

The Spanish Innovation System & the role of RTOs

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Outline:

1. The Spanish Innovation System
2. The role of SMEs in the Spanish Innovation System
3. RTOs: Technology Centers
4. National Plan for R&D&i, 2008-2011
5. DGPYME Support Initiatives for Technology Centers
6. Final Remarks

1. The Spanish Innovation System (i)

The Agents

1. Public R&D organizations (law 13/1986, April 14th)
2. Universities (public & private)
3. Other public R&D centers (others than “Public R&D organizations”)
4. Public and private *non-profit* R&D centers (such as foundations or TCs majority-owned or run by the public administration)
5. **Enterprises** ←
6. **Technology centers** (non-profit, owned by enterprises, register ITC) ←
7. Business clusters or associations (JV, EIG, non-profit business associations)
8. Innovative business clusters and technology platforms (closeness)
9. Organizations for supporting the transfer, dissemination and publication of science and technology (technology parks, ...)

1. The Spanish Innovation System (ii)

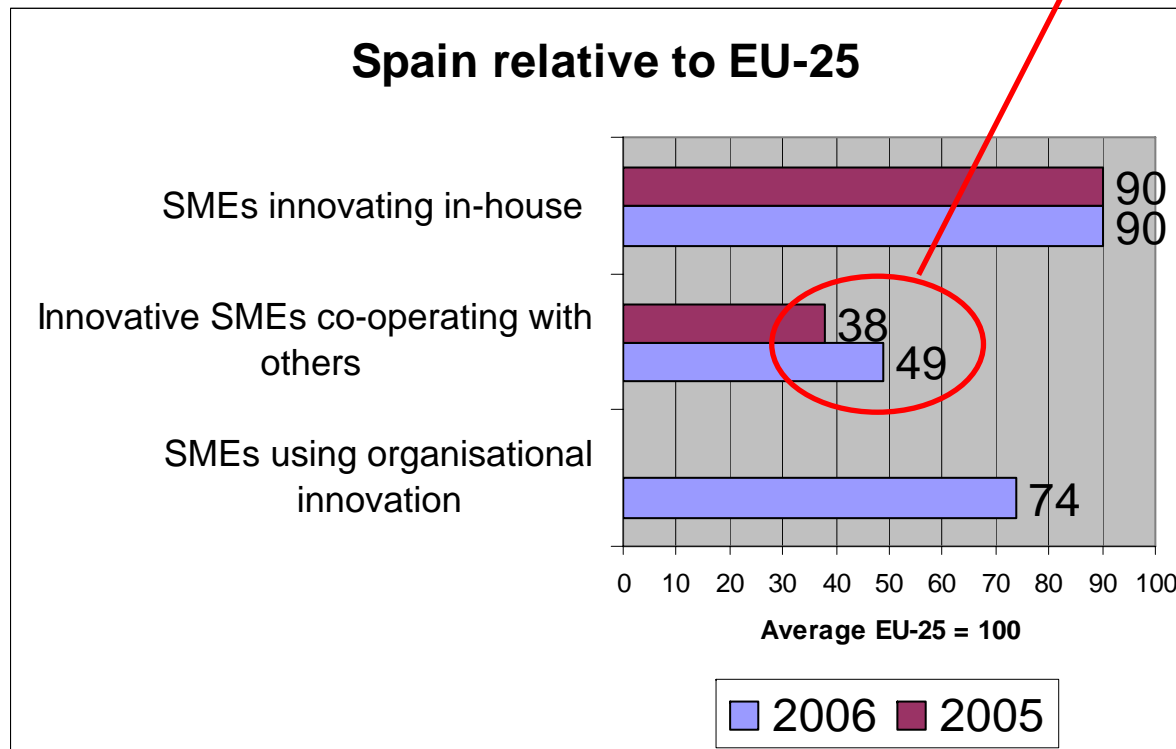
The Research and Technology Organizations (RTOs)

- Specialized knowledge organizations dedicated to the DEVELOPMENT and TRANSFER of science and technology.
- Build bridges between BASIC RESEARCH and INDUSTRIAL APPLICATIONS.
 - Problem-solvers for industry and services sectors.
 - Technology specialists providing expertise (which customers cannot afford individually to maintain in-house).



