Building bridges between Industry and Academy
The Catalan Industrial Doctorate Programme

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Industrial Doctorates (ID) as a well-known and consolidated experience in EU:

- **France**: CIFRE (Conventions Industrielles de Formation par la REcherche).
- **Denmark**: The Industrial PhD Programme
- **European Commission** within ITN Marie Curie Actions

In 2012, there were not any public program similar to ID neither in Catalonia nor Spain.
Since 1988
- Industrial PhD wage >6.5% than traditional PhD
- 80% employed by private sector
- High-employment rate (>95%)
- 93% remain in Denmark

Since 1981
- > 21,000 graduates
- > 7,500 companies and > 4,000 laboratories involved
- > 2,000 patents
- High-employment rate (>96% after 12 months)
- 66% employed by private sector
THE CATALAN INDUSTRIAL DOCTORATE PROGRAMME: EU References

Catalonia has large potential to grow in number of doctors in companies.

**Latest data available: 2016**
✓ to enhance *competitiveness and internationalization* of all Catalan industrial sectors,
✓ *talent* retention, and
✓ to *place* doctoral students in *companies* where they can perform Research, Development & Innovation projects.
THE CATALAN INDUSTRIAL DOCTORATE PROGRAMME: COLLABORATION AS AN ADDED VALUE

Strategic research Project

Business environment

Academic environment

PhD Student and company worker

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Requirements for an Industrial Doctorate Project

**Academic environment**
- The thesis director must be a member of a **research group awarded** with either a Catalan or European Research Council **excellence grant** (e.g. ERC, ICREA, SGR...)

**Business environment**
- Designates a **company advisor** (a co-supervisor could be agreed if PhD holder)
- Minimum gross salary of **22,000 euros** (on average). Labor contracting **3 years**
- Working center placed in **Catalonia**
- Signing a **collaboration agreement** with the academic environment partner

**Industrial PhD student**
- Suitable **profile** for carrying out the project
- Higher Education level **Academic awards ≥ 6.50**
- Open to all **nationalities**
The funding is for a whole of 3 years and it is compatible with other R&D+i funds.

- **COMPANY (ADVISORY)**: 21,600 €
- **RESEARCH GROUP**: 21,600 €
- **ENROLMENT GRANT**: 1,872 €
- **MOBILITY SCHOLARSHIP**: 6,600 €
This modality is suitable for ...

a) Business environment can not perform a direct hire
b) Part-time dedication
c) Out-of-Catalonia working center
d) Some other cases

PUBLIC FUNDING: SPECIFIC MODALITY

The funding is for a whole of 3 years and it is compatible with other R&D+i funds

ENROLMENT GRANT
1.872 €

MOBILITY SCHOLARSHIP
6.600€
**Working dynamics between research group and company**

- **Development of skills**
  - Business and academic environment bond
  - Cooperation between companies and research groups
  - Access to new joint funding schemes
  - Research as a Business opportunity

- **Industry specific skills**
  - Specific to applied industrial research, product development, and marketing
  - Cooperation agreement between business and academic environment
  - Industrial doctorates in companies

- **Skills**
  - Analytic skills/scientific skills/International orientation
  - Industry specific skills: Specific to applied industrial research, product development, and marketing

- **Impact**
  - Increased employability and innovation
  - Creation of new markets
  - Creation of new job profiles (private R+D+I)
  - Turnover/sales

- **Outcomes**
  - IP secured and exploited
  - New products/processes/services delivered to the market
  - Spin-off firm

- **Activities**
  - Generate new knowledge
  - Original research
  - International congresses attendance
  - Collaborative applied research
  - Access to prototypes

**Source:** European Industrial Doctorates - towards increased employability and innovation. 2017 Final report.
INDUSTRIAL DOCTORATE: ADDED VALUE TO ACADEMIC DOCTORATE

- Original research
- Specific training on Research
- Portofolio or Thesis
- Publications and congresses talks
- New researcher
- Increase in scientific production

- Industry problem research-led
- Access to prototypes
- Collaborative applied research
- Industry specific training
- IP secured and exploited
- Experiencing research in companies

- Creation of new job profiles (private R&D+I) and high skill jobs in the private sector
- Knowledge transference between business and academic environment

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MAIN RESULTS 2012-2018

7th call (2019)

- 69 M€ (2/3 private)
- 513 Projects
- 349 companies
- 11 universities
- 20 research centers
- 395 researchers, 286 research groups
- 86 PhD Graduates
- +90% Funded applications
- 2 special research facilities (BSC, CELLS)
MAIN RESULTS 2012-2018

**Knowledge fields**
- ICT: 29%
- Chemistry: 16%
- Life sciences: 24%
- Mathematics and Physics: 5%
- Civil, industrial & earth sciences engineering: 17%
- Social sciences, arts & humanities: 9%

**Company size**
- SMEs: 48%
- Big companies: 23%
- Start-ups or spin-offs: 16%
- Other: 13%
Some findings from initial evaluation
Why develop a ID project?

1. **Consolidate the relationship** with the business environment, creating knowledge and bringing it closer to the market.

2. Increase the **academic value** of R & D projects:
   - Doctoral thesis management
   - Average 3-4 publications per project
   - 25% projects have protected results (patents, utility models ...)
   - It facilitates the development of subsequent R&D projects with the company.

3. Increase the **attractiveness of the research**.

4. It has **flexible public support** for the research group.

✓ **The overall evaluation** from researchers is **very positive** → 6.3 out of 7
Why develop a DI project?

1. **Strategy for attracting** and training talent with scientific and research methodology
2. It allows **access to knowledge** and academic **infrastructures**
3. **Encourages collaborations** with academic environments
4. It has a **direct impact on the activity** of the company

**✓ 25% of the projects results** have been protected by **patents, utility models** or other protection mechanisms.

**✓ 38% of the projects** benefited from **bonuses and tax incentives in R&D**

The **overall evaluation** from the company advisors is **very positive** → 5,5 out of 7
WHAT DO THE PhD STUDENTS SAY ABOUT THE CATALAN ID?

✓ Why develop a DI project?
   1. **Training** in a **dual environment**: business and academic
   2. Creation of a professional and academic **network**
   3. Development of a **closer market research**
   4. Enjoy **international experiences**: congresses, seminars, stays ...

✓ **High labor insertion rate** in the business environment at the completion of doctoral training, with an average ***gross salary of 35,000 € per year***.

✓ **High level of overall satisfaction with the current job** → average **5,8** out of **7**

The overall evaluation from doctoral students is very positive → **5,6** out of **7**
THANK YOU VERY MUCH

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