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View from ~~100~~ days

‘An ‘educated’ opinion on the H&I
innovation landscape’

Mike Weston, Energy Research Group



Outline

- UHI Energy Research Group
- Innovation
 - ...in General
 - ...and the Highlands and Islands
 - ...regional support from HIE
 - ...and UHI
- Summary

Energy Research Group

Advertising Feature

New team energises key research at UHI

A new team of specialists has been assembled at the prospective University of the Highlands and Islands to assist the development of energy research and training and establish UHI as a centre for excellence in this globally important field.

And the UHI energy research group, based in Inverness, wants to hear from ambitious businesses with an interest in renewable energy to develop joint working initiatives.

The team will work closely with UHI partners across the region where some exciting and pioneering work is already under way. It will initially focus on niche areas for UHI – including tidal and wave marine energy, wave, wind, hydrogen, low carbon built environment, marine and land-based biomass, community renewable energy, offshore and nuclear decommissioning, and many other closely-related environmental and policy fields.



UHI's energy research team – from left: Dr Mike Weston, Darrion Collins and Iona MacDonald

Wealth of experience

Dr Mike Weston brings a wealth of experience to his role as team leader. Previously the technology manager at ITI Energy, a Scottish government sponsored initiative to stimulate high quality research and high technology company creation, Mike is responsible for further developing and implementing the UHI energy strategy in collaboration with the science faculty and academic leadership in the UHI partners.

Darrion Collins, formerly with the entrepreneurial business networking group Fusion, has joined the team as business development manager. Iona MacDonald has transferred from UHI's academic registry to be project administrator, and she will also help to build up a renewable energy knowledge bank to inform the evolving UHI energy strategy.

Mike commented: "We are establishing ourselves as a focal point and framework for connecting the UHI academic partners through research and training in energy. And we'll be encouraging and enabling joint projects in renewable energy through qualifications and post-degree experience and research. Another priority is to form a working relationship with local businesses with an interest in renewable energy."

Living laboratory

"UHI is rapidly integrating the themes of energy research and teaching, particularly focusing on renewable and sustainable energy, within its existing academic portfolio.

"Our objective is to develop sustainable niche capabilities across the UHI partnership, realising the potential to provide a living laboratory of knowledge, expertise and resource in the field of renewable energy. We aim to play a lead role in this transformational new industry sector for the Highlands and Islands and for Scotland."

Businesses keen to find out more about the UHI energy research group can contact energyresearch@uhi.ac.uk or call 01463 279263.

For more information about UHI, see www.uhi.ac.uk

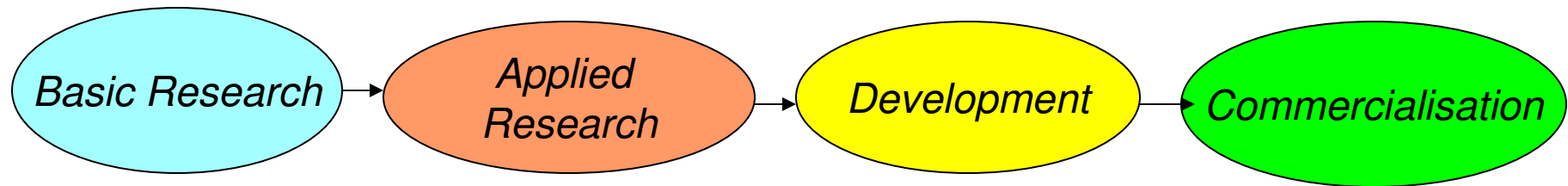
Enviably resources

The new team has been put together with support from Highlands and Islands Enterprise and the Highlands and Islands Partnership Programme – such is the importance of energy research to UHI, the region and beyond. It forms one of the priority areas for UHI as it continues to build its research capacity as the future university for the region, producing people with the skills and academic know-how to boost the local economy and sustain communities.



