



A venture approach for funding high-risk high gain research

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- › Good practices for fostering transformative research in health and life sciences
- › Barcelona, 10-11 May 2012





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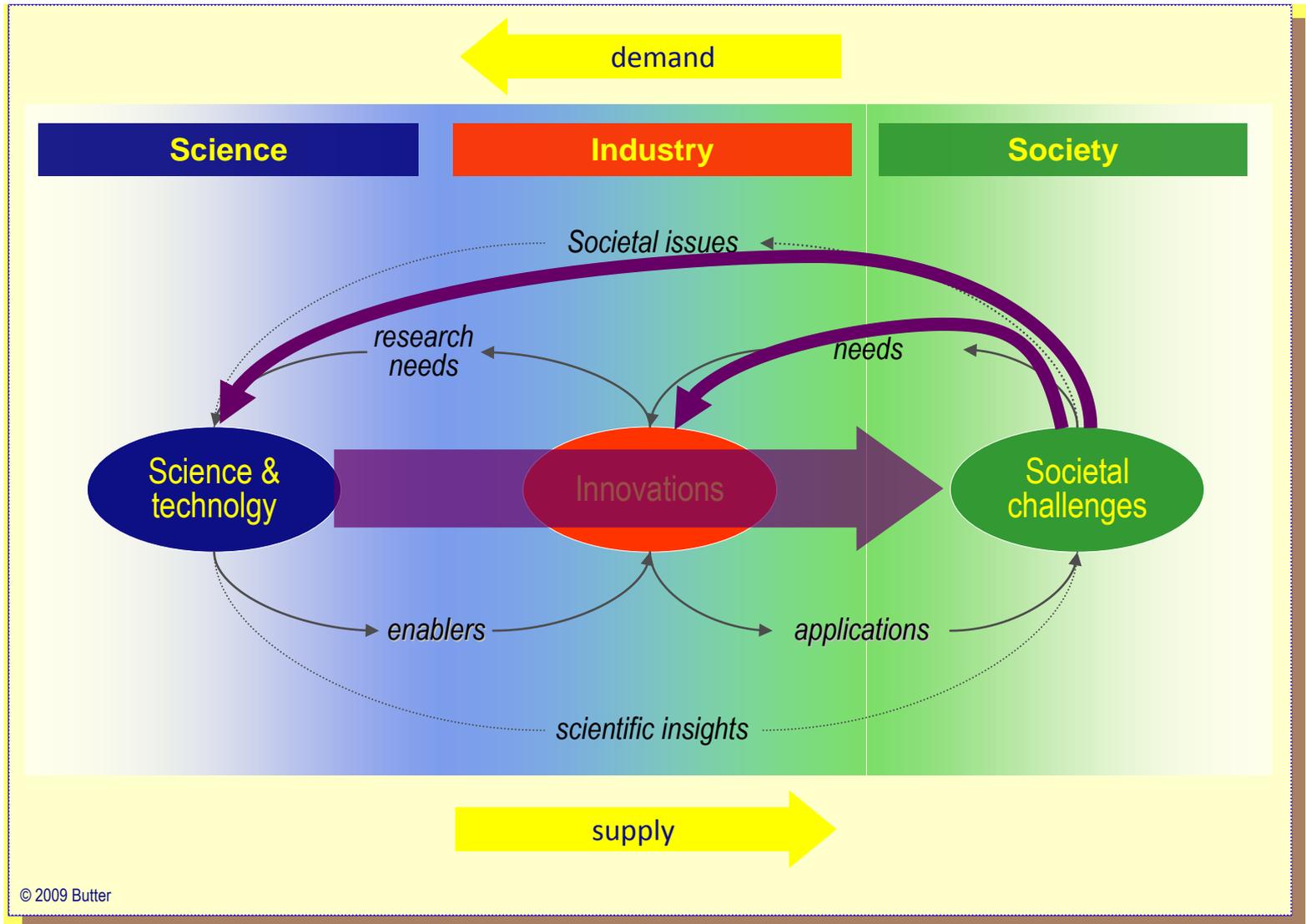
Background: projects with European Commission

(2006) EU Expert Group on The Future of Key Actors in the European Research Area

(2009) MORE FRONTIER RESEARCH FOR EUROPE,
A venture approach for funding high risk – high gain research

