

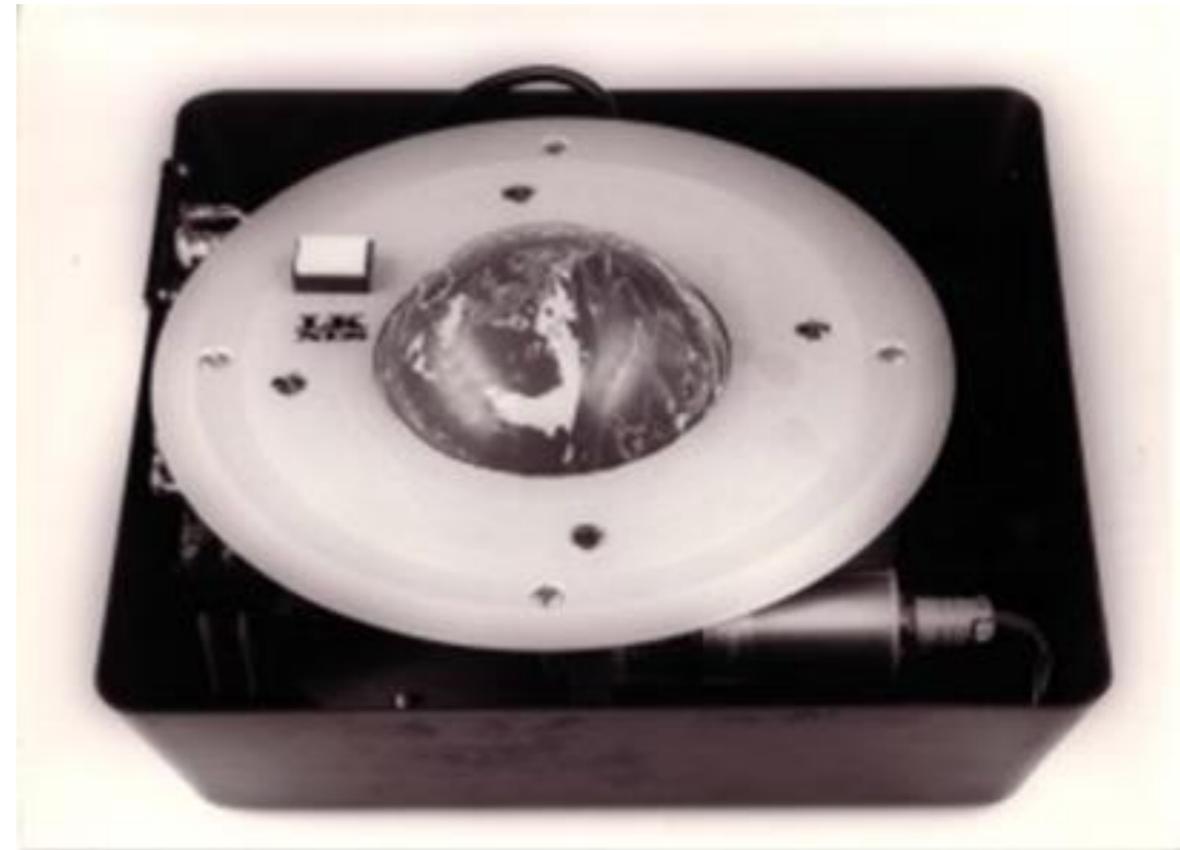
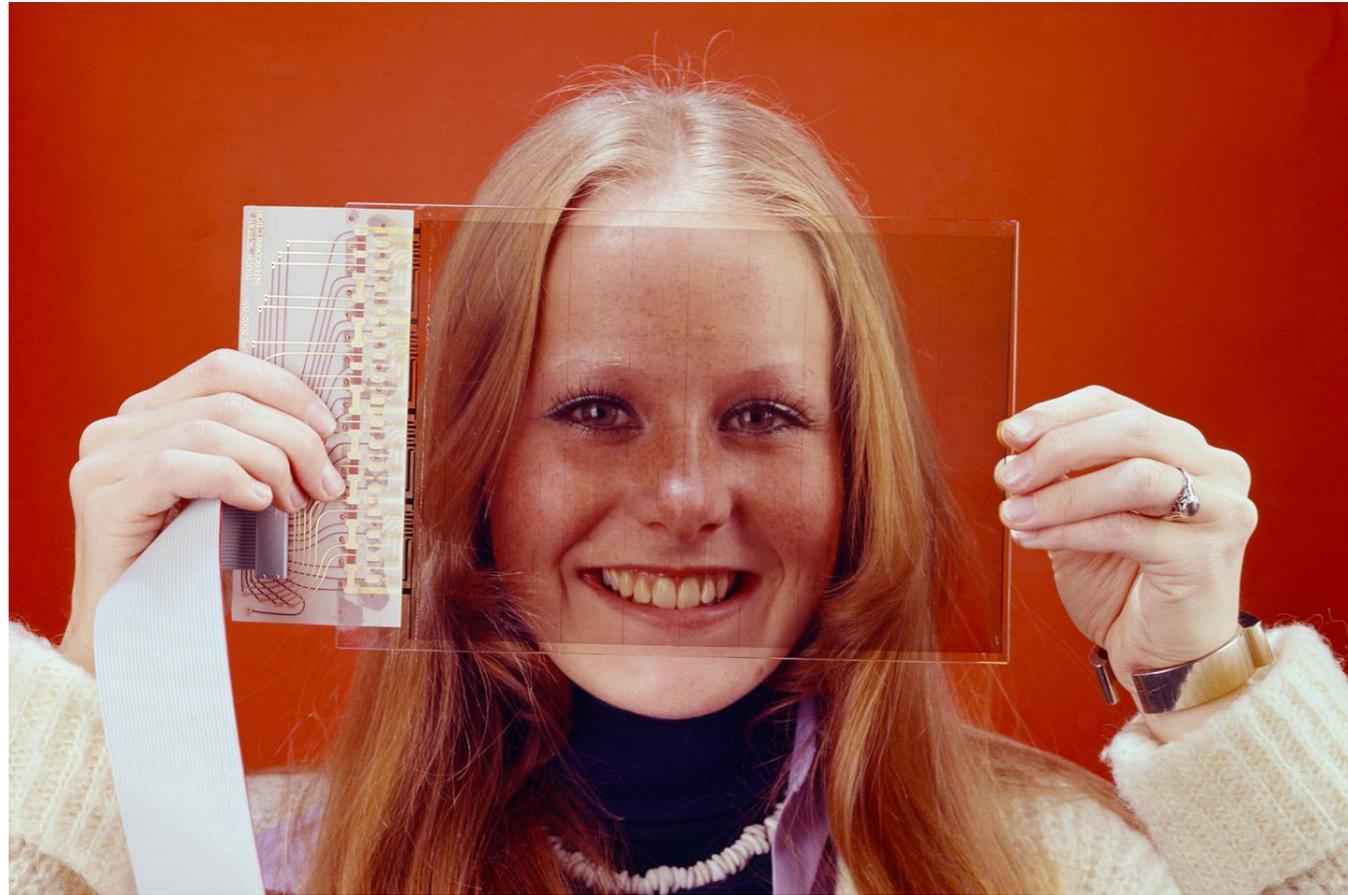
# **Technology Transfer (@ CERN): Challenges and Opportunities**

**Giovanni.Anelli@cern.ch**

Knowledge Transfer Group - IPT Department

05.06.2018

# Did you know?



# KT Mission

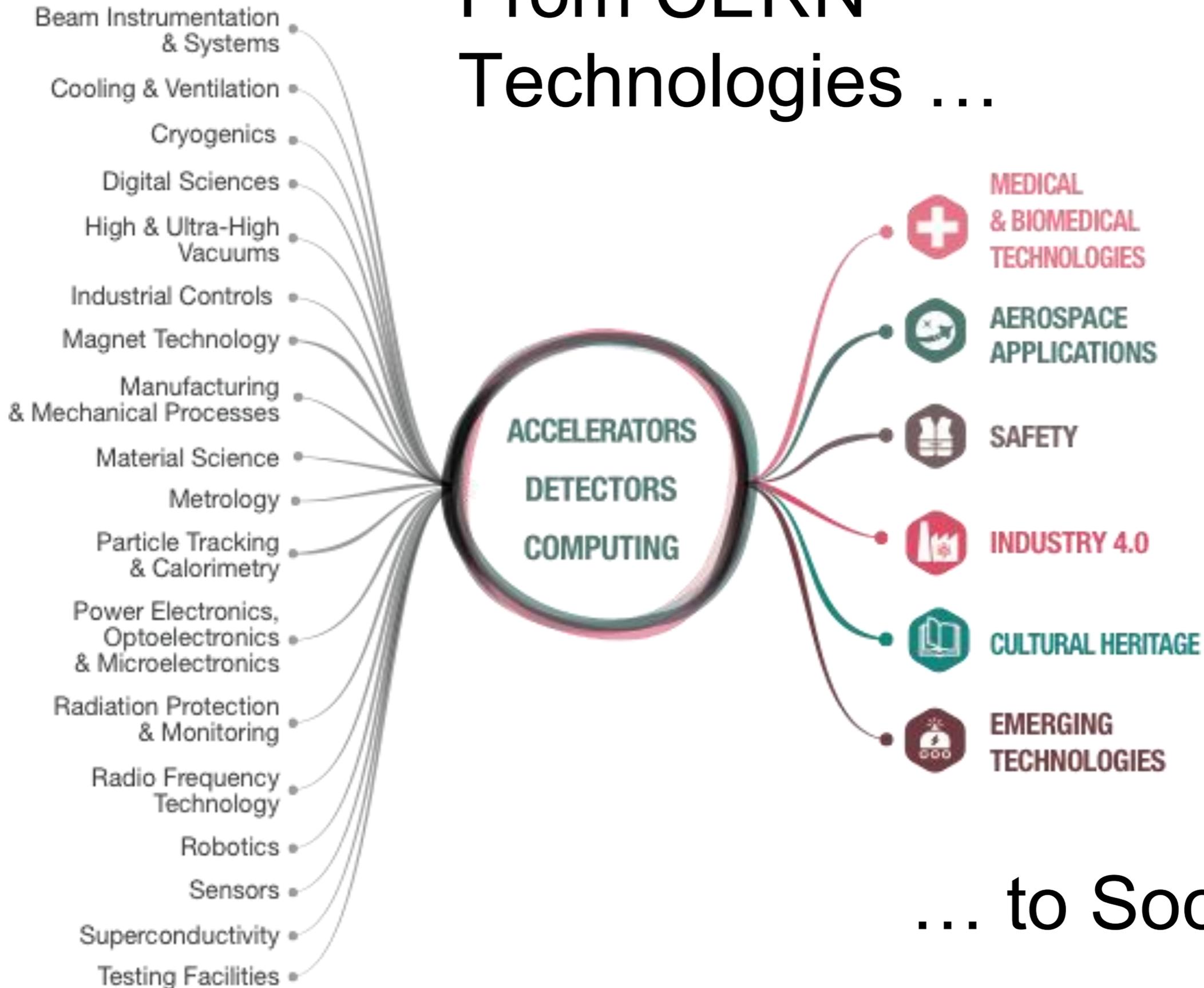
**Maximise** the technological and knowledge return to society in particular through Member States industry

