



EUA-CDE workshop

Building a Research Environment for Doctoral Education

**University of Wageningen
15-16 April 2010**

Session 3 : training towards employability



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Paris, France**





Outline

- Who are we?
 - ⇒ UPMC and the French context of doctoral education
- What drives our action?
 - ⇒ Hope, conviction and ambition for the young researchers - our best ambassadors
- What do we do in practise?
 - ⇒ Improving doctorate holders employability by: fostering expectations and developing the awareness of all actors



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UPMC : the leading French Scientific and Medical University

Key figures

- 162 Research laboratories
- 5000 Researchers and teaching staff
- 400 Million euros allocated to scientific research projects
- 6000 Publications per year
- 3500 Doctoral candidates
- 700 Theses presented every year
- ~ 10% of the French Doctorate holders in hard sciences



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⇒ A huge responsibility!





Doctoral education in France

The doctoral school (école doctorale)

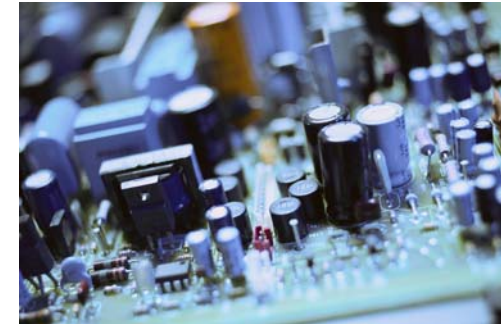
- An integrated concept
- Thematically or geographically focused
- Based on research critical mass (associated research teams)
- Managed by a director and a board
- Accredited by the Higher Education & Research ministry for 4 years
- Assessed by a national agency (AERES)
- Missions defined by national law
- **Recently renewed to improve employability and careers follow up !**





The French context of doctoral education (2)

- A dual system of higher education: Universities + Schools of Engineering
- In 2006: 210 000 researchers, 46 % in the public sector, 54% in the private sector
- 10 700 theses presented per year, 60% in hard sciences
- Private research highly concentrated: 2% of the companies gather 61% of the researchers
- Mostly in electronics, aeronautics, car industry and information industries
- Less than 5% of the private sector's researchers work in medical / biological sciences or chemistry ; 1-2 % for humanities and social sciences



Only 13% of the researchers in the French private sector are doctorate holders



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Source : Ministry of Research (in French): http://media.enseignementsup-recherche.gouv.fr/file/2010/93/8/Etat_des_lieux_emploi_scientifique_rapport_2009_136938.pdf





Training towards employability (1)

Employable

**Capable of
Holding
A job
+ Available
For hire**

- ⇒ a capacity, a potential
- ⇒ an activity
- ⇒ an occupation, a position
- ⇒ an attitude, a state of mind
- ⇒ a demand, a need

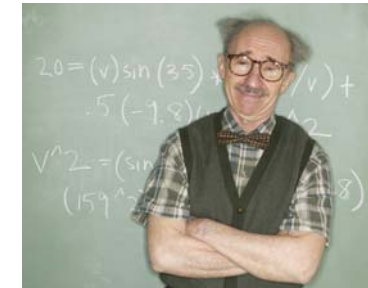


Train

Teach and supervise but also

**Educate
Develop
Practise**

- ⇒ for a future role or function
- ⇒ behaviour by instruction and practice
- ⇒ in order to prepare for an event or a competition





Training towards employability (3)

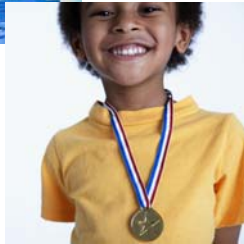
Training towards employability =

- Educate early stage researchers for their future job or function by:
- Teaching and supervising **but also**,
- Building / providing the conditions of their own potential development
- Assuring / accepting availability for hire (reasonable duration of the dissertation)
- Improving / fostering / developing employers' desire to hire doctorate holders

⇒ could be done: directly or indirectly , personally or collectively)



The future jobs (1)



- **global and national markets: evolution of economic and labour markets**
- **new technical, economical and social challenges**
- **changing markets ; companies organisational evolution**
- **new relationships employers-employees**
- **new expectations towards education**
- **new needs**
- **New skills / profiles required**

⇒ For highly qualified, research trained professionals

- What kind of role, responsibilities ?
- What kind of competences for what types of careers?





