# TE/MPE LS1 activities review
EN/ICE contribution

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QPS CONTROLS

- **What was your group contribution to MPE work? and the other way around?**

  - Full redesign of supervision layer: separate Oracle archive in projects to deal with performance requirements 150k changes/s

  - Migration to WinCC OA 3.11

  - Adaptation of QPS supervision and middleware to the QPS hardware evolution.

  - All control layers updated, bug fixing and reconfigurations.
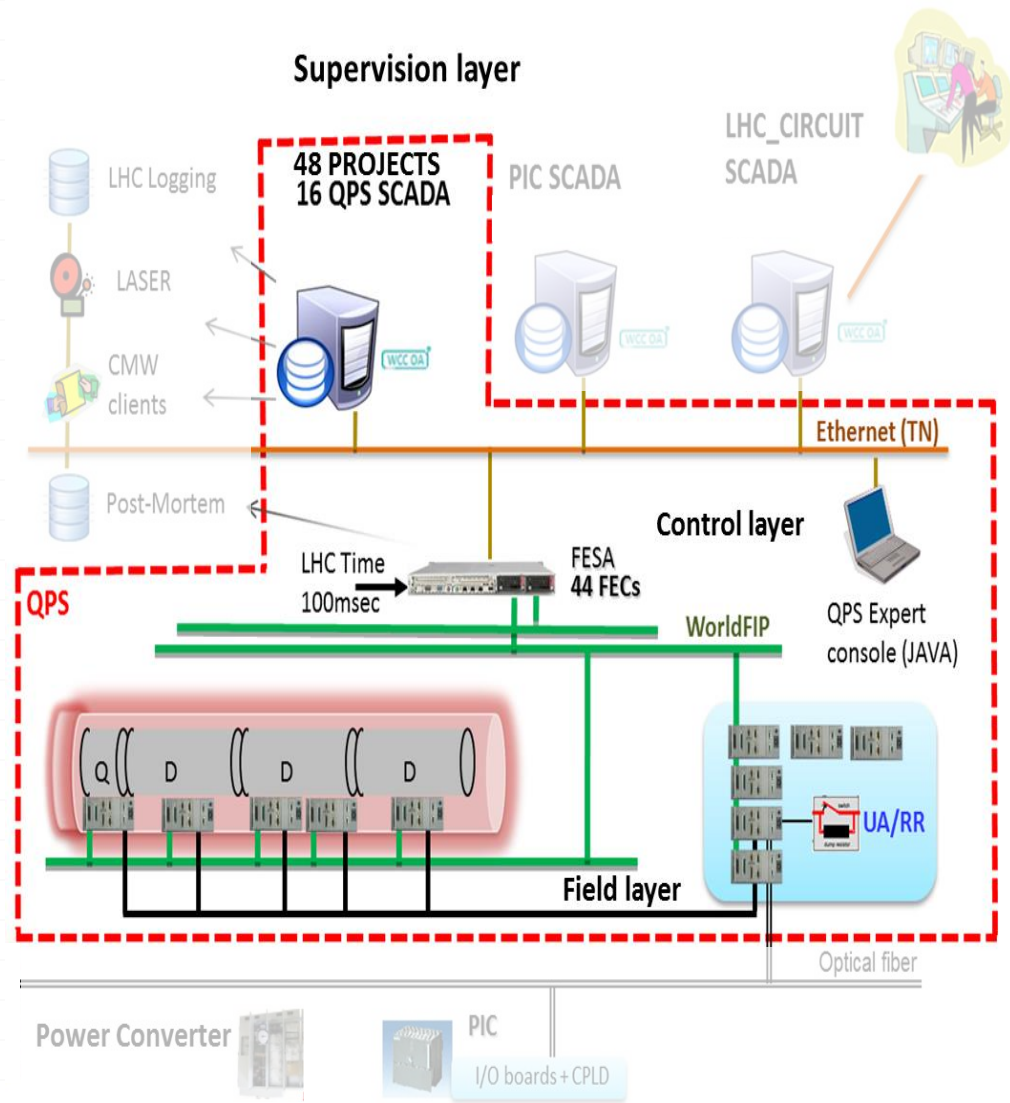
QPS CONTROLS

- **What was the impact of MPE work on your own activities?**

  - 1 person 40% on development and maintenance, 60 % during commissioning, 1 operator 50 % on FESA and Java development.

