



# Final event

Michael Benedikt

CERN

September 21, 2021



**EASITrain – European Advanced Superconductivity Innovation and Training.** This Marie Skłodowska Curie Action (MSCA) Innovative Training Networks (ITN) receives funding from the European Union's H2020 Framework Programme under grant agreement No. 764879.

# European Advanced Superconductivity Innovation and Training

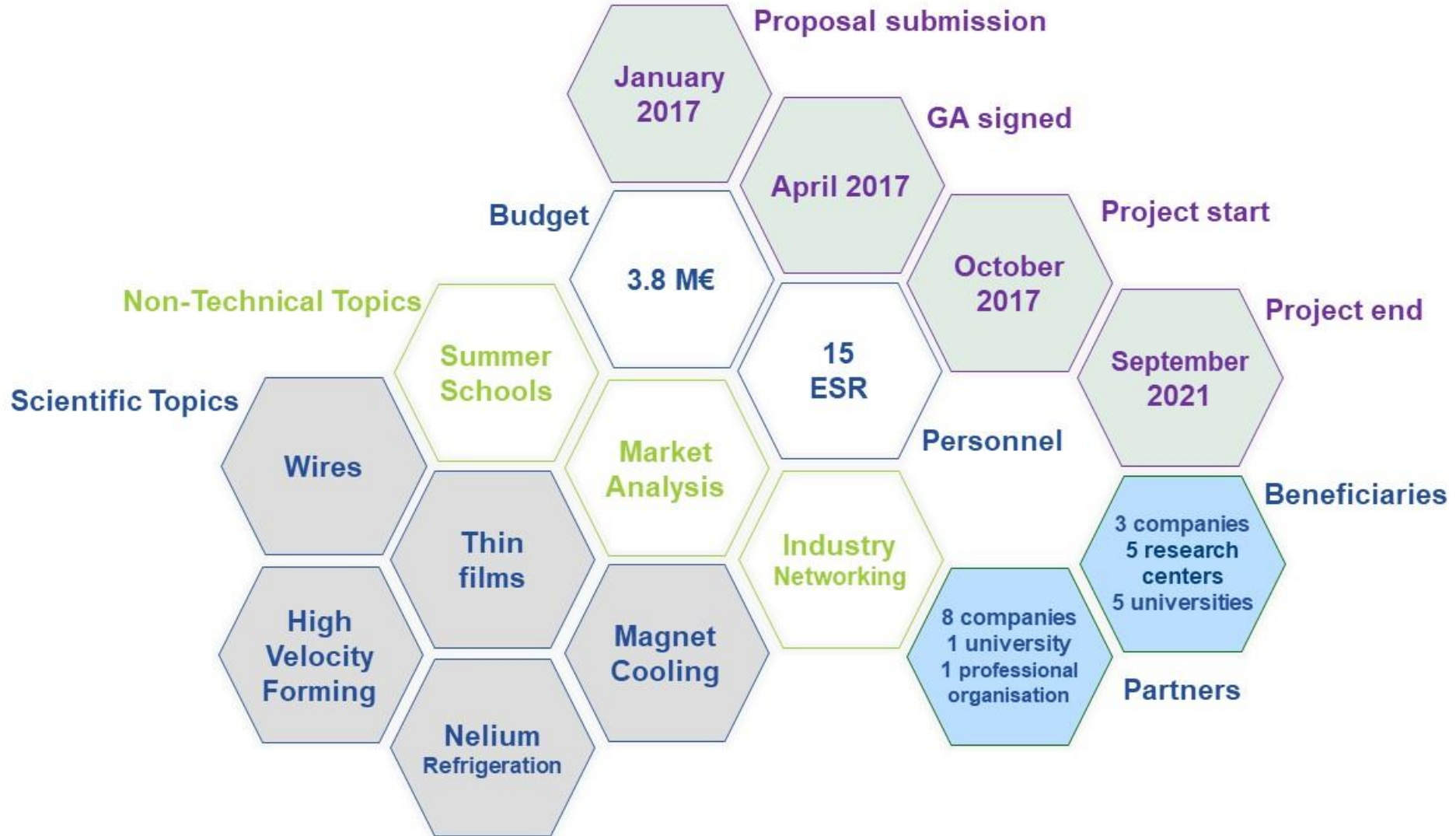
A Marie Skłodowska-Curie Actions Innovative Training Network coordinated by CERN