The future jobs (2)

Logical and rather well known	Positions linked to teaching and research
Rather logical but not well, or not well enough, known	Positions linked to the development of the knowledge economy and society
Not logical and not well known	Positions customized by individuals to fit their specific motivations and competences



To get and hold these
"new positions"

awareness, curiosity, anticipation

ESSENTIAL !



Conditions of ESR professional development and evolution (1)

- Agreement from the research community on the present state of doctoral education:
 - Provide excellent researchers and teachers but also
 - Provide highly qualified professional for other types of positions in all sectors
- Professional recognition by the researchers community of the doctorate holders holding these new highly qualified positions
- Knowledge about specific skills and competences which
 - can be developed through doctoral education
 - and are required / mandatory for the « new jobs »



Conditions of ESR professional development and evolution (2)

- Awareness of conditions needed to allow the development of these skills
- Willingness to improve the development of a professional environment and conditions
- Recognition by supervisors and research teams of the « transferable skills training programmes » as
 - an integral part of doctoral education
 - key for motivation and success
 - validated activities which enhance employability
- Systematic follow-up of doctorate holders' employment; communication of the results and promotion of diverse careers.



Skills and competences development and assessment (1)

**Competence : no general definition of competence but...
a kind of consensus around these aspects**

A dynamic combination
of knowledge, skills (know-how) and behaviours



Used to
solve a problem
In a specific situation
Within a specific environment

And ... assessed in this framework



Skills and competences development and assessment (2)

- ☞ The companies/organisations need people able to solve their problems

The recruiter takes a punt on finding:

- people *potentially* able to solve individually or collectively these problems
- because they have already solved the same type of problems in other situations

The candidate's challenge is to

- to have developed these competences elsewhere
- to be able to prove it
- to express them clearly, practically and convincingly
- to reassure recruiters about their choice



What drives our action at UPMC?

Conviction

- Doctoral education, well managed and supervised, allows the development of a wide range of skills and competences
- Spreading of doctorate holders across all branches of socio-economic sector will bring mutual benefit to the society and to the researchers' community

Ambition

- Doctorate holders are able to hold highly-skilled positions and bring creative contributions to organisational development

Faith

- Besides skills and competences, they have values and motivation to contribute to change for the better.



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The Institute of Doctoral Schools

- An innovative umbrella structure (first in France) co-ordinating the 19 doctoral schools.
- In charge of implementation of UPMC doctoral education policy
- Management: a director, a board, a council of representatives (directors of doctoral schools, supervisors, doctoral candidates, doctoral education administration staff and companies)
- Mutual resources (budget, staff, premises)
- Services: centralised administration and schooling, indicators, international activities
- A dedicated Training and Career Department for doctoral candidates, doctors and supervisors



The Training and Careers Department

A dedicated team + external trainers

Training cycles: seminars + workshops

- Communication
- Management
- Languages
- PI & entrepreneurship
- Career development
- Scientific knowledge management
- Others in progress ...



