

Knowledge & Technology Transfer at CERN

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Knowledge Transfer Group



2017

European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire



SCIENCE

TECHNOLOGY

TRAINING

COOPERATION

Knowledge Transfer: Mission

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

Promote CERN's image as a centre of excellence for technology and innovation;

Demonstrate the importance and impact of fundamental research investments;

Key words: dissemination and impact



KT Strategy

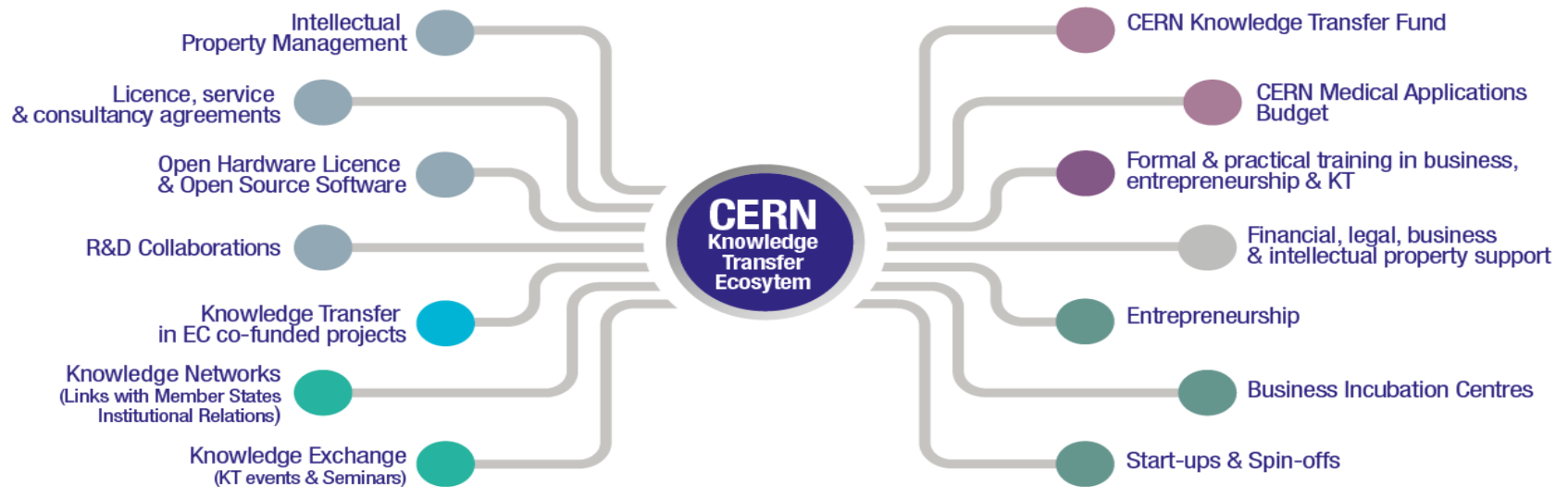
Engage with the outside world (in particular Member States industry, institutes and KT representatives) to disseminate and maximize the impact of CERN's knowledge on society;

Promote to CERN's researchers the benefits of KT for the Organisation, identify new opportunities and provide a high quality timely service;

Communicate on CERN's KT activities to key stakeholders (in particular to decision makers in CERN's Member States).



Building an Ecosystem



Medical Applications

Strategy and Framework Applicable to Knowledge Transfer by CERN for the Benefit of Medical Applications

Approved by the CERN Council in June 2017

<https://cds.cern.ch/record/2271003>

First KT Forum dedicated to Medical Applications held on 30 November 2017



Strategy

Focus on R&D projects, using technologies and infrastructures that are uniquely available at CERN

- minimise duplication of R&D efforts taking place in CERN's MS
- avoid overlap with the activities of external service providers

