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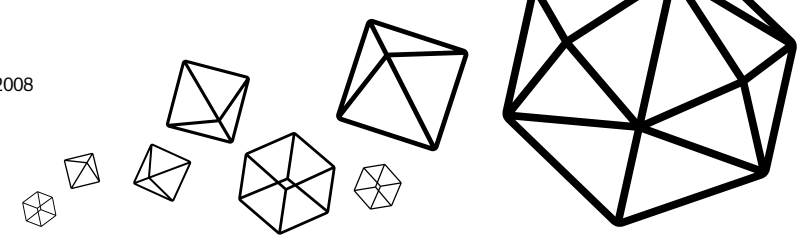

NESTA Making Innovation Flourish

Towards an Innovation Nation

Last summer, the Department for Innovation, Universities and Skills (DIUS) faced a significant challenge: it was a new department, charged with a wholly new responsibility, much of which depended on exerting influence across Whitehall.

The Innovation Nation White Paper demonstrates intellectual leadership, presents an ambitious new direction for UK innovation policy and lays out how the UK will keep track of its performance against this new framework. Carrying through the implications of its analysis to their full extent will be challenging for DIUS if it remains traditionally structured, and constant effort will be required to remain at the cutting edge of innovation policy.

New policies based on a new understanding of innovation

Hidden innovation recognised for the first time[1]

For the first time, 'hidden'[2] and other, non-traditional forms of innovation such as open[3] and user-led[4] innovation receive explicit recognition in a government document. As they become increasingly important, policy will have to learn how to support and not stifle them, giving particular consideration to the different demands they place on intellectual property.

Innovation in public services is essential to meeting the economic and social challenges of the 21st century[5]

Too often, the public sector is written off as inherently inefficient, laggardly, and non-innovative. But on both local and national levels, the public sector has always been an important source of innovations.[6] Innovation Nation sets an ambitious vision for innovative public services that are able to meet the increasing and more complex demands being placed upon them.

Demand also drives innovation[7]

Innovations are the product of the creative interaction of supply and demand.[8] But until very recently, innovation policy has focused almost exclusively upon supply-side measures. This White Paper builds on the recommendations of the Sainsbury Review to make detailed recommendations about how government can better support innovation through demand-side policies.

The UK is part of an international innovation system[9]

Innovation has no respect for artificial administrative boundaries, whether those be between regions or nations. In a globalised economy, the ability of any single nation or region to absorb innovations made elsewhere is just as important as its ability to create its own. Openness and the free circulation of people, capital and ideas are prerequisites for success.[10]

The White Paper recognises this international dimension to innovation. DIUS will be taking over responsibility from the Foreign and Commonwealth Office for tasking and managing the Science and Innovation Network, and for ensuring that the Chief Scientific Advisor's Global Science and Innovation Forum provides effective interagency coordination for international innovation.[11]

An innovation policy produced in an innovative way[12]

In producing Innovation Nation, DIUS embraced a far more open method of working than is traditional in the development of White Papers. Nine in-depth external roundtables were organised by bodies such as the CBI, the Design Council, the Work Foundation, Demos, Advantage West Midlands and NESTA. The White Paper blog and call for ideas produced over 280 submissions. In addition, teams from the TSB, UKIPO, Design Council and NESTA were integrated into the workgroups that developed policy for the White Paper.

A bold step for government policy

These steps mark a new chapter in innovation policy for the UK. Importantly, DIUS has recognised that a service-based economy like the UK's will need to think differently about how, where and why it innovates.

Staying ahead and keeping track

The new Innovation Index will better account for UK's true innovative capacity

Intelligent policymaking requires appropriate evidence. On the whole, evidence-based policymaking is a force for good. However, in

1. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 1.
2. Hidden innovation represents "the innovation activities that are not reflected in traditional indicators such as investments in formal R&D or patents awarded." NESTA (2006) 'The Innovation Gap: why policy needs to reflect the reality of innovation in the UK.' London: NESTA. See also NESTA (2007) 'Hidden Innovation: how innovation happens in six 'low innovation' sectors.' London: NESTA.
3. Open innovation is "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively." Chesbrough H., Vanhaverbeke W. and West J. (2006) 'Open innovation, researching a new paradigm.' NY, USA: Oxford University Press.
4. User-led innovation is "the process by which a person or a company develops a personal or in-house innovation because existing products do not meet their needs." Von Hippel E. (1988) 'The Sources of Innovation.' Oxford: Oxford University Press.
5. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 8.
6. Mulgan G. et al. (2007) 'In and Out of Sync: the challenge of growing social innovations.' London: NESTA; Bacon, N. et al. (2008) 'Transformers: How local areas innovate to address changing social needs.' London: NESTA.
7. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 3.
8. Georghiou, L. (2007) 'Demanding Innovation: lead markets, public procurement and innovation.' London: NESTA.
9. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 6. .See also NESTA (2007) 'Innovation goes global: why it's no longer enough to think of a national innovation system.' London: NESTA.
10. Leadbeater C. (2007) 'The Difference Dividend: why immigration is vital to innovation.' London: NESTA.
11. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 6.
12. Ibid. Annex to Report.

