

Science Impact

Science and Funding Models

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My background:

- 25 years at Imperial College
- 7 Years running Research Council:PPARC
- 6 years on EURAB
- 1+ Year President ESF
- 7 Years CERN Council
- 3 Years FALC
- .5 Years Governing Board FermiLab

Science and expectations of science change:

- Many areas require teams with infrastructure to be competitive.
- Many scales of money and/or time.
- Increasing pressure to add to economy.
- Physics: Pressure to help other areas.
- Medicine: Translation. Drug discovery.
- IT: Spin outs. European Google??

Funding Agency:

Therefore need an explicit strategy.

- Balance large/medium/small proposals.
- Balance high risk versus safe.
- Take emerging areas and nurture them against strength of entrenched areas.
- Decide which areas are into diminishing returns/€.
- Kill facilities.

Innovation: Particular problem. Why?

- Where does Research end and Innovation start?
- Very dependent on science area: Drugs versus IT versus Chips versus Nuclear versus Jet Engines.
- Explicit budgets?
- USA: DOE, DARPA, ...
- Universities: Not just Technology Transfer
- WW2: Radar, Computers, Nuclear,...

Picking Winners:

- UK gave up: Concorde, IT,...
- Lessons: A skilled job needing real insight NOT political consensus.
- Same lesson as Science: Get Politics out and delegate to experts!
- Pay and FUND people to carry out innovation. Fit for purpose mechanisms.
- The Market is often blind: Silicon valley was born of DoD funding NOT venture capital.

Conclusions

- Funding Science and Innovation are seriously important.
- Mechanisms need constant review.
- Goals must be clearly defined
- Do NOT substitute rhetoric for money
- Clearly articulated strategies are a necessity.
- 15 year financial plans a real necessity.