

The FCC Feasibility Study and Global Collaboration

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<http://cern.ch/fcc>

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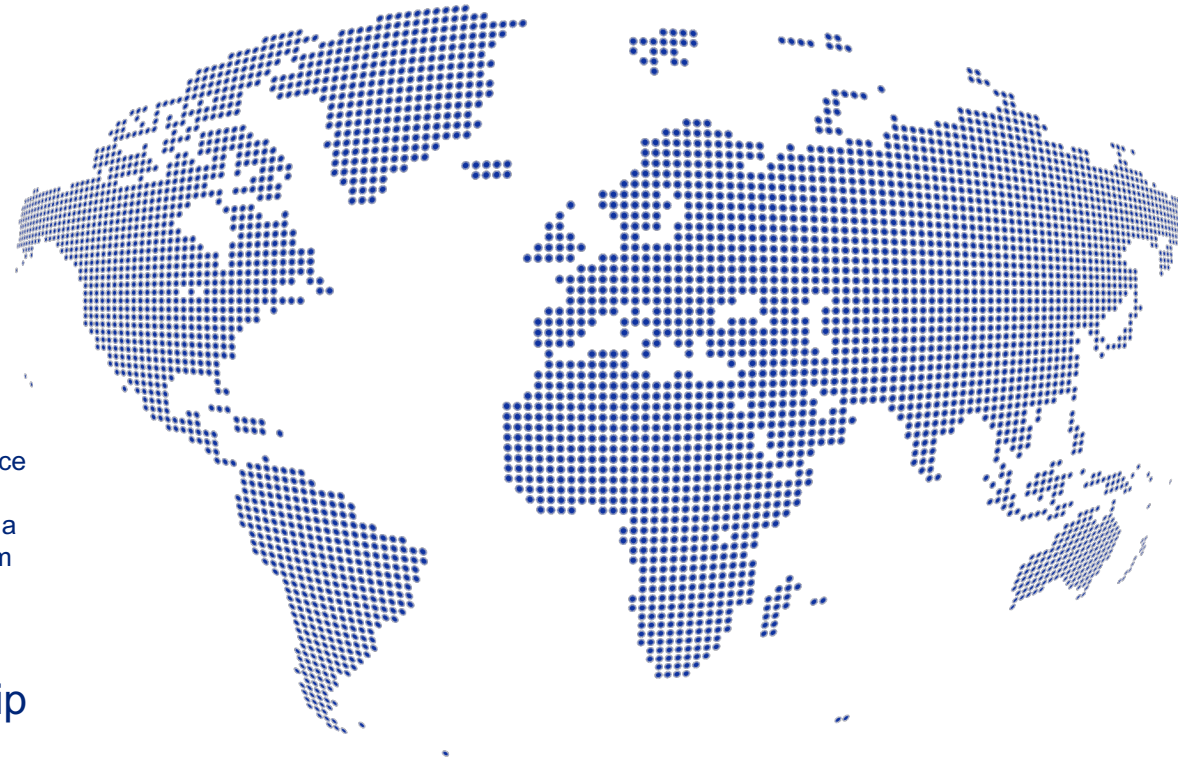


CERN

International Collaboration

Science for peace

CERN was founded in 1954 with 12 European Member States



23 Member States

Austria – Belgium – Bulgaria – Czech Republic
Denmark – Finland – France – Germany – Greece
Hungary – Israel – Italy – Netherlands – Norway
Poland – Portugal – Romania – Serbia – Slovakia
Spain – Sweden – Switzerland – United Kingdom

3 Associate Member States in the pre-stage to Membership

Cyprus – Estonia – Slovenia

7 Associate Member States

Croatia – India – Latvia – Lithuania – Pakistan
Turkey – Ukraine

6 Observers

Japan – Russia – USA
European Union – JINR – UNESCO

Around 50 Cooperation Agreements with non-Member States and Territories

Albania – Algeria – Argentina – Armenia – Australia – Azerbaijan – Bangladesh – Belarus – Bolivia
Bosnia and Herzegovina – Brazil – Canada – Chile – Colombia – Costa Rica – Ecuador – Egypt – Georgia – Iceland
Iran – Jordan – Kazakhstan – Lebanon – Malta – Mexico – Mongolia – Montenegro – Morocco – Nepal
New Zealand – North Macedonia – Palestine – Paraguay – People's Republic of China – Peru – Philippines – Qatar
Republic of Korea – Saudi Arabia – Sri Lanka – South Africa – Thailand – Tunisia – United Arab Emirates – Vietnam

