

“Industrial Ph.D.” in a Comparative Perspective:

**Enhancing employability
by combining academic research
and business innovation**

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- The notion of “Industrial Ph.D.”
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The notion of Industrial Ph.D.

Industrial
Ph.D.

Industry-oriented
Doctoral Program

Professional
Doctorate

European
Industrial
Doctorate

Work-based
doctorate

Professional
Practice
Doctorate

Industry-ready
doctorate

What do these programs have in common?

Specialization
in a field

**Doctorateness/
Doctoralness**

Communicate

Research
Methods

**Extend the
Frontier of
Knowledge**

Analysis
and
synthesis

In what they differ?

Traditional Ph.D.

**vs PD (UK and
Commonwealth ≠ U.S.)**

| Research type | Original research | Original contribution to professional practice |
|----------------------------|--|---|
| Domain of research topic | contextualised within a subject discipline | contextualised within an organisation or professional sphere |
| Career focus | Academic Career | Mid-career senior professionals, as a tool for professional development |
| Intended learning outcomes | Research as an end in itself, contribution to the literature | Development and change in the “real world” |
| Research focus | Not necessarily <i>applied</i> research, gap in the literature | Combining research and practice (either practice-based or practice-focused) a problem in practice |
| Cohort | No | YES |

However...

The debate is **not** neatly **polarised** around the *professional* versus the *conventional* doctorate.

It is much messier, since the conventional Ph.D. appears to be **metamorphosing** into quite a different model that is becoming more like a professional doctorate, with its **emphasis on transferable skills and relevance to the non-academic world**

(Loxley and Seery 2012)

The Industrial Ph.D. discourse

Knowledge-in-Use

Generating Usable Knowledge

New Knowledge Workers

Production of Knowledge from Practice

Knowledge Entrepreneurs

Commodification of Knowledge

Practical Knowledge

Investigating Practice

Vocational Doctorates

Working Knowledge

The Industrial Ph.D. discourse

Research and practice coexist in a **cyclic or spiral relationship**:

practice gives rise to new knowledge, which in turn informs changes in practice, and so on.

(Lester 2004)

Traditional Ph.D.

“First generation”
professional doctorates
(Maxwell 2003)

CONVERGENCE

**INDUSTRIAL Ph.D. and PROFESSIONAL
DOCTORATES**

of “THIRD GENERATION”

(Stephenson, Mallock and Cairns, 2006, Lester 2004)

Industrial Ph.Ds and PDs of third generation

- **not** necessarily **geared** to one specific profession
- **transdisciplinary**
- **candidate-centred**
- significant and **original** contribution to practice that is of public value
- **authority**
- Results in conventional **academic publications**

Why Industrial PhDs?

HALF

**or more of PhD graduates do not aspire to academic career,
nor are not employed in academic positions
in many countries
(US, Germany, Australia, France and so on)**

In recent years there has been increased recognition that a majority of PhD graduates neither follow nor necessarily intend to follow an academic career as well as acknowledgement of the role of doctorates in career development in professions other than academe

Why Industrial PhDs?

- Larger proportions of doctoral graduates are taking up non-academic employment.
- Responding to the need for innovation and research of businesses
- Employability
- Changes in professions themselves
- Informing relationship between academia and practice



An International Comparison

US, UK, Australia and Canada

| | |
|-----------|--|
| US | <p>PPD: “pre-service”. Significant role of professional associations and accrediting agencies changing entry requirements for certain professions. Generally a PPD is not considered equal to a PhD.</p> <p><i>There seems to be a domino effect in health fields, with the PPD becoming the required or normative degree for entering practice in one field after another.</i> (Zusman, 2013)</p> |
| UK | <p>all doctoral degrees as being at the same level and sharing the same characteristic outcomes (HEQF). There are: Ph.D, professional doctorates (in-service), practice-based/practitioner doctorates/Dprofs (Doctor of Professional Practice/work-based doctorate).</p> |
| Australia | <p>expanded significantly (on average +250% between 1996 and 2000), same level of Research Doctorates and Professional Doctorates: Doctoral degree recognises a substantial original contribution to knowledge in the form of new knowledge or significant and original adaptation, application and interpretation of existing knowledge.</p> |

The European Industrial Doctorate

Since many researchers will retire over the next decade, the number of researchers needed in the workplace is even higher.