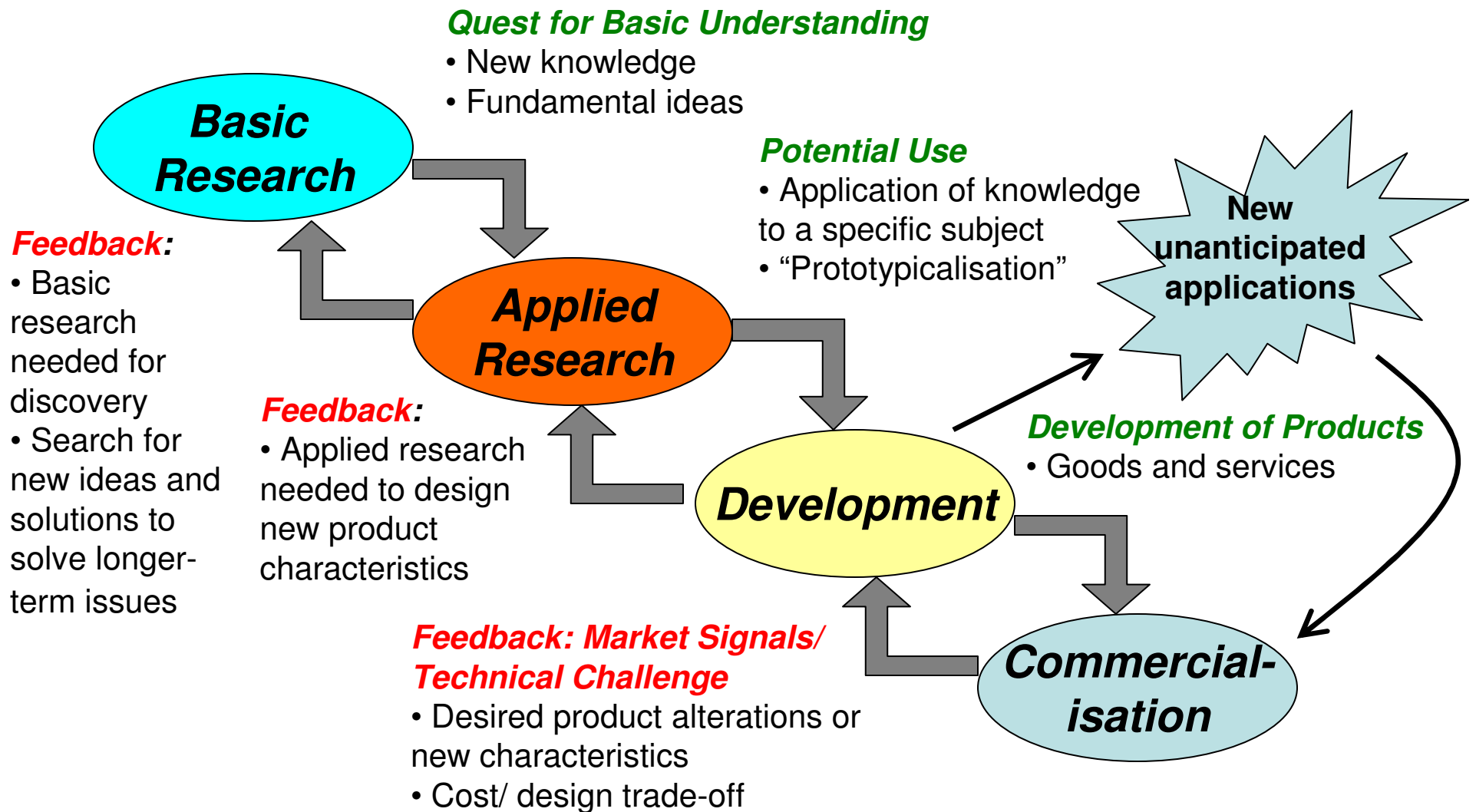
- Focal point for connecting the UHI academic partners
- Encouraging and enabling joint projects in renewable energy
- A key priority is to form a working relationship with local businesses with an interest in energy

Innovation as a Linear Process



- However in reality innovation is more complex
 - No definite boundaries
 - Principal Investigators and/or Patents and Processes are fully mobile, i.e. not firm-dependent
 - Many unexpected outcomes
- Technological breakthroughs may occur at any point not just from basic research

Non-Linear Model of Innovation



Why innovate?

1. Improved quality
2. Creation of new markets
3. Extension of the product range
4. Reduced labour costs
5. Improved production processes
6. Reduced materials
7. Reduced environmental damage
8. Replacement of products/services
9. Reduced energy consumption
10. Conformance to regulations