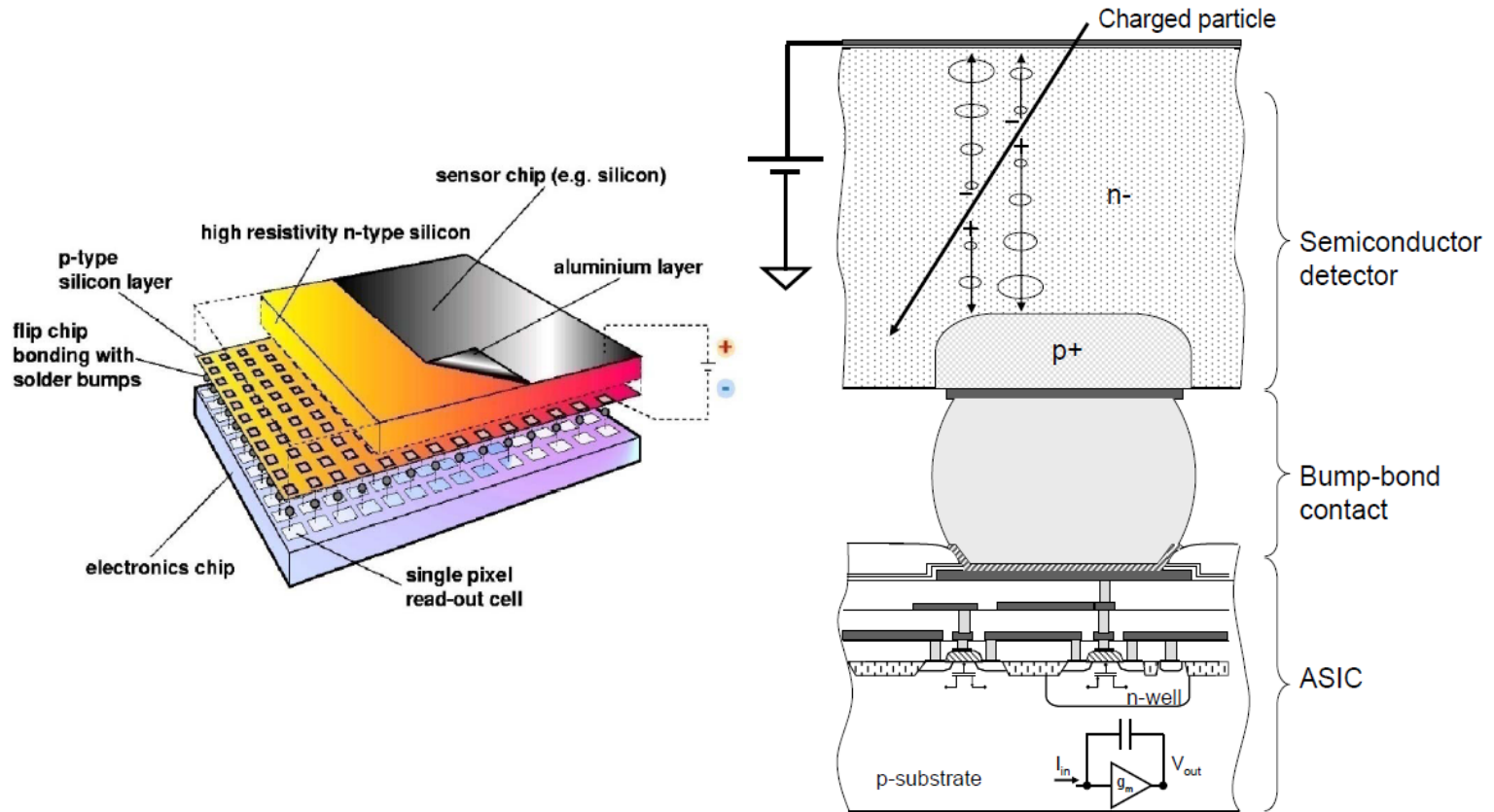
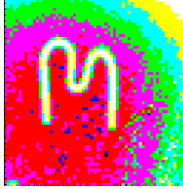
Identify the most promising CERN technologies and infrastructures – accelerators, detectors, and computing.

