



# Approaches to assessing impact – the UK experience

Sue Smart

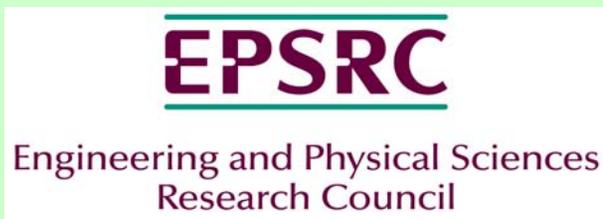
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# Department for Innovation, Universities and Skills (DIUS)



**Leading science for better health**



## **The first DIUS strategic objective is to:**

“Accelerate the commercial exploitation of creativity and knowledge, through innovation and research, to create wealth, grow the economy, build successful businesses and improve quality of life”



# 2007 - A Year of Worry

06/1678

**Increasing the economic impact of Research Councils**

Advice to the Director General of Science and Innovation, DTI from the Research Council Economic Impact Group.

14<sup>th</sup> July 2006

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RESEARCH COUNCILS UK

INCREASING THE ECONOMIC IMPACT OF THE RESEARCH COUNCILS

January 2007

EXCELLENCE WITH IMPACT

RESEARCH COUNCILS UK

Progress in implementing the recommendations of the Worry Report on the economic impact of the Research Councils

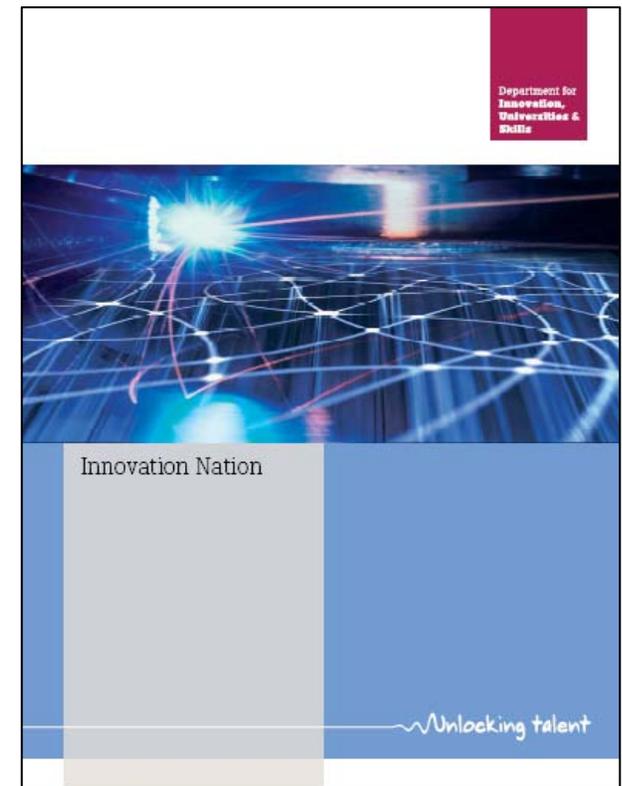
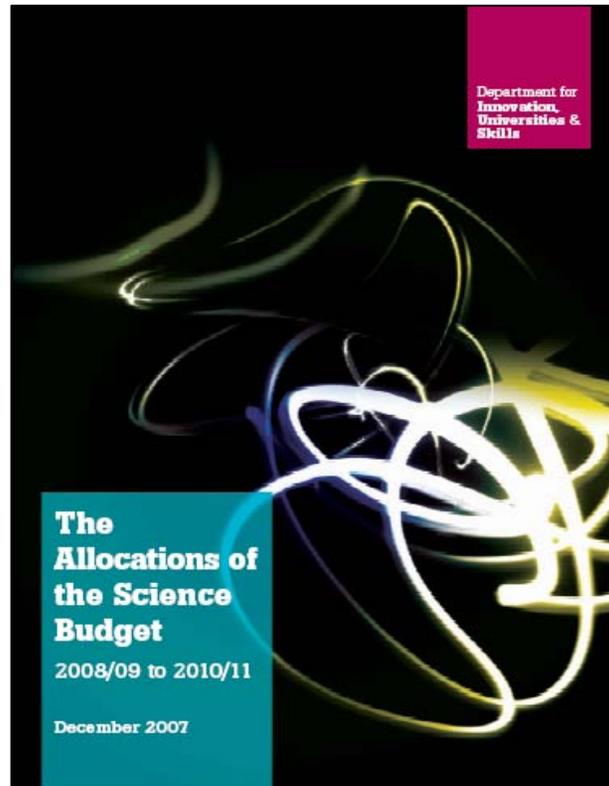
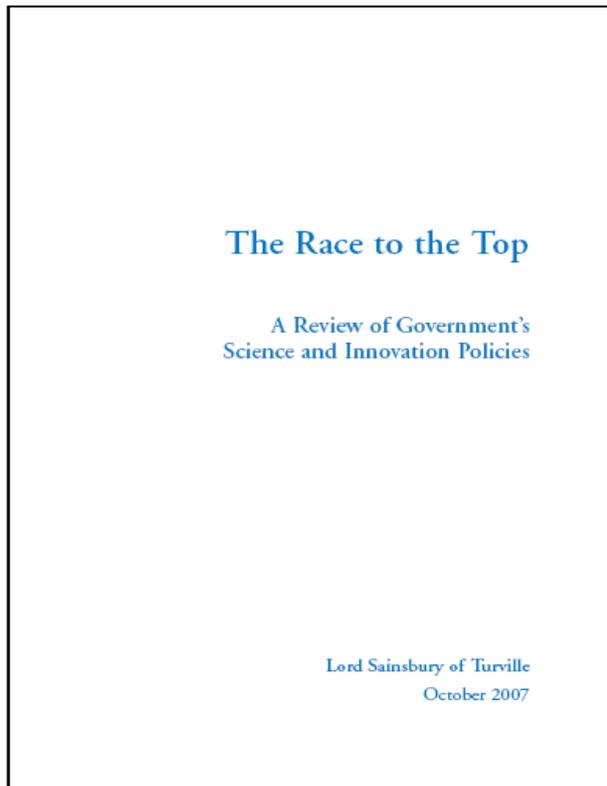


