



AGÊNCIA NACIONAL
DE INOVAÇÃO

Sharing ILO Experience

Portuguese ILO

José Antão – *Industrial Liaison Officer (ILO)*

03 . 10 . 2023

CERN ILO Forum Meeting

1. **Introduction**
2. The 3 Phases of Industry Engagement (2019-2023)
 - a) Expanding the Universe of Suppliers (2019-2022)
 - b) Expanding the Market Size and Access (2023- now)
 - c) Strengthening Industry-Academia Collaboration (now-Future)
3. Closing thoughts

1. Introduction



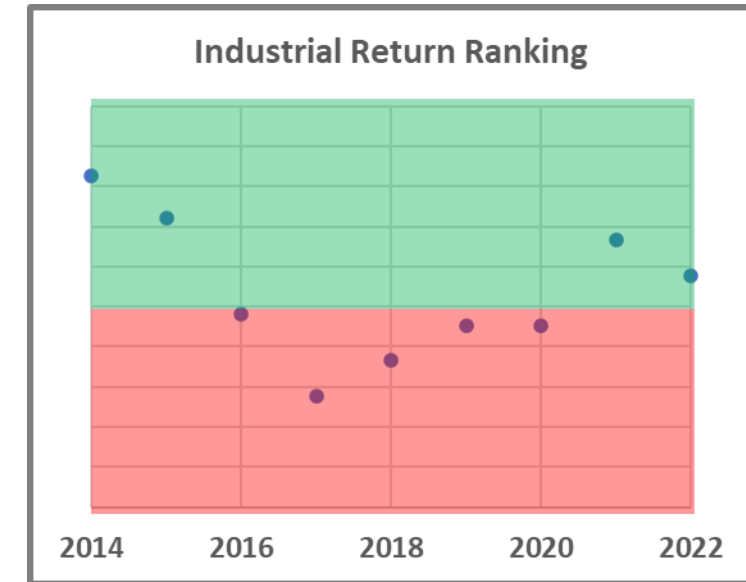
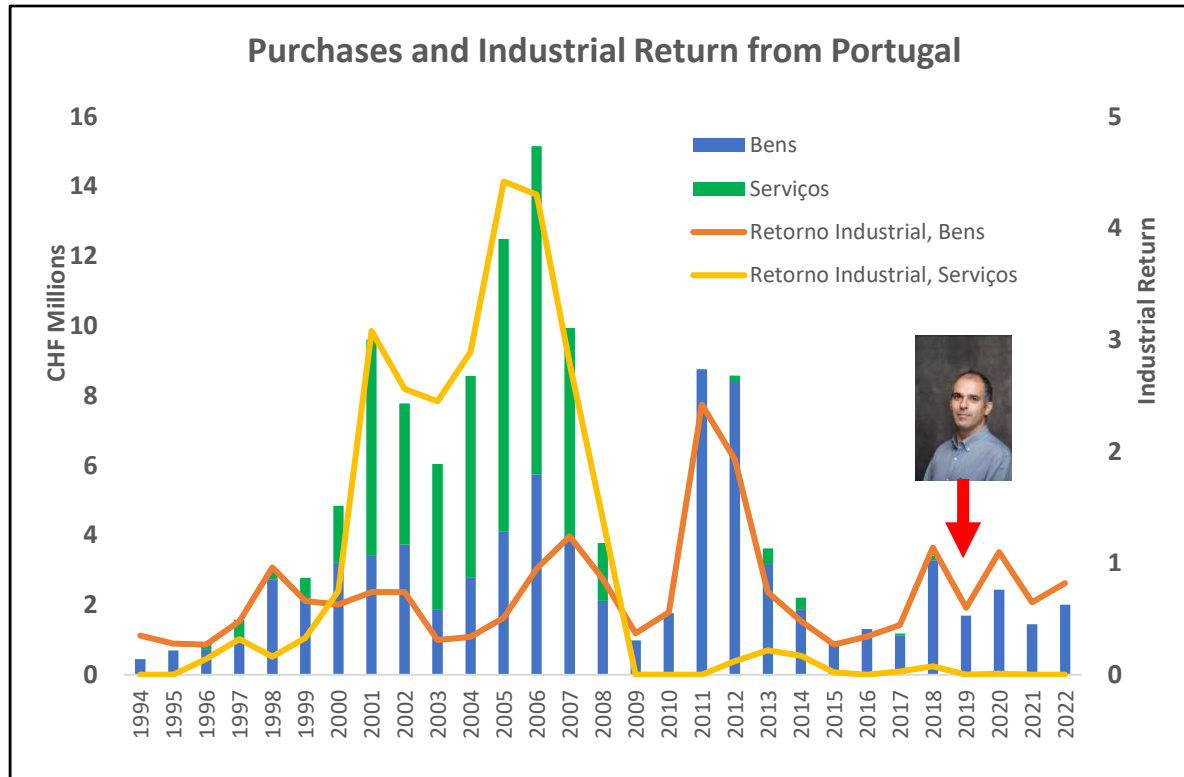
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DE INOVAÇÃO