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innovation policy, a lack of effort to develop new, more accurate measures has resulted in deep conservatism.

At present, UK innovation statistics focus heavily on traditional measures, such as R&D expenditure or patenting. These are well-suited for high-tech manufacture, but less appropriate for innovative, high value-added services, the creative industries and public services.[13] As a consequence of 'following the evidence', innovation policy has therefore tended to be restricted to measures that directly support achievement of these targets – most obviously support for R&D and one-way 'technology transfer' out of universities and into business.

In Innovation Nation, DIUS has charged NESTA with the task of creating a new Innovation Index that will provide a comprehensive assessment of the UK's true capacity for innovation. This will provide a strong evidence base for future innovation policymaking. Working with expert partners like the Office of National Statistics, DIUS, BERR and CBI, NESTA will deliver a pilot Index in 2009, with a fuller system in operation by 2010.[14]

Innovation Research Centre will keep the UK at the cutting edge of innovation policy
To better analyse and understand the broad definition of innovation laid out by the White Paper, DIUS, NESTA, the ESRC and the Technology Strategy Board will establish a new Innovation Research Centre that will ensure a steady supply of high quality innovation research into the UK innovation policy community.[15]

Supporting innovation in public services

The Public Services Innovation Laboratory will incubate and evaluate leading-edge innovations
Research and analysis needs to be backed up by effective practice. NESTA sits between the public, private and third sectors and will form the centre of an open and collaborative approach to developing the most radical innovations that will transform public services – the Public Services Innovation Laboratory.[16]

Working as appropriate with partners such as the Young Foundation, Innovation Unit, IDeA, Design Council and Innovation Exchange, the Laboratory will trial new methods for uncovering, stimulating, incubating and evaluating the most radical and compelling innovations in public services. It will further act as a focal point for collecting and facilitating learning about innovations in public services trialled elsewhere.

The Laboratory will package and disseminate lessons learned and seek to improve the innovation system that enables pilots to roll out nationally. It will further use this knowledge to develop curricula, tools and services for the public service practitioner audience.

A Whitehall Hub and Network for Innovation will aim to disseminate learning and champion innovation at the heart of government
Working with the Public Services Innovation Laboratory, the Whitehall Hub for Innovation will provide a focal point for innovation across Whitehall, disseminate knowledge on best practice across departments and ensure that policymakers recognise and address the barriers to innovation on the front-line of delivery.[17] Correctly implemented, the Whitehall Network of Innovators will ensure senior-level buy-in to this process.

Consideration given to extending the Power to Innovate
The current Power to Innovate provides the Secretary of State at the Department for Children, Schools and Families with the ability to suspend some of the controls and regulations for individual projects where these are necessary to promote innovative ways of working. DIUS will work with the Cabinet Office to explore the potential for extending this mechanism across the public sector.[18]

Making government an intelligent customer

Demand is essential to the innovation process. The White Paper makes several recommendations to help government deploy the full weight of its £150bn spending power to create and diffuse new products and ways of working.[19]

Innovation Procurement Plans will help government procure more effectively and monitor departmental progress
If used intelligently, government procurement represents a huge potential reservoir of demand for innovation.[20] Building on recent reforms to government procurement,[21] Innovation Nation challenges each department to set its own Innovation Procurement Plan, detailing how it will support innovative new ideas and products to better meet departmental objectives.[22]

13. NESTA (2006) 'The Innovation Gap: why policy needs to reflect the reality of innovation in the UK.' London: NESTA.
14. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 5.
15. Ibid. Chapter 5.
16. Ibid. Chapter 8.
17. Ibid. Chapter 8.
18. Ibid. Chapter 8.
19. Ibid. Chapter 3.
20. Georghiou, L. (2007) 'Demanding Innovation: lead markets, public procurement and innovation.' London: NESTA.
21. See HM Treasury (2007) 'Transforming Government Procurement.' London: The Stationery Office.
22. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 3.