**Promote** CERN as a centre of excellence for technology and innovation

**Demonstrate** the importance and impact of fundamental research investments

**Key concepts: Dissemination and Impact**

# From CERN Technologies ...



... to Society

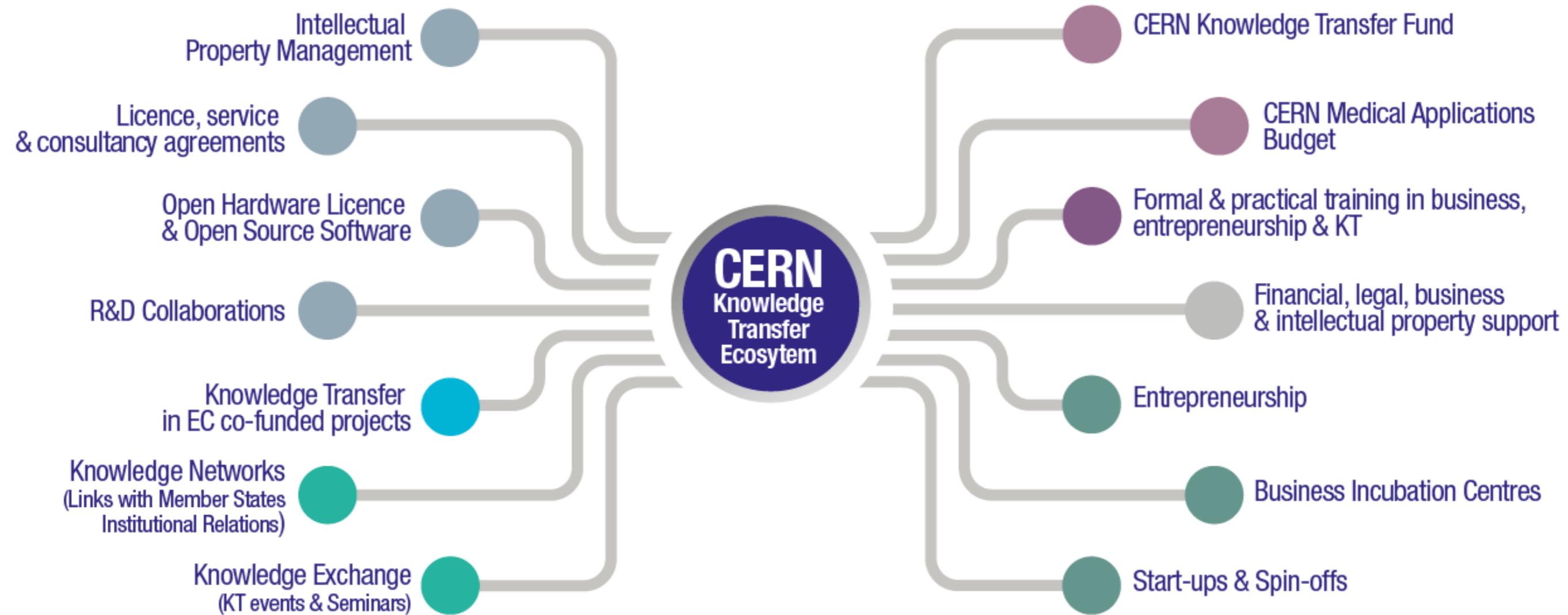
# KT Strategy

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

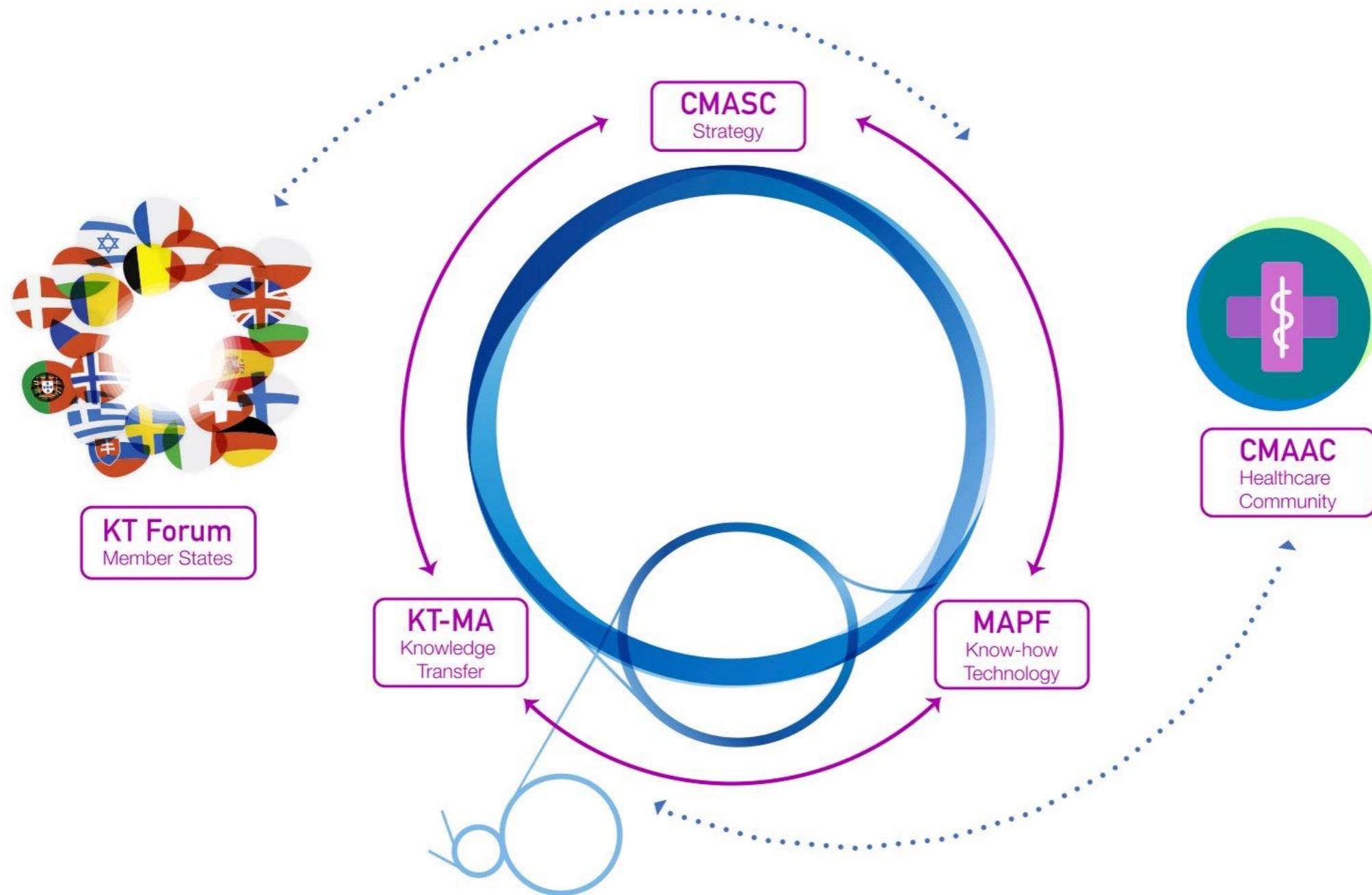
Promote to CERN's researchers the benefits of KT for the Organisation, identify new opportunities and provide a high quality timely service

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

# Building an Ecosystem



# Medical & Biomedical Technologies



KT-MA = CERN Knowledge Transfer Group, Medical Applications Section  
MAPF = Medical Applications Project Forum  
CMASC = CERN Medical Applications Steering Committee  
CMAAC = CERN Medical Applications Advisory Committee

CERN/SPC/1091  
CERN/FC/6125  
CERN/3311  
Original: English  
23 June 2017

ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE  
**CERN** EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH