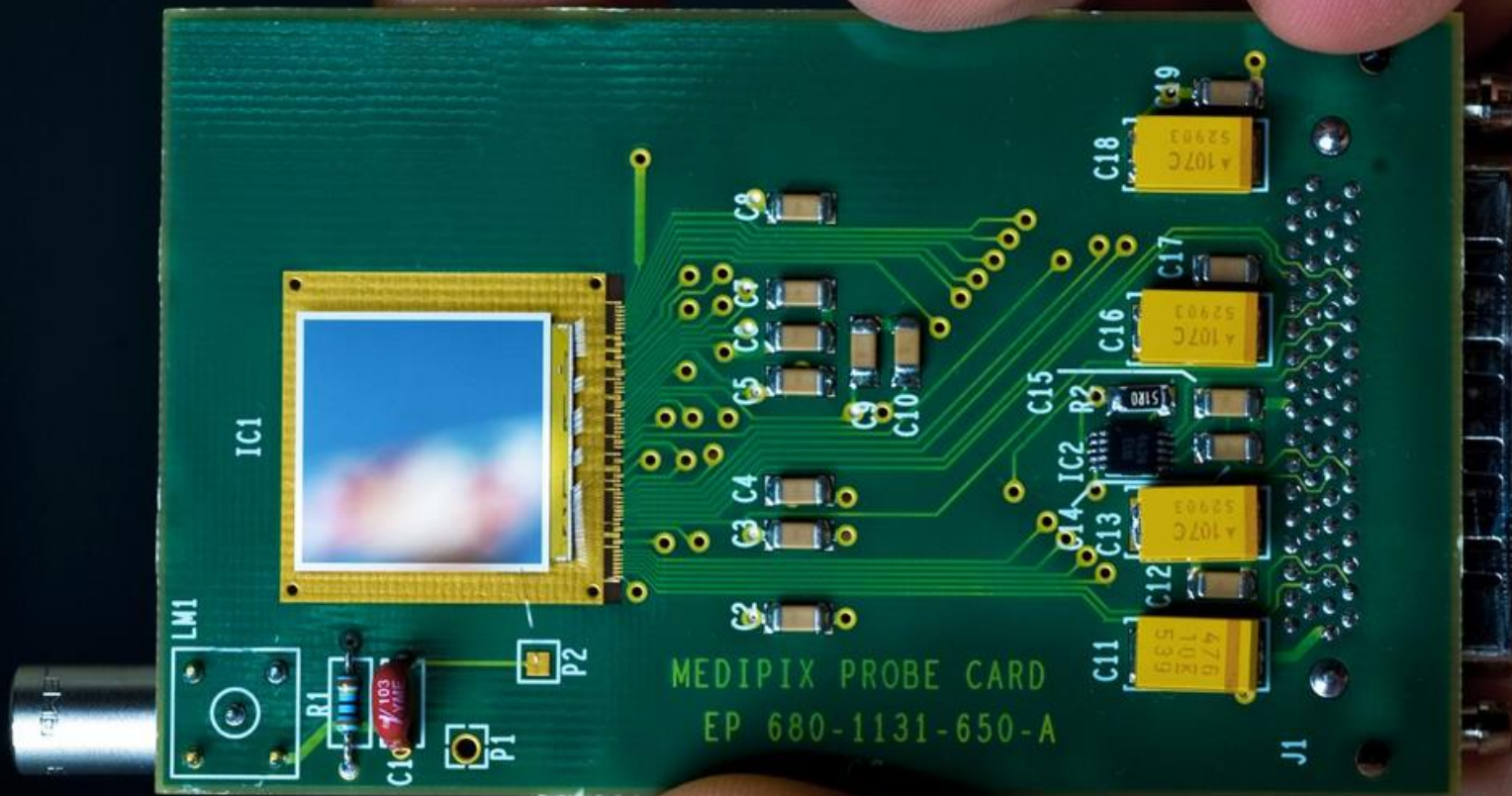
Match with the requirements of the medical research communities, in particular in CERN's Member States



