Knowledge Transfer at CERN

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KT Group Leader

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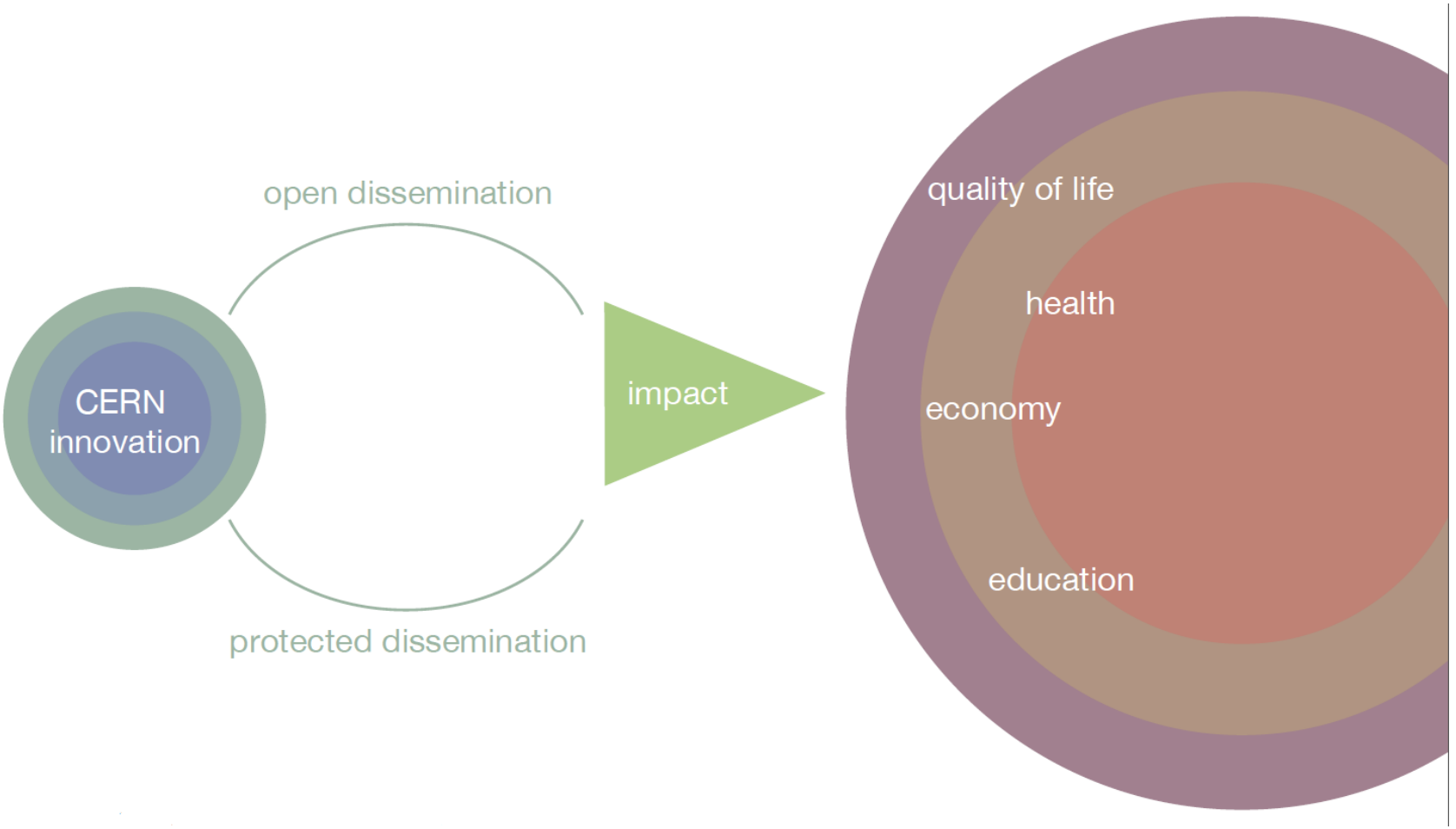
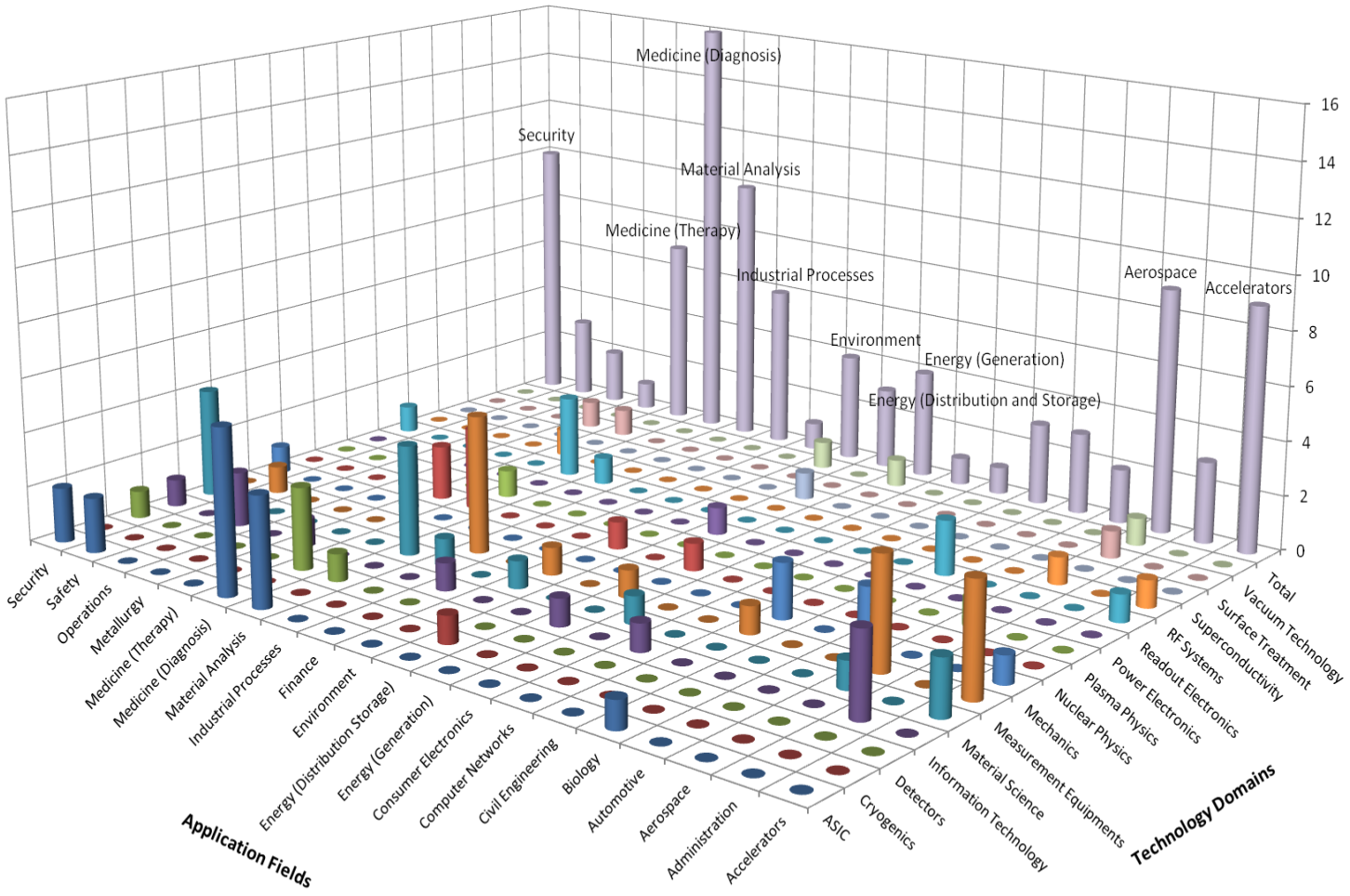
Why KT?


