



CERN

European Organization for Nuclear Research

Organisation Européenne pour la Recherche Nucléaire

CERN-EC relations:

MoU activities and participation of CERN in the Framework Programmes

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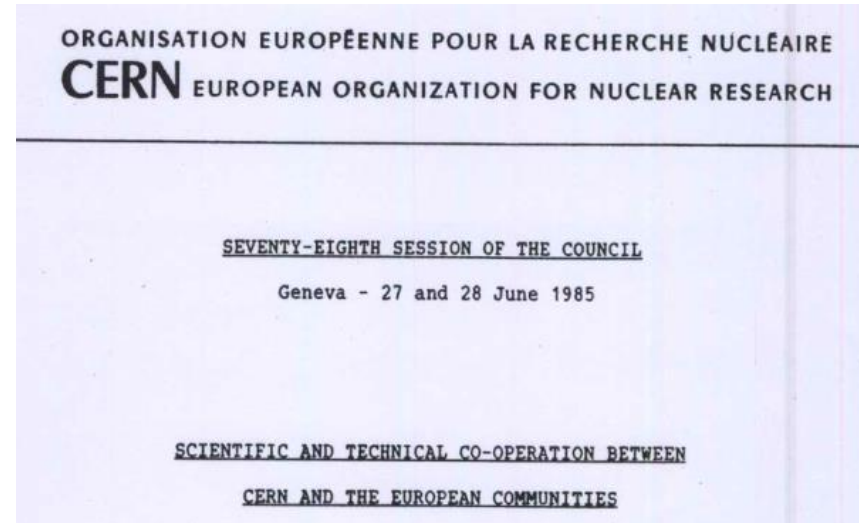
- ❑ Historical perspective of the CERN-EC relations
- ❑ CERN-EC MoU of 2009: areas of cooperation and highlights
- ❑ Overview of the participation of CERN in Horizon Europe
- ❑ Conclusions



CERN-EC relations: historical perspective



- ❑ Agreement for scientific and technical cooperation between CERN and the European Communities, signed in 1985.
- ❑ Administrative arrangement for scientific and technological cooperation between CERN and the Commission of the European Communities, signed in 1994.



ADMINISTRATIVE ARRANGEMENT

for scientific and technological cooperation
between the Commission of the European Communities
and the European Organization for Nuclear Research

THE COMMISSION OF THE EUROPEAN COMMUNITIES, hereinafter called "the Commission",

of the one part,

THE CERN DIRECTOR-GENERAL, on behalf of the European Organization for Nuclear Research, hereinafter called "CERN",

of the other part,



CERN-EC MoU of 2009 (1)



- ❑ The MoU **recognizes the role of CERN Council** as responsible for the definition, updates and follow up of the European Strategy for Particle Physics.
- ❑ The MoU aims **to strengthen and further develop the cooperation** between the two sides, steered along the priority axes of the **European Research Area**.
- ❑ The MoU activities are being carried out through **implementation plans** which are updated on an **annual basis**, and reviewed at the CERN-EC Annual meetings.





CERN-EC MoU of 2009 (2)

