

International Experience: Government support for universities-industry cooperation

*Dr Ellen Hazelkorn
Dublin Institute of Technology, Ireland
OECD Workshop
Tomsk State University
October 2006*



'...research should be geared to the need for innovation and be relevant to the problems of the wider society. This requires, for example, suitable policies for knowledge and technology transfer, and research funding systems that are linked to these outcomes.' (Meeting of OECD Education Ministers, June 2006)

Themes

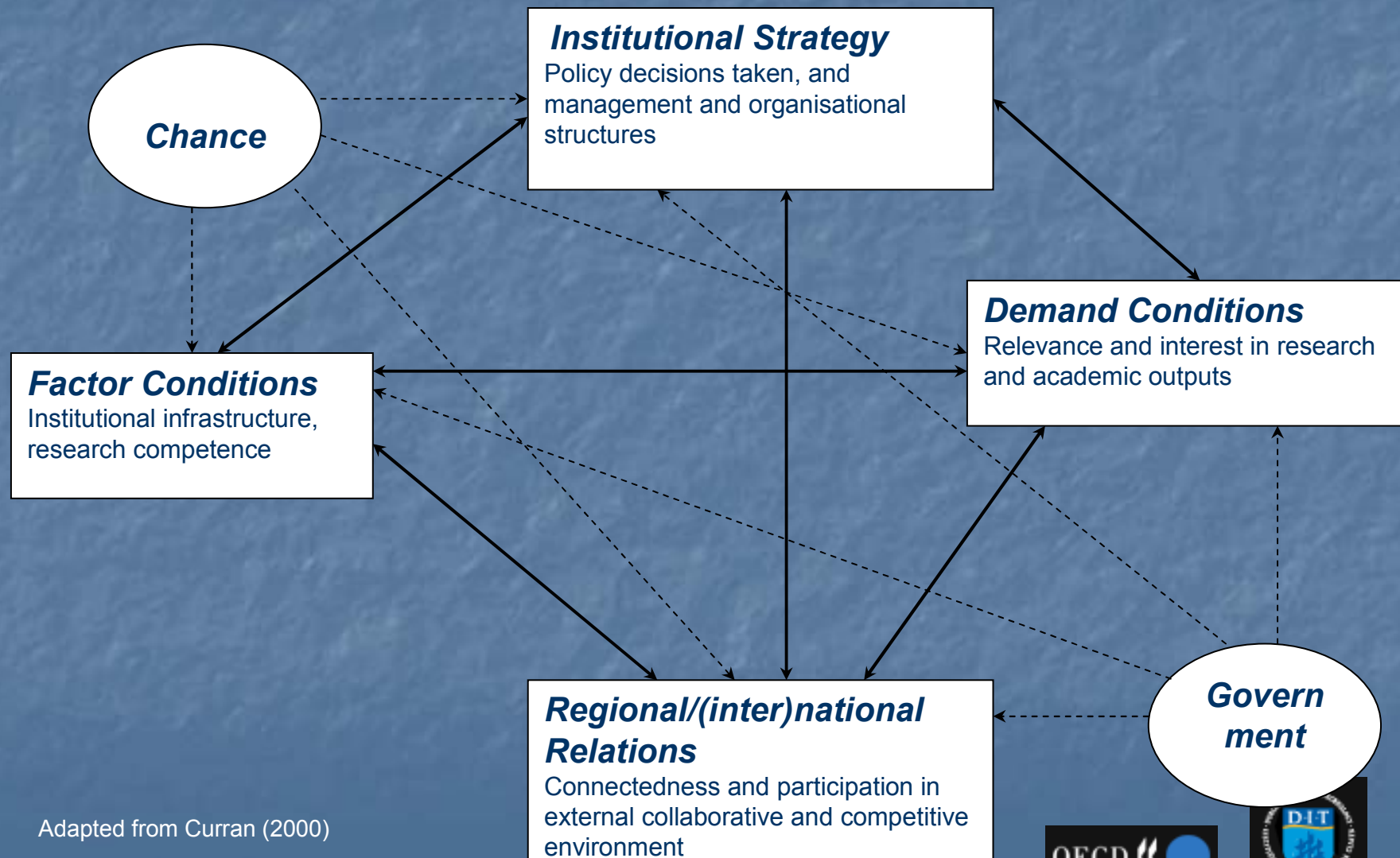
1. The 'Triple Helix'
2. Examples of Government Initiatives Supporting University-Industry Links
3. Improving Industry-University Relationships

1. The 'Triple Helix'

Why encourage greater university- industry linkage?

- To contribute to job and wealth creation
- To generate higher levels of sustainable growth
- To promote enterprise, innovation and increased productivity

Role of Government in Porter's Diamond



Adapted from Curran (2000)



Triple Helix

- Transformation of knowledge into wealth requires tripartite collaboration or *triple helix*:
 - Network between university/researchers-industry-government
 - Each element recognises the mutual benefit of such co-operation
 - Evolving networks of communication
- Boundaries between public and private, science and technology, university and industry are in flux
- Universities and firms assuming tasks formerly the province of the other sectors

2. Examples of Government Initiatives Supporting University-Industry Links

HE as Engine of Development

- Educational Potential
 - CPD – Continuing Professional Development programmes
 - Bespoke Programmes
 - In-house training
- Knowledge Transfer and Consulting
- Contract Research
- Exploitation of Research
 - Patenting/licensing
 - Spin-out and Start-up companies
 - Spin-in companies
 - Co-operation with existing companies

