CERN in H2020: overview and perspectives

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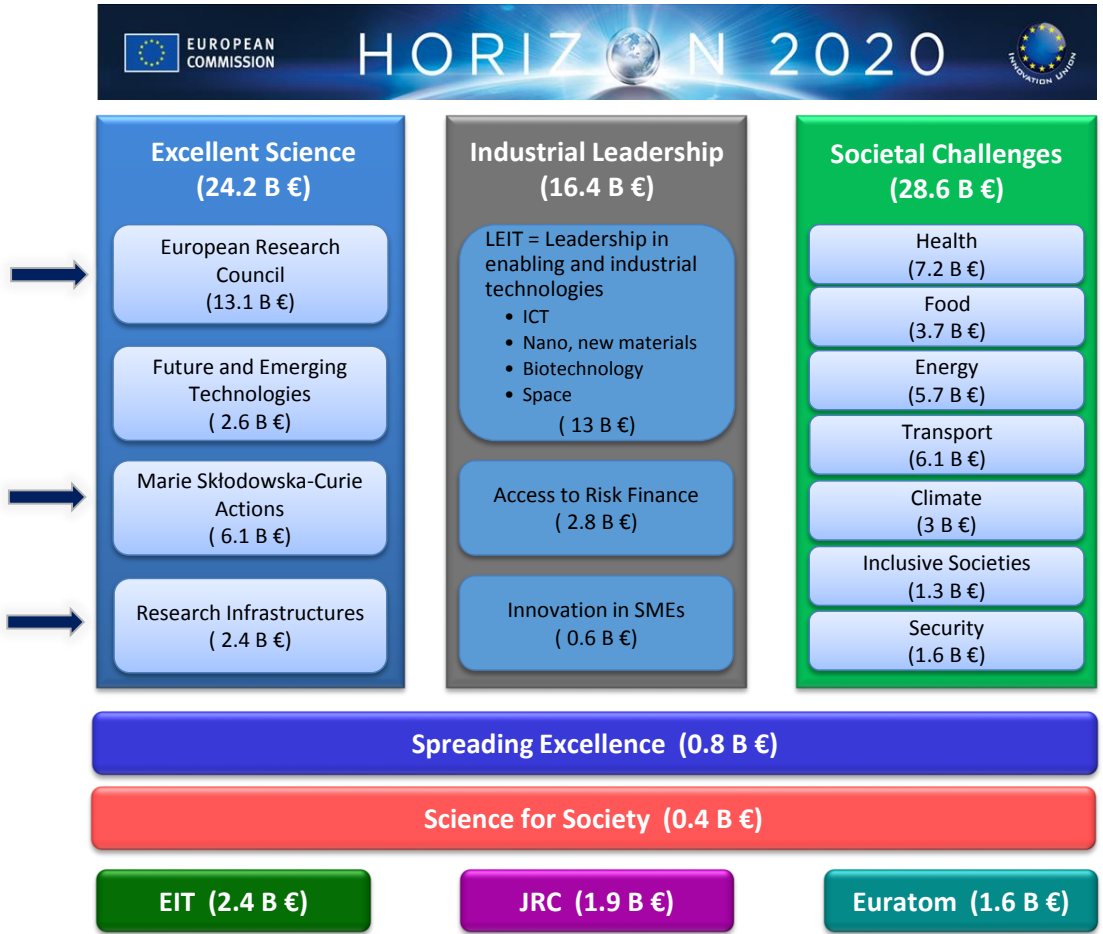
H2020 at a glance



Participation of CERN in H2020 (2014-2016)

Pillar	H2020 programme	Submitted proposals	Successful projects	Under evaluation
Excellent Science	ERC	21(19)	5 (5)	3
	FET Open	15 (7)	-	-
	MSCA*	39 (24)	13 (7)	2
	Research infrastructures	17 (4)	9 (4)	1
	e-infrastructures	17 (1)	8 (0)	-
	Total	***109 (55)***	***35 (16)***	***6***
Industrial Leadership	ICT	9 (2)	3 (2)	-
	Industrial leadership	1 (0)	-	-
	Total	***10 (2)***	***3 (2)***	***-***
Societal Challenges	Health	3 (0)	-	-
	Total	***3 (0)***	***-***	***-***
Other programmes	Science in society	5 (0)	1 (0)	-
	Widening excellence	4 (0)	1 (0)	-
	Nanotech & materials	1 (0)	-	-
	SME	2 (0)	-	1
	Innovation support	1 (0)	-	1
	ERA-NET	1 (0)	-	1
	EURATOM	1 (0)	1 (0)	-
	Eureka/Eurostars	1 (0)	1 (0)	-
	EURAMET	1 (0)	-	1
	COST	7 (3)	3 (1)	-
	Total	***24 (3)***	***7 (1)***	***4***
	Total	**146 (60)**	**45 (19)**	**10**

