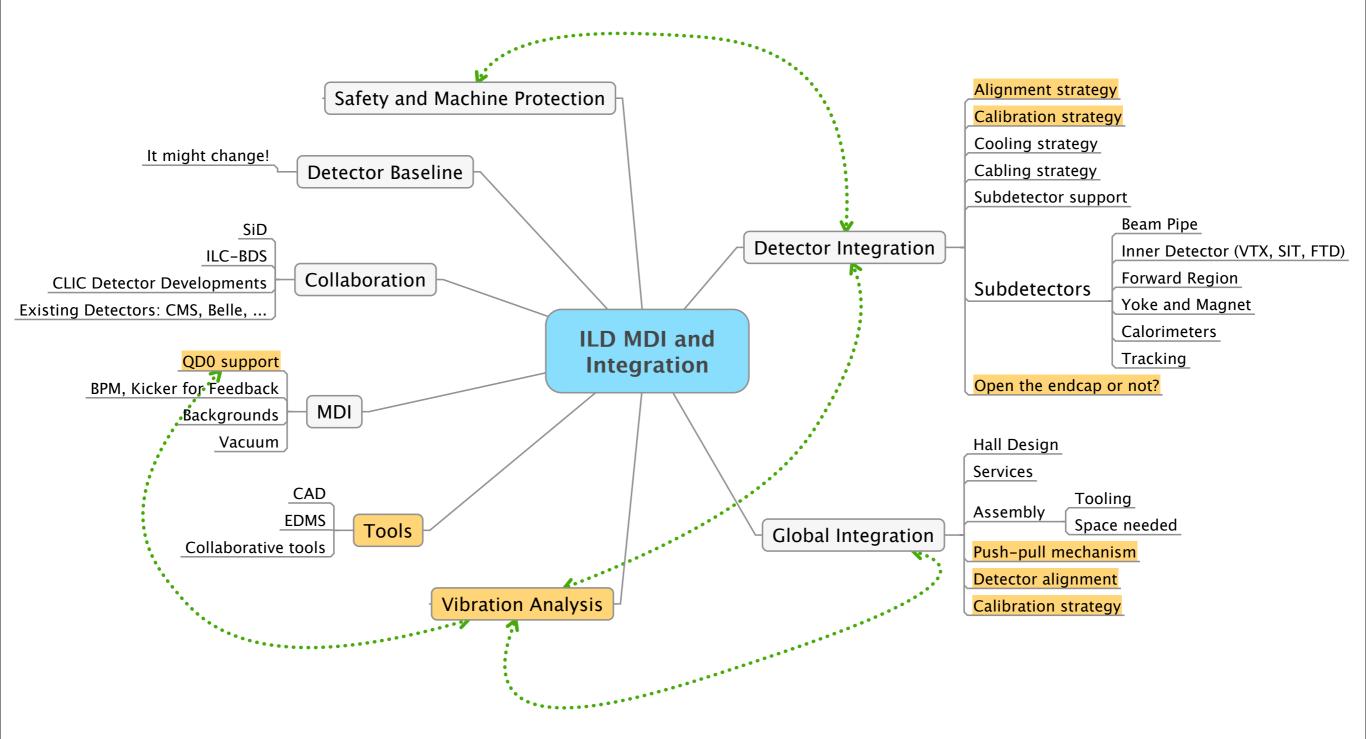
Introduction and Charge of the Meeting

- 1. Report progress since the Lol, ALCPG09
- 2. Make the work plan and milestones to complete the report ("TDR") by 2012, under the condition of limited resources for about 1.5 years

T. Tauchi, ILD MDI workshop, 27 January 2010

MDI/Integration MindMap

presented at EDMS/CAD (MDI Discussion) meeting, DESY, 21-22 September, 2009



The yellow items are the most urgent tasks.

RD Mandates Towards 2012 Items for the planning of the detector groups by RD

- 1. Continue R&D on critical components **to demonstrate proof of principle**
- 2. Define a feasible baseline design (Options may also be considered.)
- 3. Complete basic mechanical integration of the baseline design accounting for insensitive zones
- 4. Develop a realistic simulation model of the baseline design, including faults and limitations
- 5. Develop a push-pull mechanism working with relevant groups
- 6. Develop a realistic concept of integration with the accelerator including the IR design

RD Mandates Towards 2012

IDAG monitoring: How?

- It's difficult for IDAG to concentrate like for validation much longer time.
- It's hard for the detector groups to produce so much detailed material like LOIs too often.

Update of the LOIs will be enough to have their progress checked.

- There will be LC workshops twice a year, where IDAG members collect information about advancement, interview the detector groups and meet to discuss their findings.
- There will be two written documents available for their examination;
- A) material of the groups for the RD's interim report in 2010,
- **B) status report early 2012**, prepared for IDAG, before the groups start writing their final report. (This will be the last check by IDAG.)