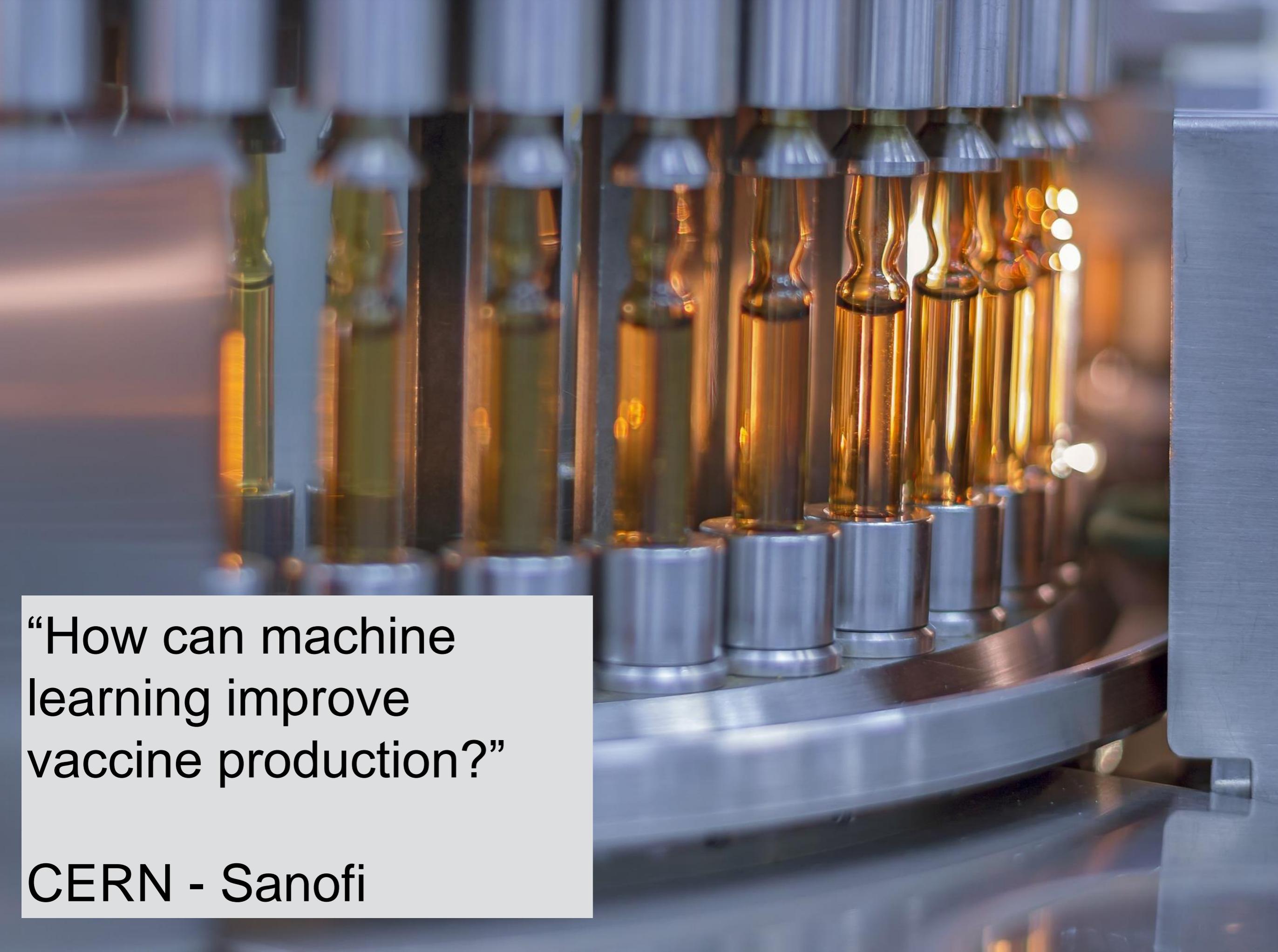
| <i>Action to be taken</i> |                                                                               | <i>Voting Procedure</i>                                       |
|---------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------|
| For information           | SCIENTIFIC POLICY COMMITTEE<br>304 <sup>th</sup> Meeting<br>12 & 13 June 2017 | -                                                             |
| For information           | FINANCE COMMITTEE<br>360 <sup>th</sup> Meeting<br>13 & 14 June 2017           | -                                                             |
| For approval              | RESTRICTED COUNCIL<br>185 <sup>th</sup> Session<br>16 March 2017              | Simple majority<br>of Member States<br>represented and voting |

**Strategy and framework applicable to knowledge transfer  
by CERN for the benefit of medical applications**

The Council is invited to approve the strategy and framework set out in this document for medical applications-related activities, and to take note of the information contained in Annexes I and II.

MA strategy paper  
approved by Council  
in June 2017

First KT Forum on  
Medical Applications  
held on 30 November  
2017



“How can machine learning improve vaccine production?”

