



1ST INTRODUCTORY ELI ERIC IBERIAN INFORMATION DAY

INDUSTRY INVOLVEMENT - PORTUGUESE EXPERIENCE, PLANS, TECHNOLOGY
PLATFORM, USERS & PROVIDERS OF INSTRUMENTATION



José Antão

Industrial Liaison Officer @CERN, ITER, ESRF

jose.antao@ani.pt



Agenda, don't mind the order

INDUSTRY INVOLVEMENT

1. PORTUGUESE EXPERIENCE
2. PLANS
3. TECHNOLOGY PLATFORM
4. USERS & PROVIDERS OF INSTRUMENTATION



Portugal in EU/Intl. Research Infrastructures / Orgs.

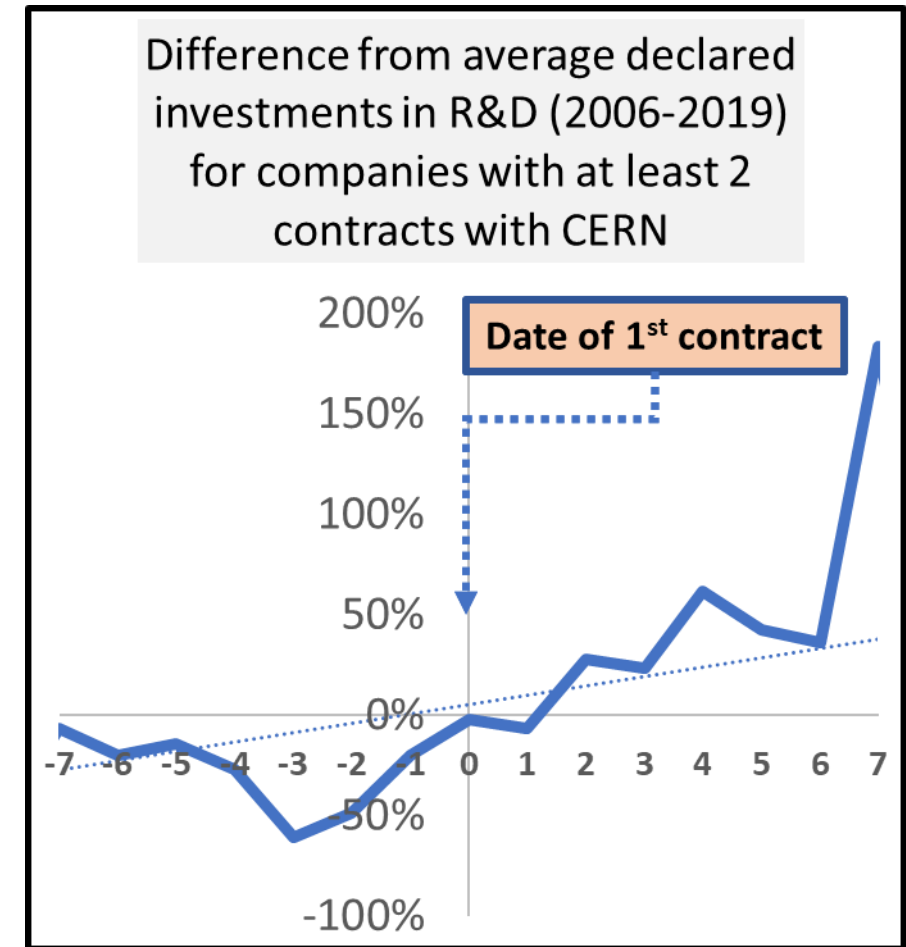
- Portugal is a member of 12 (out of 22) ERICs – **ELI not one of them.**
- Portugal is a member of CERN, ESO, ESRF, ITER, ESA, SKA (not of ESS, ILL, EU-XFEL, FAIR)





Why do we want contracts with Big Science orgs.?

- Political support to membership fees;
- Improvement of international business outlook for companies;
- Strengthen EU supply chains;
- Increase domestic investments (incl. hiring) in R&D.



