



EUPIDE 2008



The labour market for PhDs

insights from France and the UK

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Adoc

TALENT MANAGEMENT

*Adoc talent management supports companies with recruitment of
PhDs*

customers: large industrial groups, start-up, research associations, universities (training)

Enterprise-University Partnership In Doctoral Education

What do PhDs do?

- Some figures
- Where are PhDs going to?
- What Career for PhDs?
- The international context for PhDs
- Where are the needs for PhDs?

A few figures

- In France, 10 000 early stage researchers complete doctorate every year
- In the UK, about 16 000 completed doctorate (including professional doctorates)
- In Germany, about 30 000 completed doctorate in 2007

- In EU-27, 94 000 PhDs delivered every year
- In US, 48 000 PhDs delivered every year
- In JP, 15 000 PhDs delivered every year

- In France and in the UK, 40-50% newly-qualified scientific PhD graduates are hired by non-academic Employers (depending on studies)

- In France, employment of PhDs by non-academic recruiters has been increasing since 1993

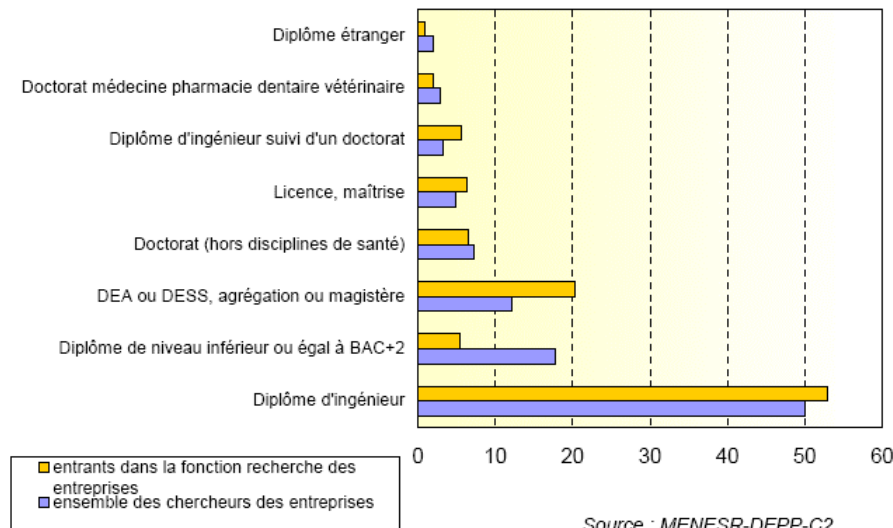
- What do PhDs in non-academic sectors do ?

PhDs positions in private companies

- Depends on the area of the PhD majors (EU-27)
 - Arts, Humanities and Social Sciences are less hired in private companies (app. 20%)
 - Physics, Biology (except in France), IS-IT (app. 60%)
- Depends on the country
 - USA
 - 10% in CTO, CEO and members of boards
 - 80% specialists (40% R&D, 14% MD, 26% commercial, experts...)
 - EU-27:
 - Less than 5% in CTO, CEO and members of boards
 - app. 85% specialists (50% R&D, 20% MD, 15% commercial, experts...)
 - Huge differences between UK (less specialists), Germany (more MD) and France (less R&D)
- After 3-5 years a significant proportion change position in the companies (towards managing position)

The French exception in R&D

- PhDs still represent a very small minority among researchers in the private sector: only 13%
- Conversely, approximately 50% of researchers in companies have an engineering degree
- Unusual situation in Europe (more than 50% of researchers in companies are PhDs)



Industrial sectors recruiting PhDs in France and the UK

- In France, a few sectors have the strongest proportions of staff in R&D:
 - the transport sectors (aviation, railway, automobile, naval)
 - equipment (medical, optical...)
 - electrical and electronic components
 - business services in engineering, between 1995 and 2000, have quadrupled their numbers of researchers
- The main fields of research activity as reported by companies are:
 - engineering sciences
 - science and information technology
 - electronic
- In the UK, the largest hiring sectors are:
 - pharmaceutical industry
 - finance companies and services
 - aerospace firms

A multitude of careers sectors for PhDs in the UK

- *"The market [for science PhDs] is enormous and the options are huge"* (Paul Redmond, head of the Careers and Employability Service at the University of Liverpool)
- *"From the diversity of occupations and destinations, [PhDs] are well-respected across all employment sectors"* (Janet Metcalfe, director of the UK GRAD Programme)
- 15% to 33% of science PhDs ended up in traditional postdoctoral research positions, depending on the major area
- 25% enter the manufacturing area in biological sciences and in physical sciences and engineering
- Most physics scientists and engineers who won't pursue their discipline in industry or academia will end up in the financial, business, and IT sectors (18%). Finance was also the only non-academic sector that hired more than 10% of social science PhDs in 2005
- 2% to 3% of science PhDs start their own businesses
- 2% and 4% of recent PhDs report unemployment (11% in France)

