

INFN Input per la *European Strategy*

3rd meeting del Gruppo di Lavoro

25 Settembre 2024

Welcome

The European Strategy for Particle Physics is the cornerstone of Europe's strategy-setting process for the long-term future of the field. Mandated by the CERN Council, the Strategy takes into account results from the LHC and other facilities in the world, the international physics landscape and developments in related fields with the aim to maximise scientific returns.

In March 2024, the CERN Council launched the process for the third update of the Strategy. [The European Strategy Group](#) (ESG) and the [Strategy Secretariat](#) for this update were established in June 2024 to organise the full process. The [remit](#) of the European Strategy Group was also approved in June 2024.

The Strategy update process is expected to converge by January 2026, when a draft Strategy document will be submitted to the Council. The community at large will be involved during the full [process](#) and is asked to provide input at several stages.

RELATED WEBSITES

- ▶ [The European Strategy for Particle Physics](#)
- ▶ [CERN Council](#)
- ▶ [European Committee for Future Accelerators \(ECFA\)](#)
- ▶ [European Strategy Forum on Research Infrastructures \(ESFRI\)](#)

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La home page della prossima Strategy si trova a questo link:

<https://europeanstrategyupdate.web.cern.ch/welcome>

Streamlining the process and form of national inputs

3. Questions to be considered by individual countries/regions in forming and furnishing a “national input” to the ESPP:

a. Which is the preferred next major/flagship collider project for CERN

b. What are the most important elements in the response to (3a)?

- Physics potential
- Long-term perspective
- Financial and human resource requirements – and implications for other projects
- Timing
- Careers and training
- Sustainability

Streamlining the process and form of national inputs

- c. **Should CERN/Europe proceed with the preferred option set out in 3a) or should alternative options be considered:**
- i. if Japan proceeds with the ILC in a timely way?
 - ii. if China proceeds with the CEPC on the announced timescale?
 - iii. if the US proceeds with a muon collider?
 - iv. if there are major new (unexpected) results from the HL-LHC or other HEP experiments?

 d. **Beyond the preferred option in 3a), what other accelerator R&D topics (e.g. highfield magnets, RF technology, alternative accelerators/colliders) should be pursued in parallel?**

 e. **What is the prioritised list of alternative options if the preferred option set out in 3a) is not feasible (due to cost, timing, international developments, or for other reasons)?**

 f. **What are the most important elements in the response to 3e)? (The set of considerations in 3b should be used).**