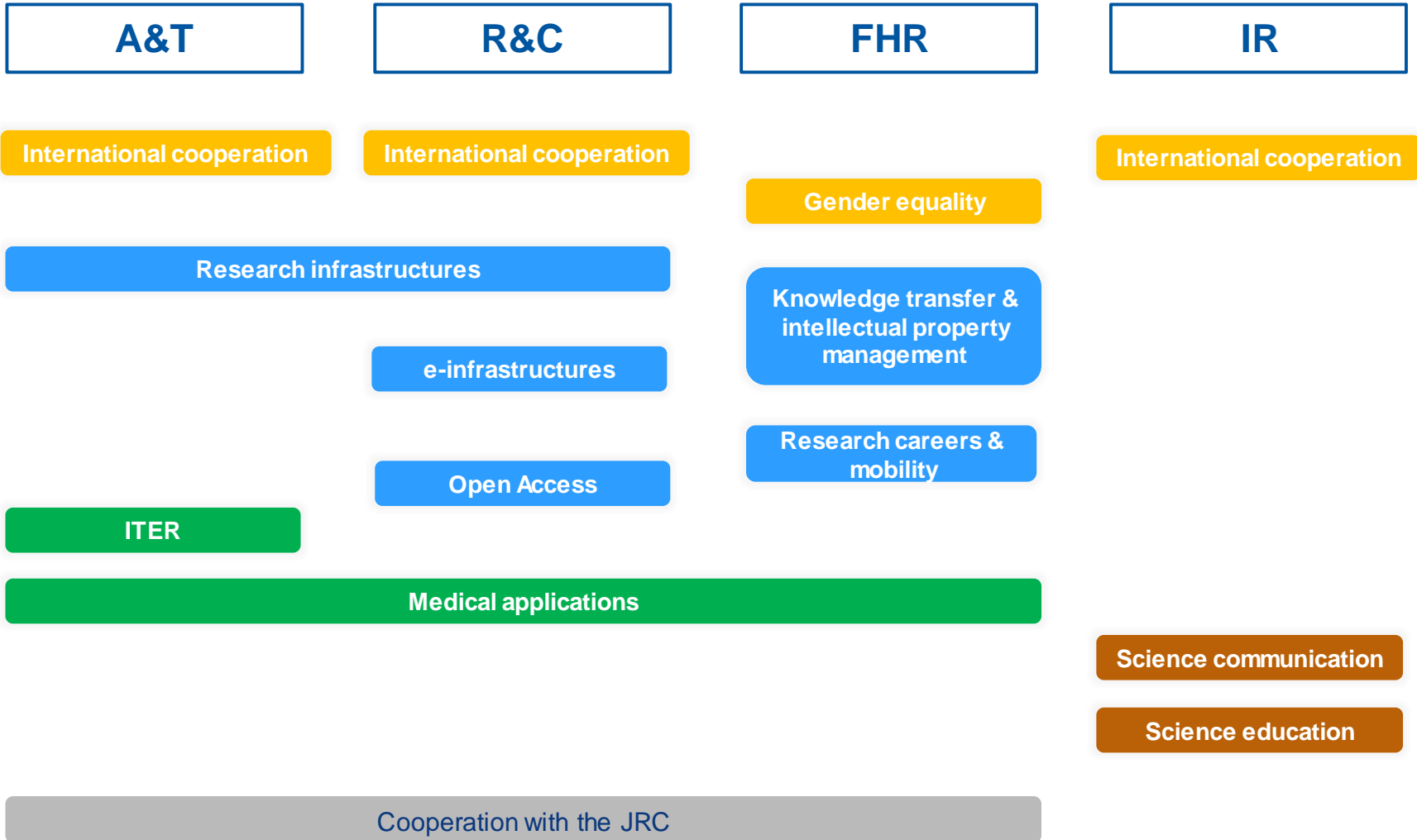


The MoU implementation covers **joint activities** in the following areas:

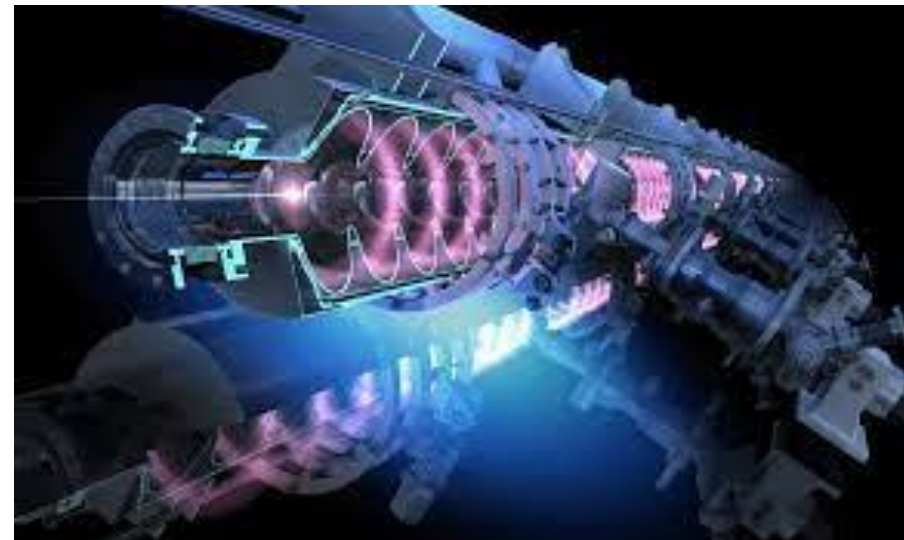
- ❑ International cooperation
- ❑ Researchers' careers and mobility
- ❑ Gender equality in research and innovation
- ❑ Research infrastructures
- ❑ Innovation in detection and imaging technologies
- ❑ E-infrastructures
- ❑ Open Science
- ❑ Knowledge transfer and IP management
- ❑ Science communication and science education
- ❑ Key technologies (ITER, health)
- ❑ Cooperation with the JRC (separate Letter of Intent)



