ILC IDT EB

The Proposal for the ILC Preparatory Laboratory is now published:
https://arxiv.org/abs/2106.00602

“This proposal is intended to provide information to the laboratories and governmental authorities interested in the ILC project to allow them to consider participation”

Several announcements, e.g
http://newsline.linearcollider.org/2021/06/01/ilc-preparatory-laboratory-proposal-released/

Endorsed by IFCA, (being) sent to IDT WGs, ICFA, ECFA and Lab directors

ILC IDT EB – documents for MEXT

Being sent to MEXT (in translated form)

The Technical Preparation Document is at: (https://zenodo.org/record/4742019#.YLfkLi0RrqY)

And a document (in Japanese) addressing, "key issues related to the ILC project" as identified in various reviews, will also be sent

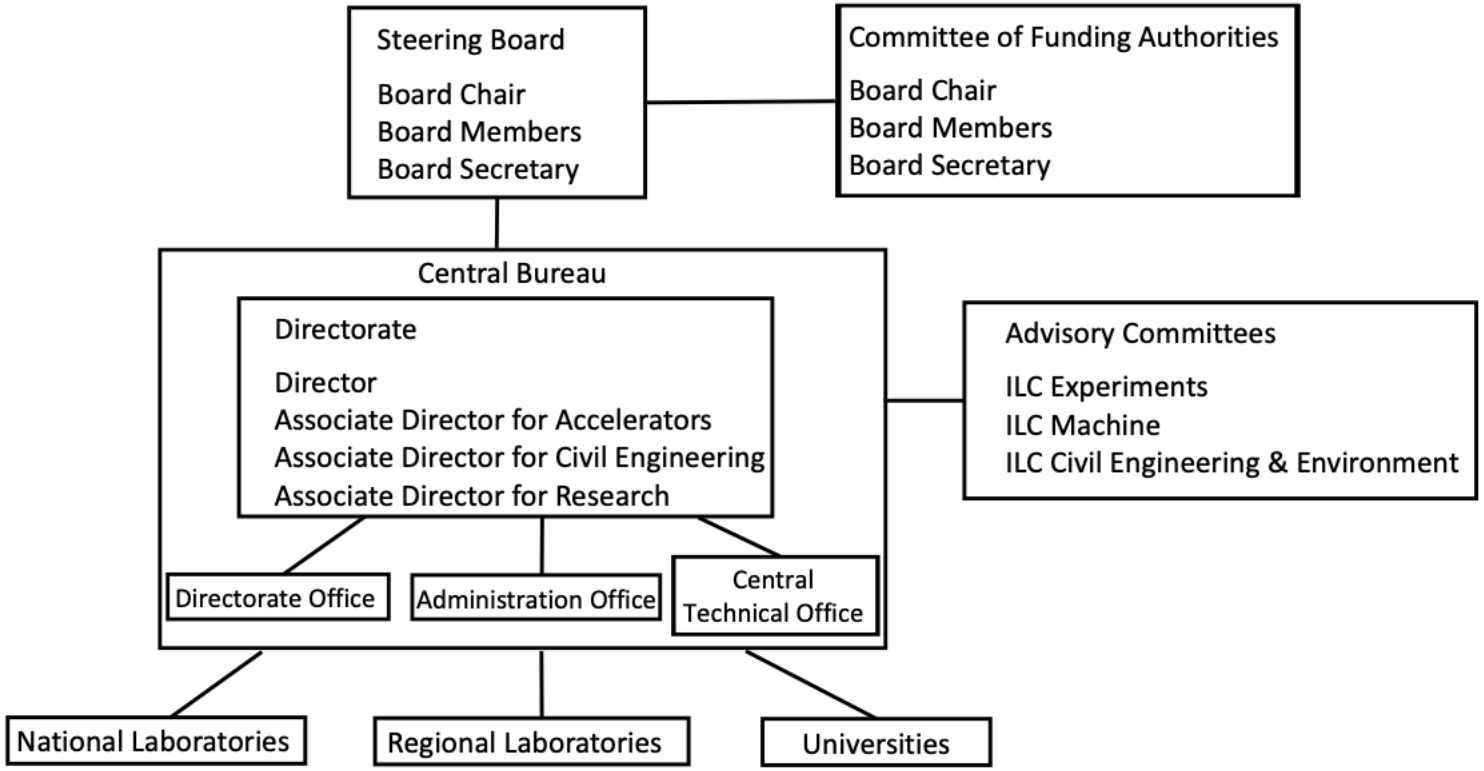


Figure 1: Pre-lab Organisation Chart

3 Required legal structure and Pre-lab start-up process

3.1 Legal structure

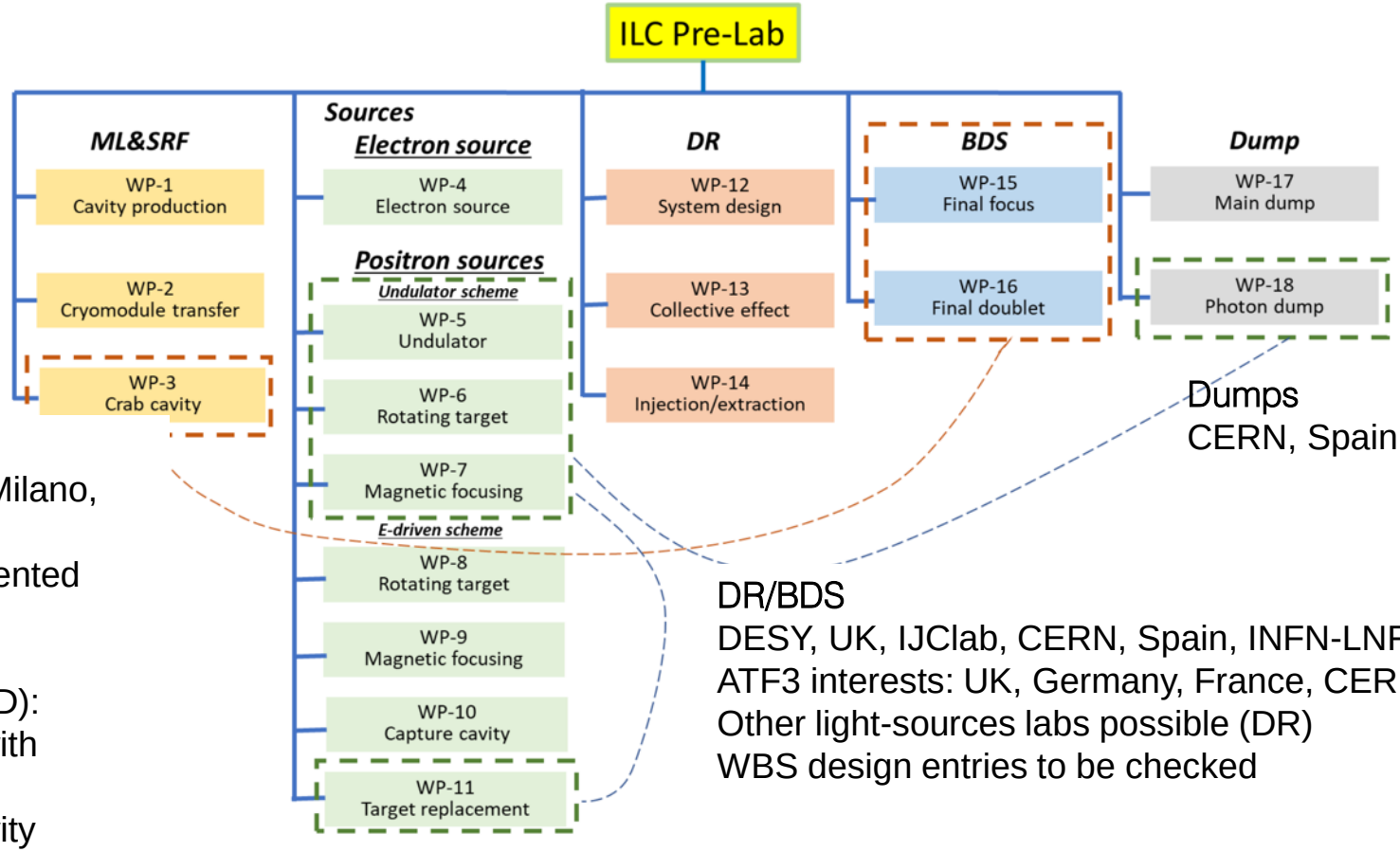
The Pre-lab as a whole will be organised and governed as a collaboration of laboratories worldwide regulated through Memoranda of Understanding (MoUs). However, members of the Central Bureau will mostly be employed in the host location in Japan. Thus a Japanese legal framework would be required for the employment of the members and operation of the Central Bureau. If such a legal framework can also accommodate the whole Pre-lab organisation, it may strengthen the governance of the Pre-lab, although that is not mandatory.