Milestones of ILD

autumn,2011 autumn,2012

ID	Name	Duration	2009 2010 2011 2012 03 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
1	Detailed baseline design	38.41mons	03 04 01 02 03 04 01 02 03 04 01 02 03
2	LCWA2009	0mons	♦ 10/03
3	Detailed Work Plan	3.7mons	
4	ILD Workshop	0mons	♦ -01/28
5	LCWS2010	0mons	♦ ฒ⁄26 material report
6	ICHEP2010	0mons	♦ 07/21to RD to RD
7	Define a feasible baseline options (2)	0mons	♦ _08/01
8	Define a feasible baseline design (2)	0mons	09/01
9	Complete implimentation of design	0mons	1
10	Freeze design	0mons	1 1→4 08/01
11	Submit detailed baseline design report	0mons	
12	Detector R&D	33.4mons	
13	R&D for proof of principle of the baseline (1)	20mons	
14	R&D for detailed design/industrialization (1,2)	33.4mons	
15	R&D Review	1.5mons	
16	MDI/Integration	33.41mons	
17	R&D for integration/alignment	21.59mons	
18	Complete baseline integration design (3)	0.91mons	
19	Detailed design of integration/alignment (3)	10.68mons	
20	R&D for push-pull mechanism (5)	33.4mons	
21	Design of integration with accelerator (6)	33.41mons	
22	Simulation	37.45mons	
23	Simulation on det. performance/optimization	20mons	
24	Improvement of framework/tools/analysis	22.5mons	
25	Implimentation of baseline (4)	5.8mons	
26	Simulation/Analysis (7,8)	8.9mons	
27	Cost estimate (9)	14.82mons	
28	Develop methodology	10.8mons	
29	Estimate for the baseline design	3.95mons	
30	Writing the report	9.86mons	
31	Progress report	2mons	
32	DBD report drafting	3.95mons	
33	DBD report editing	0.95mons	

MDI Work Plan

Work Plan	Responsibility	Status	date
Push Pull			
platform		proposed	Mar.09
mechanism, e.g. air-pads, rails, Hilman rollers etc.			
stability during movement			
re-positioning within +/- 1mm and 100urad			
tolerable for synchrotron radiation and pairs?			
self-shielding of detector with Pacman for radiations	T.Sanami	done for Lol	Mar.09
Pacman design	K.Sinram, A.Herve	on-going	Jan.10
cryogenics,i.e. flexible cryo & vacuum lines and current supply			
QD0			
support	H.Yamaoka, M.Jore	on-going	Jan.10
vibration	H.Yamaoka	on-going	Jan.10
re-positioning within +/- 200um and 5urad by actuator			
monitoting by MONALISA, integration?			
opening endcap on the beam line?	K.Buesser	on-going	Jan.10
1m wide space is very small and the endcap is very heavy			
opening and assembly at the garage position	C.Clerc	done for Lol	Mar.09
calibration and re-alignment (monitoring) of sub-detectors	sub-detector		
Z-pole running for the calibration in every time?	sub-detector		
experimental hall design with SiD and accelerator	A.Herve	on-going	Jan.10
Beam induced backgrounds			
upstream/downstream beam backgrounds	LDC,GLD	to be updated	
collimation depth, aperture of beam pipes around IP	BDS	to be updated	
beam-beam backgrounds		done for Lol	Mar.09
aperture and material of beam pipes around IP	H.Videau	on-going	Jan.10

Work Plan	Responsibility	Status	date
Detector integration	Integration Coordinator?		
each integration box separated by 'no-go zones'		proposed	Jan.10
support structures in 'no-go zones' ?			
strength of deformation and vibration cooling: all heat to be taken out by each sub-detector		proposed	Jan.10
cabling of signals and eletric powers	U. Schneekloth	proposed done for Lol	Mar.09
gas lines			
alignmnet and monitoring system and time	sub-detector		
calibration method and time	sub-detector		
Z-pole running and the integrated luminodity?	sub-detector		
TPC requests 1pb ⁻¹ ; a few hours(days) with 10(1)% e ⁺ s	source		
Magnet System			
Coil and anti-DID	F.Kircher	on-going	Jan.10
Yoke design; tail catcher and muon system	U. Schneekloth, R.Stromhagen	on-going	Jan.10
Coil in endcap			
Vacuum System	U.Suetsugu, H.Videau	done for Lol	Mar.09
Tools			
3D-CAD : CATIA	M.Jore	on-going	Jan.10
EDMS	C.Clerc	on-going	Jan.10
Collaborative tools			

Physics Scope at ILC

Work Plan	Responsibility	Status	date		
Integrated luminosity to optimize the machine parameters					
statistical and theoretical accuracies					
the accuracies required by physics (channels and observable)					
Running scenario					
generic one in the ILC physics scope: 500fb ⁻¹ for 4years	T.Tauchi, R.Settles	done	Sep.09		
specific one with specific physics scenario					

Detector Switchover Time Estimation: Goal

Procedures - about 2 days for the full push-pull operations after procedures have been optimized based on experiences	
Securing beams	1
Powering down of the detector solenoid (2GJ and 18.2kA to zero)	3
Stability work for pressure and temperature in the cryogenics system	3
Removing the radiation shield between detector and hall	2
Disconnecting all local supplies (in principle only the main bus-bar)	3
Disconnecting the beam pipe between the QD0 and the QF1 magnets	2
Moving the detector out towards its garage position (2.1mm/s in 15m)	2
Connecting back the main bus-bar in the garage position	3
Reversed procedure for the incoming detector	19
Pressure in the beam pipe: filled with inert gas and pumping to 10 ⁻⁵ Pa	several
Alignment and calibration of the detector system in the beam line	several

Comment: Stability due to movement of about 12kton detector - a site study

Conclusions

Let's define;

Cooling strategy

Sub-detector integration strategy

Alignment strategy to estimate time in the push-pull

Calibration strategy to estimate time in the push-pul

Complete work plans with responsibility

Let's make milestones "monthly" as much as possible for

- 1. Baseline integration design by autumn 2011
- 2. Detailed design of integration and alignment by autumn 2012
- 3. Complete the report by end of 2012