



Birmingham City  
**Business School**

# Assessing changes in university knowledge transfer capability to support innovation: A knowledge intensive business service perspective

Professor John Sparrow

Birmingham City University



# Outline

- Innovation aspects and support
- Knowledge intensive business services (KIBS)
- University KT channels and activities
- Strategic changes in case study university
- Changes in KIBS activities
- Current BCU profile of KT channels and associated KIBS activities
- Conclusions



# Innovation

- Universities play a **key role** in societal innovation (Etzkovicz, 2003)
- High **emphasis** on **science research and technology transfer**
- Innovation occurs **beyond the linear model** of university research-led, high technology, product/process innovation
  - Need to explore **innovation management** and **innovation processes (in SMEs)** to understand the full range of **knowledge processes**



# Innovation aspects 1

- Tether (2005) distinguishes:
  - **output** innovation (product innovation and market innovation)
  - **internal** innovation (process innovation and organisational innovation)
  - **external** innovation (relationships)
- Leiponen (2005) identified several alternative **organisational processes** in achieving innovation
  - (e.g. internal employees, vertical and horizontal information, technology adoption, scientific knowledge)



# Innovation aspects 2

- Innovation can be **supported** in many ways (Hertog, 2000)
  - (e.g. expert consulting, experience-sharing, brokering, diagnosis and problem clarification, benchmarking, and change agency)
- Universities may play **generative** and/or **developmental** roles in their regions (Gunasakara, 2006)
- **University staff** can undertake many **innovation support roles** (Sparrow et al, 2006)
  - (e.g. fundamental research but also evaluation research, educator/lecturer; trainer; expert/technical consultant; coach/mentor; formal quality assessor/assurance and facilitator roles)



# KIBS

- Bettencourt et al. (2002: 100-101) defined **KIBS** as:
  - *'enterprises whose primary value-added activities consist of the accumulation, creation, or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client's needs'*.
- Muller and Doloreux (2007) call for further research to understand **how (i) knowledge; (ii) innovation and (iii) spatial proximity, are converging and 'fuse'**

# University KT channels and activities



Birmingham City  
**Business School**

- Bekkers and Freitas (2008) identified **six clusters of university KT channels** amongst 23 KT activities
  - scientific output, informal contacts and students;
  - labour mobility;
  - collaborative and contract research;
  - contacts via alumni or professional organizations;
  - specific organised activities;
  - patents and licensing.
- But study based on **only four academic disciplines**: pharmaceuticals and biotechnology, chemistry, mechanical engineering, and electrical and **ignored many potential facets of KT**
- Sparrow et al (2006) **developed a questionnaire** and profiled a case study university re its **KIBS support for innovation**



# Changing KT efforts in case study university

- **Strategic changes** in case study university
  - **Re-branding** of university. **Corporate Plan** (2007-12) “business and industry engagement will encompass **considerable knowledge transfer activity**”
  - Significant increase in university’s **research capability** via **Research Centres** with clear **engagement/impact outcome expectations**
  - High profile **HEFCE-funded initiative** on advancing **KT in less research intensive university**
- **Current study** sought to establish if **questionnaire is capable of detecting changes in KT in KIBS terms**





# Methodology

- Used questionnaire developed and applied by Sparrow et al (2006)
  - indicate extent to which academic staff considered particular KIBS were being practised by the university. **Items scaled** (0 – None/Not at all, 1 – Nominal, 2 – Low, 3 – Moderate, 4 – Considerable, 5 – Very substantial)
- Statistical analysis to see if any changes in profile could be identified



