<u>Innovation Policy Project in Services – IPPS 2006-7:</u>

<u>UK Report</u>

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Executive Summary

While recognition of the lack of fit between services innovation and many established innovation policy instruments has been growing, this has not led to specific services-related innovation policy at national level. The Department of Trade and Industry is the main policy actor here, and is considering whether some [policy redesign is required. However, efforts to foster innovation in "creative sectors" have come into play from the department for Culture, Media and Sports, and the National Endowment for Science, Technology and the Arts. Scottish Enterprise, which plays an equivalent role to the DTI in Scotland, has identified some service sectors among its priorities and has produced, for instance, an Innovation Toolkit for the tourism sector. These and other developments are helping to establish a climate in which services innovation and other non-traditional forms of innovation are much more at the forefront of debate.

Quotation …
(source)

Chapter 1

Overview of the UK Policy System for Service Innovation

1.1. Overview

The UK has no specific policy for services innovation, and is unlikely to introduce one in the immediate future. The general perspective is one of "sector neutrality", and the Department of Trade and Industry (DTI), which has primary responsibility for innovation policy for most of the UK, currently intends to maintain this perspective. Two important issues need to be noted, however.

First, there is recognition in the DTI that existing policies, programmes, and ways of implementing them, may not in effect be sector-neutral, that some types of services and services innovation may be effectively discriminated against. This recognition is liable to lead to fresh studies and policy approaches.

Second, outside of the main national innovation policy strategies, there are some specific efforts to support innovation and internationalisation in particular branches of activity, notably the creative sectors. These efforts are supported by, in particular, the Department for Culture Media and Sport (responsible for creative industries) and some Regional Development Agencies (responsible for cluster and innovation policies at regional level).

Note that our focus in this paper is on private or market services; there are extensive programmes for modernisation of the public sector. There are some areas where differentiating between public and private requires quite detailed analysis.

1.2. Key Departments and Agencies

An organogram of the main elements of the UK's governmental institutions in the innovation system is displayed in Figure 1. The "devolved administrations" box in the top left corner includes several important players, such as the regional development agencies and the authorities responsible for Northern Ireland, Scotland, and Wales.

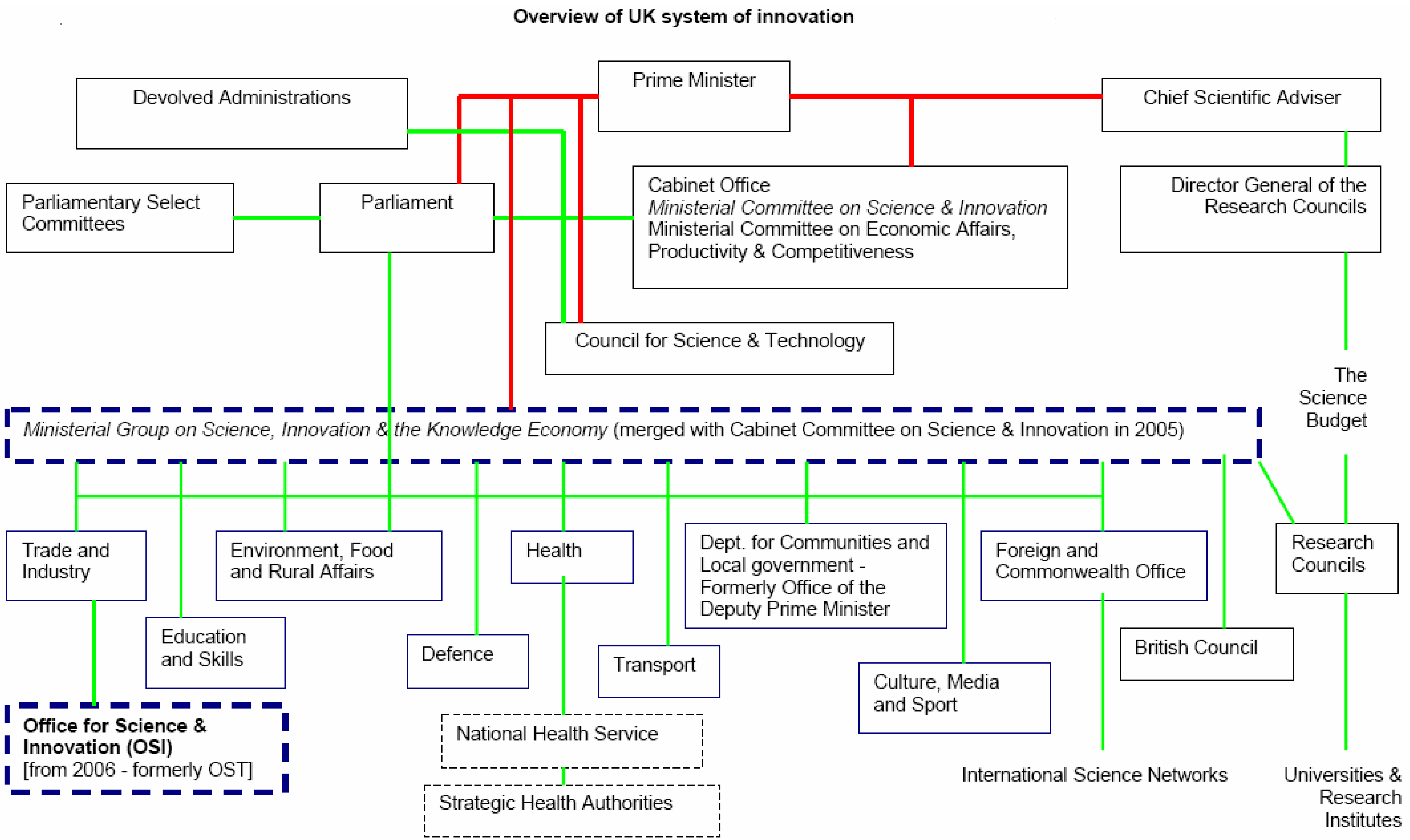

Figure 1 The UK Innovation System
Source: Annual Innovation Policy Trends and Appraisal Report, United Kingdom, 2006, p. 7, adopting Guide to Organisation of Science and Technology (GOST), British Council 2005

1.2.1 Central Government

The text below is largely based on the content of Departmental and other central government web sites.

1.2.1.1 Overall Coordination and Advice

Overall government policy on innovation is the coordinated through the **Cabinet Committee on Science and Innovation** (CCSI – this supersedes the earlier Ministerial Group on Science, Innovation and the Knowledge Economy, and the sub-committee on Science). Its terms of reference are 'to determine and oversee the implementation of the Government's policies in relation to science, innovation and wealth creation'. The DTI Secretary of State chairs the Committee, reflecting the prominence of the DTI in the innovation agenda.

The Council for Science and Technology (CST)[1] is the UK government's top-level advisory body on science and technology policy issues. It was established in 1983, replacing the Advisory Council on Science and Technology (ACOST), it was re-established in 1998, and relaunched in 2004 after a quinquennial review that gave it new terms of reference, a new membership, and a new way of working.

