

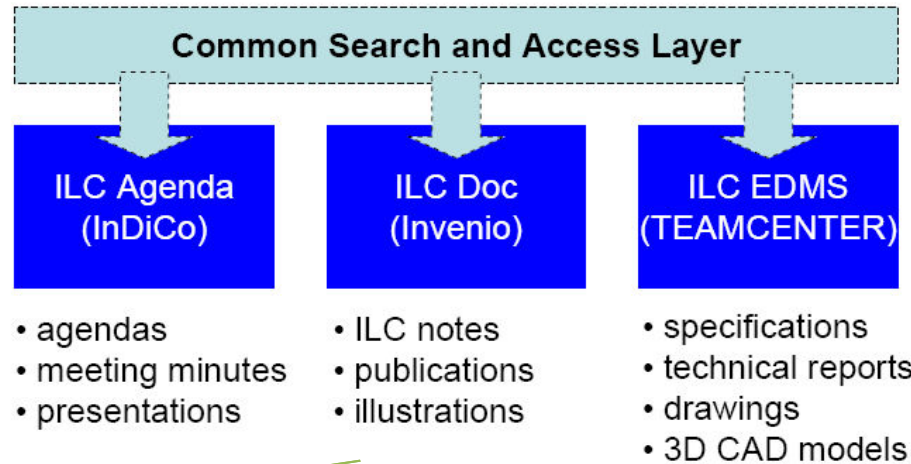
EDMS for ILC detectors

ILC-EDMS presentation

3D Visualisation

Documents sharing

GDE Recommendations



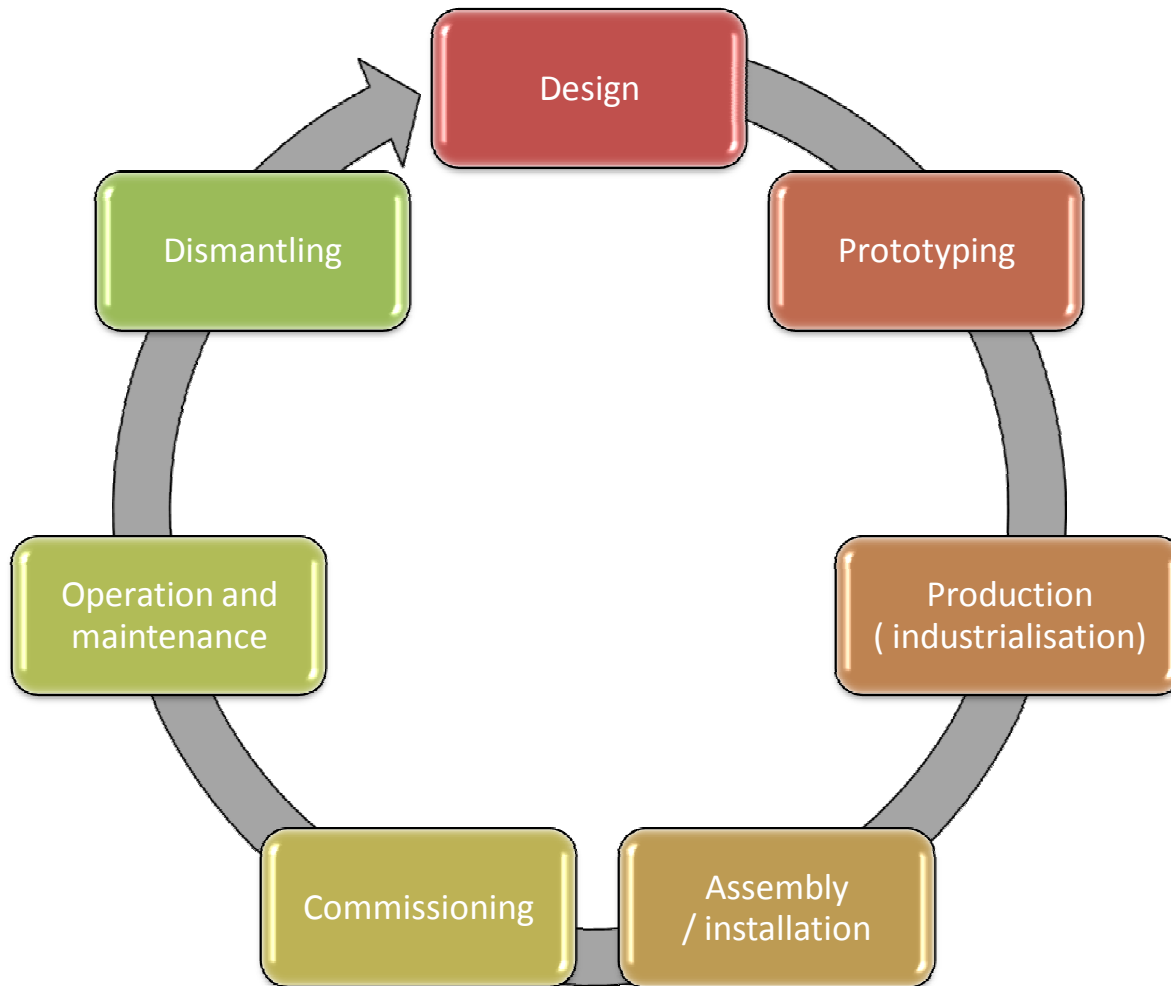
ILCDoc : “will mostly contain documents with textual or graphic information such as technical notes, communication, schedules, presentations, publications etc “

