



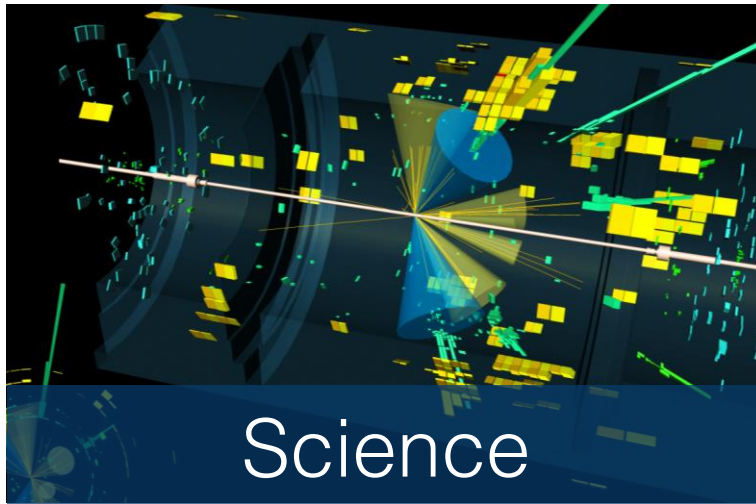
CERN Knowledge Transfer

Linn Kretzschmar

Entrepreneurship Development Officer

September 2024

CERN's Mission



KT's Mission



Maximise the technological and knowledge return to society, in particular through Member States industry

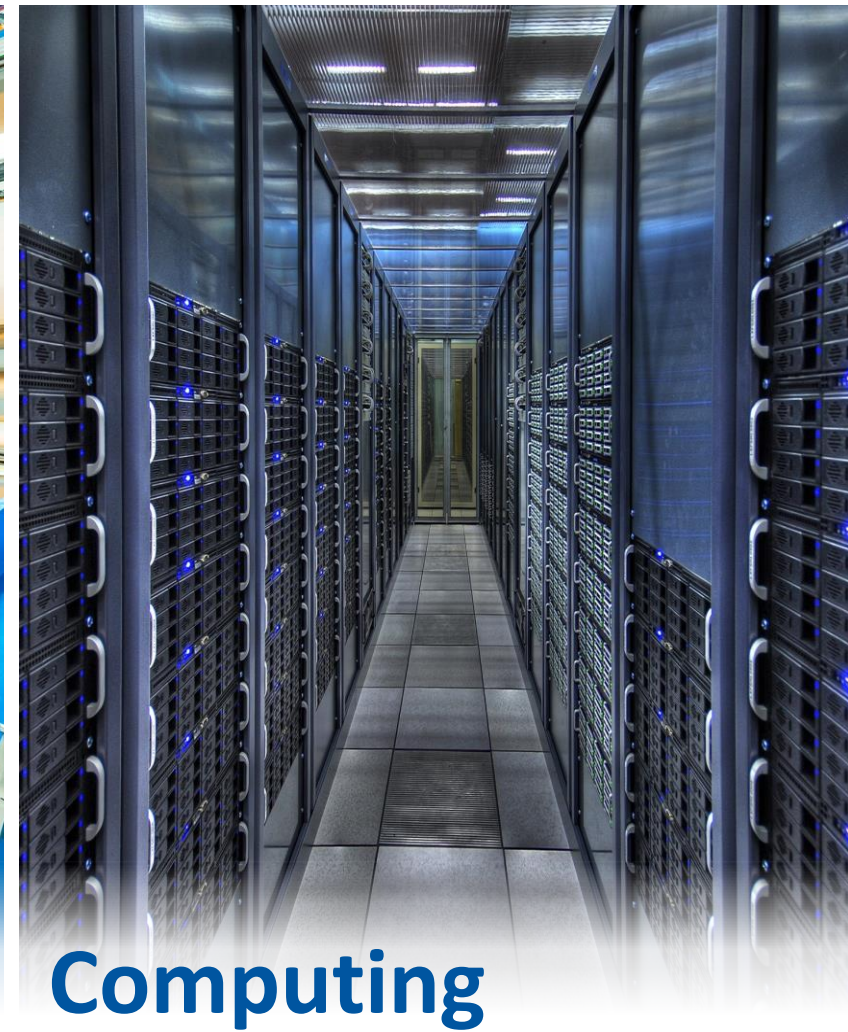
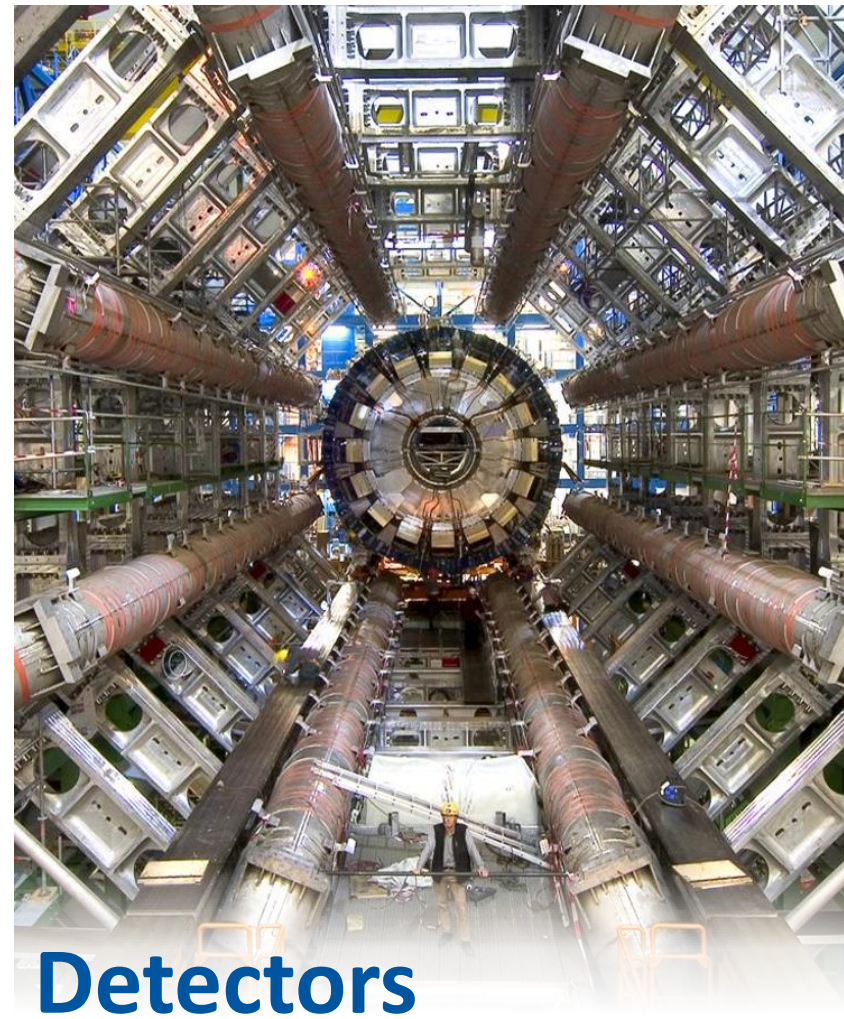