(2011) Funding research and innovation for Grand Challenges

(Based on comparative analysis of institutions and funding mechanisms around the world)





More frontier: impact and risk

	Low risk	High risk
High Impact	(1)	(2)
Low impact	(3)	(4)



GC approach = demand driven alignment

- › Mission oriented, solving societal problems which need systemic solutions
- › Challenges are drivers for Triple Helix action: smart, sustainable and inclusive growth
- › Fight fragmentation: synergise strengths of EU actors, align their efforts
- › Increase efficiency and effectiveness: more results and impact for less
- › **Ambition:** create global winners through demand driven innovation and research excellence



Grand challenges issues and findings

- › Challenges approach: debated at policy level, implementation weak and relatively small.
- › International dimension difficult. Challenges are mostly national responsibilities.
- › Recognition of innovation dimension in EU is weak (in particular compared to US, South Korea, China, etc.); but it is there in practices of cities and regions.
- › Integrated systemic approach still needs a lot of learning and development.
- › Stakeholders do not care about administrative boundaries but their organisation at EU level is weak.



Grand challenges policy models

- *Policy mainstreaming*: into regular policy making processes,
- *Jumping to S&T*: the challenge is starting point for jumping straight to identifying thematic areas for scientific research (EU) or broad technology solutions (US); the challenge is new legitimation to invest in S&T.
- *Comprehensive transition approach* (e.g towards a sustainable energy system): aligning all levels of policymaking, innovation and science and technology