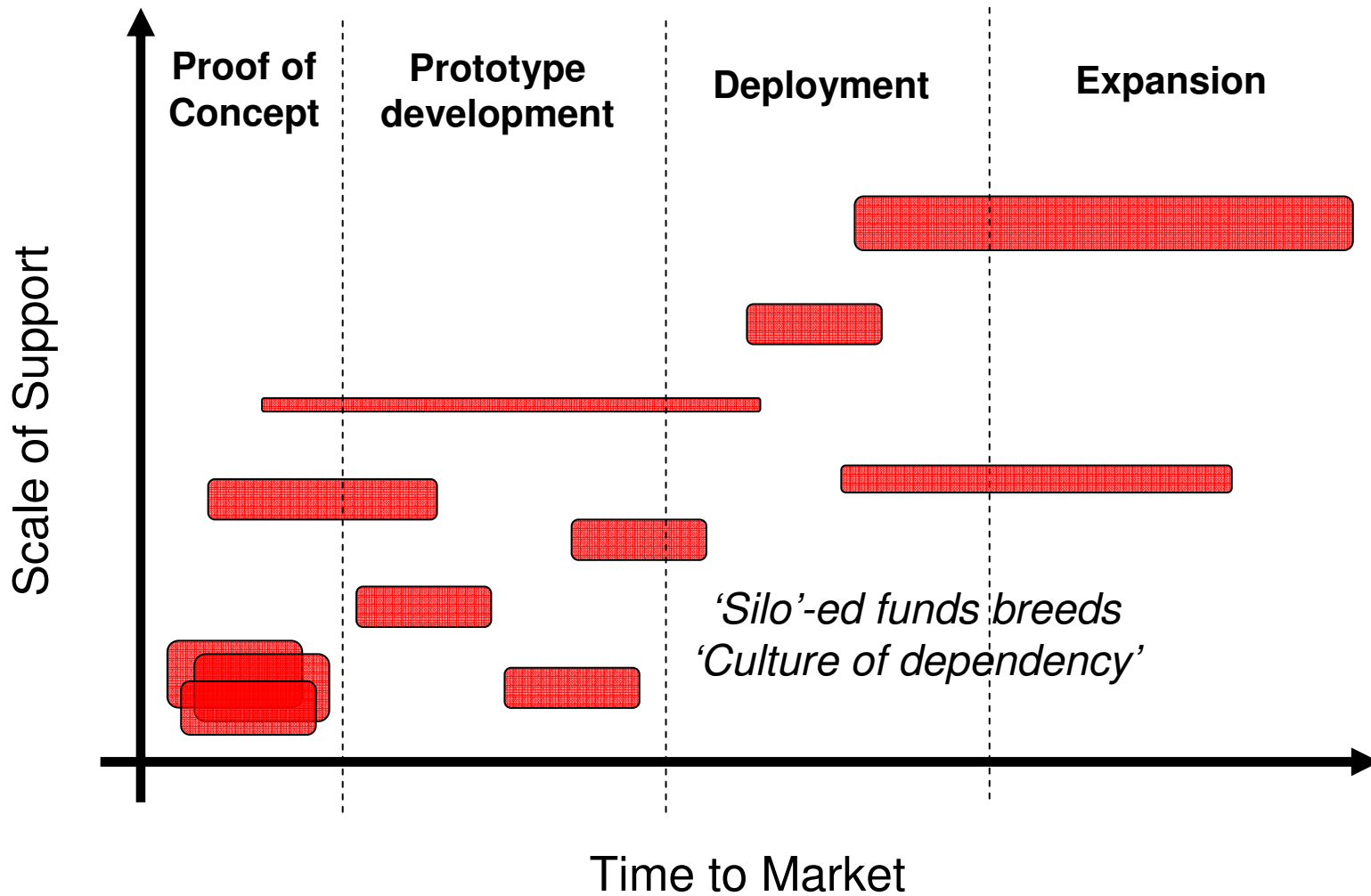


Where Innovation goes wrong

- Poor Leadership
- Poor Organization
- Poor Communication
- Poor Empowerment
- Poor Knowledge Management
- Poor Goal definition
- Poor Alignment of actions to goals
- Poor Participation in teams
- Poor Monitoring of results
- Poor Access to information



Previous Experience



H&I 'education'?



- Highlands & Islands Innovation Review: Executive Report, June 2009
- www.hie.co.uk/2009/HIE-innovation-review.pdf



Innovation in H&I

- Principally business driven
- Adoption of external innovation
 - *'followers not leaders'*
- Resource constrained
- Attitude of self reliance



Joy's Law

- *“No matter who you are, most of the smartest people work for someone else”*
– Bill Joy, Sun Microsystems cofounder
- This “law” emphasizes the essential knowledge problem that faces many enterprises today



Regional support

- Knowledge transfer
- Support for Research and Development
- Technology
- Support for Entrepreneurship
- Support for developing networks
- Support for mentoring Events



Knowledge Transfer

- HIE MIT Media Lab Competition
- Hi Links
- Knowledge Transfer Partnerships



Support for R&D

- Regional Selective Assistance
- SMART: Scotland
- Seventh Research Framework Programme
- Scottish Proposal Application Fund (SPAF)



Support for R&D (2)

- Research and development tax credits
- Proof of Concept programme
- Technology Strategy Board
- Intermediary Technology Institutes
- HIE R&D funding scheme