Materials

- Companies' own materials
- Trade press
- Surveys, reports
- Specialized books

**Individual Career
Counselling on demand**

**Networking in partnerships
with UPMC Doctorate
holders association**

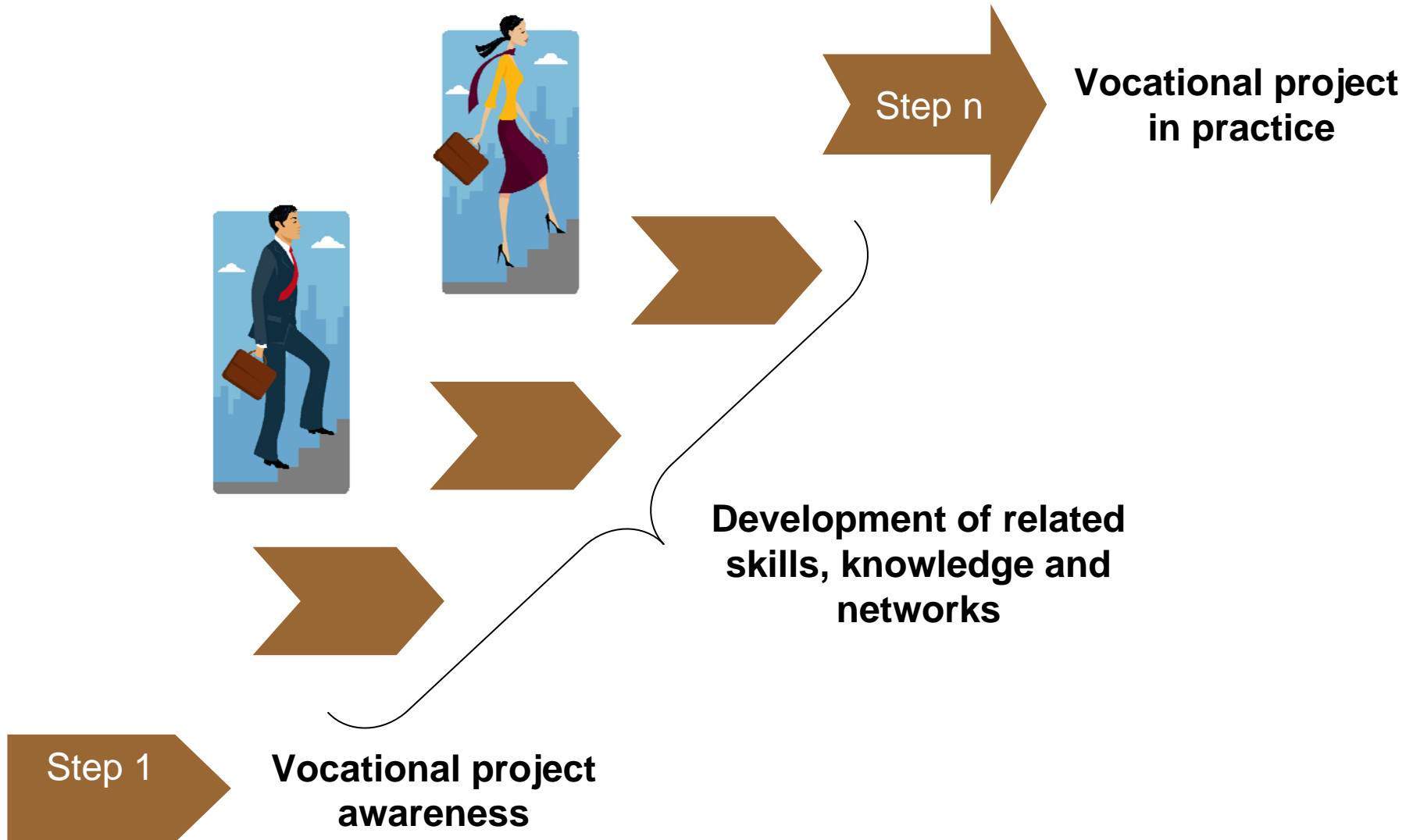


Events

- Businesses days
- Businesses visits
- Workshops about jobs



The Training and Career Department





The main steps of building an Ambitious and realistic vocational project

New job market knowledge

- Information sources; trades, businesses and jobs discovery
- Understanding of recruitment issues and procedures
- Understanding job opportunities
- Professional network development

Clear motivations and project

- Identification of values, motivation
- Accordingly : trade, entreprise and job choice
- Career evolution potential

Skills analysis and development

- Personal and professional experiences and related skills
- Skills expected in the target job
- Skills development plan

Network development

- For information about job market, jobs in the preparation stage
- For cooptation in the active searching stage
- For the future position





The training offer: a shared responsibility

Shared responsibility between: Doctoral Schools, Labs, and the TCD

- Training in research technics and methods, research realities and new developments ⇒ Doctoral schools + laboratories
- Transferable skills training and short internships ⇒ Training and Careers Department (TCD)

The training offer

- Management of scientific information
- Languages: English mostly (certification), partnership for others if needed
- Organisations: mostly businesses today, but soon HE and research
- Innovation and entrepreneurship
- Communication
- Management
- Vocational project and career development
- + **SOON**: linked with the new ministry doctoral contract: consultancy, scientific communication and mediation, private-public partnerships and funding.



