

Accelerator R&D Road Map

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European Strategy for Particle Physics: Accelerator R&D

The European Strategy for Particle Physics has been unanimously updated by the CERN Council.

It calls on the European particle physics community to

"intensify accelerator R&D and sustain it with adequate resources. A roadmap should prioritize the technology, taking into account synergies with international partners and other communities... Deliverables for this decade should be defined in a timely fashion and coordinated among CERN and national laboratories and institutes.

- High field magnets (including use of high-temperature superconductors)
- High gradient acceleration
- Bright Muon Beams
- Energy Recovery Linacs
- ...

Roadmap to the future



The yellow brick road, The Wizard of Oz by L. Frank Baum

Isabelle



... strewn with dead projects

SSC



UNK



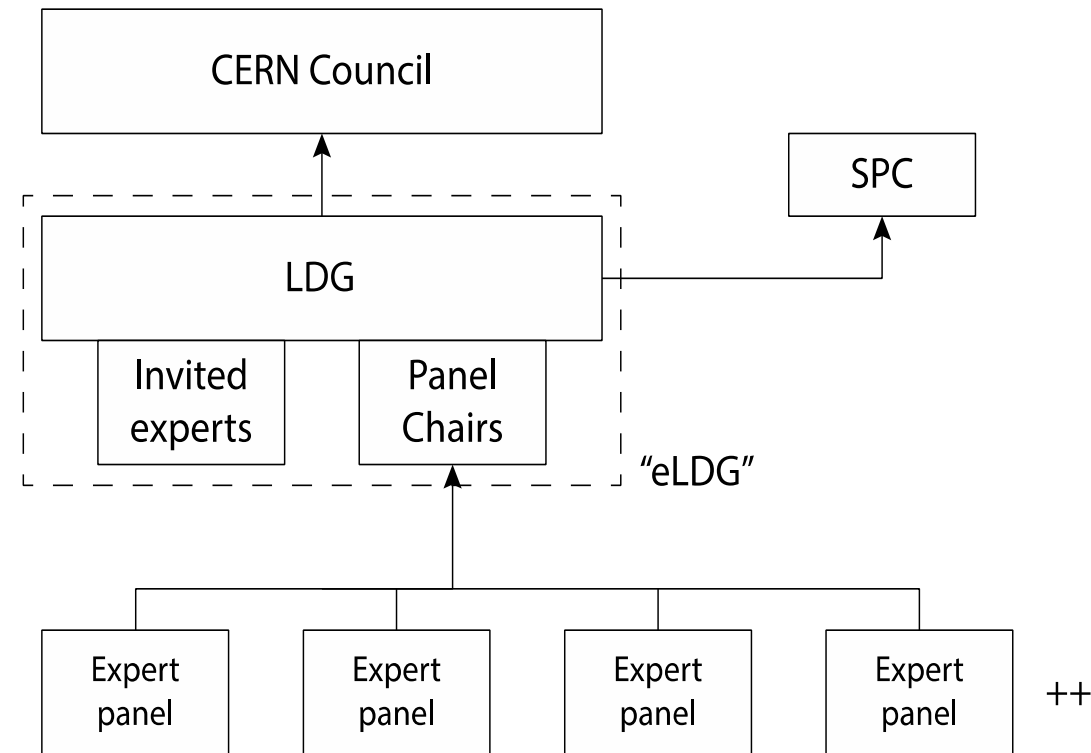
LDG: Laboratories Directors Group

As an outcome of the European Strategy for Particle Physics 2020, CERN Council has mandated the Laboratory Directors Group (LDG) to define and maintain a prioritised accelerator R&D roadmap towards future large-scale facilities for particle physics.

The roadmap will define a route towards implementation of the scientific goals of the European Strategy, bringing together the capabilities of CERN, large national laboratories, and other institutes, to carry out R&D and the construction and operation of demonstrators.

The large national laboratories in Europe play an important role in European particle physics. Their resources, infrastructure and technical capabilities are necessary for implementation of most large-scale projects in particle physics.

Accelerator R&D roadmap panel



Horizontal expansion is possible if necessary

Accelerator R&D Roadmap should include

- The scientific drivers for R&D, and the progress needed to enable future facilities
- The current state-of-the-art, and the further steps to be taken over the next decade
- Potential deliverables and demonstrators for the next decade
- A prioritised work plan, taking into account the capabilities and interests of stakeholders
- A range of scenarios for engagement, ranging from ‘minimal investment’ to ‘maximum possible rate of progress’, with a first estimate of resources and timeline.

Expert Panels roles

Expert Panels

- Establish key R&D needs, as dictated by the scientific priorities of the European Strategy
- Consult widely with the European and global community, taking into account the capabilities and interests of stakeholders
- Take explicitly into account the plans and needs in related scientific fields, such as light sources, neutron sources, and nuclear physics and astrophysics facilities
- Propose and recommend ambitious but realistic objectives, work plan and deliverables
- Give options and scenarios for European investment and activity level
- Propose demonstrators, optimally with science potential, allowing an assessment of R&D progress before the next strategy update

Accelerator R&D roadmap: rough timeline

- September 2020 Council: Proposal for structure and process
- December 2020 Council: Panel composition, initial findings on scope
- March 2021 Council: Intermediate report
- September 2021 Council: Final report, process concludes