  - Expert support after working hours.

  - EN/ICE Piquet service after working hours.

  - Scada Application service: redesign of architecture (16 -> 48 projects)

  - Currently dealing with knowledge recovery.

QPS CONTROLS

- **What were the interfaces (Material, Personnel…) with MPE work? Please define limits of responsibilities**

  - Project leading in charge of QPS controls, Herve Milcent.

  - Weekly meetings between MPE, BE-CO and EN-ICE.

  - Supervision layer in charge of Herve Milcent.

  - FESA Real Time processes and QPS expert tool development in charge of Bruno Dupuy.

  - QPS hardware controllers in charge of Reiner Denz.

QPS CONTROLS

- **What worked well?**
  - Closed collaboration and interaction.
  - Met required performance.

- **What went wrong?**
  - Delay during commissioning due to delays in the hardware installation.
  - QPS expert tool initially used as diagnostic facility now used as operation tool, causing inconsistencies with Supervision and configuration database.
  - Work overload due to consistency checks and re-configuration.
  - No test procedures for the new hardware firmware.
  - No documentation on hardware evolution.

QPS CONTROLS

- **What can be changed? What can be improved?**
  - Integration of many different devices with different performance, functionality and firmware: requires a lot of documentation, firmware version control and testing.

  - Improvements:
    - Standardization of data transmission between FESA RT and hardware controllers.
    - Simplify data management in the FESA RT and therefore the supervision layer.
    - Need of a proper test bed: upgrade test catalogue and automatize test cases. Performance tests.
    - Large number of tools: homogenize or integrate them on an unique suite, well documented and maintained
    - Performance issues on wFIP. Use a faster radiation tolerant field bus.
    - **We need your help to recover the lost knowledge.**
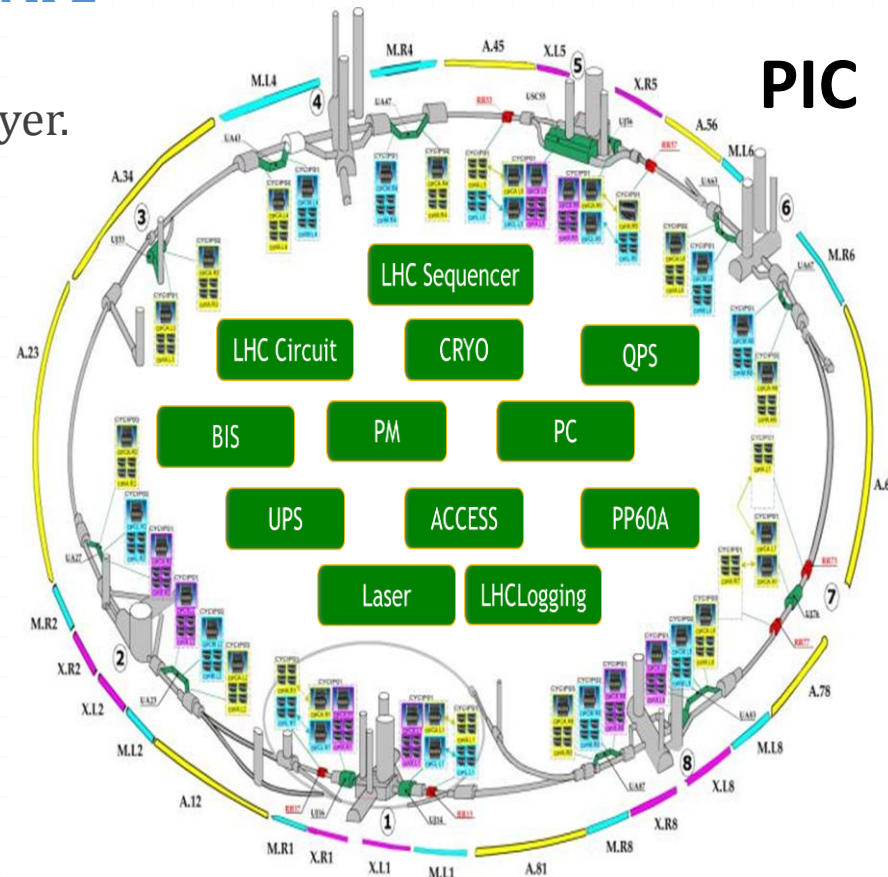
PIC & WIC