CERN-EC MoU activities



- ❑ S&T capacity building in Africa and Latin America: **exploration of opportunities for new programmes with DG INTPA**
- ❑ Support to the FCC study: **H2020 FCC-IS** design study project
- ❑ Support to the Europe-Americas-Japan Accelerator Development Exchange Programme **EAJADE**, funded under the HE MSCA Programme



- ❑ CERN has provided and continues to provide **training for a large number of young scientists and engineers in various domains of S&T** under the Marie Skłodowska-Curie actions of H2020 and HE.
- ❑ CERN is a recipient of the **EU "HR Excellence in Research" award**, (*EU Charter for Researchers and the Code of Conduct for the Recruitment of Researchers*). Work towards areas of improvement identified in the associated Gap Analysis continues at CERN.

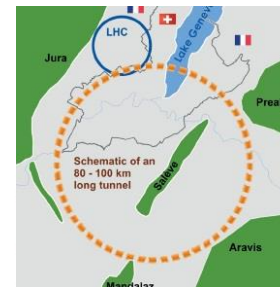
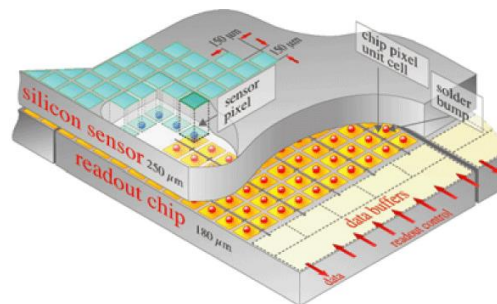


HR EXCELLENCE IN RESEARCH

- ❑ CERN has contributed to several EU-funded projects and other initiatives through input to reports on various gender-related subjects, and sharing **methodology and tools**.
- ❑ In 2023 CERN adopted a **Gender Equality Plan**, in line with the Horizon Europe requirements for public research organisations seeking funding opportunities.
- ❑ **Gender diversity** over the next few years will be boosted, with the aim of increasing the proportion of women CERN staff and fellows from 21,4% in 2020 to **25% in 2025**.

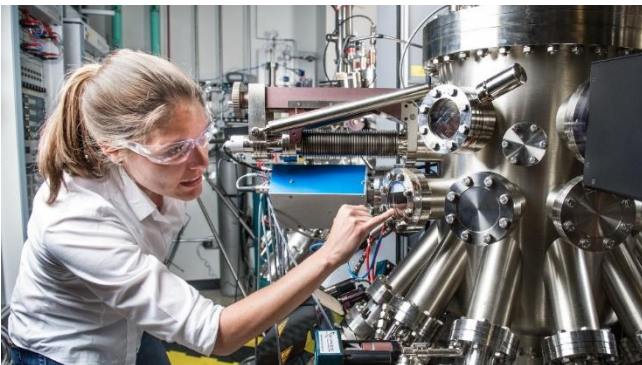


- The EC continues to provide strong support to **high-energy physics** research infrastructures and related technologies:
 - research and innovation actions for accelerator science and technology, and for detectors at accelerators
 - integrating activities for radiation testing facilities, production of isotopes for medical applications, and heavy ion therapy for cancer treatment
 - access of researchers to various facilities for nuclear physics, and for development of novel detectors and accelerators

