

LSE Growth Commission: Innovation



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Support for science and innovation: UK government & business environment



Performance in science

- The UK is one of the world's highest performers in science
 - 3.9% of researchers
 - 6.4% of articles
 - 10.9% of citations
 - 14.0% of top 1% highly-cited articles
 - 2.2% of patent applications
- The most efficient anywhere normalised to inputs, ie GERD or population.

Performance in innovation

- Innovation performance – judgements on how and what to measure vary.
- But taking output as productivity growth in new and existing businesses, the UK lags behind world leaders (US, Japan) and European leaders (Germany, Sweden, Switzerland).

UK government environment

- Government support for science in the UK remains strong, and increasingly focussed on translation.
- Key outputs supporting the innovation system perform well (eg. STEM degrees; researchers/1000 population; scientific articles).
- Government has a sound appreciation of policy requirements to promote innovation.

UK business environment

- Business spending on R&D is significantly lower than leading competitors (ie BERD as % GDP) and OECD average.
- This largely reflects the structure of the UK economy where high, medium technology enterprises are small relative to competitors (ie R&D intensive sectors and larger services sector).
- Support for university research from business is smaller as a consequence.
- Availability of venture capital at 0.2% GDP is better than most competitors.
- % GERD financed through inward investment is much larger than competitors (a success of government policy).

UK government and business environment: summary

- The components of the innovation system are broadly competitive (eg. STEM graduates; research and science outputs; venture capital).
- **Our lack of competitiveness is in ensuring optimum use of them in a broader functioning innovation system.**

Successful and unsuccessful policies



Successful policies

- Long-term support for research, with sufficient concentration of resources to maintain high-performing position for the UK.
- FEC provided a sustainable future – running into some long-term difficulty if CapEx not increased one way or the other.
- HEIF – small budget but big impact on behaviour.
- TSB and business collaboration funding – a good policy but far too little money to do the job of Fraunhofer Institutes (Germany) and better coordinated in US investment policies (particularly SBRI).
- Good performance on spin outs.
- Inward investment policies.
- Support for STEM subjects in HE.

Less successful policies

- Picking winners – a consequence of too little money and less cross-government coordination.
- Attempts to bridge valley of death with government funding.
- Loss of diversity in universities following 1994 policy changes.
- Regional (eg RDA) policies – met with some success, but too linked to ‘regional aid mentality’, rather than innovation.
- Visa policies – unhelpful in execution.
- Failure of successive governments to develop policies for a world-class national infrastructure that underpins an effective innovation system.

Bridging the gap: Science to Commercialisation



Skills (schools to HE to past HE)

What are the skills needed?

- BIS economic paper 15 suggests skills balance differ significantly from one sector to another.
- Also higher skill levels overall appear to lead to more innovative businesses.
- Business school short courses particularly delivered on-line with proper accreditation - in finance, management, entrepreneurship etc.
- If on-line costs are low may not need the incentive of tax credits or grants to support skill development.

Universities

Develop incentives to enhance commercialisation:

- HEIF
- Impact statements – HEFCE/REF
- Student placement experience in business are a key need

Clusters

- You know one when you have one. Doubtful about cluster creation. Creating the conditions is key.
- Around major universities, or university groupings, there is scope for clusters to develop.
- **Probably better handled regionally than centrally – ie central policies more likely to be one size fits all!**

Intellectual property

- Only one of the ways of getting economic benefit from research.
- Agree with the MIT philosophy – start many companies, creates lots of licences. Expect some start ups to grow if investment capital is made available.