Its remit is to advise the Prime Minister and the First Ministers of Scotland and Wales on strategic issues that cut across the responsibilities of individual government departments. The members of the Council are respected senior figures drawn from across the field of science, engineering and technology, appointed by the Prime Minister. The CST work programme is developed by its members in discussion with government. CST work is organized around five broad themes (research, science and society, education, science and government, and technology innovation) and takes a medium to longer term approach. The Terms of Reference are to advise the Prime Minister and the First Ministers of Scotland and Wales on the strategic policies and framework for:

- sustaining and developing science, engineering and technology (SET) in the UK, and promoting international co-operation in SET
- fostering the practice and perception of science, engineering and technology as an integral part of the culture of the UK
- promoting excellence in SET education
- making more effective use of research and scientific advice in the development and delivery of policy and public services across Government
- promoting SET-based innovation in business and the public services to promote the sustainable development of the UK economy, the health and quality of life of UK citizens, and global sustainable development

CST was rather active immediately before its relaunch in addressing the services agenda. A 2003 report, Knowledge intensive services and the science base (published together with a number of

[1] http://www2.cst.gov.uk/cst/about/

supporting and background studies[2]), recommended that Government should take action relevant to services innovation as follows:

I. "Develop models which enable services, including KIS, to be taken into account explicitly in initiatives for encouraging and supporting knowledge-based innovation in services. …we need to look at value added without imposing a priori distinctions between services and manufacturing and to improve understanding of innovation in each, and in the development of products which involve both.

II. Study selected successful service sectors clusters in depth. We suggest looking at financial services and media (or possibly creative industries, including new media). Both financial services and media were identified … as sectors within which the UK has developed strong clusters "but there is little systematic data on these clusters available." This state of affairs needs to be remedied. Both financial services and media are, at least in part, KIS.

III. Carry out international comparisons for key sectors. There are suggestions that there may be better links between KIS and the science base in other countries with a stronger record of turning knowledge to use…. We recommend identifying a few sectors which have scope for growth in the UK, identifying countries which are competitive in these sectors and comparing the operation of networks involved in the value chain, and of the cluster institutions in the different locations.

IV. Take explicit account of services, including KIS, in current initiatives to support innovation and make maximum use of the information they generate to shed light on how service innovation works in the UK.

V. Gather systematic information about services in data gathering exercises in the UK and at EU level. In particular we believe that when the government studies the effects of the R&D Tax Credit Scheme it should ensure that service industries are looked at explicitly as well as traditional manufacturing. It will be important to investigate as soon as it is practicable the uptake of the scheme in different sectors as well as the barriers that may prevent all industries taking part."

The report went on to note that: "We are urging the Government to fill a specific gap in knowledge and to develop models which enable service sectors, including KIS, to be explicitly taken into account in initiatives for encouraging and supporting innovation. …But we are not convinced that it would be helpful to maintain a distinction between services and manufacturing innovation and to develop a separate model for service innovation. The differences between service provision and manufacturing provision, not least the intangibility of many service outputs, do partly explain the lack of information about and suitable models for discussing services. But the growing interdependence of service provision and manufacturing suggests to us that it would be better to aim for models which look at how value is added without imposing a priori divisions between manufacturing and services. We need to understand innovation in each, and the way in which the two interact. Maintaining the divide may simply stall discussion."

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[2] available at http://www2.cst.gov.uk/cst/reports/#2

Thinking such as this has informed the changing perspectives on service innovation and the nature of a “sector-neutral” policy that are evident in the DTI.[3]

1.2.1.2 DTI

The Department of Trade and Industry (DTI) sees its mission as that of creating the conditions for business success; and helping the UK respond to the challenge of globalisation. The main ways of doing this are by facilitating partnerships and promoting fresh thinking between government, businesses, employees, unions, consumers and the scientific community. Among the key approaches cited on the DTI’s introductory webpages are:

- investing in world-class science and technology, and help ensure its successful exploitation.
- promoting a legal framework that encourages enterprise and innovation, ensuring consumers, companies and employees receive a fair deal.
- ensuring a successful economy is underpinned by secure, sustainable and affordable energy.
- championing British interests globally while promoting economic reform in Europe and free and fair world trade.

The DTI is the main government actor where it comes to Innovation Policy, and has spelled out its Innovation Agenda through a 2003 Innovation Report., "Competing in the Global Economy: the innovation challenge" (drawing on wide stakeholder consultation). The Report is described as having approached the issue from a demand-led, business “pull through” perspective rather than the usual emphasis on supply side solutions. For example, our technology strategy is all about business advising government on the ideas that, with a little support, could become future innovations. The action plan announced here, involved:

- A Technology Strategy to concentrate Government funding on key technologies identified through consultation with business and other stakeholders;
- New procurement guidelines designed to make Government a more "intelligent customer" by using it's huge £125 billion a year purchasing power to drive innovation through public procurement;
- Tailored help for small businesses to innovate, including advice on intellectual property and design, with greater access to R&D grants, university research and public procurement opportunities;
- Enhanced support and encouragement for women in entrepreneurial activities, by ensuring that every Region has a network of targeted women's initiatives as part of their Regional Plans;
- Steps to deliver and reinforce the Skills Strategy as a major contributor to improving levels of innovation and productivity;
- Research Councils to accelerate knowledge transfer and boost their interaction with business; and,
- A new regional focus on innovation - with every Region to have a Science and Industry Council or equivalent; Regional Selective Assistance to be redesigned to focus on creation of sustainable, high value added jobs; Regional Companies to be given improved access to the National Science Base.

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[3] Also of note is an earlier report Imagination and Understanding (2001, available on the same web page) that examined the arts and humanities in relation to science and technology.

Additionally, innovation policy involves:

- Encouraging Research and Development – including increasing DTI and DfES funding for research at an average annual rate of 5.8 per cent in real terms over the current spending review period.
- Driving Innovation Through Government Procurement, with new procurement guidelines to make Government a more intelligent customer, using its purchasing power to drive innovation through public procurement that harnesses new technologies for public policy objectives
- Creating highly skilled and high value jobs, where DTI works with partners on the Skills Alliance, with 25 employer-led Sector Skills Councils (SSCs) providing employers a means of collectively analysing their skills needs and linking these to the main drivers of productivity. Regional Skills Partnerships bring together National, Sectoral and Regional priorities and provide a mechanism for determining, region by region, the priorities for economic development and skills linked to Regional Economic Strategies.
- National Regional Partnership: as noted earlier, the RDAs will have an enhanced role in delivering elements of the 10-year investment framework. ; innovation and knowledge transfer work is a stream in the National-regional partnership project.
- Regulatory Framework – here DEFRA, the Environment Agency, DfT, the Cabinet Office and DTI have carried out three pilot projects looking at regulatory options in three environmental areas – eco-design of TVs, vehicle emissions, and the implementation of the Integrated Pollution Prevention & Control directive.
- Intellectual Property - the Patent Office has published a National IP Crime Strategy that sets out organisations and resources involved in the fight against counterfeiting and piracy.

It will be apparent that within these broad strategies there is no specific prioritization of either services or manufacturing (though we do have mention of energy – mainly in relation to energy security concerns).

Within the DTI is located the OSI[4], the **Office of Science and Innovation,** responsible for UK Science Policy and for funding basic research allocated via the Research Councils, and for the Foresight Programme. The role of the OSI is to:

- sustain and improve the science and engineering base;
- improve the performance of Government departments using science and technology;
- optimise the benefits to UK science from EU and international activities;
- improve the flow of people and ideas between the science and engineering base and users;
- improve engagement between science and the rest of society;
- ensure sound advice is given to Ministers across Government on science issues.

OSI is headed by the Chief Scientific Adviser to HM Government, currently Professor Sir David King, and is responsible for developing and coordinating Government policy on science and

[4] From http://www.dti.gov.uk/science/ and http://www.dti.gov.uk/science/science-tech-and-dti/index.html Note that until 2007 the OSI was the OST – Office for Science and Technology.

technology both nationally and internationally. The DTI has statutory control of the Research Councils, supported by the Director General for Science and Innovation (DGSI), currently Sir Keith O'Nions, in the OSI. The DGSI is responsible for the allocation of the Science Budget (currently over £3 billion per year) into research. The majority of this funding, around £2.6 billion per year, is allocated to the Research Councils.