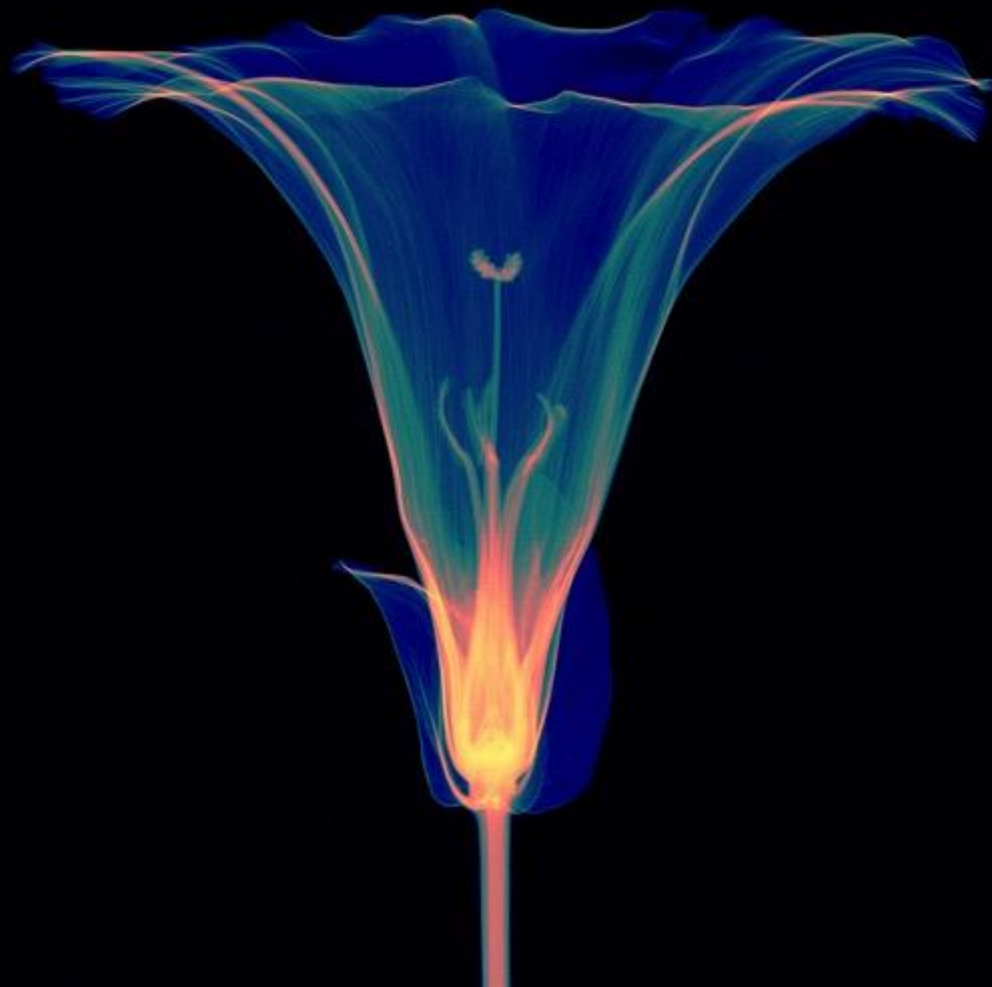


Medipix

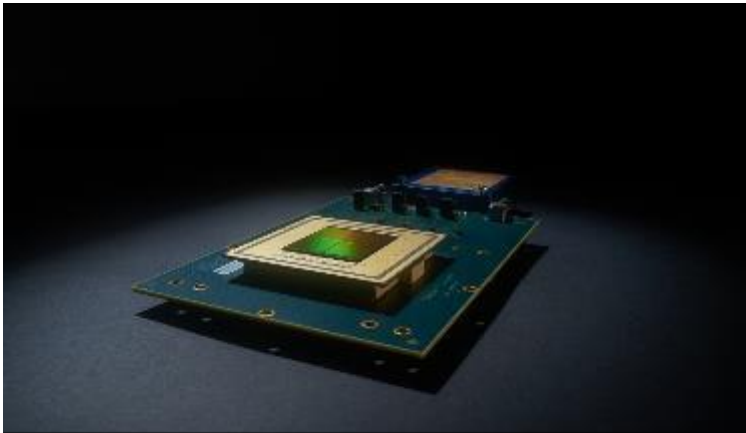




MEDIPIX PROBE CARD
EP 680-1131-650-A



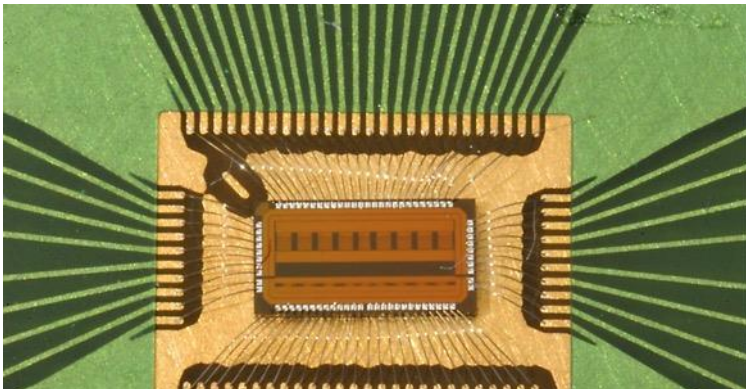
Medical & Biomedical Applications



GEMPix: Large area project approved



MEDeGUN: Project finished



NINO: 2 Licences granted for TOF-PET
“New NINO” project kicked off



Toroidal Gantry: Project approved