Success rate for projects coordinated by CERN: 32%

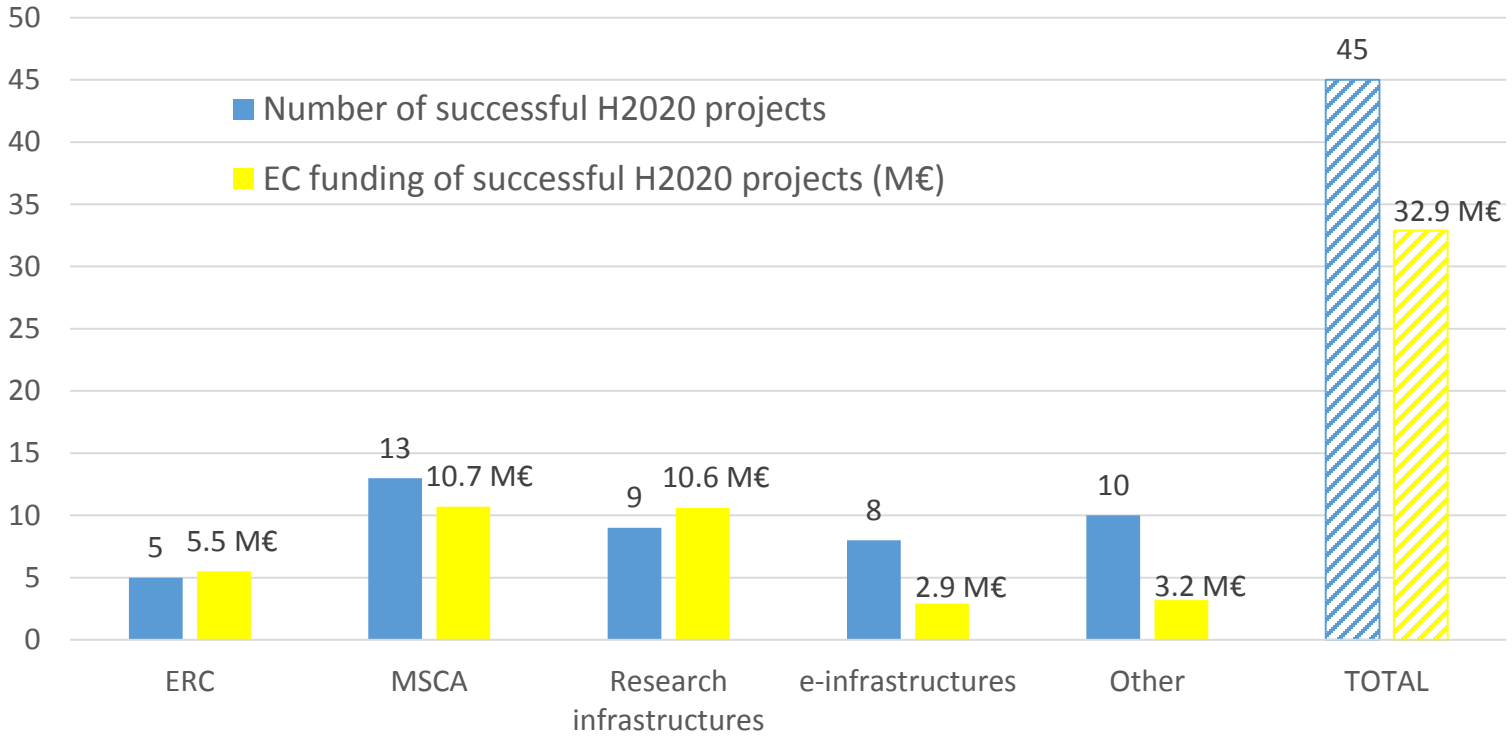
Success rate for projects NOT coordinated by CERN: 30%