CERN - Sanofi



**le dauphiné** libéré

1,00€ - 1,50 FS | JEUDI 30 NOVEMBRE 2017 | G 01

BELLEGARDE & PAYS DE GEX

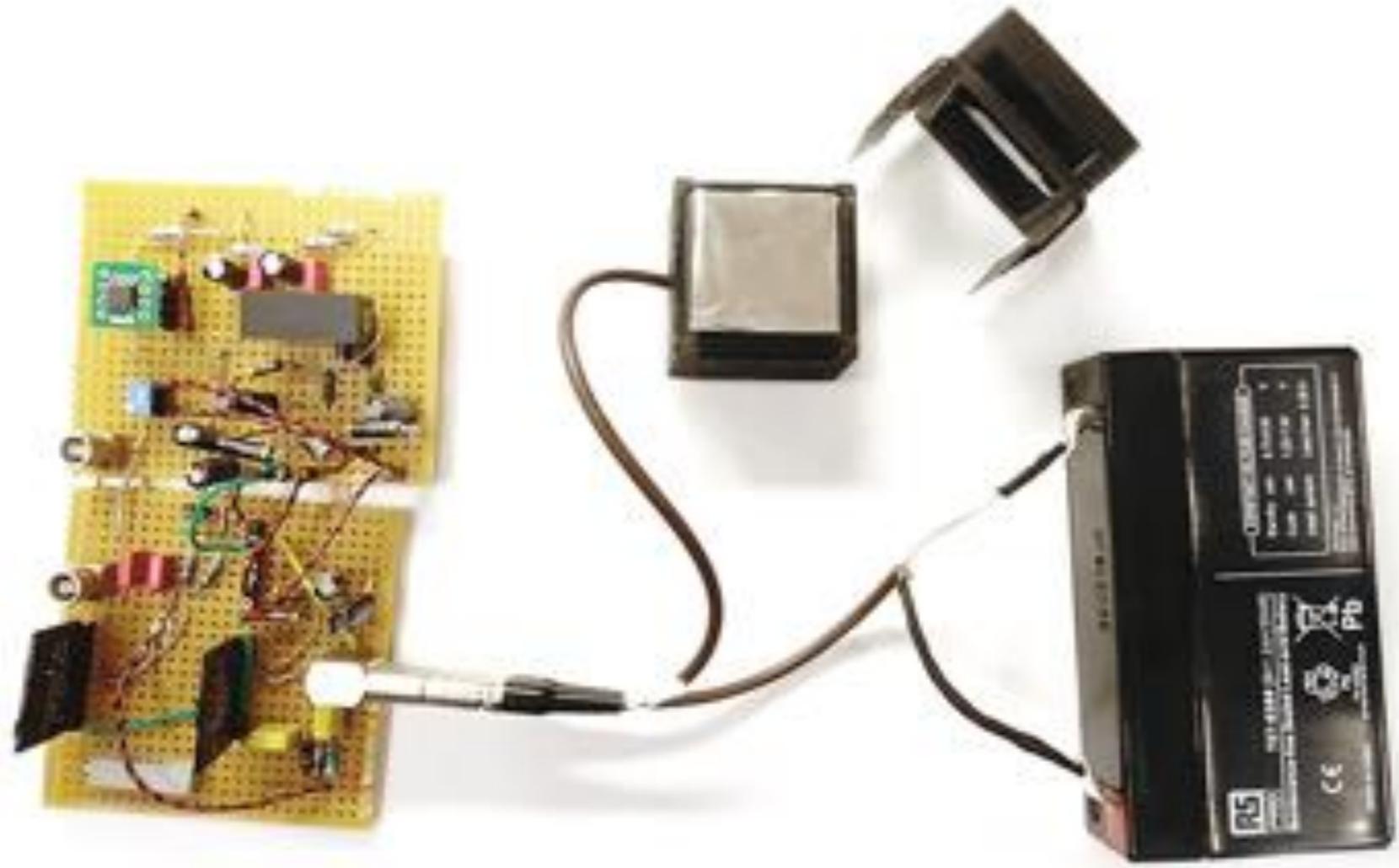
**GENEVOIS** LE SAVOIR DES PHYSICIENS AU SERVICE DE LA MÉDECINE DE DEMAIN

# La lutte anti-cancer se prépare au Cern

**CERN-MEDICIS**  
First medical isotopes produced



Centre Nationale  
Etudes Spatiales -  
CNES partnership  
with CERN



Neasens -  
A start-up to tackle  
radon gas risk



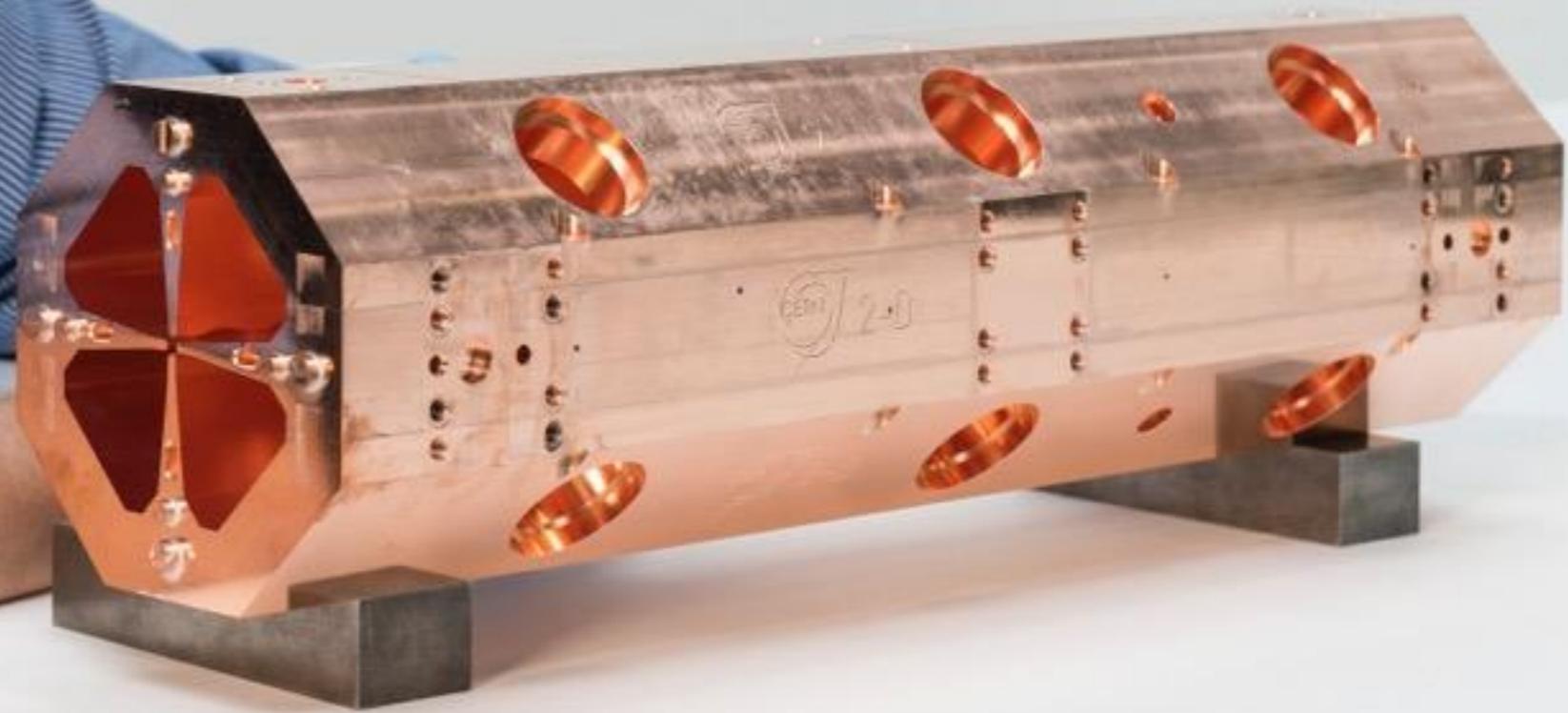
CERN's controls  
middleware software  
for worldwide factory  
automation.



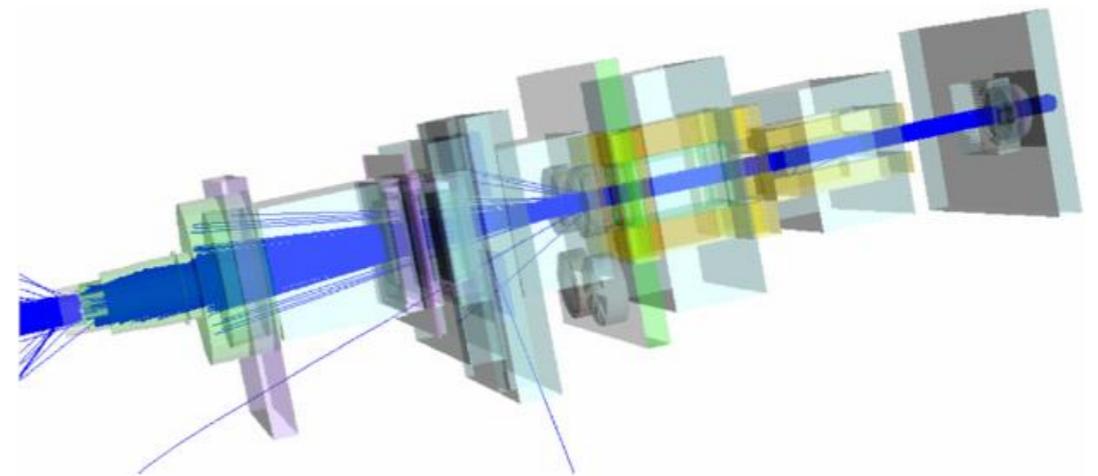
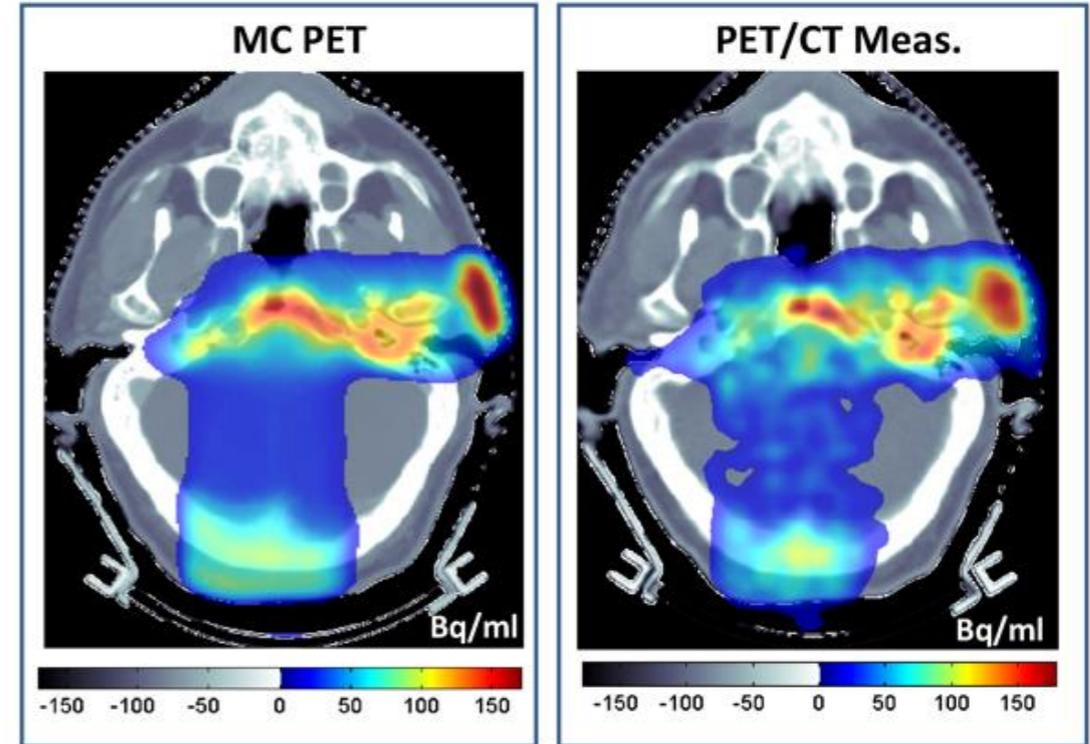
**#EuropeForCulture**

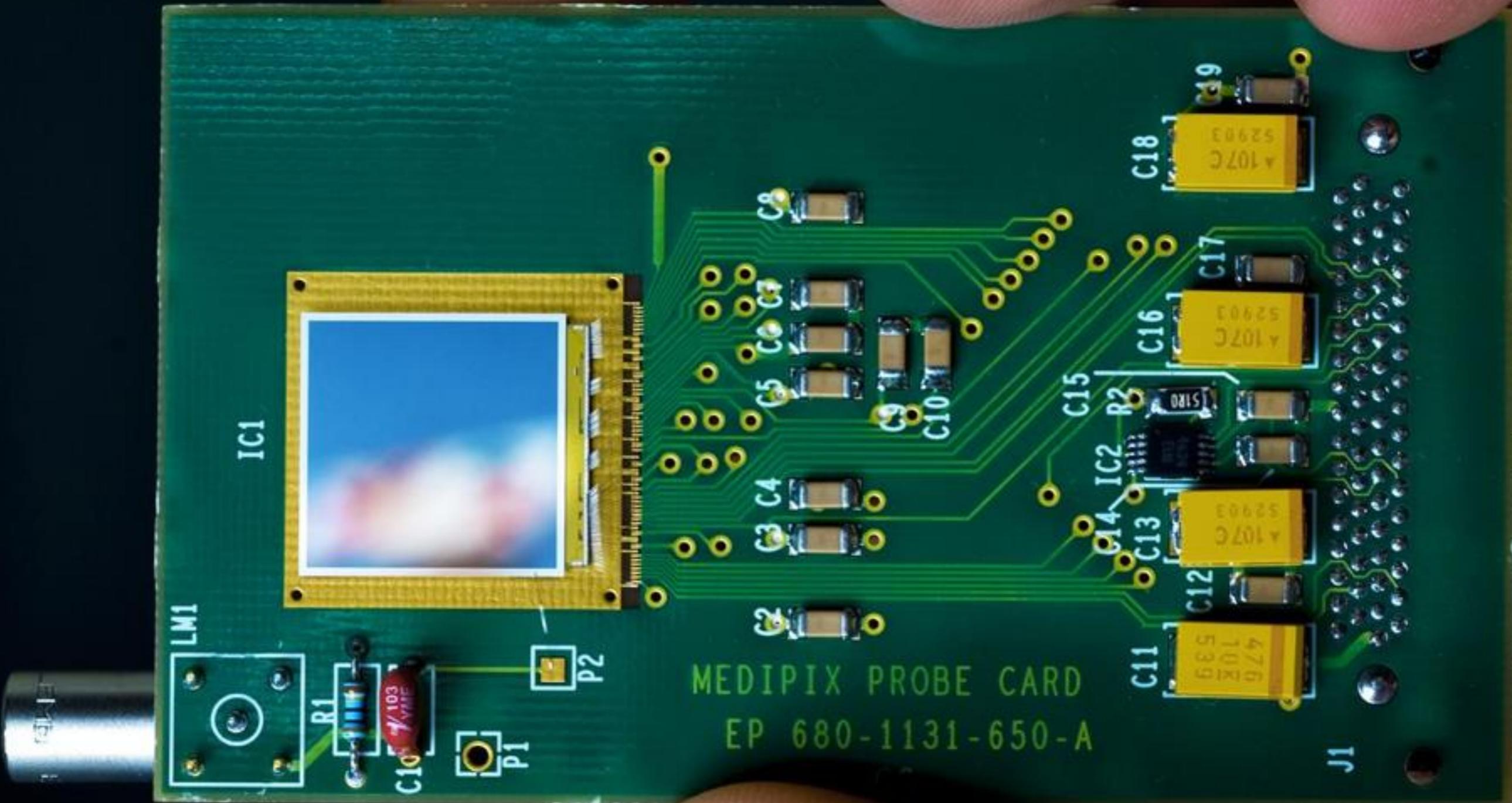
**X-ray eyes for cultural heritage - Medipix chip**