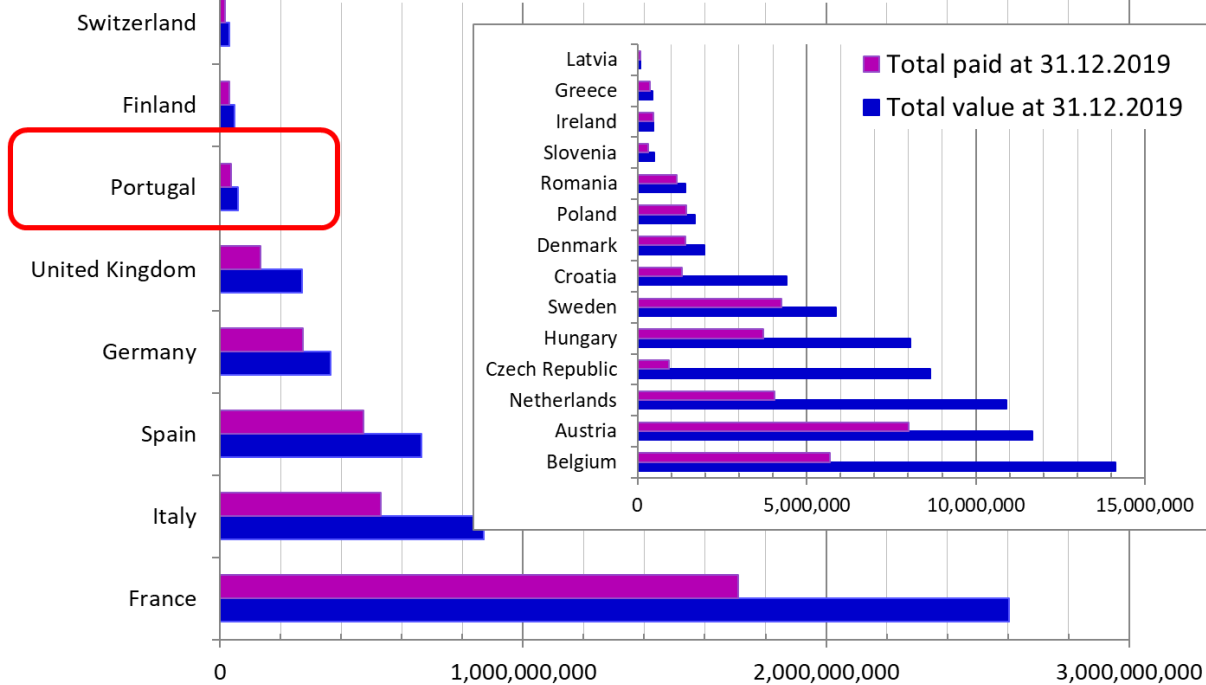
Eduardo Cardoso



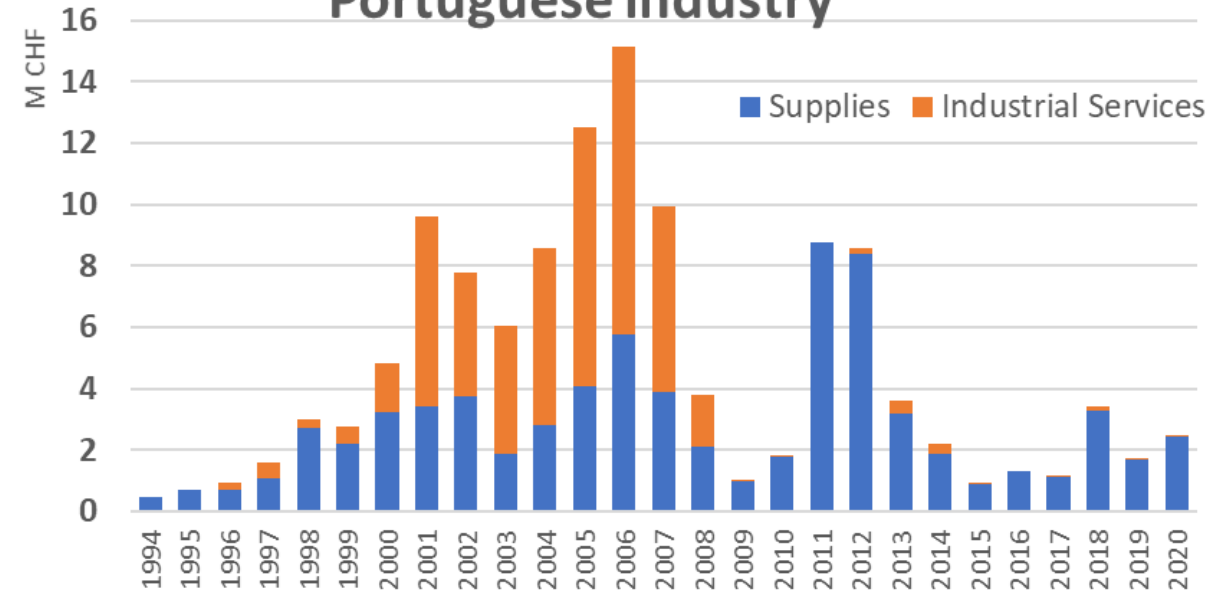
Portuguese industry performance – ITER and CERN