Promote CERN as a centre of excellence for technology and innovation

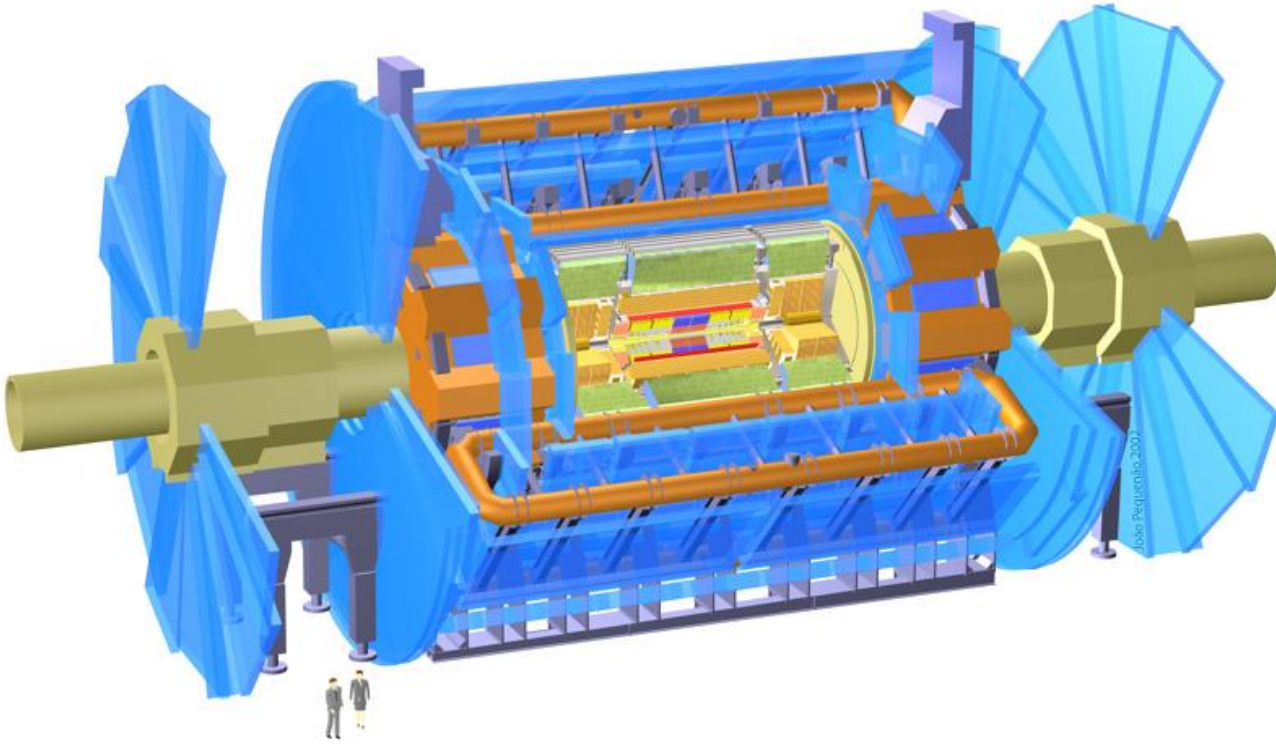


Demonstrate the importance and impact of fundamental research investments

CERN Technology Domains



Detector Technology



100+ million

sensors installed in LHC

weighs 7'000 t

Equivalent to the Eiffel tower

Accelerator Technology

1/10 \emptyset of a human hair

LHC Magnet Filaments



Particles travel at 99.9999991%
of the Speed of Light