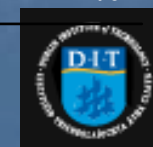
UK Strategies for Innovation

- University Challenge Seed Fund, 1999
 - to support collaborative research
 - to provide finance for bringing research to point of commercialisation
 - £60m allocated to date to 57 universities
- Knowledge Transfer Partnerships
 - UK's premier technology-knowledge transfer programme
 - Assist young graduates by providing high level training
 - £110,000 per project, 70% paid by government
 - 2004/5, £85m total spent (government + companies)

UK HEI Contribution to Economic Development * (% HEIs)

Area of activity	England	Northern Ireland	Scotland	Wales	UK
Access to education	55%	50%	79%	62%	59%
Research collaboration with industry	38%	0%	26%	38%	37%
Meeting regional skills needs	38%	50%	11%	38%	35%
Technology transfer	30%	100%	53%	38%	34%
Supporting SMEs	34%	50%	5%	31%	30%
Meeting national skills needs	30%	0%	21%	15%	27%
Developing local partnerships	19%	0%	26%	8%	19%
Attracting non-local students to the region	18%	0%	16%	8%	16%
Graduate retention in local region	15%	0%	21%	23%	16%
Support for community development	12%	0%	16%	31%	13%
Attracting inward investment to region	5%	0%	5%	0%	5%
Spin-off activity	2%	50%	11%	8%	4%
Management development	3%	0%	0%	0%	2%
Strategic analysis of regional economy	0%	0%	11%	0%	1%

Respondents were asked to select the top three areas of economic impact
HEFCE, *Higher education-business and community interaction survey*, 2006



Scottish Enterprise

- Intermediate Technology Institutes
- Enterprise Fellowships
- Proof of Concept Schemes
- Smart Awards
- Spur Awards
- SEEKIT

Canada – Foundation for Innovation

- Independent corporation created in 1997, with \$3.65b, to fund research infrastructure:
 - transform the way research is done;
 - create a strong and vibrant research environment across Canada;
 - attract and retain excellent researchers;
 - enhance research productivity and the training of highly qualified people;
 - build new national and international networks and partnerships.
- Funds up to 40% of a project's costs
 - in partnership with eligible institutions and their funding partners from the public, private, and voluntary sectors.
 - based on this formula, total capital investment will exceed \$11 billion by 2010.



Ireland: State Aids (1)

- Department of Enterprise, Trade and Employment
 - Enterprise Ireland
 - Innovation Partnerships
 - Proof of Concept
 - Industrial RTDI programme
 - Science Foundation Ireland
 - Centres for Science, Engineering and Technology
 - Industrial Development Agency
 - Research Establishment Initiative

Ireland: State Aids (2)

- Department of Education and Science
 - Technological Sector Research Programme
- Department of Agriculture, Food and Rural Development
 - Teagasc
 - Food Institutional Research Measure
- Department of Marine, Communications and Natural Resources
 - Marine Institute
 - Marine R&D Programme
 - National Digital Research Centre

Dublin Institute of Technology

- Professionally-oriented career-focused education and research
- 20,000+ students
- Doctorate-awarding dual-sector HEI
- Six faculties: applied arts, built environment, business, engineering, food and tourism, science
- Applied research, consultancy, knowledge and technology transfer



Knowledge transfer management

Dedicated team managing research and interaction with industry

- Director (= Vice-President)
- Heads of Research and Industry Development
- Office of Innovation and Industry Services (IISO) in each of our six faculties
- Head of Corporate Training Unit
- Head of Project Development Centre
- Specialist Research Centres



Research/TTO Office

- Professional project and contract management
- Professional advice regarding
 - Pre-contract
 - Intellectual Property, patents, licensing and other forms of exploitation
 - Sourcing new funding opportunities
 - Budget preparation
 - Application writing
- Researcher and supervisor training
- Sector 'intelligence'
- Mentoring
- Identifying and promoting links, research and other projects between academia and industry



Product Development Centre

- Hothouse Programme – knowledge intensive start-ups
- Fast-Growth Programme – moving from start-up to expansion
- Prospect Programme – commercialising university research

To date – 400+ young companies have been assisted through initial start-up and early growth stages

New Model Doctoral Training Programme

Aim to facilitate PhD graduates to work 'outside academia'

- Single cohort entry
- Taught discipline modules
- Generic transferable skills modules
 - Research methodology
 - Entrepreneurship
 - IPR, standards and commercial processes
 - Employability
- Mobility, incl. Internships



3. Improving Industry-University Relationships

Challenges (1)

- Industry and university have different missions, needs and timetables
 - 'Short-term applied knowledge needs of research buyers' vs. research as discovery
 - Gaps in funding innovation chain
- Proximity matters for university-industry collaboration
 - Reduced research capacity has knock-on consequences for regional economic performance and technology innovation
 - SMEs find it difficult to work with research departments on other side of the country

Challenges (2)

- Managing economic/commercialisation expectation
 - Licensing/royalty only 3% of research budget of major US universities
 - Start-up companies – life expectancy short, successes few, dependency on public support
 - Patenting/licensing activity – most universities lose money
- Assuring the integrity & productivity of research
 - Research integrity vs. Patron productivity
 - Managing ethical concerns, e.g. 'conflict of interest' and confidentiality

Policy Initiatives (1)

- Encourage and strengthen universities' capability to form links with industry and assist development of a more strategic view of these relationships.
- Support range of actions, from commercialisation of research to the provision of training opportunities
- Give universities flexibility to retain and determine how to use externally earned income, incl. IPR

Policy Initiatives (2)

- Alter evaluation/benchmarking criteria to fully value variety of outputs, e.g. consultancy, professional practice, patents, start-ups
- Review process of training postgraduates
- Recognise diversity of institutional missions adopted by universities in pursuit of their strategies for links with business and their communities.

ellen.hazelkorn@dit.ie