The individual training plan

UPMC
UNIVERSITÉ PARIS-DESCARTES

Institut de formation doctorale
Département Formation & carrières
(Maison des écoles doctorales)

Plan Individuel de Formation continue
Formateurs du département formation & carrières de l'Institut de formation doctorale

Ce formulaire permet aux doctorants de demander l'accès à leur plan individuel de formation continue de formations organisées par le département formation & carrières de l'IFD, et aux écoles doctorales de valider ses demandes selon la politique de formation qu'elles ont choisies de mettre en place.

Circuit de la demande :

- 1- Le doctorant remplit, en accord avec son encadrant, la partie du formulaire la concernant (zones bleues)
- 2- Le doctorant envoie le formulaire par email à son école doctorale pour validation.
- 3- L'école doctorale remplit la partie du formulaire la concernant (zones vertes), après rencontre ou échanges éventuels avec le doctorant.
- 4- L'école doctorale envoie le formulaire par email au département FAC : formations@fac.upmc.fr, avec copie au doctorant.

Suivi de la demande :

Date de la demande du doctorant : _____
Date de validation par l'école doctorale : _____

Présentation du chercheur doctorant :

Prénom : _____
NOM : _____
École Doctorale de rattachement : _____ Choisissez dans la liste –
En quelle année de doctorat êtes-vous : Choisissez : _____
Adresse professionnelle : Laboratoire et rue : _____
Code postal : _____ Ville : _____
Tel. professionnel : _____ Fax : _____
E-mail professionnel : _____
E-mail personnel (mobile de préférence) : _____
E-mail personnel : _____

Identité de votre encadrant(s) :
Prénom : _____ NOM : _____ email pro : _____

Commentaires du chercheur doctorant accompagnant la demande : _____
Commentaires de l'école doctorale concernant la validation de la demande : _____
Date : _____

Tout de Formation Doctorale, Département Formation & Carrières
55 avenue Ecole de Médecine - 75205 Paris cedex 05 - Tél. 01 42 34 69 03 - Fax : 01 42 34 69 08

Institut de formation doctorale
Département Formation & carrières
(Maison des écoles doctorales)

Je valide mon plan de formation continue
et respecter les pré-requis indiqués en rouge

Pré-requis	Coût pour l'école doctorale	Demandes du doctorant	Validation de l'école doctorale
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
Coût labo : 300 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
S-Ere			
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
S-H&Sc	0 €	2008-2009	<input type="checkbox"/>
S-H&Sc	0 €	2008-2009	<input type="checkbox"/>
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
S-UE1	60 €	2008-2009	<input type="checkbox"/>
Pré-requis	Coût pour l'école doctorale	Demandes du doctorant	Validation de l'école doctorale
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
S-Ab&S	0 €	2008-2009	<input type="checkbox"/>
Pré-requis	Coût pour l'école doctorale	Demandes du doctorant	Validation de l'école doctorale
0 €	2008-2009	<input type="checkbox"/>	<input type="checkbox"/>
S-PM	120 €	2008-2009	<input type="checkbox"/>
A-PM3	120 €	2008-2009	<input type="checkbox"/>
A-PM4	120 €	2008-2009	<input type="checkbox"/>
A-PM4	120 €	2008-2009	<input type="checkbox"/>

AJ&E1 : Rédiger un dossier européen dans le cadre du 7^e PCRD
Atelier d'approfondissement (1 jour)

Cycle « Médiation scientifique »
(thématique 6.3 : Diffusion de la connaissance)
S-Ab&S : Parcours sur la médiation scientifique
Séminaire de sensibilisation (1 jour)

Cycle « Pratiques managériales »
(thématique 6.2 : Management)
S-PM : Découvrir les grands principes du management
Séminaire de sensibilisation (une demi-journée)
A-PM2 : Travailler mieux en équipe et apprendre à manager (résolution de conflits et de problèmes)
Atelier d'approfondissement (2 jours)
A-PM3 : Piloter un projet : de l'intention à la gestion
Atelier d'approfondissement (2 jours)
A-PM4 : Décider pour prioriser : gérer le temps et le stress
Atelier d'approfondissement (2 jours)

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55 avenue Ecole de Médecine - 75205 Paris cedex 05 - Tél. 01 42 34 69 03 - Fax : 01 42 34 69 08

