

2004-06  
Scottish Innovative Actions Programme

The Innovating Nation  
21 – 23 February 2007

Highlands and Islands Enterprise  
Scottish Enterprise  
SCOTTISH PARLIAMENTS  
EUROPEAN UNION  
PROJECT FINANCED BY THE EUROPEAN UNION

2004-06  
Scottish Innovative Actions Programme

Workshop:  
What can Higher  
Education Offer the  
Business Sector?



Providing a central point of  
access to Scottish Universities'  
expertise and facilities



## Remit

- § To facilitate businesses of all sizes and sectors to connect rapidly to the skills, expertise and resources available in the Scottish Higher Education sector
- § Funding provided by:
  - § Scottish Funding Council
  - § Scottish Innovative Actions Programme
- § Operational since August 2005 – hosted by the University of Edinburgh on behalf of the sector
- § Service available to companies, business advisors, account managers etc.



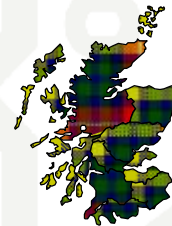
## Asymmetry – knowledge supply & demand

### Knowledge supply (Academia)

- § 13 Universities in Scotland
- § 8% of UK population
- § 12% of UK research councils' funding
- § 13% of UK's research funding from EU
- § 18% of UK's life sciences PhD awards
- § Ranked 3<sup>rd</sup> in world for publications/capita (1% of world's research publications)

### Knowledge demand (Industry)

- § Few corporate R&D centres
- § Low business R&D
- § Large numbers of SMEs (99%)



## University collaboration brings significant business benefits

- § Develop innovative new products, services and processes
- § Improve performance using technological advances
- § Increase competitive advantage in key markets
- § Enhance profitability – existing and new markets

***Many companies don't know that innovative solutions to help their business grow can be developed with University assistance***



## Interface – facilitating easier knowledge transfer

Overcome the challenge facing companies in understanding what is available or who to contact in Scottish Universities for R&D or expertise capabilities

Identify and facilitate introductions to potential academic collaborators across all of the Scottish Universities by finding the relevant expertise to meet business needs

**20 Research Institutions as partners**

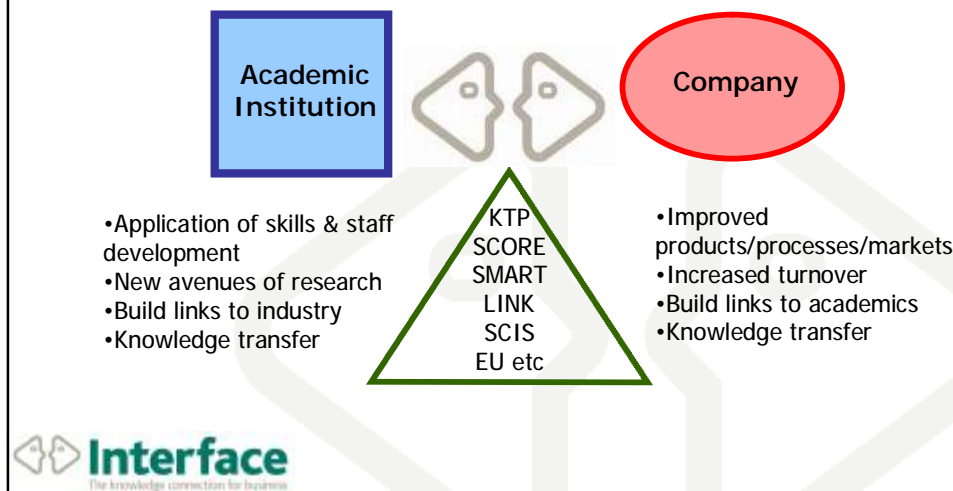
**New or Existing Businesses**

Focus on "market demand/ business pull"

Develop sustained collaborations between Institutions & Businesses that can yield all types of knowledge transfer (not just IP licensing)