SBRI will be reformed (again)
To date, the Small Business Research Initiative (SBRI) has (as the Sainsbury Review recognised) largely failed in its goal of boosting government support for innovative new firms.[23]

The scheme was modelled on the US Small Business Innovation Research (SBIR) fund, which established a target for a proportion of Federal research and development expenditure to be spent on innovative small businesses. Unlike its US predecessor, however, the UK SBRI has produced little discernible impact on departmental behaviour.

The White Paper provides some further details on how the SBRI is to be reformed, with a revamped scheme being initially trialled by the Department of Health and the Ministry of Defence. It will be more tightly-focused on support for new technology, and will be overseen and supported by the Technology Strategy Board.[24]

Understanding pro-innovation regulation
The White Paper recognises the complex effect regulation can have on innovation: under different circumstances, it can be either a useful support, facilitating the invention and diffusion of standards; or it can be an impediment, blocking the creation and spread of new products and services.[25]

Regulatory reforms in recent years have begun to recognise this complexity, and have attempted to make regulation more supportive of innovation. The White Paper builds on this, with DIUS, BERR and the Better Regulation Executive set to work with the Business Council for Britain to identify the lessons to be learned and to share them with regulators.[26]

More support for business innovation

A national proof of concept specification could help innovative firms access finance
The problems new, innovative firms face in acquiring finance are well-known.[27] The Sainsbury Review recommended the creation of a national specification for a proof of concept scheme to provide a measure of standardised support for the commercialisation of new ideas. The White Paper provides some additional details for this, integrates the specification into the Business Support Simplification Programme, and allocates £5m of funding.[28]

Perhaps no longer the poor relation of the knowledge economy: launch of the FE Specialisation and Innovation Fund
Further Education colleges are a great untapped innovation resource. Their proximity and accessibility to local businesses could make them valuable sources of knowledge exchange and skills provision. Already, 37 colleges are taking part in Knowledge Transfer Partnerships,[29] and many more have formed productive relationships with local SMEs.

To support and extend these activities, DIUS will be creating a new Further Education Specialisation and Innovation Fund, complementing the £180m Learning and Skills Council Innovation and Specialisation fund. This will be used to boost FE engagement in Knowledge Transfer Partnerships, enabling a number of pathfinder projects to support innovation activities in their locality.[30]

Significant progress, but implementation will be a considerable challenge

Innovation Nation contains strong messages on demand, procurement, innovation in public services and new forms of innovation. However, in some areas the White Paper has been constrained: in part by lack of funds from a tight spending round, and in part by the inevitable difficulties a new department faces when trying to make its mark on Whitehall. As a consequence, meeting the promise of being an 'Innovation Nation' still represents a considerable challenge for DIUS.

DIUS must transform in order to fulfil the cross-government leadership role it has laid out for itself
Developing this White Paper has involved a process of close co-operation across and beyond Whitehall. However, recognising the importance of non-innovation policy in influencing innovation,[31] many of its recommendations will require further close working with other government departments, and a level of influence over them that only HM Treasury exerts at the moment. This process will be helped by the clear intellectual lead established by Innovation Nation, but the challenge remains significant.

Delivering on this is likely to require quite radical re-engineering of the department itself – turning it from one built for delivery of services to the users of higher education and training into one that is primarily working through other departments, external agencies and the private sector to achieve its lofty goal.

23. Lord Sainsbury of Turville (2007) 'The race to the top: a Review of Government's Science and Innovation Policies.' London: HM Treasury. pp. 129-131.
24. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 3.
25. Lord Sainsbury of Turville (2007) 'The race to the top: a Review of Government's Science and Innovation Policies.' London: HM Treasury. Chapter 8.
26. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 3.
27. Lord Sainsbury of Turville (2007) 'The race to the top: a Review of Government's Science and Innovation Policies.' London: HM Treasury. Chapter 6.
28. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 4.
29. Technology Strategy Board (2007) 'Knowledge Transfer Partnership Annual Report 2006/07.' Swindon: TSB.
30. DIUS (2008) 'Innovation Nation.' London: The Stationery Office. Chapter 7.
31. NESTA (2007) 'Hidden Innovation: how innovation happens in six 'low innovation' sectors.' London: NESTA.

Support for user-led innovation needs to move beyond rhetoric and into reality
Innovation Nation discusses the role of lead users and lead markets but the creative interaction between users and manufacturers, and how the boundaries between the two are being broken down in many industries, are not well-covered by the White Paper's recommendations.

Users are an increasingly important source of innovation[32] because they are often able to identify unmet needs, and propose novel solutions to problems.[33] But policy, such as that around protecting manufacturers' intellectual property, may not be well adapted to this form of innovation. While the Gowers Review looked at IP comprehensively from a manufacturer's point of view, it did not actively consider the interests of user-innovators, or the UK interest in fostering them.