The **Foresight Programme**[5] is an initiative funded by the UK Government which aims to identify and describe challenging scenarios for the future, to help formulate better strategies and policies now. Foresight is run by OSI as a rolling programme which looks at three or four different topics at any one time. These topics are either issues where science and research holds the promise of solutions, or an area of cutting edge science or research where the potential applications and technologies have yet to be considered and articulated. It brings together key people from academia, industry and government, and summaries knowledge and ideas, to identify where new research and technologies could provide solutions to major UK issues (e.g. flooding and coastal defence, cyber trust and crime prevention) or might have wide ranging impacts (e.g. cognitive systems) and to agree what actions are needed now to make the most of these opportunities. Foresight activities typically span manufacturing and services sectors, though individual topics may be weighted more or less in different ways. (It should be noted that when Foresight was initiated in the UK in the mod-1990s, the effort to include service activities marked a break with much earlier Foresight work in the UK and elsewhere.) Current Foresight projects include:

- Detection and Identification of Infectious Diseases;
- Intelligent Infrastructure Systems;
- Obesity.

The outputs from Foresight Programmes can vary significantly, but usually include a state of the art review of the area of science or research, potential visions of the future, recommendations for action for Government, industry, research funders and others, and networks of key players. The Research Councils (see below) are meant to use the outputs from Foresight as an input to the development of scientific strategies and priorities, and in the formulation of programmes and funding initiatives where relevant.

Another important DTI-hosted player in the innovation system is the **Technology Strategy Board** (TSB), comprising mainly experienced business leaders.[6] This was established at the end of 2004 to ensure the technology and innovation priorities for the UK reflected business needs and had a clear market focus leading to wealth creation. Increasing investment by business in R&D to remain competitive is a key part of the work of the TSB and it considers one of the most effective ways to increase investment is by using Government procurement budgets (currently c.£125 billion annually) to drive business investment in R&D. To support this approach, the TSB introduced the concept of Innovation Platforms. Innovation Platforms (IP's) are a new way of working for Government and business and are seen as an opportunity to position business and government closer together to generate more innovative solutions to major policy challenges. By bringing together stakeholders focused on a societal challenge, an Innovation Platform should enable the integration of a range of technologies and better coordination of policy and procurement, resulting

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[5] From http://www.rcuk.ac.uk/research/foresight.htm

[6] From http://www.dti.gov.uk/innovation/technologystrategy/innovation_platforms/index.html

in a step-change in UK performance, in the quality of public services and the ability of UK businesses to provide solutions. These are designed to:

- address a major policy and societal challenge,
- bring together Government stakeholders and funders, and
- engage with business and the research community to identify appropriate action.

The two pilot areas were Network Security and Intelligent Transport Systems and Services, both of which have a high service component; it is believed that “Assisted Living” will be a future platform, and this is also highly service-related. Substantial funding (an initial £10 million) is allocated to each Platform.

The TSB is also responsible for the **Technology Programme** - a major initiative, which is a combination of business support products and information that the DTI offer business in response to the Technology Strategy. The TSB identifies the new and emerging technologies critical to the growth of the UK economy into which government funding and activities can be directed. The Programme is delivered through two DTI business support products: Collaborative Research & Development and Knowledge Transfer Networks.

Funding to support Collaborative Research & Development assists the industry and research communities to work together on R&D projects in strategically important technology areas, from which successful new products, processes and services can emerge. Over the period 2005-2008, £320 million is available to businesses in the form of grants to support research and development in the technology areas identified by the TSB. Funding applications are invited through competitions addressing specific technology priorities.

A *Knowledge Transfer Network* is a single national over-arching Network in a specific field of technology or business application that brings together a variety of organisations to enable the exchange of knowledge and stimulation of innovation in that area. The Networks are required to develop strong links with each other to maximise the benefits to the UK from effective knowledge transfer across technology and business application boundaries. They are required to contribute actively to the process of developing a national Technology Strategy.

A detailed review of these priorities and networks from a services perspective would be useful, but is beyond our current remit, though the R&D projects seem to have little service focus.[7] (See the web page at http://www.dti.gov.uk/technologyprogramme.) There is some thinking within the DTI, too, that KTNs may be proving more useful for services than R&D projects. Thus KTNs may be adopted more when services innovation is in mind – as in the case of creative industries (as we now see, below).

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[7] For reference, the spring 2006 priorities were: **Design Engineering & Advanced Manufacturing**: Management of complex fluid flow conditions - £12m; * Electronics & Photonics: Novel Technologies For Low-Cost, High Efficiency Electronics And Lighting Systems - £9m; Emerging Energy Technologies; Low Carbon Energy Technologies - £15m ; Oil & Gas Technologies - £2m; **Sustainable Production & Consumption**: Energy Efficiency Technologies - £12m (includes Building Design & Controls and Manufacturing Processes); **Bioscience & Healthcare:** Exploitation of Plant and Microbial Bioscience for Industry - £4m; Safety Biomarkers for Pharmaceutical Development - £8m; * Advanced Materials: Materials for Extended First Use and Re-use - £9m; **Information & Communication Technology**: Data, Scientific and Medical Visualisation for innovative products and services - £9m.

A TSB Engagement Day in October 2006 highlighted the creative industries as a priority. Both the TSB and the attendees - from industry, research councils, RDAs and Government - found the day useful and the discussions led to some proposals relating to the role of technology in the growth of the UK's creative industries.[8] The TSB will work with the Department for Culture, Media and Sport and DTI to ensure that activities are complementary. The TSB is currently consulting on its next steps, inviting feedback on proposals to:

- Establish a Knowledge Transfer Network for the Creative Industries - Collaboration and the exchange of knowledge, ideas and opportunities across the Creative Industries and within sub sectors was seen as a key need. This included collaboration between universities and business; between sub sectors of the Creative Industries; and collaboration for commercial opportunities. A business-led Knowledge Transfer Network (KTN) for the Creative Industries. It would be established along the lines of existing KTNs (www.ktnetworks.co.uk), but how it engages, the services it offers, and the models of attending, accessing and networking would be geared to the specific needs of creative businesses and practitioners. We would see the KTN being an 'independent trusted broker' of knowledge, providing a focal point for information and knowledge required by the Creative Industries. It was clear that face-to-face interaction to develop commercial opportunities was a desire of many. The KTN, as well as delivering activities through a web portal, would run events such as speed dating between Universities/technology providers and the potential users of the technology, and events bringing businesses together with those looking for investment opportunities such as the venture capital community. Other issues where the KTN could provide a focus for business might include content creation and interaction and end user creativity and new channels to market, including overseas opportunities; Intellectual Property, common platforms and standards – ensuring they create opportunities for technology and not barriers; different models for innovation – developing new business models; innovative use of computer games software and content for non-entertainment purposes such as corporate training, simulation (aka "serious games") by government and by private sector; providing government with an informed voice on the sector's technological needs, innovation drivers and barriers in the UK, and help influence more effective and inclusive public sector procurement. (Dialogue with other KTNs will also be necessary.)
- Web Portal - Central to the activities of the KTN would be a highly interactive, collaborative web portal designed to meet the specific needs of the Creative Industries. This would include providing and exchanging information on the latest technology developments, UK and international markets, available government support, future regulations and relevant Government legislation.
- Demonstrators and test beds - Many creative businesses, particularly SMEs, had problems gaining access to new delivery platforms due to the high entry costs. Part of the activities of the KTN should either to be directly support or facilitate access to demonstrators and test beds. This would include access to application development tools for new digital delivery platforms to enable companies to innovate and develop new products and services for these platforms and so enhance their competitiveness.