Technology

- Byte the Bullet
- HIE MIT Media Lab Competition
- Technology Strategy Board



Support for Entrepreneurs

- Entrepreneurs Immersion Programme
- Entrepreneurs Growth Programme
- Entrepreneurship Development Programme
- Going Global
- Entrepreneurship Lab Internships

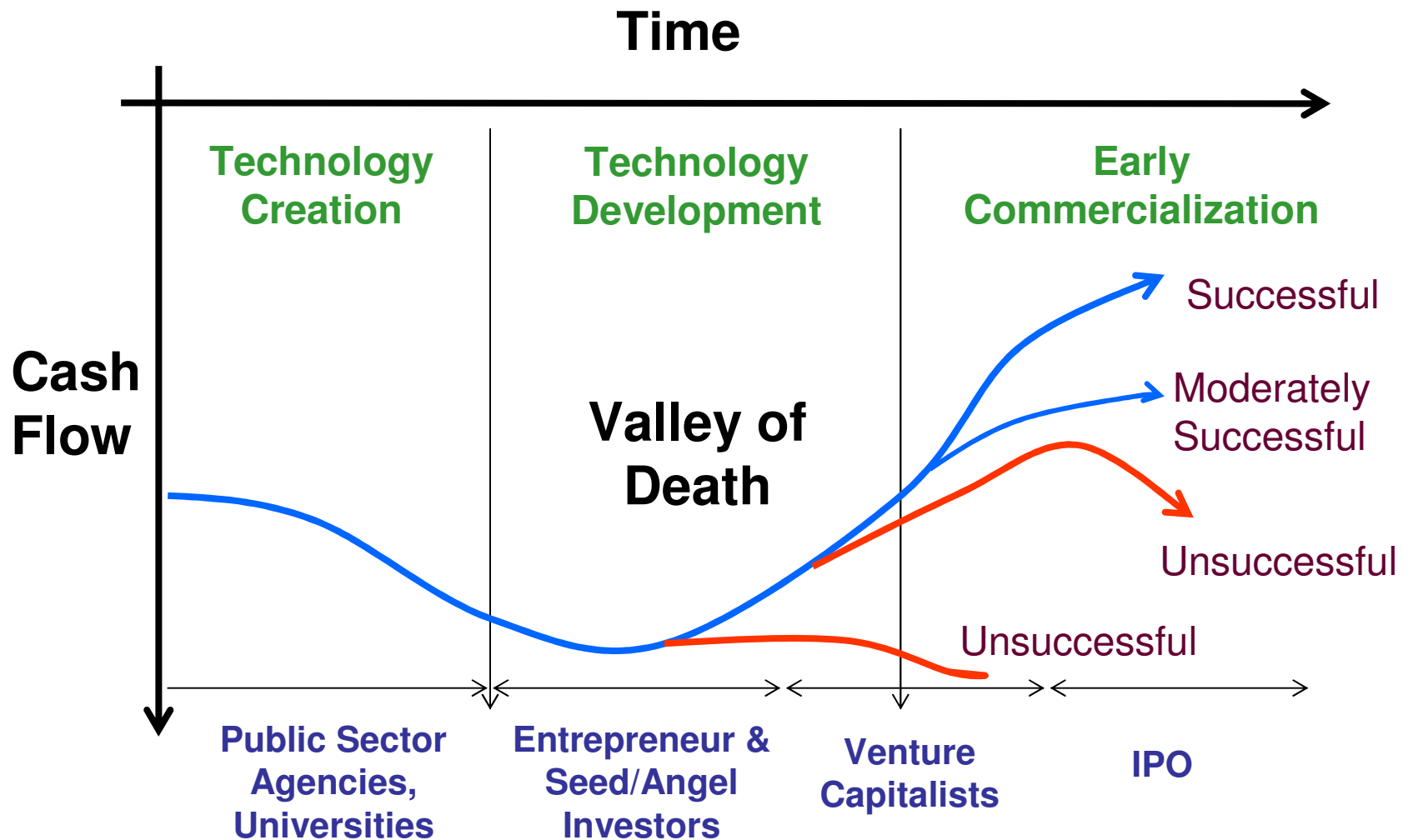


HIE addresses the direct needs

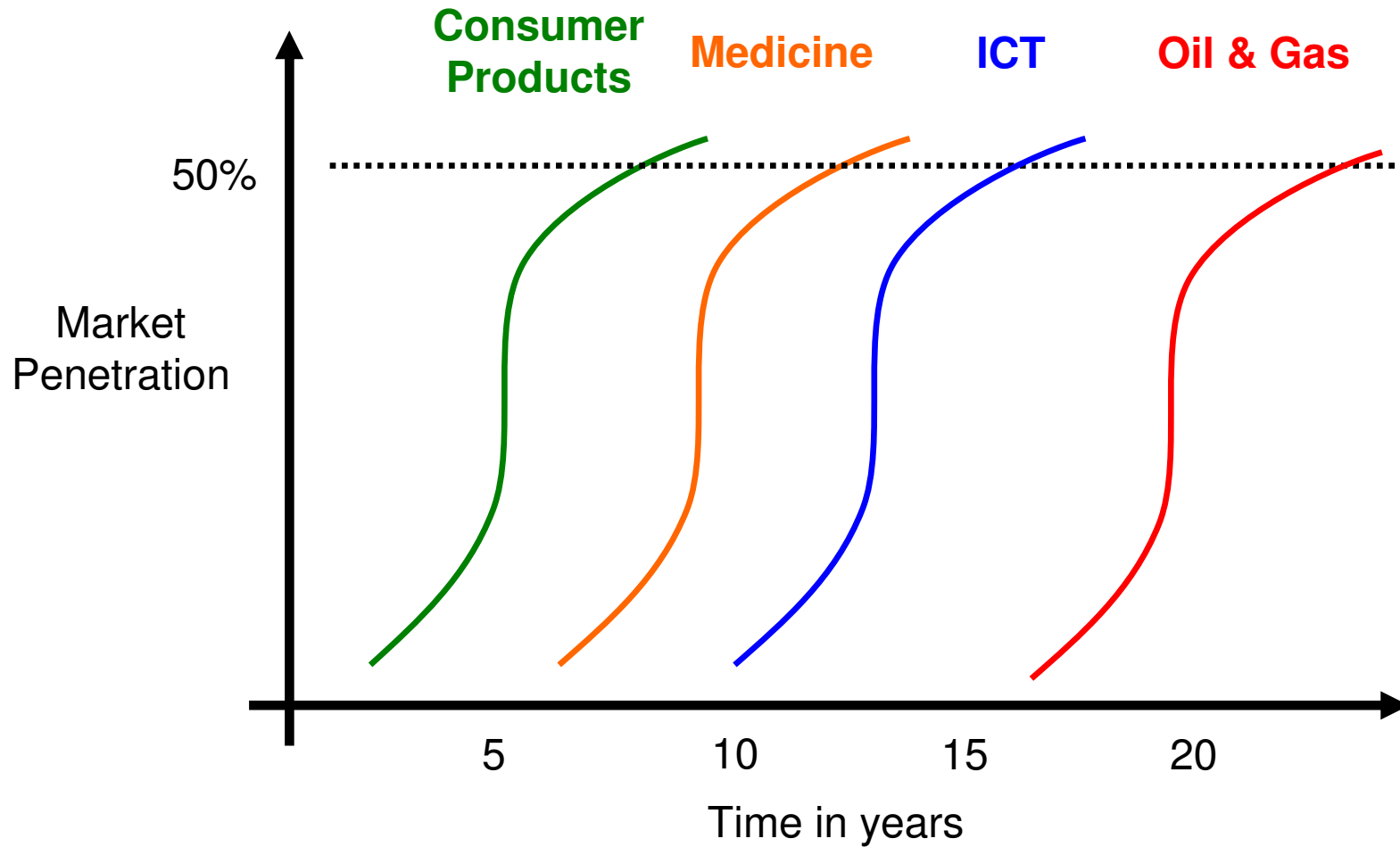
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But only part of the picture