Total awarded/committed or paid(EUR)



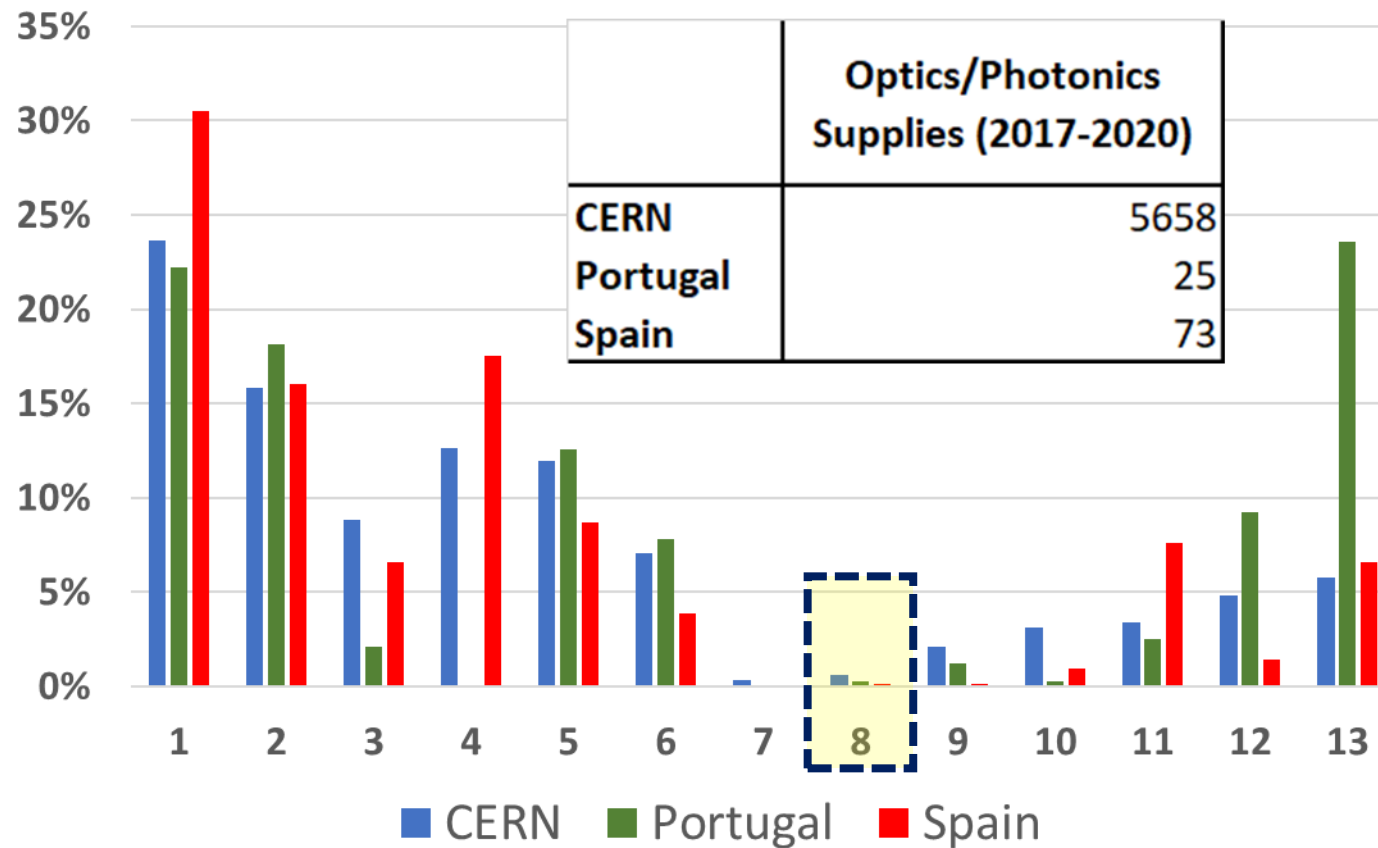
Global Value of CERN contracts with Portuguese industry





What is CERN getting from Portugal (and Spain)?

