

Developing the European Research and Innovation Ecosystem

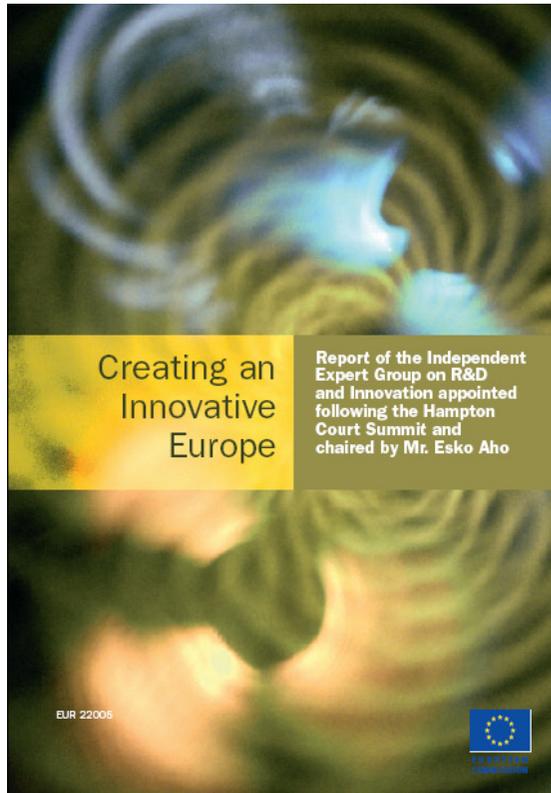
Luke Georghiou

Manchester Institute of Innovation Research

Manchester Business School

Presentation to 29th Conference of
Rectors and Presidents of
European Universities of Technology September 2010

Aho Group Report – January 2006



- “Europe must break out of structures and expectations established in the post-WW2 era which leave it today living a moderately comfortable life on slowly declining capital. This society, averse to risk and reluctant to change, is in itself alarming but it is also unsustainable in the face of rising competition from other parts of the world.
- For many citizens without work, or in less-favoured regions, even the claim to comfort is untrue.”

Structural issues for Europe independent of financial crisis form one platform of innovation challenges

- Significant slowdown in productivity growth since 1995 widespread across countries and industries;
- Stagnating or in some cases already shrinking labour force especially in areas of high skills;
- Dependency upon scarce imported natural resources and in particular energy
- Very limited progress in achieving cohesion of economic development among the 27 EU member states
 - GDP per capita varies by a factor of 8 between the richest and the poorest
 - Issues of lack of equity exist within as well as between member states

Key questions

- How do we implement an innovation-driven strategy for economic recovery?
- Is our perspective on science and innovation policy incomplete?
- What role do Societal Challenges and demand-side policies play?
- How do we configure science and innovation policy to create the flows needed in an effective ecosystem?

The crisis debate

- Policy responses
 - Bank rescues, Neutralisation of toxic assets, Quantitative easing
 - Initial stimulation of demand through tax cuts and increased public spending
- Created long-term debt that can only be offset by productivity growth



Europe at critical stage

- As fiscal remedies for economic crisis reach point of diminishing returns emerging dilemma
 - Realisation that innovation-based growth is only realistic route to sustainable recovery
 - Debt burden posing threat to resources that could be used to accelerate innovation
- Pressing need for smart innovation policies and governance to support them

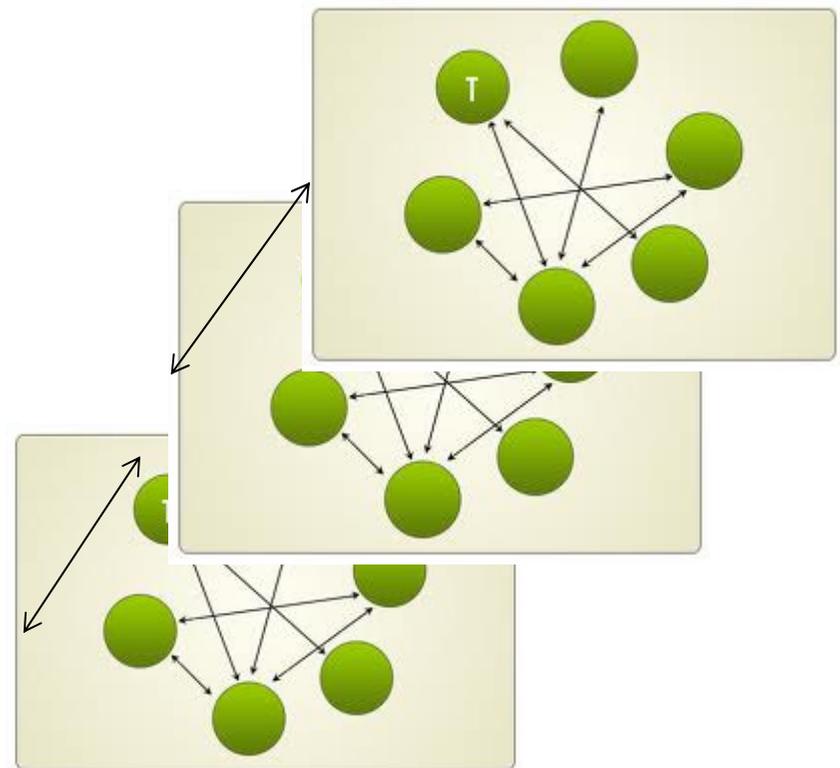
Policy context: EU 2020 Innovation Union Flagship