ILC-EDMS : “Documents containing engineering data such as drawings, technical specifications and cost estimates “

EDMS : Engineering Data Management System

- Data storage system allowing technical data sharing in an international context
- ILC is a long-term experiment: Product lifecycle management .
- Document Management and sharing
 - Versioning management
 - Product Structure Management
 - 3D CAD Data Management

Product lifecycle management, ILC is a 25-30 years experiment

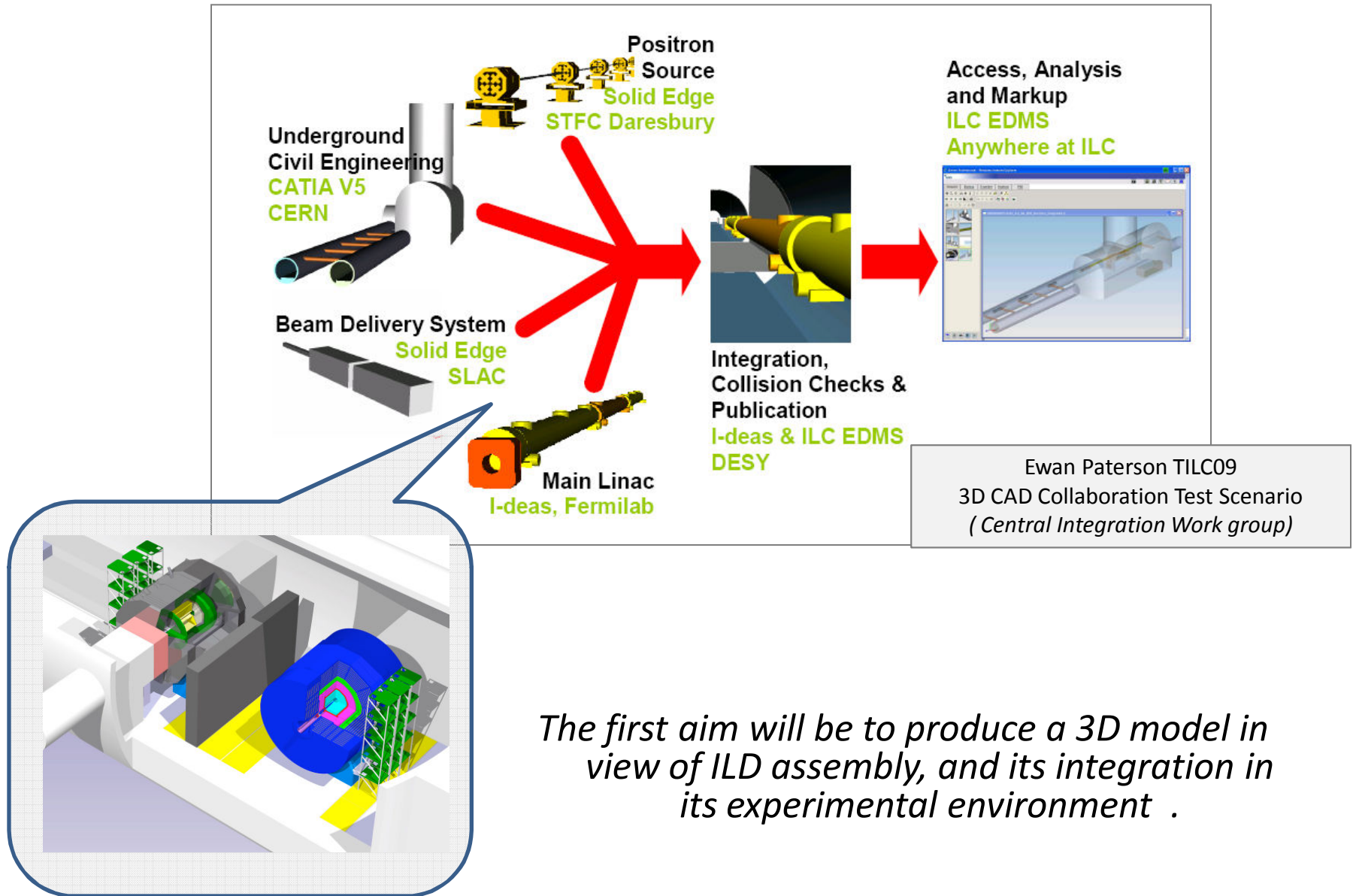


We are under design & prototyping phases but

Assembly is also under study and needs input

Technical document management will help to prepare in parallel next steps (production, operation ...)

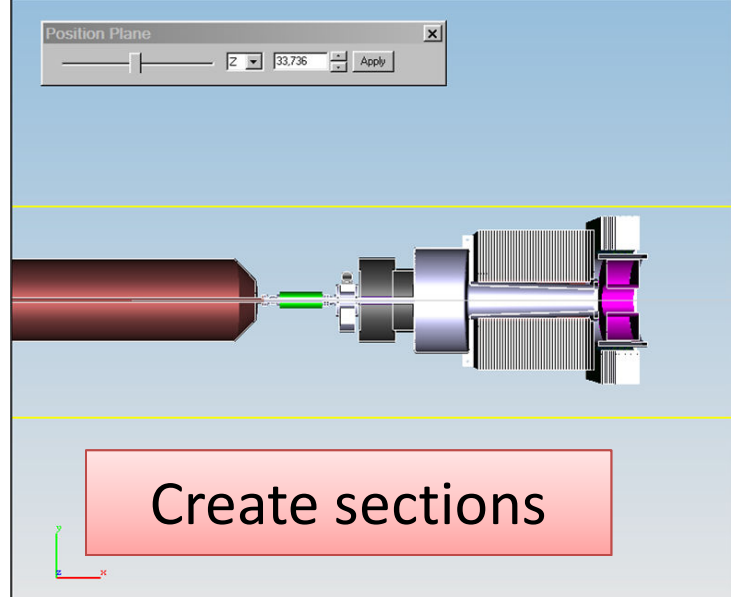
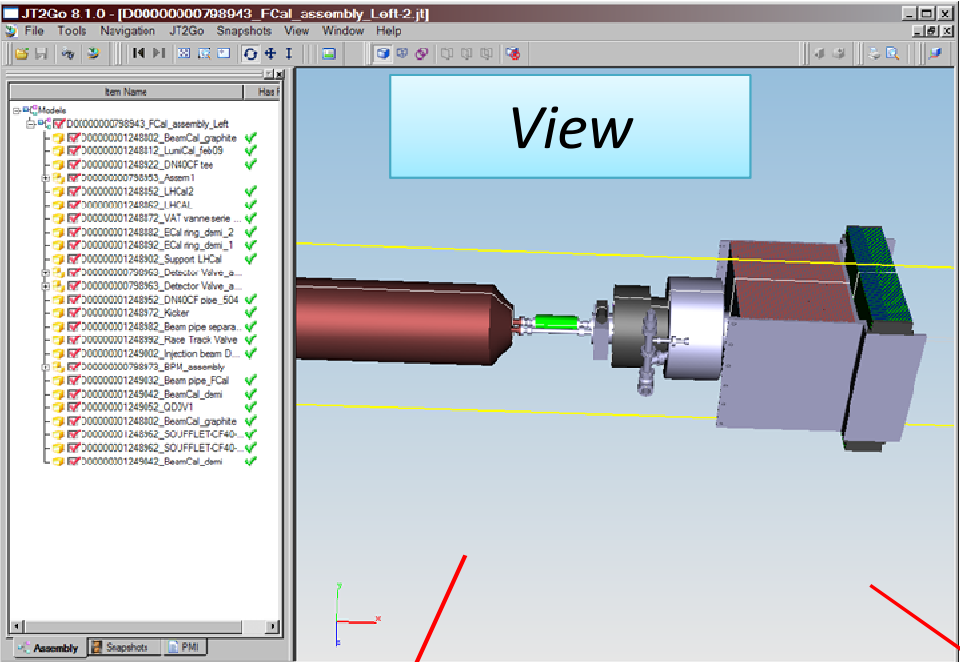
(1) ILC-EDMS presentation