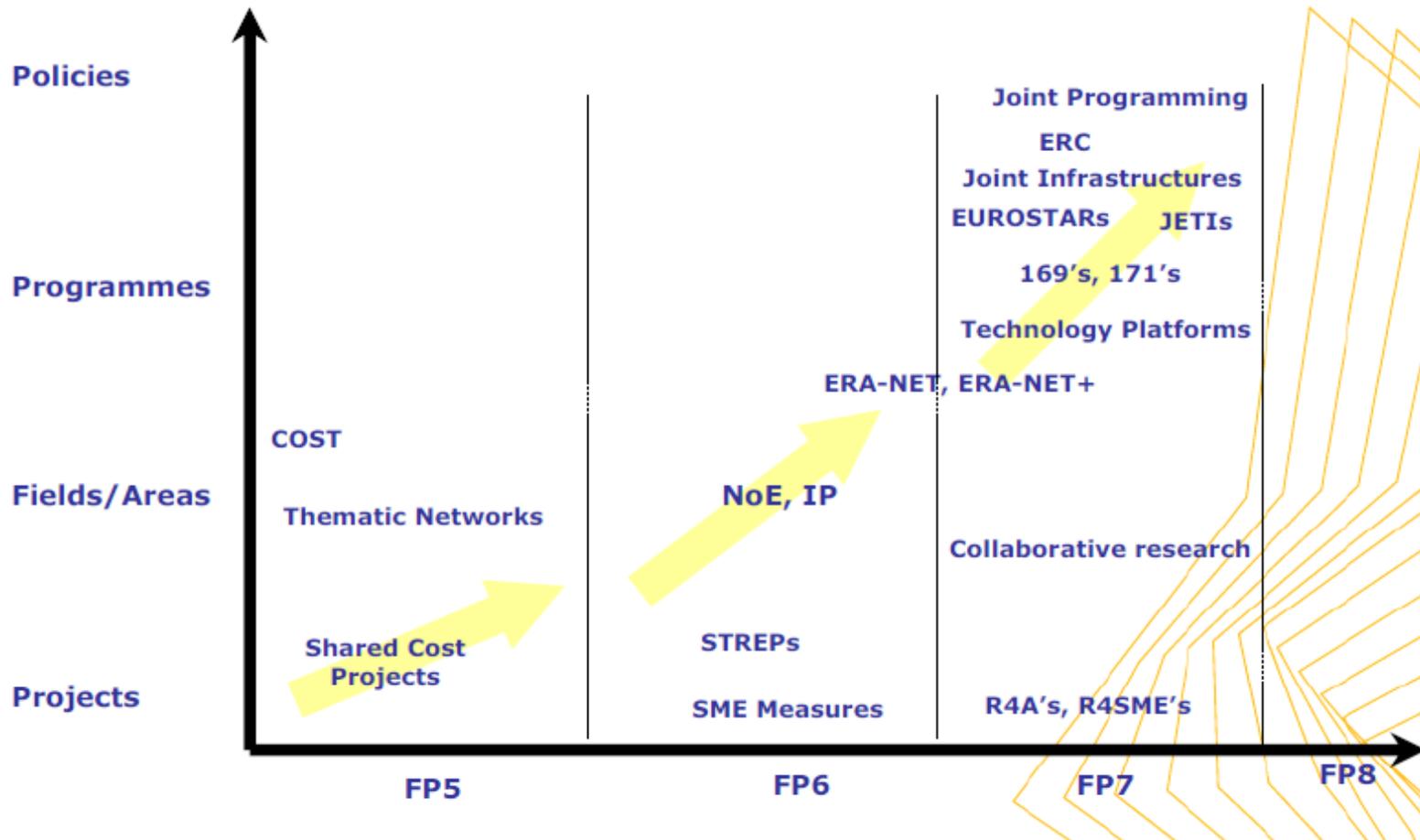
The new research environment

- › recognising **complexity** (multidisciplinary, multi-sector, borderless, fragmented governance, networked and systemic ...), requires development of “horizontal” approaches,
- › recognising new **social dynamics** (globalisation, internet leads to fast diffusion on knowledge and crowdsourcing) needs responsive and adaptive programming,
- › understanding **international or global (policy) interdependencies** requires multilevel thinking,
- › understanding growing **interdependencies between politics and the market** as complementary societal steering mechanism requires a “new public management” approach.



Key determinants of transformative research

<i>Goal</i>	<i>Description</i>
World class research	In world top-ten of research groups in the field
Uncertain but potentially high impact outcomes	The potential to build new research trajectories opening up the road to new applications or to disrupt accepted research trajectories
Sufficient mass	Increasing complexity and multidisciplinary translates in scale/mass requirements
Connectedness	An environment which is conducive to a diversity of research inputs and to fostering research results and nurture their potential usage



Source: EARTO



More frontier: trust or control

- › Peer reviewing not enough to bring desired results
- › Output or performance based funding leads to short term improvements, but longer term uncertain
- › More lump sum, grants, awards?
- › Better: interactive monitoring (content based risk management) and active management

	<i>Top-down selection</i>	<i>Bottom-up selection</i>
<i>Control based funding</i>	1: centralised	2: executive agencies
<i>Trust based funding</i>	3: mission driven agencies?	4: decentralised institutional



Key elements of ideal-type model

- › requires interaction between and with researchers in programming and implementation stages,
- › requires transparent selection process based on a consistent set of competitive criteria in each specific scheme (don't let different *goals* compete with each other),
- › requires flexibility of the funding scheme (e.g. two-step application procedure, provisions for testing ideas, highly knowledgeable monitoring, possibilities to adapt plans on basis of progress and lessons learned),
- › fostering frontier research requires speeding up procedures, minimising the administrative burden and shift of focus from inputs to the content of outputs and impacts



Conclusions/recommendations

- › Re-balance the overall European research portfolio.
- › The thematic programmes need stronger “entrepreneurial” management
- › Create special pull-factors for high-risk high gain research (ERC, FET)
- › Loss of blue sky in industrial laboratories requires “triple helix” approach.
- › Flexibility, speed, and increased dynamics in the research portfolio.
- › Independent agencies are a boundary condition.



Healthy ageing notes

- › Healthy ageing CONCEPTUALLY relatively clear but policy initiatives are “fluent”.
- › Healthy ageing is generally recognized as a subtopic under “health”
- › Focus on medical science and systems: personal/social aspects of active living/working are lacking.
- › Focus on researching the problem; opportunities of technological solutions overlooked.
- › Policy focus on institutional solutions; not on innovation.



Healthy Ageing Conclusions

- › National initiatives fragmented; limited Grand Challenge approach.
- › Still there are significant national initiatives in most countries, but internationalisation is slow.
- › Policy initiatives have limited priority for STI, but focus mostly on reforming the pension plan and healthcare system
- › STI budget for the topic is limited: around 1-2% of total STI
- › Room for EU-actions.