



Building Innovation Hubs 4.0

**José Carlos Caldeira
President**



- **INTERFACE Programme**
 - **4 sub-programmes/initiatives – relation to National Reform Programme**
- **CIT – Centros de Interface Tecnológico / Technological Interface Centres (RTOs)**
 - **Policy context**
 - **Characterization of national landscape**
 - **Definition**
 - **Programme of capacitation of CIT**
 - **Process of recognition**
 - **CIT and Innovation Hubs**
- **Colabs - Collaborative Laboratories**

INTERFACE PROGRAMME



REPÚBLICA
PORTUGUESA



AGÊNCIA NACIONAL
DE INOVAÇÃO



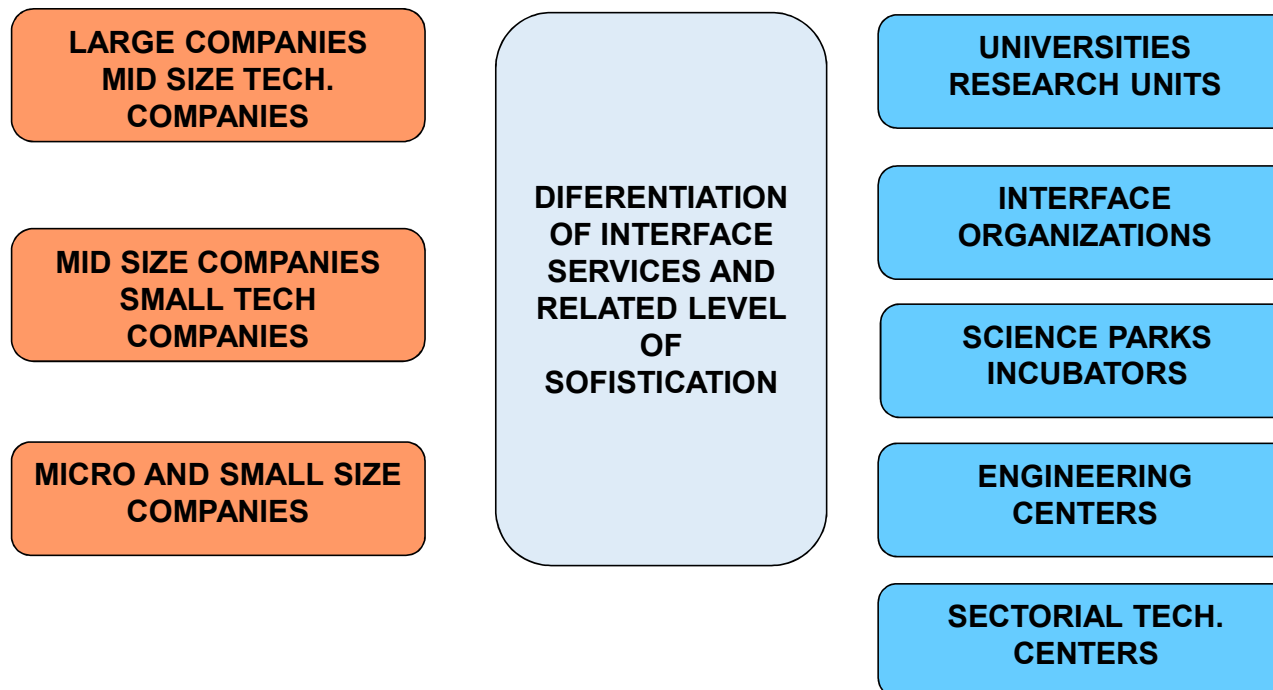
Programa
Nacional
de Reformas



- Technological Interface Centres (RTOs)
- Collaborative Laboratories
- Competitiveness Clusters
- Suppliers Club