- Also Digital Agenda, eco-innovation, industrial policy...
- Forthcoming Plan for European Research and Innovation
- Council “stresses that the Plan should include all forms of innovation in both the public and private sector, and create a sound basis for synergies between policy areas in order to make the Knowledge Triangle a reality”.

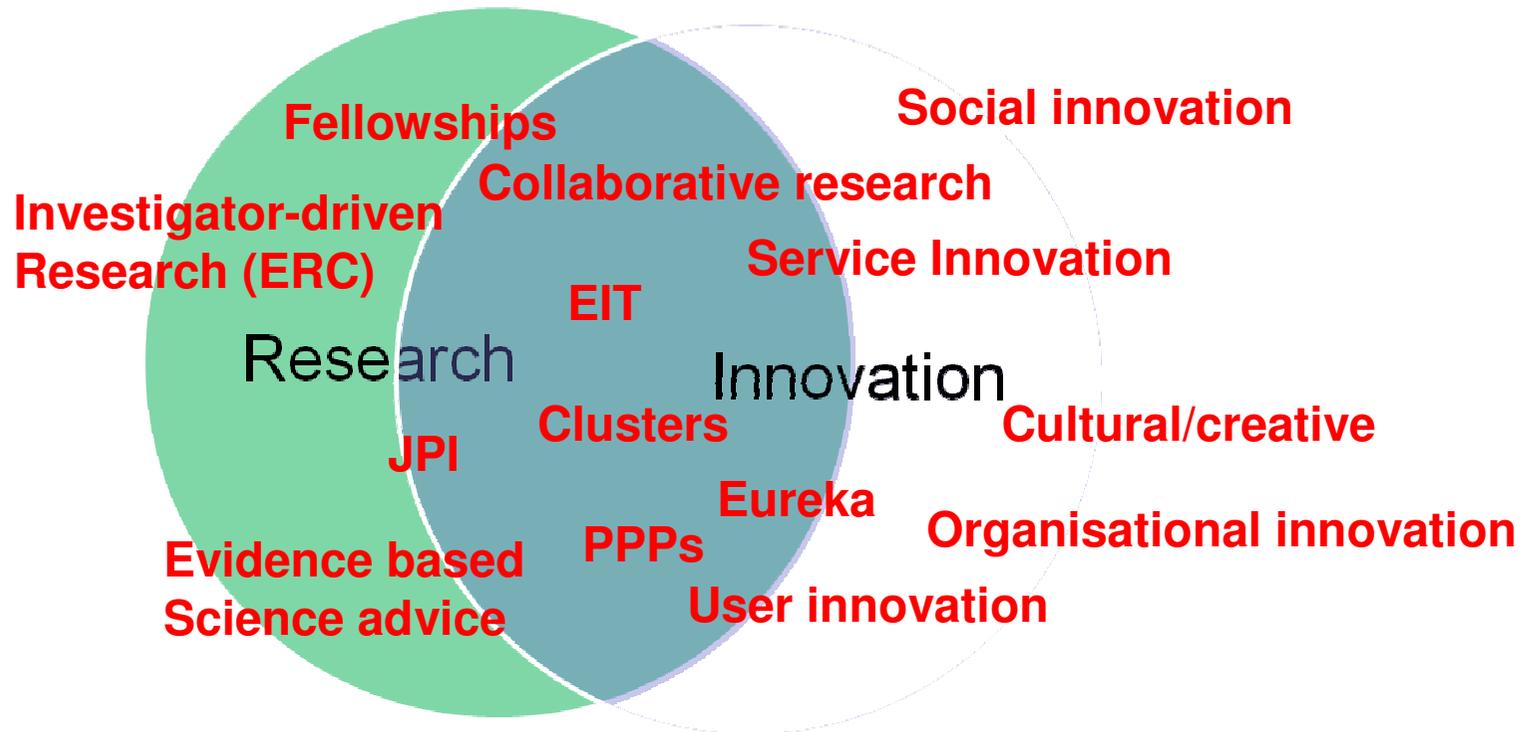


Do not start with an incomplete perspective on innovation policy

- Largely built on linear model of innovation which seeks to 'valorise' research through sequential follow-ons
- Special case most likely to be true for bio-pharma sector
- Neglecting much wider set of links between research and innovation and innovation beyond research