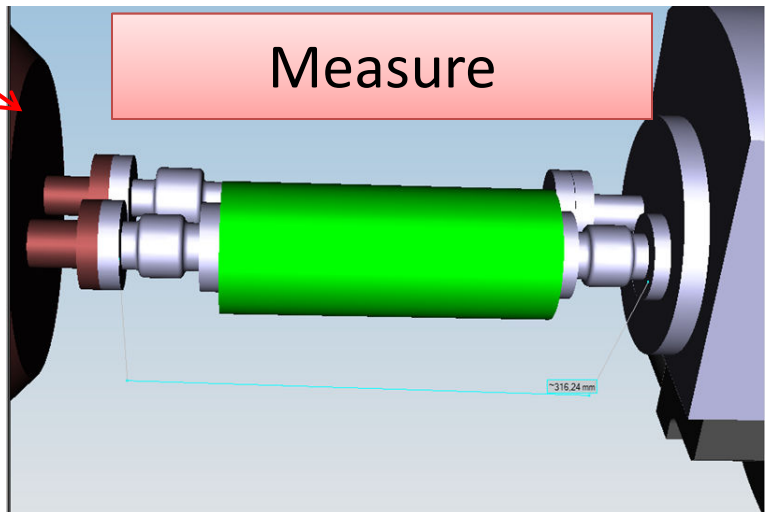
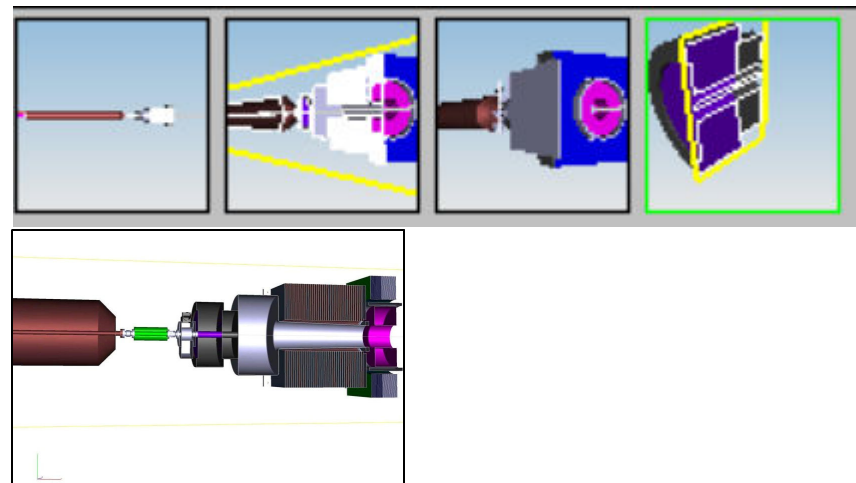
Viewing 3D CAD Models and 2D Drawings (Teamcenter iSeries; JT2Go viewers)