 [easitrain.web.cern.ch](https://easitrain.web.cern.ch)

[easitrainers.web.cern.ch](https://easitrainers.web.cern.ch)

# Key project parameters



# Organisational structure

## European Commission

Ioannis Bitsios (project officer)  
Olivier Delaunoy (former project officer)

## Supervisory and Steering Board

[Michael Eisterer](#) (chairperson)  
Amalia Ballarino (project coordinator)  
Michael Benedikt (project coordinator deputy)  
Johannes Gutleber (project office head)  
1 representative of each Beneficiary  
1 representative of each Partner  
1 Early Stage Researcher representative

## Executive Committee

[Amalia Ballarino](#) (chairperson)  
Michael Benedikt (deputy)  
Michael Eisterer (SSB chairperson)  
Johannes Gutleber (project office head)  
Dorothea Fonnesu (ESR representative)  
Work package leaders

## Project Office

[Johannes Gutleber](#) (project office head)  
Anna Yaneva (1<sup>st</sup> admin. officer; E. David, C. Hunsicker - former)  
Julie Hadre (2<sup>nd</sup> administrative officer)  
Panagiotis Charitos (communications)  
Lucie Pocha (legal services)  
Ingrid Haug (human resources, gender equality [Cécile Granier, former])  
Anita Ivanova (finance services)

## WP1 - Management

Amalia Ballarino (scientist in charge, CERN)  
Michael Benedikt (deputy, CERN)

## WP2 - Materials

Michael Eisterer (WP leader, TUW)  
Simon Hopkins (deputy, CERN)

## WP3 - Manufacturing

Cristian Pira (WP leader, INFN-LNL), Vincenzo Palmieri (former)  
Sergio Calatroni (deputy, CERN)

## WP4 - Cryogenics

Christoph Haberstroh (WP leader, TUDRESDEN)  
Francois Millet (deputy, CEA-SBT)  
Torsten Koettig (CERN liaison officer)

## WP5 - Valorisation

Peter Keinz (WP leader, WUW)  
Johannes Gutleber (deputy, CERN)

## WP6 - Training

Marina Putti (WP leader, CNR-SPIN)  
Peter Keinz (deputy, WUW)  
Johannes Gutleber (CERN liaison officer)

## WP7 - Communications

Panagiotis Charitos (WP leader, CERN)  
Markus Mosslechner (TM, deputy)

Technical/scientific projects

Non-technical projects

# The inspiration

This ITN builds upon and integrates with other EU projects, exploiting synergies to build a solid European network for superconductivity applications that lasts beyond the project duration and that initiates a silo-breaking process. It integrates sound research projects with the goal to:

1. Learn predicting the behaviour of superconducting materials under different conditions,
2. Establish innovative production techniques as the state-of-the-art and to
3. Develop efficient cryogenic refrigeration systems as enabler for wide-spread deployment.

**Significant lead-times call for launching a training of a new generation of researchers and engineers now to be able to bring products to the market and have qualified experts before the end of the decade.**



Superconductivity relies on cross-sectoral R&D, opening unique **interdisciplinary opportunities as enablers for health, well-being and energy efficiency enhancements.**

EASITrain scientific work package overview



# Project goals

- This ITN has been established to **provide additional resources to ongoing R&D activities** on technologies relating to superconductors **in the scope of the Future Circular Collider Study.**
- **Train future experts** in the key technologies that **FCC needs**
- **Develop a durable curriculum** at doctoral level to continue the training and R&D activities after 2021.
- **Create lasting links** between academia and industry, **in view of follow up projects** (e.g. model magnets).
- **Communicate** clearly a **superconducting technology roadmap** that emerges from HL-LHC and FCC activities.
- **Engage the public, funding agencies and decision takers** in academic, industrial and administrative sector to **raise awareness of the potentials** that superconducting technology can bring **and R&D and training needs** until the 2030ies.