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8 See http://headshift.com/dcms/mt/archives/blog_36/TSB%20Creative%20Industries%20letter.doc

- Technology challenges - Provide funding for the development of technology. Key here is how best to work with all parts of the Creative Industries to help access and exploit technology. The Creative Industries have already benefited from over £30m of Collaborative R&D grants from the Technology Programme in the past two years. Other existing mechanisms such as Knowledge Transfer Partnerships have also been used. However, it is clear that whatever mechanisms used, they would need to operate to shorter timescales to be effective in supporting the speed at which most of the Creative Industries operate. Creating different approaches or using other mechanisms more flexibly may also be options. Further work is required on specific areas of technology development where the UK would stand to benefit.
- Global showcase - to work closely with UKTI to ensure that the activities supported by the Board, such as the KTN, are used to showcase the Creative Industries based in the UK to a global audience. This will not only serve to raise the profile of the Creative Industries in the UK, but also to increase exports and enhance the UK position as a magnet for inward investment.
- Societal Challenges - The KTN would also address how the Creative Industries and technologies can contribute to broader societal challenges and opportunities facing the UK, e.g. digital inclusion, e-accessibility and usability, an ageing society, e-government transformation.

Feedback on these proposals was collected to the end of January 2007, and further action can be expected.

1.2.1.3 Department of Culture, Media and Sports

Until recently, this department would not have been cited as a major player in innovation affairs. However, in May 2005 it took responsibility for fashion design, advertising and the arts market (previously under the DTI, and DCMS works with the DTI on other design issues (including sponsorship of the Design Council), and on relations with the computer games and publishing industries. This has foregrounded innovation – and usually service innovation.

The DCMS is currently working towards a *Green Paper*, to be published in spring 2007. The first part of the paper will provide a coherent analysis of the UK's creative industries, their significance in the global economy and the opportunities and challenges they face. The second part will analyse existing public policy regimes, and identify projects to pursue with industry, public bodies, and regional and local partners.

The DCMS' **Creative Economy Programme** (CEP) focuses on seven issues seen to be key drivers of productivity in the creative industries, and has set up working groups for each of these seven issues:

- Infrastructure
- Competition and Intellectual Property
- Access to Finance and Business Support
- Education and Skills
- Diversity
- Technology
- Evidence and Analysis

Their reports are available on the CEP website[9] (and were assessed by the TSB, in reporting on its October 2006 meeting, as representing excellent work, that aligns well with the outputs of that meeting).

The working groups' reports, published in late 2006, have a number of innovation-relevant points to make. Thus the Priorities for Action identified by the **Technology Working Group** were:

- To establish a 'Creative Technology Programme' to provide a space in which the Creative Industries and Technology sectors can meet to share information and ideas, and maximise and exploit the full potential commercial value of new technologies to the creative industries…
- To investigate how access to application development tools for new digital delivery platforms, such as mobile television and next generation games consoles, might be improved and extended to enable small scale creative industries to innovate and develop new products and services for these platforms.
- To create an information portal tailored to the specific needs of the creative industries providing information on relevant Government legislation, grants, national and local support groups, and so forth.
- To explore in greater detail the feasibility of linking together publicly owned archives.

Underpinning these proposals was the perception that while strategic understanding and exploitation of technology innovation by the creative industries is increasingly important to their future success, many of the creative industries are small scale undercapitalised organisations and do not have sufficient resources to develop and implement an effective technology strategy.

The **Infrastructure Working Group** made several policy recommendations, with a core element being the establishment of a *Creative Grid* for UK competitiveness and growth. Other recommendations are the establishment of Central Government and Core City Creativity Working Groups.; of Creative Connector Projects; and a Web-based Intelligence Service.

The work of DCMS is liable to be of increasing significance for service innovation in creative, cultural, and leisure sectors. It should be seen in conjunction with the NESTA initiatives described later.

1.2.1.4 Other Departments

1.2.1.4.1 DEFRA[10]

The Department for Environment, Food and Rural Affairs (DEFRA) is the United Kingdom government department responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities in England (co-operation with Scottish and Welsh authorities with devolved responsibilities for these matters in their respective countries are the subject of concordats).

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[9] http://headshift.com/dcms/index.cfm?fuseaction=main.viewSection&intSectionID=343

[10] From http://www.defra.gov.uk/ and *Delivering the Essentials of Life* - Defra's Five Year Strategy, HM Government, December 2004 (downloaded to S:\ today)

DEFRA was formed in June 2001, when the then Ministry of Agriculture, Fisheries and Food (MAFF) was merged with parts of the then Department of Environment, Transport and the Regions - and with a small part of the Home Office. The department was created after the perceived failure of MAFF to deal adequately with an outbreak of Foot and Mouth disease (and a series of earlier problems concerning the food chain). The department had about 8000 core personnel, as of January 2004. The problems raised in food and agriculture over recent years have meant considerable attention in DEFRA to its science strategy and use of expertise.[11] A large number of "horizon-scanning" exercises were launched, some with relevance to specific services (e.g. food retail, catering, etc.).[12]

Historically the construction industry and responsible for its innovative performance was under the Department of the Environment, but at present the main rationale for focusing on innovation seem to be sustainability and food safety, and there is relatively little innovation promotion otherwise.

1.2.1.4.2 DfES[13]

The Department for Education and Skills, created in 2001, succeeds the Department for Education and Employment (DfEE). It now has little direct responsibility for innovation issues, other than those connected with educational and skills requirements. (Thus the responsible minister appoints the leadership of the Sector Skills Development Agency (SSDA),[14] which is responsible for funding, supporting and monitoring the network of Sector Skills Councils (SSCs). These Councils – among them e-skills – have an important role to play in helping determine and deliver innovation-relevant skills. A detailed review of their activities might be expected to yield further information on service innovation-relevant strategies.

1.2.1.4.3 Department of Transport

The Department of Transport[15] is responsible for the overall delivery of the Government's transport policy and strategy, as well as for ensuring transport is properly aligned with other Government aims and objectives. As well as improving the transport infrastructure, it seeks to support the UK's aviation, shipping and logistics industries nationally and internationally. Among its goals is also that of delivering modernised services for drivers, vehicle users and the travelling public.

The **Transport Innovation Fund** (TIF)[16] was announced in July 2004, promising substantial, long-term investment to enable better use of existing transport capacity. Funding through TIF is

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11 See http://www.defra.gov.uk/science/default.htm which features "innovation" in its title – though most of the research seems to be policy-related science.

12 On DEFRA's horizon scanning – which programme has undergone significant restructuring – see http://horizonscanning.defra.gov.uk/

13 From http://www.dfes.gov.uk and the DfES Departmental Report, DfES 2006

14 http://www.ssda.org.uk/ssda/default.aspx?page=1

15 This is taken from the *DfT Aims and Objectives*

http://www.dft.gov.uk/stellent/groups/dft_about/documents/page/dft_about_022755.hcsp

16 http://www.dft.gov.uk/stellent/groups/dft_about/documents/divisionhomepage/038808.hcsp

expected to reach £2.5bn nationally by 2015. The Fund will support: the costs of smarter, innovative local transport packages that combine demand management measures, such as road pricing, with measures to encourage modal shift, and better bus services; local mechanisms which raise new funding for transport schemes; and regional, inter-regional and local schemes that are beneficial to national productivity. *Congestion* and *productivity* are watchwords here. This may be among the largest sources of funding specifically addressed to what is a mixture of public and private service activity.