CERN's annual budget
is 1200 MCHF (equivalent
to a medium-sized European
university)

As of 31 December 2020
Employees:
2635 staff, **756** fellows

Associates:
11 399 users, **1687** others

FCC Global Collaboration (FGC) Working Group

Strategic Framework (I)

- The **ESPP** update of June 2020 calls for **wider scientific & technological support** for CERN endeavours, from full exploitation of LHC to preparation of longer-term future of CERN.
- Alongside completion of HL-LHC, ESPP objectives for future projects require a **multi-tiered engagement** with government entities, as well as individual national laboratories, institutes and universities, in the **MS, AMS & NMS (including Observer States)**.

The FCC Approach to Global Collaboration

- FCC Collaboration being formed through a **global, two-way and integrative process**, while being **geographically balanced** and **topically complementary**.
- Open to **areas beyond conventional accelerator R&D** (environment & sustainability; education & training; knowledge transfer to society; & public engagement) and in areas that are **non-core activities** for CERN (geology, geodesy, logistics & material science).
- Prepare foundations for **industrial research** and contributions via national laboratories, institutes and universities.
- CERN is engaging in **discussions with potential major partners** as part of the FCC Feasibility Study for such a global project being hosted at CERN.

The Example of the LHC and HL-LHC

- Successful realisation of the LHC is testament to the strong and consistent support CERN received from its **Member States & Associate Member States**.
 - CERN Council required significant support from **Non-Member States, including the Observer States**, before giving final approval to the LHC.
- Construction of any future front-line accelerator is likely to be an even more **global project** for **scientific, technical and financial reasons**.
- **Siting future accelerator at CERN** would build on the **scientific, technical, diplomatic and personal relations** established during the construction and operation of the LHC & HL-LHC and its experiments.
- CERN's **international relations** with States continue to grow, reflecting **increased globalisation** and the **uniqueness of CERN's experimental programme**, centred on the LHC & HL-LHC.

The FCC Global Collaboration Working Group

- Engage with countries with **mature communities**, a **long-standing participation** in CERN's programmes and the **potential to contribute substantially** to the Organization's long-term scientific objectives, to facilitate opportunities for national participation in the FCC Feasibility Study through:
 - **Membership or Associate Membership**, as provided by CERN's geographical enlargement policy.
 - **Long-term bilateral agreements** (MoUs and Addenda).