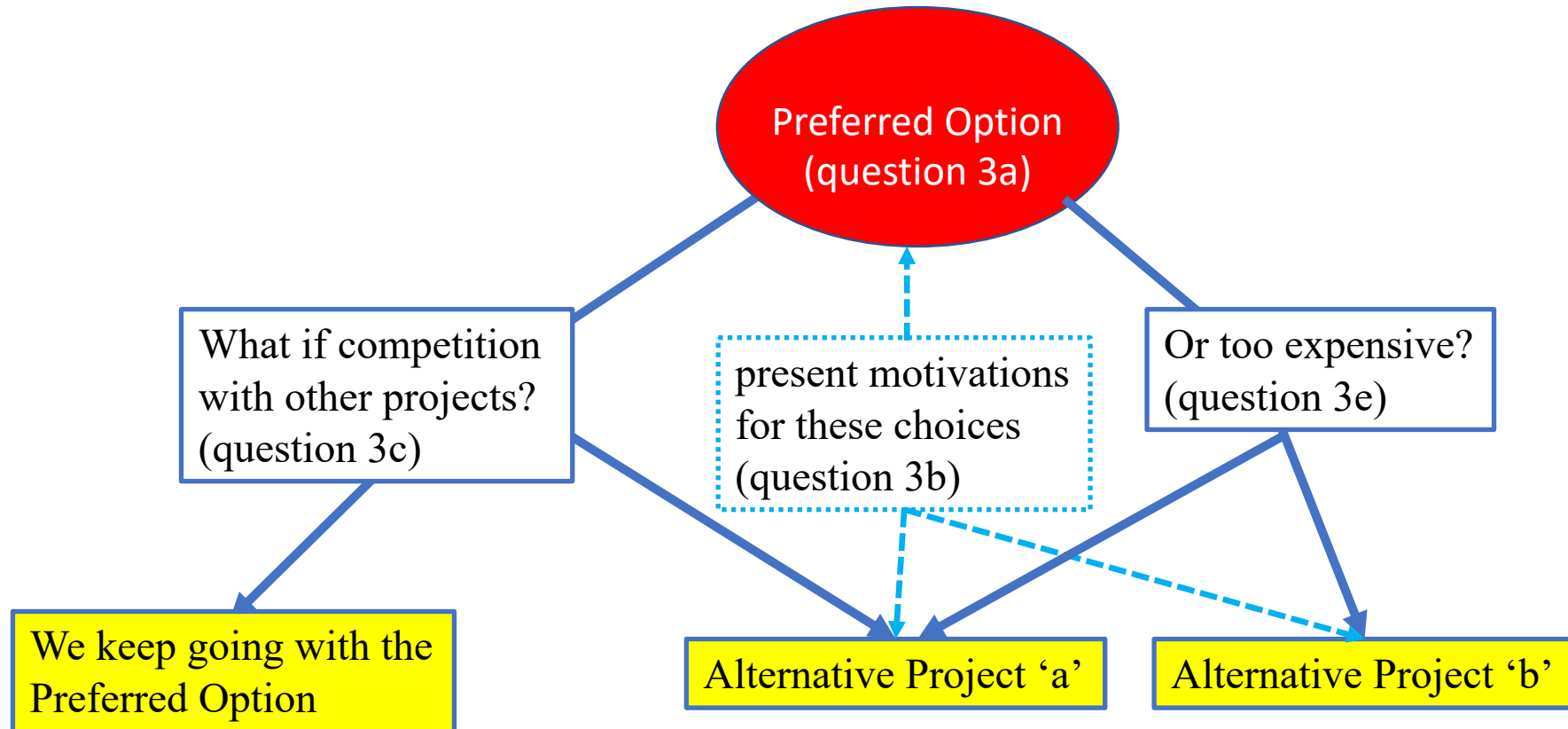
Streamlining the process and form of national inputs

- 4) The remit given to the ESG also specifies that “The Strategy update should also indicate areas of priority for exploration complementary to colliders and for other experiments to be considered at CERN and at other laboratories in Europe, as well as for participation in projects outside Europe.” It would thus be most useful if the national inputs explicitly included the preferred prioritisation for non-collider projects. Specific questions to address:**
- a) What other areas of physics should be pursued, and with what relative priority?**
 - b) What are the most important elements in the response to 4a)? (The set of considerations in 3b should be used)**
 - c) To what extent should CERN participate in nuclear physics, astroparticle physics or other areas of science, while keeping in mind and adhering to the CERN Convention? Please use the current level and form of activity as the baseline for comparisons.**

La “logica” di quello che ci chiedono

Karl’s reminder:

Current baseline – justified by 2020 Strategy: FCC integrated programme (FCC-ee followed by a hadron collider of at least 100 TeV)



Rapporto Draghi a EU

- Disponibile presso questo [link](#)
 - Organizzato in un documento “executive summary” più report completo
- FCC/CERN sono citati esplicitamente a pagina 236:

The Large Hadron Collider has propelled CERN to global leadership in particle physics – a mantle that has shifted from the US to Europe – and it stands as CERN’s flagship facility. One of CERN’s most promising current projects, with significant scientific potential, is the construction of the Future Circular Collider (FCC): a 90-km ring designed initially for an electron collider and later for a hadron collider. Chinese authorities are also considering constructing a similar accelerator in China, recognising its scientific potential and its role in advancing cutting-edge technologies. If China were to win this race and its circular collider were to start working before CERN’s, Europe would risk losing its leadership in particle physics, potentially jeopardising CERN’s future.

e pagina 252:

the future of CERN is at risk due to China’s progress in emulating one of CERN’s most promising current projects, the Future Circular Collider (FCC). Refinancing CERN and ensuring its continued global leadership in frontier research should be regarded as a top EU priority, given the objective of maintaining European prominence in this critical area of fundamental research, which is expected to generate significant business spillovers in the coming years.