RDI Ecosystem



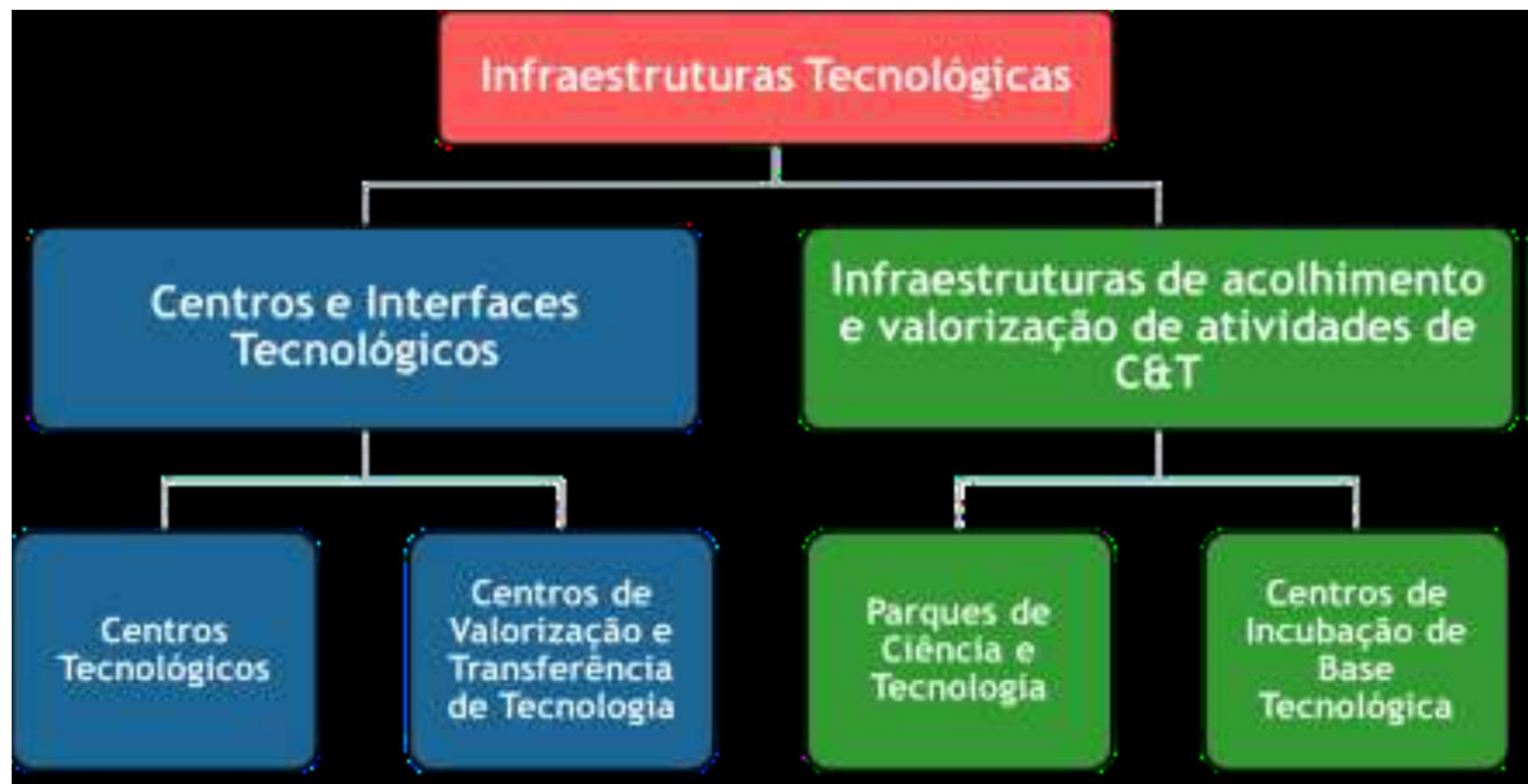
Context for a renewed policy towards technology infrastructures (RTOs)



- INTERFACE Programme created the conditions for renewed policy directed to technology infrastructures
- Outdated knowledge of institutions
 - Needed characterization of all institutions through nationwide open call;
 - National and regional mapping and characterization exercise;
- CITEC – Programme for the Capacitation of Portuguese Industry
- FITEC – Innovation, Technology and Circular Economy Fund