Other central government departments may also have service innovation-related activities, but these are thought likely to be the main actors.

1.2.1.5 NESTA

Another important new player on the innovation scene is NESTA[17] (the National Endowment for Science, Technology and the Arts) established by Act of Parliament in 1998. Funded by a £250 million endowment from the UK National Lottery, it uses the interest from that endowment to support talented individuals and groups who explore new ideas, develop new products and services, or experiment with new ways of nurturing creativity in science, technology and the arts. However, in 2006 it undertook a strategic readjustment, closing many of its programs of support for individuals to new applications. (The main Invention and Innovation programme (I & I) closed on 13 April 2006.) NESTA is now funding research on innovation and creativity.

NESTA is the largest single endowment devoted exclusively to supporting talent, innovation and creativity in the UK, and defines its mission as being that of transforming the UK's capacity for innovation. It does so by investing in early stage companies, informing innovation policy, and encouraging a culture that helps innovation to flourish, focusing on the appreciation of science, technology and the arts and their contribution to quality of life. It supports the creative potential of talented individuals, with an emphasis on future ('new economy') sectors and opportunities.

Its **Policy and Research Unit** aims to shape innovation policies that will help the UK meet national innovation challenges of the 21st century. NESTA may seek to influence government and regulatory policy, as well as considering how policy may support the work of our investment and initiatives teams. Aiming to increase the quality and quantity of research in innovation, it conducts its own research and commissions targeted research from leading academic and policy institutes. It aims to develop and promote a strong pro-innovation policy agenda across the UK, and to build a national network of leading thinkers in innovation, where leading policy thinkers collaborate and form connections with centres of excellence in innovation policy. A number of substantial research studies have been published, including several highlighting the importance 9and neglect) of creative and service sector innovation.[18]

In terms of **investment,** NESTA invests in two ways:

- NESTA Ventures - Direct investment in early-stage companies, in the sectors of Engineering, Environmental Technology, Healthcare and Information and Communications Technology. The evergreen fund is around £5m per annum, building to £25m over five

17 http://www.nesta.org.uk

18 See http://www.nesta.org.uk/assets/pdf/innovation_gap_policy_brief.pdf

years; a maximum of £500,000 can be invested over several rounds in each company, with the ability to act as lead investors.

- NESTA Capital - Indirect investment in partnerships and through third-party funds using investment models intended to support and drive growth in early-stage companies. Up to £1m a year can be invested in each partnership

Innovation Programmes are new approaches to stimulating innovation around the UK, including support for:
Creative Pioneers (Business support for creative individuals who are in the early stages of their career.)
Future Innovators (Nurturing the skills and attitudes of the next generation of innovators)
Challenge (Investigating incentives that encourage people to generate new ideas, products and services)
Connect (Exploring new models of open innovation, which help people connect with the market)
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Programmes starting in late 2006 included **Insight Out –** (Business skills training and support for budding entrepreneurs in creative industries throughout England and Northern Ireland); **Starter for 6** (Business skills training and support for budding entrepreneurs in Scotland). In early 2007 these were joined by **Crucible** (Networking and professional development opportunities for researchers in science, either in industry or academia).

1.2.1.6 Research Councils

The UK has seven Research Councils, which fund research in Universities and some other scientific sites:

1. AHRC - Arts & Humanities Research Council
2. BBSRC - Biotechnology & Biological Sciences Research Council
3. EPSRC - Engineering & Physical Sciences Research Council
4. ESRC - Economic & Social Research Council
5. MRC - Medical Research Council
6. NERC - Natural Environment Research Council
7. PPARC - Particle Physics & Astronomy Research Council

They are coordinated by RCUK, which describes the primary role of the Research Councils as being to fund research. Each year the Councils invest around £1.3 billion in research in UK universities and around £500 million in their own Research Institutes, and around £300 million in access to international facilities for UK researchers. They cover the full spectrum of academic disciplines from the medical and biological sciences to astronomy, physics, chemistry and engineering, social sciences, economics, and the arts and humanities. Where it comes to innovation, Research Councils are seen as playing a key role through supporting the excellent research needed to generate new knowledge, train highly-skilled people, and work in partnership with business and a wide range of users to drive successful exploitation of research outputs. Speculative and novel research provides the ideas and knowledge on which more applied investments can be made.

Each Council supports a range of networking, brokering and commercialisation activities specifically targeted at the business and user communities, as well as a range of multi-Council initiatives including the Business Plan Competition and Follow on Fund.[19] Examining how far the research portfolios and programmes, and the exploitation activities, of each Research Council does or does not take services into account would be a fascinating, but labour-intensive task. It is clear that there are a number of service innovation-focused activities in at least AHRC, EPSRC, ESRC and MRC, and indeed ESRC has funded studies of services innovation. Quite possibly much technology development research will have a high relevance to services, and an extensive study of service-related activities in programmes, projects, centres, studentships, and other initiatives would be instructive (if labour-intensive).

1.2.2 Nations and Regions

1.2.2.1 Scotland

The **Scottish Executive**[20] is the devolved government for Scotland, responsible for most of the issues of day-to-day concern to the people of Scotland, including health, education, justice, rural affairs, and transport. It manages an annual budget of more than £27 billion in the financial year 2005-2006 which is due to rise to over £30 billion in 2007-2008. The Executive was established in 1999, following the first elections to the Scottish Parliament.[21]

Scottish Enterprise[22] is Scotland's main economic development agency, funded by the Scottish Executive. The mission is to help the people and businesses of Scotland succeed by building a world-class economy, [23]. providing services to:

- help new businesses get underway;
- support and develop existing businesses;
- help people gain the knowledge and skills they will need for tomorrow's jobs; and
- help Scottish businesses develop a strong presence in the global economy - building on Scotland's reputation as a great place to live, work and do business. [24]:

Its priorities include commercialisation of academic ideas into good business opportunities, e-business, globalisation and economic inclusion.

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19 For a review of this effort, see House of Commons Science and Technology Committee (2006) Research Council Support for Knowledge Transfer Third Report of Session 2005–06 http://www.publications.parliament.uk/pa/cm200506/cmselect/cmsctech/995/995i.pdf

20 From http://www.scotland.gov.uk/

21 It commissioned a study of the Scottish innovation system– available at http://www.scotland.gov.uk/Publications/2006/01/18151934/0

22 Taken from http://www.scottish-enterprise.com/sedotcom_home/about_se.htm?siblingtoggle=1

23 See http://www.scottish-enterprise.com/sedotcom_home/about_se/what_we_do/operating-plan/consultation2007.htm

24 See http://www.scottish-enterprise.com/sedotcom_home/about_se/what_we_do.htm?siblingtoggle=1

Scottish Enterprise is widely recognised to be something of a pioneer in innovation policy.[25] The work of such a body comprises a "balancing act" between supporting individual enterprises and establishing a productive environment for innovation. Concerning services innovation, its general philosophy is that there is no specific service sector policy, not least because of the need to pay attention to the huge heterogeneity of services activities. But several lines of work are service-related, and this orientation is expected to grow with ongoing economic and industrial development.

There are three main streams of work: "globalisation"; "skills" and "growing business". Internationalisation and export support is handled in the *"globalisation"* stream; innovation mainly through *"growing business"*.