PhDs and private companies

- PhD is an international standard for private companies
- HR managers need to be more confident in PhDs (especially in France)
 - Universities have to give «insurance» on the quality of their PhDs
- Private companies will recruit the best candidate corresponding to their needs
 - But networking is a real issue: Universities and PhDs associations should improve PhDs networks

The international context favours PhDs

- Worldwide competition: PhD (and/or MBAs) is the rule to become a manager everywhere but in France
- In France, the government help firms who recruit PhDs by reducing their taxes
- Competitiveness: performing means more innovation and PhDs are the best-prepared profiles for this challenge
- The EU Lisbon Agenda set the ambitious goal for the EU to become, *"the most competitive and dynamic knowledge-based economy in the world..." by 2010*. This is estimated to require 700,000 additional researchers across the EU

KIBS: knowledge based economy

- Knowledge-intensive business services (KIBS) are expert companies that provide services to other companies and organisations:
 - IT services
 - R&D services
 - Technical, legal, financial and management consultancy
 - Marketing
- KIBS are active innovators, as well as facilitators and carriers of innovations of other companies
- Everywhere in the world, the Knowledge-Business is expanding rapidly
 - In USA, KIBS have experienced employment growth of 45% between 1995 and 2000
 - In France, KIBS development is slower, but already occupy 1.5 million people (6.3% total employment)
- *«Future of high qualification employment in France is in services, still poorly equipped with researchers although they have without doubt the greatest need for highly qualified staff in France» (Danièle Blondel, economist)*

Shortage of highly qualified applicants in many field

- Shortage is already a reality in: IT, electronics...
- HR managers are going to open their sourcing to new types of young graduates
- In the UK, consultancy already needs to recruit more PhDs and employers are being most proactive in developing their recruitment strategies to attract more PhDs
- In France, «papy boom» (ageing of people) will accelerate shortage in highly qualified positions

Further questions

- Why do companies recruit people with PhDs?
- What value they put on people with PhDs compared to other qualifications?
- How employable they find new PhD graduates?
- What advice they would give to other employers contemplating recruiting newly-qualified PhD graduates?
- Do the PhDs skills meet the expectations of employers?
- How to better include PhDs in the «economical» world?



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Expectations of employers about PhDs

insights from France and the UK

Outline

Enterprise-University Partnership In Doctoral Education

- What are the skills acquired during a doctoral education ?
- What are the expectations of employers towards PhDs ?
- Do those skills meet the recruiters expectations ?
- What kind of actions should be developed to increase PhDs employability ?

Generic skills aquired during a typical PhD graduate education

- **Research /Analytical Skills**
 - Ability to locate and assimilate new information quickly
 - Ability to break-down and understand complex content
 - Problem-solving tools and experience
 - Intellectual maturity
- **Communication Skills**
 - Ability to convey complex information to non-expert audiences
 - Ability to write at all levels: brief abstracts to book-length manuscripts
 - Ability to speak before large groups
- **Interactive Personal Skills**
 - Persuasion and Leadership
 - Ability to cope with and manage complicated personalities and bureaucratic environments
 - Ability to thrive in a competitive and international environment
- **Entrepreneurial Skills**
 - Ability to work independently and in self-directed manner
 - Ability to acquire funding and write successful grant proposals
- **What it Takes to Advance to Candidacy**
 - Exceptional intellectual horsepower
 - Ability to perform under pressure
 - Ability to meet high expectations
- **What it Takes to Finish**
 - Focus, Tenacity, Stamina, Discipline
 - Ability to close the deal

All those skills are generic, no matter what the major or discipline of the project is

motivations of UK employers to recruit PhDs

- Employers are classified into two groups:
 - Those who seek PhD graduates for their knowledge and skills in their speciality
 - Pharmaceutical Industry
 - Research and Development companies
 - Those who seek PhD graduates for their general problem-solving ability and level of transferable skills obtained by the process of achieving a PhD
 - Investment Banks
 - Management Consultants

UK employers expectations

- Among the generic skills, recruiters said the most important are:
 - Communication and presentation skills, effective communication with non-specialists, reporting writing
 - Team working experience
 - Ability to solve complex problems
 - Ability to stay up-to-date with the latest research
 - Maturity and Experience : *"Industry employers want people who can start on Monday with a high level of knowledge and expertise." L Laurens*
 - *"I value the Ph.D.s for their scientific rigor: "You have to make the best conclusions you can in the time frame, having been as rigorous as you possibly is valuable in the analysis and data-gathering phase." M Postle, Cambridge Healthcare and Biotech*

Selection elements for French recruiters

- No large-scale survey on HR managers.
- The Field of expertise remains more important than the generic skills for large industrial groups which hire PhD for their R&D departments.
- Early-stage researchers point of view:
 - 68% of PhDs recruited in industry think their doctoral education is important and meet their job requirements.
 - Crucial elements for their recruitment:
 - Their personality (83%),
 - Their PhD subject (41%),
 - The lab in which they prepared their PhD (26%),
 - Their post-doctoral experience (26%, biology).
 - May be different from the recruiters point of view.