Aggiornamenti composizione Steering e GdL

- **Steering:**

- Benvenuta a **Camilla Borca** (Univ. di Torino), Rappresentante **Early Career Researchers**
- Composizione aggiornata: (**C. Borca, M. Ciuchini, S. Malvezzi, A. Nisati, R. Tenchini**)

- **Gruppo di Lavoro:**

- Accogliamo anche Antonella Varaschin e Francesca Scianitti dell' Ufficio Comunicazione che ci seguiranno nella comunicazione+Terza Missione di questa attività nell' INFN e verso l' esterno
- **Composizione aggiornata:**
 - Presidenti delle cinque Commissioni Scientifiche
 - Direttori dei Laboratori Nazionali
 - Chair del Machine Advisory Committee dell' INFN (MAC)
 - Rappresentante attività Calcolo (CNC)
 - Rappresentanti Ufficio Comunicazione

Calendario prossime riunioni questo GdL

- **3 Dicembre 2024** dalle ore 11:00 alle ore 17:00, presso **Lab. Naz. di Frascati** (Auditorio Touschek)

Workshop (pubblico) questo GdL

- **4 Febbraio 2025** dalle ore 09:00 alle ore 17:00, a **Milano Bicocca**

Scadenze per produzione documenti di Input

- **DRAFT Preliminare: 13 Dicembre 2024**
- **DRAFT Finale: 24 Gennaio 2025**
- Il portale su cui caricare i documenti sarà comunicato quanto prima
- Come già discusso negli incontri già fatti, questi documenti dovranno essere molto brevi: 5 pagine andrebbero benissimo; si raccomanda di non superare le 8 pagine in ogni caso

Iniziative INFN programmate


- **30 Settembre / 1 Ottobre 2024: 2° meeting comunità ECR**
<https://agenda.infn.it/event/42691/>
- **1 Ottobre 2024: (primo?) Incontro della comunità dei fisici teorici (e sperimentali)** <https://agenda.infn.it/event/42594/timetable/>
- **Workshop INFN finalizzazione Input alla European Strategy 4 Febbraio 2025**







eventi internazionali

- [114th Plenary ECFA Meeting - Frascati](#)
- [The 2024 International Workshop on Future Linear Colliders \(LCWS2024\)](#)
- [Prossimo Plenary ECFA 14-15 Nov \(al CERN\)](#)
- [Meetings ICFA](#)

“Logistica” e documenti utili al nostro lavoro




- Abbiamo un categoria **Indico** (INFN) per i nostri incontri: <https://agenda.infn.it/category/2108/>
- Abbiamo anche un’ **area sharepoint** disponibile a questo [link](#), nella categoria “Documenti” potete trovare documentazione (nostra o di altri colleghi/gruppi) più link a workshops o incontri utili al nostro lavoro.

Documents 

 Name	Modified
 Council_documents	5 days ago
 ECFA_documents	5 days ago
 Our Talks	3 days ago
 Our Meetings.docx	3 days ago
 Useful Links.docx	3 days ago