Need for full picture of research and innovation



Six channels by which knowledge flows between research and the economy

1. Scientific discovery and publication
2. Production of trained people
3. Development of instrumentation and methods
4. Cumulative expertise available for problem-solving
5. Entry ticket to networks and access to external knowledge
6. Commercialisation and spin-offs

All but first have strong tacit dimension and involve
some form of **proximity** between the parties

Place is important – related variety

Newer views on innovation

- Growing understanding of importance of demand side and user innovation
- Recognition that innovation not necessarily R&D based but can come from new configurations of existing technologies and from service, social and organisational innovation
- Convergence of open innovation idea with concept of innovation ecosystem

Key flows for innovation

- People
 - Having the right skills and talents, retaining the best graduates from our education system, critical mass in labour markets for creative people
- Finance
 - 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
- These flows of money, knowledge, services and people constitute the knowledge ecology

R&I Ecosystem populated by actors who originate, receive and moderate the flows

- R&I actors e.g.
 - Innovating large and small firms
 - Users of innovation (private and public)
 - Knowledge producers
 - Funding agencies and other intermediaries
 - Government determining framework conditions – regulation (including IPR), fiscal environment, education & training etc.
- Relations between those actors

Concept can be used to structure regional or national innovation strategy

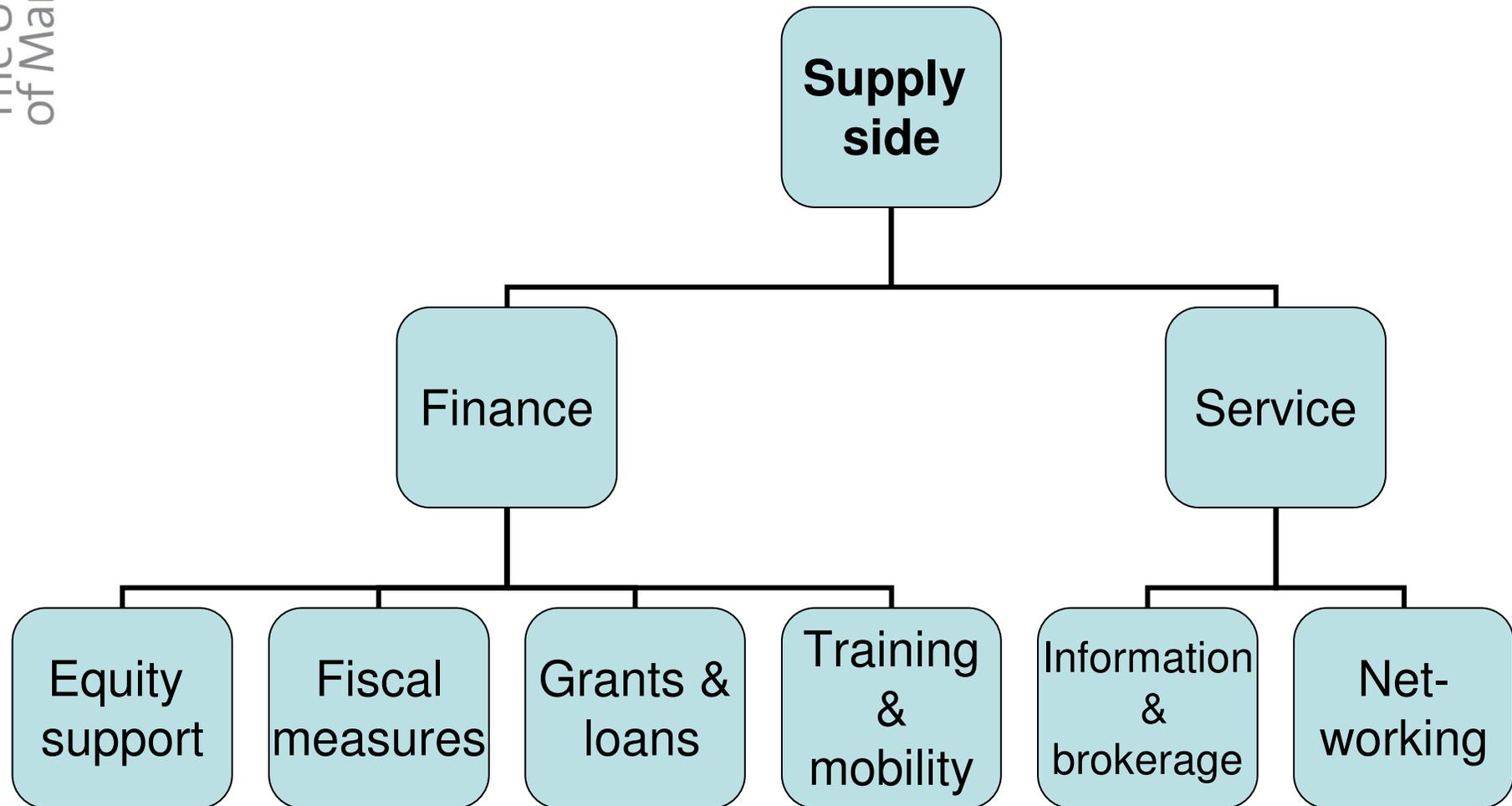


For a region or small country a higher proportion of the flows will be cross-border