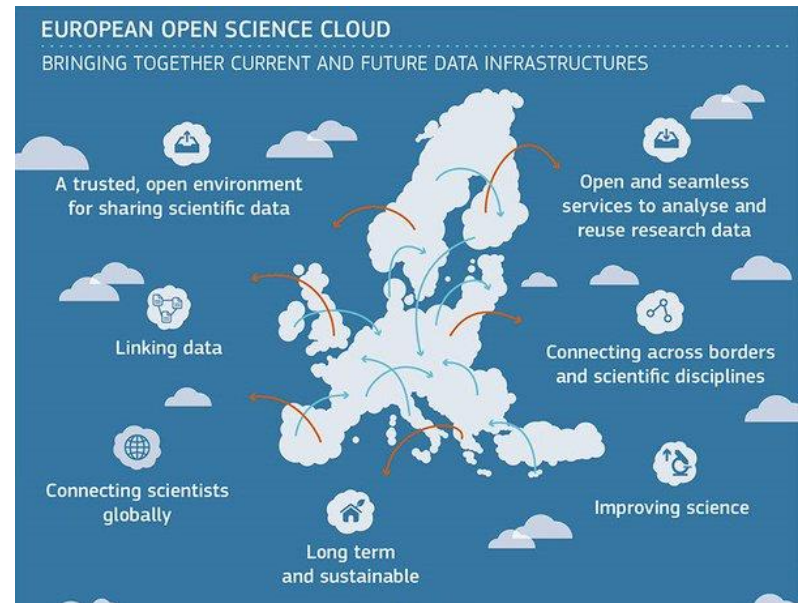


Innovation in detection and imaging technologies

- ❑ The EC continues to provide support to **the ATTRACT initiative**:
 - ATTRACT Phase 2 is proceeding very well, providing funding for 18 R&I projects (the aim is to increase their TRL), for 10 projects that support young entrepreneurs, and for 8 projects that study the socio-economic impact of ATTRACT.
 - The second ATTRACT Phase 1 project will fund 30 new breakthrough projects in areas of detection and imaging technologies, related to climate change and sustainability.



- ❑ CERN IT Department contributes to various activities, supporting the development of **European e-infrastructures**, notably the implementation of **the European Open Science Cloud**, the **Destination Earth** initiative, and the **CERN Quantum Technology** initiative.



- ❑ Collaboration through the **Enterprise Europe Network** and the **European Technology Transfer Offices Circle**.
- ❑ CERN participated in the 2023 **EU Knowledge Valorisation Week** and contributed to the development of two new **Codes of Practice** on industry-academia co-creation and citizens engagement.
- ❑ CERN is actively involved in knowledge transfer activities through the development of novel detector and accelerator technologies and **various industrial collaborations**, in the framework of various EU projects, notably AIDAInnova, I.FAST and ATTRACT.





Open Science



- ❑ CERN has paved the way for Open Access to scientific publications and data and, with the support of the EC, has shared with other communities the lessons learnt and experience gained with its flagship **Open Access initiative, SCOAP3**, as well as its **Open Data portal**.
- ❑ CERN continues to provide its advanced **Zenodo digital repository** for the benefit of thousands of researchers through the EU OpenAIRE infrastructure, thus supporting **Open Science and Open Innovation**.
- ❑ CERN has updated the **LHC Open Data policy**, ensuring that all aspects are in line with the new Horizon Europe requirements for open access to data.