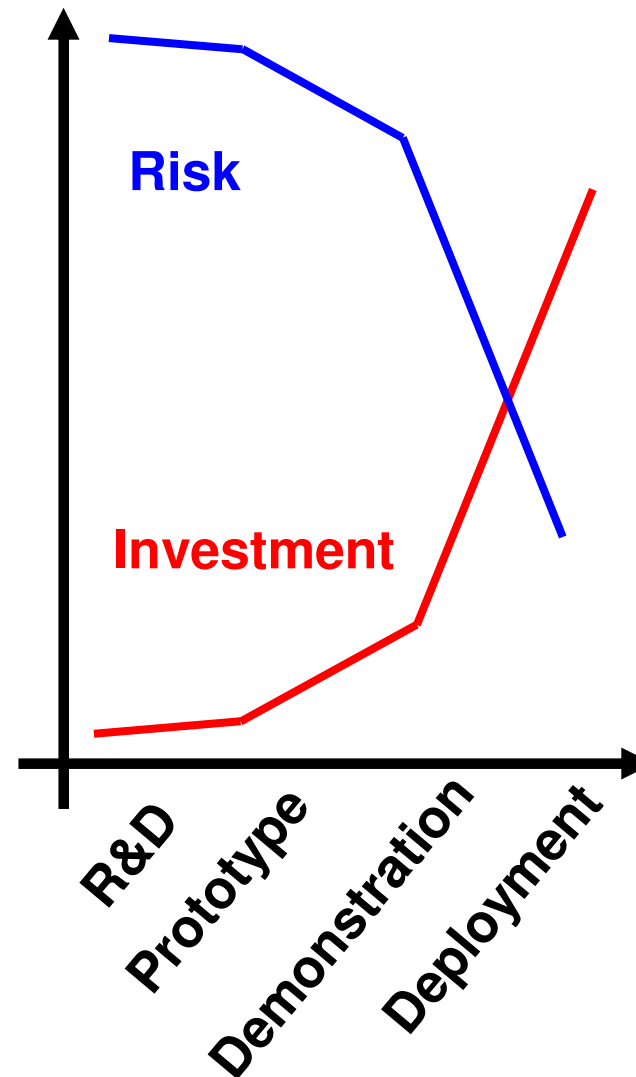


Implementation S-curves



Energy Innovation

- Long timelines
 - + Large capital investment
 - + Large investment multipliers
- = Deep & wide valley of death





It can be done

- 1999 – Holding company
- 2001 – Commercial vehicle
- 2002 – R&D Grants (DTI)
- 2003 – First Income/ Venture Funding (£2.5M)
- 2005 – Demonstration
- 2006 – Sales growth
- 2007 – Innovation Awards/ Trade sale (£20M)
- 2008 – Oil majors commit





Highlands and Islands Enterprise

- Public money
 - Not allowed to make mistakes, risk adverse
 - Constrained by state aid
- Limited exposure to innovation culture
- Driven to focus on short term wins
 - Divisive use of ‘internal investment’
- Growing support for ‘invention’



Funding opportunities

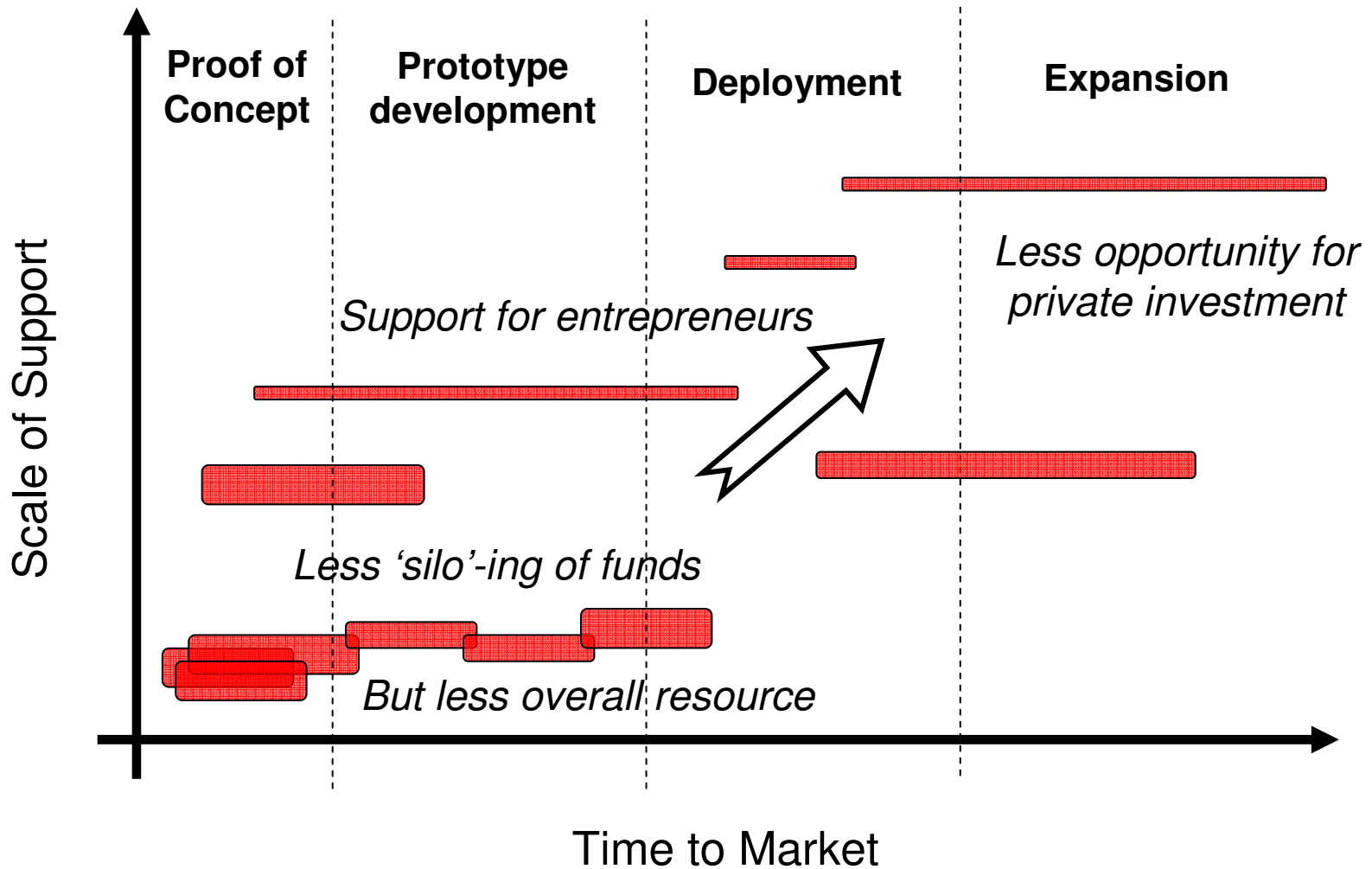
- Public sector limited
- Private sector increasingly risk averse
- Limited opportunities in H&I



