



# Interdisciplinary Research: Collaboration between Social and Natural Scientists

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# Types of interdisciplinary research

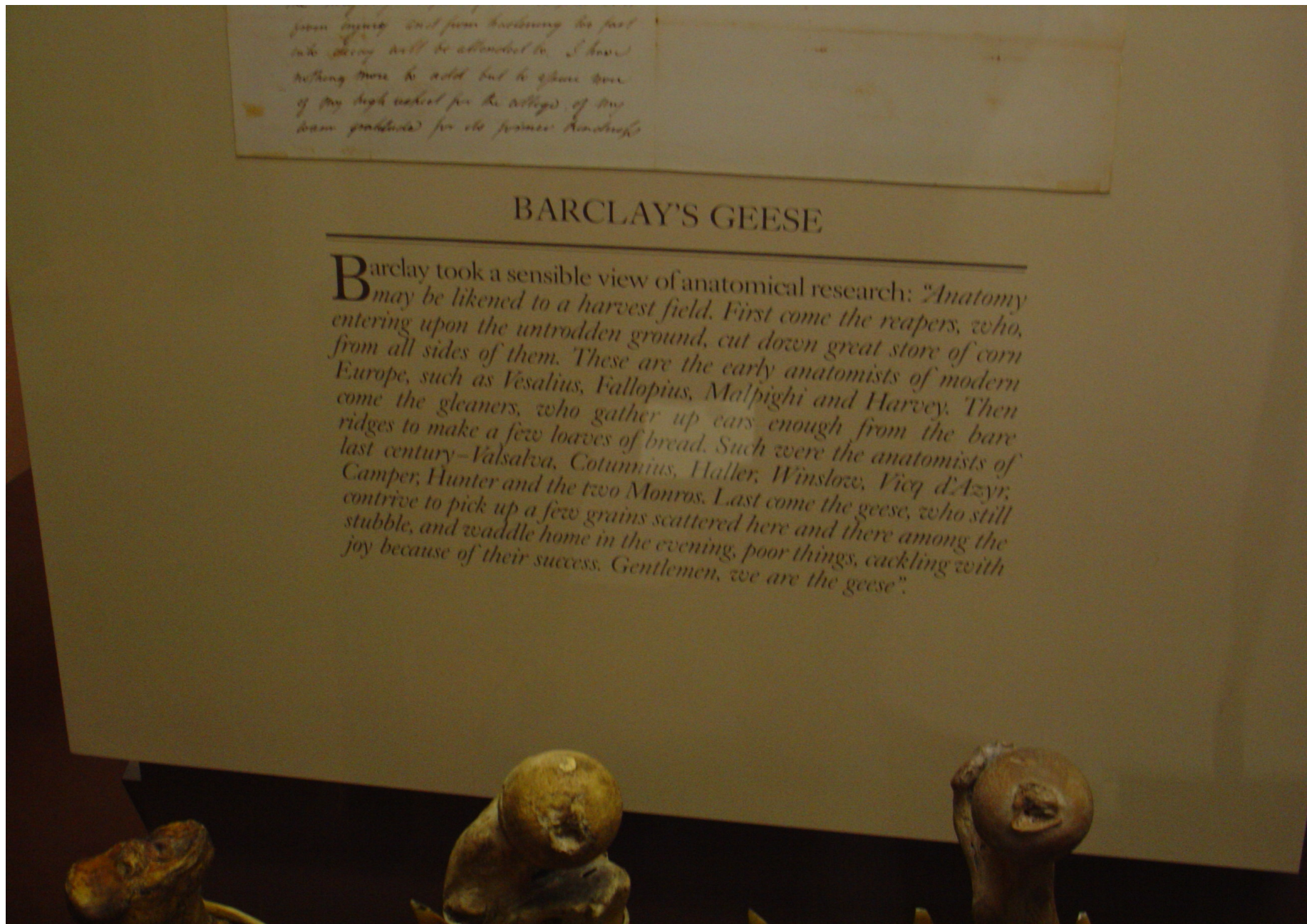
## Discipline focused - Mode 1

- Often longer-term collaborations; helps disciplines to evolve, e.g. bio-informatics, ecological economics

