Career Planning and Professional Development

Professor Mary McNamara
DIT, Head of the Graduate Research School
EUA, Council for Doctoral Education
“human capital, especially in science and technology, is of growing importance for innovation and technology-led economic growth.

OECD, Mobilising Human Resources for Innovation, 2000
Benefits to Firms from Employing Researchers

- Discipline knowledge
- Ability to acquire and use new knowledge
- Research methodology skills
- Personal networks
- Knowledge of recent advances
- Capacity to solve complex problems
- Ability to develop new ideas
Patents Applied for & Granted

- Companies with PhD researchers
- Companies with no PhD researchers

Share of firms that applied for a patent
Share of firms granted a patent

Forfas, Role of PhDs in Smart Economy 2009
Important Skills when Employing Researchers - Ireland

Forfas, Role of PhDs in Smart Economy 2009
Important Skills when Employing Researchers – EU-27+

- Teamworking skills: Very important (67), Rather important (31), rather unimportant (9)
- Sector-specific skills: Very important (62), Rather important (29), rather unimportant (2)
- Communication skills: Very important (60), Rather important (36), rather unimportant (3)
- Computer skills: Very important (60), Rather important (35), rather unimportant (3)
- Ability to adapt to and act in new situations: Very important (60), Rather important (37), rather unimportant (2)
- Good reading/writing skills: Very important (59), Rather important (36), rather unimportant (3)
- Analytical and problem-solving skills: Very important (58), Rather important (37), rather unimportant (4)
- Planning and organisational skills: Very important (53), Rather important (42), rather unimportant (4)
- Decision-making skills: Very important (46), Rather important (45), rather unimportant (7)
- Good with numbers: Very important (40), Rather important (48), rather unimportant (8)
- Foreign language skills: Very important (33), Rather important (34), rather unimportant (22)

EuroBarometer Employers Perception of Graduate Employability 2010
Importance of Foreign Language Skills by Country

EuroBarometer Employers Perception of Graduate Employability 2010
'Core component of Doctoral education is the advancement of knowledge through original research. At the same time it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia'.
Transferrable Skills of Researchers

- **Carnegie Mellon**
  - Communication
  - Human relations
  - Problem solving
  - Research Skills

- **IUA**
  - Project management
  - Time management
  - Ethics and social understanding

- **DIT**
  - Commercialisation
  - Entrepreneurship
  - Work Placement
‘Inverted T-Shaped Model’ – PhD attributes most valued by companies

- Expertise
- Transferable skills
- Broad understanding of discipline
Forecast to 2020 EU-27+

- ~235m employed
- ~83m opportunities = ~8m new + ~75m replacement demand
- ~18.1% of total employment = Professionals
  - Physical and Engineering Sciences
  - Life Sciences and Health
  - Teaching, Finance and Business
  - Public Administration

Cedefop, Forecast 2012
Opportunities by Occupation – EU-27+

Source: Cedefop (based on IER estimates).
Opportunities by Qualification – EU-27+

Source: Cedefop (IER estimates).
Forecast to 2020 EU-27+

- Increase of ~20m demand for high-level qualifications
- Increase of ~4.5m demand for medium-level qualifications
- Decrease of ~14m demand for low-level qualifications

EU will meet its targets
- 75% employment
- 40% aged 30-34 with 3° education
Supply and Demand – EU-27+

Source: Cedefop.
Supply and Demand and Imbalances

- Jobs Supply and Demand are following similar trends
- Supply ≈ Demand for People with low-medium level qualifications
- Supply > Demand for people with high-level qualifications
- Aging labour force requires retraining and requalification
Ambition should not be to simply meet...skills demand

If Ireland is to develop competitive advantage... it requires a skills profile...skewed towards higher levels of skills attainment.

Ireland’s Expert Group on Future Skills Needs
High Tech Industry Main Driver of EU Growth

Eurostat, 2013
Student in 3º Education by Field

Source: Eurostat (online data code: educ_enrl5)
Skills

• Template for Professional Development Plan and Skills Analysis at http://www.dit.ie/researchandenterprise/graduateresearchschool/currentresearchstudents/forms/#d.en.22465

• Discipline Skills – What skills are needed to answer the question

• Transferrable Skills – Personal skills particularly valued by employers
  • Personal Effectiveness
  • Communication
  • Team-working