# Simulations for treatment planning





IC1

LM1

R1

C10

P1

P2

MEDIPIX PROBE CARD  
EP 680-1131-650-A

C2

C3

C4

C5

C6

C7

C8

C9

C10

C15

IC2

R2

C11

C12

C13

C14

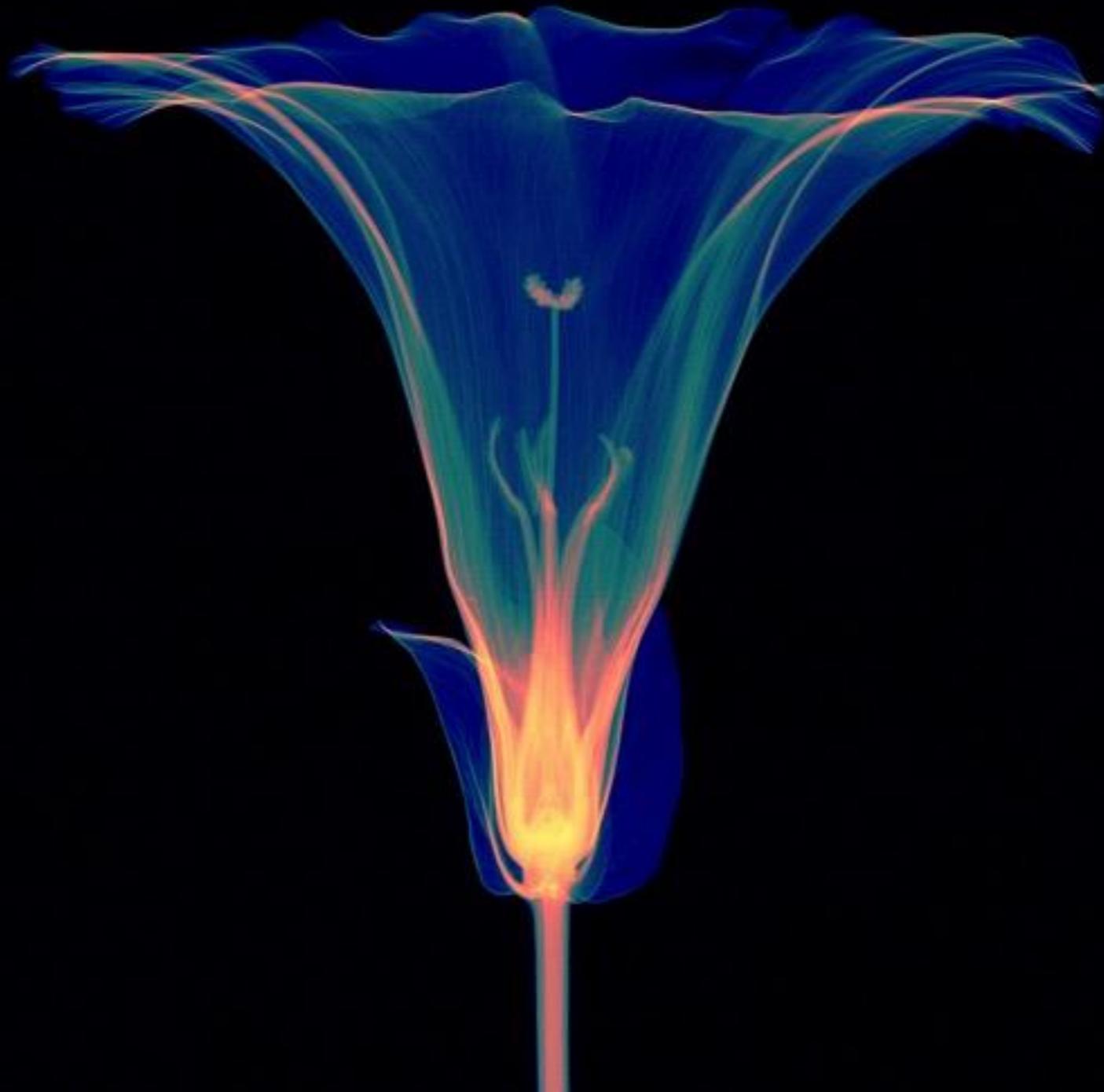
C16

C17

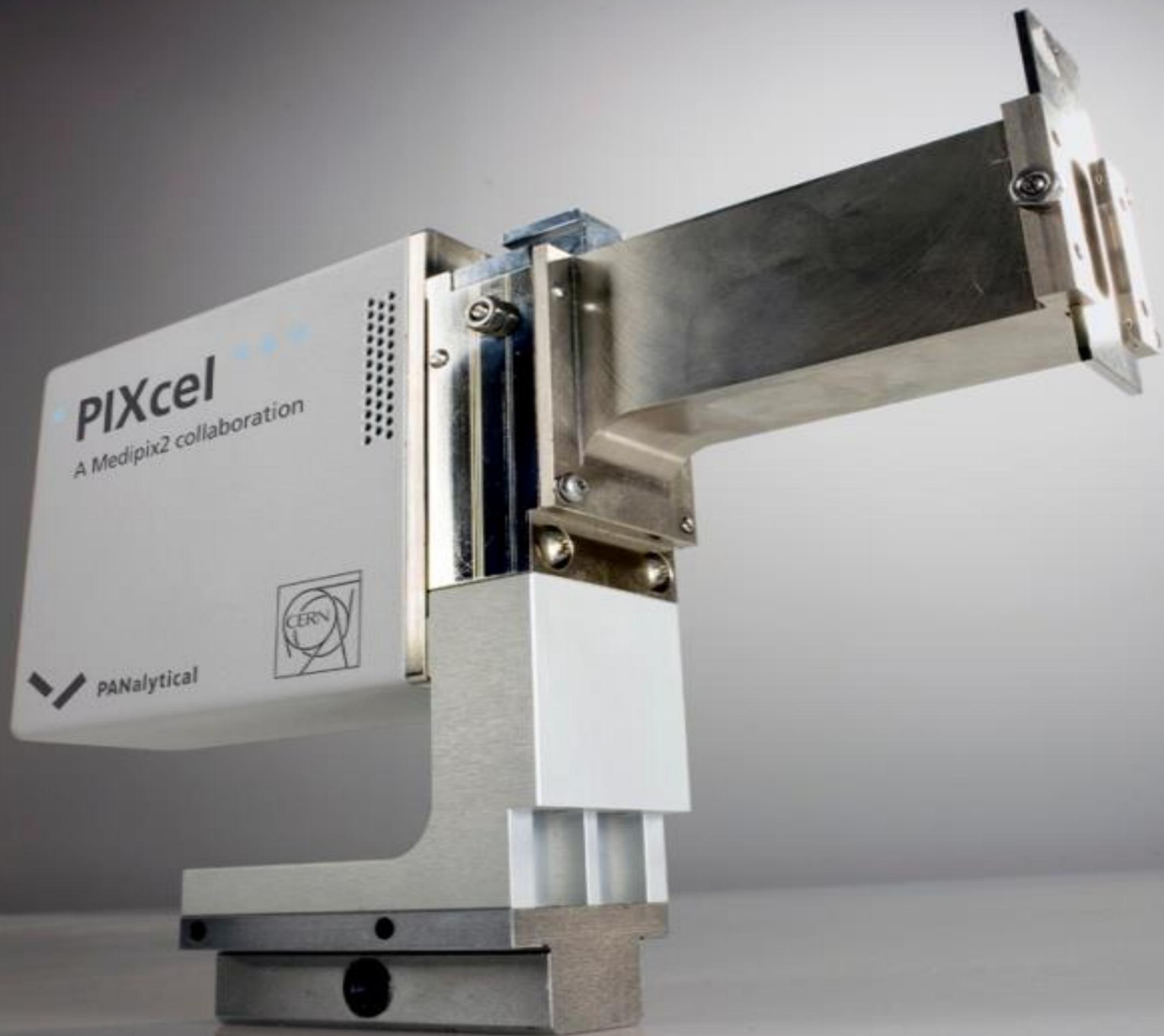
C18

C19

J1



Credit: Simon Procz



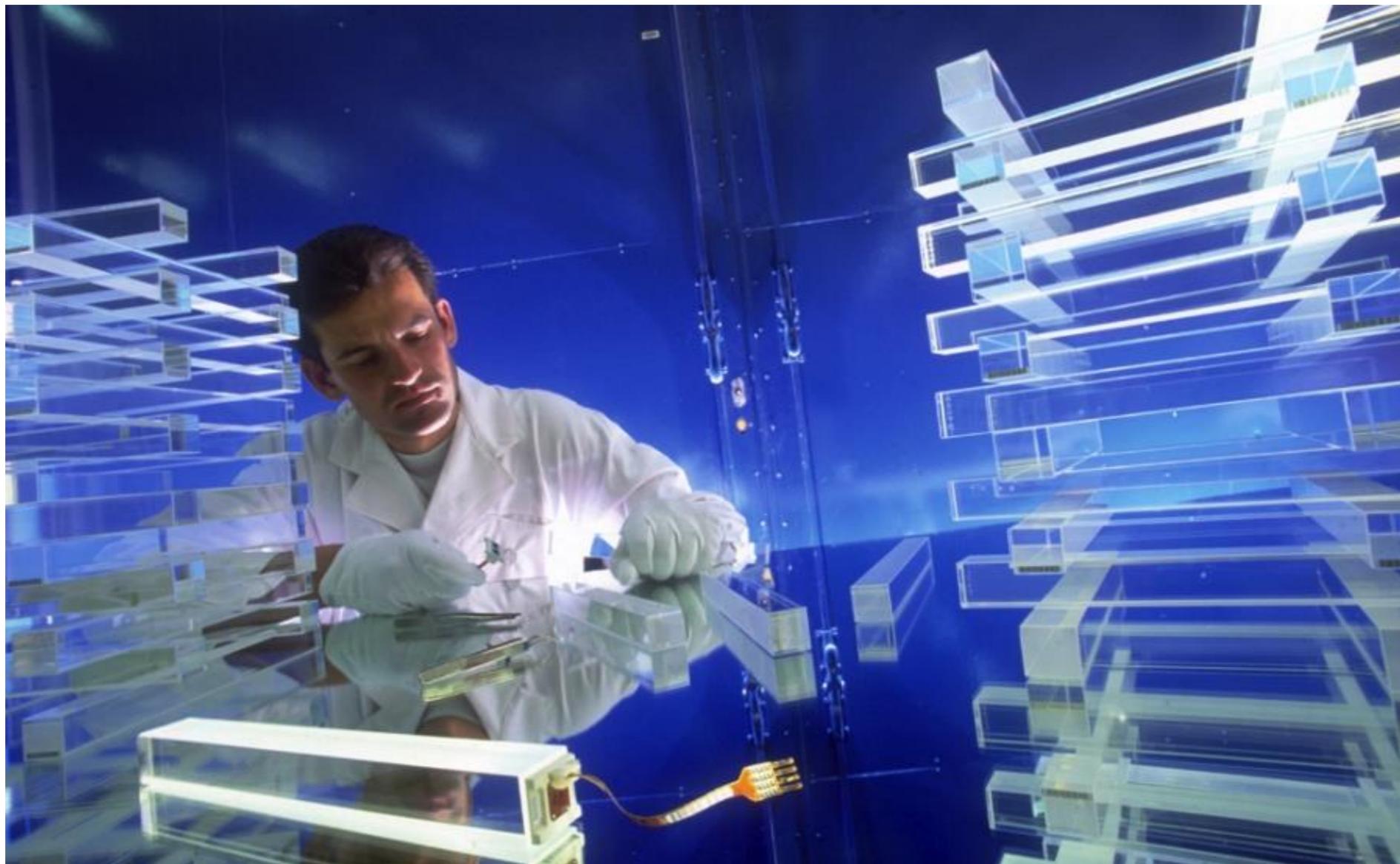




# Crystal Clear Collaboration

## CERN RD18 experiment

An international collaboration active on research and development on inorganic scintillation materials for novel ionizing radiation detectors, for high-energy physics, medical imaging and industrial applications