## Problem focused - Mode 2

- Shorter term interdisciplinary collaborations directed to specific real world problems

# Disciplinary stagnation

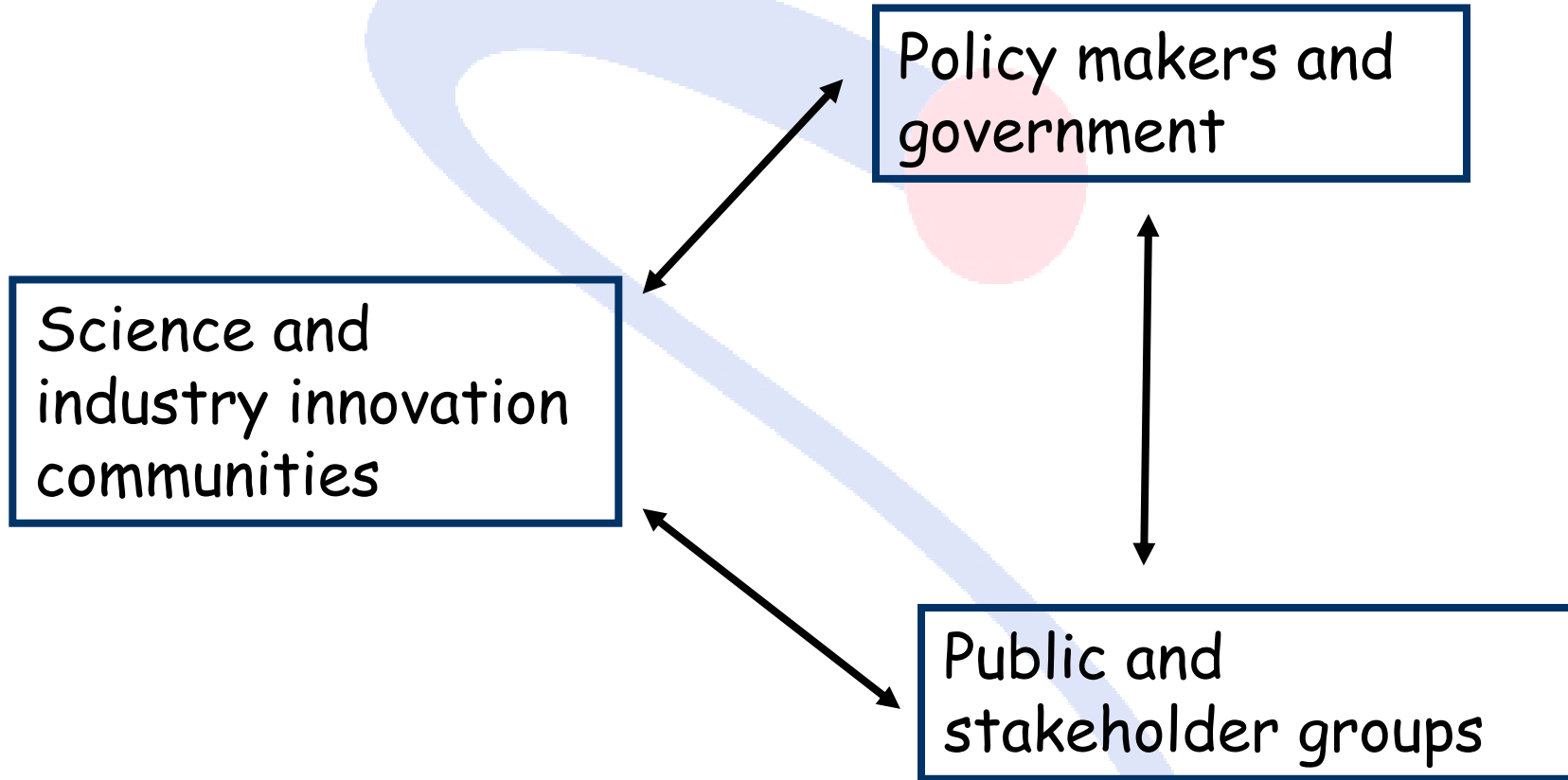


## Disciplinary stagnation

Sir Jules Thorn Exhibition of the History of Surgery, Royal College of Surgeons, Edinburgh, quoting John Barclay MD, lecturer in Anatomy and Surgery, in the 1820s.