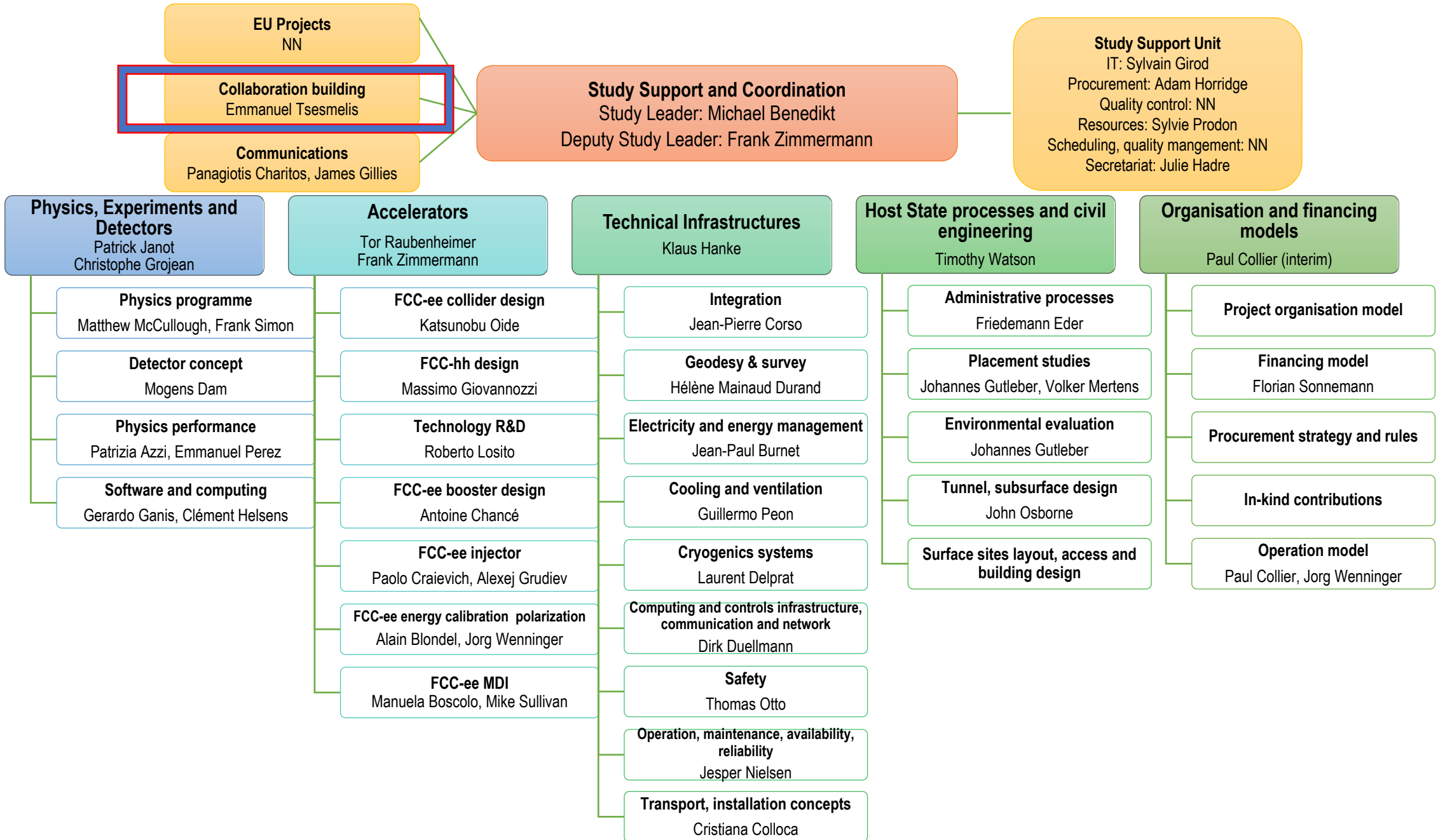
Mandate of the FGC Working Group

- Engage with the participants - **national laboratories, institutes and universities** as well as **industry** in the MS, AMS and NMS - to carry out the following mandate:
 - Encourage an **expanded membership**.
 - Explore **opportunities** for future prospective participants.
 - Support new participants in **application process**.
 - Assist the new participants in defining **areas of collaboration**.
 - Conclude relevant **agreements**.
 - Facilitate the **integration** process.
 - Facilitate interest in **CERN non-core areas** - geology, geodesy, logistics, materials science.
 - Prepare the foundations for research and contributions by **industry**.
 - Liaise with **national contact persons** and **forums**.

FGC Working Group Membership

- **Emmanuel Tsesmelis** (Convenor)
CERN International Relations
- **Michael Benedikt** (CERN), **Frank Zimmermann** (CERN)
FCC Feasibility Study Leader and Deputy
- **Alain Blondel** (IN2P3 & UNIGE), **Patrick Janot** (CERN)
FCC PED Coordinators
- **John Ellis** (King's College London), **Panagiotis Charitos** (CERN)
FCC Coordination Group
- **Gregorio Bernardi** (IN2P3), **Tadeusz Lesiak** (IFJ PAN), **Marcin Chrzaszcz** (IFJ PAN)
Convenors of FCC-PED Informal Forum of National Contacts

FCC Feasibility Study – Coordination Team and Contactpersons



FCC Engagement Meetings (Online)

• Overview

- Recently-launched extended forums with interested countries to discuss collaboration with FCC.
- Topics:
 - Introduction to FCC Feasibility Study.
 - Presentation of FCC physics, experiment, detector, accelerator and global collaboration.
 - Presentations from the country scientific community.

• Meetings

- Mexico (mini meeting on accelerator)
 - 21 June 2021
- Republic of Korea
 - 3 September 2021
- Pakistan
 - 14 September 2021
- Portugal
 - 26 November 2021
- Estonia
 - March 2022

lets **COLLABORATE!**



Much interest expressed by participating countries and the FCC looks forward to stronger / deeper involvement in the follow-up.