Characterization of national landscape of technology infrastructures

Nationwide call for technology infrastructures – in-depth characterization of the intermediate innovation system based on the following typology of institutions:



Characterization of national landscape of technology infrastructures



Answers:
135 acting
technology
infrastructures
+
74 intended
projects for the
creation of new
ones

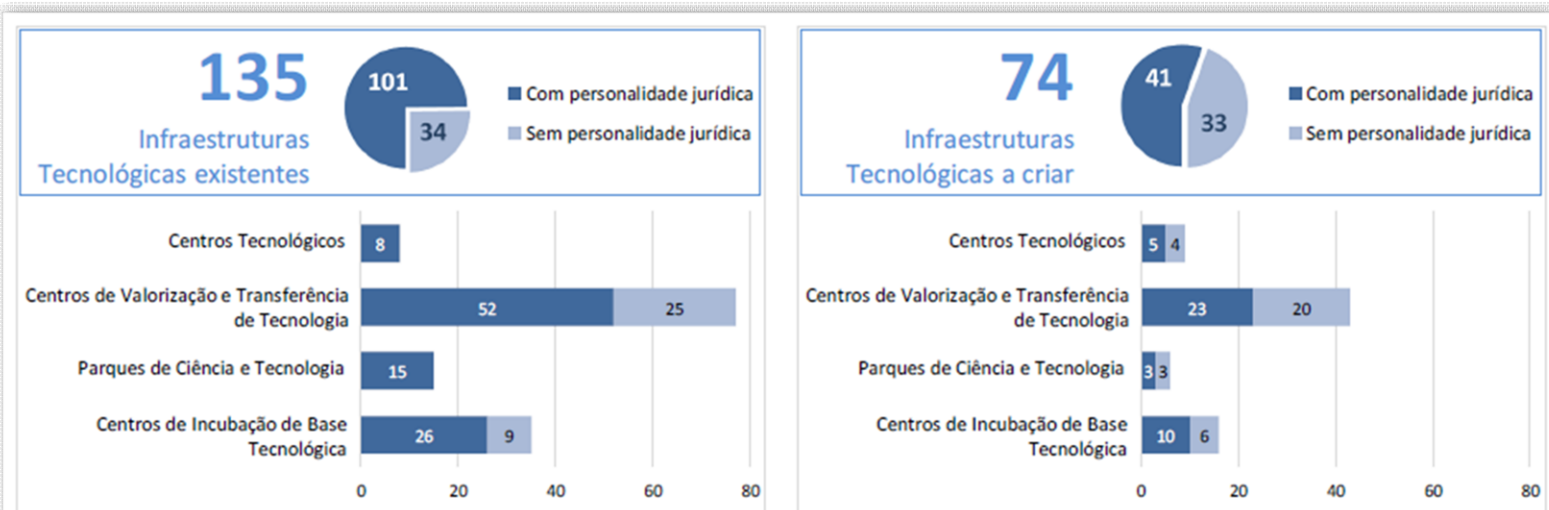


Figura 2 - Infraestruturas Tecnológicas existentes e a criar

Nota: Personalidade jurídica:

- Infraestruturas Tecnológicas existentes: consideram-se sem personalidade jurídica própria as integradas em instituições de ensino superior, não dispondo de autonomia em termos jurídicos e fiscais, bem como as detidas por municípios.