The National Innovation Agency (ANI) manages national funding and tax incentive programmes for R&D, EU programmes (Horizon Europe) and other support measures to collaborative initiatives between Academia and Industry.

I am the Portuguese Industrial Liaison Officer (ILO) for **CERN**, **F4E/ITER** and **ESRF** (since 2019); previously also for ESO and SKAO; informally for ELI, ET, FAIR.



Portuguese Industrial activity with CERN

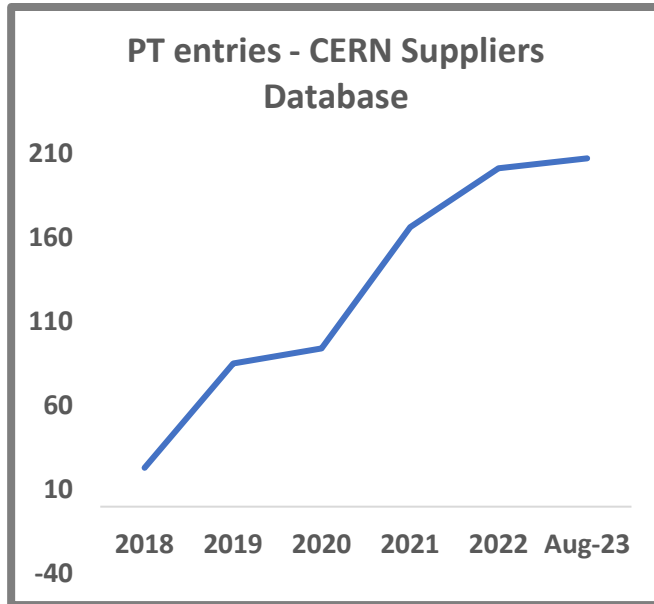


- Portuguese industry's performance at CERN has varied between outstanding and poor over the past 30 years;
- Outstanding performance during LHC construction, due to Efacec, ISQ, A. Silva Matos, Setrova;
- Mostly poorly balanced over the past 10 years.

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Precarious position for Portugal, coming in

Portugal@CERN, September 2019



- I came in as ILO in 2019 (first time at CERN in June)
- The then-new CERN Supplier database had 32 Portuguese entities;
- 2018 had seen a total of 23 MS sent to Portuguese firms, 1 of which expressed interest;
- Also in 2018, 1 out of 5 Bids (IT/PE) was won by a Portuguese firm

ILO Tools – Domestic Industry Database

Formulário de Pesquisa

PESQUISAR DADOS

Monday, October 2, 2023

3:09:05 PM

Este formulário tem como objetivo pesquisar dados que já se encontrem na base de dados, incluindo informação geral relativa á entidade e pessoas de contacto, outros dados sobre a entidade, informação comercial e localização. A pesquisa pode ser realizada através de uma palavra-chave ou de pesquisa por campo específico.

Entidade Contactos Outros dados Informação comercial Localização Interação com a entidade Cern códigos

Palavra-chave

Operador lógico (E/Ou)

Tipo de Entidade

Designação da Entidade

NIPC

CAE

PESQUISAR



- 400 companies , 200 of which also registered in CERN Suppliers database;
- Information on Activity type, contacts, past interactions (including procurement).