- **What was your group contribution to MPE work? and the other way around?**

CONTROL

  - Full re-engineering of the WIC PLC layer.
    - 3 major functionalities developed.
    - Whole PLC code reviewed.
    - Removed obsolete functionalities.
    - Version control.

SUPERVISION

  - Migration to WinCCOA 3.11
  - Migration to Oracle archive
  - PIC supervision layer improvements:
    - Automatic recovery tool developed.
    - Version control
    - Knowledge transfer from MPE to ICE.

  - PLC and WinCCOA configuration tool developed by MPE.

PIC

PIC & WIC

- **What was the impact of MPE work on your own activities?**

  - 7 man-months, 2 people involved for the control layer

  - 10 man-months, 3 people involved for the supervision

  - QPS modifications caused many internal PIC upgrades and issues.

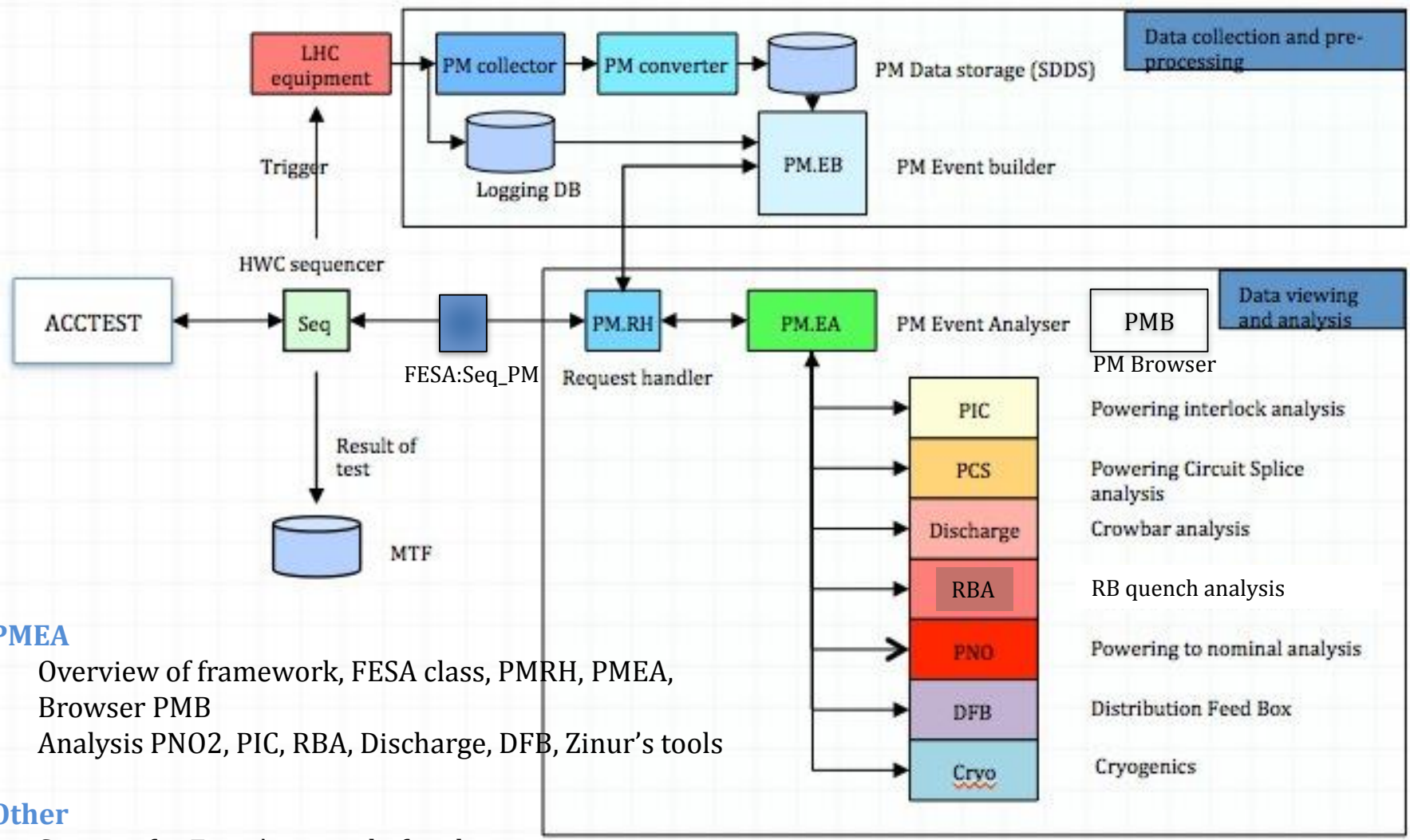 - Reconfiguration of devices due to relocation on PIC.

