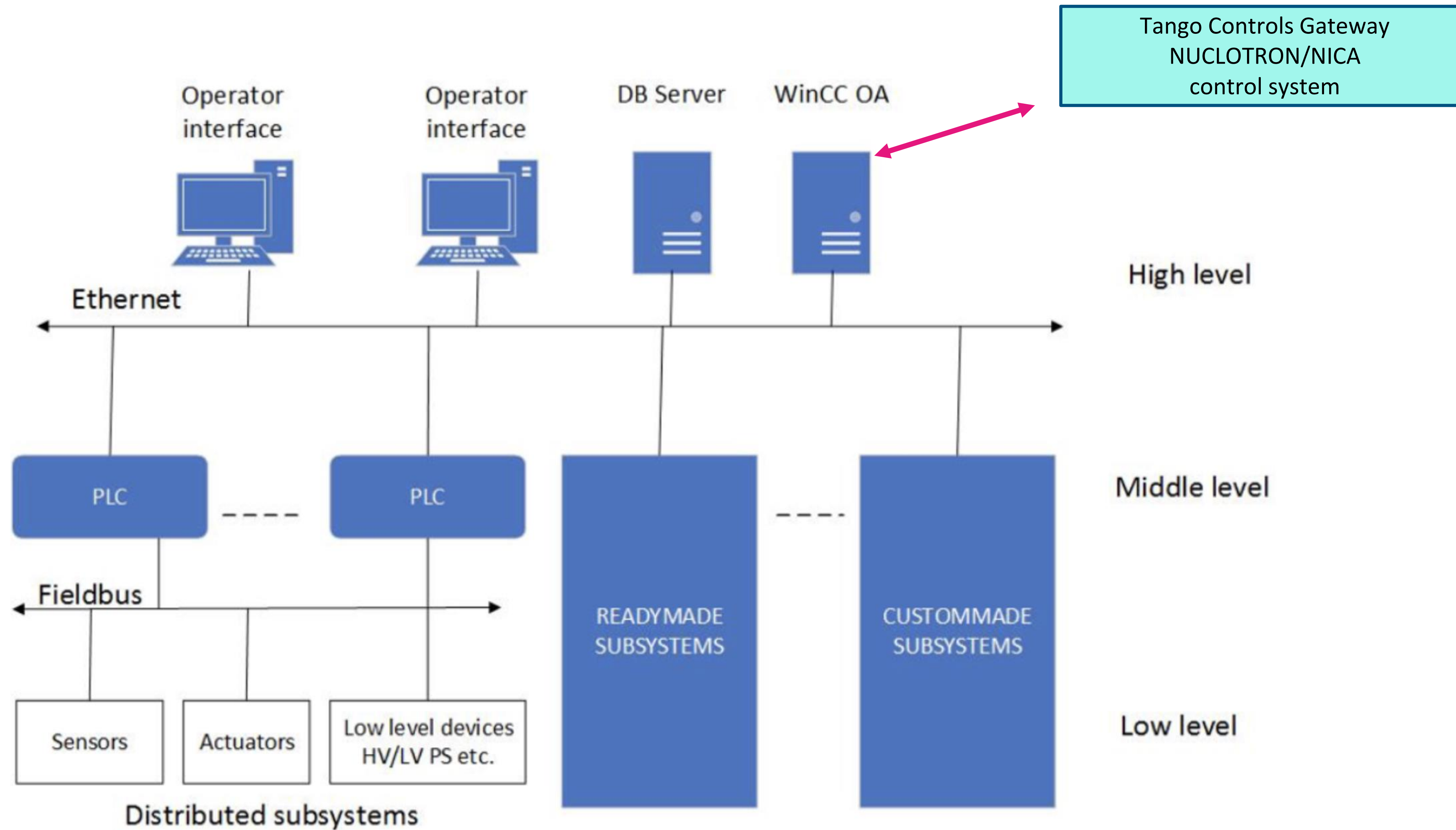
These rules could be modified and changed till the SPD TDR stage

Current DCS layout on the base of the current status of the SPD subsystems.