## Both partners benefit



## Engagement with Interface

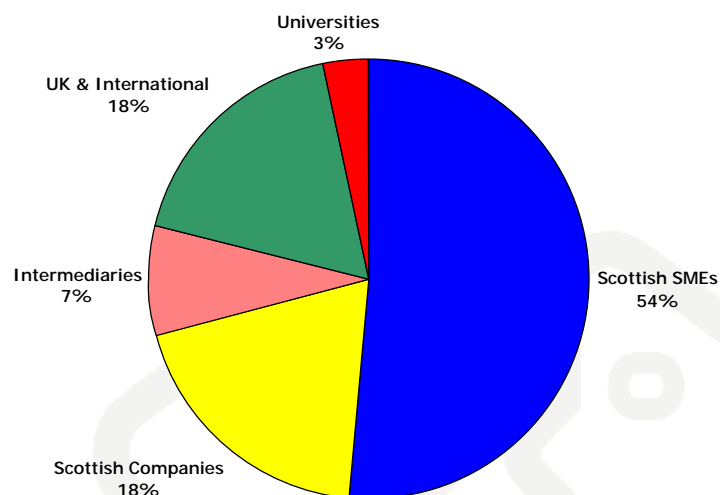
- § Direct contact or referral
- § Establish company requirements
- § Suitable expertise identified
- § Company decides how they wish to proceed
- § Introductions facilitated & additional information provided (eg. finance)
- § Discussions leading to project scoped out
- § Contractual terms signed

## Knowledge transfer and partnering - many different formats

- § Student placements
- § Knowledge Transfer Partnerships (KTP)
- § Access to facilities eg. testing equipment
- § Consultancy
- § Research collaborations and contracts
- § Technology transfer - Licensing



## Searches to end January 2007 by origin



## Key Outputs

- § 305 enquiries
- § 203 'expertise searches' – high level assistance
- § 65 new links between SMEs and the research base
- § 20 company – HEI collaborative projects initiated
- § Pipeline of over 80 companies in discussions / evaluating results
- § 62% of the Organisations seeking expertise capability have not collaborated previously with a Scottish University
- § 80% of companies who have initiated discussions and/or project have not previously worked with that University



## Key Impacts

- § Established clear mechanisms to allow Scottish companies of all sizes and sectors to rapidly connect and access the world-class technology, skills and research within the Scottish research base.
- § The knowledge and expertise of the skilled graduates and staff in Scottish Universities is accessible to and being utilised by Scottish SMEs particularly those companies who do not have a track record of collaborating with Scottish Universities.
- § All 20 Higher Education Institutions in Scotland are committed to this collaborative programme via an agreed operating plan
- § Over 50% of the enquiries from referrals showing a 'joined up' approach.
- § An extensive information resource has been established with respect to the capability and capacity of Scottish academics to deliver innovative solutions to business challenges



## Case Study 1: Access to facilities

### Emtelle (Hawick)

- § Have developed a range of customised fibre optic flexible network solutions based on blown fibre technology which delivers communications infrastructure that is flexible, fast and future-proof
- § sought to understand water permeation rates for new cable manufacture
- § linked up with Glasgow Caledonian University
- § Initial project to test samples had led to further collaboration
- § Enquiry received December 2005, Project initiated April 2006



## Case Study 2: Student Placement

- § Geoprober Drilling Ltd., (Aberdeen)
- § Sought to develop a revolutionary drilling system which will make oil exploration cheaper than conventional methods
- § Linked up with University of Edinburgh who suggested sending an engineering student on a work placement to help resolve some of these issues
- § Geoprober originally looked for support to use Computer Aided Design tools which would help design the new deepwater drilling equipment but the company since got student involved in other projects.
- § He has spent time over in Texas with Chevron Texaco, had hands-on experience in the workshop, networked with sub-contractors and had exposure to engineering design systems.
- § Enquiry received November 2005, Project initiated Jan 2006



## Case Study 3: Research Project

- § **Ian Russell Engineering Ltd** (Consultancy for a variety of petro-chemical companies)
- § The company was seeking input with regard to its new design of a piston engine – specifically in relation to the pressure it can withstand. New prototype will lower fuel emissions and will be cheaper to run.
- § Linked up with Bell College's department of design and manufacturing engineering
- § The initial enquiry was for thermo dynamic modelling and the building process. However, Bell has now helped the company with designing and testing.
- § Enquiry (referral) received March 2006, project initiated May 2006



## Other collaborations

- § **Voe Skincare Orkney** – collaborated with University of Stirling to undertake marketing research and analysis in the area of health and beauty products
- § **Duneira Enterprises** – ongoing collaboration with Glasgow Caledonian University for website optimisation for improved customer interaction



## Key to success - challenges

- § Complementing existing activities and structures within commercialisation offices
- § Marketing and awareness raising
- § Quality of 'matches'
- § Response time
- § Conversion of enquiries into outcomes