open dissemination
CERN
innovation
impact
protected dissemination
quality of life
health
economy
education

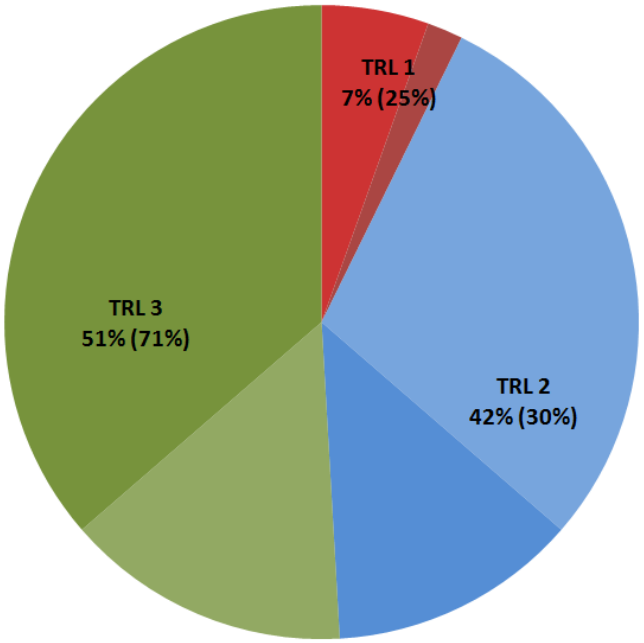
CERN's Technology Portfolio



How far are we from the market?

