

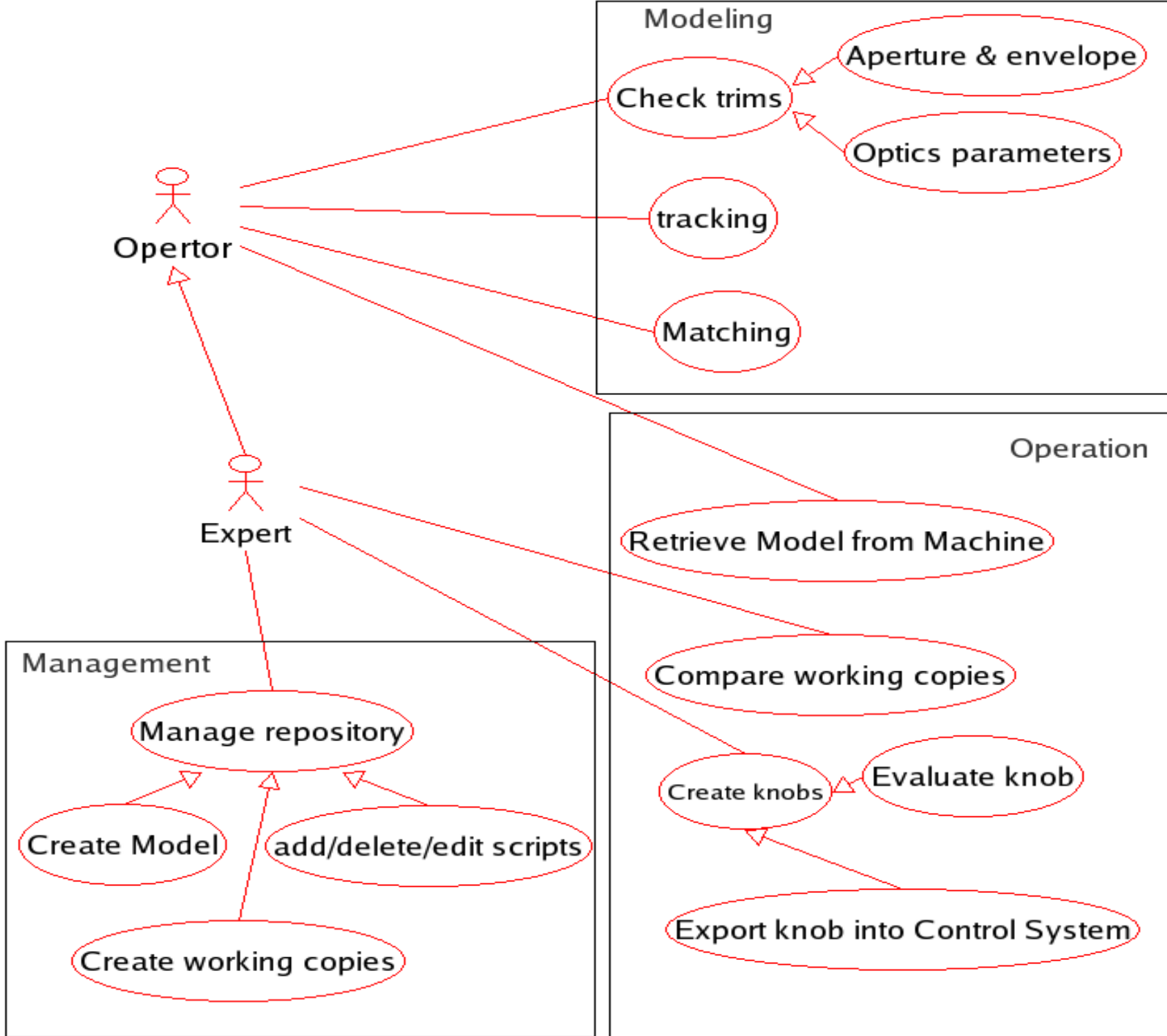
# Status of the LHC on-line model software development