"Anatomy may be likened to a harvest field. First came the reapers who, entering upon the untrodden ground, cut down great store of corn from all sides of them. These are the early anatomists of modern Europe, such as Vesalius, Fallopius, Malpighi and Harvey. Then come the gleaners who gather up ears enough from the bare ridges to make a few loaves of bread. Such were the anatomists of last century, Valsalva, Cotunnus, Haller, Winslow, Vicq d'Azyr, Camper, Hunter and the two Monros. Last come the geese who still contrive to pick up a few grains scattered here and there among the stubble and waddle home in the evening, poor things, cackling with joy because of their success. Gentlemen, we are the geese."

## Problem-focused inter-disciplinary research (Mode 2)





# From Mode 1 to Mode 2 interdisciplinary research



## Mode 1:

Knowledge comes from depth and specialisation

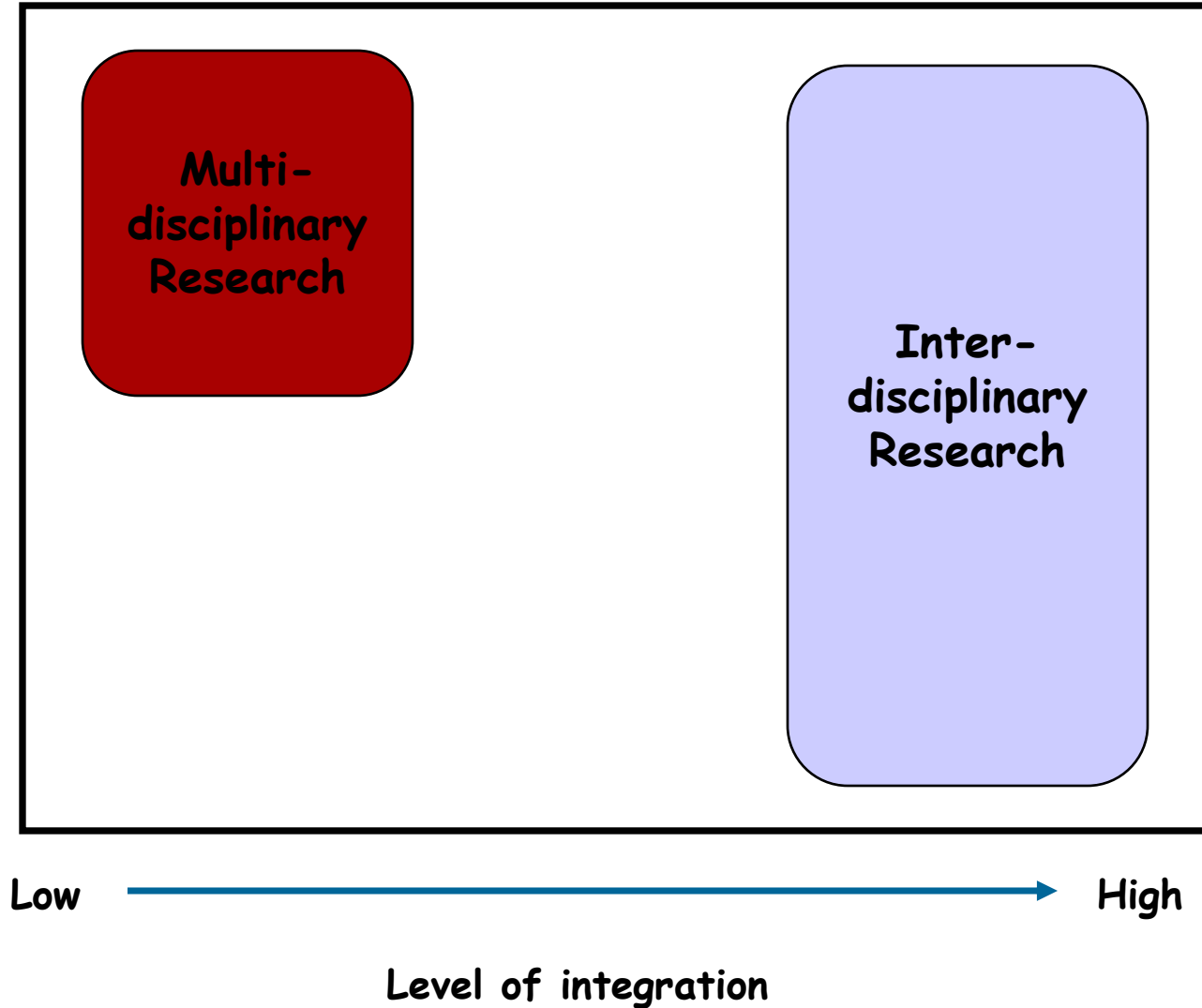
## Mode 2:

Wisdom comes from breadth and integration

Contribution to  
practical  
problem solving  
- Mode 2



Contribution to  
development of  
disciplines -  
Mode 1

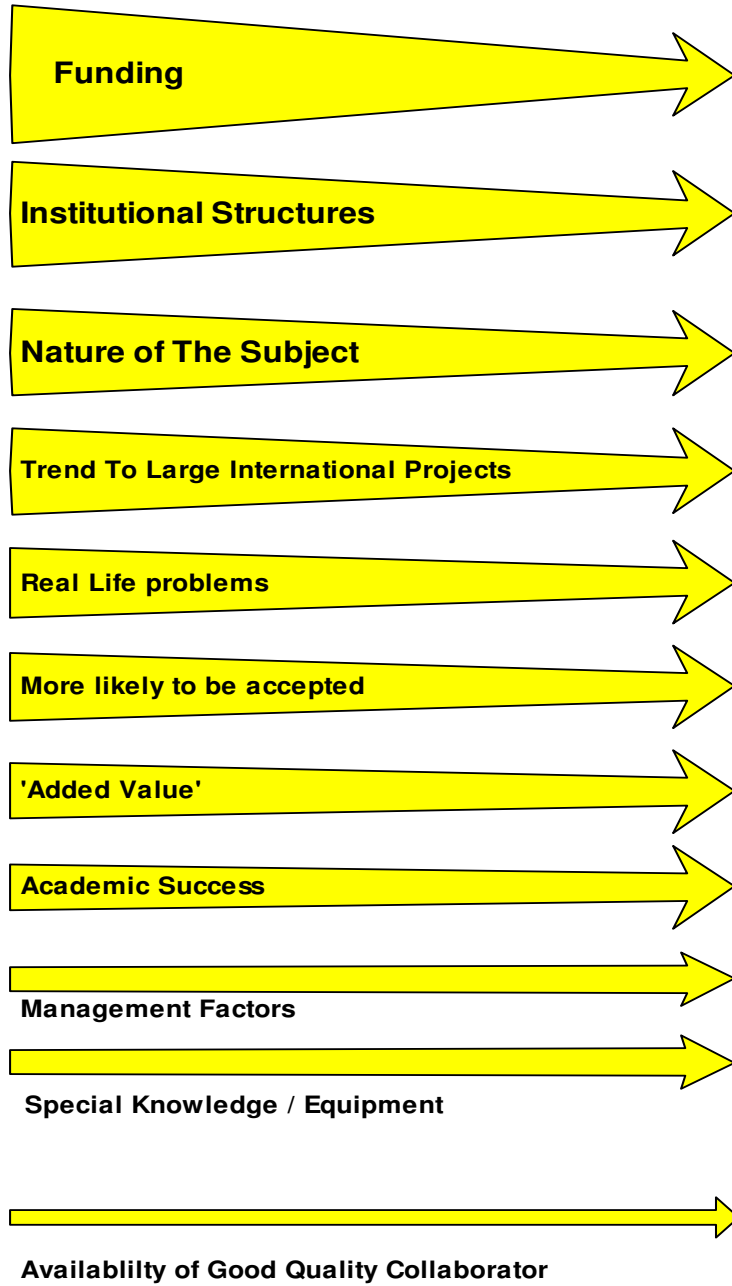


## II-FP5 Survey components

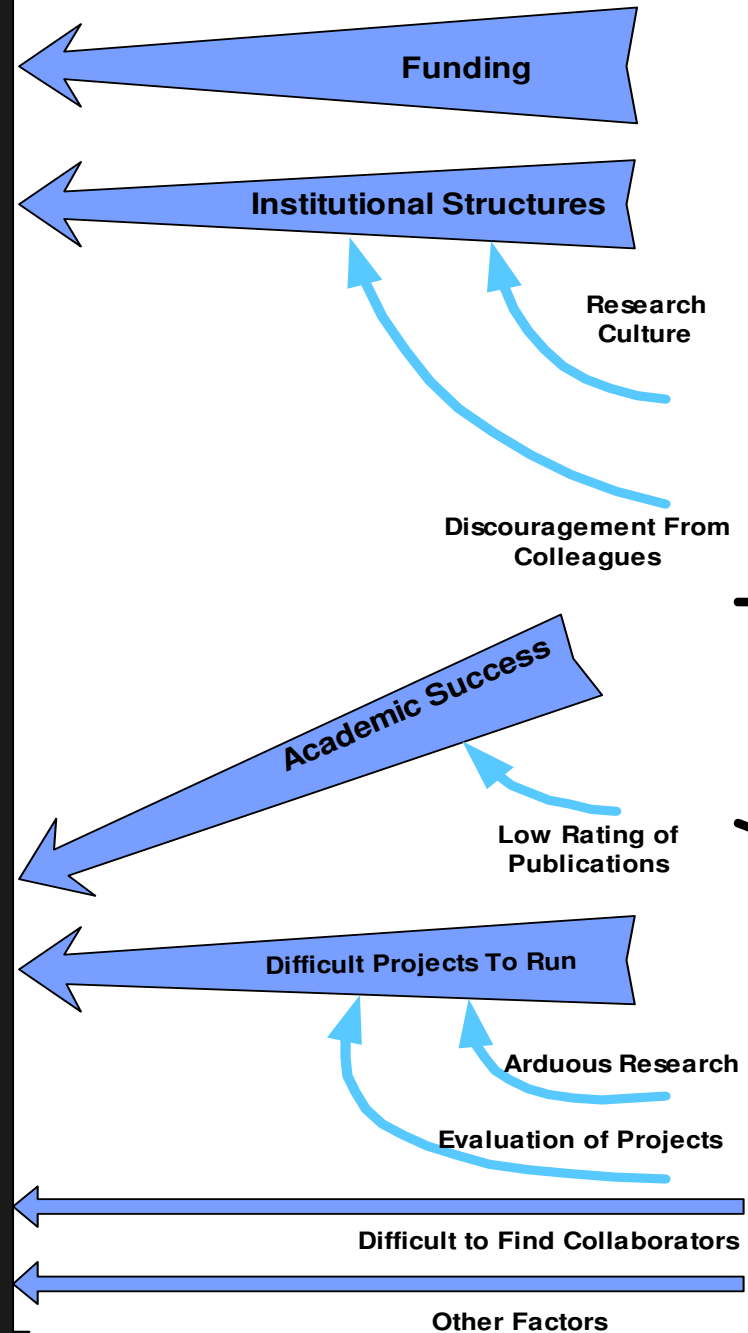
- E-mailed questionnaire to FP5 and FP4 project co-ordinators
- Follow-up telephone interviews with some respondents
- 6 Case studies
  - 2 in Quality of Life
  - 2 in ICT
  - 1 in Sustainable and Competitive Growth
  - 1 in Energy, Environment and Sustainable Development



# Encourage Interdisciplinarity



# Discourage Interdisciplinarity



# ESRC Survey of Interdisciplinarity -1

- Detailed analysis of three interdisciplinary research programmes
  - Innovative Health Technologies
  - Future Governance
  - People at the Centre of Communication and Information Technologies (PACCIT)

## ESRC Survey of Interdisciplinarity -2

- No evidence of ESRC inhibition of inter-disciplinarity, but also no active encouragement
- Role of Programme Director and individual researchers in influencing degree of interdisciplinarity (note PACCIT)
- Impact of user involvement was ambiguous - researchers often had a better understanding of user problems than users themselves
- More time and effort is needed for networking and team-building in interdisciplinary projects, often leading to a perception of poorer value for money

# Challenges for individual researchers

- Difficult to develop a career based on continuous interdisciplinary research
- Shifting peer group
- Finding high status outlets for publications
- Managing publication overload
- Lack of institutional support