## CERN Knowledge Transfer Fund

- 41 projects funded since 2011
- 15-220 kCHF range of funding received per project
- 8 CERN departments and units funded since 2011

## CERN Medical Applications Budget

- 25 projects funded since 2014
- 64 kCHF average received received per project
- 7 CERN departments and units funded since 2014

***“Bridging the gap between research and industry, so that society can benefit.”***

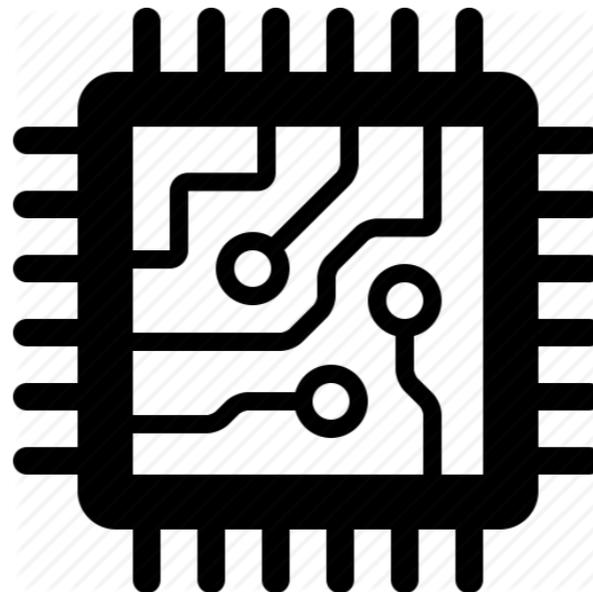
# CERN Knowledge Transfer Fund Projects Selected in 2017



A compact superconducting magnet for space applications



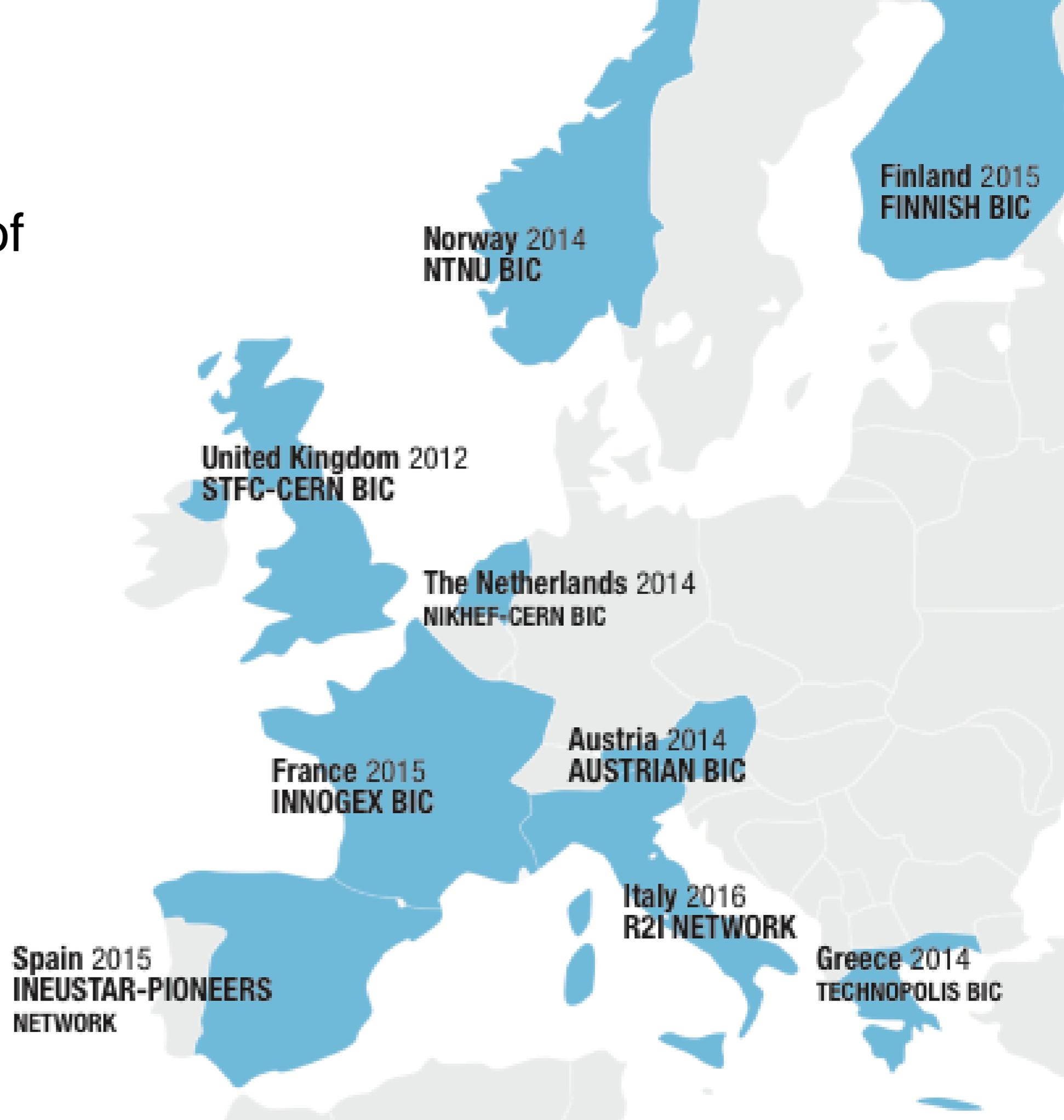
A new compact accelerator for cultural heritage