Technology Centers

2. The role of SMEs in the Spanish Innovation System (i)



Cooperation for Innovation



Improves potential of innovation in SMEs



- Impulse of cooperation between SMEs

- Impulse of cooperation between SMEs and other agents: TCs, universities, etc.

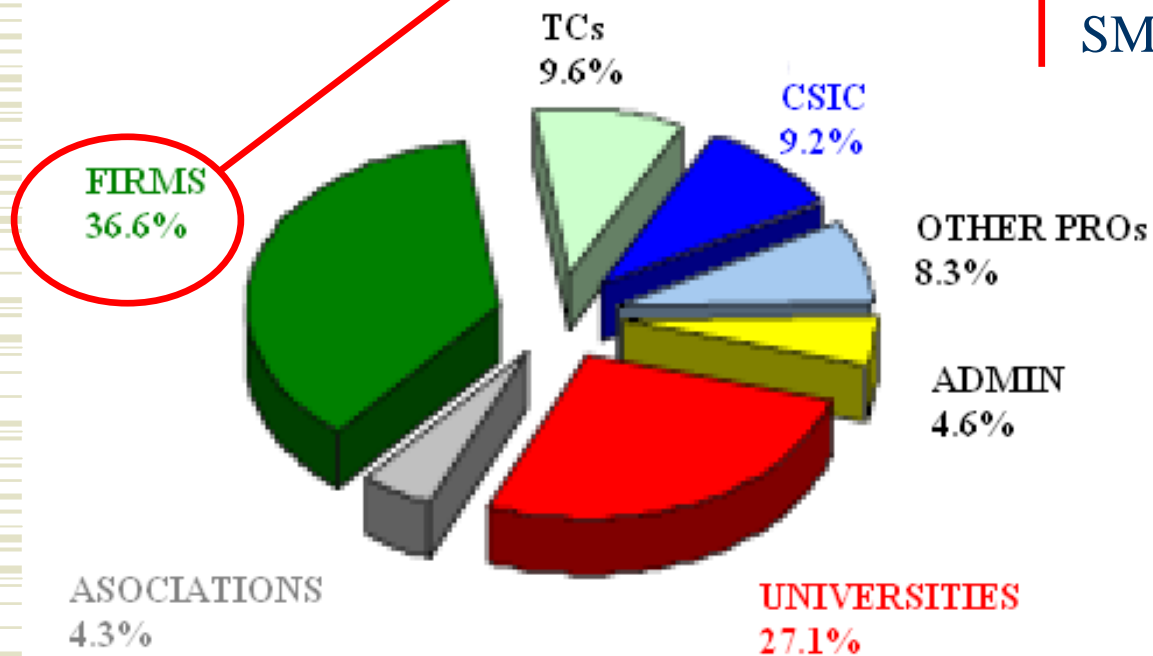
Source: European Innovation Scoreboard 2005, 2006 and Cotec