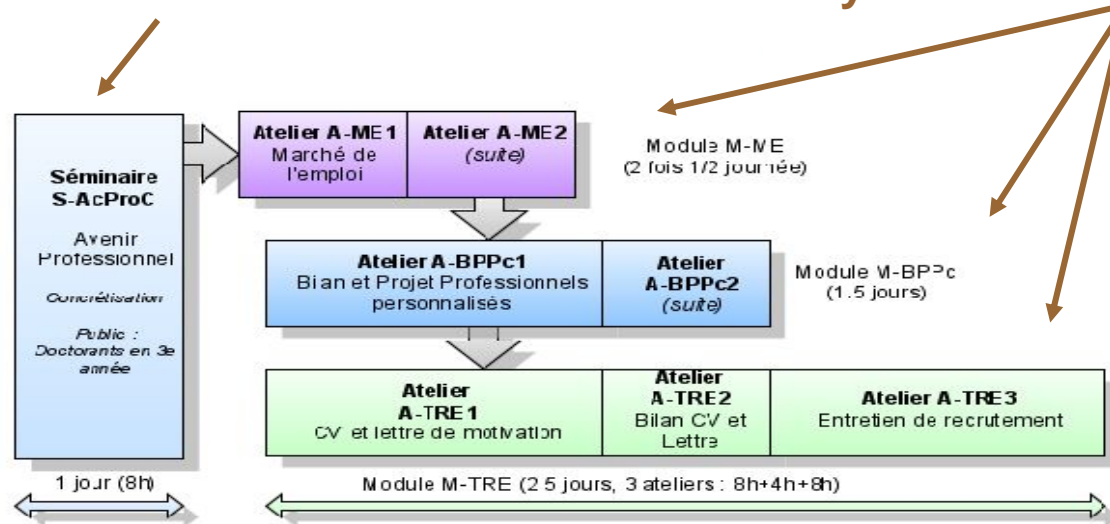
- Balance between scientific and transversal training
- Follows vocational project evolutions
- Discussed and planned with the supervisor
- Submitted to the Doctoral School
- Once validated, submitted to Training and Careers Department for registration
- Follow up of effective participation
- Data acquisition
- Certificates





Training offer structuration Seminars + workshops

A cycle = one seminar which can be followed by different workshops



Seminar

- Large groups
- Develop interest for the topic
- Evaluate motivation before deepening
- A prerequisite for the workshops

Workshop

- Small groups
- Deepen knowledge
- Application to concrete situations
- Open individual counselling



Registration database: follow-up + indicators



Training for supervisors A shared responsibility too

Doctoral schools in charge of:

- Communicating changes about regulation in doctoral education
- Changes in the UPMC doctoral education policy
- Recommendations about supervisors' training needs

Institutions (university or partnered research institutes) in charge of:

- Training offer for the staff: scientific, technical or cross-discipline topics

Training and Career Department in charge of:

- Specific training about doctoral supervision (3 steps)
 - The state of doctoral education today and the new job market for doctorate holders
 - The new vision of the supervisor charge: management of the doctoral project and improving employability
 - Experience sharing (8 months later)



Some exemples of success stories



Lucas, developmental biologist
Finance
Funding consultant



Louis, physicist
IP consultancy
Patent attorney



Frederic, environmental chemist
Territorial community
Department manager



Tania, analytical chemist
Environment
Project manager



Yacine, applied mathematics
Bank
Analyst



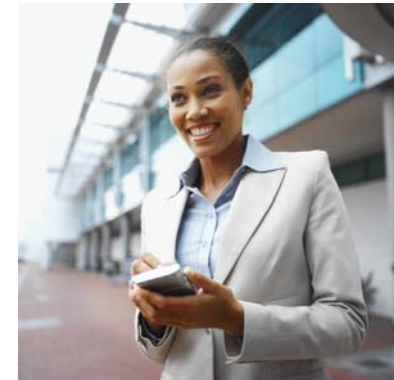
Catherine, physiologist
Biotechnology
Project manager



Michael, biophysicist
IT, knowledge management
Consultant



Melina, cellular biologist
Public health association
Communication



Gwenaelle, physiologist
Research Institution
European Project manager