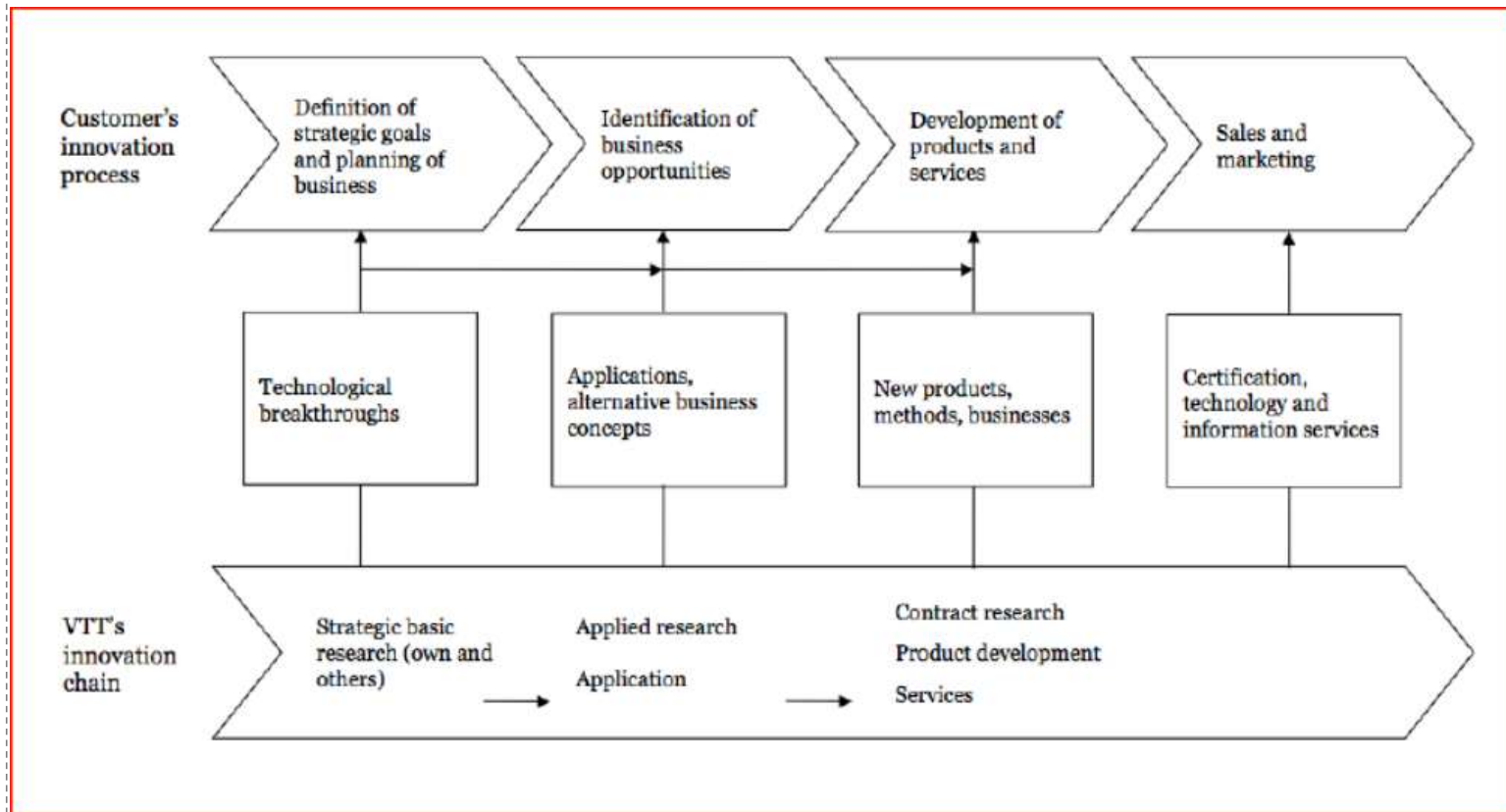
- Infraestruturas Tecnológicas a criar: consideram-se sem personalidade jurídica própria as que não manifestam intenção de criar uma estrutura jurídica e fiscalmente autónoma.