- Every **CAD part and drawing has viewing files**
- So you can **view these data without using a CAD system**
- The file format for **3D is JT**
- It is a quasi standard
 - Many CAD-Systems can export JT
 - Some as I-DEAS can also import JT -> Multi-CAD
- The file format for **2D is CGM and PDF**
 - Known formats for documents

From "ILC EDMS Power User Training Exploring 3D CAD Models " L.Hagge



snapshot
And picture



Also for Viewing and Analyzing
2D Drawings and Images

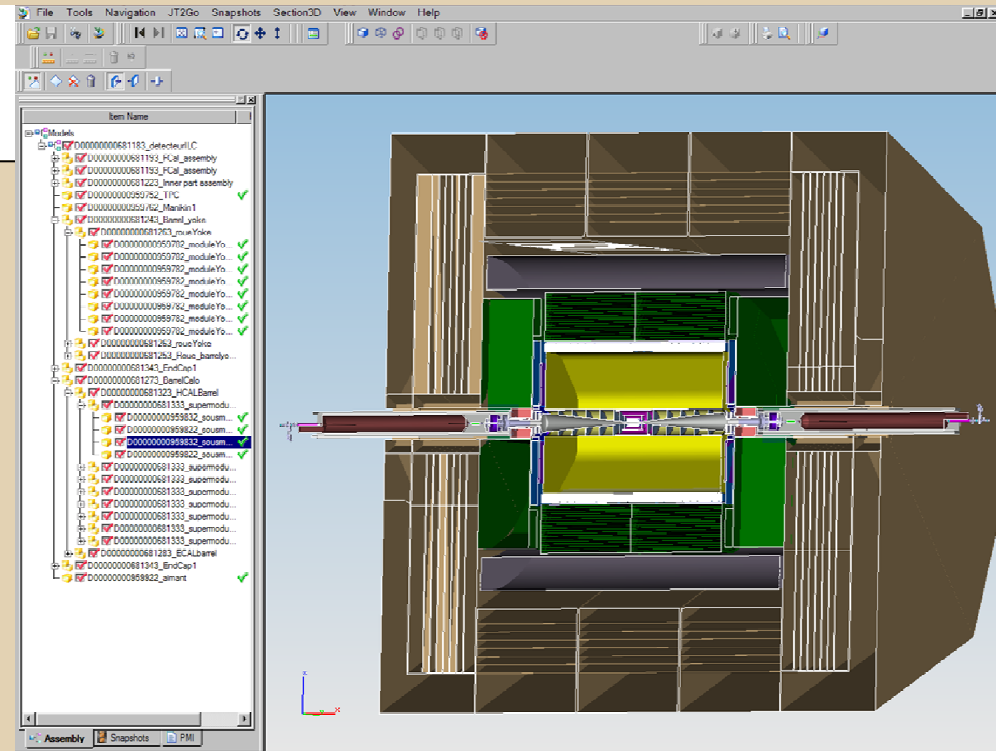
(2) 3D visualisation

JT2Go advantages :

- ✓ Easy to use
- ✓ Easy to access
- ✓ Download for free (≠ PDF3D)

But

- ✓ Should concern only the placeholders :the actual representation of the whole is too heavy for everybody's work and even for integration work



Only possible if each subsystem provides their own placeholder model

Or if someone do it from the entire 3D CAD model .