The most appropriate solution for the legal structure for this purpose appears to be a "General Incorporated Association" (GIA) under Japanese law. A GIA can be easily started by "founders", at least two of them who are natural or judicial person, registering it to an appropriate authority following Japanese law. Other members can join and govern the GIA as "stakeholders" through the "General Assembly" of the GIA together with founders. With this structure, the members of the Central Bureau can be paid as employees of the GIA. If the GIA is recognised as "nonprofit", no corporate tax will be charged for the income such as the government grant and common fund payment by the laboratories.

The GIA could be only for operating the Central Bureau in Japan with a simple structure. If it were to incorporate the whole Pre-lab, an additional structure needs to be defined through "Articles of Association".

The GIA must be established before the Pre-lab since it forms the legal structure under which the Pre-lab operates. Other than this, the two organisations can evolve in

Pre-lab work-packages



ML & SRF
CEA, CERN, CIEMAT, UK, INFN Milano, DESY
Not all European SRF labs represented (see later)

Additionally (in WBS but not in TPD):

- Long term cryo collaboration with CERN.
- HiEff RF another relevant activity
- SRF “basic” R&D for fabrication improvements or long term performance improvements (i.e. for upgrades)

Dumps
CERN, Spain

DR/BDS
DESY, UK, IJClab, CERN, Spain, INFN-LNF
ATF3 interests: UK, Germany, France, CERN, Spain
Other light-sources labs possible (DR)
WBS design entries to be checked

Sources
DESY, UK, CERN
IJCLab also, other groups also possible (FCC-ee, Dafne)

4.1.2 Engineering design and documentation

Preparing the engineering design and documentation for the ILC accelerator is one of the principal missions of the ILC Pre-lab. Whereas the technical preparation activities described above in Subsection 4.1.1 focus on R&D activities that address all open technical issues or update TDR designs for significant advances in technology, engineering design and documentation activities focus on completion of a full engineering design of the ILC, including preparation of the Engineering Design Report (EDR) and all documentation necessary to initiate ILC construction. The engineering design and documentation activities will proceed in parallel with the technical preparation activities. The engineering design builds upon the TDR completed by the ILC Global Design Effort in 2013. It will incorporate the results of the technical preparation activities, as well as design changes since the TDR. It will also reduce uncertainty in the construction plan by scrutinizing cost and schedule risks. The engineering design and documentation activities for the ILC accelerator project will include the following items:

- Engineering Design Report,
- Engineering documentation (specifications, drawings, etc.)
- Work Breakdown Structure (WBS) for ILC accelerator,
- Construction schedule,
- Review and update of material cost estimate and human resource estimate,
- Plans for mass production, transportation, and quality assurance, and
- Preparation for purchase of time critical items,

- **2021:** The IDT calls for EoIs, to be presented in a dedicated workshop after Pre-lab start

- **2022:** Assumed start of the Pre-lab.
  EoI presentations in dedicated workshop. The process of moving from EoI presentations towards LoI documents is community driven. Initial dedicated ILC R&D funds will be needed.

- **2023:** LoI submissions and presentations. The ILCXAC will initiate its evaluation of the LoIs. R&D continues.

- **2024:** ILCXAC recommendations of initial ILC experiments to proceed towards TPs. R&D towards the TPs.

- **2025:** TP submissions and presentations of these experiments.
  Continuation of R&D and recommendations by the ILCXAC based on the submitted TPs.

- **2026-27:** Approval of the experiments, based on the TP and ILCXAC recommendations, by a committee set up by the ILC Laboratory. Recommendations to proceed towards Technical Design (TDR) Reports. Funding requests for construction are being prepared and submitted according to the relevant procedures for the participating institutes.

- **2027:** The ILC laboratory allows construction to start and construction funding spending for experiments or experimental subsystems based on TDRs approvals.

The steps above will be based on common guidelines for experimental schedules, costbooks and estimates, resource estimates, common funds concepts, central laboratory versus experimental responsibilities, and selection criteria and procedures.

Table 2: List of estimated material costs and human resource requirements for deliverables of the technical preparation activities, where ILCU is defined in the text. (Resources for the infrastructure needed for deliverables are not included.)

Domains	Material cost [MILCU]	Human resources [FTE-yr]
Main Linacs (ML) and SRF	41.25	285
Electron Source	2.60	6
Positron Source	5.85	15
Damping Ring (DR)	2.50	30
Beam Delivery System	2.20	16
Dump	3.20	12
Total	57.60	364

Table 3: Estimated human resource requirements for engineering design and documentation.