International benchmark

VTT (FI) Interface
organization
intervention
On the right >>>

Main international
references:

- Catapult (UK)
- Carnot (FR)
- TNO (NL)
- RI.SE (SE)
- Fraunhofer (DE)
- VTT (FI)
- GTS (DK)
- RCTI (ES)



Main conclusions of national characterization



AGÊNCIA NACIONAL
DE INOVAÇÃO

- A working and fully institutionalized system of innovation in most of the country
- All technology infrastructures positioned between TRL 4 and TRL 8
- Some thematic gaps, but good convergence between technology infrastructures and local industrial capacity
- Most of S3 priorities covered
- Differences in HR capacity between infrastructures = differences in types of services provided
- Need for sustainable/long-term funding to build capacity in market failure technology niches and work as lighthouses of innovation and technology support services (market failures)
- Need for further support to internationalization
- Need to improve collaboration between technology infrastructures
- Need to increase optimization and resource sharing models

**NEED TO CREATE A SPECIFIC PROGRAMME
FOR CAPACITATION OF INTERFACE INFRASTRUCTURES (CIT)**

Definition



Entities considered CIT (Technology Interface Centres) are the ones acting in the intermediate space of the innovation system. They are the entities that develop and promote research and innovation processes with the goal of accelerating integration of new knowledge based processes, services or high value added products, in companies and industry.

These entities have diverse typologies, differing by their positioning in the innovation system, by the typology of services provided and by their internal organizational structure. The different typologies are:

- Centros Tecnológicos / Technology Centres
- Centros de Valorização e Transferência de Tecnologia / Centres for Technology Transfer and Valorization

Programme of capacitation of CIT



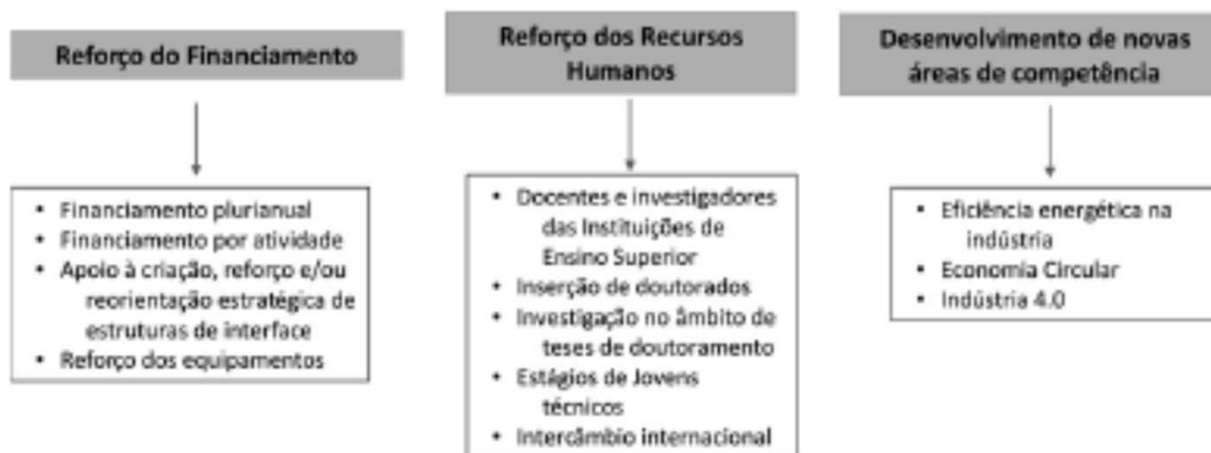
Capacitação dos CIT: Áreas de atuação e Medidas



ECONOMIA



MINISTRO DA CIÊNCIA,
TECNOLOGIA E ENSINO SUPERIOR



TRABALHO, SOLIDARIEDADE
E SEGURANÇA SOCIAL



AMBIENTE

Fontes de Financiamento que suportam as medidas do programa de apoio aos Centros de Interface Tecnológico

Fonte de financiamento	Financiamento Plurianual	Financiamento a projetos	Reforço dos Recursos Humanos	Equipamento	Empresas
FITTEC	✓		✓		
Fundos Europeus Estruturais e de investimento		✓	✓	✓	✓