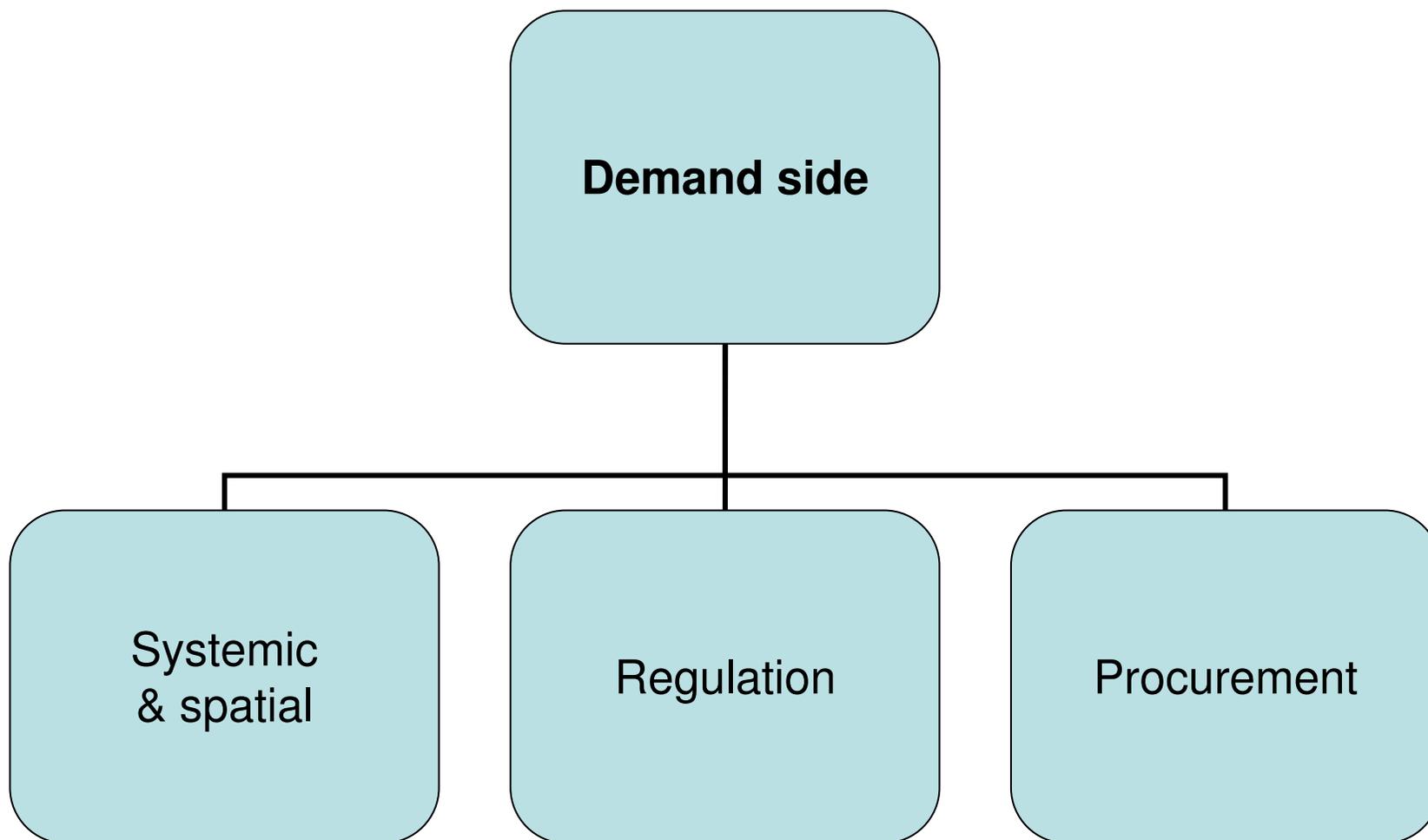
Role of innovation policy

- *“Innovation policy is any policy which seeks to help firms or other organisations, singly or collectively, to improve their capacity or incentive to innovate...”*
- *...Many other public policies also affect innovation, though this is not their main object. This group includes macro-economic policies, education more generally, public procurement, regulation (environmental or health and safety), and competition policy.”*
- *(Extract from definition used in Farhorizon project)*
- Innovation policy can be seen as the set of instruments and institutions that structure and moderate the four flows

Towards a Taxonomy of Research and Innovation Policy Measures – supply side



Demand side



Role of innovation policy

- To remedy deficiencies in availability to innovating organisations of
 - Resources
 - Incentives
 - Capabilities
 - Opportunities

Mapping some instruments

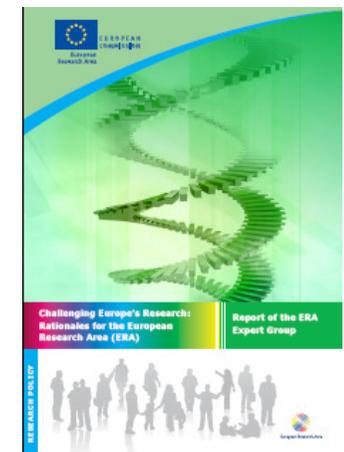
Policy measure	R	I	C	O
Support for basic research	✓			✓
Support for public research directed to industry	✓		✓	✓
Support for training & mobility	✓		✓	
Grants for industrial R&D	✓	✓		✓
Fiscal support for R&D	✓			
Equity support for venture capital	✓	✓		
Co-location measures		✓		✓
Information and brokerage support			✓	✓
Networking measures			✓	✓
Systemic policies		✓		✓
Procurement for innovation	✓	✓		

The coordination problem

- How do we get beyond bottom-up innovation to address areas that require coordination of multiple actors?
- Many innovations have systemic character
 - Transport, energy, health, defence...
 - Also a particular European strength
- Markets are powerful coordinating instruments but are themselves structured by the actions of governments
- Also a need to connect innovation to the concerns of the wider public

Societal or Grand challenges

- ‘Grand’ in sense that instantly recognisable as representing a major aspect of human or social well-being and prosperity
 - climate change, food and energy security and the ageing society
 - initial drive will have to come from governments
 - both threat and opportunity
 - demand large-scale and coordinated response over a number of years