1.9 K (-271°C)

Colder than deep outer space

Computing Technology

600 million

collisions per second

40 TB/s

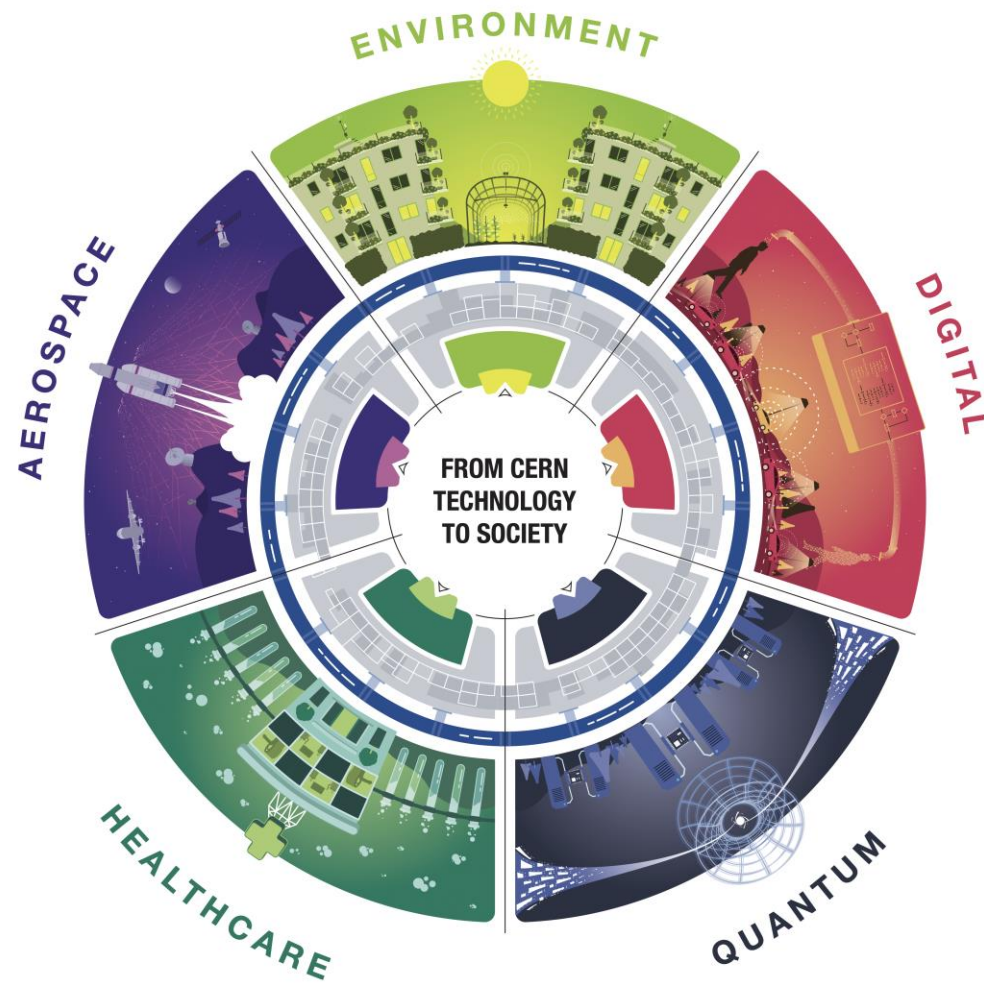
data produced by specialized sensors

170 sites in 42 countries

World's largest computing grid

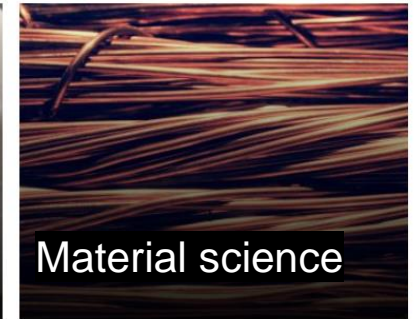
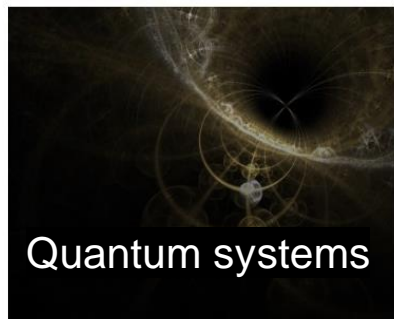
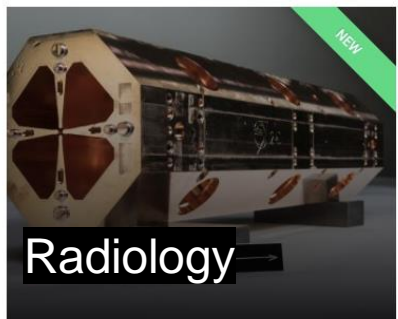
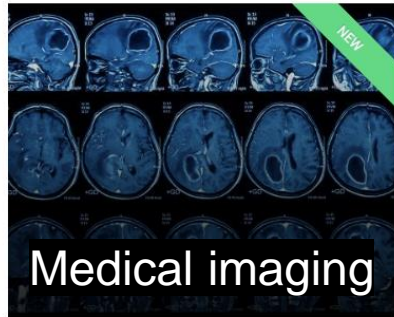


From CERN technology...