Technology Portfolio - General Statistics

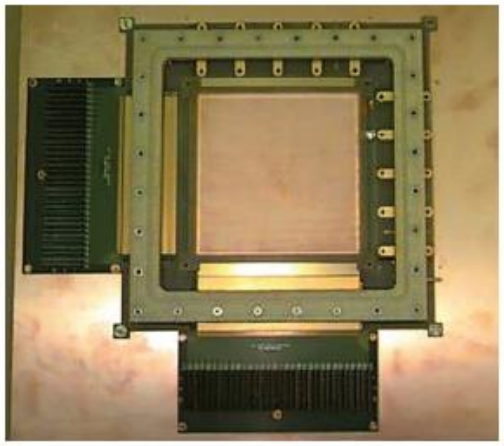
- ~200 TT cases (40% open, 20% protected by patent)
- ~40 new disclosures per year
- Exploitation level: ~50%



TRL	Simplified Definition
1	Technology application formulated and basic concept demonstrated
2	Functional validation in laboratory environment
3	Representative prototype fully qualified (technology ready to transfer)

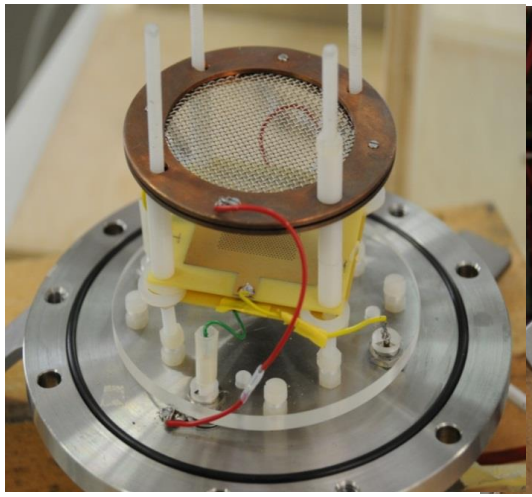
KT Fund
Funding Innovation

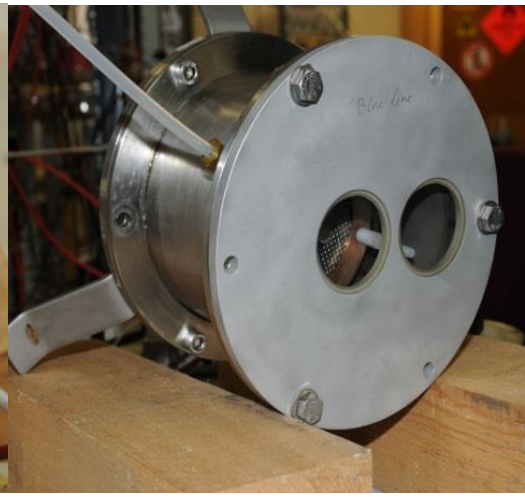
- The KT Fund is a financial instrument which helps bridging the gap between CERN and society
- The requests are evaluated by a Committee composed by all the Department Heads and members of the KT Group
- The 12 projects (submitted in 2011 and 2012) financed so far

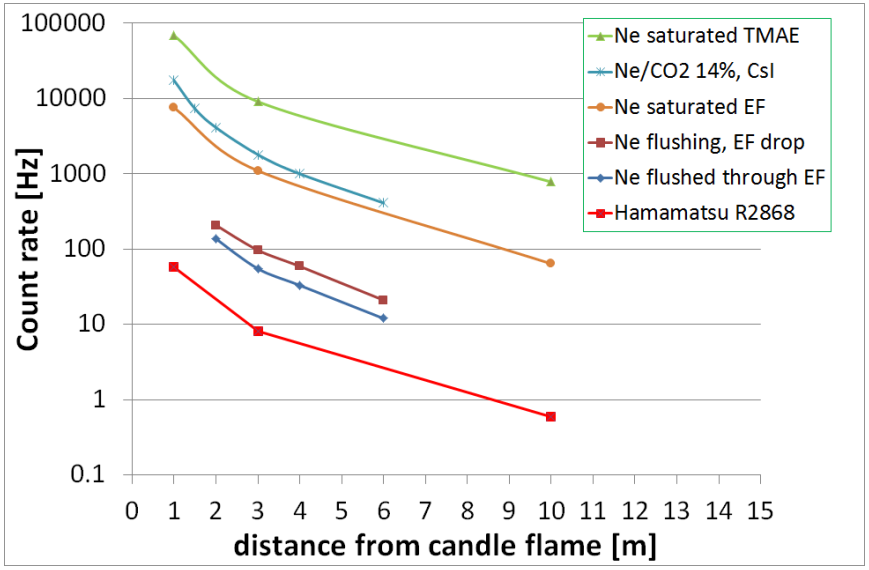


KT Fund 2011 project: Flame/smoke detector and Rn detector

- Two demonstrators have been built and tested
- Comparison with best commercial devices shows at least a factor 10 improvement
- A number of companies interested in the technologies, one patent filed