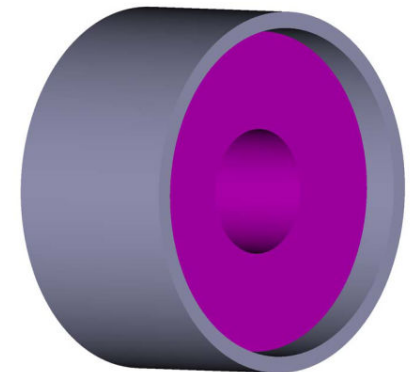
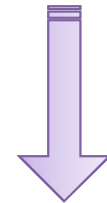
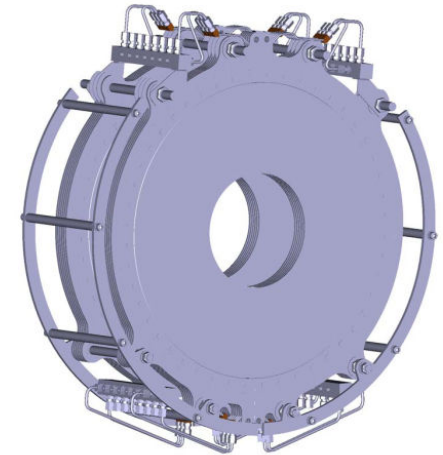
How to define placeholders ???

Equivalent to the notion introduced by A.Herve of « integration box »

Overall dimensions


- + Gaps for fixing system
- + Tolerances ; deformations
- + Services : cables/cooling
- + Room for mechanical alignment and for monitoring

Ex of Lumical



(3) Documents sharing

Subsystem interface parameters document :
 Exemple of Lumical
 (datas from discussions with W.Wierba & S.Schuwalow)

	<i>[Lumical interface parameters]</i>	Ref	ILD-000-xxxx
		Issue	
		Date	20/01/2010
		Page	2

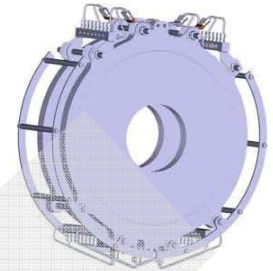
1. Technological description

- 30 layers of W/Si/electronics cards:
- Thickness of a layer : W3.5+ Si 1.5+ elec 1= 6mm

2. Overall dimensions

	W/Si centered on outgoing beam
Rin(support/sensitive)	76/80
Rout active	196
Rout support	220
Zin	2450
Zout	2635

Total thickness : 185 mm
 Estimate weighth : 250 kg



3. Support

- The Lumical will be fixed to the front (at LHCa1)

4. Services

- Power dissipation : overall 20-50 W
- 4 cooling pipes (water????)
- Cables
 - ✓ output 360 LVDS cables
 - ✓ 6 power lines (10A @ 20V)
 - ✓ control (4 coax 1 fiber cables)

5. Alignement

Initial alignment requirement :

- 1mm in xy
- 10 mm in z (between the two lumical)
- 1mm regarding to the beam pipe.

Position measurement requirement :

- 1/2mm in xy
- 60 µm in z (between the two lumical)
- 4 µm inner radius. This could be guaranteed by construction and checked online by FSI system.

Alignment system possibilities :

- Laser beams in the beam pipe (4 windows of 2mm of diam per side at least)
- Introduction of a tube in the Fdet carbon support structure with vacuum
- Reference point on QD0, and thus what is the accuracy of Monalisa system (< 10µm?)