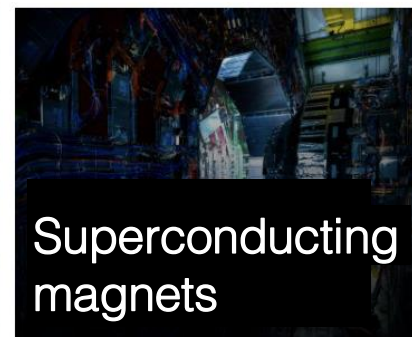
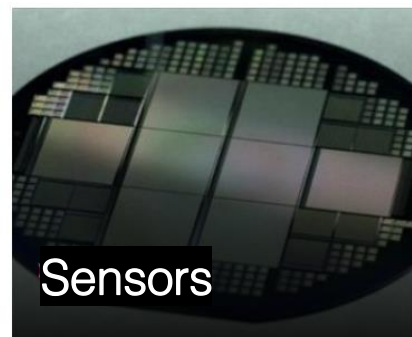
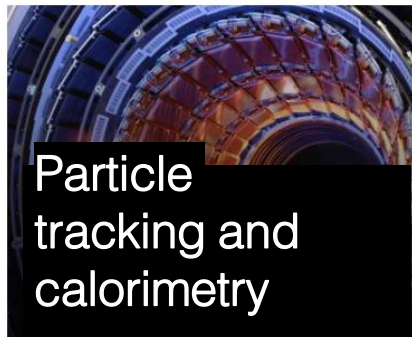
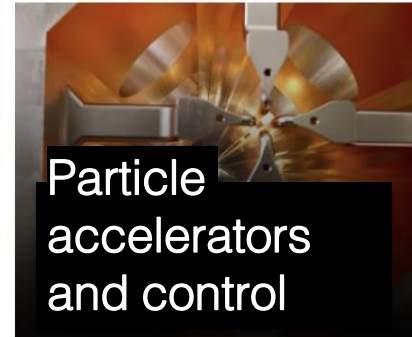
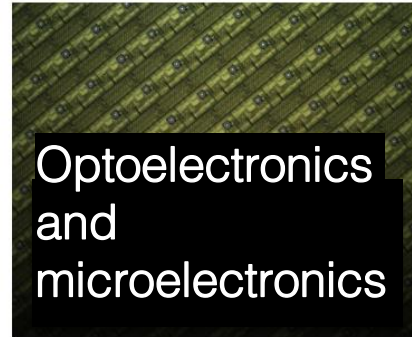


... to society

Competences



Competences cont.



CERN and Airbus for future clean aviation

Airbus UpNext (France), a subsidiary of Airbus, are drawing upon CERN's superconducting technologies to evaluate how superconductivity can contribute to the decarbonation of future airplanes.



“Partnering with CERN will help push the boundaries of research, as we work to make sustainable aviation a reality.”

Ludovic Ybanez, Head of superconducting technologies demonstrator at Airbus UpNext

Harnessing CERN's innovation potential for the environment

The CERN Innovation Programme on Environmental Applications (CIPEA) was launched to invite the CERN community to come up with innovative ideas for environmental applications.

Strong community response with more than 30 draft proposals received, filtered via a selection committee focusing on likely impact. Eight are currently under development - seven of which are supported by the KT Fund.



The CIPEA Innovation Day brought together experts from all CERN technical departments

Knowledge Transfer Tools



Intellectual Property Management

19

Patent Families,
accounting for
96 patents

Intellectual property is not to be equated with patents, which represent only a very small fraction of CERN's knowledge transfer activities.

26

Trademarks

→ Confidential information, knowhow and expertise

Main Legal Instruments

Licence Agreements

Closed/
Proprietary

Open
(Source Software
and Hardware)

Partnership Agreements

Collaborative
R&D

Contract
Research

Service &
Consultancy

IP Management Agreements

NDA

Joint
Ownership

Assignment
Agreement

Other CERN Agreements

Procurement

EU Project

Memoranda of
Understanding

International
Cooperation

Collaboration

Open Source

The cornerstone of the "Open Source" philosophy is that recipients of technology should have access to all its building blocks