From high vacuum…

- NEG (Non-Evaporable Getter thin film coatings)

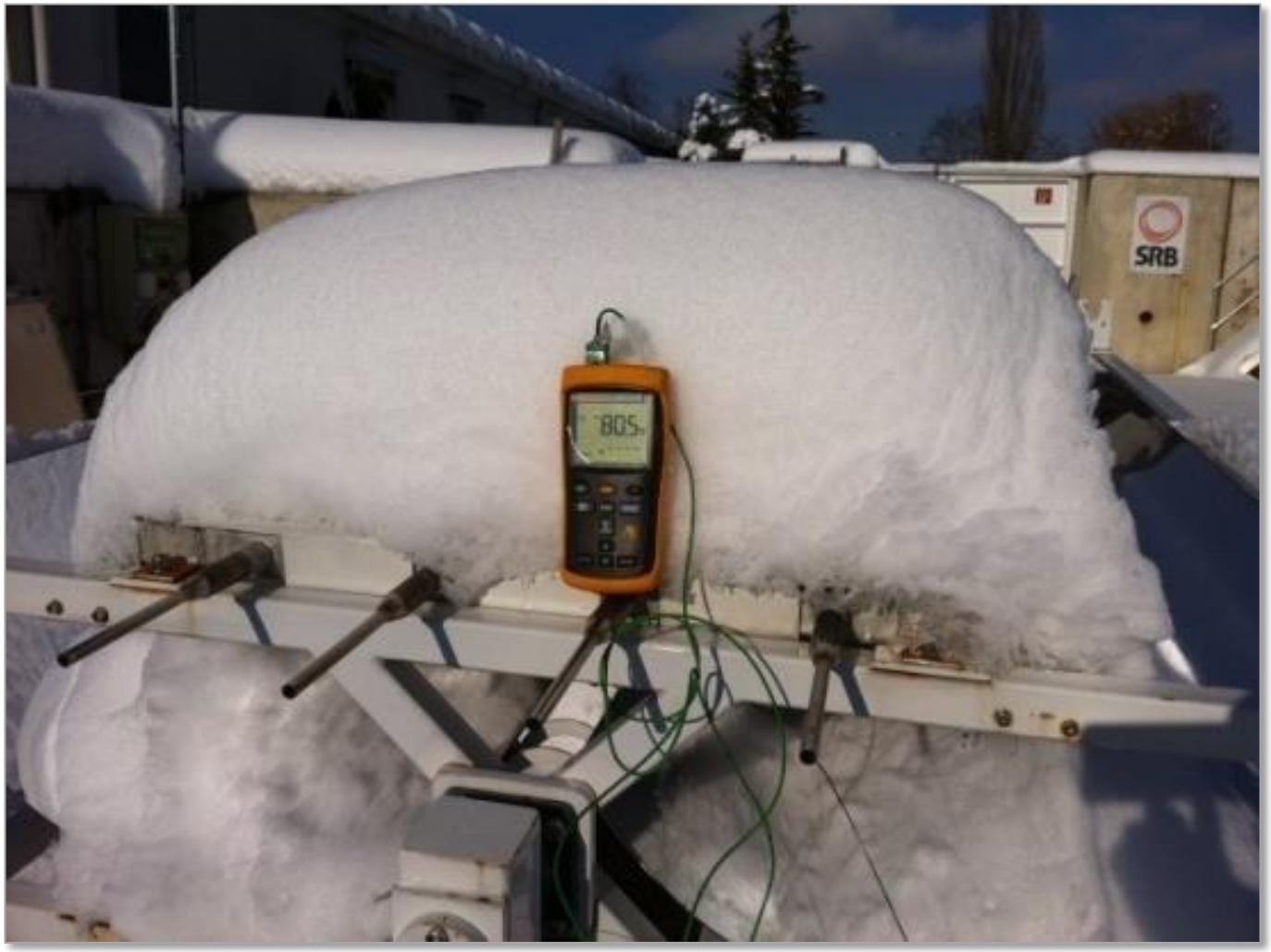
Technology used to create and maintain ultra-high vacuum in the accelerator vacuum chambers.

… to solar energy!

- License and partnership with a start-up company

Development of a commercial product able to use diffused or indirect light and reach very high temperatures of up to 300 degrees
Development of a prototype production chain

It works!



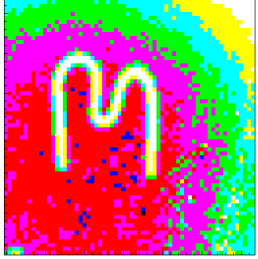
Solar panels plant

- Civil-engineering company opened a new solar power plant

  Environmentally friendly "solar field" heats close to 80,000 cubic metres of bitumen to 180 degrees.