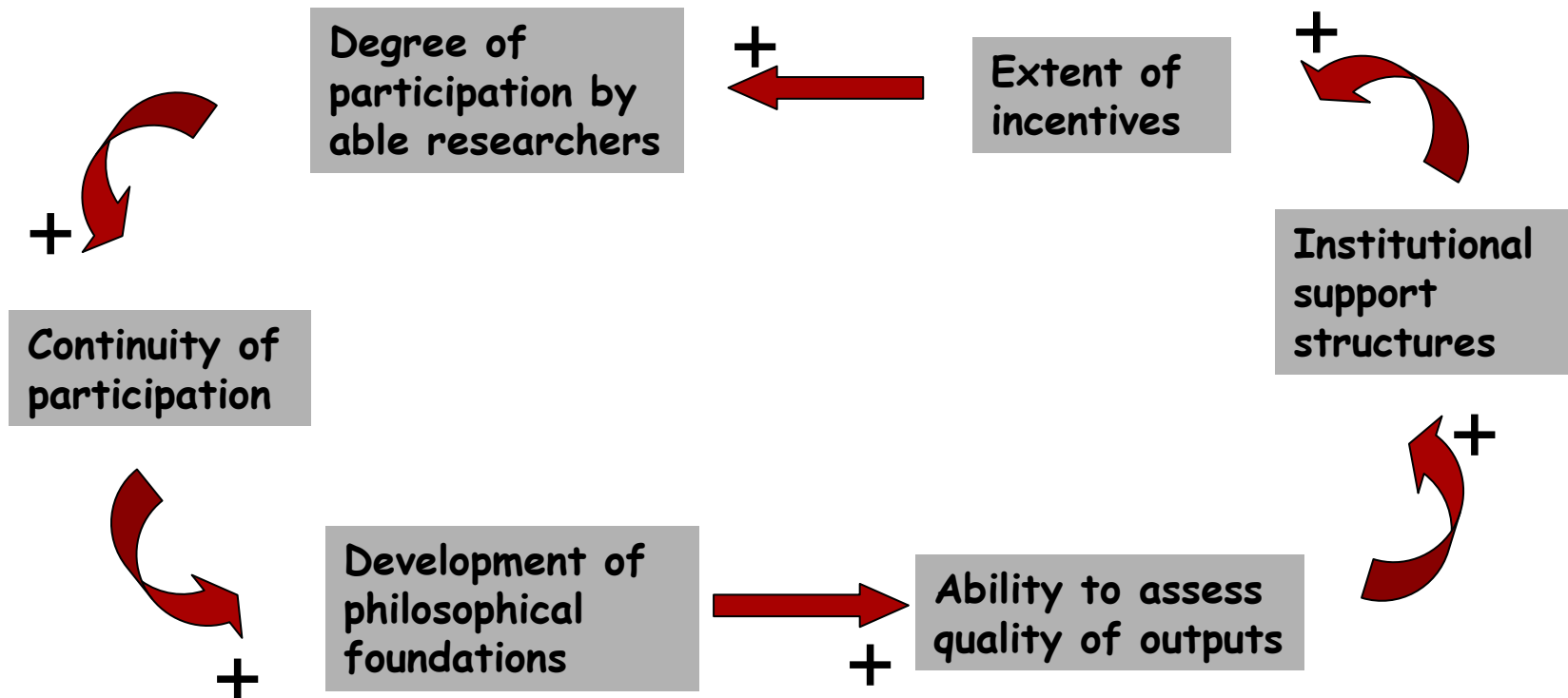
# Skills needs for individual researchers

- Understanding the languages, research methods and cultures of different disciplines
- High tolerance of ambiguity – personality more important than discipline base
- Willingness to learn from other disciplines
- Good communicator
- Open minded
- Able to absorb information and its implications rapidly

# Skills needs for research managers

- interdisciplinary background
- respect for all disciplines
- good interpersonal and team building skills
- proactive in engaging with other partners
- not too ambitious in their own field
- interested in a wide range of subjects

# Environment for interdisciplinary academic research - a vicious circle





# Environment for interdisciplinary academic research - A virtuous circle?