Funding Opportunities for CERN Projects

50-224 kCHF funding received per project in 2023



69

Projects funded since 2011

5

Projects funded in 2023



61

Projects funded since 2014

5

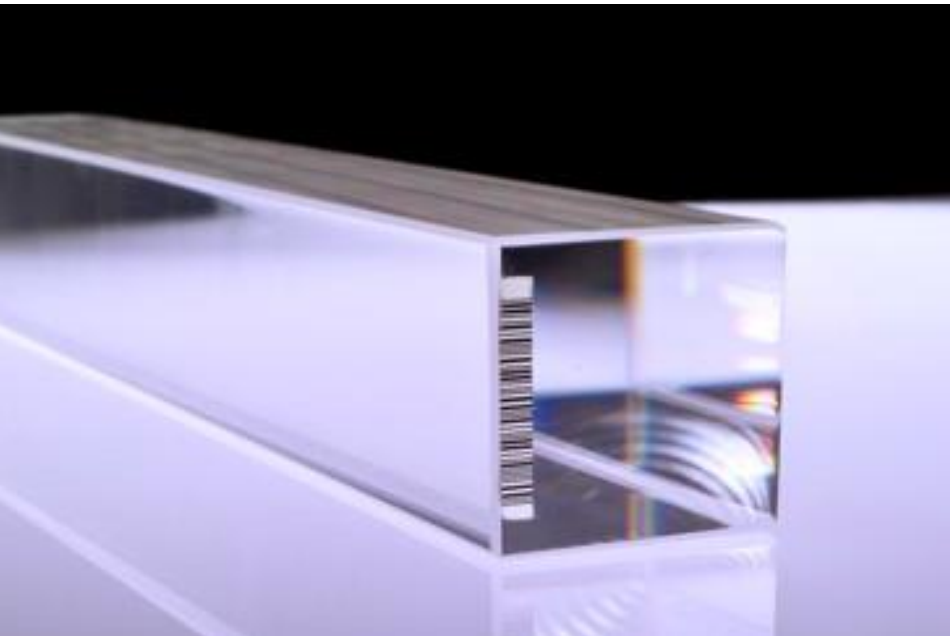
Projects funded in 2023

Collaborations with Latvia



Scintillating crystals for medical imaging

University of Latvia is a partner in the Crystal Clear Collaboration at CERN, and contributing to the projects within the collaboration.



Production of non-conventional radioisotopes

MoU with *Latvian Ministry of Science and Education* to use MEDICIS facility for the production of isotopes suited to fundamental and pre-clinical research in medicine.



Collaborations with Latvia (II)



Partner

Topic



Riga Technical University

Enhance innovation in particle accelerator community



Latvijas Universitāte

Production of high purity radionuclides



Riga Technical University

Improvement & application of accelerator technology in science and society

2023 in Review

CERN Knowledge Transfer 2023 Highlights

51

Knowledge Transfer
contracts signed



Contracts by Type



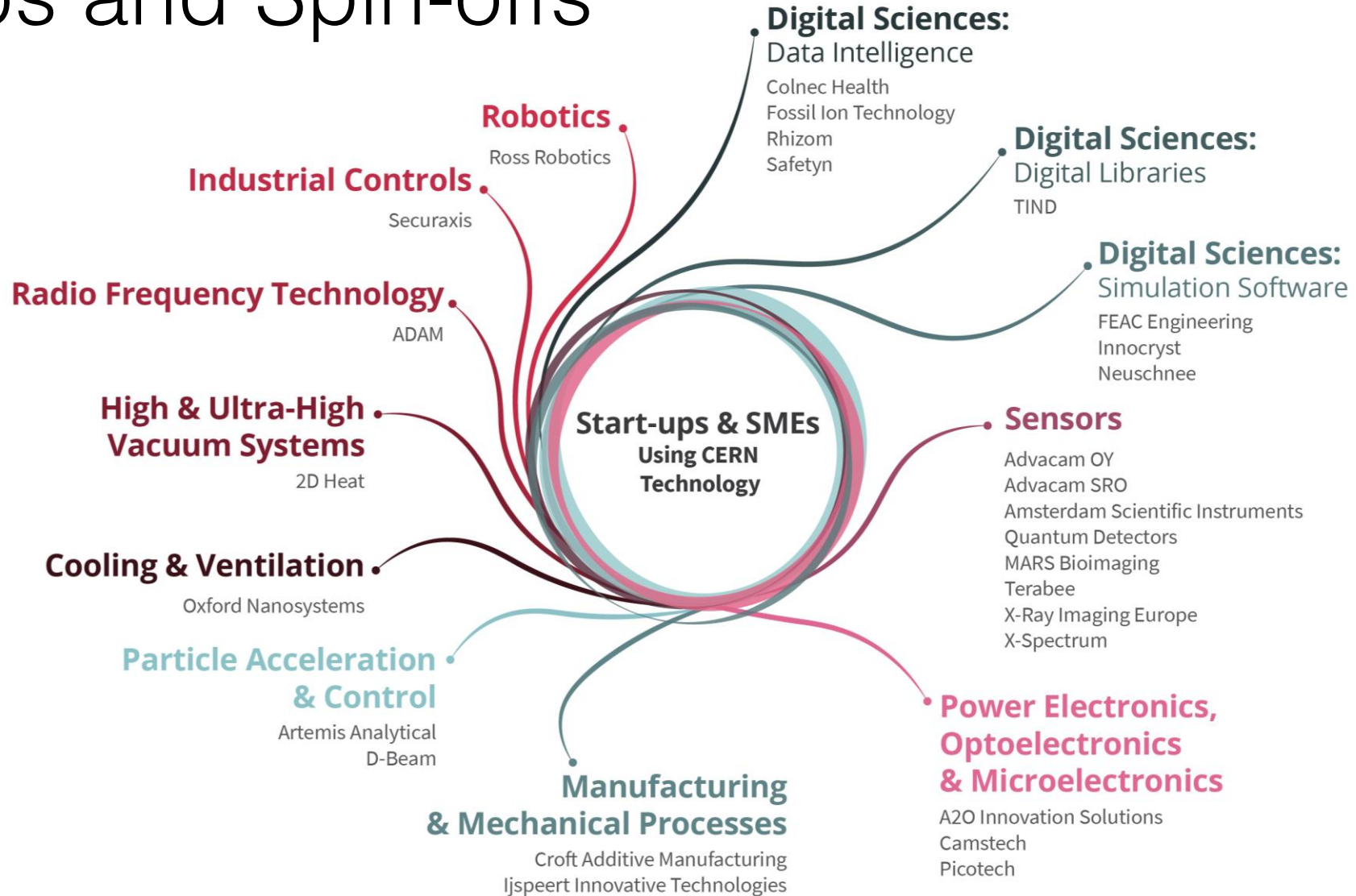
Contracts by Partner



How to collaborate with CERN



Startups and Spin-offs



A Dedicated Start-up Program?