Recruiters talk about the reasons why they recruit PhDs (1/2)

- «PhDs can provide exactly what companies of the XXIth century need : imagine future, manage changes and master complexity » «I send a message to all French human resources directors : PhD should become an universal and recognized standard because firms need human diversity and talent in their teams». L Parisot, MEDEF (major French labour organization)
- “44% of PhDs are employed far from their thesis subject thanks to their generic skills. For instance, L’Oréal recruits young PhDs because the doctoral experience develops unique abilities beyond discipline” explains Stéphane Demarquette international director of human resources for advanced research, L’Oréal.
- “Recruiting PhDs is a good investment : they show a high potential and have a fast evolution. They often progress faster than may other profiles. We offer them good conditions so that they progress.” (Keyrus).

Recruiters talk about the reasons why they recruit PhDs (2/2)

- *“Woldwide, PhD is the highest diploma. Because education, knowledge and innovation have become essential parts of a country competitiveness, having a sufficient flux of young PhD’s working in all socio-economical sectors has become a major issue for our country and for many other developed countries.” (B.Bigot, Haut-commissaire, atomic energy).*
- *“PhDs are people who have analytical and scientific skills and a strong expertise, mostly if they worked in a high level laboratory. Their expertise can make a difference in the fields of energy, metallurgy” says M. de Maintenant, industry department of Mercuri Urval.*
- *“If things have been well done, a PhD is someone who managed a high level project and his skills are highly competitive and recoverable, including outside the field of research; that why they are valuable for us” (Didier Roux, director of research and development of Saint-Gobain)*
- Huge variety of motivations !

But... recruiters also have some fears

- 50% of HR managers in big firms say so...
- Old student/ not a professional/ only wants to be the expert of his research field
- They lack of corporate culture and understanding of corporate issues as compared to engineers. They are overly specialised, uninterested in business...
 - As there is this prejudice, they have to convince twice as much of their interest.
- *“They want to reach perfection, this can be non-productive”*
- *“They need to improve their team-working ability and their project management skills : money, time and human resources management.”*
- *“Surprisingly, PhDs are not self-confident and do not feel ready to move to dynamic economic fields, though they have the abilities and can use them in another context”*
- *“During the job interview, it is sometimes hard to know what they want, they only say what they can do, no matter if it is related or not to the position we offer”*

Aspects to improve to meet employers expectations (1/4)

- Knowledge of industry organization, industrial issues and corporate language
 - CIFRE (PhDs conducted in a private organization) :
 - Well prepared
 - Full employability
 - Doctorat-conseil
 - Events (career fairs...)
 - Meetings with PhDs already working in non-academic sectors (graduates associations, groups, networks)

- Awareness of the range of employment and career opportunities offered to PhDs
 - Knowledge of the market
 - Attractive major groups... but not only
 - lots of small and medium innovating firms !

Aspects to improve to meet employers expectations (2/4)

- Definition of the job of they want!
- Increase the awareness of skills and ability to talk about them
 - Technical abilities (but not only!)
 - Generic skills
 - Personal strengths
- Increase understanding of the aim of a job interview
 - Matching the candidate with the job and the environment : find the best candidate for their needs
 - Assessment of skills (technical, interpersonal...), potential and motivation, personality
 - 4 questions every employer wants to know:
 - What job does the candidate want?
 - Can the person do the job?
 - Will the person do the job?
 - Is the person compatible with our existing team?

Aspects to improve to meet employers expectations (3/4)

● Preparation for the Recruitment process (Resume and job Interview)

- Not as prepared are young graduates from Grandes Ecoles (?)
- Be prepared to answer the most common questions. Practice to be clear and concise. Give exemples.
- Ability to discuss their research briefly in a simple way (non-specialist audience).
- *“Although a Ph.D. may indicate a passion for your specialty, that alone isn't enough. You've got to be able to package it properly. You have to tell the employer how your passion will benefit them.” Redmond, Careers and Employability Service, University of Liverpool.*
- Show willingness to progress, flexibility and ability to step forward to new opportunities when they show up.
- PhDs need to be self-confident and trust in their strenghts.

➤ *Workshops and training events seem efficient when they exist*

Aspects to improve to meet employers expectations (4/4)

- Careers services and universities need to develop their links with employers who look to recruit PhD graduates
 - Doctoral program has changed... but companies do not know it!
 - Increase visibility of “Ecoles doctorales” : a major issue
 - Definition of the training offer (management, industrial property, ...) : Better match between the doctoral program and the employer’s requirements
 - Statistics on the careers of PhDs
 - Networking of PhDs and universities through associations
 - It can help saving them time in their search for talents (sourcing)

- Goal : full employability of PhDs ! *For them and for the European competitiveness*

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T A L E N T M A N A G E M E N T

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