# Work program

- **Work on affordable, large-scale production techniques** for higher performance superconducting wires
- Focus for FCC on Nb<sub>3</sub>Sn for 16 T magnets • Assess potentials of MgB<sub>2</sub> for magnets
- **Advance SC thin-film coating** for **high-performance** cavities and other applications (e.g. beam screen)
- Assess affordable **manufacturing techniques for SC RF cavities** and potential other accelerator components
- **Bring the Helium refrigeration to the next level** (e.g. compressor test stand)
- Work on **cooling architectures and techniques** for FCC magnet designs
- **Valorisation potentials** of the technologies  
Where do **credible markets for industry** exist in the technologies they develop with us for FCC?  
Superconductor technology **roadmap with industry** in agreement with FCC schedule
- **Document credible cost, quantity and quality of wire production** at large and how to get there

# Finance parameters

## Project's Fact sheet

Start date: 01.10.2017

Duration: 4 years

13 Beneficiaries

Total EU contribution: **3,841,922.16 EUR**

ESR: 540 person months

## Financial reporting to EC

1st reporting: September 2019 (M1 to M24)

2<sup>nd</sup> reporting: September 2021 (M25 to M48)

NB! The beneficiaries need to submit their financial statements for the P2 in the H2020 portal.

The estimate date for the final payment is January 2022.

Beneficiary	GRAND TOTAL Real Family Allowance	Pre-financing (75%) paid November 2018	Common Pot RP2	New Grand Total with CPOT	Interim transfer paid April 20202	Peallocation of CPOT pais April 2020	Redistribution of CPOT paid Septemembr 2021	Total payment (85%)
1 CERN	539'951	408'710	47'625	587'576	58'357	400	32'372	499'439
2 BRUKER	199'941	153'702		199'941	12'844	3'404	3'404	169'950
3 CEA	427'200	327'893	11'277	438'477	38'004	5'843	6'807	372'705
4 CNR	208'786	160'336		208'786	13'728	3'404	3'404	177'468
5 COLUMBUS	208'786	160'336		208'786	13'728	3'404	3'404	177'468
6 HZB	199'941	153'702		199'941	12'844	3'404	3'404	169'950
7 I-CUBE	213'600	163'947		213'600	14'210	3'404	3'404	181'560
8 INFN	226'786	160'336		226'786	22'278	400	10'154	192'768
9 TUD	199'941	153'702		199'941	12'844	3'404	3'404	169'950
10 TUW	413'317	317'481		413'317	27'031	6'807	6'807	351'319
11 USIEGEN	217'941	153'702		217'941	21'394	400	10'154	185'250
12 USTUTT	199'941	153'702		199'941	12'844	3'404	3'404	169'950
13 WUW	206'658	158'741		206'658	13'515	3'404	3'404	175'660
<b>Total</b>	<b>3'742'922</b>	<b>2'881'442</b>		<b>3'742'922</b>				<b>2'993'436</b>



# Preparation for the Final report

In Horizon 2020 the final report is automatically generated by the IT tool (in H2020 portal) and is composed of a **final technical** and a **final financial** part:

## **Final technical report is a publishable summary of the entire project**

- overview of the results and their exploitation and dissemination
- conclusions on the project
- its socio-economic impact of the project
- an up-to-date link to the project website
- project logos, diagrams, photographs and videos illustrating its work (if available).

## **Final financial report**

- **final summary financial statement** that is automatically created by the system (consolidating the data from all individual financial statements for all beneficiaries and linked third parties, for all reporting periods) and that constitutes the **request for payment of the balance**