CERN Venture Connect



Portfolio of unique
CERN Technologies

FAST ACCESS TO CERN DEEP TECH

Access to
prototypes &
technical support

Standard licensing agreement
with 0% Equity

STRONG NETWORK OF CVC PARTNERS

Explore funding
opportunities with VCs

Accelerate deep tech
venture with support
of CVC network

Participate in workshops and
events to grow network &
skillset



CVC Technologies



CVC offers access to CERN Technologies that



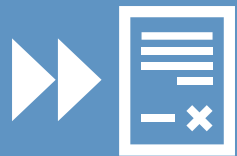
are unique



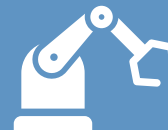
have clearly defined IP ownership



are supported by CERN experts



Standard licensing terms

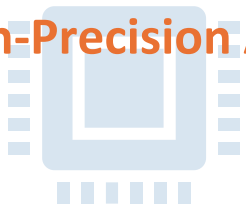


Access to prototypes for testing & validation

Tech Portfolio



ACCURATE chip
High-Precision ASIC



Structured Laser Beam
Long-range laser



Single Frequency Laser
Ultra-narrow linewidth
RAMAN laser



AstroMesh
Satellite mesh network



White Rabbit
Sub-nano second
Time synchronization



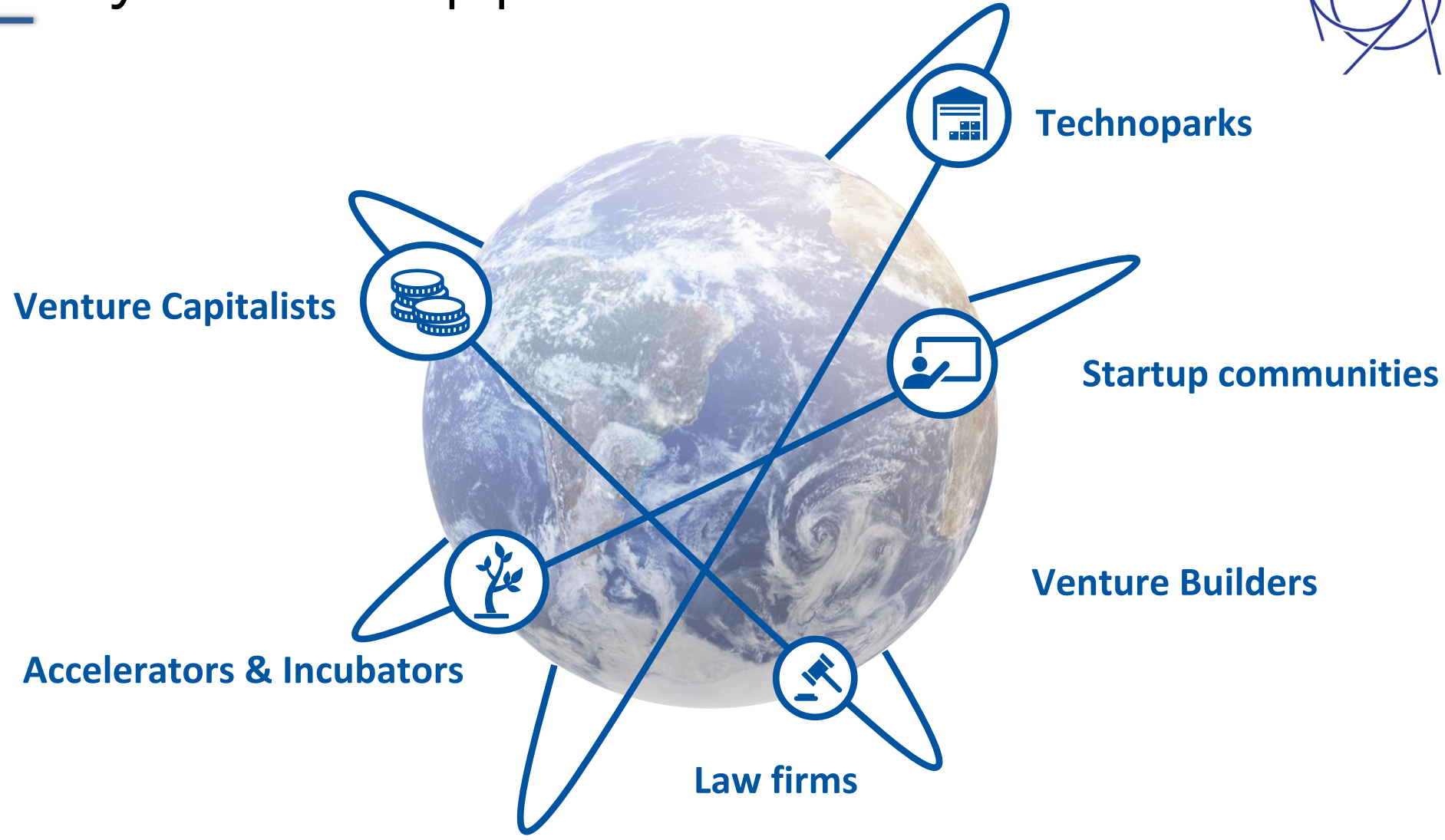
RUCIO
Management of large
datasets



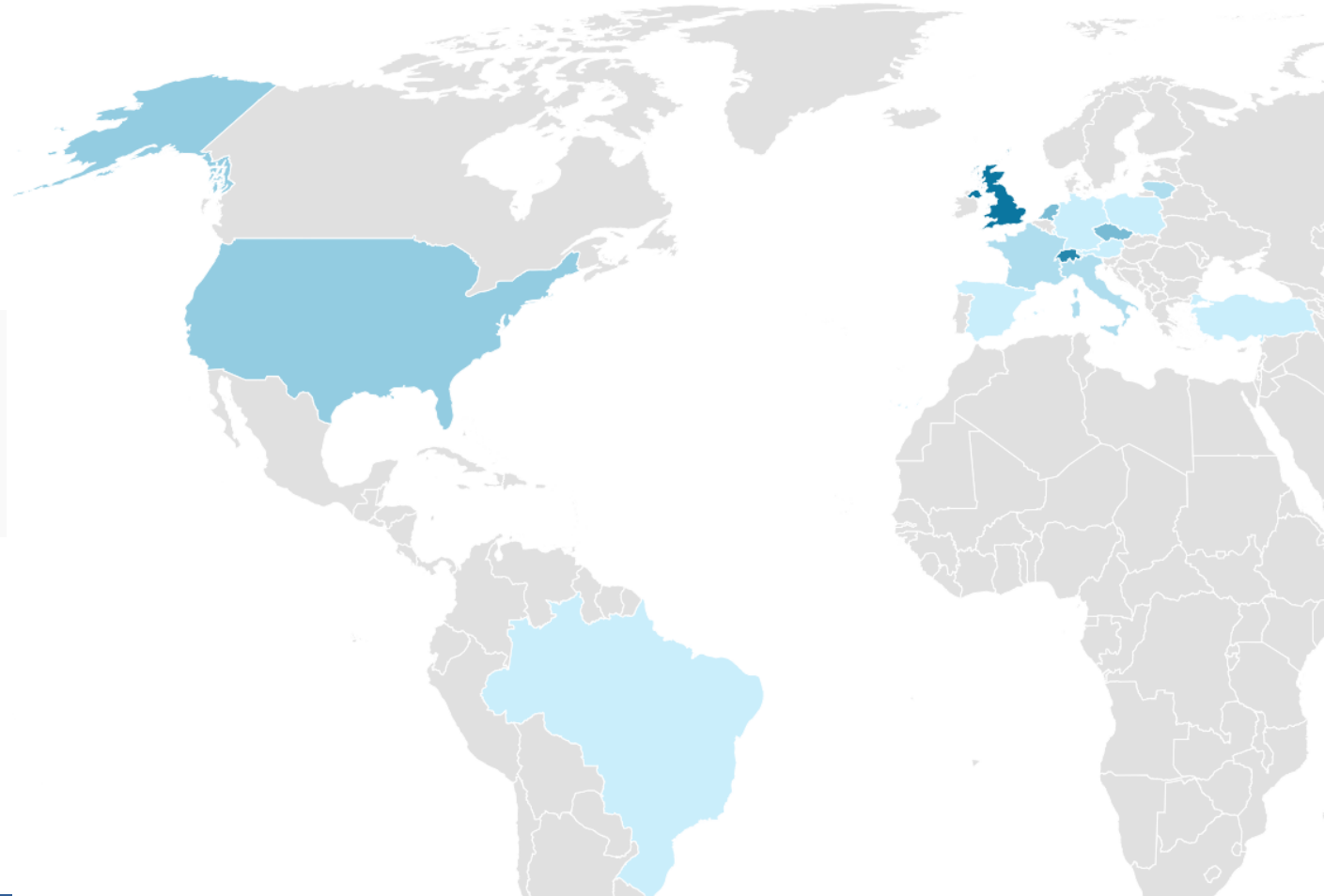
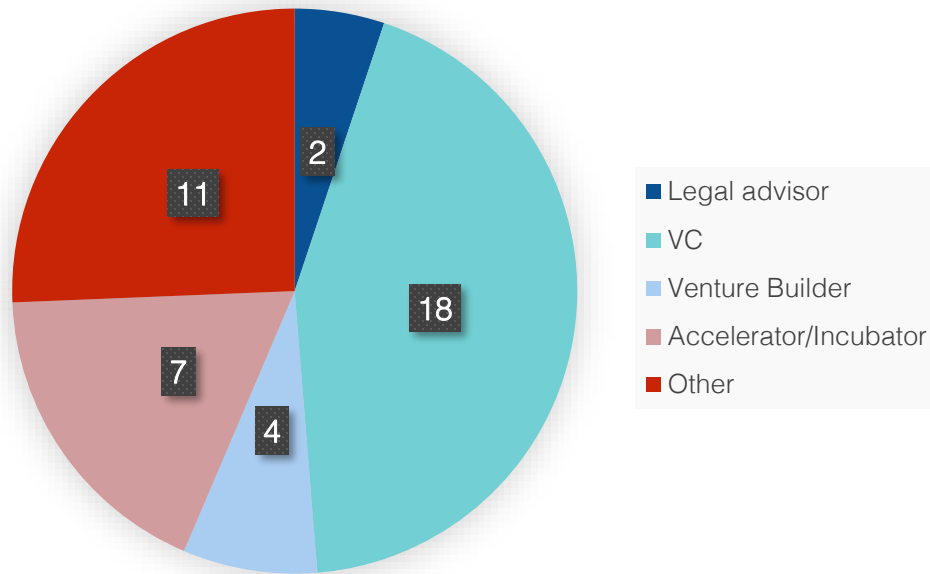
Ultralight Coldplate
cooling of heat
dissipating elements