2. The role of SMEs in the Spanish Innovation System (ii)

The returns of SMEs in the VI FP

- 893 Spanish firms participating \Rightarrow More than **85%** are SMEs

Distribution of returns by type of entity



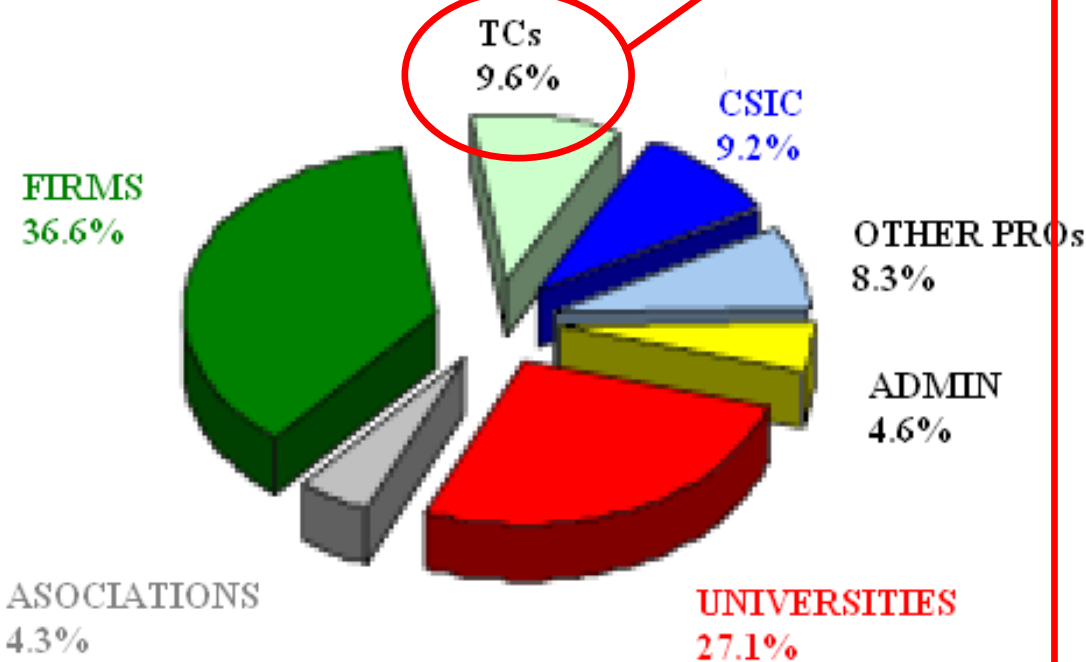
- **55%** of returns correspond to SMEs

Source: CDTI

2. The role of SMEs in the Spanish Innovation System (iii)

The returns of TCs in the VI FP

Distribution of returns by type of entity



- Best results in Nanotechnologies, materials and production (returns > 25 % of the total)

- Relevant participation in activities for SMEs programs

- **37% of Spanish participant firms, collaborated with TCs**
(Source: FEDIT)

Source: CDTI

3. RTOs: Technology Centers (i)

Main characteristics

Based on the 74 TCs that applied for subsidies to the DGpyme, we observe that:

- Total income: > 481 M€
- Total employment: > 7400 (65% superior education)
- Size of the TC: 35% of them has > 100 employees
- Turnover from firms: 48%
- Income from European, National or Regional funds: 39%
- Number of customer-firms: 32700 (almost 90% are SMEs)
- Increase number of customer-firms 2004-2005 (PROFIT): 9.5%
- Participation in the 6FP: returns of 9.6%
- Most of them are situated in the País Vasco and Comunidad Valenciana

3. RTOs: Technology Centers (ii)

Distribution of TCs by Region (CCAA)



Source: PROFIT 2007. Data from 2006

3. RTOs: Technology Centers (iii)

The Concept

- Objective: Contribute to improve firms' technological innovation.
- Activity: applied research, experimental development and other technological services.
- ***CIT REGISTER***

3. RTOs: Technology Centers (iii)

CIT REGISTER

- *RD 2609/1996, December 20th*
- ***Requirements:***
 - *Own legal status, non-for profit.*
 - *R&D activities with proper resources*
 - *Services provision to any Spanish organization*
 - *Performing in Spain*
 - *Two years of activity*
 - *Extinction clause of similar purposes*
- *Managed by Science and Innovation Ministry in collaboration with DGPYME (Ministry of Industry)*
- *100 Registered TCs*