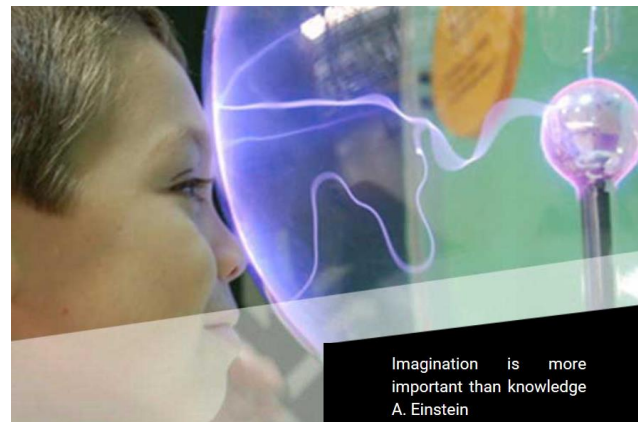
Science communication



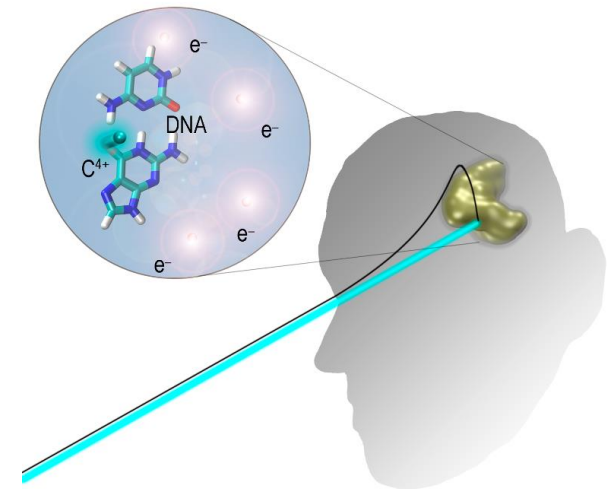
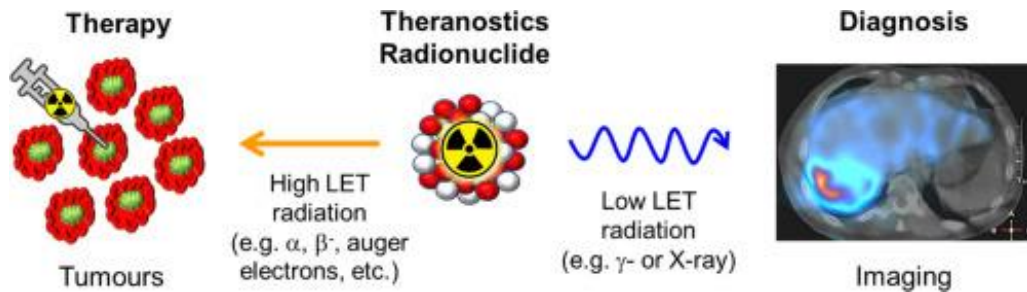
- ❑ Regular and active participation of **CERN Marie-Curie fellows** in various outreach and dissemination activities.
- ❑ Strategic and operational communications **support for ATTRACT**, by promoting ATTRACT initiatives on CERN channels (main website, social media and internal newsletter).
- ❑ Contribution to H2020 QUEST project, aimed at developing tools and guidelines for improving effectiveness in the **dialogue between science and the wider public**.



- ❑ CERN has been involved in several EU projects aiming:
 - to improve the **skills of young people in STEM**
 - to promote interest of young students for **careers in science**
 - to establish pan-European **networks** of scientists, teachers, artists and students
- ❑ **Science Gateway education programmes**, for ages 5+, are being delivered to the public since October 2023.
- ❑ Support to the **EU Contest for Young Scientists (EUCYS)**



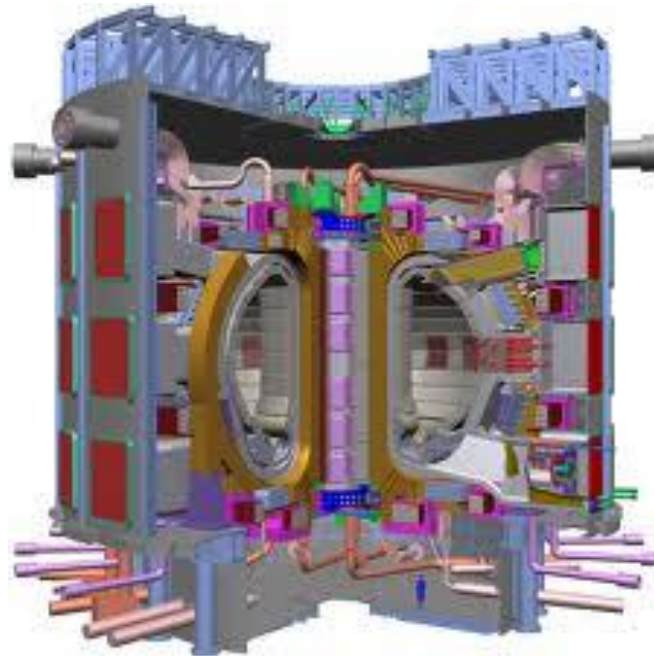
- ❑ CERN is coordinating the H2020 PRISMAP project, which has the goal of establishing a sustainable European network for the **production of new high purity radionuclides** to advance research on radiopharmaceuticals, targeted drugs for cancer, and personalised medicine in Europe.
- ❑ CERN is a key partner in the H2020 HITR|plus project, whose main objective is to advance **cancer treatment with heavy ions beams**, for treatment of tumours that are not curable with X-rays or protons.