Invention

- ‘the easy bit’, but...
 - ...only 50% of inventions become patents
 - ...only 1 in 500 patents are commercially viable
- So, need 1000’s of ideas

H&I Experience

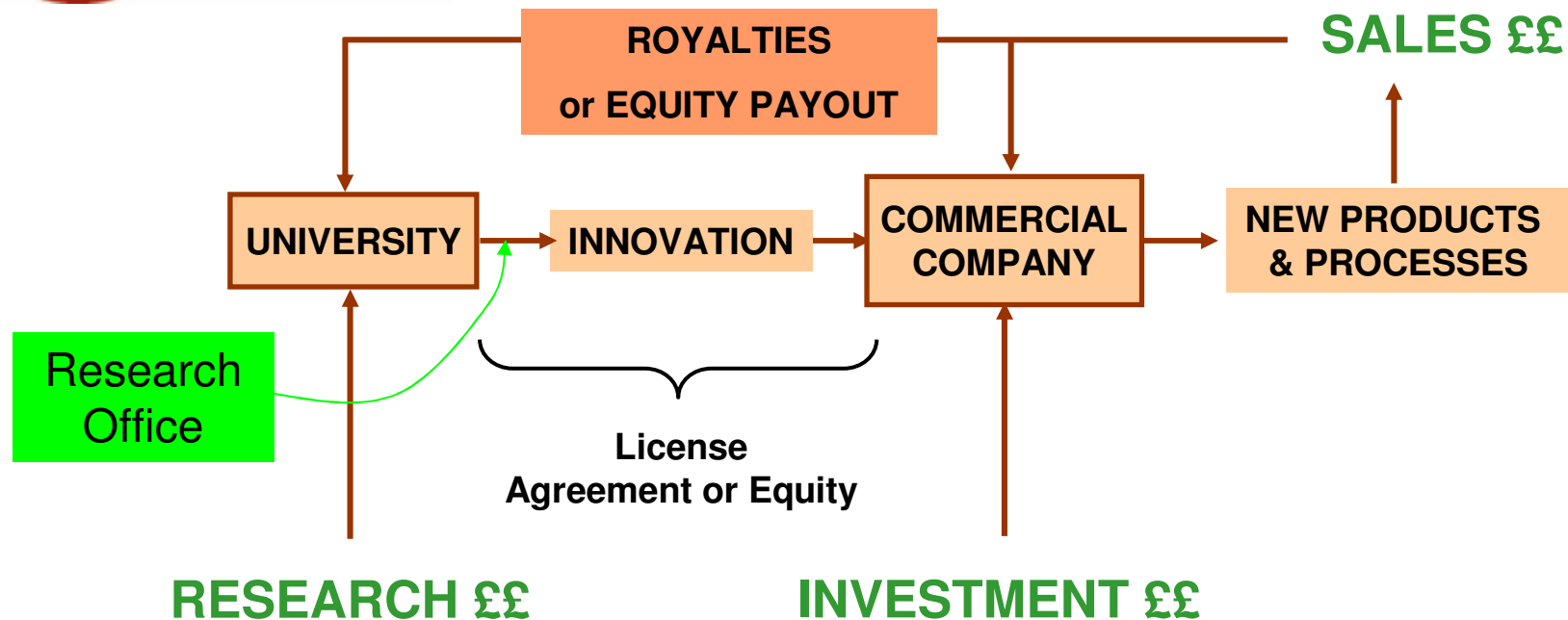




UHI

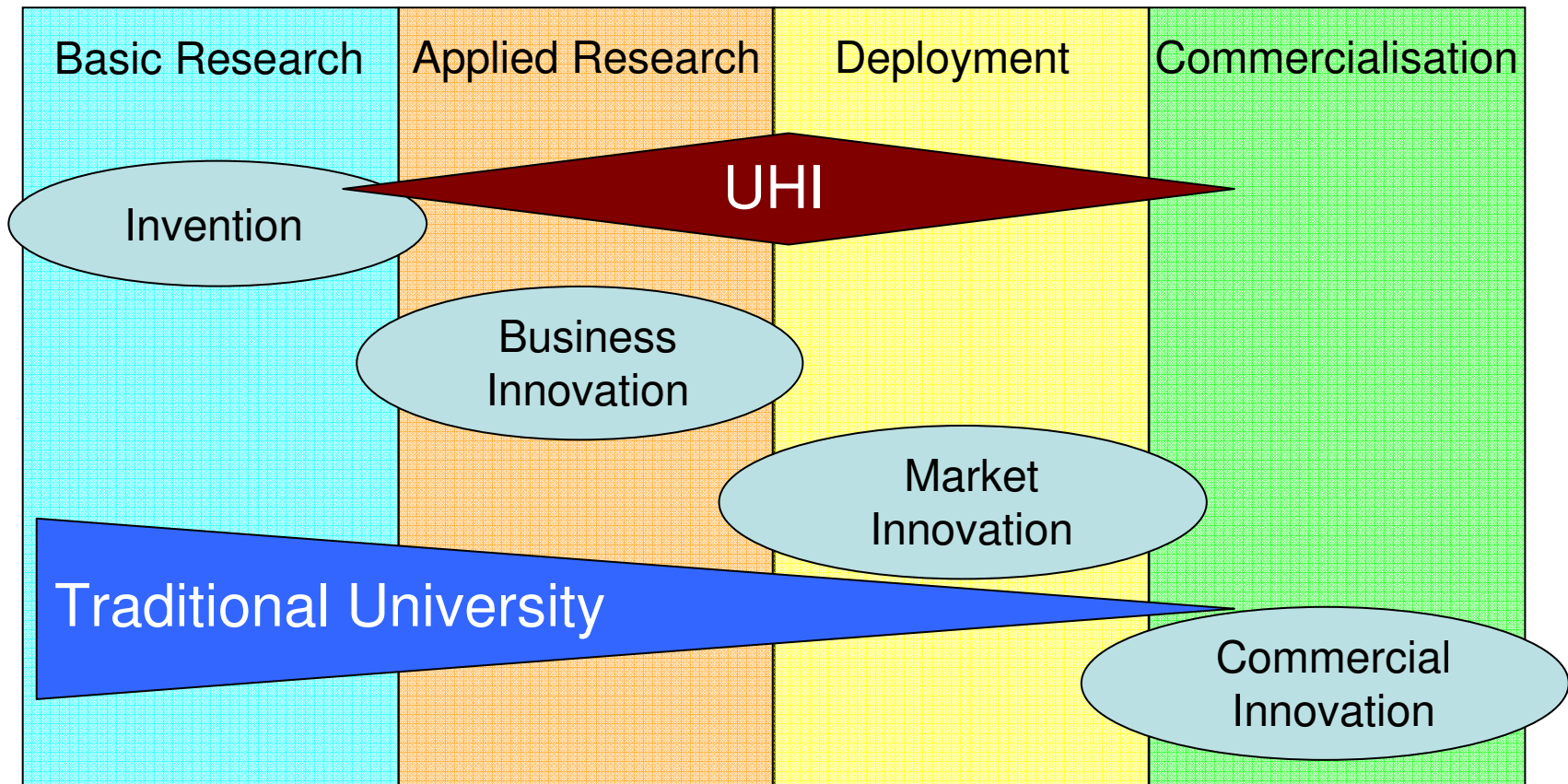
- Not traditional model
- 'Limited research base'
- Not Ivory Tower
- Opportunity to relate to industry needs
- Bridge to collaborative expertise

Traditional University Model



- Licensing to existing companies – brings royalty £
- New company formation – brings royalties and/or equity
- Other, less direct, contributions to regional economic activity e.g. young entrepreneurs

UHI position





Thank you

Any questions?

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