Overall success rate in H2020 is below 12%

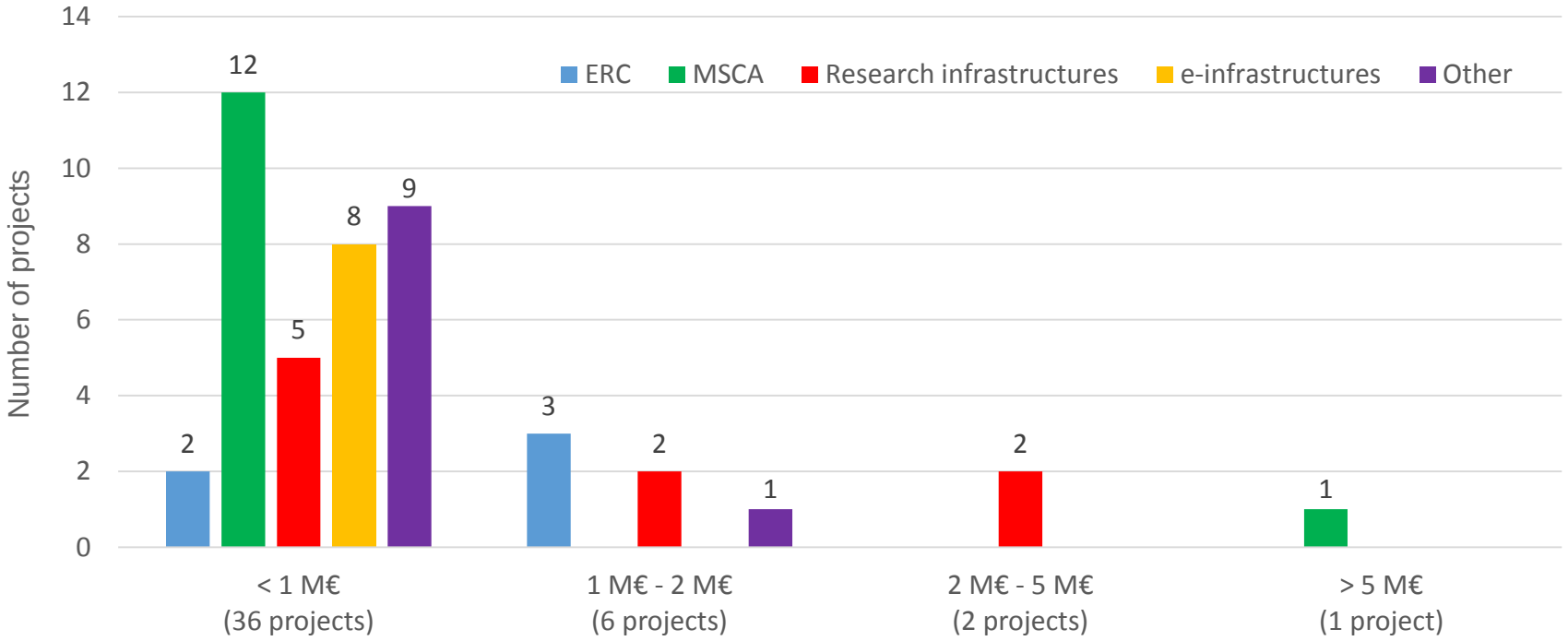
* MSCA do not include Individual Fellowships

The brackets indicate projects coordinated by CERN

Number & EC funding of successful H2020 projects (2014-2016)



Distribution of H2020 projects by EC funding for CERN (2014-2016)



EuroCirCol
EC funding for CERN = 138 k€
Total EC funding = 3 M€

ARIES
EC funding for CERN = 2 M€
Total EC funding = 10 M€

H2020 projects coordinated by CERN (2014-2016)

H2020 programme/action	Project Acronym	Project Title	Departments involved	EC funding for the project	EC funding for CERN
ERC					
Starting Grants	**BetaDropNMR**	Single-nucleus sensitivity in liquid NMR	EP	1,500 k€	1,500 k€
	MathAm	Mathematical Structures in Scattering Amplitudes	TH	1,365 k€	946 k€
	EIBT-LS	An Electrostatic Ion Beam Trap for Ultra-Sensitive Col- linear Laser Spectroscopy of Radionuclides	EP	1,463 k€	1,463 k€
Advanced Grants	**NEO-NAT**	Understanding the mass scales in nature	TH	1,876 k€	1,463 k€
Proof of Concept	**ULTIMA**	ULTrafast Imaging sensor for Medical Applications	EP	150 k€	150 k€
MSCA					
NIGHT	**POP SCIENCE**	POP SCIENCE	IR	210 k€	95 k€
ITN	**MEDICIS-PROMED**	MEDICIS-produced radioisotope beams for medicine	EN	2,800 k€	795 k€
	STREAM	Smart Sensor Technologies and Training for Radiation Enhanced Applications and Measurements	EP	3,800 k€	707 k€
	RADSAGA	RADiation and Reliability Challenges for Electronics used in Space, for Aviation, at Ground and at Accelerators	EN	3,889 k€	530 k€
RISE	**INTELUM**	International and intersectoral mobility to develop advanced scintillating fibres and Cerenkov fibres for new hadron and jet calorimeters for future colliders	EP	922 k€	252 k€
	E-JADE	Europe – Japan Accelerator Development Exchange Programme	BE	1,600 k€	580 k€
COFUND	**COFUND-CERN-2014**	COFUND-CERN Fellowship Programme	All	6,300 k€	6,300 k€
Research infrastructures					
Integrating activities	**AIDA-2020**	Advanced European Infrastructures for Detectors at Accelerators	EP, IPT	10,000 k€	2,356 k€
	ARIES	Accelerator Research and Innovation for European Science and Society	ATS, BE, EN, TE, IPT	10,000 k€	1,987 k€
Design study	**EuroCirCol**	European Circular Energy-Frontier Collider Study	BE, TE, EN, ATS	2,999 k€	138 k€
PCP	**QUACO**	QUAdrupoleCOrrector	TE, IPT, ATS	4,653 k€	3,957 k€
Industrial Leadership					
ICT	**PICSE**	Procurement Innovation for Cloud Services in Europe	IT	500 k€	186 k€
	HNSciCloud	Helix Nebula – The Science Cloud	IT	4,716 k€	1,992 k€
Other					
COST	**FAST**	Fast advanced scintillator timing	EP	400 k€	60 k€
			Total EC funding:	**59,143 k€**	**25,457 k€**