Medical & Biomedical Applications



CERN & Sanofi:

"How can machine learning improve vaccine production?"

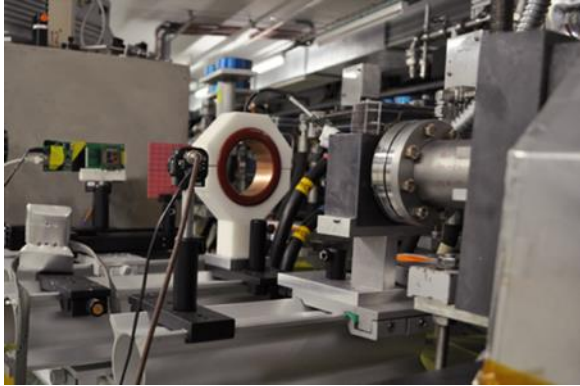




CERN's controls
middleware software
for worldwide factory
automation.

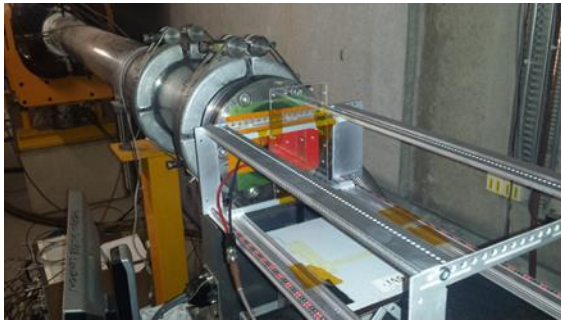


Aerospace Applications – testing facilities

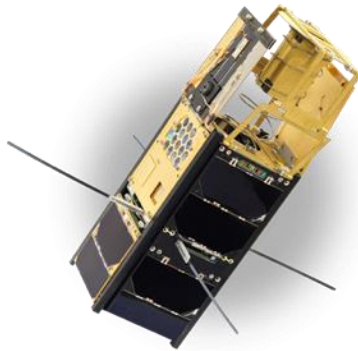
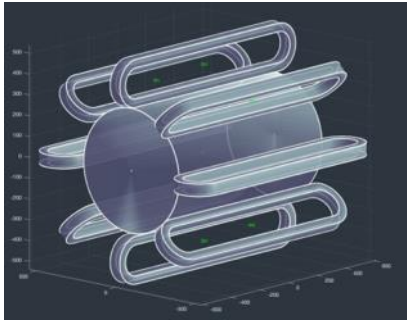