CERN Supplies, by product family (2017-2020)





Big Science suppliers in Portugal



Power products, converters



QC, Commissioning,
Materials Testing,
Training



ENERGY
PULSE
SYSTEMS

DESIGNING
ENERGY
FOR LIFE

Marx Generator for Kicker Magnet (BESSY-II)
Also, CERN – ISOLDE, CLIC, FCC
Also sputtering applications

OPTIMAL
STRUCTURAL
SOLUTIONS

Composite structures



ASILVAMATOS
METALOMECÂNICA

Pressure vessels (He tanks)

LC **Technologies**
Aveiro - Portugal

Bespoke mm wave components for
instrumentation



SolidAl

Condutores Eléctricos, S.A.

Power cables



Big Science suppliers in Portugal



Mechanics, Electronics, Testing,
Engineering



Electronics



PETsys
Electronics



Optical communications,
space systems, electronics



Software for mission-critical subsystems



Diagnostics for lasers –
measurement of laser
pulses @ELI





Main Technological competences of National Labs

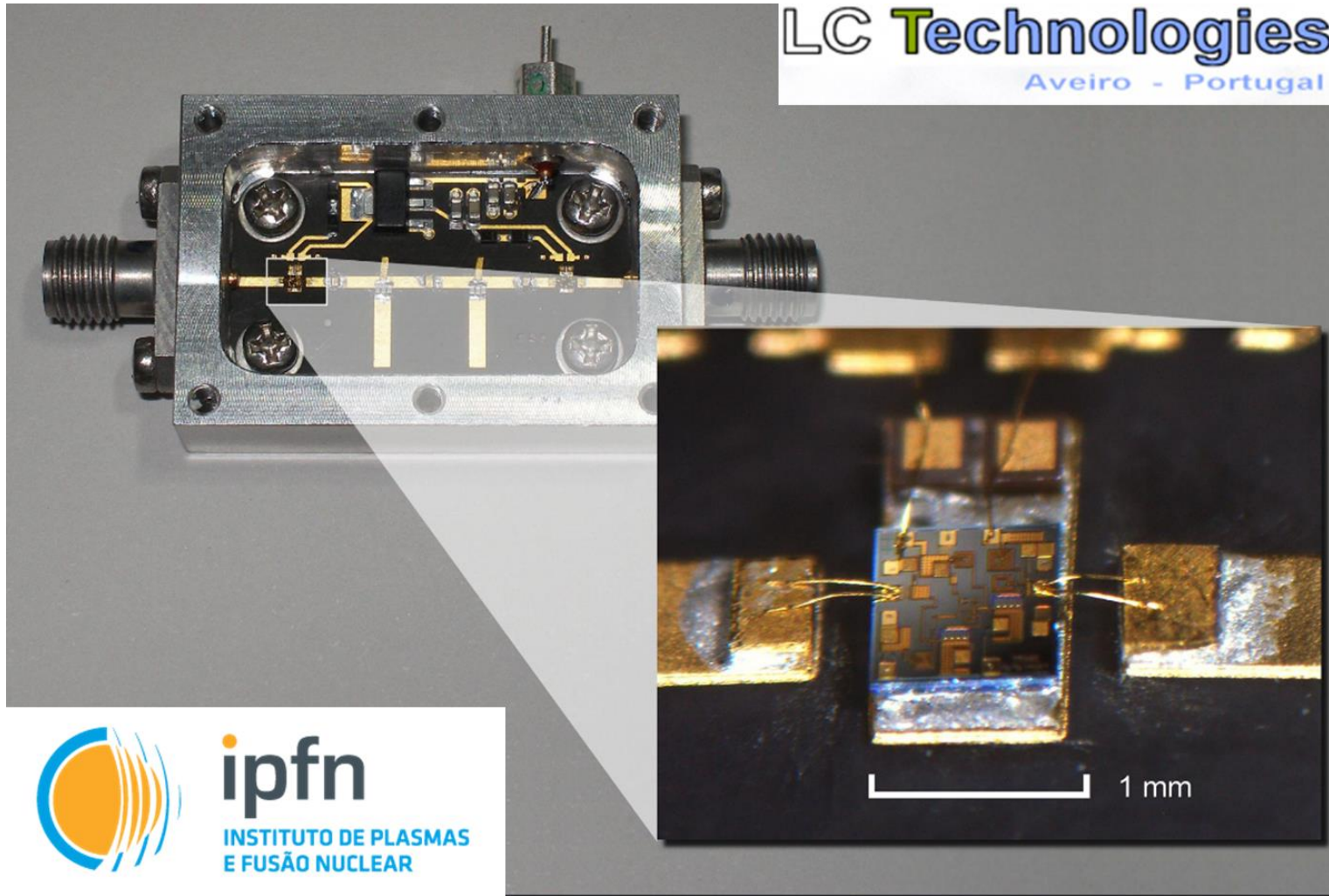


- **Detectors** (legacy from ATLAS, CMS [LHC])
 - Optical Fiber calorimetry – TileCal (ATLAS)
 - Rad-hard ASICs – BTL (CMS)
 - Resistive Plate Chambers – cosmic rays, positrons, neutrons
 - Gaseous & Xe-based – neutrinos, dark matter
- **Diagnostic systems** (EU Fusion Roadmap)
 - Plasma Position Reflectometry (PPR)
 - RF signals sent/received to evaluate plasma position
 - Microwave electronics and real-time analysis software
 - Collective Thomson Scattering
- **Robotics**
- **Control, data acquisition**