ILO Tools – Domestic Industry Database

Formulário de Pesquisa X Resultados da Pesquisa: Dados Entidade X

PESQUISAR DADOS Monday, October 2, 2023
3:09:05 PM

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Entidade Contactos Outros dados Informação comercial Localização Interação com a entidade **Cern códigos**

código CERN **(Electron-Beam Welding)**

PESQUISAR



- Search by CERN procurement code function, for immediate ID of possible tenderers

ILO Tools – Domestic Industry Database

Formulário de Pesquisa x Resultados da Pesquisa: Dados Entidade x

RESULTADOS: Dados Entidade Monday, October 2, 2023
3:19:03 PM

Este formulário tem como objetivo editar e eliminar ("Apagar registo") informação sobre as entidades registadas na base de dados. No painel inferior aparecem todos os resultados da pesquisa, enquanto no painel superior o utilizador poderá editar os dados selecionados.
Caso seja realizada uma alteração aos dados, os campos de preenchimento obrigatório, encontram-se assinalados com um (*).
Após a edição dos campos pretendidos, o registo deverá ser salvo ("Guardar alterações").
Caso o utilizador pretenda exportar os resultados da pesquisa: menu "Dados Externos", separador "Exportar" e selecionar o formato pretendido para a exportação do documento.

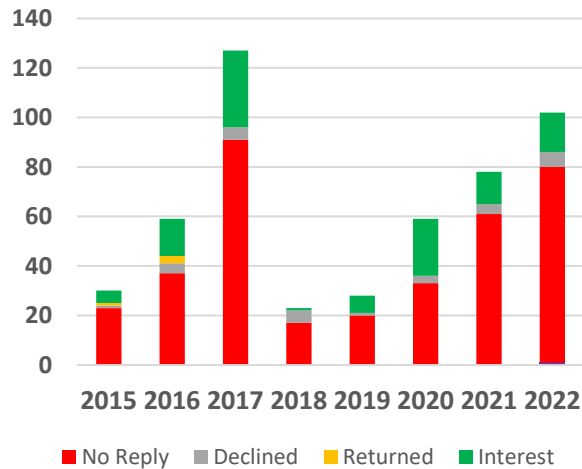
ID da Entidade	19	Tipo de Entidade*	Empresa
Designação*	Frezite High Performance (FHP),	NIPC*	508023289
CAE*	71120	Pais	Portugal
Morada	Rua Engº Ferreira Dias Nº. 401 A 405	Código-postal*	4150-638
Website	www.frezitehp.com	Email Geral	commercial@frezitehp.com
Telefone Geral	220045400	N. de Funcionários	
Último Retorno conhecido		Ano do Retorno	
Código CERN	05040403	Guardar alterações Apagar registo	

Designação*	NIPC*	CAE*	Código-postal*	Tipo de Entidade*	Texto21
Frezite High Performance (FHP),	508023289	71120	4150-638	Empresa	05040403
Instituto de Soldadura e Qualidade (ISQ)	500140022	72190	2790-62	Empresa	05040403
NCP - Fabrico de Produtos Metálicos	504227629	25992	3770-68	Empresa	05040403
Palbit	507059387	25733	3850-575	Empresa	05040403
T. S. F. - Metalúrgica de Precisão	503587494	25620	4760-724	Empresa	05040403

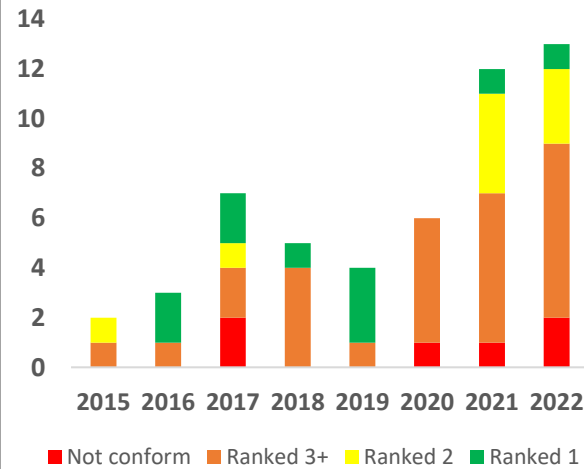
- Searches return list of companies self-declared as capable for supplying the respective technology

Recent Industrial activity trend - UP

Market Surveys, PT companies



Offers, PT Companies



Pulsed Power Source



ENERGY
PULSE
SYSTEMS

DARKSIDE Cryostat structure



bysteel
building the
future

- Increased interest from Industry since 2018;
- Very few competitive contracts won, but several near-misses (ranked 2nd) for high-value contracts;
- Slight improvement for 2023, with 2 (maybe 3) winning bids so far.