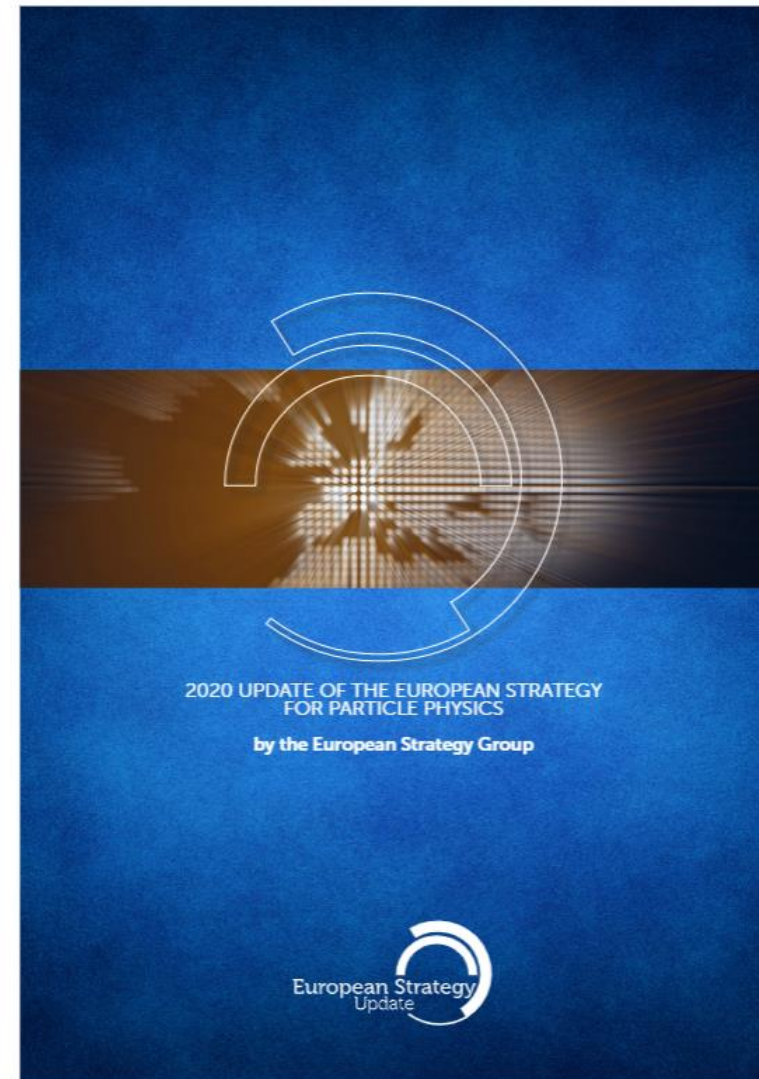
In this respect, **please check** and make sure all the necessary information is registered in H2020 portal and the information that is already there is correct:

- ESR research declaration
- ESR secondments information
- Publications
- Submit the financial statements for the 2<sup>nd</sup> reporting period (M25 to M48)

# Continuation in FCC Feasibility Study

## FCC Feasibility Study (FS) will address a recommendation of the 2020 update of the European Strategy for Particle Physics:

- “Europe, together with its international partners, should investigate the technical and financial feasibility of a future hadron collider at CERN with a centre-of-mass energy of at least 100 TeV and with an electron-positron Higgs and electroweak factory as a possible first stage.
- Such a feasibility study of the colliders and related infrastructure should be established as a global endeavour and be completed on the timescale of the next Strategy update.”