# Excellent Research With High Economic Impact

- Defines '*RCUK centre of gravity*'
- Delivered through:
  - Multidisciplinary research programmes
  - Partnerships
  - Business processes (e.g. peer review)
  - Consistent message to research and user communities
  - Understanding and demonstrating impact



# New Contexts – Same Messages!







# Demonstrating Economic Impact

- Economic Impact Study - PA Consulting/SQW. Various reports - Oct 2007/Jan 2008.
- User Satisfaction Survey – PWC, Sept 2007.
- Knowledge Transfer Categorisation and Harmonisation – DTZ, Sept 2007.



# Suggested Indicators

- > Selecting the Area for Investment
  - Extent to which users are involved in identifying prog areas.
  - Extent to which UK users have capacity of exploit results
- > Investments
  - Reflect current expenditure by RCs e.g. collaborative grants.
- > Outputs from Investments
  - Results of projects, trained people, potential contributions i.e. not actual impact.
- > Transfer and Adoption of Outputs
  - Direct measures of economic impact (e.g. licensing) and indicators (e.g. spin outs).
- > See <http://www.rcuk.ac.uk/innovation/impact/default.htm> for actual suggested indicators



# Impact of PhD training

- RCUK PhD cohort study – tracking post-doctoral students at fixed intervals through their career
  - First data available summer 2009
  - Periodic follow-up of individuals for up to 10 years after graduation
  - Approach includes case studies and questions relating to their employment role and impact on employer
- EPSRC – currently scoping a study on the value of EPS PhDs to the UK



## **Capturing the perspective of beneficiaries**

- RCUK User survey
- EPSRC collaborator survey
- AIM project: Examining the attitudes of EPSRC industrial collaborators towards universities