Open for corrections !

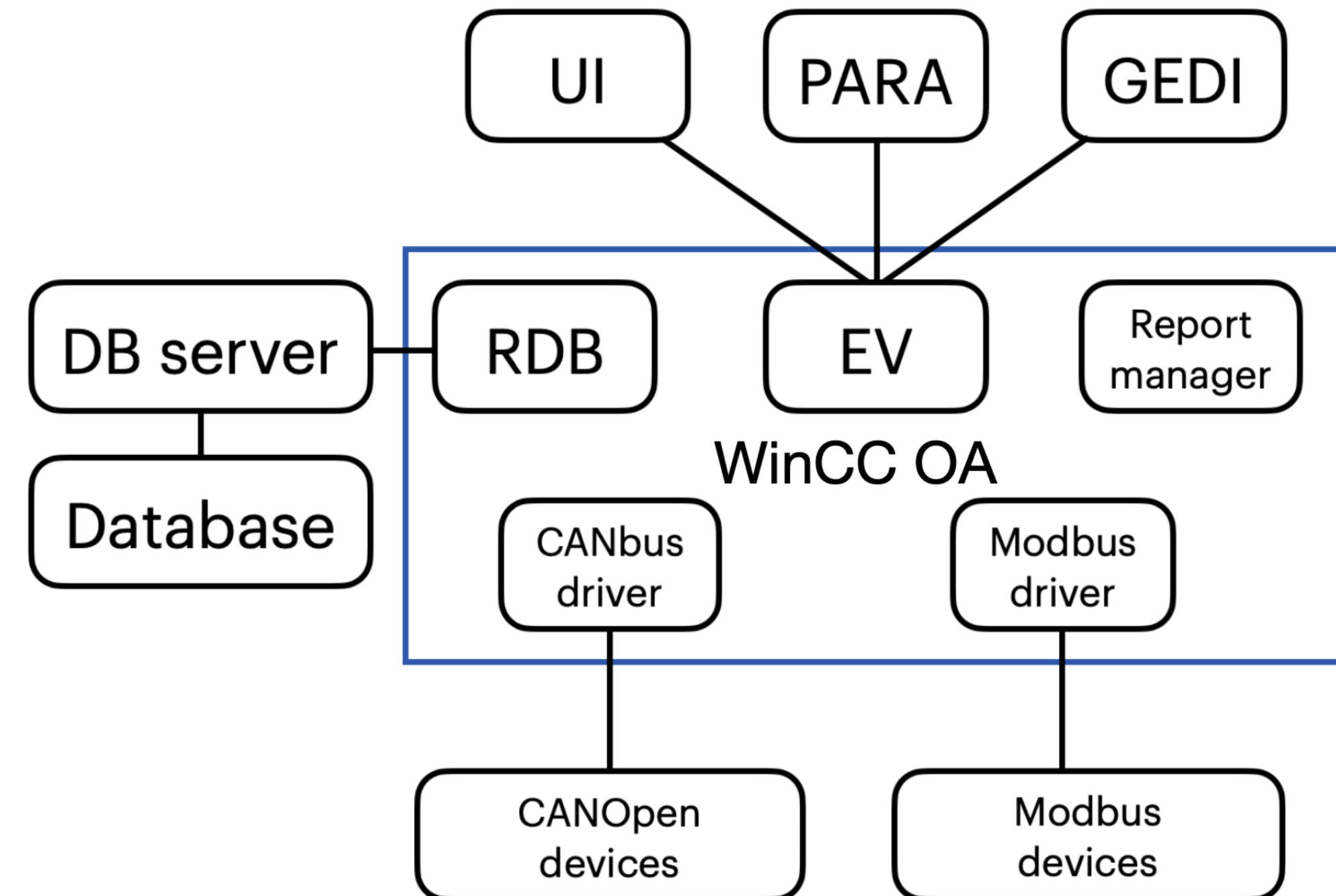


SPD DCS architecture



SIMATIC WinCC Open Architecture

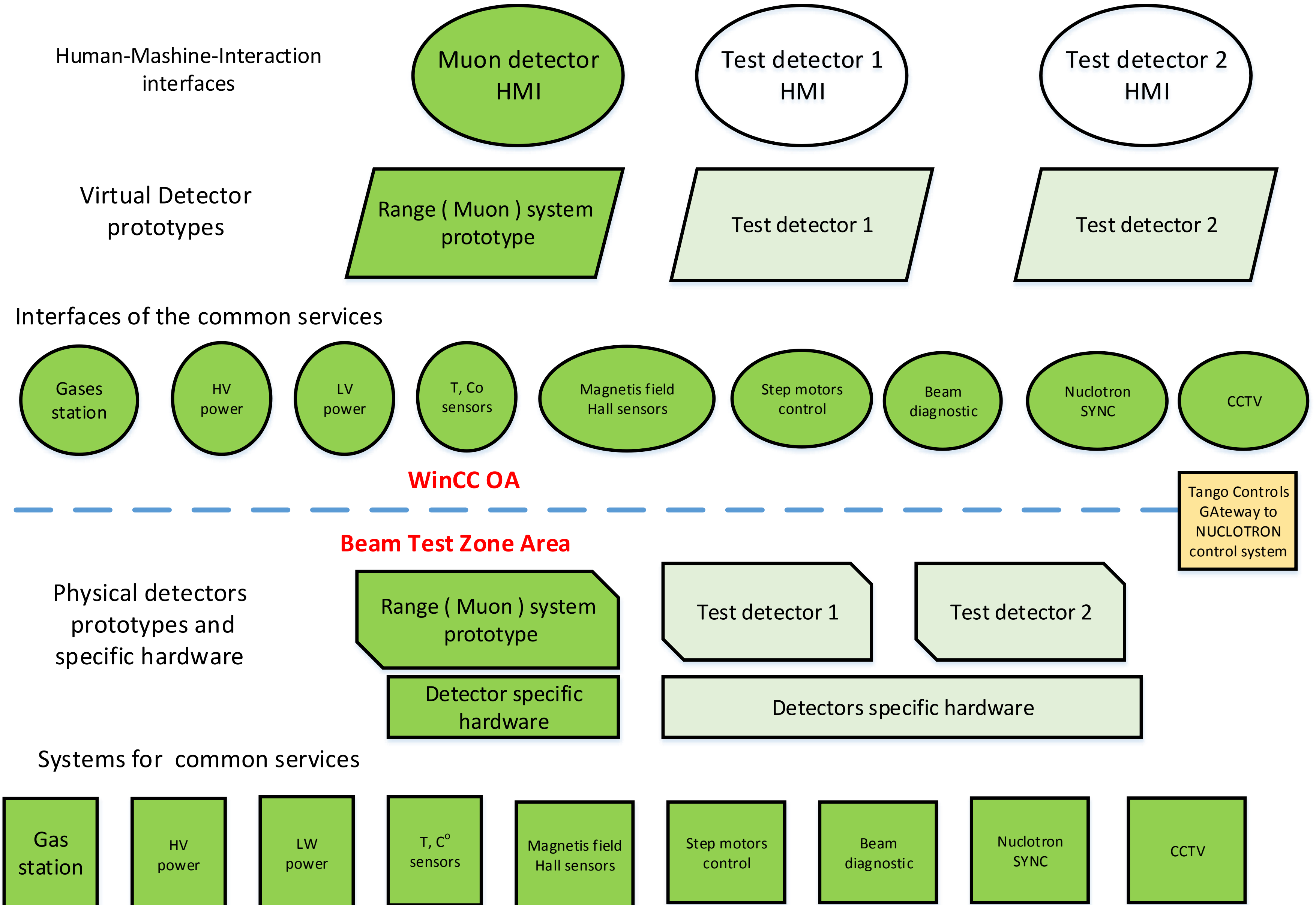
- Widely used at CERN
- Framework to build a SCADA system – Not bound to any domain
- Include main traditional SCADA functionalities:
 - » Engineering (device creation, device settings, etc.)
 - » Acquisition (OPC, Ethernet, etc.)
 - » Alarm handling, display, filtering
 - » Archiving, trending, logging
 - » User Interface
 - » Access Control
- Based on the notion of managers
 - Event manager, archive, driver, control, etc.