2017 Tests in CERN facilities:

- High energy electrons in **VESPER** for ESA JUICE mission
- Mixed-field in **CHARM** for CNES EyeSat nanosatellite
- Heavy ions in **SPS North Area** for high penetration tests on components for telecommunication and exploration space missions (tests performed in collaboration with TRAD and IROC companies)



Aerospace Applications – technologies



HDMS project:

- CERN KT Fund project
- Demonstrator of REBCO HTS technology for astroparticle spectrometry in space and radiation shielding

VZLUSAT-1:

- Czech nanosatellite launched on 23/06/17
- One of the payloads is a miniaturized X-ray telescope based on Timepix (CTU-RITE)

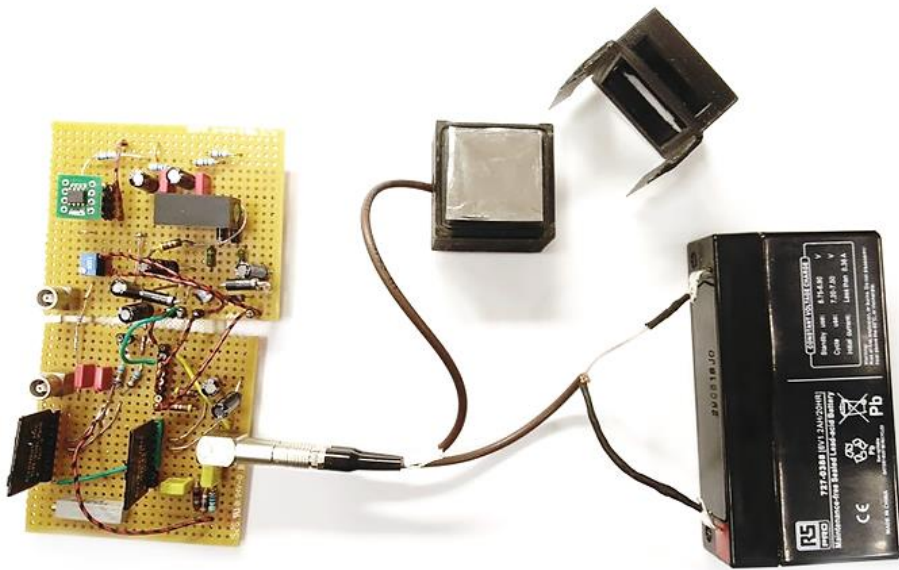
RADECS-17 Conference:

- CERN stand showcasing radiation monitoring technologies
- KT in charge of Industrial Exhibition (50 booths) and Welcome event
- Commercial discussions with ISISpace (NL) and Syderal (CH)

DCDC Converter:

- 1 licence agreement with MAGICS Instruments (Belgium)
- Integration of DC-DC converter into digital rad-hard sensor networks for nuclear (ITER) and space environments.

Safety



RaDoM project selected in MassChallenge 2017 Start-up Accelerator Programme in CH. Funding from AIDA-2020 PoC and Medical Applications Fund.



World largest industrial gas company uses **Kryolize** software to size safety valves. A KT Fund project.