## Assessing social, cultural and public policy impacts

- ESRC study: Economic analysis of ESRC research programmes
  - Scoping report (published Oct 2007)
  - Methodological test (expected autumn 2008)
  - Implementation
- AHRC impact strategy – demonstrating the full range of economic, social and cultural impacts and benefits from arts and humanities research



## Impacts from Medical Research

- Project to investigate economic return from investment in UK medical research
  - Health gain and additional GDP generated from research in the areas of cardiovascular disease and mental health research
  - Aiming for a credible figure for rate of return and a methodology for broader use



## **Impacts of basic research and discipline reviews.**

- In collaboration with the IoP, RAS and STFC - an assessment of the economic impact arising from fundamental physics.
- Jointly with the RSC - an assessment of the economic impact arising from fundamental chemistry (due to report April 2009).
- From the physics and chemistry studies we hope to derive a methodology, collection of techniques which could be applied on a periodic basis to all areas of our portfolio (likely to be meaningful only on a 5 – 10 year timescale).



# Outputs and Outcomes Collection Project (Outcome/Impact)

- > Collaboration
- > Follow-on Funding
- > Measures of Esteem
  - Prizes
  - Awards
  - Professional Activities
  - Honours
- > Exploitation
  - Patent
  - Spin-out company (turnover, employees, etc.)
  - Licence agreement.
  - Other data sharing
  - Changes (processes, practices, policies, etc.)
  - New products



# Economic Impact Narrative

- What is the role of EPSRC in delivering EI
  - Providing trained people – human capital
  - Research – knowledge generation
  - KT activities – knowledge exchange efficiency
- What actions are we taking to increase the EI in each of the above areas, why and what has lead to this balance?
- How will we demonstrate the impact of our actions?
- What past activities have resulted in the greatest impact?
- What gaps have we identified and how will we address them?



**Thank you for your attention**

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**Overall economic impacts**

Increased productivity

Improved welfare

**Innovation outcomes and outputs**

Technological innovation

Wider innovation

**Knowledge generation**

Human capital	Stock of publicly available knowledge
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**Investment in the research base and innovation**

Expenditure on R&D

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Expenditure on Innovation

**Demand for innovation**

Private and public sector attitudes and capacities to develop innovation outputs.

**Knowledge exchange efficiency**

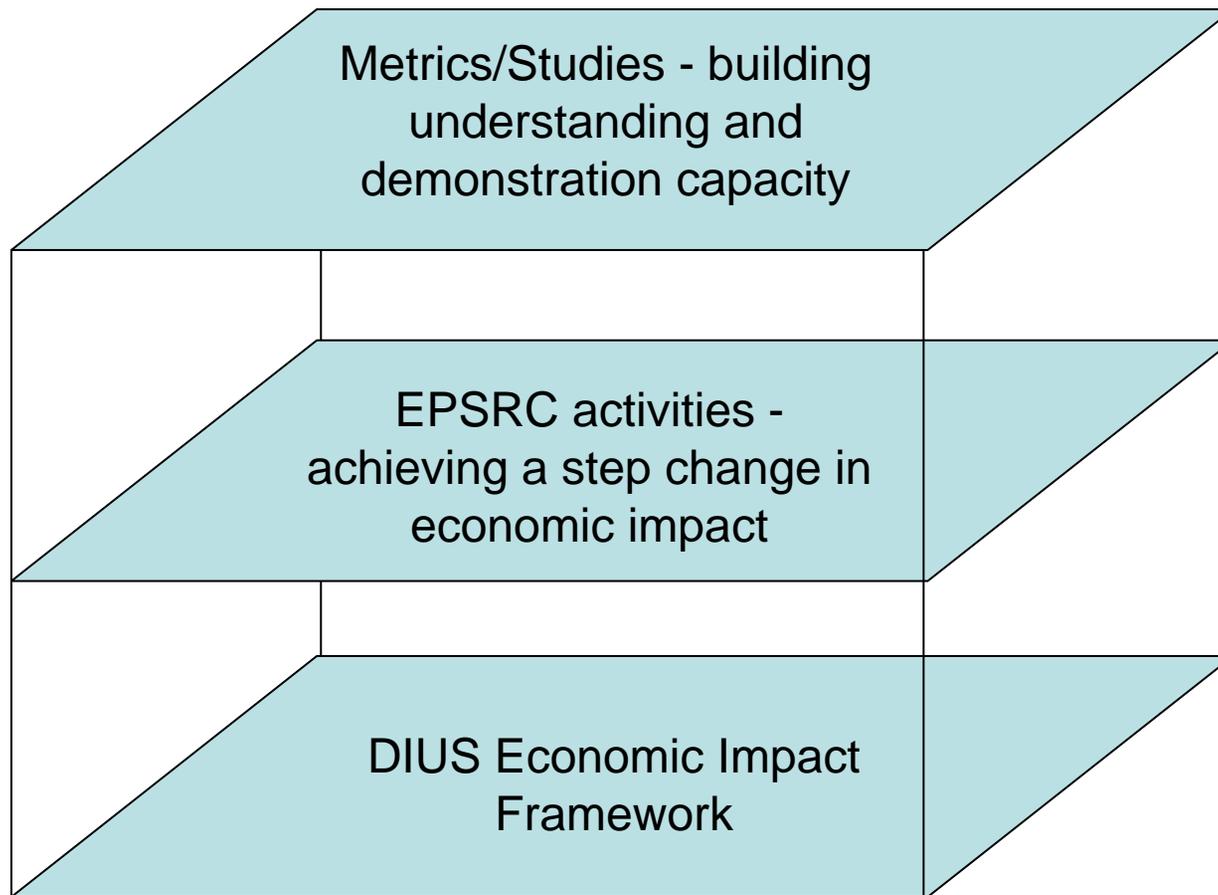
Ease of co-operation/collaboration; transit of information flows.