Installation at GVA airport

Medipix

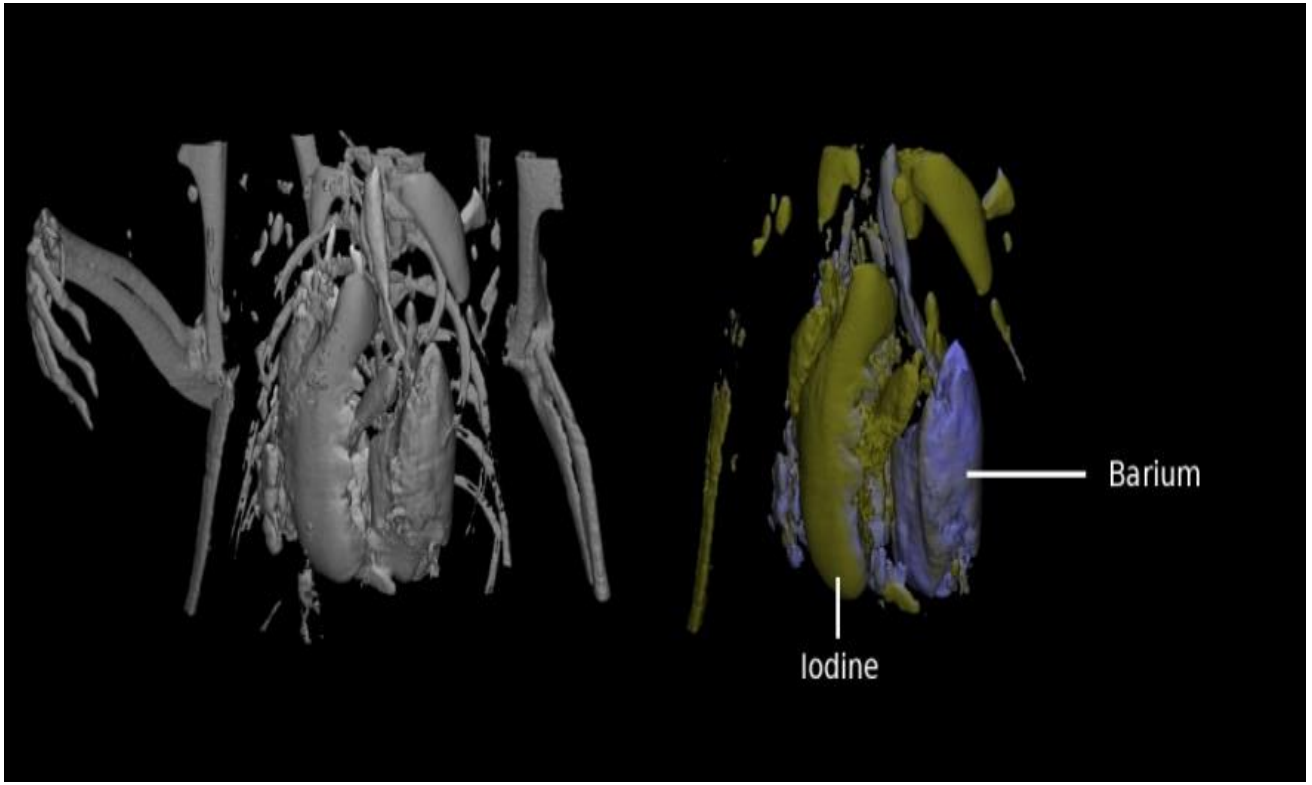


- A family of single photon counting integrated circuits used in Hybrid Silicon Pixel Detectors
- The Medipix collaborations (close to 20 institutes) contributed to the development and dissemination of the technology
- A good example of how (fundamental) science fosters innovation which can be transferred to society… and back!

Application: Medical imaging

- MARS project

  Colour CT X-ray scanner based on the Medipix technology

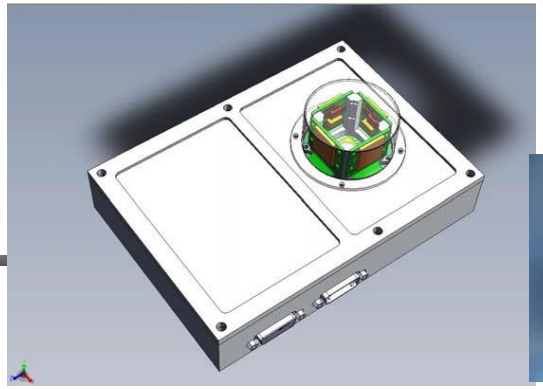


(courtesy of MARS Bioimaging Ltd)