Agenda

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Cascading effects of CERN in Portuguese Industry

FUSÃO NUCLEAR

Fusão nuclear: ISQ assina contrato de 16 milhões de euros para o projecto ITER

O reactor de fusão nuclear ITER está a ser instalado em Cadarache, no Sul de França.

Lusa

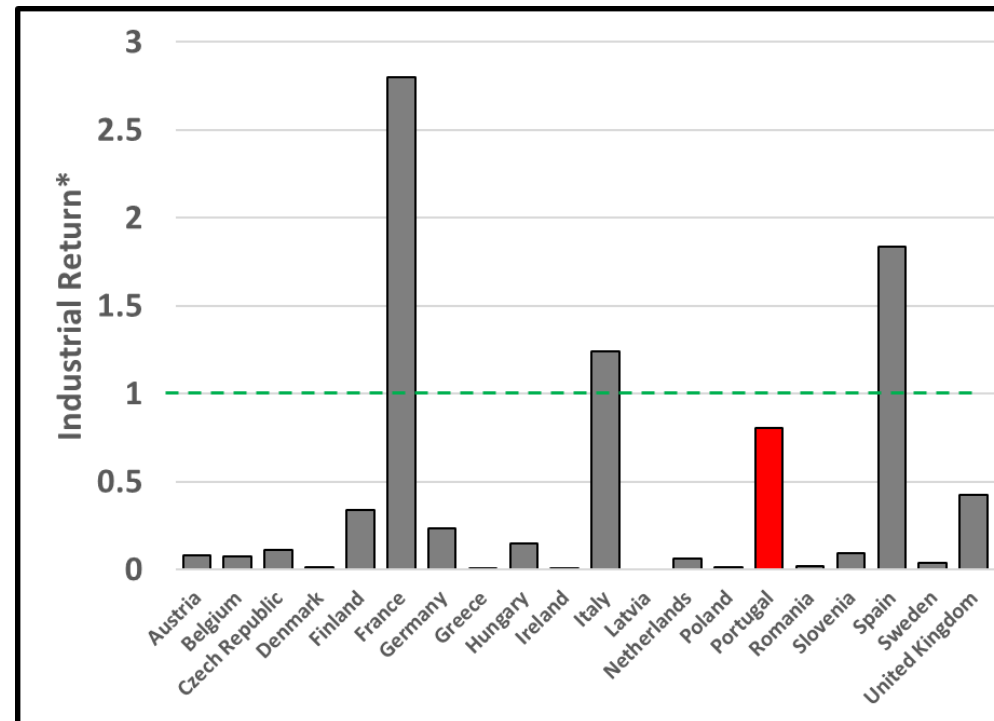
3 de Maio de 2023, 15:28

Receber alertas



Modelo do que será o reactor de fusão nuclear ITER, que ficará no Sul de França NELSON GARRIDO

Industrial Return*, Fusion for Energy



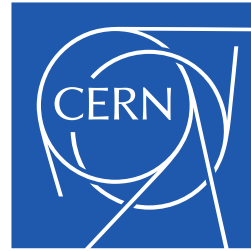
- CERN has been a qualification ground for a few Portuguese companies, opening a new market – Big Science – for them.
- >€30M in Big Science contracts in past 15 years would have been unlikely without prior CERN experience.

Phase II – Expand less, nurture more



- Industry people are more aware and willing to follow me (that and “post-COVID”);
- 13 Companies at CERN; 10 Companies at ITER; 9 companies at BSBF (all 2022)
- Big Science is now a thing for them!

CERN is the tip of a Big Science market iceberg



china eu india japan korea russia usa



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266415-2023: Germany-Hamburg: Metal detectors

from Big Science v.1

Publication date (PD): 03/05/2023 | Deadline (DT): 06-06-2023 | Document (TD): Contract notice

★ Send To > Keep unread Delete

261421-2023: Germany-Cologne: Laboratory, optical and precision equipments

from Big Science v.1

Publication date (PD): 02/05/2023 | Deadline (DT): 29-05-2023 | Document (TD): Contract notice

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257584-2023: Germany-Dresden: Laboratory, optical and precision equipments

from Big Science v.1

Publication date (PD): 28/04/2023 | Deadline (DT): 30-05-2023 | Document (TD): Contract notice

