

# University-Industry Linkages: Evidence from Mid-Range Universities in Europe

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Paper presented at World Bank-CMI Workshop, Cambridge,  
Sept 26, 2005

# Introduction

- Extensive research on university-industry knowledge and technology transfer in high-tech entrepreneurial environments - BUT
  - How relevant for less high tech environments?
  - How relevant for universities with limited [world class] research excellence?
  - Nature of universities' interaction with industry in mid-range universities in Europe?

# Knowledge & Technology Transfer

- Mode: Range of innovativeness
  - Spin-outs & Start-ups
  - Licensing
  - Contract research
  - Consulting
  - Graduate & researcher mobility
- Issues
  - Strategy and Policy
  - Problems/Issues
  - Outcomes

# Data & Method

- In-depth, small sample study of processes
- Interviews and archival data
- Mid-range environment
  - Average Local [regional] GDP; local business sectors; % employment in knowledge-intensive & high tech sectors
- Mid-range universities
  - Size & technology transfer activities
- Regulatory environments
  - Important of legal basis for ownership of IP, employment law, research funding regulations, etc. vary between countries

# Characteristics of the Universities

	Nott	KA	UU	Ugent	UA	VUB
# Students	32695	15686	20121	21160	8029	8179
# FTE Researchers	-	2500	1991	1401	846	719
# FTE TT	4	1	3	3	4	5.5
€m Res Expend	150	83	225.4	121.4	44.4	48.2
# Spin-outs 91-04	27	0	0	12	2	10
#Start-ups	Yes	Yes	Yes	10	2	1

# Implications: Spin-outs & start-ups

- Deal flow potential problem for mid-range universities
  - Limited world class science base
  - Variations on ability of university to take equity
  - Difficulties in attracting business developers, entrepreneurs and financiers
- Formal procedures may be circumvented:
  - In order to retain star performers who want to spin-out a venture (Nottingham)
  - Star performers avoid TTO and start own firms without TT (Ugent; VUB)

# Implications: Spin-outs & start-ups

- RDAs may have important funding role and becoming more evident
- Context important:
  - Sweden: May grant subsidies to complement pre-seed capital [but not in Uppsala]
  - Germany: RDAs do not fund but have important role in managing IP for several universities in their region
  - Belgium: RDAs no role
  - UK: Increasing funding and training role

# Implications: Spin-outs & start-ups

- Few in [declining] number as universities become more selective [not playing the numbers game] in more experienced contexts [Belgium and UK]
- Spin-outs have limited direct regional impact
  - Focus beyond region to national/international level means disconnect
- Spin-outs, however, have indirect regional impact
  - Spin-outs can create profile with spillover entrepreneurial stimulation benefits
  - Start-ups may generate significant local employment if not financial returns to universities
- Need for dual strategy of differentiation between start-ups and spin-outs

# Implications: Licensing

- High priority alongside contract research
  - Problems in some countries as IP ownership is with the researcher not the university
  - Universities need to collect invention disclosure information
- Protecting IP costly & requires very specific expertise [hence in Germany RDAs control several universities]
- ‘Lumpy’ and debatable whether achieves break even
- Typically focused towards larger organisations who can develop it to market & willing to pay for world rank research
- Regional SMEs inability to pay for IP

# Implications: Licensing

- Differentiate way of transferring IP to different types of company
  - Different terms for SMEs & larger firms?
- Over-emphasis on patents focus on IP ownership may inhibit development of local contract research
- Universities need to focus more carefully on assessing commercial value of their research
- Mid-range universities often broad based
  - difficult to generate real commercial experience in a particular sector & staff limited commercial skills
  - Need regional integration of several universities' commercialisation activities
  - RDAs role but questions over skills base

# Implications: Contract research and consultancy

- Most conducted with larger firms
- Interested in quality not location
  - Large companies attracted by world class research & critical mass at a university
  - “it is not that we do not want to be locally involved. However, over time there was no research group in Belgium which invested enough in our core domain to stay ahead of us. So it happens to be now that we have no collaboration left with the local universities”

# Implications: Contract research and consultancy

- Need to build expertise that firms will want to access
  - mid-range universities may need to focus on small number of stellar departments
- Long period of relationship development and personal contacts of individuals
  - Relationships take time to build and commonly start small scale before escalating
  - Need long term perspective

# Implications: Contract research and consultancy

- Local industry, especially SMEs may not have finance to pay for contract research
- Blurring of distinction between contract research and consultancy
- Stimulation of contract research may be problematical where it does not contribute to [academic] promotion
  - But without it, may be difficult to conduct research especially with difficulty in accessing government grants by mid-range universities

# Implications: Contract research and consultancy

- Important role for university in stimulating contract research & consultancy
- Contract research support varied across universities
  - Administrative support services
  - Research funding considered in promotion decisions – this is especially important in highly regulated continental Europe
  - Rollover support between end of one contract and start of another
- University consultancy support often seen as a costly tax but some have developed positive schemes

# Implications: Graduate & Researcher Mobility

- Distinction between larger firms and SMEs
- Larger firms more organized
- Limited for local SMEs
  - Resource limitations
  - Lack of awareness by researchers of available opportunities
    - Lack of information?
    - Lack of interest?