- Means to establishing link between research/innovation and politics/public
 - and hence for public investment in research
- Coordination envelope extending from research to wider policy domains



Aho Group recommendations for innovation friendly market

- Ambitious lead market projects - *strategic areas*
 - eHealth, Pharmaceuticals, Energy, Environment, Security, Electronic Entertainment and Content, Transport and Logistics
- Harmonised regulatory environment - *anticipate needs*
- Ambitious use of standards-setting power - *reorganise processes*
- Intelligent use of public procurement - *more proactive*
- Globally competitive intellectual property rights system - *overcome the impasse*
- Fostering a culture that celebrates innovation

Basic recommendations accepted and one response has been a Lead Market Initiative from the European Commission

Remains a gap between acceptance of diagnosis and effective action on a sufficient scale

Transition and linking supply and demand

- How to transfer to more sustainable modes of development
 - overcome lock-in to dominant sociotechnical regimes
 - Put in place infrastructures and policy/regulatory frameworks
- Critical role for users and link to demand-side innovation policies
- Building constituencies including universities and their researchers
- Coordination, engagement and building the capacities and incentives for users to play a major role in the process
- Embedding in a Grand Challenge initiative more likely to succeed?

Conclusions...

- Tension between severe fiscal constraint and need for investment in research and innovation
- Multiple policy instruments needed to foster multiple flows in the knowledge ecology
- Societal grand challenges provide opportunity to mobilise resources for research and innovation but need new policy approaches which draw upon the combined power of supply and demand

...and at European level

- 3 roles for European level
 - Provide intellectual underpinnings and orientations, convincing narratives
 - Address grand challenges in the context of thematically/sectorally embedded innovation policies, take the challenges as the starting point
 - Address some classical cross-cutting barriers and bottlenecks to create a functional research and innovation ecosystem