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252565-2023: Italy-Frascati: Anchors

from Big Science v.1

Publication date (PD): 28/04/2023 | Deadline (DT): 15-06-2023 | Document (TD): Contract notice

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241104-2023: Germany-Darmstadt: Optical instruments

from Big Science v.1

Publication date (PD): 24/04/2023 | Deadline (DT): 31-05-2023 | Document (TD): Contract notice



MAX-PLANCK-INSTITUT
FÜR CHEMISCHE PHYSIK FESTER STOFFE



Istituto Nazionale di Fisica Nucleare



GSI Helmholtzzentrum für Schwerionenforschung

Monitoring of the Iceberg bottom

20-50 Contract Notices/week



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- No contracts won yet (that I know of), though bids are being placed;

BUT

- There's limited capacity in the Portuguese Industrial ecosystem to deliver many of the higher-tech needs.



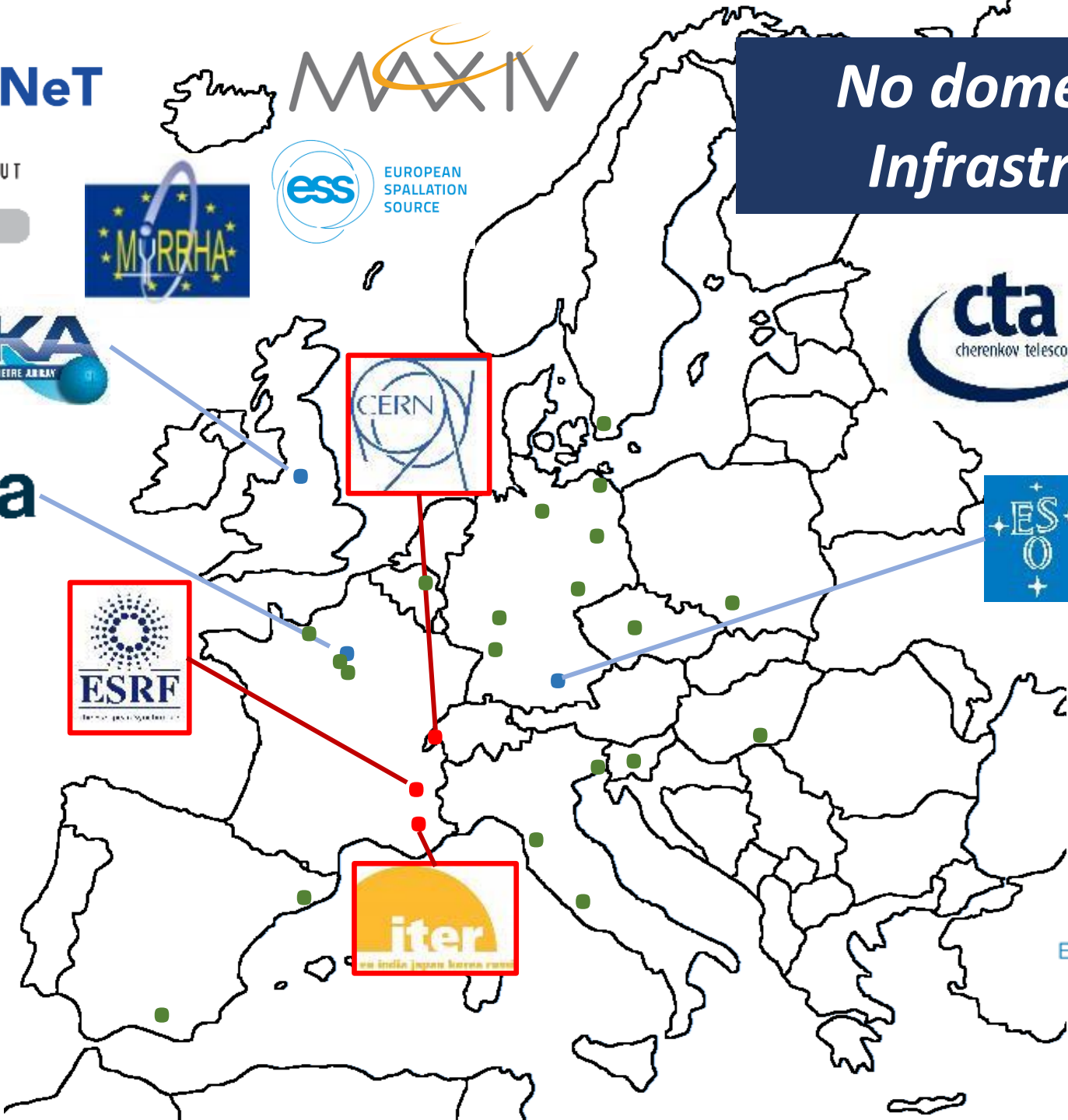
PAUL SCHERRER INSTITUT



No domestic large Research Infrastructure in Portugal



Max Planck Institute for Plasma Physics



Leveraged investments from national streams (low)

Collaboration Agreements for International Collaboration

Country	Nb agreements
Spain	32
Poland	29
Portugal	18
Italy	13
United Kingdom	13
Germany	12
Greece	10
France	8
Switzerland	7
Hungary	3
Finland	2
Lithuania	2
Austria	1
Belgium	1
Czech Republic	1
Norway	1
Pakistan	1
Ukraine	1
Total	155

Collaboration Agreements for R&D and Projects

In kCHF

Country	CERN cash contribution	CERN in-kind	Institute	Total
ES	6,751	10,608	19,991	37,350
IT	11,347	4,781	16,323	32,450
GB	13,298	144	11,330	24,772
FR	5,603	1,139	5,863	12,605
CH	5,083	1,867	4,741	11,691
DE	3,776	350	3,458	7,585
PL	158	500	581	1,239
HU	0	438	751	1,189
AT	316	27	199	542
SE	286	0	0	286
GR	109	9	109	227
NL	187	0	0	187
NO	160	0	0	160
IL	55	0	54	109
FI	109	0	-2	107
LV	54	0	0	54
TR	0	25	22	47
PT	13	0	0	13
Total	47,305	19,888	63,421	130,613

Mike Lamont, FC Dec. 2021

- Portuguese interest in CERN as a HR development centre;
- Lack of investment on leveraged collaborative agreements;
- Limited capacity to forge close links between Labs and Industry on *in kind* supplies.

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How do we do that?

Strengths

- Switzerland is a dominant machine-tool export country - with 42 working hours/week