# Findings

<b>KIBS facet</b>	<b>University 2006</b>	<b>University 2010</b>	<b>Difference</b>
University as a 'source' of innovation	2.20	2.80	F= 4.500, df(1,58) p<0.05
University supporting regional innovation through specialist research units	2.46	3.23	F=6.050, df(1,57), p<0.05
University engaging in joint/co-operative ventures	2.45	3.21	F=5.231, df(1,55),p<0.05
University staff working upon interdisciplinary projects	2.33	3.10	F=6.000, df(1,59), p<0.05
University playing a 'generative' approach towards regional innovation	1.83	2.50	F=5.305, df(1,57), p<0.05
University playing a 'developmental' approach towards regional innovation	2.32	3.10	F=5.551, df(1,57), p<0.05

# KIBS aspects that changed between 2001 and 2010



<b>Aspects of innovation</b>	
'Product' innovation	
'Market' innovation	
'Process' innovation	
'Organisational' innovation	
'Relationship' innovation	
<b>Organisational processes for innovation</b>	
The internal cooperation of employees	
Organisational use of vertical and horizontal information	
Organisational technology adoption	
Incremental learning (learning by doing)	
Use of scientific/technical knowledge	
<b>Innovation roles</b>	
'Facilitator' of innovation	
'Carrier' of innovation	
'Source' of innovation	Increased
<b>Alternative approaches to supporting innovation</b>	
Specialised research units	Increased
Joint/co-operative ventures	Increased
Interdisciplinary projects that are receptive to business/community needs	Increased
<b>Generative and developmental roles</b>	
Generative role	Increased
Developmental role	Increased

<b>Alternative processes for supporting innovation</b>	
Expert/technical consulting	
Promoting experience-sharing	
Brokering	
Supporting diagnosis and problem clarification	
Supporting systematic evaluation	
Aiding in benchmarking	
Serving in change agency capacity	
<b>Alternative functional roles in supporting innovation</b>	
Educator/lecturer	
Trainer	
Technical adviser	
Coach/mentor	
Formal quality assessor/assurance role	
Facilitator	



## Current KT channels and KIBS activities in university

-  Collaborative project KT
-  Research-led KT
-  Transfer of expertise KT
-  Networking KT

	Personal	Faculty	University			
<b>Aspects of innovation</b>						
'Product' innovation	C					
'Market' innovation	C	R				
'Process' innovation	C		C	N		
'Organisational' innovation	C					
'Relationship' innovation			C		N	
<b>Organisational processes for innovation</b>						
The internal cooperation of employees	C	R				
Organisational use of vertical and horizontal information	C					
Organisational technology adoption	C					
Incremental learning (learning by doing)	C				C	
Use of scientific/technical knowledge	C	R	N			
<b>Innovation roles</b>						
'Facilitator' of innovation	C		T			
'Carrier' of innovation	C	R				
'Source' of innovation	C					
<b>Alternative approaches to supporting innovation</b>						
Specialised research units	R					
Joint/co-operative ventures	R					
Interdisciplinary projects that are receptive to business/community needs	C	R	R			
<b>Generative and developmental roles</b>						
Generative role	C	R	R	T	T	
Developmental role	R		R			
<b>Alternative processes for supporting innovation</b>						
Expert/technical consulting	C					
Promoting experience-sharing	C	R				
Brokering	C					
Supporting diagnosis and problem clarification	C					
Supporting systematic evaluation	C		C		C	
Aiding in benchmarking	C	R				
Serving in change agency capacity	C		C			
<b>Alternative functional roles in supporting innovation</b>						
Educator/lecturer						
Trainer			R		R	
Technical adviser	C					
Coach/mentor	C					
Formal quality assessor/assurance role						
Facilitator	C					



# Conclusions

- **Patterns** of KT channel utilisation and associated KIBS in universities **vary**
  - **Case study university** evidences **different KT channel pattern** to that identified by Bekkers and Freitas (2008)
  - SME innovation support is **more than a research/expertise and science/technology – led process**. It includes ‘**practice-oriented**’ Mode 2 knowledge facilitation.
- It is **possible to assess the profile** of KT channels and KIBS services in universities as **KT activities are strategically directed**



Birmingham City  
**Business School**

Thank you.  
Any questions?