## Benefits – future policy and innovation support

- § Greater Knowledge Transfer activity
- § Raised R&D profile for Higher Education Institutions
- § Greater understanding of company requirements
- § Increase competitiveness of local businesses
- § Contribute to a regional innovation system
- § Local and regional economic development
- § 'Best practice' example



## Key learning points

### Universities

*Funded for excellence in research*

*Concerned by risk of technical failure*

*Long-term research agenda*

*Lack of commercial foresight*

### Businesses

*Funded for revenue & profit*

*Concerned by risk of commercial failure*

*Short-term profit agenda*

*Lack of technology foresight*

- Providing easier access to knowledge and expertise can forge new relationships between Scotland's Research base and businesses and in turn stimulate business demand
- Necessary to focus on key benefits in marketing messages and case studies – why collaborate?
- Need to be creative as possible to provide low-cost mechanisms to stimulate initial collaboration
- Priorities can change overnight
- High level management support necessary in both university and company
- All stakeholders must have buy-in, long term vision and patience!



- § Often wondered who is the best person to contact at a Scottish University for specific expertise?
- § Interface is the easiest way to connect you with the world-class expertise, research, skills and resources available within the Scottish Universities



## Contact Details for enquiries

§ [siobhan@interface-online.org.uk](mailto:siobhan@interface-online.org.uk)

§ Tel: 0131 6514790

§ [www.interface-online.org.uk](http://www.interface-online.org.uk)



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## Workshop: What can Higher Education offer the Business Sector?

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# Medialab Laura Dingwall Highlands and Islands Enterprise

## Highlands and Islands Enterprise and the MIT Media Lab



## What the project set out to do...

***“to test a new model for exposing SMEs & micro-businesses, in a remote & peripheral part of Scotland without a University driven research base, to global level research concepts, IP, researchers and corporate partners”***



## Levels of Interface

- Stimulation through Learning Journeys
  - Clear defined objectives
- Knowledge Transfer
  - Clever ideas lead to new ideas, products and companies
- Researcher Placement
  - Researchers to undertake a secondment from the MIT to work in the Highlands & Islands
- Technology Transfer
  - Media Lab research project to SME product
- People Transfer
  - New start
  - R&D project
  - Fellowship



## Brokerage & Partnerships

- HIE Network Staff
- UHI Millennium Institute
- Highlands & Islands Research Institutes
- Highlands & Islands Networking Organisations
- Highlands & Islands Trade Associations
- Innovation Relay Centre



## Dissemination Programme

- **Visits** to MIT
- **Researcher visits** to the region
- **Technology demonstrators** brought in to the region
- Themed **workshops** in the region and at the lab – e.g. tourism
- **Secondment opportunities** for researchers
- **Specialist consultancy**



## Areas of Focus

- **Learning**
  - Virtual learning environments/classrooms
  - Advanced tele/video conferencing
  - Virtual work experience
  - Group learning technology
  - Group simulations
- **Life Sciences**
  - Remote & rural medicine
  - Remote diagnosis
  - Remote monitoring
  - Chronic disease management
  - Medical diagnostics
- **Business Process Outsourcing**
  - Call/web logging
  - Advanced tele/video conferencing
  - Voice analysis
  - Models for distributed working
  - Virtual contact centres
  - Virtual agents
- **Culture & Tourism**
  - Physical culture/heritage tours
  - Storytelling
  - Cultural exchange
  - Mobile tourism
  - Remote point of care
  - Content collaboration models
- **Fashion**
  - Smart textiles
  - Wearable devices
- **Energy**
  - Energy storage systems
  - Electrical systems & grid networks



## Visits to MIT

**KEY = well planned and facilitated visit programme with follow on**

- **Themed**
  - Strategic, Business Process Outsourcing, Social Networking
- **Sectoral**
  - Life sciences, energy, culture
- **Challenges**
  - Technology, entrepreneurship



## Researcher Placements

- Masters or PhD Students
- Up to 3 month placement
- Daily rate & relevant travel expenses, plus a living allowance
- Arranged incubation space where required
- Facilitated discussions with SMEs
- Report back to HIE on:
  - The outcomes of the research project
  - The experience of the placement in the Highlands & Islands
- Access to UHI Millennium Institute Facilities



## Research Fellows

- 2 “Highlands & Islands Enterprise Research Fellows”
- PhD or Masters Students
- Based in Boston
- Liaise with HIE and its stakeholders
- Visit the Highlands & Islands as part of agreement