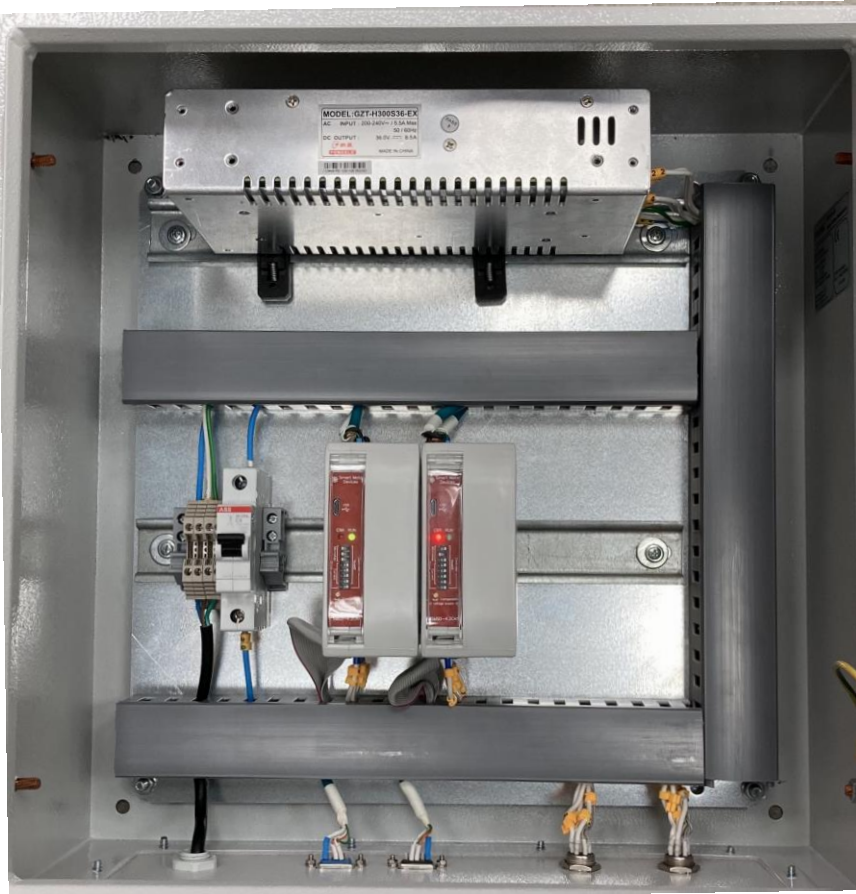
Beam Test Zone control system (Open architecture)

Beam Test Zone control system is intended for the following purposes:

1. To test prototypes of control systems for different SPD systems
2. To test separate components of SPD DCS with WinCC OA
3. To develop and test software prototypes for common SPD DCS services such as HMI, DB etc.
4. To test interoperability between SPD DCS of different systems
5. To test interoperability between SPD DCS of different systems and NICA accelerator
6. Anything else ???



BTZ control system - examples of hardware for common systems control



Stepper motor control



Gas station control



T, C° measurement

More Systems are coming

Conclusion

DCS development often encounters typical difficulties and mistakes:

- Weak “connections” between different groups developing different parts of the detector including the corresponding control (hardware/software);
- Extremely heterogeneous set of equipment to be monitored/controlled which could be usually avoided;
- DCS typically being developed later than major parts of all subsystems, (we have got a chance to do parallel development)
- DCS typically is considered as less important part of the controlled system so less attention and limited funding is the usual practice

We have a chance to minimize these difficulties if will follow agreed rules concerning SPD DCS development