DIUS and the UKIPO should launch a review of IP to consider the impact of existing law and future trends on the ability of users to innovate. DIUS should further seek to integrate lead users deeply into existing initiatives like the TSB's Innovation Platforms.

DIUS should pilot a hidden innovation start-up fund
Conventional innovative start-ups often rely on an aggressively enforced IP strategy: the new company has a valuable idea, and uses this to raise funds from venture capitalists and other investors. This, however, does not apply to firms reliant on hidden innovation.

In particular, firms built around user-led innovation often make a virtue from sharing their intellectual property: the value of the company resides in the additional services it provides, or the tools it offers users. But this can deter investors, more used to traditional business models with strong IP protection.

DIUS should therefore lead a pilot scheme to provide start-up funds for those wishing to set up new, or grow early-stage firms promoting hidden innovations. Denmark has recently established a scheme for user innovators,[34] which could be adapted and refined to UK circumstances.

Open Source represents a missed opportunity for government to create a lead market
Government IT procurement has been beset by delays, technical failures, and extraordinary cost over-runs. Open Source software is now being adopted by governments across the world as a potential solution to some of these problems. As well as supporting new forms of collaborative innovation, Open Source software can provide cheap, reliable software for government IT projects.[35]

The Dutch government has a commitment to preferentially use Open Source software in all public sector IT from April this year. The Cabinet Office has previously recommended the use of Open Source software in public sector IT, and many local authorities have now adopted the standard.[36]

A serious commitment by government to Open Source, along the lines of the Dutch policy, would place the UK in a highly favourable position to support Open Source development and use throughout the economy, potentially stimulating a high valued-added sector that could compete internationally.

Government should follow the Cabinet Office's advice by making Open Source the 'default option' for IT procurement. DIUS, as the 'department for innovation', should take a lead for Whitehall by installing Open Source software across its own operations.

Proposed government procurement reforms are only the beginning
Reforms to government procurement are much-needed, if it is to help sustain – rather than block – innovation in the UK economy. But seriously addressing this question will require a more significant shift in current policies and practice.

Reforms to SBRI, though necessary, do not yet place it in the same league as the US scheme. For instance, it is not yet clear that the proposed reforms draw on the most important elements of the US scheme: the substantial sums available, and the use of two-part contracts. Departments will need to allocate greater sums of cash than the 2.5 per cent of R&D budgets currently mandatory, while SBRI contracts should mirror as closely as possible the risk-sharing built-in to their US equivalents.

Driving innovation in public services represents DIUS' greatest challenge
Growing recognition of the importance of innovation to public service delivery has sparked a plethora of schemes and initiatives across local and central government. While this interest and commitment of resources is welcome, there are the twin risks of excessive complexity, and excessive Departmental involvement that may stifle genuine innovation.

Through arm's length programmes like the Public Service Innovation Laboratory and Designing Demand, DIUS has an opportunity to break free of these constraints, but with sufficient authority to make a genuine impact.

32. McKinsey in an analysis of the value redistribution and value creation accompanying the emergence of skilled, proactive consumers estimates that roughly €637bn is at stake in the EU25 and $539bn in the US. Loffler M. and Schmid U. 'Disruptive Technology Trends: Capturing the Value at Stake.' McKinsey Technology Initiative Perspective, 2008. To generate estimates, the report examines (i) production costs (ii) sales, marketing and general administrative costs (iii) depreciation and amortisation of capital and (iv) operating income, and then determines the percentage of each category affected by user involvement. Figures represent a combination of available company data, best practice examples and interviews. This makes up the impact on gross output that could reveal itself in direct costs such as labour and R&D or in the cost of intermediate inputs along the supply chain.

33. One study found that 70 per cent of the most commercially-significant novel products in chemical engineering, and 67 per cent of those in semiconductors, were the direct result of user innovation. Von Hippel E. (2002) 'Horizon Innovation Networks – for and by MIT Sloan School of Management.' Working Paper No. 4366-02 June, 2002.

34. See Danish Enterprise and Construction Authority, Executive Order No.241, 20 March 2007.

35. Schools in Oregon, for example, are estimated to have saved $200,000 a year by using Open Source, whilst major companies like Google and Amazon use Open Source throughout their operations. See, for example, ZDNet, 'Open Source battle heats up over Oregon Bill.' 10 April 2003. Available at: http://news.zdnet.co.uk/software/0,1000000121,2133230,00.htm

36. Cabinet Office/Office of Government Commerce (July 2002) 'Open Source Software: use within UK government.' Available at: http://archive.cabinetoffice.gov.uk/e-envoy/frameworks-oss-policy/$file/oss-policy.pdf