As in Regional Development Agencies, much innovation policy is mediated through "cluster policies". Innovation is a theme taken up in all priority clusters, which are chosen in large part as being knowledge-intensive and liable to grow. Two of the six priority clusters in Scotland are mainly services (tourism, financial services). It is also noted by SE staff that other clusters may have a substantial service content (e.g. supply chain or "product service" innovation may be critical). Additionally, much action around service innovation will be supported under general growth support measures and it may not be immediately evident that this is also innovation support. A focus in delivery is working on client accounts in local enterprise, especially on "innovative and far-sighted" businesses.[26] The **Small Company Innovation Scheme**[27] is important here, and in a study for NESTA it was suggested that less than a quarter of the innovations considered here would be captured through conventional innovation surveys.

As an example of service-relevant Framework support, the **Intellectual Assets Centre** can be cited.[28] This is explicitly aimed not just at tangible intellectual property; the term Intellectual Property was deliberately avoided for this reason, and the Centre is thus expected to be highly service-relevant. It seeks to help organisations realise their potential through valuing, cataloguing, managing and possibly trading in their intellectual assets; documentation and case studies on website.

It is recognised that different priority industries face different challenges, though there are also some generic problems. It is also recognised that the service innovation often will be different from familiar models. SE has produced a *Toolkit* for supporting innovation in tourism.[29]

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25 Cf "Smart Innovation**: A Practical Guide to Evaluating Innovation Programmes"** (2006) at: ftp://ftp.cordis.lu/pub/innovation/docs/sar1_smartinnovation_master2.pdf

26 This was informed by research into Scottish innovation by Coombs and Tether, from the CRIC group at Manchester which undertakes much work on services innovation.

27 http://www.scottish-enterprise.com/sedotcom_home/services-to-business/ideas-and-innovation/innovation_funding_innovation.htm

28 http://www.ia-centre.org.uk/

29 see http://www.visitscotland.org/businessdevelopment/innovation_2004-2/innovation_toolkit.htm and other material in that site.

1.2.2.2 Wales

The **Welsh Assembly**[30] - more accurately, the National Assembly for Wales, is a devolved body that decides on its priorities and allocates the funds made available to it by the UK Government. Powers devolved to the Assembly include health, education, economic development, planning and culture.

The **Welsh Development Agency**[31] is under the Assembly, and its **Department for Enterprise, Innovation, and Networks** delivers the economic and transport agendas set out in *Wales: a Better Country*, *Wales: a Vibrant Economy*, and *The Transport Framework*
The Department's principal functions are:

- supporting job creation and helping individuals to tackle barriers to participation in the world of work
- investing to regenerate communities and stimulate economic growth across Wales
- helping businesses by supporting entrepreneurship, innovation, inward investment, trade, and skills as drivers to growth
- ensuring that all economic programmes and policies, especially those for clean energy generation and resource efficiency, can support sustainable development
- building a world-class 21st-century transport system that provides affordable, environmentally friendly road, rail, and air transport for business access to markets and personal travel, especially commuting
- building on Wales' ICT network

Internationalisation is supported by the Department's **International Business Wales** team, with bases in North America, mainland Europe, China, India, Japan, South Korea, Australia, and London. Its work does not appear to have a great deal of services-specificity, focusing on:

- maintaining and enhancing the global profile of Welsh business
- attracting inward investment into Wales
- securing export business and promoting international trade for Welsh companies

The Welsh Assembly has produced an *Innovation Action Plan*[32] which aims to help make Wales more competitive within the global economy by means of a proactive effort to offer appropriate help to businesses committed to being innovative. This vision sets out the resources that will be invested in the programme over the period to 2005. The focus is on 5 main action areas:

1. ***Communicating what can be achieved through more innovation***
2. ***Developing more high growth potential businesses***
3. ***Better equipping people to innovate***
4. ***Simpler, more accessible, business innovation support***
5. ***Maximising the economic development impact of universities & colleges***

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30 See http://www.wales.gov.uk and *Your Guide to The Assembly, Welsh Assembly, YYYY (downloaded)*

31 See http://new.wales.gov.uk/about/departments/dein/?lang=en

32 Downloadable at http://new.wales.gov.uk/about/departments/dein/publications/actionplan?lang=en

This is a major action programme, with many detailed points having been elaborated. There is little sign of much thinking about services innovation in particular, and an emphasis on R&D and technological innovation at several points.

1.2.2.3 Northern Ireland

The **Northern Ireland Assembly** has been in flux as a result of political conflicts, though new elections are scheduled for March 2007[33]. The **Northern Ireland Development Agency - *Invest NI*** has the role of helping new and existing businesses to compete internationally, and attracting new investment into Northern Ireland. It principally supports businesses in the *manufacturing and tradable services* sectors, with three main functions: supporting innovation for global markets; encouraging investment and re-investment within Northern Ireland; and stimulating entrepreneurial activity.

The Invest NI's business support to clients is complemented by initiatives supporting specific sectors, with some highly service-relevant activities:

- ***Software*** Invest NI works closely with Momentum – the Northern Ireland ICT Federation – on issues facing this sector, which has grown rapidly over recent years and developed particularly in financial services, CRM software, mobile communications, Internet and e-commerce.

- ***Creative industries*** *seen as an*"embryonic industry" with the potential to develop on a global scale. A sector development strategy is due to be completed in March 2007. Invest NI's current priority sectors in relation to Creative Industries are *Software*, *Digital Content*, and *Film & TV*. Invest NI provides financial assistance to Software, Digital Content and Film & TV businesses (including such content activities as "e-learning").[34]

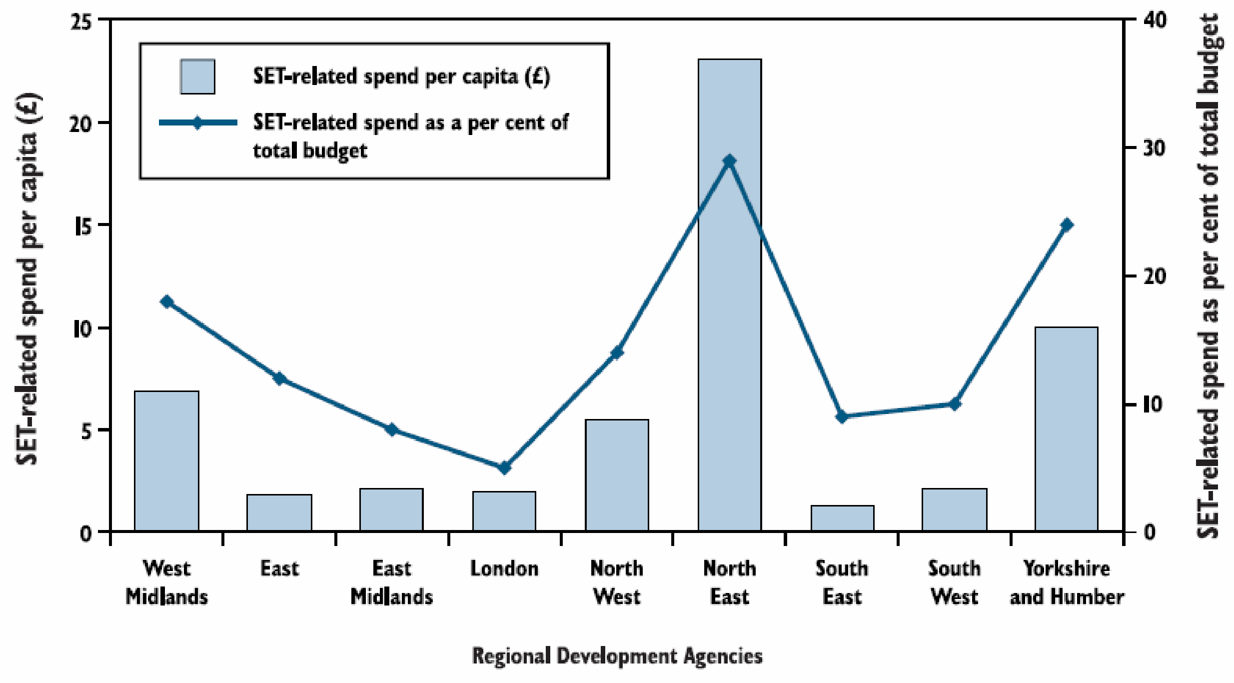
1.2.3 The English Regions

There are eight Regional Development Authorities (RDAs):
- East of England
- West Midlands
- East Midlands
- London
- North West
- North East
- South East
- South West
- Yorkshire