FCC Collaboration

Status of Global FCC Collaboration

Increasing international collaboration as a prerequisite for success:

links with science, research & development and **high-tech industry** will be essential to further advance and prepare the implementation of FCC

147

Institutes

30

Companies

34

Countries



FCC Feasibility Study Collaboration Membership



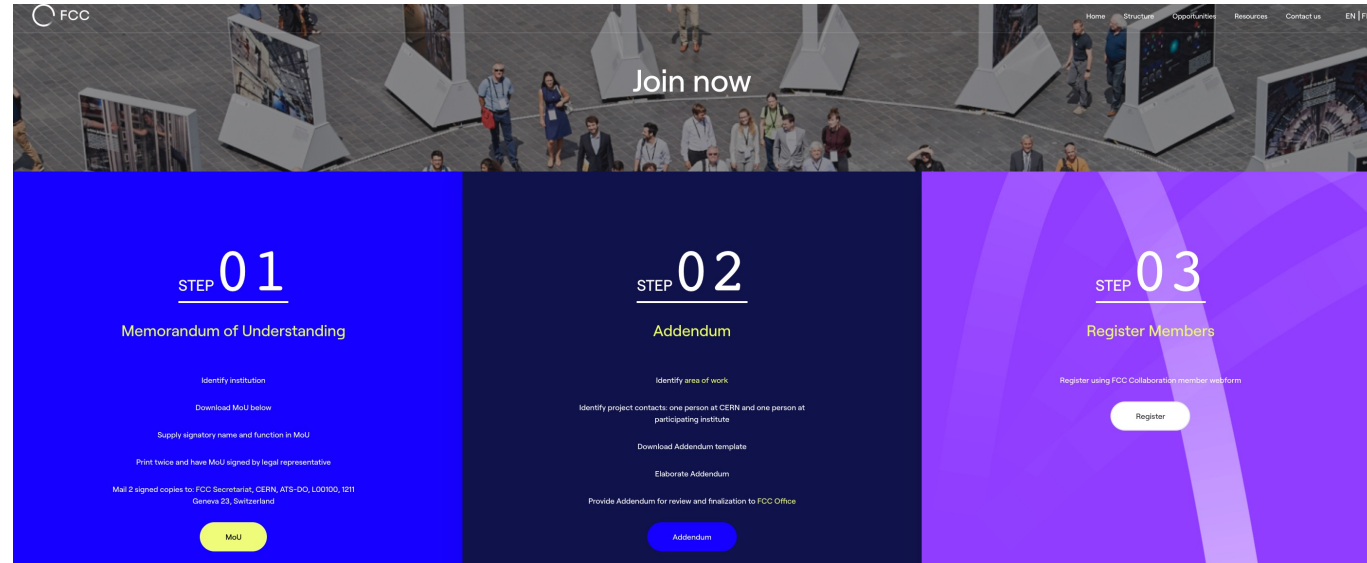
Participation in FCC through **MoU and Addenda**.



The FCC MoU for the first phase of the study is being **updated to cover the Feasibility Study**.



The current participating institutes who wish to take part in the Feasibility Study can continue to participate on the basis of the previously signed MoU until the updated MoU is signed.



The screenshot shows the FCC website's 'Join now' page. It features a navigation bar with links for Home, Structure, Opportunities, Resources, Contact us, and EN|FR. The main content is divided into three vertical panels:

- STEP 01 Memorandum of Understanding:** Includes instructions to identify the institution, download the MoU, supply signatory names, print and sign the MoU, and mail 2 signed copies to the FCC Secretariat in Geneva, Switzerland. A yellow 'MoU' button is at the bottom.
- STEP 02 Addendum:** Includes instructions to identify the area of work, identify project contacts, download the Addendum template, elaborate the Addendum, and provide it for review and finalization to the FCC Office. A blue 'Addendum' button is at the bottom.
- STEP 03 Register Members:** Includes the instruction to register using the FCC Collaboration member webform. A white 'Register' button is at the bottom.

<https://fccis.web.cern.ch/join-now>

Concluding Remarks

- Aim is to grow and strengthen FCC collaboration on a global scale:
 - Countries with **mature communities, long-standing participation in CERN's programmes & potential to contribute substantially** to Organization's long-term scientific objectives.
 - **National laboratories, institutes and universities** in support of the FCC Feasibility Study. Conclude relevant **bilateral agreements** for their participation.
- Continue the **two-sided approach** from the **FGC Working Group** and from the **FCC-PED Informal Forum of National Contacts** to strengthen the global FCC collaboration.

Success of FCC relies on strong global participation in all domains.

The FCC looks forward to strengthen the collaboration with global partners.



FUTURE
CIRCULAR
COLLIDER

Thank you