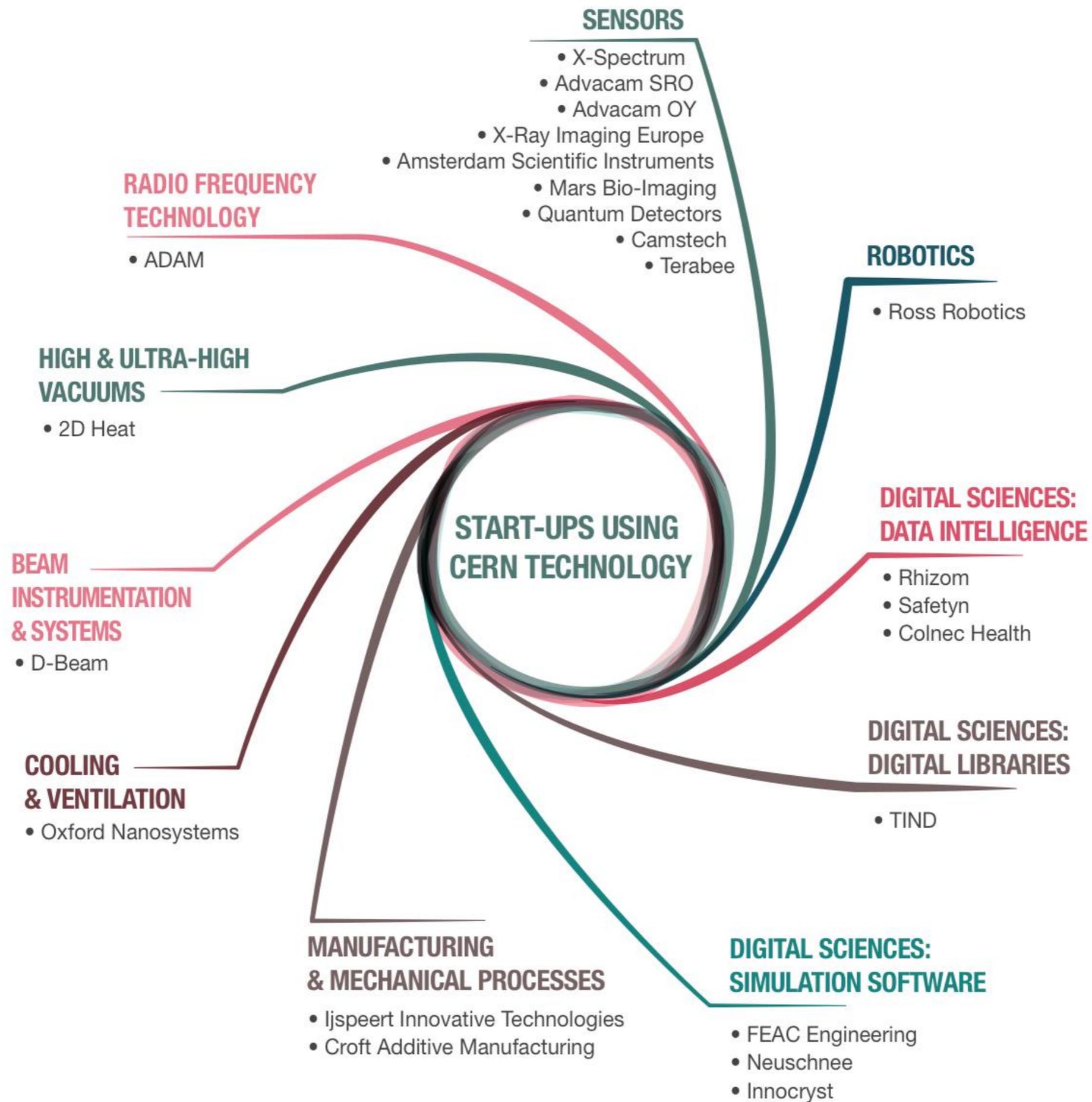


A non-destructive laser application for quality control & radiation studies in semiconductor devices

# CERN BICs

CERN Network of  
9 Member State  
Business  
Incubation  
Centres

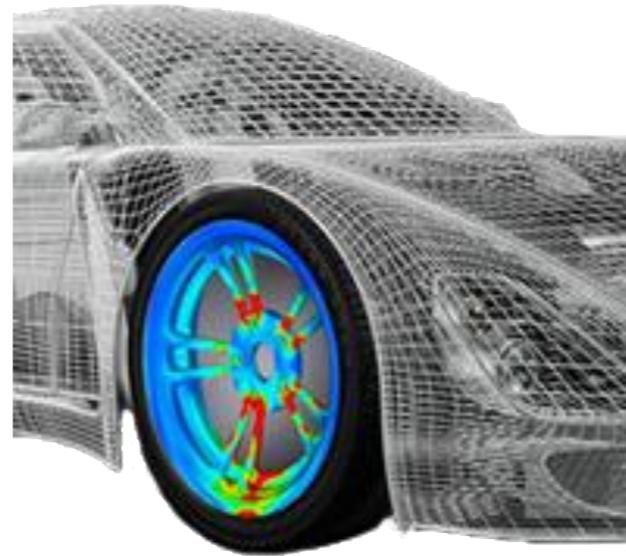




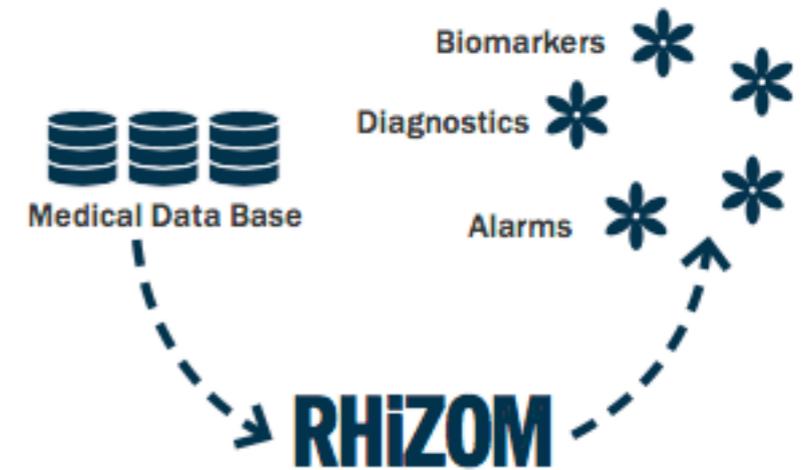
# Start-ups accepted in Member State Business Incubation Centres in 2017