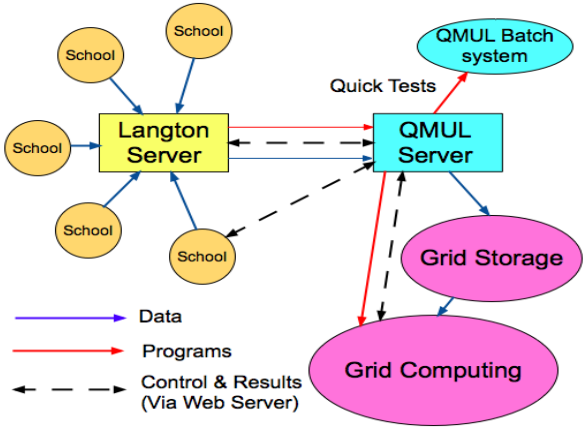
Application: Material analysis

- Partnership and license agreements with a company to build a X-ray diffractometer

CERN@school allows students to use a Timepix chip in the lab to visualise radiation



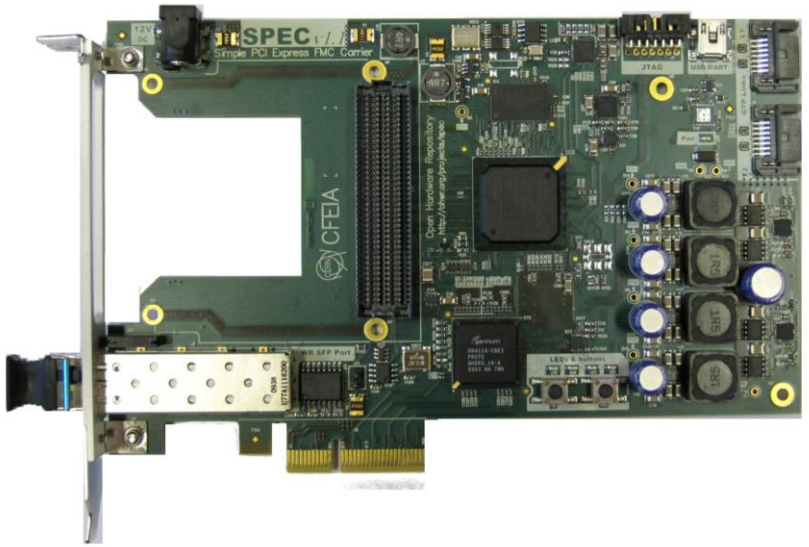
Langton Ultimate Cosmic ray Intensity Detector uses 5 Timepix chips to monitor the radiation environment in Space



Data from LUCID and CERN@school detectors will be uploaded to the Grid and made available for students to analyse

CERN OHL: it is making an impact!

- CERN OHL v1.1 Launched in 2011, great interest from the worldwide community
- More than 50 hardware designs licensed under CERN OHL
- More than 20 companies are using it
- The license is being used by people outside our community as well (and for any kind of hardware)
- Thanks to the interactions with the community, we are improving the license and preparing v1.2
- Visit: http://www.ohwr.org



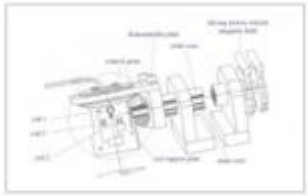
CERN Easy Access IP

CERN Easy Access IP is a new opportunity to benefit of CERN's Intellectual Property.

The scheme involves making some of CERN's technologies available free of royalties, released only to partners who can best develop them to benefit the economy and society.
If you would like to know more about CERN Easy Access IP or other technology transfer opportunities, please contact CERN's Technology Transfer Office.

The following technologies are available under the CERN Easy Access IP scheme:

3D Magnetic sensor calibrator



This is an innovative device for calibrating magnetic field with high resolution. The technology measures all three axes of the magnetic field, by performing a scan over the full unit sphere, independent of its orientation relative to the magnetic field.

[read more]

RF Waveguide Vacuum Valve

This device enables low-loss RF power transmission in a waveguide across a gap, where a liftable instrument is positioned.

[read more]

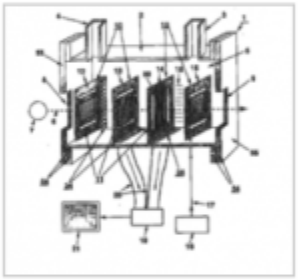
Thermally insulatable vessel

The Thermally insulatable vessel is a simple container system for hot substances, incorporating a temperature display within the vessel's cap or lid.

The key element in this technology is an integrated infra-red thermometer developed with Micro-Electro-Mechanical systems on a common silicon substrate through micro fabrication technology.