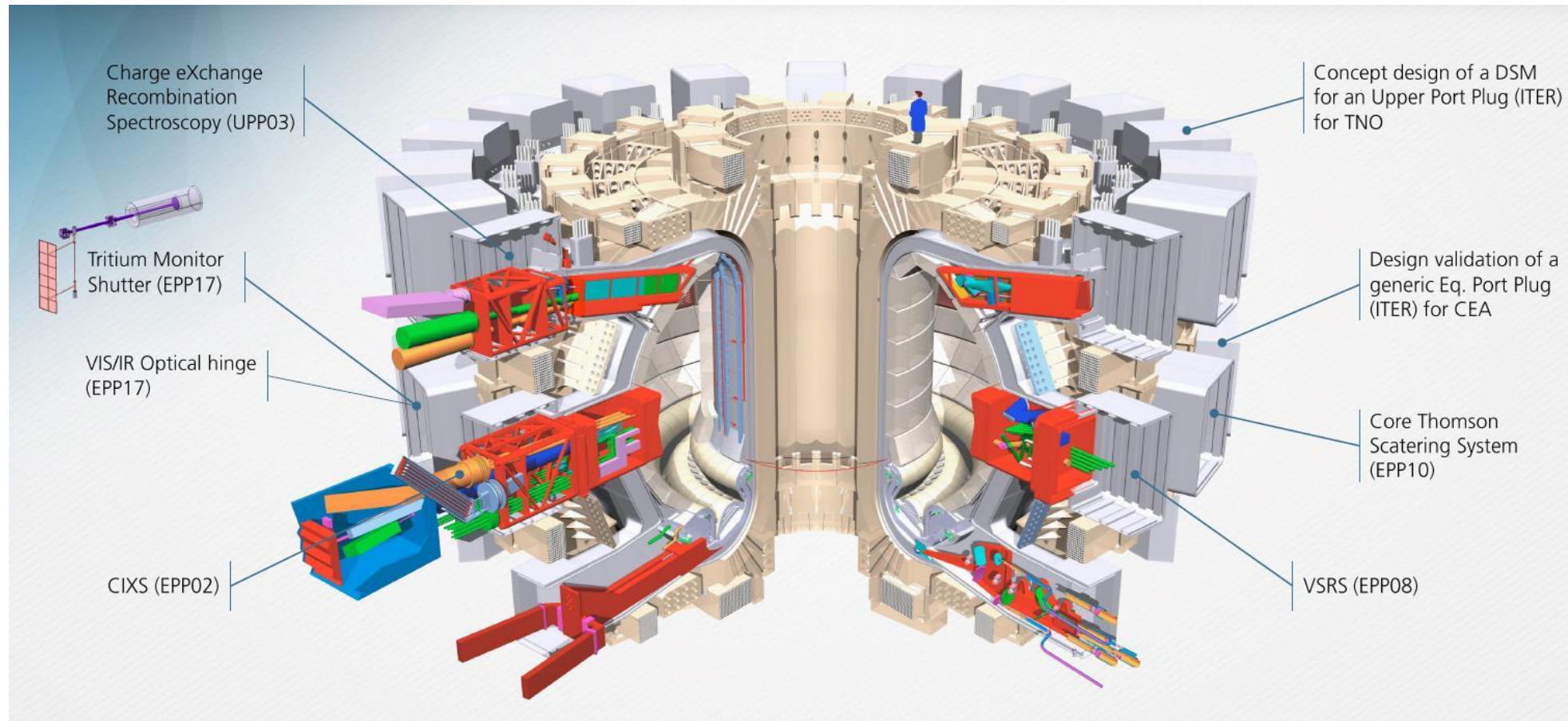


Microwave electronics on PPR diagnostics