D-beam  
STFC-CERN BIC



FEAC Engineering  
Technopolis BIC



RHiZOM  
InnoGEX BIC

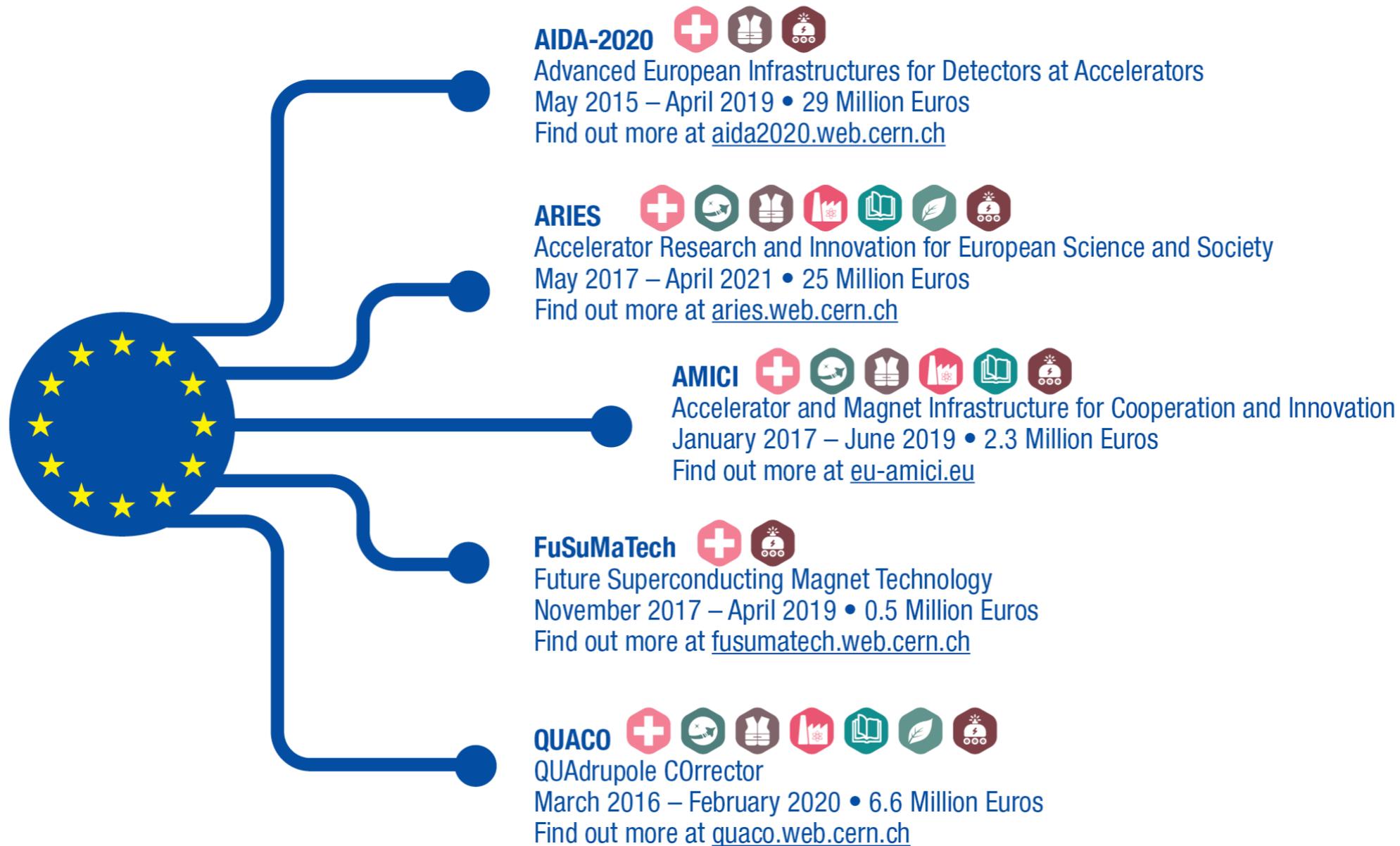


Safetyn  
InnoGEX BIC



ADVACAM Oy  
Finnish BIC

# European Commission Co-Funded Projects



  
Medical &  
Biomedical  
Technologies

  
Aerospace  
Applications

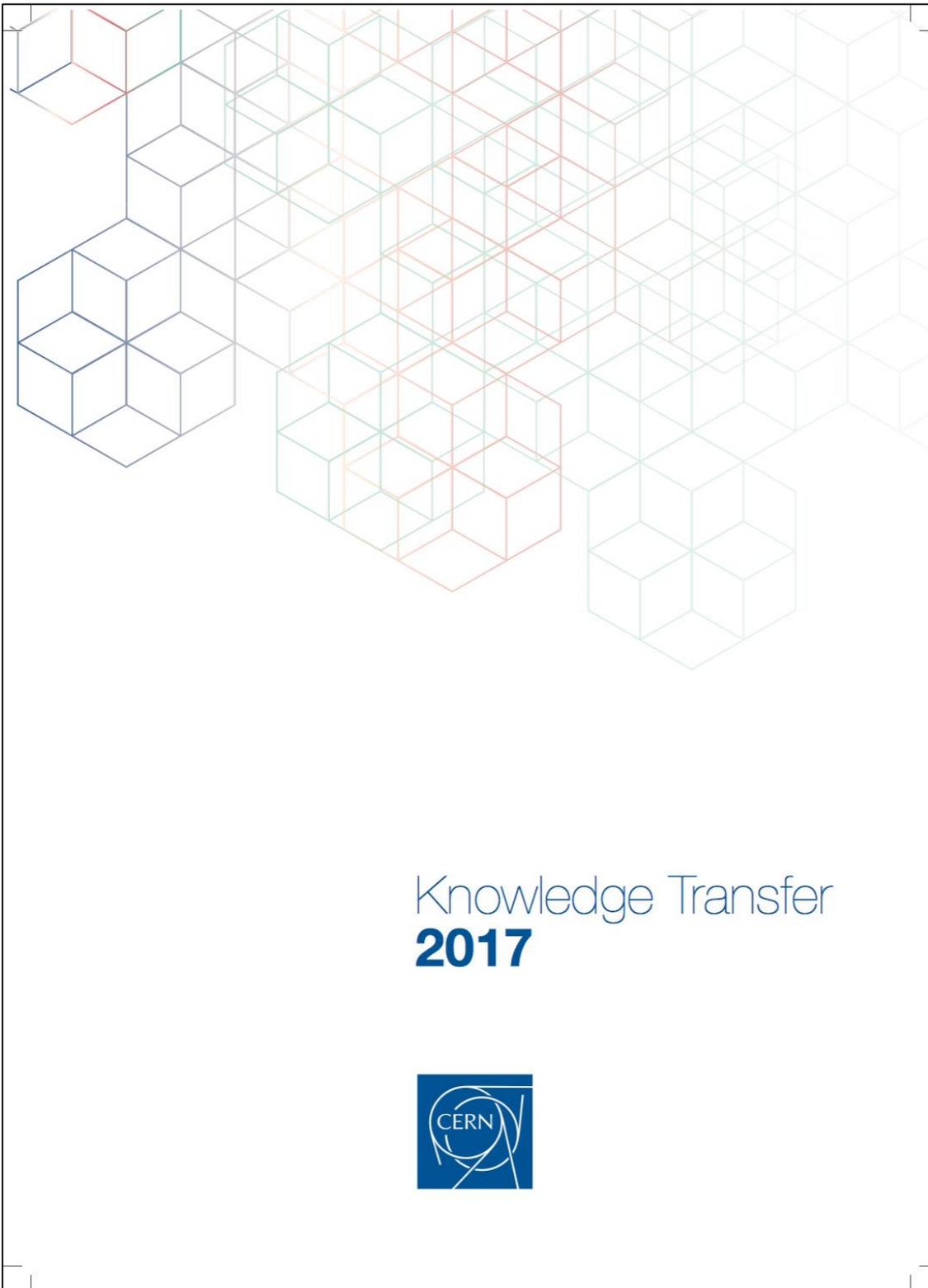
  
Safety

  
Industry 4.0

  
Cultural  
Heritage

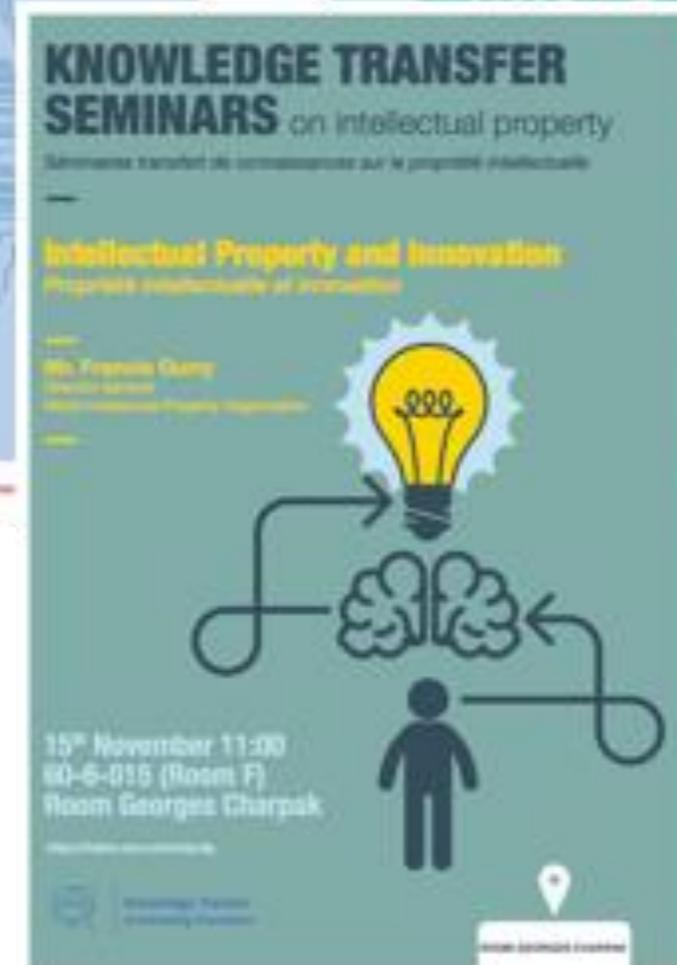
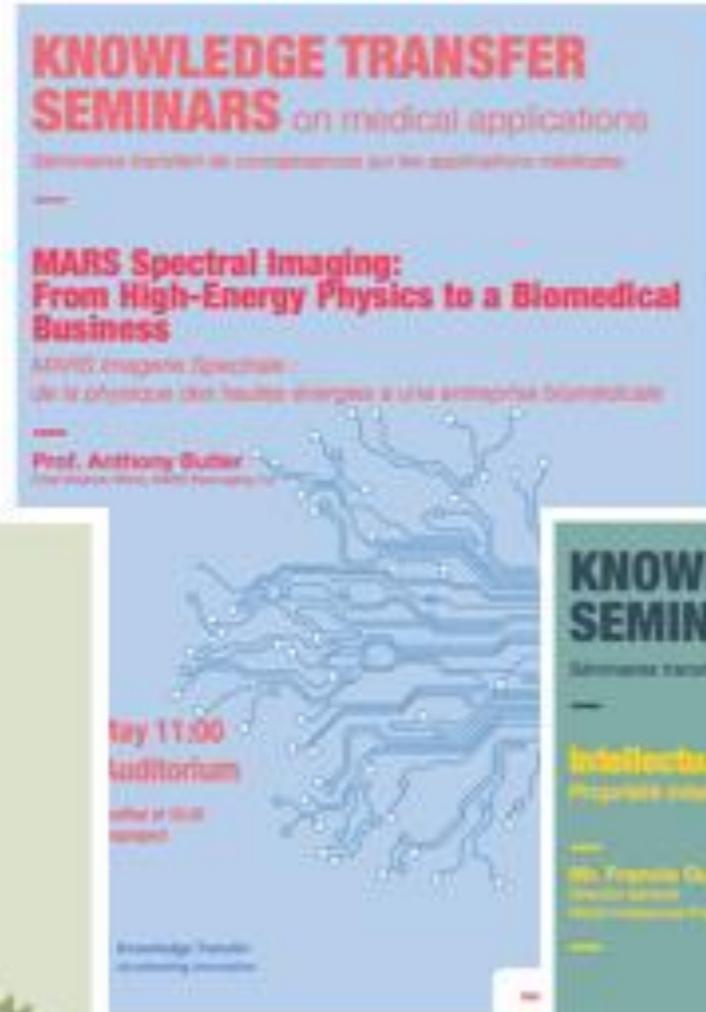
  
Environment

  
Emerging  
Technologies



[kt.cern](http://kt.cern)

# Knowledge Transfer Seminars



Many thanks for your  
attention