**Framework conditions**

Attractiveness of UK to overseas investment; the IP framework; public engagement; sustainability; standards



# EPSRC's Economic Impact Model



# Human capital

Evaluation of user-led doctoral training, KTAs

Human capital  $\equiv$  skilled scientists and engineers

Value of EPS Ph.D.

Renewing the research base

Improving innovation capacity/capability of business to absorb through understanding of the research base

Not for profit, public sector, social welfare, etc.

Case Study/(ies)

Case Study/(ies)

New or improved products/processes/services

Policy/welfare impacts

Evaluation of fellowships, S&I awards, 1st grants, challenging engineering



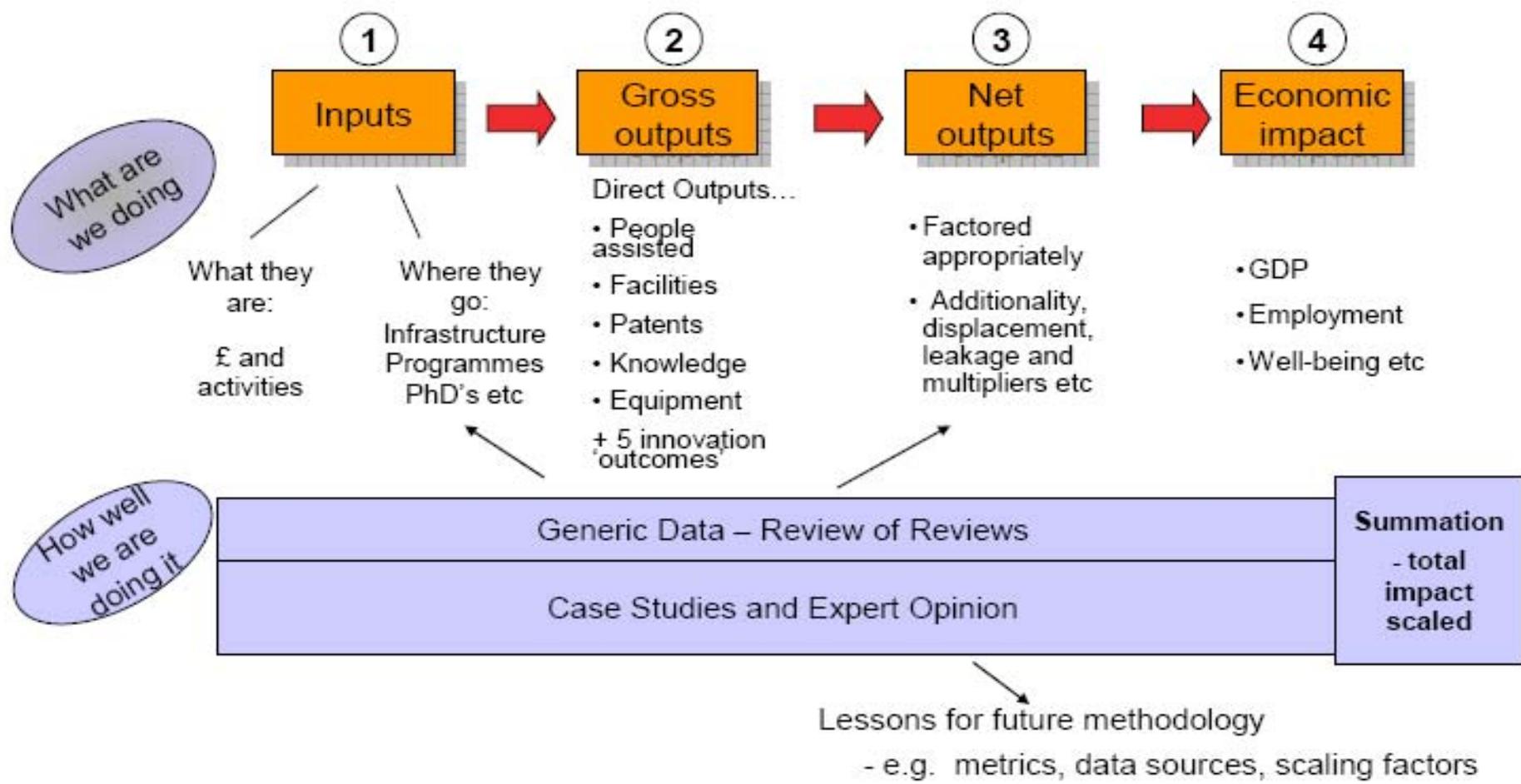
## Conclusion

- Metrics and Indicators are only part of the story.
- Need to better understand the ecosystem and organisation's role therein.
- Periodic (non-frequent) in-depth studies in focused areas.
- Fundamental constraints are real!