# Goals for FCC Feasibility Study

## Highest priority goals:

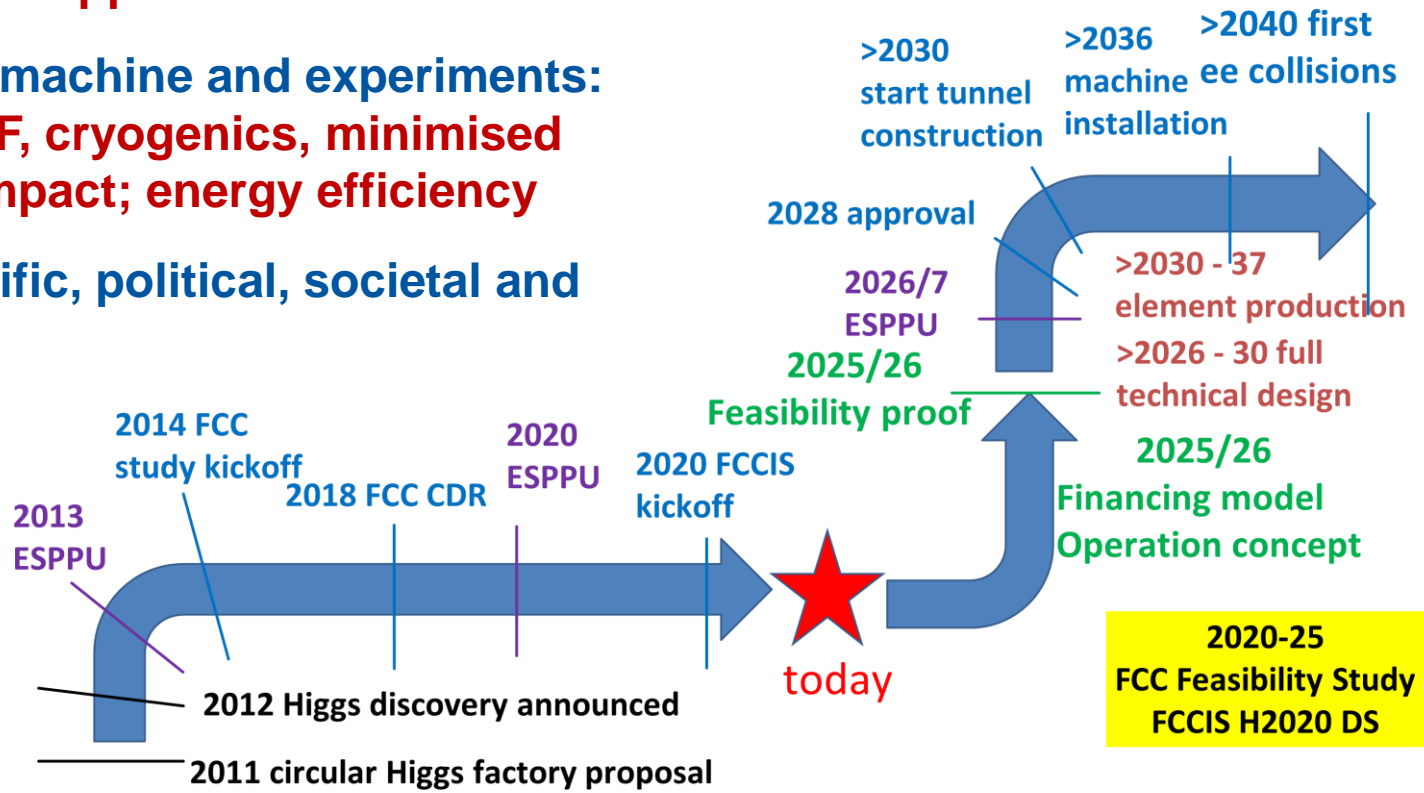
Fabiola Gianotti: "CERN vision and goals until next strategy update" FCCIS Kick-Off, 9 Nov. 2020

Financial feasibility

Technical and administrative feasibility of tunnel: **no show-stopper for ~100 km tunnel**

Technologies of machine and experiments: **SC magnets; SRF, cryogenics, minimised environmental impact; energy efficiency**

Gathering scientific, political, societal and other support



# Thank you

Warmest thanks to:

- ❖ our EC Project Officer **Mr. Ioannis Bitsios**, for his professionalism and flexibility. We express our gratitude for helping us with advice and guided us through the complicated and changing procedures during the sanitary crisis.
- ❖ our **15 ESRs**, who with enthusiasm put time and efforts in their respective research fields and training activities. Later today Dorothea will present more about them in her talk.
- ❖ the **Supervisors** who wisely and caringly guided the ESRs in their paths. The invested knowledge and wisdom in preparing the young scientists for the future have not passed unnoticed.
- ❖ the **Supervisory and Steering Board** and the **Executive Coordination Committee members**
- ❖ Mrs. **Ingrid Haug**, our HR support
- ❖ Mrs. **Anita Ivanova**, our finance officer
- ❖ the project office: **Panos Charitos, Julie Hadre and Ani Yaneva**
- ❖ and special thanks to **Johannes Gutleber** who was the mastermind and backbone of this project.