Slides aggiuntive

Future Accelerator options for CERN

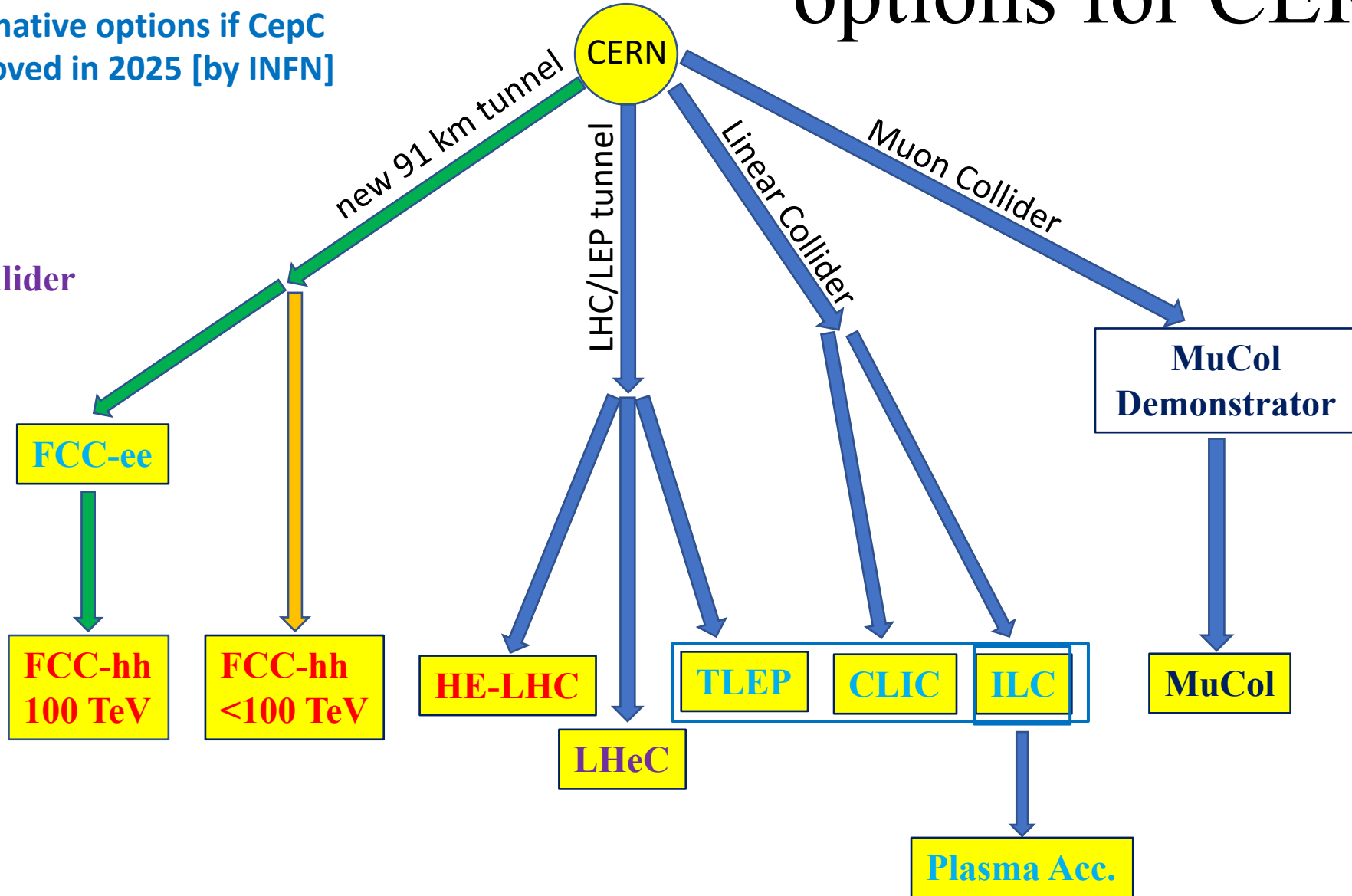
-  ESPP 2020 recommendation
-  Alternative options
-  Alternative options if CepC approved in 2025 [by INFN]

e+e- collider

hadron collider

electron-hadron collider

$\mu+\mu-$ collider



Timeline

September 2024 Council

Council appointment of the members of the PPG

December 2024 Council

Council decision on the **venues for the Open Symposium** and the **Strategy Drafting Session**

Call for proposals to host these events have gone out;
Dates of both events have been fixed

31 March 2025

Deadline for the submission of input from the community

23 – 27 June 2025

Open Symposium

End of September 2025

Submission of the “Briefing Book” to the ESG

01 – 05 December 2025

Strategy Drafting Session

End January 2026

Submission of the Draft Strategy Document to the Council for feedback

March-June 2026 Council Sessions

Discussion of the Draft Strategy Document by the Council followed by the updating of the Strategy by the Council.



Convention for the Establishment of a European Organization for Nuclear Research

CONVENTION FOR THE ESTABLISHMENT OF A EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

Paris, 1st July, 1953
as amended on 17 January 1971

ARTICLE II : Purposes

1. The Organization shall provide for collaboration among European States in nuclear research of a pure scientific and fundamental character, and in research essentially related thereto. The Organization shall have no concern with work for military requirements and the results of its experimental and theoretical work shall be published or otherwise made generally available.
2. The Organization shall, in the collaboration referred to in paragraph 1 above, confine its activities to the following:
 1. the construction and operation of one or more international laboratories (hereinafter referred to as "the Laboratories ") for research on high-energy particles, including work in the field of cosmic rays; each Laboratory shall include:
 - i. one or more particle accelerators;
 - ii. the necessary ancillary apparatus for use in the research programmes carried out by means of the machines referred to in (i) above;
 - iii. the necessary buildings to contain the equipment referred to in (i) and (ii) above and for the administration of the Organization and the fulfilment of its other functions;