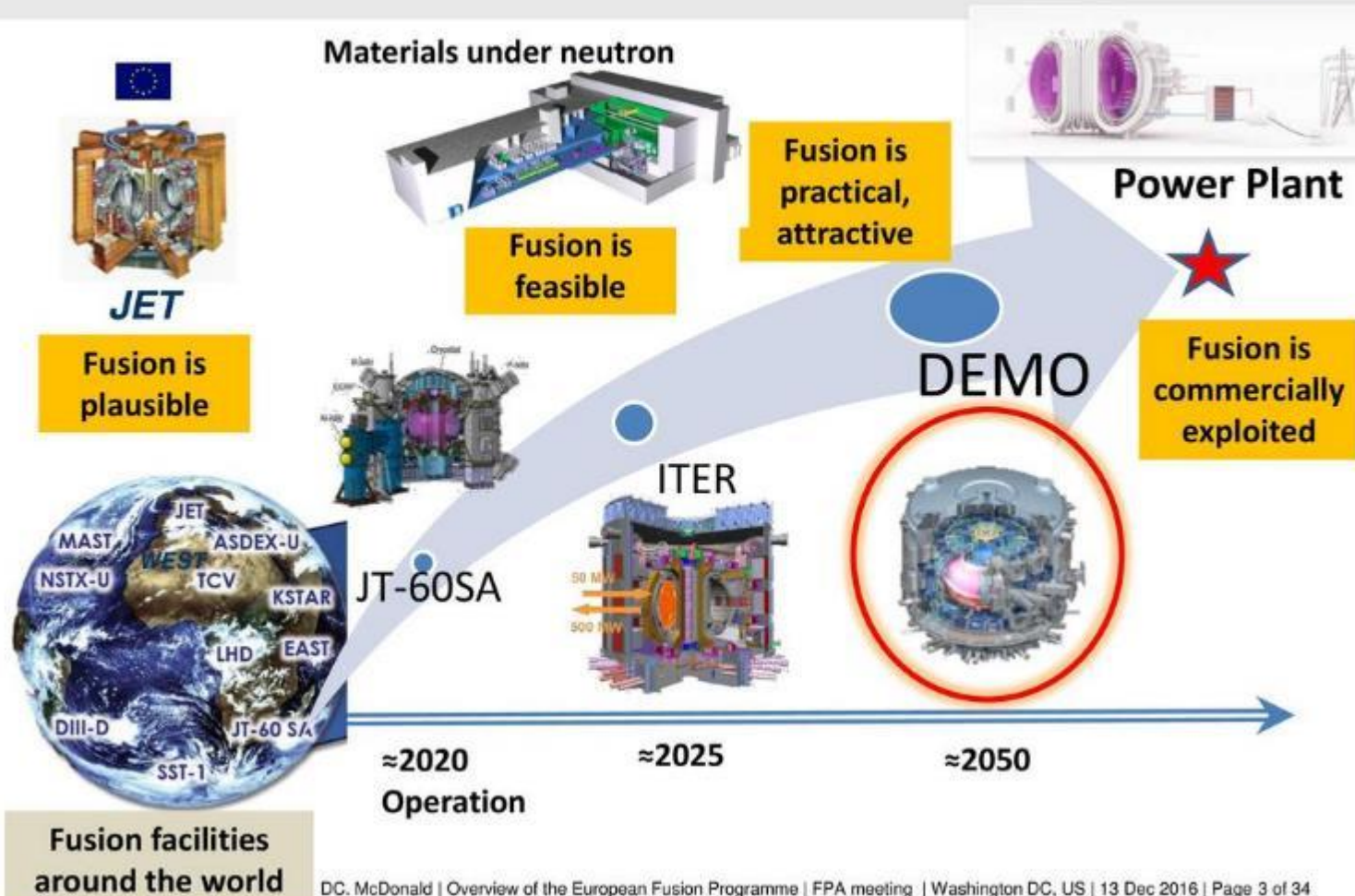
Design, prototyping, testing of multiple ITER diagnostics