CIT – Process of Recognition



- First phase: based on the 2016 characterization exercise
- Second phase: continuously open to all, based on a defined set of criteria:
 - Legally implemented (legal and fiscal autonomy)
 - Mission of the entity- typically aligned with the mission of a CIT
 - Organizational structure, properly capacitated
 - Minimum dimension/critical mass
 - Minimum dimension and capacity to provide services

CIT – Process of Recognition



Applications:

- Open continuously;
- Made through the **website of ANI** with the completion of the respective form;

Recognition as CIT, provides beneficiary entities the right to:

- **Communicate and identify itself as formally recognized as CIT**, in line with the orientations to be provided;
- Possibility of being eligible for a set of measures specifically targeting CIT
- Investment and capacitation of CIT will be done through a **set of different instruments** supported by national and structural funds.

CIT – Process of Recognition

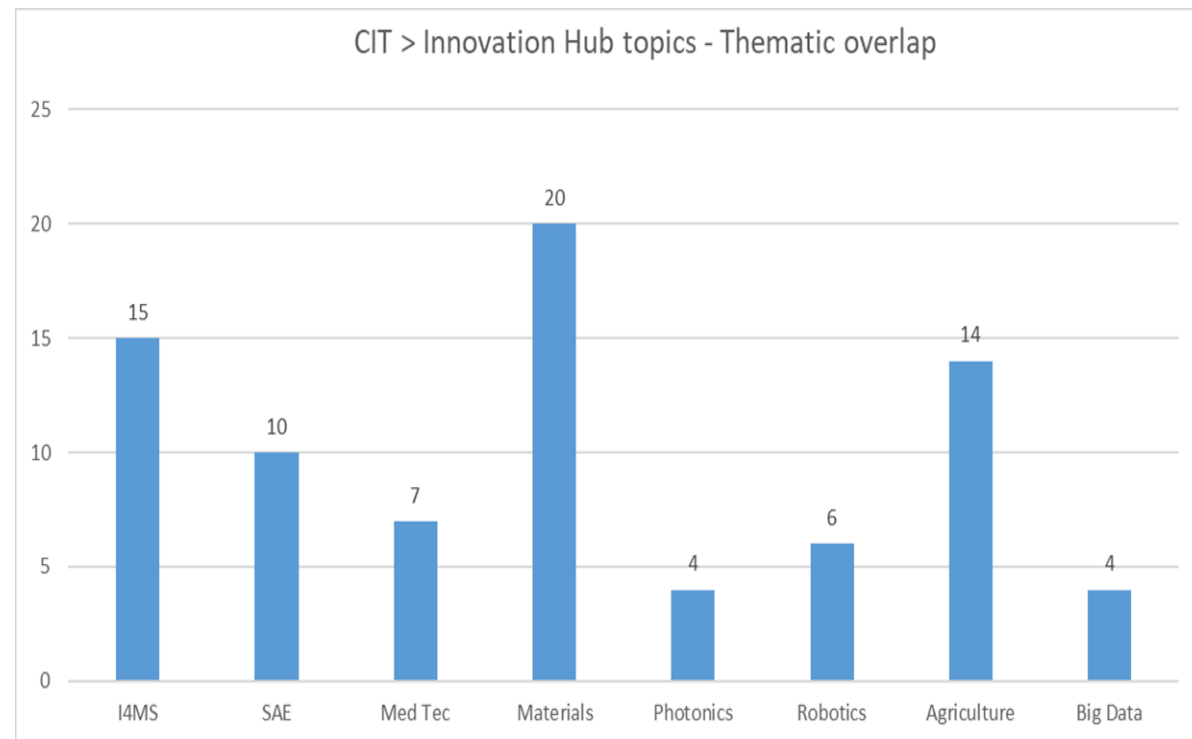


Applications (cont.):

- **ANI** is the entity **responsible for the implementation** of the **capacitation programme of CIT**, through FITEC (DL 86-C/2016);
- Funding by ANI, through FITEC, will work as a multiannual funding programme, complementary to the Operation Programmes investment
- Investment by **Regional Operational Programmes** specific to CIT;
- Other complementary instruments dedicated to the reinforcement of human resources, studies and collective activities.