## Other Examples

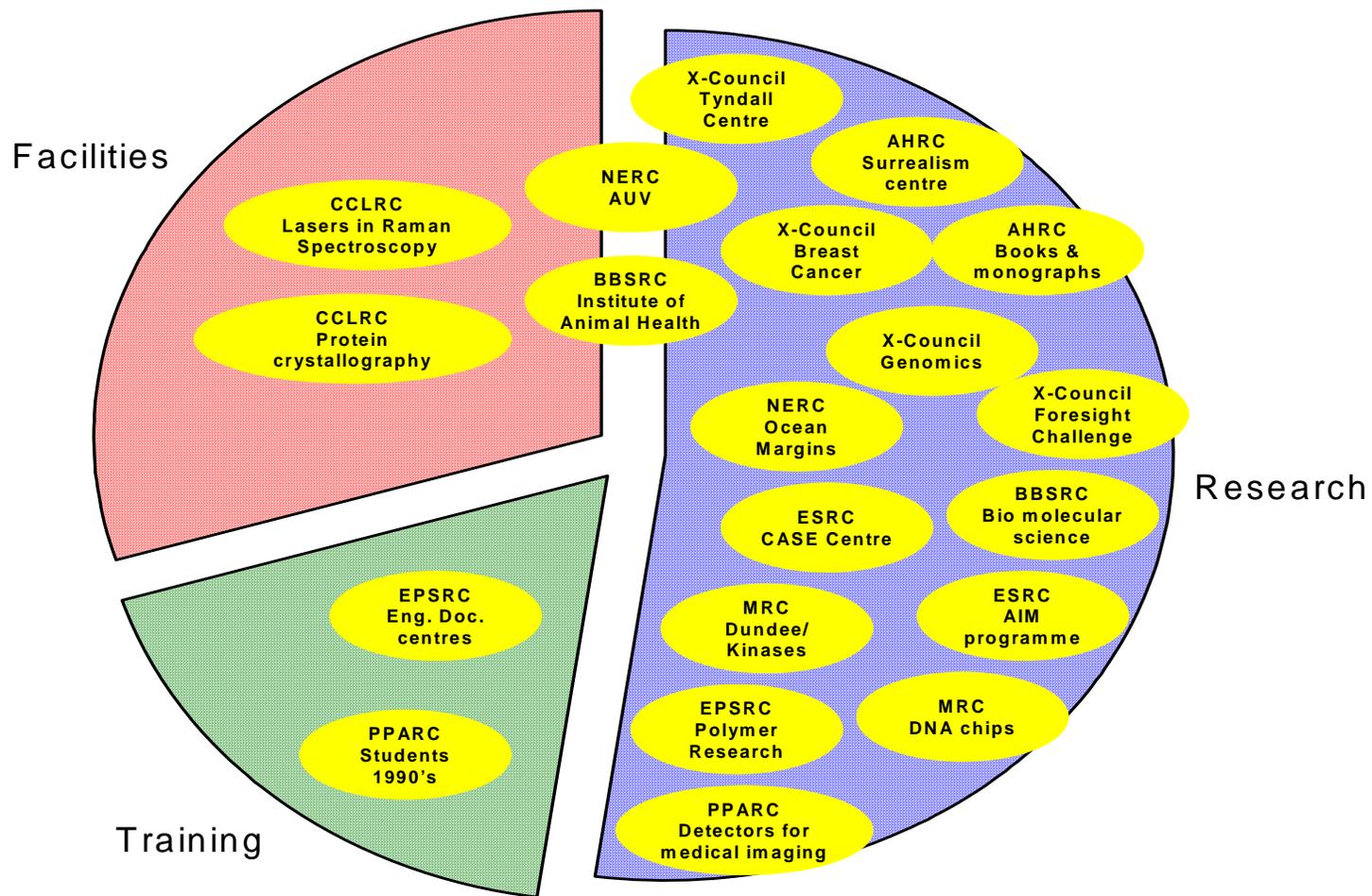
- RCUK: Long-term career path study (i.e. benefits in addition to increased salary).
- MRC: “Medical research - assessing the contribution to society”. Launch - 25th and 26th November, London.
- NERC: Economic Benefits of Environmental Science – November 2006.
- BBSRC: Making a difference (economic and societal impacts of a BBSRC Institute) Sept 2006.
- ESRC: Evaluating the impact of ESRC funding, Oct 2007.
- AHRC: Assessment of impact of 5 representative funded awards, Sept 2006.





Case studies mapped onto an aggregation of RCs' grant funding

**18 case studies, mainly in research but also facilities and training**



Note: Other non monetary accounting and non grant expenditure is excluded



# **INTRINSIC OF IMPACT ASSESSMENT (demonstrating causation in a complex system!)**

## **Systems and Multipliers**

- linear models of innovation are being superseded by dialectical, systemic understandings of innovation
- The wider societal impacts from research are influenced by external, interacting factors ('multipliers') beyond the control of the research base

## **Timing and Attribution**

- Time lags (sometimes decades) between research outputs and eventual outcomes

## **Project Fallacy**

- Connecting a major research impact with specific research project.

## **Problems demonstrating Cultural and Policy Impacts**

- Research is not the only influence on policy makers!
- It is often very difficult to value such outputs.



## Recommendations

- Establish Balanced Scorecards distinct from evaluation activities (evaluation to inform indicators for the BSCs) as decision making tools.
- BSCs and evaluations to utilise common set of basic indicators and data.
- Indicators to reflect differences between disciplines and funding modes between Councils i.e. different.