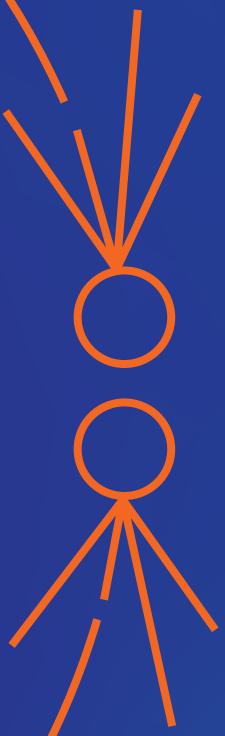
THINK BIG



The Future Circular Collider will interrogate the fundamental building blocks of reality like never before, allowing CERN to maintain world leadership in a critical area of groundbreaking science and technology.

- CERN's mission is to uncover the basic constituents and laws governing our Universe – a multi-generational effort that is beyond the capability of individual countries.
- In meeting this ambitious goal, CERN develops new technologies with significant impact on society and trains generations of scientists, engineers and technicians.
- The Future Circular Collider is an engine of knowledge and innovation for the 21st century that will unite nations and strengthen European competitiveness.

CERN

Daring to explore the deepest questions ...

- How did a tiny fraction of matter survive the **Big Bang**, allowing stars, planets and life to evolve?
- What is the nature of the dark matter that is known to make up **85%** of all matter in the Universe?
- Why is matter made of a handful of seemingly indivisible particles with **wildly** different masses?
- The discovery of the **Higgs boson** at CERN's Large Hadron Collider in 2012 opened radical **new pathways** to explore these and other mysteries.
- To navigate this unknown realm, we need a machine with more **finesse**: a super-clean 'lepton' collider large enough to produce **vast datasets** of Higgs and related particles from point-like collisions.

91 km
Circumference

200 m
Average depth

4
Giant underground experiments

Benefits that outweigh its cost

A machine for generations

Eco-design: The FCC tunnel placement was carefully selected from 100 variants to minimize environmental impact.

Energy reuse: Waste heat from CERN's accelerators is used to heat homes and businesses in the local region.

Regeneration: OpenSkyLab initiative is exploring ways to turn excavated material into fertile soil.

Efficiency: The FCC will deliver significantly more data per unit of energy consumed than any previous collider.

> **"We have scratched the surface, but we have clearly much more to discover."**
>
> ***Peter Higgs**, Nobel laureate in Physics*

... demands the most extraordinary instrument

Detailed assessments by the international particle physics community show that the Future Circular Collider has the highest scientific and strategic value of all proposed future projects at CERN.

Its tunnel will house an electron–positron collider that enables extraordinarily precise measurements of the elementary particles and their interactions. Further in the future, the same tunnel could host a more powerful proton collider, extending the potential for discovery.

Decision time

- CERN has a **strong record** of delivering large projects with long-term international collaboration and industrial participation.
- Europe's investment in CERN over the past 70 years has created **unparalleled** technical infrastructure and expertise.
- Decisions on the **next flagship project** must be taken now to ensure continuity, capability and leadership after the LHC ceases operations in 2041.
- A five year-long study by 1500 experts from 160 institutes in 40 countries confirms that the FCC project is **technically feasible.**
- The CHF 15B **investment** for the FCC would be spread over a period of about 12 years, the majority coming from CERN's annual budget**.**
- Private donors have **pledged** €860M for the FCC.
- The FCC is listed among 11 possible 'moonshots' for **Europe** in the European Commission's draft Multi-annual Financial Framework 2028–2034.

> **"CERN has become a global hub because it rallied Europe. And this is even more crucial today."**
>
> ***Ursula von der Leyen**, President of the European Commission*

> **"If China were to win this race, Europe would risk losing its leadership in particle physics."**
>
> ***Draghi report** for the European Commission on the future of European competitiveness*

> **"We're proud to support the creation of the most powerful scientific instrument in history."**
>
> ***Pete Worden**, Chairman of the Breakthrough Prize Foundation*

Bringing nations together

Founded in 1954 as one of Europe's first joint ventures, CERN has become a paragon of **multilateral collaboration** and a model for other fields.

CERN is the shared laboratory of all its 25 Member and 11 Associate Member States and brings together 18 000 researchers from 110+ nationalities in the **peaceful pursuit of knowledge.**

CERN is the birthplace of the Web, and its results and data are **openly shared** for the benefit of all.

Attracted by the deep questions and technological challenges in particle physics, some **5500 young researchers**, engineers and technicians are being trained at CERN at any given moment.

Almost half a million members of the public from **175 countries** visit CERN each year.

CERN's success stems from its provision of increasingly advanced, **once-in-a-generation** accelerator facilities that push the boundaries of knowledge, technology and collaboration.