System Breakdown Structure (SBS) for ILC : Subdivision of product into a logical hierarchy of parts

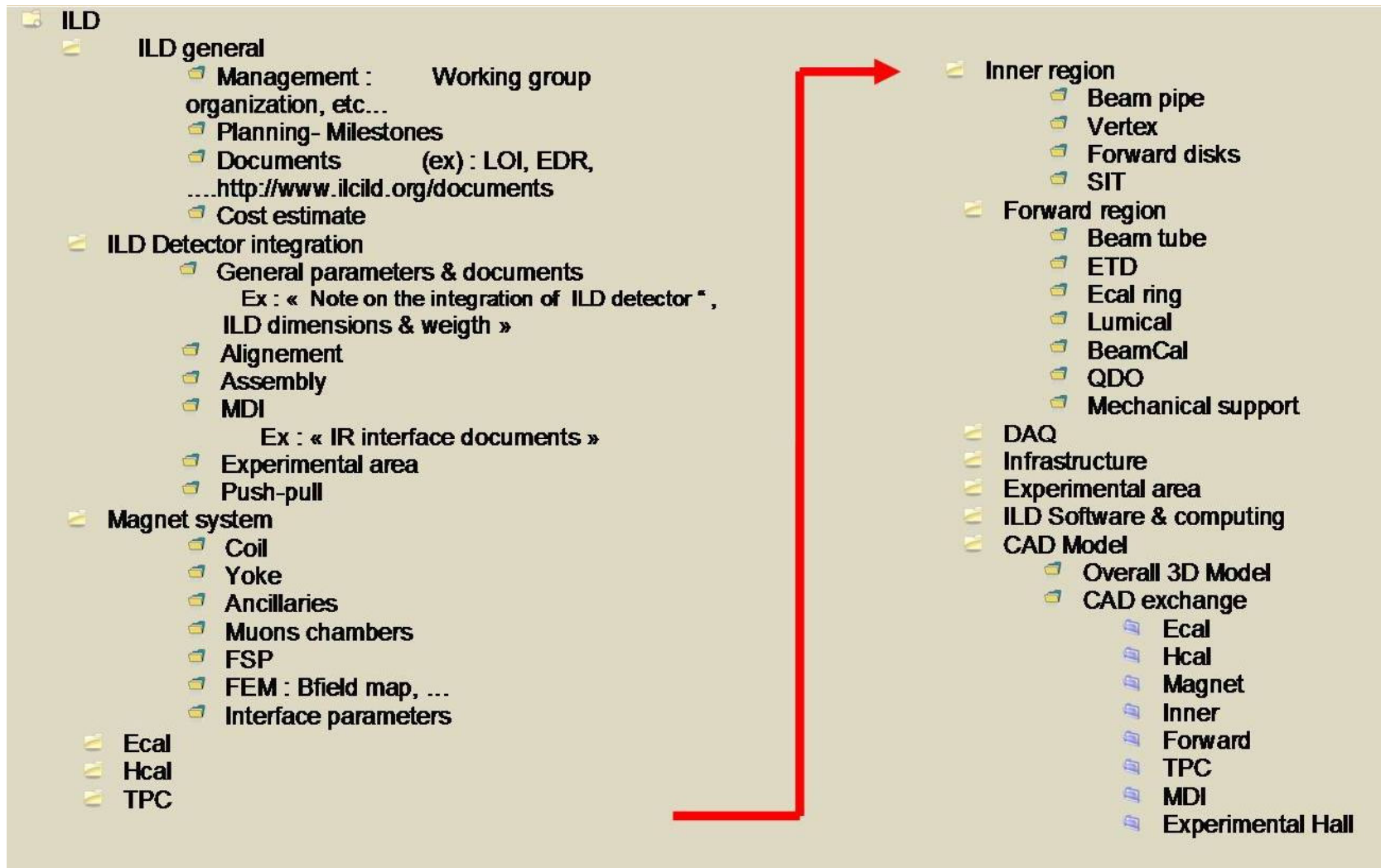
The screenshot displays the 'Contents of Classification 'Accelerator Systems'' page. The left sidebar shows a hierarchical tree of categories under 'Accelerator Systems', including BDS, Damping Rings, Electron Source, Main Linac, Positron Source, RTML, Simulation, CFS & Global, Availability, CFS, Commissioning & Operations, Controls, Cryogenic System, Management & Organisation, Management Meetings, Management Policy, Management Reports, SCRF Linac Technology, and System-Wide Integration.