CIT and Innovation Hubs

- CIT thematic focus and research and innovation activity covers all the current innovation hubs topics
- More than 20 CITs work on the “Materials” dimension, 15 on I4MS and 14 on Agriculture;



CIT and Innovation Hubs



	CIT (2014-2017)	PT (2014-2017)	%
Total Financiamento H2020	64,17 M €	479,79 M €	13,38%
Total Participações em Projetos Aprovados	161	1552	10,37%
Total Coordenações PT	27	297	9,09%

- Total funding for CIT (2014-2017) is 64,17 M€ or 13,38% of total PT funding
- Nearly 10% of approved project coordinations are CIT

CIT and Innovation Hubs



Região	Número de Projetos	Financiamento (M€)
Centro	15	4,33 M €
Lisboa	70	28,07 M €
Norte	73	31,05 M €
Total	159	63,45 M €

- The North region is the region with more approved projects (73) and 31M€

CIT and Innovation Hubs

Participation in precursor H2020 projects (2014-2016)



	Funding	Projects	No. of CIT
Agriculture	1,44 M€	7	4
Big Data	2,74 M€	6	2
I4MS	6,13 M€	13	6
I4MS/Robotics	1,65 M€	3	2
I4MS/SAE	0,1 M€	1	1
Materials	7,89 M€	25	8
Materials/Med Tec	2,3 M€	3	2
Med Tec	8,15 M€	16	8
Robotics	0,1 M€	1	1
SAE	5,95 M€	14	4
SAE/Med Tec	3,23 M€	5	3
SAE/Robotics	0,98 M€	1	1

- Materials, Medical Technologies and I4MS account for the large majority of approved projects;
- A large number of CIT participated in precursor H2020 topics to current Innovation Hubs

PORTUGUESE CoLABs

- a new form of **partnership with industry and society for market-driven innovation and skilled jobs creation** -

by

Professor Dr.-Ing. José L. Encarnação
Technische Universität Darmstadt, Professor (emer.)
Fraunhofer-Gesellschaft, Director (ret.)

as

**Chairman – “International Evaluation Committee
for the CoLABs”**

Content

1. **What is a CoLAB?**
2. **CoLAB Frame Rules**
3. **Legal forms of CoLABs**
4. **Examples for the dimension and complexity of CoLABs type problems**
5. **Stepwise Submission of proposals**
6. **Submission of “ideas”**
7. **Submission of “full proposals”**
8. **Evaluation process**
9. **Open submissions process**

What is a CoLAB? (1)

A CoLAB is a private, non-profit association or a private company, specially created for this purpose or preexisting, that integrates, for example, higher education institutions through its institutes and research units, associated and state laboratories, intermediate and interface institutions, companies, business associations, public institutions and other relevant partners such as social or cultural institutions, incorporated in one independent legal entity, the CoLAB.

The main objective of the CoLABs is to create skilled jobs and economic and social value, by promoting employment through the development of knowledge-based activities, based on the implementation of medium-term research and innovation agendas.

What is a CoLAB? (2)

The **CoLABs complement and reinforce the current landscape of R&D units and Associate Labs in Portugal**, aiming at stimulating the active participation of the scientific/academic, business and public communities in the **analysis and solution of large scale and complex problems**, generally multidisciplinary, interdisciplinary and multi-institutional.

R&D issues to be analysed by CoLABs are identified by the coordination of business, social and cultural interventions with a view to **mobilize skilled employment** in the **implementation of effective solutions with socio-economic impact**.