[read more]

Multifunctional detector



A multifunctional, versatile position-sensitive detector for measuring characteristics of a beam of particles.
The technology consists of a microwire-based monitor that allows measuring non-destructively the spatial profile, divergence, and intensity of UV, x-ray, and charged particle beams, including anti-particles.

[read more]

Cryogenic optical fiber temperature sensor

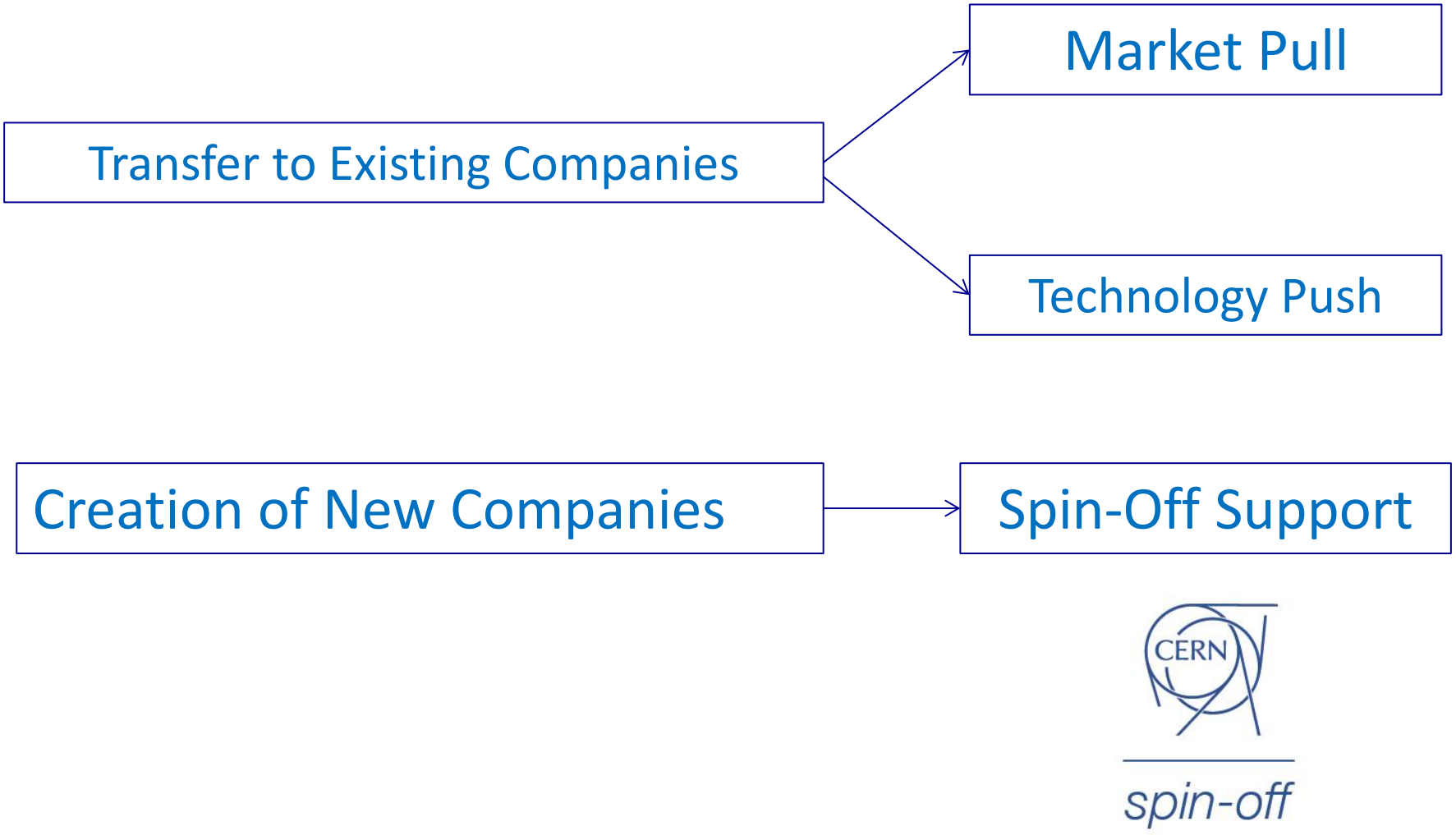
The technology consists in a simple and relatively cheap cryogenic temperature sensor, composed of an optical fiber and a Brillouin spectral analyzer for measuring one or more temperature dependent Brillouin scattering parameters.

[read more]

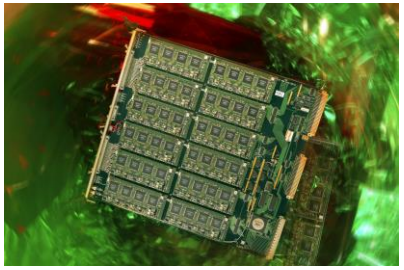
Easy Access IP was first trialled by Easy Access Initiative, a collaborative project between the University of Glasgow, King's College London and the University of Bristol.