The main content area shows a table of documents with the following columns: EDMS ID, Name, Description, Work Status, Access Scheme in Use, Creator, and Reviewer.

EDMS ID	Name	Description	Work Status	Access Scheme in Use	Creator	Reviewer
D00000000882125_A.1.1	Summary 3rd Meeting 01.07.09		Released	Project: ILC_Availability	Ross_Marc	Walker_Nicholas
D00000000885085_A.1.2	Minimum Machine Definition	TDP-1 deliverable document defining the proposed Minimum Machine elements for 2009 cost-optimisation studies.	Released	Project: ILC_PMO	Walker_Nicholas	
D00000000736443_A.1.3	ILC_ML-BDS-Sections_integrated	ILC_ML-BDS-Sections_integrated	Released	Project: ILC_CAD_Integration	Welle_Norbert	

At the bottom of the page, there is a status bar with the text 'Terminé' and a small lock icon.

SBS : the one for ILD may be this one



ILD_SBS : May be the repository place for

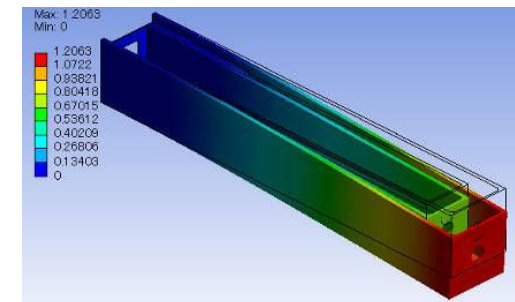
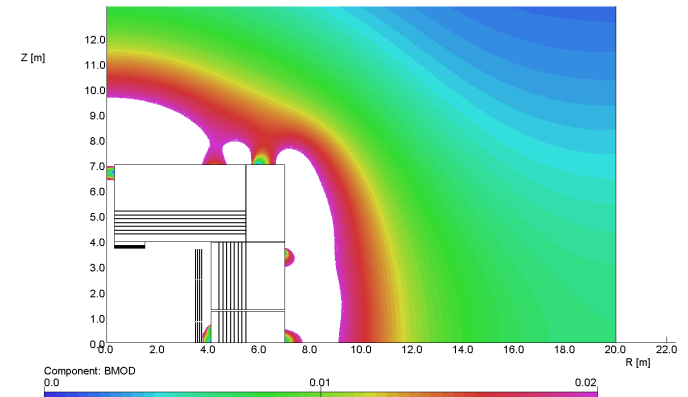
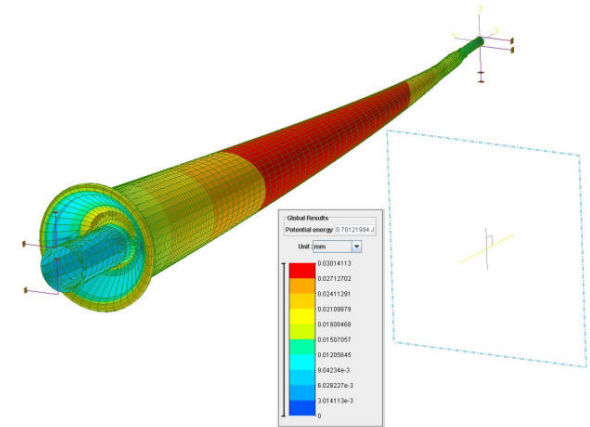
Technical notes :

- « Definition of the ILD reference detector »
- “ Note on the integration of the ILD detector “
- “IR hall dose rate estimates with detector concepts”
- “Technical Note for ILD beam pipe” ... etc...
- *To come ? : interface parameters documents*

Drawings (2D&3D) and CAD models

Results of FEM calculations :

- Bfield & stray field of ILD
- Mechanical structure studies
- Vibrations
- ...etc...



Summary

- ILC-EDMS seems to be the right place where to store and share technical documents
- Easy to use Viewer
- Might ease the work of the integration group

Open questions

- ✓ Do you agree ?
- ✓ Who?
- ✓ Suggestions ?