- Highest innovative country (rank 1 in Global Innovation Index GII from 2010 to 2020)
- Long standing experience with European scientific programs (CERN, ESA, JET)

Weaknesses

- Swiss high cost workplace - severe international competition
- Low motivation for the big science market in a strong economy country

Opportunities

- Big science market fits the Swiss SME's customer and project-oriented industry culture
- Entrepreneurial motivation for a prestige organisation like CERN

Threats

- Administrative & technical complexity of contracts
- CERN Lowest Compliant Bid rules & re-alignment rules

See Michel's presentation [here](#)



STRENGTHS

HR – Good Engineers and **relatively low wages**
Some anchor companies for Big Science
Good capacity in niche technologies at Nat'l Labs

WEAKNESSES

No Large Research Facilities in Portugal
Small country – Small investments in Science
Serious Understaffing for Big Science Support

OPPORTUNITIES

Portugal is part of the common EU market
Support for Academia-Industry collaboration
Brief Alignment of Agencies on Big Science

THREATS

(Still) few companies see Big Science as strategic
Loss of talent – emigration, other national agendas
Increasing Fragility (€€) of National Laboratories

Aligning Industry, National Labs and EU Roadmaps

- **Human Resources**
 - Traineeships CERN*-Industry (PT)
 - Industry PhD Theses
- **Collaborative R&D**
 - Strategic Roadmaps-aligned projects (Labs+Industry)
- **Other instruments**
 - Collaborative Agreements?
 - New Big Science Org. Memberships?



Closing Thoughts

1. Different circumstances might require **different approaches** to Industry engagement;
2. Some of what I do is **context-specific** and won't work in other countries;
3. Some of what I do might be interesting for other ILOs – **come talk with me.**

CERN is an impressive global Scientific collaboration. Procurement is an area where (naturally) there's more competition than collaboration. If you have ideas on how to create more opportunities for companies from different countries to collaborate, let me know. I'm all in for it.

Lisboa, September 2023

15 setembro 2023

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LIP

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BRIGADO