Item	Human resources [FTE-yr]
Accelerator/Engineering design and integration	75
Sources	35
Damping Ring (DR)	30
Beam transfer system from DR to ML	25
Main Linacs (ML)	60
Beam Delivery System	25
Total	250

Next steps (for discussion)

The major one is “what happens next in Japan” ?

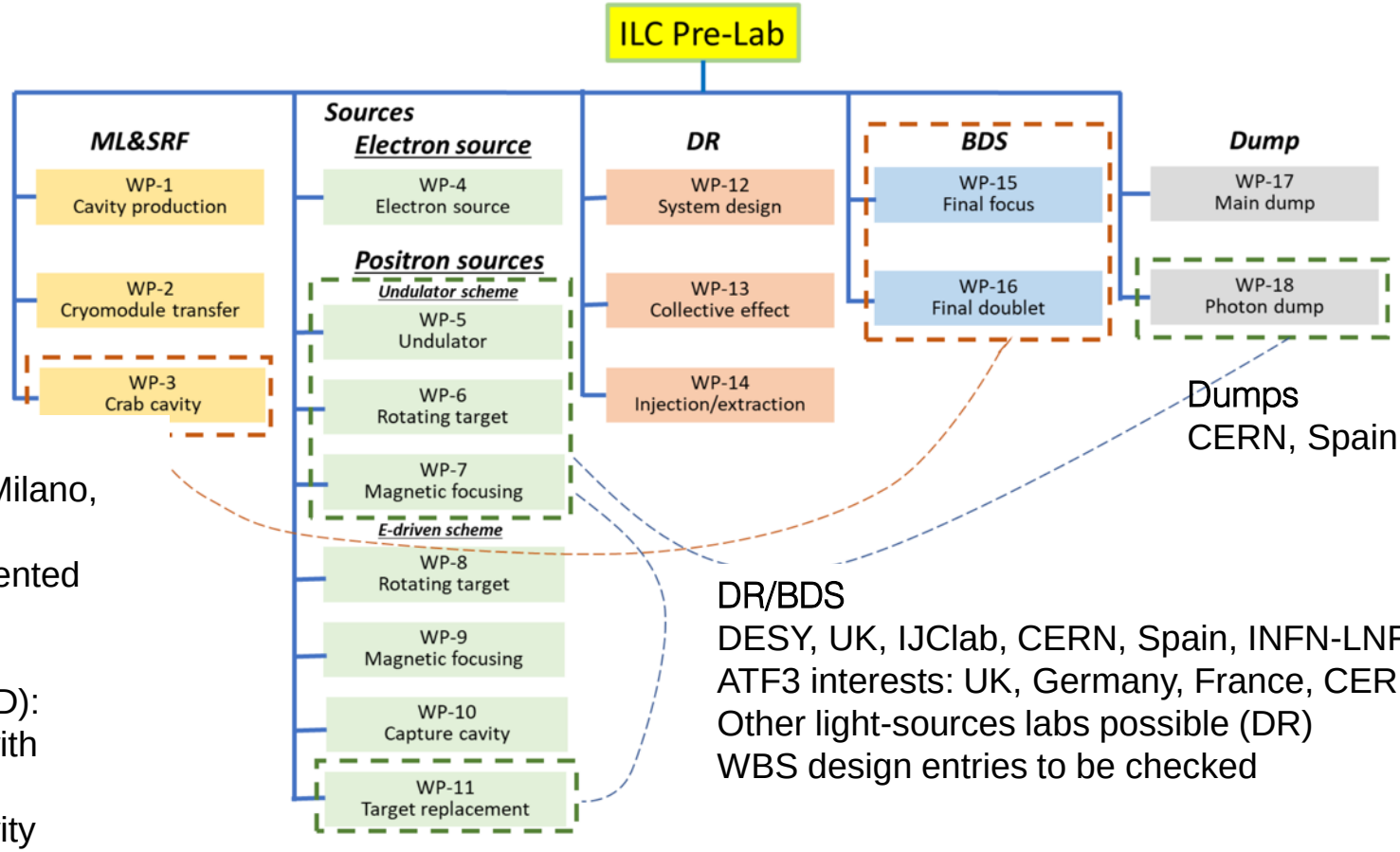
and related

How can we in Europe best promote the Prelab based on this document and work ?

Additionally, for our discussion time:

- How to go from interests and capabilities for WP1-18 and EDR to a work structure with more direct involvement of the WG members (and others) ?
- Interfacing to ECFA and LDG WGs and roadmap processes (detector R&D and accelerator R&D)
- Horizon Europe calls
- Do we aim to prepare a European prelab planning document during the second half of this year ?

Pre-lab work-packages



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