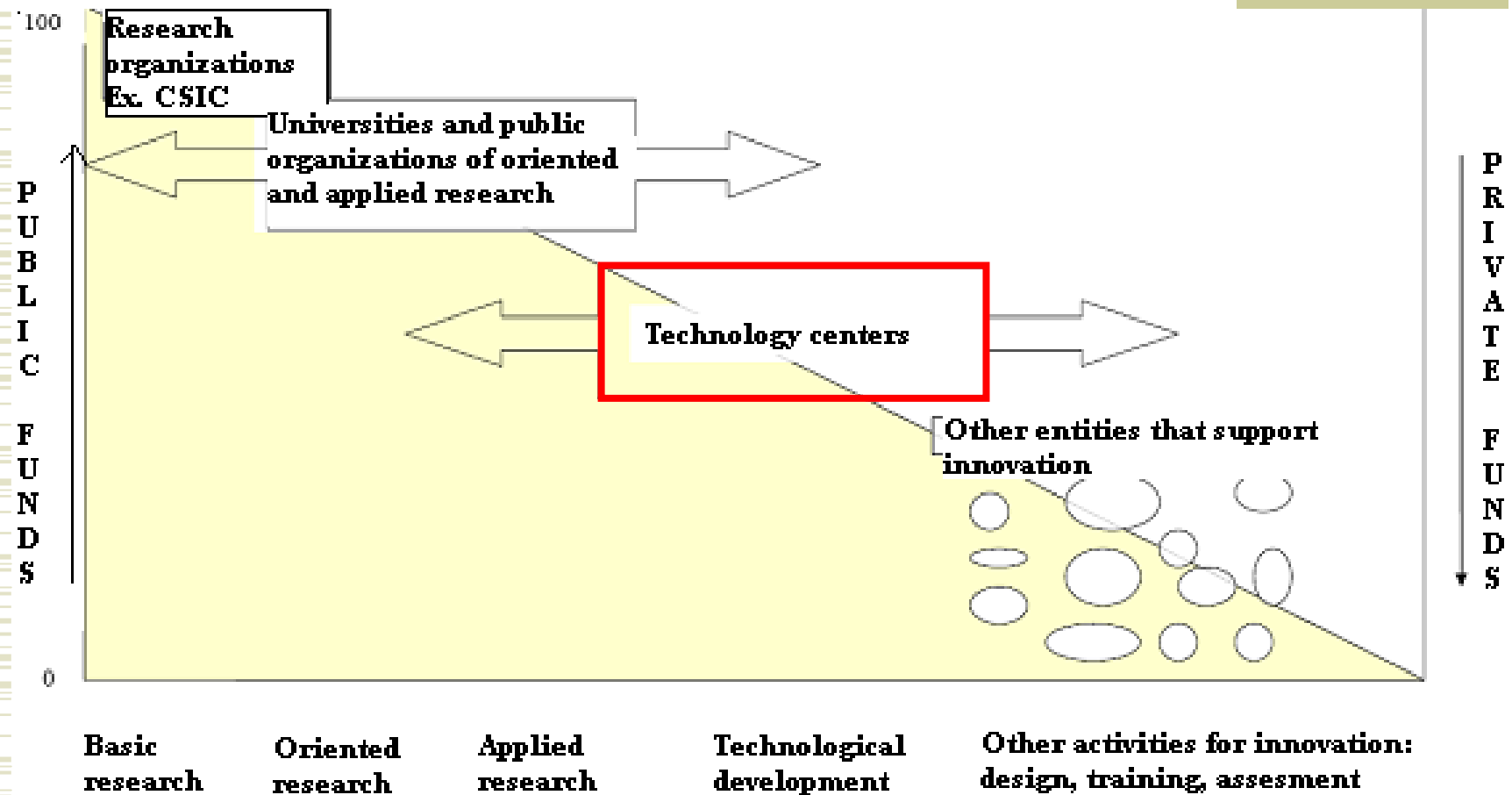
3. RTOs: Technology Centers (iii)

The Concept

- Objective: Contribute to improve firms' technological innovation.
- Activity: applied research, experimental development and other technological services.
- *CIT REGISTER*
- Fulfillment indicators:
 - Annual increase of customer-firms
 - Turnover from firms
 - Income from R&D projects & technological assessment
 - Non-competitive funds
 - Employees with superior education and permanent contract
 - Improvement of equipment

3. RTOs: Technology Centers (iv)

TCs in the Spanish Innovation System



Source: Callejón et al (2007)

4. National Plan for R&D&i, 2008-2011 (i)

Areas of the Plan

- Instrument of the Spanish Science and Technology System through which the priorities and medium-term objectives for research, development and innovation are established.
- It has a structure based on 4 areas directly related to the general objectives of the Plan:
 1. Generating Knowledge and Skills in Science and Technology
 2. Promoting Cooperation in R&D
 3. Sectoral Technological Development and Innovation
 4. Strategic Actions

