

ICFA

ILC International Development Team

Executive Board

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<i>Asia-Pacific Liaison</i>	Geoffrey Taylor (U. Melbourne)

Working Group 1
Pre-Lab Setup

Working Group 2
Accelerator

Working Group 3
Physics & Detectors

IDT overall and WG1:

- Prepare a proposal for the organization and governance of the ILC Pre-Lab (2022-25)
- Prepare the work and deliverables of the ILC Pre-laboratory and workout a scenario for contributions with national and regional partners
- Understand what is needed to get the Pre-lab started (constraints and opportunities)
- WG1 and European involvement

- Start of Pre-lab does not require full approval of the entire project
- Workplan for each of these WGs in progress, and work to adapt their composition – initial thinking for WG2 and WG3 below

Pre-lab 2022-25: Accelerator core activities

Technical preparations / performance & cost R&D [shared across regions]

- SRF performance R&D, positron source, nanobeam (ATF3), beamdumps, etc

Final technical design and documentation [central project office in Japan with the help of regional project offices (satellites)]

- Engineering design and documentation, WBS, costs, schedule, review, resource planning and follow up, etc

Preparation and planning of ILC deliverables [distributed across regions, liaising with the central project office and/or its satellites]

- Prototyping and qualification in local industries and laboratories (from SRF prod. line to individual WBS items)

CE, local infrastructure and site [host country assisted by selected partners]

Europe can contribute in many areas

(European planning document 2018)



	Germany DESY	France CEA Saclay	LAL	Italy INFN Milan	IFJ PAN	Poland WUT	NCBJ	Russia BINP	Spain CIEMAT
Linac									
Cryomodules	✓	✓		✓					
SCRF Cavities	✓			✓					
Power Couplers	✓		✓						
HOM Couplers							✓		
Frequency Tuners	✓								
Cold Vacuum	✓							✓	
Cavity String Assembly	✓	✓							
SC Magnets	✓				✓				✓
Infrastructure									
AMTF	✓				✓	✓		✓	
Cryogenics	✓								
Sites & Buildings									
AMTF hall	✓								

Table 2: Responsibility matrix for cryomodule production and testing for the European XFEL.

	CERN	France LAL	LAPP	Germany DESY	Spain IFIC	UK Oxford	RHUL
Goal 1							
Very-low β	✓						
Ultra-low β	✓						
Halo control		✓			✓		
Wakefield/Intensity	✓				✓	✓	✓
Instrumentation	✓	✓			✓	✓	✓
Ground motion	✓		✓			✓	
Background				✓			✓
Goal 2							
Stabilisation/Feedback		✓				✓	

Table 4: An overview of present European activities in ATF2.

	Germany DESY	France CEA	IPNO	Elettra	Italy INFN-LASA	Poland IFJ-PAN	Spain ESS Bilbao	Sweden ESS	Uppsala	UK STFC
RF systems				✓			✓	✓	✓	
LLRF										
Cryomodules		✓	✓							
SCRF Cavities		✓	✓		✓					✓
Power Couplers		✓	✓							
HOM couplers										
Frequency Tuners		✓	✓							
Cold Vacuum		✓	✓					✓		
Cavity String Assembly		✓	✓							
RF Tests (Cavities)	✓									✓
RF Tests (Cryomodules)		✓	✓			✓		✓	✓	

Table 3: Responsibility matrix for the cryomodule production and testing for the ESS.

Topic	Details
Beam-dynamics	Overall accelerator design Modeling and simulation tools
Damping rings RTML BDS MDI	Design Optimisation and performance studies
Cost and power	Cost comparison and reviews Power estimates and comparison
Physics and Detector	Physics studies Detector design Software tools

Table 5: An overview of present common activities between ILC and CLIC.

	CERN	DESY	Czech Republic	France	Germany	Italy	Israel	Netherlands	Norway	Poland	Serbia	Spain	UK
Verifying	✓	✓	✓	✓	✓	✓				✓		✓	✓
Tracking	✓	✓		✓	✓	✓		✓				✓	✓
Calorimetry	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
MDI	✓	✓						✓					✓
System Integration	✓	✓		✓								✓	

Table 6: An overview of present activities in the area of ILC-related detector R&D and integration in Europe.