[33] See the news in http://www.forbes.com/feeds/ap/2007/01/30/ap3375160.html

[34] See also the study for West Midlands development Agency at http:// www.advantagewm.co.uk/downloads/mapping-study.doc

Their five statutory objectives are to : 1) further economic development and regeneration; 2) promote business efficiency and competitiveness; 3) promote employment; 4) to enhance the development and application of skills relevant to employment, and 5) contribute to sustainable development. All of these can have implications for innovation, of course. Each RDA develops an economic strategy – with a large emphasis on cluster development – and innovation is stressed – though much more in some RDAs than others. Recently, a chart has been produced displaying Science, Engineering and Technology-related expenditure across the English Regional Development Agencies – it suggests major variations across RDAs



Source: RDA's submission to the House of Lords Science and Technology Committee Report: Science and the RDAs,(2003) quoted in DTI (2005:146)

Below we provide illustrative information on three RDAs: two from relatively affluent regions (the South-East and London) with relatively low expenditure, one from the North East region – exceptionally high expenditure, but a relatively poor part of the country.

RDA 1: SEEDA[35]

The South East England Development Agency (SEEDA), as the Regional Development Agency for the South East, is responsible for the sustainable economic development and regeneration of the South East of England. It has prepared an **Innovation Action Plan**[36] - *Sustaining and Creating Prosperity* and launched initiatives to:

[35] http://www.seeda.co.uk/

[36] http://www.seeda.co.uk/Work_in_the_Region/Learning_&_Skills/Skills_for_Innovation/

1. ***Speed up Product Development through Knowledge Transfer***
   Through its Emerging Technologies programme, SEEDA is enabling consortia of companies and universities to bring new products and services to the market place. Funds have been allocated for four business-led collaborative Research and Development projects[37] which promise to lead in new products or services within two to three years. Building on the region's capabilities in nanotechnology, major projects aimed at the development of novel antiviral agents, fire retardants and large scale manufacture of nano-tubes are underway. Projects in healthcare technologies, relating to medical informatics and imaging, are about to start. Calls have been made for proposals designed to speed up the application of sustainable energy technologies and for the development of intelligent transport systems.

   To increase collaborative opportunities between the universities and businesses in the region, seven knowledge networks, have been developed, along with technology brokering through the London Technology Network Business Fellows programme, and the Finance South East managed PocKeT (proof of concept for knowledge transfer) fund which provides loans to small companies to gain access to expertise in universities and public sector research establishments[38].
   SEEDA has developed the Research Excellence Data (RED) Directory[39]. This searchable directory will help individuals to explore data on applied research in the South East and direct users to the relevant contacts within each HEI.

2. ***Promote Innovation***
   To encourage and increase innovation, particularly in medium sized companies SEEDA has established a new Innovation Advisory Service[40] in December 2005. SEEDA's partners in the delivery of the Innovation Advisory Service are: Oxford Innovation, National Physical Laboratory; CLIK (technology transfer company of Rutherford Appleton Laboratory); and Serco Science.

   The objective is of the IAS is to help businesses kick-start the innovation process and thereby improve the competitiveness of businesses and consequently the South East economy. The key component of the IAS is a team of highly competent advisors who have worked at director level in the private sector and have specific technology experience. The IAS target customers are predominantly businesses and the IAS is currently actively involved with 350 businesses ranging from SMEs to some of the largest multinationals. The advice is not prescriptive and is wide ranging but innovation specific starting from customer needs. The IAS is also working to successfully exploit the commercialisation of

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[37] SEEDA is responsible for managing two national Business Support products, which aim to increase the economic activity within the South East, Selective Finance for Investment in England (SFIE) and Grant for Research & Development (G4R&D). Business Support also has responsibility for managing the contracts with the regions six Business Links and 'sponsoring' the Finance South East (FSE) venture capital company.

[38] www.pathintelligence.com/assets/pocket.doc

[39] See http://www.researchexcellence.org/

[40] The Innovation Advisory Service (IAS) is a comprehensive, new service, supporting businesses in South East England as they innovate and grow. See http://www.iasse.co.uk/

knowledge and is currently focussing on PSREs and business to business knowledge exchange. The service is financially free but limited, bureaucracy free, and the response is rapid. In the first 6 months of operation it has directly increased innovation expenditure, mostly R&D, by £3.7m with a further £20-30m expected from on-going projects.

3. ***Skills for the Future***
   Several initiatives are underway here, to ensure that businesses, universities and the public sector can recruit and retain the skilled STEM disciplines (scientists, technologists, engineers and mathematicians) they need: thus a Regional STEM Resource Centre brings together the professional development and outreach activities for supporting science education to provide more coherence and co-ordination, bringing clarity to the many disparate STEM initiatives. With the help of its Advisory Board with representation from businesses and schools, the centre aims to remove duplication, identify and communicate best practise. In particular the centre will seek to focus on a small number of agreed priorities to achieve critical mass, and will work to ensure increased and sustainable engagement between education and business.

A remarkable amount of activity seems to be underway: little of it is service-specific. Given that the area features transport congestion, the work on infrastructure might be expected to be important, however.

RDA 2: London Development Agency[41]

The LDA invests more than £300 million a year to support the growth of new and existing businesses, the creation of new jobs, and the development of new communities.

London Innovation[42] is an initiative led by the LDA to promote the region's key strengths and deliver polices to ensure the future success of London as a base for business development, with a dedicated website **www.london-innovation.org.uk**. It aims to:

- Spread the culture of innovation through the provision of information about business improvement and the drivers for innovation, increasing market awareness within the London region.
- Provide support and advice for businesses that wish to deliver products and services or 'business improvement' through innovation.
- Increase awareness of London's knowledge assets. Promoting London as an innovative and supportive environment to do business, thereby supporting the creation of a regional identity.
- Encourage a sharing of knowledge and experience within London's innovation community.
- Provide a focal point for innovation in London.

Since London is largely a city based on service industries, it would be surprising if much of this work were not to be service-relevant, though this is not always apparent from the account on their

41 http://www.lda.gov.uk/

42 http://www.london-innovation.org.uk/

website. [43] Much of the activity is providing support for skills and infrastructure, for example. The London Innovation Vision Statement is to *"Make London the world's leading knowledge economy"* through:

- Creating a culture of innovation within all London's organisations.
- Encouraging and enabling London's businesses to Innovate.
- Harnessing London's world-class knowledge base, to benefit London's organisations

Projects supported by the London Development Agency to support innovation in London include several that have a high visible service component, such as:

- Central Saint Martins Creation of Media Innovation Centre;
- Royal College of Art - Rapid Prototyping;
- University of East London – Product Design Lab, Fabric Design Lab.;
- London Knowledge Transfer Professional Network.