PIC & WIC

- **What were the interfaces (Material, Personnel…) with MPE work? Please define limits of responsibilities**
  - MPE in charge of configuration DB and hardware

  - EN/ICE in charge of control and supervision layers.

  - Hardware documentation from MPE.

- **What worked well?**
  - Close and efficient collaboration.

  - Availability, reactiveness.

  - Test bench.

PIC & WIC

- **What went wrong?**
  - Test procedures not clear.
  - QPS changes during commissioning impacting on PIC.

- **What can be changed? What can be improved? What can be kept for LS2?**
  - Improve testing collaboration and efficiency:
    - Test catalogue and procedures to be defined between EN/ICE and MPE.
    - More EN/ICE involvement.
  - EN/ICE should be involved in commissioning planning and status for resource planning.
  - More transparency on deadlines.
  - Simplify the summary logic at the Supervision layer.
  - PIC re-engineering at the Control layer to converge with WIC.
  - Do we need cohabitation of safety and non safety PLC for WIC?

PMA framework

PMEA
- Overview of framework, FESA class, PMRH, PMEA,
- Browser PMB
- Analysis PNO2, PIC, RBA, Discharge, DFB, Zinur's tools

Other
- Support for Zinur's myriad of tools
- Support for Jens and Mateusz (ELQA)

PMA framework

- **What was the impact of MPE work on your own activities?**
  - We were frequently overloaded with adapting to MPE changes

- **What were the interfaces (Material, Personnel...) with MPE work? Please define limits of responsibilities**
  - Analysis team, JC and Odd, defined the limits
  - Implementation by both EN/ICE and TE/MPE

- **What worked well?**
  - Most things worked well
  - Motivation of people was very high

PMA framework

- **What went wrong?**
  - Taking away the LSA DB without much discussion and without a proper functioning alternative
  - Frequent non backwards compatible and language (C++, Java) releases by MPE
  - Signal naming convention change between run (example: add "circ:" for some signal name for LS1)
  - Toggle signal A/B to retrieve signals like U_DIODE, U_QS0, ST_NQD0, ST_MAGNET_OK,…
  - Timing: signals not timed properly, difficult for RBA tool
  - Noisy/saturated data -> filters need to be applied
  - We were frequently overloaded with adapting to MPE changes

PMA framework

- **What can be changed? What can be improved? What can be kept for LS2?**
  - More automation: Discharge, DFB, Cryo, RBA?
  - Add new analysis
  - Tighter integration with ACCTEST. New API is coming.