4. National Plan for R&D&i, 2008-2011 (ii)

Thirteen National Programs

STRANDS of ACTION	PROGRAMMES
1. Human Resources	Human Resources Training
	Human Resources Mobility
	Human Resources Recruitment and Appointment
2. RD&I Projects	Fundamental Research Projects
	Applied Research Projects ←
	Experimental Development Projects ←
	Innovation Projects
3. Institutional Strengthening	Institutional Strengthening
4. Science and Technology Infrastructure	Science and Technology Infrastructures ←
5. Knowledge Use and Technological Transfer	Technology Transfer, Appraisal and Promotion of Technology-Based Enterprises
6. Articulation and Internationalization of the System	Networks
	Public-Private Partnership
	Internationalization of R&D ←

5. DGPYME Support Initiatives for TCs (i)



<http://www.mityc.es/PortalAyudas/ServiciosActuales>

5. DGPYME Support Initiatives for TCs (ii)

R&D&I Projects

Strands of Action	National Program	Subprogram
2. R&D&I Projects	Fundamental research projects	
	Applied research projects	<ul style="list-style-type: none"> •Industrial applied research •Collaborative applied research •Technology Centers: <ul style="list-style-type: none"> •Subsidies 2008: 8.188.000 € •Loans 2008: 4.955.000 €
	Experimental development projects	<ul style="list-style-type: none"> •Industrial •Aeronautic •Environment and eco-innovation •Technology Centers: <ul style="list-style-type: none"> •Subsidies 2008: 5.027.000 € •Loans 2008: 5.143.000 €
	Innovation Projects	

PROFIT
CONSORCIA

5. DGPYME Support Initiatives for TCs (ii)

Case study of a CONSORCIA project

Objective: development of an active plastic container to preserve fatty food.

Why?

- Contribute to improvement of characteristics of plastic containers*
- Increase the useful life of products*
- Later development of plastic containers for other products that are currently difficult to pack*

Stage 1 – Definition and development of the model systems for fatty food [Food TCs]

Stage 2 – Development of the plastic container [TCs for Containers]

Stage 3 – Evaluation of the technological process (essays to compare with traditional plastic containers). [Feed-back between Food TCs and Containers TCs]

Stage 4 – Conclusions and diffusion of results.

5. DGPYME Support Initiatives for TCs (iii)

Science and Technology Infrastructure

Strands of Action	National Program	Subprogram
4. Science and Technology Infrastructure	Science and Technology Infrastructure	<ul style="list-style-type: none"> •Singular scientific facilities •Technology and Scientific Parks •CREA <ul style="list-style-type: none"> •Subsidies 2008: 2.205.000 € •Loans 2008: 4.857.000 € •Infrastructures in R&D agrifood centers •Science and technology infrastructures

5. DGPYME Support Initiatives for TCs (iv)

Articulation and Internationalization

Strands of Action	National Program	Subprogram
5. Articulation and Internationalization	Networks	<ul style="list-style-type: none"> • Innovative Business Clusters • Technology Platforms
	Public-Private Partnership	<ul style="list-style-type: none"> • CENIT • Singular strategic projects • Transportes and infrastructures-related projects
	Internationalization of R&D	<ul style="list-style-type: none"> • EUROPROJECTS • Promotion of international scientific cooperation • “Participation of firms and TCs in international R&D Programs”

INNOEUROPA is a strand of action inside this subprogram:

Subsidies: 2008: 3.700.000 €

6. Final Remarks (i)

TCs are RTOs with specially good economic results.

A study by FEDIT-UC3M based on a survey of 134 firms that have used TCs reveals that:

- 20-30% of firms performance in: turnover, benefit, number of customers, productivity, costs, employment and exports is due to their relationship with the TC.
- 43.5% increase in firms' intra-mural R&D is due to firms' relationship with the TC.
- Almost 30% declare that the projects could not have been done without the TC.
- More than 90% says to be satisfied or very satisfied with their relationship with the TC.

6. Final Remarks (ii)

- ✓ A special effort has been done to promote **co-operation between TCs**
- ✓ The DGPYME has participated very actively in the **definition of the new National Plan 2008-2011** by supporting the role of TCs in Spanish Innovation S.
- ✓ The National Plan for R&D&i supports the **consolidation of TCs** as innovation organizations.
- ✓ The **IIIrd National Meeting of TCs** (with support from the Ministry of Industry and FEDIT) promotes the co-operation between technical experts (Valencia, 18th-20th June 2008).

More information

<http://www.mityc.es>

<http://www.ipyme.org>