Cultural Heritage



InsightART: start-up with Medipix X-ray eyes for cultural heritage



Machina: new transportable accelerator for cultural heritage using PIXE-RFQ



TIND: digital preservation

**2018 is the European Year for Cultural Heritage
#EuropeForCulture**



Building a culture of entrepreneurship



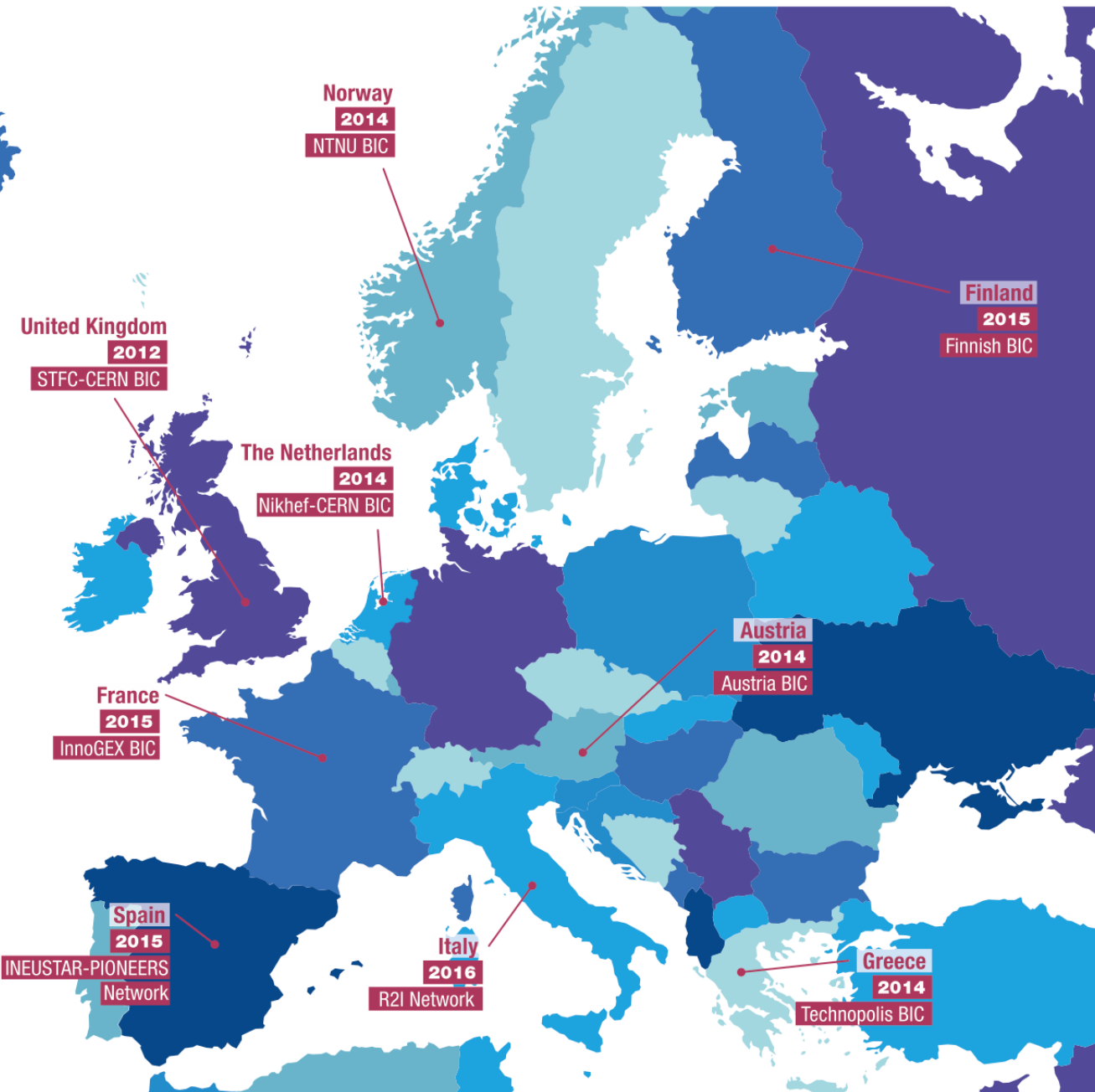


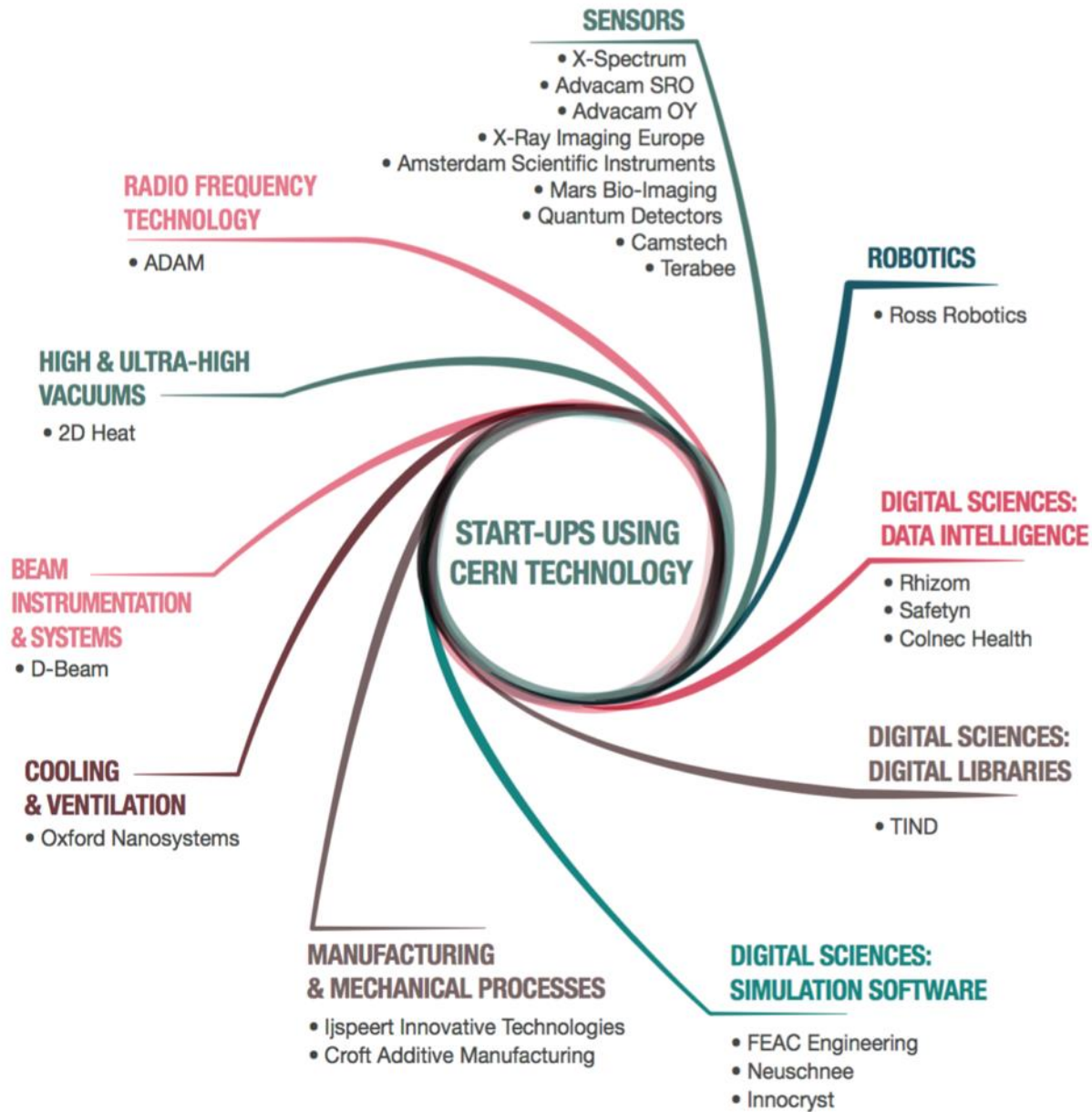
Caltech



European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire

Nine Established Business Incubation Centres







www.cern.ch