CERN Easy Access IP Exclusive Licence agreement
CERN Easy Access IP Non-Exclusive Licence agreement

KT implementation ways



CERN Business Ideas Accelerator



CERN
Pre-Incubator

CERN STFC BIC

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Turning CERN technologies into new business opportunities

STFC

Search Go

CERN technology

STFC CERN Business Incubation Centre

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- About us
- What we offer
- How to apply
- News and events
- Our successes
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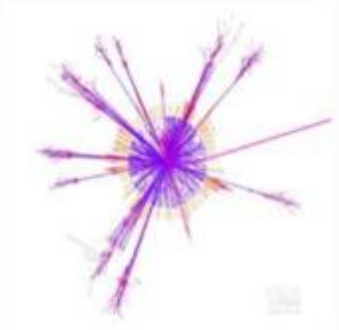
Welcome to the STFC CERN BIC

High energy physics accelerating business

Creating innovative new products, services and business opportunities from high energy physics technologies

The STFC CERN Business Incubation Centre (BIC) offers funding, business support and technical assistance to entrepreneurs and small high-tech companies seeking to accelerate their innovative business concepts.



Focused on developing new products and services using technologies originally developed for use in high energy physics research, this pilot scheme draws on the world-leading capabilities of the Science and Technology Facilities Council (STFC) and the European Organization for Nuclear Research (CERN), home of the Large Hadron Collider.

The BIC combines the incubation experience of STFC with the unique opportunity to access STFC and CERN intellectual property (IP), technologies and expertise. It will help businesses to grow from technical concept to market reality, from small start-ups into thriving high-tech companies.

There is an open call for applicants to join the scheme and the deadline for applications is **June 2013**.

For all the latest news, information and opportunities at the STFC CERN BIC, follow us on twitter **@STFC_B2B**.

European Knowledge Transfer Networks

Forum for European Intergovernmental Research Organisations

EEN, Enterprise Europe Network

TTN, Technology Transfer Network

TTO Circle - European Technology Transfer Offices Circle

The European Network for LIGht ion Hadron Therapy

10 years of ENLIGHT Collaboration

CERN philosophy into health field

- Common multidisciplinary platform
- Identify challenges
- Share knowledge
- Share best practices
- Harmonise data
- Provide training, education
- Innovate to improve
- Lobbying for funding

> 150 institutes

> 400 people

> 25 countries

(with >80% of MS involved)

Coordinated by CERN

EU funded projects

- Wide range of hadron therapy projects: training, R&D, infrastructures
- A total funding of ~24 M Euros
- All coordinated by CERN, except ULICE coordinated by CNAO
- Under the umbrella of ENLIGHT

PARTNER

- Marie Curie Initial Training Network
- 12 institutions

ULICE

- Infrastructures for hadron therapy
- 20 institutions

ENVISION

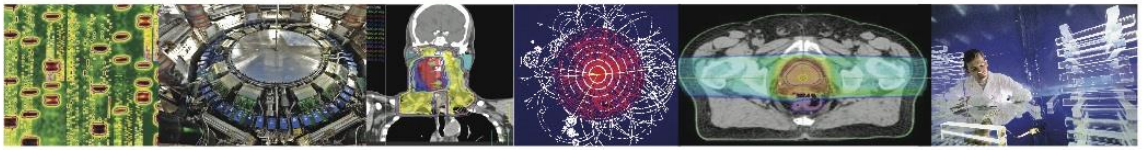
- R&D on medical imaging for hadron therapy
- 16 institutions

ENTERVISION

- Marie Curie ITN
- 12 institutions

ICTR-PHE 2012

Uniting physics, biology and medicine for better healthcare



International Conference on Translational Research in Radio-Oncology

&

Physics for Health in Europe

February 27 – March 2, 2012 at CICG, Geneva

2 days devoted to physics, 2 days to medicine, 1 day of

Over 700 people registered, nearly 400 Abstracts

Chairs: Jacques Bernier (Genolier) and Manjit

Four physics subjects :

- Radiobiology in therapy
- Detectors and m
- Radioisotc and therapy
- Novel technolo es

Next ICTR-PHE Conference
10-14 February 2014

A Biomedical Facility @ CERN

The LEIR facility could be adapted to be used for :

- basic physics studies
- radiobiology
- fragmentation of ion beam
- dosimetry
- test of instrumentation

A meeting at CERN attended by more that 200 people from 20 countries confirmed the need for such a facility

More information on the new issue of “ENLIGHT HIGHLIGHTS”