- ❑ The JRC Institute for **Reference Materials and Measurements** participates in design of experiments, data taking and analysis of measurements at the **n_TOF facility** at CERN.
- ❑ The JRC Institute for **Transuranium Elements** participates in the **MEDICIS collaboration and the H2020 PRISMAP project**, with special interest in the production of isotopes for radio-immunotherapy.
- ❑ Continued cooperation in big data, arts and science programmes, and artificial intelligence.



- ❑ CERN has provided **expertise and support to ITER in a number of technology areas** such as superconducting cables, magnetic measurements, HTS current leads, interlock and safety systems.





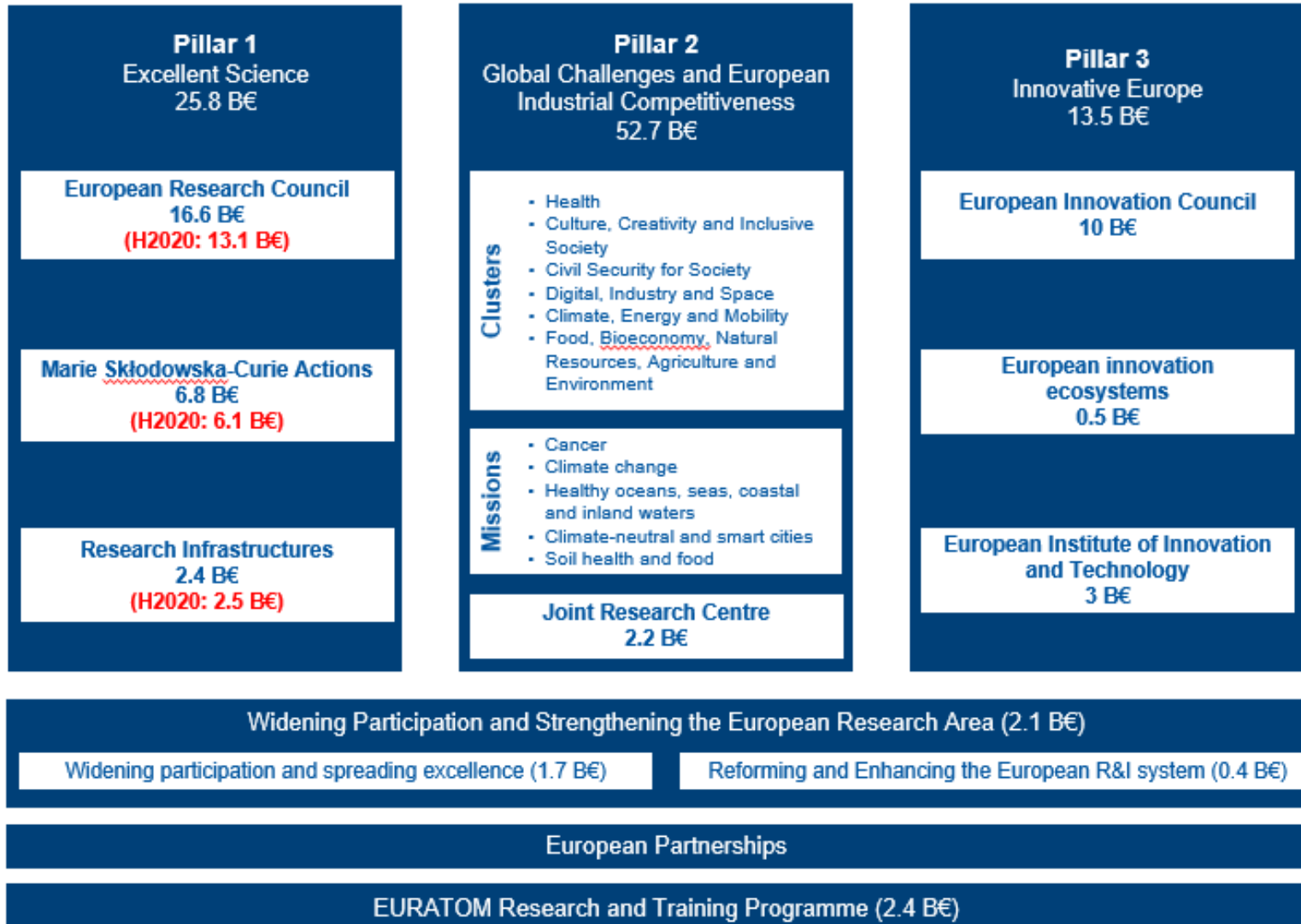
CERN and the European Union Framework Programmes