Obviously, if one includes the capabilities in Europe built up in other project further away from “ILC technology” – LHC for example, light sources also – these tables will be much more filled

Pre-lab 2022-25: Accelerator core activities

Overall:

Technical preparations /performance & cost R&D [shared across regions]

- SRF performance R&D, positron source, nanobeam (ATF3), etc

Final technical design and documentation [central project office in Japan with the help of regional project offices (satellites)]

- Engineering design and documentation, WBS, costs, schedule, review, resource planning and follow up, etc

Preparation and planning of ILC deliverables [distributed across regions, liaising with the central project office and/or its satellites]

- Prototyping and qualification in local industries and laboratories

CE, local infrastructure and site [host country assisted by selected partners]

European priorities:

Pursue R&D interests and capabilities, material and personnel, link to strategic interests

European Project Office(s) – mostly personnel

Identification and preparation of ILC deliverables – one main one is a European SFR module line, then other individual WBS items

Contributions by single person/groups with special skills

Partner in Pre-lab activities

For planning and preparation of an ILC deliverable from a lab or FA:

- R&D required at some level
- Final specifications, technical documentation, tender documents
- Prototyping and qualification in (local) industry, followed by tests and verifications in industry or labs

So participation in and resources for several of the headings on the previous slide

CERN: Agreement with KEK for IDT work (in the spirit of the ESPP), several common R&D efforts in the past, on-going and planned, some specific expertise for WG2, European common fund, administrative transfer of LCC to KEK for the IDT hosting

Pre-lab 2022-25: Detector timeline

LHC:

- EoI April 1992 (12 submission – general and specialized), LoI October 1992 (reduced number), Technical Proposals December 1994 (further reduction), Approval early 1996
- First system TDR end 1996 (done system by system over the next years) - see pile on the right
- Requested, evaluated by LHCC - set up by CERN (responsibility of the Research Director)
- New cavern excavations started after (e.g. ATLAS 1998 and handed over five years later)
- LHC overall was approved December 1994 (but in the pipeline, with positive slope, since end 1991)

ILC (initial IDT thoughts for discussion)

- EoI mid-end 2022, LoI end 2023 (for reduced set?), Technical Proposal (or overall TDR) end 2025 for final set of experiments
- Requested and evaluated by "ILCC" – initially set up by the Prelab management, final approval however by ILC-laboratory
- Need "convergence towards approval" during Prelab, such that sufficient resources can be engaged at acceptable risk by the stakeholders



On-going/urgent actions (with European bias)



Next:

- Communication and News being set up (IDT level) with European participation
- More details on WGs planning, more discussions in community, among others in ALCWS – we should participate
- More participants in WGs from Europe
- Define timelines (short term and for Pre-lab)
- Define and map out European "ambitions" for Pre-lab phase
- Understand and explore funding opportunities for Pre-lab activities



Next

- The Americas LCWS is announced for 19-22 October 2020 (<https://conf.slac.stanford.edu/awlc2020/>). Its focus will be on pre-lab activities and also on the US planning, given the Snowmass process in progress.
 - National meetings and initiatives (as this one)

 - It is not yet clear when the next LCWS will take place in 2021 but it is possible that it will be in Europe (but most likely all remote).
 - It is suggested to introduce a monthly European information meeting. For the next months, we would like to suggest three dates:
 - Wednesday 4.11 10:00-12:00
 - Wednesday 9.12 10:00-12:00
 - Wednesday 13.1 10:00-12:00.
- Typical agenda: European WG1, 2, 3 members to report about WG activities, as well as national updates (as “fixed” agenda points), plus topical/current issues and discussions.
- Please forward emails to relevant colleagues and also ask them to sign up for the mailing list ilceurope-general@desy.de if they are interested to participate in future meetings. This can be done with a simple email to sympa@desy.de, with the subject line SUBSCRIBE ilceurope-general [firstname lastname]
If you want to un subscribe use UNSUBSCRIBE ilceurope-general
 - Jorgen has also kindly offered to “advertise” wider using ECFA mailing lists, we suggest to do for next meeting
 - Contact Thomas (thomas.schoerner@desy.de) or myself concerning WEB pages or email