

## Universities and medium-sized companies

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## The problem as stated in official reports

- “... a very large aggregate of smaller English businesses is carried on in a stupidly conservative fashion, with antiquated machinery, traditional modes of conduct, and methods which ignore the scientific advances of recent years.”
- “numerous cases in which members of the the small band of British scientific men have made revolutionary discoveries in science; but yet the chief fruits of their work have been reaped by businesses in Germany and other countries , where industry and science have been in close touch with one another.”

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*Mosely Commission, The Times, leading article, 28 November 1902*
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*A. Marshall, Industry and Trade, Macmillan, 1919*

## Understanding the “medium”

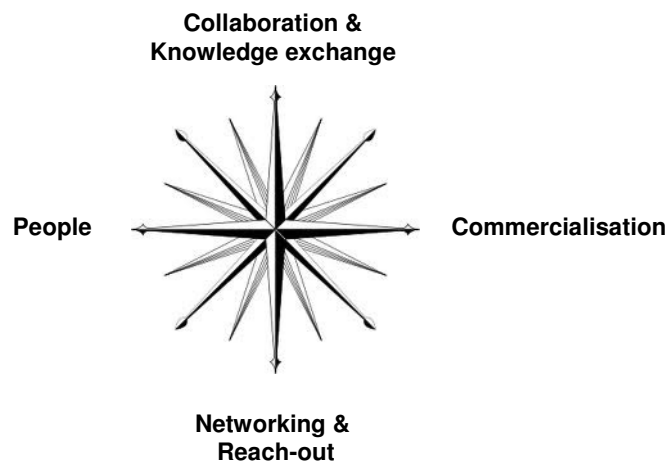
- Statistics and mind-set are part of the problem
  - Conflation with micro-businesses
  - Unclear where the upper limit lies
  - Firms that make between £50m and £500m in sales: those in the R&D Scoreboard (2009) G1000 invest 23% of their sales in R&D, whereas those in the UK1000 only invest 6% of sales in R&D
- Focus
  - Need to understand what it is that changes about a business when turnover passes £10m
  - What is the difference between static and growing businesses in this range?
  - What is the relation between innovation and growth?
  - What distinguishes this group in relations with universities?

## Linking it together – four key flows in the innovation ecosystem

- People
  - Having the right skills and talents, retaining the best graduates from our education system, critical mass in labour markets for creative people
- Finance
  - Investment in research, support from banks for growth companies, seed capital, venture funding, enabling investment in infrastructure (physical and intangible)
- Services
  - Infrastructure and associated services for innovation including incubators, science parks, digital connectivity, business support, access to equipment for testing etc.
- Knowledge
  - Flow of ideas, IPR and opportunities emerging interactively from universities, hospitals, RTOs, business R&D, creative sector

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## Flows channelled via 4 principal dimensions of university-business links



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- What is it?
  - Company sponsors research or works within collaborative public programme
  - Also consultancy, development and use of instruments, software..
- Key challenges & opportunities for MSBs
  - Innovation survey showing very low use of HEIs as source of innovation (2.6% c.f. 47% making use of information from clients)
  - But 16% of CBI Future Champions sample see universities as key driver of growth
  - University links not necessarily local (40% of HEIs have over half of MSB links within 50 miles while firms with <50 employees are at 75%)

- Transaction costs
  - Working with industry ecosystem – supply chains and associations but caution on clusters
  - Universities' global links can provide 'window on the world'
- Personal incentives
  - Need to give clear credit in academic career progression
- R&D intensity and focus
  - Research-intensive companies such as Oxford Instruments & ARM have good university links but many others lack absorptive capacity
  - Tendency to outsourcing technology (open innovation)
  - R&D tending to be business-focussed and hence less open to radical ideas – risk to long term need to generate new business areas

## Opportunity in Equipment Sharing

- SMEs currently spend £40m p.a. on use of university facilities and equipment
  - Long-term rising trend
- Universities mitigating 45% government capital cuts by sharing within and between universities
- N8 group of research intensive northern universities took initiative to build system for identifying and managing sharing opportunities
- At same time group N8 organising multi-institutional collaborative R&D with companies in Advanced Materials & Active & Healthy Ageing
- Discovered that companies also want to join the equipment sharing arrangements
  - Rapid obsolescence and high throughput
  - Sharing works far better in context of collaborative relationship

## People

- What is it?
  - Ultimately the flow of trained people into the economy, through employability, sponsorship, business-focussed education, continuing professional development, mobility...
- Key challenges & opportunities for MSBs
  - Image 1: almost half of graduates target jobs in large firms while only 19% aim for SMEs
  - Image 2: firms not recognising value of graduates to business
  - Search economics: 'Hidden job market' - no effective portal for job search opportunities
  - Experience: 38% of MSBs offer internships cf 54% of large businesses
  - Employability: 70% of firms see as top priority for graduates

## What are we doing about it?

### Manchester Graduate Internship Programme



- The problem
  - 40% of our graduates wanted to stay in Manchester City region with many in non-graduate jobs
  - Inhibited by lack of work experience, confidence, direction...
  - Internships were targeted at current students
  - Local SMEs perceiving University as inaccessible and graduates beyond their means
- The solution
  - Internships exclusively for new graduates of The University of Manchester
  - Paid, graduate-level positions (c£15k pa) max 12 months
  - 2011 advertised 180+ vacancies and placed 105 graduates

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**“Our intern generated new work for us...”**

*MD, Burner & Flame Technology Ltd*

**“Our chosen graduate was able to hit the ground running and has grown into a real asset to our team.”**

*Senior Business Analyst, Bureau Veritas UK Ltd*

**“..an excellent and cost effective way of bringing in extra resource”**

*Director of Finance & Operations,  
George House Trust*

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## ...and enterprise training

### Winner - Cav-Form

John Wade (U/G) - B.Eng  
Civil Engineering (1st Year)

*The system offers a method of constructing a cavity wall, eliminating the requirement of a backing block, saving on cost of the blocks, labour and materials. The greatest benefit however relates to the environment. The system delivers huge savings in terms of carbon reduction in construction.*



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## Commercialisation

- What is it?
  - Licensing and formation of spin-outs from intellectual property
  - Incubation and provision of infrastructure such as science parks, hosting corporate R&D
- Key challenges & opportunities for MSBs
  - Key university role here is to act as a source of creation of new MSBs
  - 50 spin out companies since 2003 had market or trade sale value adding to £13 billion – Praxis Unico
  - Also licensing and acquisition opportunities for existing firms
  - Demand-side measures including procurement giving young firms a road to the market

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- More firms and more R&D intensive firms
  - we start with a smaller target than other countries so need to grow the population of MSBs
  - Need to work with all kinds but particularly those which are knowledge based and/or R&D based
- Universities can contribute in several ways:
  - source of new firms that grow into this range
  - provider of knowledge to existing firms
  - provider of people to existing firms
- To do so need to increase mutual awareness and develop efficient interfaces
  - working with groupings and intermediaries
  - key role for internships but must be equipped with right skills and knowledge