## Key Achievements

### OUTPUTS:

- 6 spin out companies developed
- 9 products/processes developed
- 9 collaborative groups established
- 7 Researcher placements
  - 4 researchers retained in the region
- 50 workshops - in H&I and at the Media Lab
- DIGITAL FUTURE CONFERENCE – May 2006



## Key Achievements

### IMPACTS:

- Extended relationship to MIT Industrial Liaison Programme
- Creation of Distance Lab
- Development of a new model for Human Networking & Knowledge Exchange via FUSION
- Curriculum for Excellence projects developed with schools
- Projects continued and funded via other sources of funding
- Regional Challenges set up for collaborative R&D projects
- Model extended for other sources of knowledge e.g. BT, DDA



## Distance Lab

- Distributed Research Lab
- Working on “Distance Reducing Technologies”
  - Learning
  - Healthcare
  - Architecture
  - Knowledge
  - Relationships
  - Culture
- Specific mission - to increase Company R&D opportunities
- Working with MIT and others to engage on technology R&D programmes



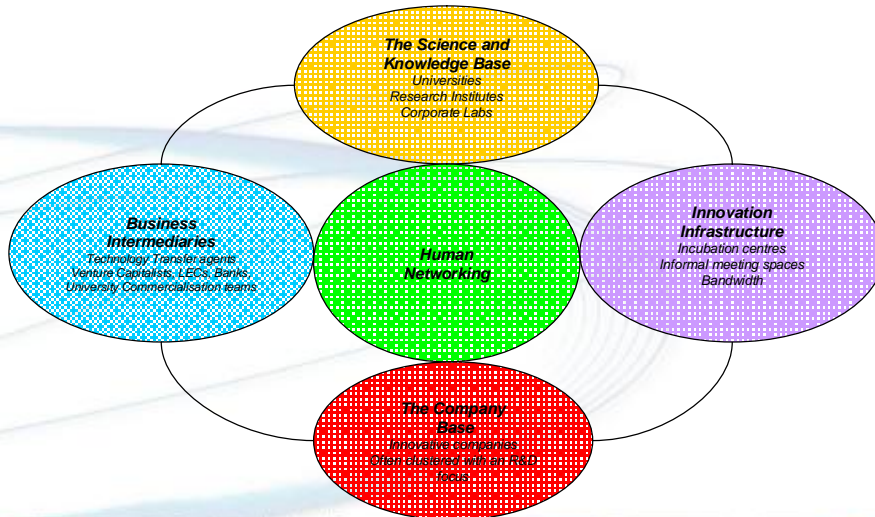
## Our Approach

Build a region grounded in the Knowledge Economy

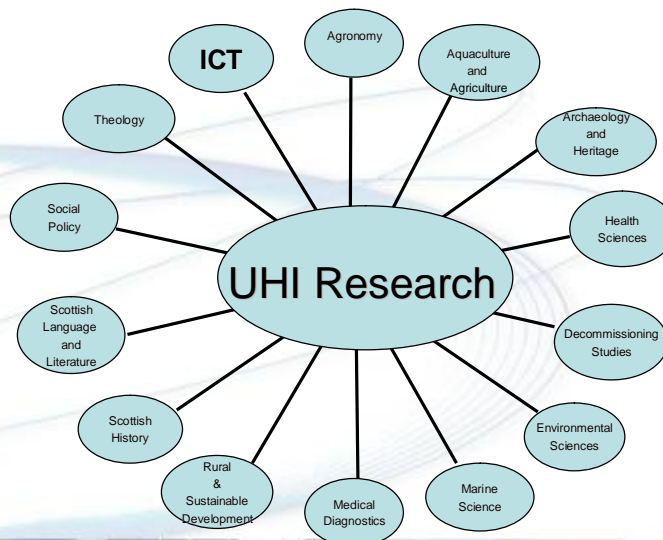
- **Create a new University**
  - University of the Highlands and Islands
- **Build Research Capacity via Research Institutes**
  - Nuclear Decommissioning, ICT, Crop Research, Renewables, Lifestyle Disorders, Sustainable Development, etc
- **Look for External Sources of Knowledge**
  - MIT, BT, DDA and others
- **Create People Infrastructure**
  - Human Networking
  - Knowledge Exchange
  - Stimulation, Facilitation & Exploitation
- **Be Innovative & Entrepreneurial**
  - Look for new Knowledge Transfer Opportunities
  - Invest in our Young People



# The H&I Innovation System



# Driving the Research Agenda





**Thanks for Listening – Any Questions?**



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