What is a CoLAB? (3) - summary

A consortium of participating entities (including the mandatory involvement of at least one company and one research unit) integrated into one single legal entity to work together:

- **to solve complex, large scale problems** of international relevance and with an effective social impact and economic added-value in Portugal;
- **to develop synergies and multi-/interdisciplinary activities** in the scientific community in Portugal;
- **to create innovative economic value;** and
- **to create additional high-quality jobs** (not only Ph.D.'s and Post-Docs)

CoLABs Label Attribution Rules

Main institutional guidelines:

- **Topic driven** (internationally relevant theme)
- **Mandatory participation of:**
 - **Market oriented institutions - company (business; social; cultural);**
 - **Higher education institution, through its research unit financed by FCT**
- **Guarantee for continuity of market involvement**
(though co-ownership of CoLAB)
- **Guarantee of generation of additional high-quality, skilled jobs**
(Potential target: 1 internal job for each 3 jobs created in the market)
- **Clear ownership rules for results**
- **Existence of deployment strategy**

Legal forms of CoLABs

- **Independent legal entity**
- **At least one business partner and one research unit as participating entities**
- **Form: non-profit association or company**
- **1 CoLAB = 1 legal entity**

Examples for the dimension and complexity of CoLABs-type problems (1)

To give an idea for the **types of complex, large-scale problems** the “CoLABs Initiative” is going after, here a **short list of examples**:

- **Biomedicine and new forms of therapies (Cancer; cardio; ...);**
- **Nuclear technologies for medicine;**
- **Agro precision and smart farming for vineyards and for wine;**
- **Fisheries and smart farming for aquaculture;**
- **Creation of added-value for natural products;**
- **Creation of added-value for the cultural heritage and creative industries;**
- **Labour dynamics and new forms of social assistance;**
- **Space: production and applications of micro and nano satellites;**
- **Digitalisation: advanced manufacturing; Internet of Things (IoT); IT-Platforms for the Smart Service World;**
- **Advanced ICT: new forms of computing; machine learning; artificial intelligence (AI);**
- **Electro mobility and urban systems (“smart cities”);**
- **Advanced, low-carbon cements;**
- **Risk management and fire prevention;**
- **etc., etc., etc.**

Examples for the dimension and complexity of CoLABs-type problems (2)

This list is **only a list of samples** and does not mean or imply in any way that this is a “Call for proposals” special for these areas.

Proposals for CoLABs may include but are not restricted to these areas.

Stepwise submission of proposals

A stepwise approach towards the successful implementation of CoLABs:

1. “CoLAB Label”, to be awarded by FCT upon evaluation:
 - Submission of **proposals** to develop and bootstrap a CoLAB

2. Co-funding of “labeled” CoLABs, upon evaluation:
 - Call for proposals, under structural funding mechanisms (PT 2020)

Submission of proposal to get the Label “CoLAB” (step 1 of phase 1)

The proposal should include:

- Description of the **“idea” with strategic vision and motivation**;
- Brief description of the **state of the art in science and technology** related to the “idea”;
- **Complexity, challenges and dimension** of the problems to be solved; **goals in mind**;
- **Relevance and impact** of the problems to be addressed;
- Research agenda and first **action plan** for an implementation of the work to be done and estimated plan for job creation;
- **Provide evidence of the ability of the consortium to implement the action plan**;
- Estimation of **critical mass needed** to access and solve the implied problems;
- **Expected Innovation (s); expected results.**

FCT evaluation supported by an “International Evaluation Committee”

Chairman:

Prof. José Luis Encarnação
Technische Universität Darmstadt
and Fraunhofer Gesellschaft, Germany

Members:

Prof. Ser Yong Lim
Executive Director
SIMTech, Singapore

Prof. Julián Flórez Esnal
General Director
Vicomtech, Spain

Prof. Egbert-Jan Sol
CTO
TNO, Holland

Prof. Hélène Kirchner
Research Director at Inria
France

Prof. Nicholas Veck
Head of CEO Office
Satellite Applications Catapult, UK

Prof. Wolfgang Wahlster
CEO of DFKI and
Universität des Saarlandes, Saarbrücken, Germany

Open submission process

The process of **submission** of proposals is a **continuous process**, **always open for new submissions**.

After five years the CoLAB label award will be reviewed.

For further, additional information see **FCT portal: www.fct.pt**