- ✓ CERN was among the top 50 participants in FP7 (2007-2013), participating in some **100 projects** with corresponding EC funding of over **110 M€**.
- ✓ CERN was actively involved in H2020 (2014-2020), with **98 projects** and corresponding EC funding of **71.5 M€**:
 - Integrating Activities for detector and accelerator infrastructures
 - Design Studies for a post-LHC circular collider at the energy frontier
 - Actions in support of international cooperation, innovation and relations with industry (pre-commercial procurement, ATTRACT initiative)
 - Infrastructures for e-science with focus on the European Open Science Cloud
 - All types of Marie Skłodowska-Curie actions
 - European Research Council Grants



Participation of CERN in HE (1)





Participation of CERN in HE (2)

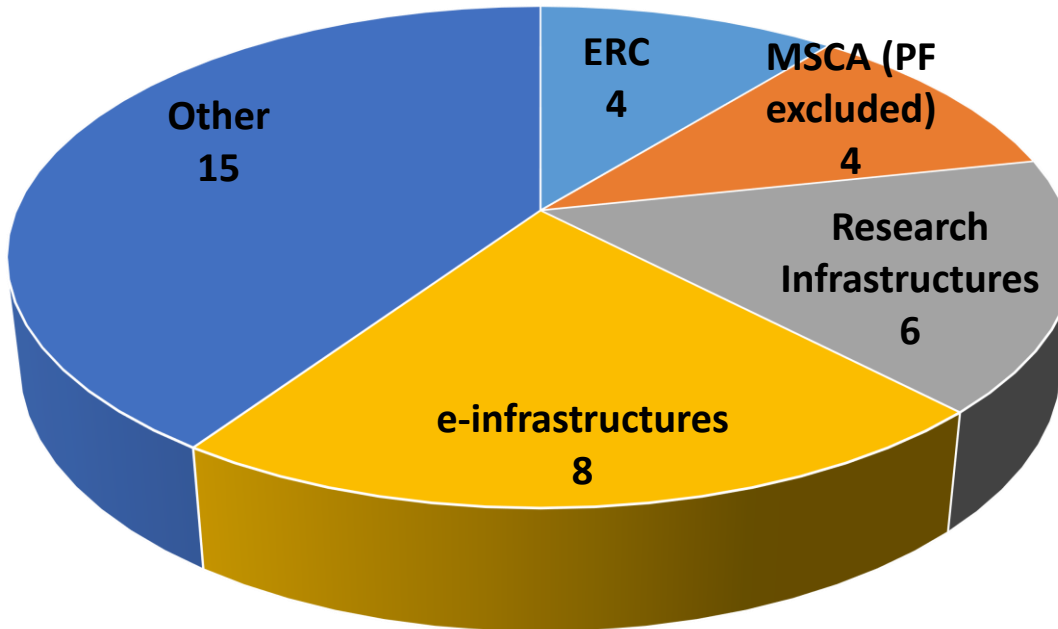


Pillar	Horizon Europe programme	Submitted proposals		Successful projects		Under eval.	success rate
		All	CERN coord	All	CERN coord		
Excellent Science	ERC	46	36	4	4	10	11%
	MSCA (individual Post-doc Fellowships excluded)	26	0	4	0	9	24%
	MSCA individual Post-doc Fellowships	75	75	12	12	0	16%
	Research infrastructures (e-infra excluded)	19	3	6	1	7	50%
	e-infrastructures	11	1	8	1	3	100%
Global Challenges	Cluster 1 - Health	1	0	1	0	0	100%
	Cluster 2 - Culture, creativity and inclusive society	1	1	0	0	1	-
	Cluster 3 - Civil Security for Society	1	0	0	0	1	-
	Cluster 4 - Digital, Industry and Space	11	1	5	1	2	56%
	Cluster 5 - Climate, Energy and Mobility	4	1	1	0	2	50%
	Cluster 6 - Food, Bioeconomy Nat. Resources, Agri. and Env.	1	0	0	0	1	-
	Joint Research Center	0	0	0	0	0	-
Innovative Europe	EIC - European Innovation Council	15	1	1	0	6	11%
	EIE - European Innovation Ecosystems	2	2	1	1	0	50%
	EIIT - European Institute of Innovation and Technology	0	0	0	0	0	-
Other Horizon Europe programmes	Widening Participation and Strengthening the ERA	8	1	3	1	0	38%
	EURATOM	1	0	1	0	0	100%
Other programmes	COST	2	1	0	0	0	0%
	EURAMET	2	0	2	0	0	100%
	Eureka/Eurostars	0	0	0	0	0	-
	Other	2	1	0	0	2	-
TOTAL	incl. MSCA-PF	228	124	49	21	44	27%
	without MSCA-PF	153	49	37	9	44	34%

