

ILC International Development Team report on the ILC status

ECFA Plenary meeting on 17-18 November 2022

Tatsuya NAKADA (EPFL)
IDT Executive Board Chair

Current IDT activities derived from the ICFA statement in April 2022

..., ICFA reaffirms its position that the concept for **the ILC is technically robust and has reached a level of maturity** which supports its moving forward with the engineering design study toward its timely realization.

ICFA commits to continuing efforts within the International Development Team (IDT) over the next year In particular, the IDT will work to **further strengthen international collaboration among institutes and laboratories**, and to expand the broad support from various stakeholders. ICFA will monitor developments **over the next year to assess availability of resources and progress in international discussions.**

ICFA continues to **encourage inter-governmental discussion between Japan and potential partner nations** to advance international collaboration toward important research and development activities as well as coordination toward realization of an ILC.

IDT also needs to reflect on

The MEXT reaction has not been positive toward the Pre-lab Proposal

⇒ **Prospect for the international funding for the ILC itself** is necessary for the Pre-lab to start

The MEXT Advisory Panel for the ILC reached its conclusions in February 2022

- Transition to **Pre-lab with the proposed scale and coupled to the Japanese government indicating its interest in hosting the ILC**, is premature.
- Recommend to **continue accelerator R&D and re-evaluate the roadmap of the ILC with consideration of the global situation.**

The current IDT activity I

Organising ILC Technology Network

- Making further advances in the development of ILC related technologies in view of providing **more solid bases for the ILC engineering design** and **opportunities for other accelerator applications**.
- The work programme derived from the work packages in the ILC Pre-lab proposal by selecting technically most critical items and those that require long time to develop.
- **Based on collaboration agreements between KEK and interested laboratories worldwide.**
- The execution of the work will be managed by the each collaborations. The IDT will provide the overall coordination work including
 1. Technical description of the work programme
 2. Definition of deliverables and required resources
 3. Distribution of the deliverables and defining the timeline
 4. Help drafting of MoU and research agreements
 5. Follow up and monitoring of the overall project
- **Anticipated start in April 2023, i.e. the start of the Japanese Fiscal Year 2023** for a period of two to four years depending on the work. (total ~14 MILCU material and ~120 FTE-year)

Necessary to have substantial increase in the KEK budget for the ILC related R&D to allow material contributions to the European and US activities.

The current IDT activity II

International discussion on a global project applicable to the ILC

- An aim to **overcome the current blockage in the international discussion** due to different understandings on “global” project and how it should proceed, between the Japanese government and “us”.
- Launching **first more general discussion on the lifecycle of a global project and processes, decisions and commitments attached in the steps. Then it proceeds to the next phase discussing the ILC more specifically.**
- Discussion by an IDT International Expert Panel, where members are from the community but well connected to the government authorities of **the potential participants to the ILC to keep a regular information flow.** Occasional extended meeting by inviting **the governmental authorities to create common understandings.**
- Regular reporting of the status to the community, through the occasions like this.

International discussion for realisation of a large-scale
accelerator facility as a global project

Report submitted to ICFA by the ILC IDT Executive Board

9 June 2022

Membership of the International Expert Panel endorsed by the ICFA

Nomination of the IDT International Expert Panel members for ICFA endorsement

Submitted to ICFA by the ILC IDT Executive Board
11 July 2022

Panel members

Ursula Bassler (FR)
Philip Burrows (GB)
Beate Heinemann (DE)
Stuart Henderson (US, ICFA Chair)
Karl Jacobs (DE, EFCA Chair)
Andrew Lankford (US, IDT-EB Americas)
Nadia Pastrone (IT)
Antonio Pich (ES)
Steinar Stapnes (CERN, IDT-EB Europe)
Nigel Smith (CA)
Geoffrey Taylor (AU, IDT-EB Asia-Pacific)
Katsuo Tokushuku (JP)

Core Group

Andrew Lankford, Steinar Stapnes, Geoffrey Taylor

Chair

Tatsuya Nakada (IDT-EB Chair)

Scientific Secretary

Wataru Ootani (IDT EB Scientific Secretary)

IDT work progress so far (I)

- ILC Technology Network

- Work packages for the ILC Technology Network identified by the IDT Working Group 2
- Community level discussion on the participation in different work packages ongoing.
- In Europe: discussion between DGs of CERN and KEK, together with IDT, as well as the IDT presentation of Network to the Laboratory Directors Groupe took place. **CERN could play a role of the European-hub laboratory**, simplifying the logistic for the transfer of KEK material contribution to the European laboratories participating in the Network.
- In the US, KEK DG together with IDT visited **SLAC and FNAL to present the Network** and to discuss a general interest in contributing to the ILC Technology Network. A visit to **J-Lab planned in December and possibly to DoE next year.**

IDT work progress so far (II)

- International Expert Panel discussion
 - Analysis of the difference between an “**international**” project like HERA and LHC, and a “**global**” project like ITER (an example of top down) and SKA (an example of bottom up).
 - Recognising that ILC started as a “global” project and Japanese government still thinks in that way, while “we” have moved to think it more like an “international” project, i.e. requiring Japan to declare its interest to host, for moving further.
 - Technical work for the ILC has already made such an advancement, i.e. post-TDR stage, and we cannot go back to the road of a real “global” project.
 - We need to find **a middle way**:
e.g. to start an intergovernmental “discussion”, where **the potential partner governments acknowledge an interest to have the ILC as a promising candidate for the Higgs factory and the Japanese government will take a lead to push a common R&D effort to an engineering level**. Through such a discussion, **one may be able to move to the next step**, i.e. the issue of hosting.

To conclude

- **ILC Technology Network** can bring the ILC agenda further by preparing the engineering readiness for the accelerator construction
- **International Expert Panel** is seeking a way to synchronise the Japanese government authority and those of potential partner countries.
- **A substantial increase in the KEK budget for the ILC** related technology R&D needed to make the two activities credible and for the other laboratories to join the ILC Technology Network:
 - **The MEXT budget plan for the Japanese Fiscal Year 2023** sent to the Japanese Ministry of Finance in August 2022 contains **a factor of two increase**.
 - Discussion in the government has been **so far positive**. The budget plan of the Ministry of Finance will become known **during the second half of December 2022**.
 - Federation of the Diet Members declares its support and urged the Japanese government to increase the R&D budget.
- Hope for a **visible progress by the next ICFA meeting** in the spring 2023.
- **Continue the support** for physics and detector activities i.e. **Working Groupe 3**