Future Plans – Fusion, Particle Physics

Roadmap towards fusion electricity







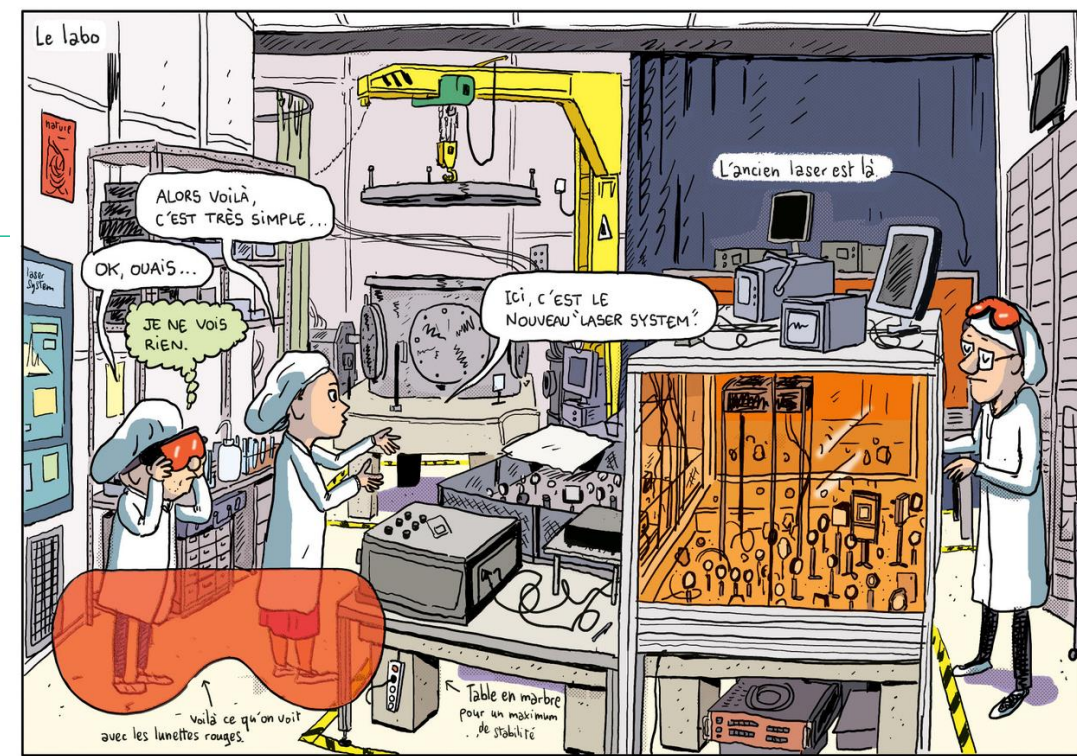
Technology Platform



ipfn
INSTITUTO DE PLASMAS
E FUSÃO NUCLEAR

X-GOLP

Committed to continuously raising the bar

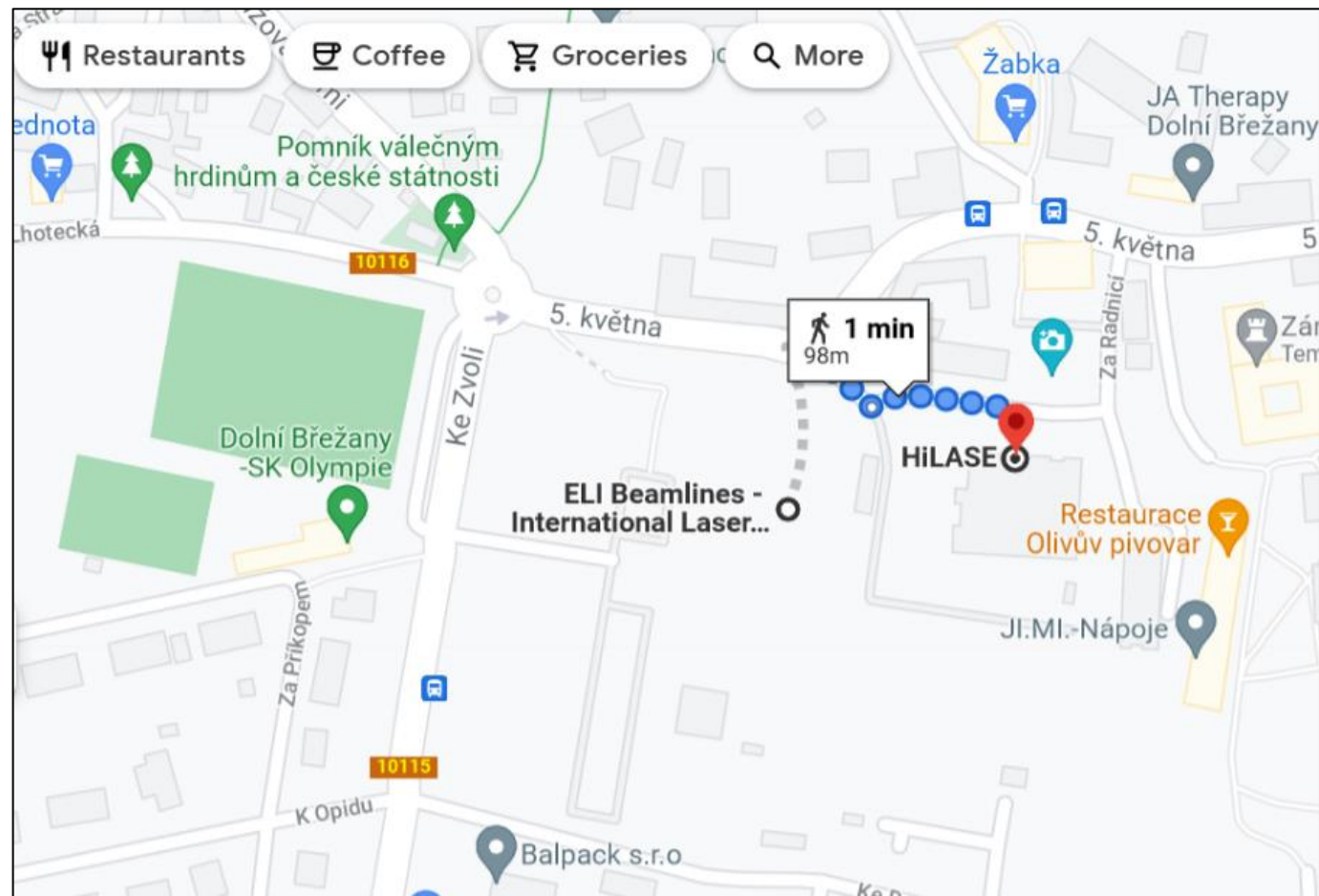


Access conditions

- **Users can be** either from public or private research institutions or from an **SME**, providing the results of the research are publicly disseminated.
- Please notice that the **facility is not being given specific funding for supporting access**. External researchers must cover their own travel and subsistence expenses, as well as any specific equipment required for their application.
- **Access time** is currently limited to a **maximum of 4-8 weeks per year**, depending on demand, at a time to be scheduled between the L2I team and the users.
- Access opportunities are advertised by means of a call for proposals. A proposal is submitted through a specific form that may be requested, and can be prepared with the assistance from an internal researcher.
- The proposal form consists of an abstract of the proposed experiment or measurement, identification of PI and research team, a description of the required equipment, laser configuration and diagnostics, and a proposed experiment schedule.
- Proposals will be evaluated by an external independent peer review panel, and ordered in terms of the scientific merit of the proposed research.
- Users shall be given adequate training in safety and handling with the relevant laser systems before starting an experiment, and an L2I researcher or technician will be available for assistance during an experiment.



Technology Platform – EU landscape





Technology Platform



Technology Infrastructures

Commission
Staff Working
Document

[Publication](#)



A final word on Spain

Research Infrastructures
of mutual interest



What role for
Lasers?



Role models from
Spain





AGÊNCIA NACIONAL
DE INOVAÇÃO

Obrigado

jose.antao@ani.pt