H2020 projects across the Organization (2014-2016)

Pillar	H2020 programme	Accelerators & Technology Sector				Research & Computing Sector				Administrative Sector		IR Sector	HSE	Total CERN
		BE	EN	TE	ATS-DO	EP	TH	IT	SIS	HR	IPT	IR	HSE	
Excellent Science	ERC	-	-	-	-	3	2	-	-	-	-	-	-	5
	MSCA	2	3	1	1	6	3	1	1	1	2	2	1	13
	Research infrastructures	3	3	3	3	4	-	-	-	-	4	1	1	9
	e-infrastructures	-	-	-	-	-	-	7	1	-	-	-	-	8
Industrial Leadership	ICT	-	-	-	-	-	-	3	-	-	-	-	-	3
Other Programmes	Science in society	-	-	-	-	1	-	-	-	-	-	-	-	1
	Widening excellence	-	-	-	-	1	-	-	-	-	-	-	-	1
	EURATOM	1	-	-	-	-	-	-	-	-	-	-	-	1
	Eureka/Eurostars	1	-	-	-	-	-	-	-	-	-	-	-	1
	COST	1	-	-	-	2	1	-	-	-	-	-	-	3
	TOTAL	**8**	**6**	**4**	**4**	**17**	**6**	**11**	**2**	**1**	**6**	**3**	**2**	**45**

* some projects are counted multiple times to reflect all the departments involved

Summary: comparing FP7 (2007-2013) and H2020 (2014-2016)

- ✓ The **competition in H2020 is more severe** (success rates ~12% on average) than in FP7 (~20% on average); in some H2020 programmes success rates as low as 2-5%.
- ✓ CERN continues to have an **exceptional success rate** in the Research Infrastructure programme, and **very good success rates** in the Marie-Curie and ERC programmes.
- ✓ There is an **increase in the average number** of successful projects per year *(12.6/y in FP7 vs 15/y in H2020).*
- ✓ There is a **decrease in the average funding** (for CERN) from selected projects per year *(16.2 M€/y for FP7 vs. 11.0 M€/y for H2020)*
  - In FP7 CERN had 4 CO-FUND grants (>5M€) , 3 large mono-site ITNs (>3M€), and several other large projects (>3M€, EGEE-III, EMI, CESSAMag)
  - In H2020 (so-far) CERN has 1 CO-FUND grant (>5M€) and one large project (>3M€, QUACO)
- ✓ In H2020, there is a general trend of having **a larger number of projects with smaller EC contribution** (to CERN).

Overall perspectives for H2020 (2017-2020)

Challenges

- ✓ Competition will continue to be **fierce across the board**
- ✓ Despite of that, in order to have successful proposals we need to maintain the **interest of CERN teams in EU projects**
- ✓ The necessity CERN to contribute with **own funding** in the Marie Skłodowska-Curie actions
- ✓ CERN repeating its **own success in FP7**

Opportunities

- ✓ All **key programmes for CERN** will continue to offer opportunities for funding (ERC, MSCA, Research Infrastructures)
- ✓ Significant **budget increase** across most H2020 programmes, starting in 2018
- ✓ The Societal Challenges and Industrial Leadership pillars of H2020 are **largely unexploited** (only 3 out of 45 H2020 projects so far)

→ Good perspectives for a solid participation of CERN in H2020 until the end of the programme

Note: When participating in H2020 projects, CERN aims to foster collaborations with laboratories, universities and institutes from its Member States, and often puts own resources so that the EC funding can be used to support the other participants.