Participation of CERN in HE (3)

Distribution of funded projects in Horizon Europe programmes

Total: 37 projects*
* Excluding 10 MSCA PF



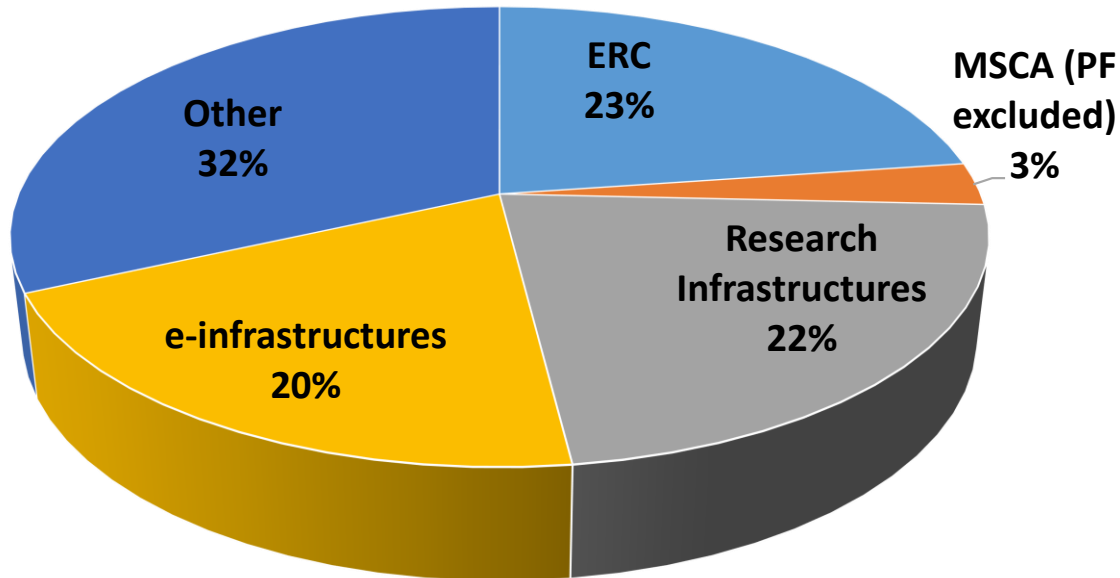


Participation of CERN in HE (4)



Distribution of EC funding for CERN in Horizon Europe programmes

Total EC funding for CERN: 21.2 M€ **
** Excluding 2.1 M€ for MSCA PF





CERN-EC Annual meeting of 2023



- On 17.10.2023, the two parties exchanged news and shared views regarding:
 - a new strategic CERN-EC multi-annual work plan (currently in preparation)
 - the advances with the feasibility study and planning for the FCC
 - the priorities of EU research and innovation policy, including European economic security
 - EU Open Science initiatives and the contribution of CERN
 - exploiting the innovation potential of research infrastructures under Horizon Europe
 - green technologies for research infrastructures
 - innovative medical technologies developed by CERN
 - a possible new partnership on training and education of young innovators
 - S&T capacity building in Africa and Latin America



Conclusions



- The cooperation with the EC goes back to the 1980s, and has intensified since the signature of the MoU in 2009.
- Along with the active participation of CERN in the EU Framework Programme, CERN maintains **very good working relations with the EC DGs, Directorates and Units** in charge of the different programmes, in which CERN participates.
- **Under the MoU umbrella** CERN has active and diverse cooperation with different Directorates-General of the European Commission (DG RTD, DG CNECT, DG EAC and DG JRC) in a number of areas with **mutual interest** for both sides, **and benefit** for the European Research Area, where CERN is one of the major stakeholders.