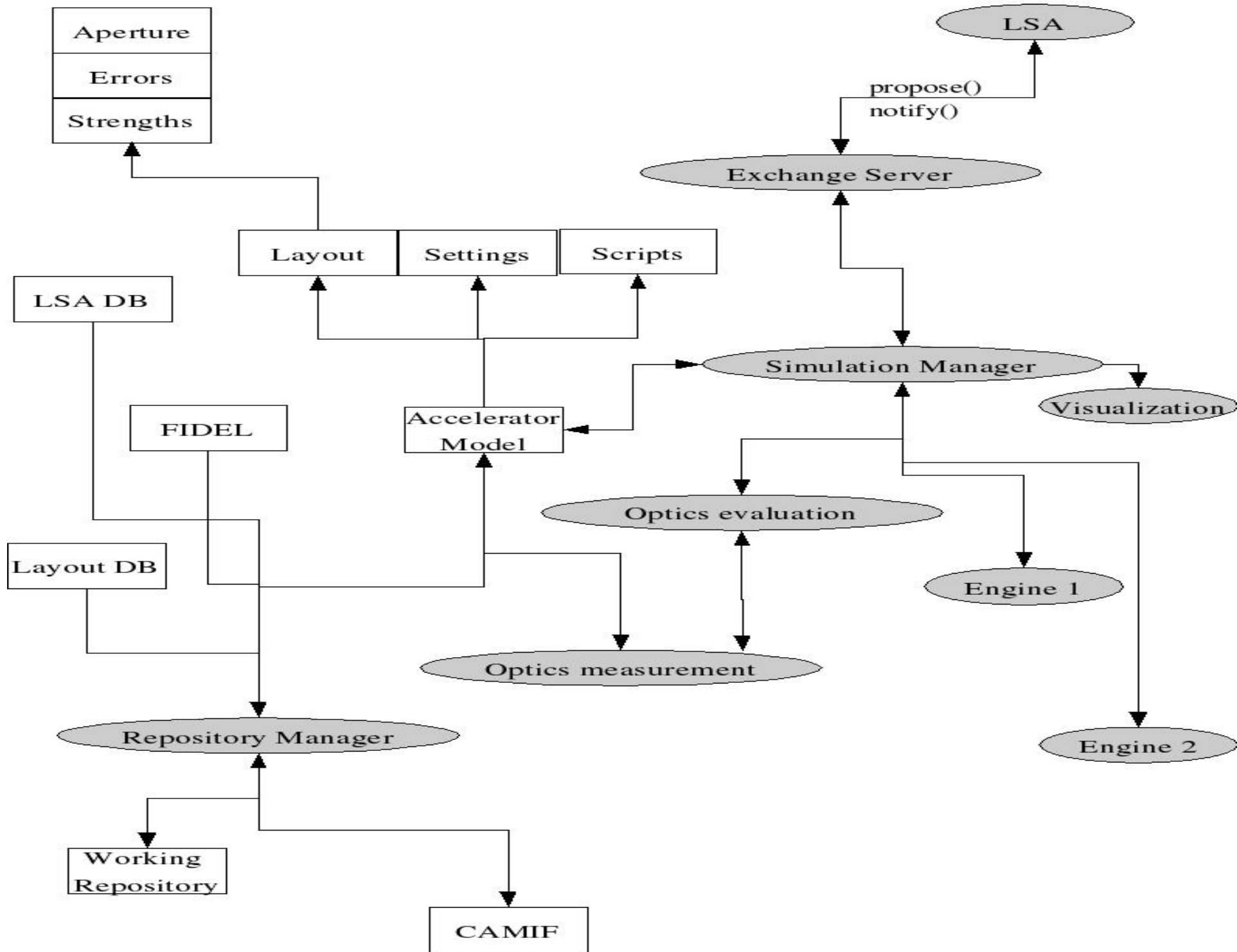
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# Specification summary

- For introduction see talk at LCU May 7
- General purpose: provide optics and simulations on the fly to humans and machines
- Use-cases
  - evaluate/exchange knobs and others settings
  - optics calculations for lsa
- Software requirements :
  - madx-based but multiple simulation engines possible
  - runs on-line as a server and interactively
  - LSA-compatible (i.e. written in java)





# Subsystems (loosely)

- simulation manager
- repository manager
- control system interaction (fidel + layout, server for lsa)
- optics evaluation and measurement (nonlinear + linear models)