Ecosystem Support



CVC Partner Network



Our Partners



CVC Startup Selection



An emerging business leveraging CERN technology and/or founded by CERN alumni

**Operating in non-defense/
non-military domain**

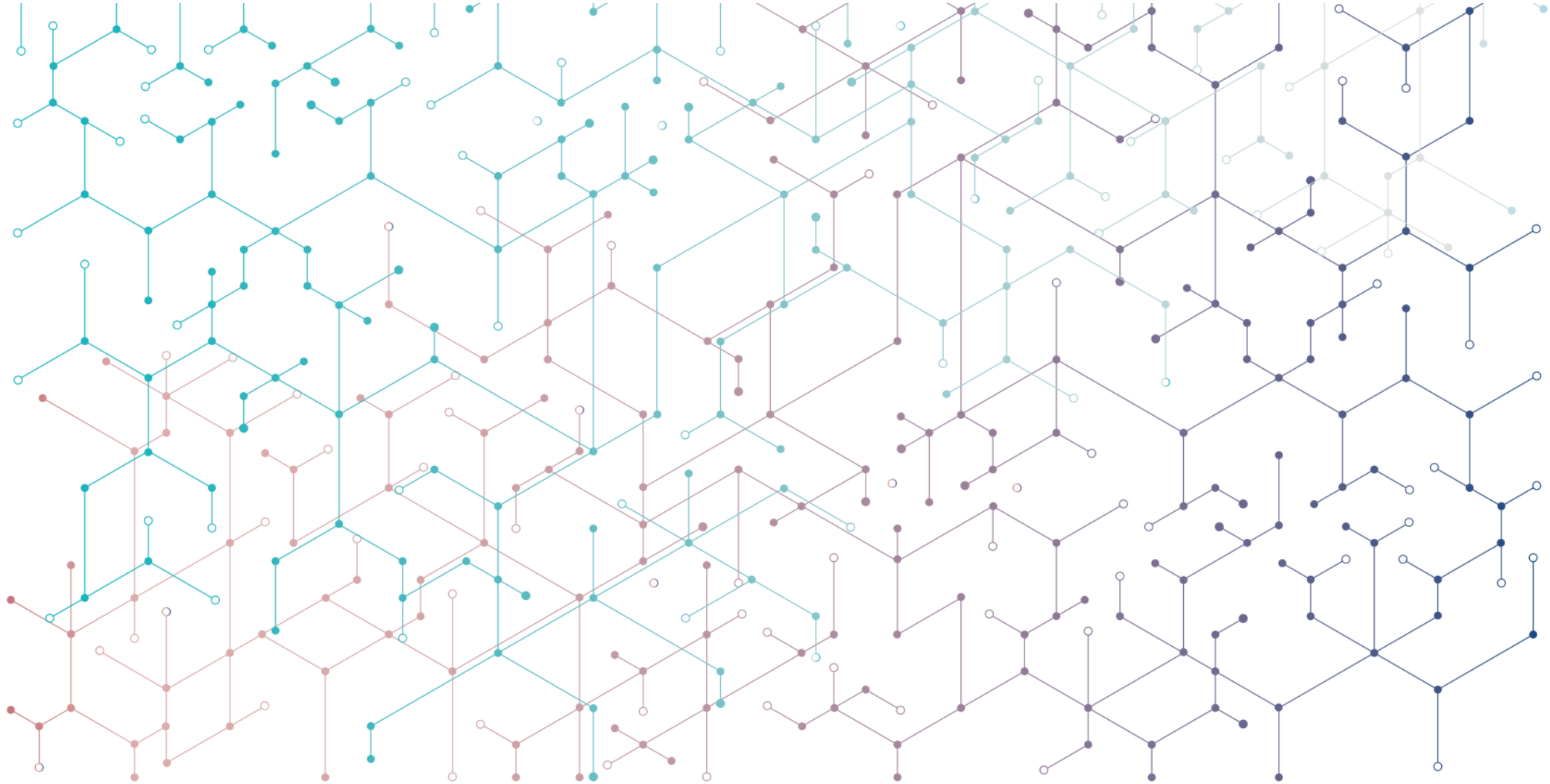


Promising idea, team and vision

From CERN member state or associated member state

Signed Startups (since EoY 2023)





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