# System integration and optimization Introduction to discussion

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# System optimization, VE

- Examples of VE tasks in BDS GWP
  - **in particular those addressing  or schedule risk**
- Approach to determining criteria
  - **Bottom → up  evaluation?**
  - **Use of established best practices?**

# Acc. & Det. phys. reqts. & design integration

- Acc & Det phys. design & optimiz.
  - **Document performance driven specs**
  - **Study performance vs. optics length**
  - **Study optics for magnet types standardization**
  - **Study optics for aperture standardization**
  - **Study High Lumi upgrade path**
  - **Study 1TeV upgrade path for FD, PS, magnets**
  - **Study commissioning needs (**other FD, its support, shielding**)**
  - **Determine field, stability and other tolerances**
  - **Different L* optics perf. & tunability**
  - **Study abnormal optics & MPS issues**
  - **Study Z, 350, 1000 GeV CM performance**
  - **Document site specific design features**

# Acc. & Det. phys. reqts. & design integration

- Determine specs & interfaces
  - **Define air requirements for CFS**
  - **Define water reqts for CFS**
  - **Define stability reqts for CFS**
  - **Define cranes and coverage reqts for CFS**
  - **Define cavern size reqts for CFS**
  - **Define & optimize beamline height**
  - **Define specs for installation model by CFS**
  - **Define BDS & IR rad safety rules**
  - **Define alignment system requirements**

# Approach to determining criteria

- Bottom up
  - **attempt to produce criteria from models**
  - **prone to oversimplifications?**
  - **may omit important issues?**
  - **may result in too optimistic criteria?**
- From established best practice
  - **may result in too conservative criteria?**

- Use both bottom-up and best practice approaches to define the range?