[\*] - to be done

[\*] - work in progress

[\*] - almost complete

[\*] - complete

# Simulation + repository

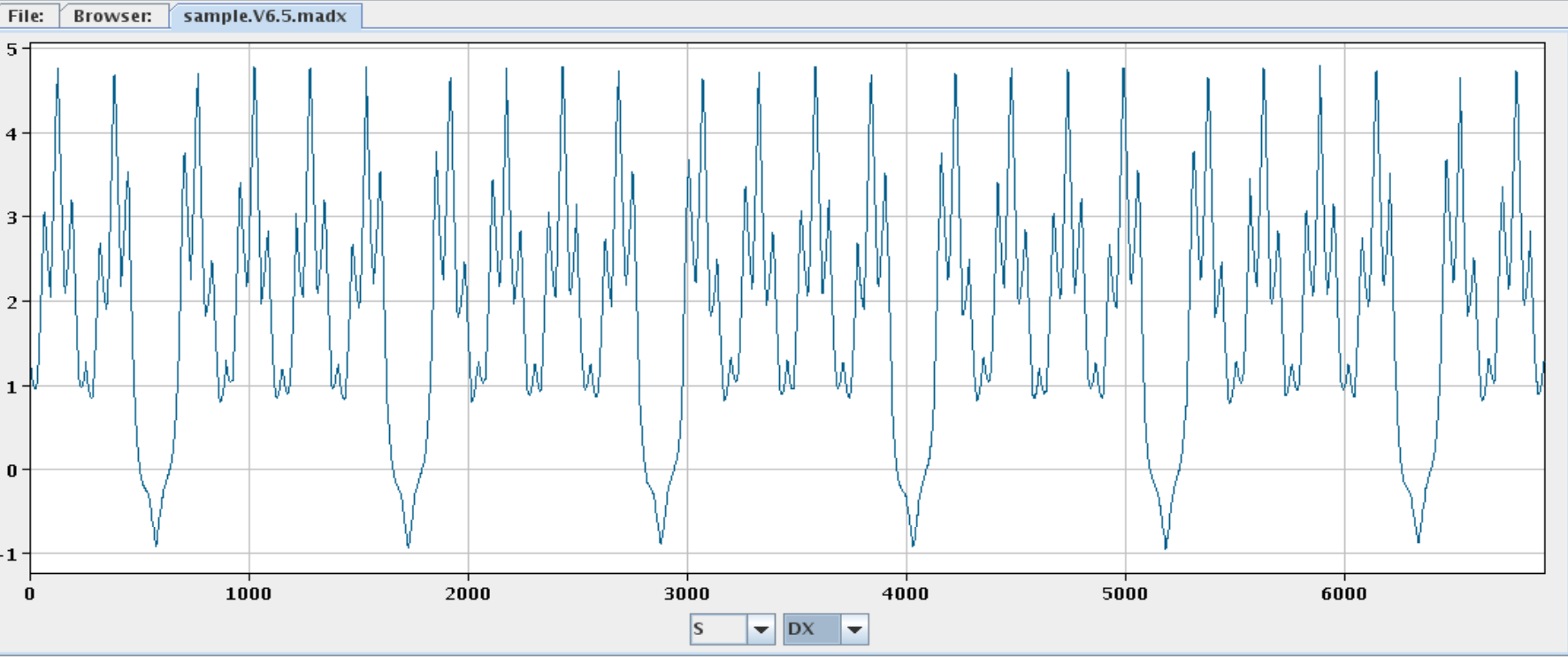
- edit scripts/optics files ; checkout machine settings;
- version control
- run simulations; browse results; browse database;
- run as a server for LSA

Get Mail

Data

Repository

- Root
  - MADX output
    - table6.tfs
    - twiss.b2.tf
    - twiss.b1.tf
    - table4.tfs
    - table5.tfs
    - table.tfs
  - BPM data



Console

```

>
problem loading table from file Root
looking for element + Root
Repository setup error: path to Root not found
looking for element + sample
looking for element + sample
running samplein/local/develop/online_model/repo/lhc/scripts/job.sample.V6.5.madx
Starting MADX
your system is Linux
Executing /local/develop/online_model/MadxOnline/madx.py /local/develop/online_model/repo/lhc/scripts/job.sample.V6.5.madx
MADX ERR>ln: creating symbolic link `db/V6.501' to `/afs/cern.ch/eng/lhc/optics/V6.501': Permission denied
MADX>
MADX> ++++++
MADX> +      MAD-X 3.03.38-M      +
MADX> + Code Modification Date: 12.02.2007  +
MADX> + Execution Time Stamp: 11.06.07 13.15.55 +
MADX> ++++++
MADX>title, "LHC version 6.501 - March 2006";
MADX>
MADX> set,  format="12.6f";
MADX>

```

# Control system interaction

- Settings etc. - directly from LSA database
- Exchange server and protocol for 'on-line' service – work in progress



# Optics evaluation and measurements

- Procedures to check the machine model – to be developed
- driving term analysis

# Optional functionality

- Collective effects
- IR geometry
- Knowledge database

# Schedule

- Alpha version release ( basic functionality only) ~ middle-end of July 07
- Beta version (+ nonlinear model, optics checks) ~ August 07
- SPS tests ~ August-September 07
- Maintenance etc.