This calls for a huge effort: **to upgrade and embed research within our companies**; to attract young talents into choosing research careers; and to provide top-quality training. **We need a meeting of minds, between business, academia and public authorities**, to ensure our researchers are equipped with the best cutting-edge skills.

*European Commission President José Manuel Barroso
at Marie Curie Conference on 6 December 2010.*

What are European Industrial Doctorates?

- A **joint doctoral training** project between an academic participant and a company
- Doctoral researchers from any nationality are **employed** by at least one of the participants and spend **at least 50% of their time in the company.**
- Open to **all research fields**

Denmark

An Industrial PhD project is a **three-year industry focused doctoral project** conducted in **cooperation** of a private company, a PhD student and a university. The Industrial PhD student is **employed** by a private company and the company applies for a subsidy from the Danish Agency for Science, Technology and Innovation to cover part of the wage intended for the PhD student.

The Industrial PhD program was initiated in 1971 but was transformed in 1988 to allow the students to achieve a doctorate upon completion.

Germany

A country where senior executives with doctorates is the rule, rather than the exception

Minzberg, 2004

- *Individual* doctorates
- Working at the same time as conducting doctoral research
- Candidates are (often part-time) **employees** of the company
- A **professor + in-company tutor** supervising the project

France

- **Industrial Agreements for Training Through Research (CIFRE)** aim to develop public-private research partnerships
- **Research is jointly financed** by firms and the National Association for Research and Technology (ANRT).
- The company and the student enter into a **three-year work contract.**

Italy

Italian Ministerial Decree No. 45 of 8 February 2013 introduces:

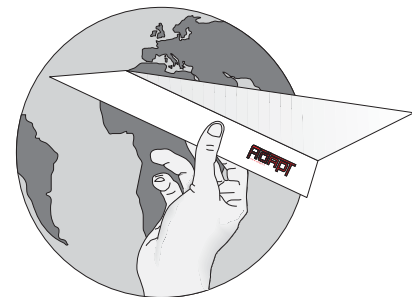
- doctoral programs in collaboration with companies
 - Industrial Ph.Ds.
 - Doctoral programs based on apprenticeships
- However no definition is provided**

The ADAPT case: why significant?

- **No other experience reported in Italy to date**
- ADAPT as a forerunner: existing for **4 years**
- **248 scholarships since 2008**
- **Dense network** of companies, employers' associations and unions (over 23.000 contacts)
- Over **8,2 mlo/€ invested in scholarships** (universities of Modena + Bergamo)

The ADAPT case: why innovative?

- The purpose is to “**move beyond the rigid separation** which exists in Italy between education, Labour law and employment”
- **Harmonization** between the research project and the goals, practices and the deadlines agreed with the company



The ADAPT case: how is it possible?

- **Agreements are concluded with employers** or other educational or research bodies allowing doctoral students to carry out external internships or work periods of research.
- Memorandum of Understanding (MoU) of July 23, 2009 and a further agreement of September 28, 2009 concluded between ADAPT, the University of Bergamo and the Ministry of Education, University and Research, establishing that the **Ministry will provide funding for a number of bursaries equivalent to the number funded by external bodies, up to a maximum of 15 scholarships.**

The ADAPT case: the new frontier is here

Doctoral program based on apprenticeships

- Doctoral students are **hired** by the company as apprentices and take part in a Ph.D. program
- They are **not students** undertaking an internship **but employees**
- they are **entitled to take leave** to attend courses

The ADAPT case: the new frontier is here

Doctoral program based on apprenticeships

Courses are planned considering:

- **Prior educational attainments** and work experience,
- **Skills acquired** and those **required** by the employer,
- Link with the **qualification** and the **employment grade** to be obtained at the end of the apprenticeship contract

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Thank you very much for your attention!

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