This by no means exhausts the activities underway in London, since the City of London -0 home to much financial services activity- also has its own initiatives, including for example one focused on stimulating new media industries in the periphery of the City.

RDA 3: One NorthEast[44]

One NorthEast is the Regional Development Agency covering North East England, comprising Northumberland, Tyne & Wear, County Durham and Tees Valley. Part of its website, http://www.onenortheast.co.uk/page/business/innovation.cfm is focusing on innovation. It describes the Innovation, Industry and Science Programme as taking forward the Strategy for Success, [45] with a focus on long-term investment in three areas of industry with substantial potential for further development (each supported by a Centre of Excellence as specified):

- Healthcare and health science- Centre of Excellence for Life Sciences (CELS)
- Process industries (including chemicals, pharmaceuticals and electronics) - Centre for Process Innovation (CPI)
- Energy and environment - Centre of Excellence for New and Renewable Energy (NaREC)

(Earlier statements indicate that the Strategy for Success would feature five Centres of Excellence including in addition to the three above Digital Technology & Media (Codeworks), and Emerging Technologies (Cenamps). Additional components of the Strategy for Success are the Regional Science & Industry Council and the venture finance company NStar, created to ensure that suitable finance is available to technology companies which are starting up. This currently involves a Proof of Concept Fund, with £10m available for investment, and a Co-Investment Fund (£23m).)

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[43] The case studies featured on London Innovation are mainly manufacturing ones however: . a printing company, an electrical products manufacturer, a designer and manufacturer of point of purchase display and merchandising – together with a Graphics Developer and a marketer of vending machines - see http://www.london-innovation.org.uk/server.php?show=nav.008004001

[44] http://www.onenortheast.co.uk/page/index.cfm

[45] http://www.onenortheast.co.uk/page/strategyforsuccess.cfm

While One NorthEast is thus very innovation-active, there is not a massive role for services here. However, a large emphasis is placed on **Design and Product Innovation**[46] -

- Expanding the design activities of the region's universities
- Offering direct assistance to businesses to help them introduce greater design quality into their products
- Staging a number of high profile events to promote design and best practice, linked to the Design Council.

There is a particular need to develop facilities for design related activities, such as education and training, and incubators or other types of premises for businesses. The facilities will include the planned Knowledge Campus at Gateshead Quays. This will help attract major international companies to locate close to research, teaching and exhibition venues focused on design. A **Design Innovation Education Centre (DIEC)**[47] will be the home of the discipline of Service Design.[48] It will train Service Designers and it carries out Service Design projects for private and public sector industries for the North East and the UK. Service design at DIEC involves tools to develop:

- Design Worldviews - D1 to D3
- Marketing-Design Fusion Model
- Unique Assembly of Tried and Tested Components
- Business Plan and Blueprint Output
- Together with Performance Measurement Tools[49] and Visioning Tools[50]

1.3. Other Actors

There is no UK equivalent to the "Coalition of Service Industries" that exists in several other countries, and little collective voice for the interests of services in innovation. There is an active services research community in the academic world, with several groups putting much emphasis on understanding services innovation.

1.4. Conclusions

The rich and diverse pattern of activities described above could certainly be explored in more depth. It would be useful to:

- Explore what is underway in departments and agencies not covered in the review
- Establish how far the innovation activities have been evaluated and what lessons can be drawn from them
- Understand the wider policy debates and networks that are associated with efforts to enhance service innovation.

In the meantime, we note that it is often difficult to classify activities into the policy framework proposed by Trendchart, though we attempt this below.

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[46] http://www.onenortheast.co.uk/page/design.cfm

[47] http://www.onenortheast.co.uk/page/diec.cfm

[48] This is interesting, not lest, because of the efforts by IBM, Universities, and others to establish a new discipline around Service Science, Engineering, Management and Design.

[49] See http://diec.onene2dev.raki.enigmainteractive.net/page/performance_measurement_tools.cfm

[50] See http://diec.onene2dev.raki.enigmainteractive.net/page/visioning-tools.cfm

Chapter 2

Service Innovation Related Policy Measures in the UK

2.1. Outline of Policy Area

Unlike a number of European Union member states, such as Finland or Germany, the UK has no specific framework for service innovation policies, although it is currently exploring this policy area. The UK approach towards service innovation has also been underpinned about improving market access and competitiveness in the service arena within the context of its support for the revised Services Directive. This is in turn related to the perceived and actual strength of the UK service economy in terms of its overall trade balance in 'invisibles', and specifically in relation to information and knowledge intensive service sectors, such as financial services,, R&D services and higher education. To succeed in terms of trade and overall competitiveness in services the UK needs to have a healthy dynamic and innovative service sector.

2.2. Supply Side Measures

2.2.1 Introduction: A Typology of Measures

As indicated in the boxes later in this chapter, service-relevant innovation policy mechanisms are overwhelmingly supply-side oriented – despite desires to make this less the case. Some mechanisms, however, are public procurement initiatives and more demand oriented. In reviewing the list below we might distinguish the following types of service innovation related policies:

1. sector neutral (latent) innovation policy mechanisms, which allow (or at least do not exclude) service sector/activity participation - although in practice many of these have very low service participation levels;
2. sector neutral (proactive) innovation policy mechanisms, which have a service innovation sector or technology strand;
3. policies that fund service organisations (as part of the innovation infrastructure) to support innovation, as providers, in the rest of the economy (including service sectors, so may also be seen as Type 1 policies);
4. other indirect, supply policies with some relevance for services and innovation;
5. demand oriented policies, primarily associated with public procurement.

2.2.2 National Supply-Side Measures

On the basis of the above typology Table 2.1 allocates the supply side measures according to the taxonomy. As can be seen the overwhelming majority of service innovation related policy measures are what we term as being Type 1, innovation neutral (latent) policy mechanisms. They allow service sector participation although the way the policies may be framed they may make it in reality for service firms to participate. Under Type 2, innovation neutral (proactive) policy mechanisms, we have two policy mechanisms: Innovation Platforms and NESTA Innovation

Funds which both stipulate specific service sectors, technologies or agenda in their policy frameworks. Thus in the former case, Innovation Platforms, the two pilot fields chosen are specifically service oriented in their nature - Network Security and Intelligent Transport Systems and Services. More generally, there is growing activity around creative industries.

In relation to Type 3, supporting service organisations (mainly universities) as providers within the UK innovation infrastructure there are two policy mechanisms - HEIF and Knowledge Transfer Partnerships. (Arguably, these can also be included under Type 1 mechanisms as they can also support service firms and sectors in their innovation activities.)

Table 2.1

Summary of Service Innovation-related Policies in the UK

Policy Type	Policy Mechanism
Type 1	2. Business Link, 3. Enterprise Capital Funds, 4. Community Tax Relief, 5.Fund for Commercialisation of IP in PSREs, 6. Small Business Research Initiative, 7. HEIF, 8. Knowledge Transfer Partnerships, 10. Grant for Research and Development,
Type 2	1. Innovation Platforms, 9. NESTA Innovation Funds
Type 3	7. HEIF, 8. Knowledge Transfer Partnerships
Type 4	11. Small Firms Loan Guarantee Scheme
Type 5	-

2.2.3 Scotland, Wales, Northern Ireland Supply-side Measures

There are no identifiable generic **service** innovation related policies in the three principalities of Scotland, Wales or Northern Ireland. However, Northern Ireland has recently instituted a study of trade-related service activities within the province (Section 3.2). There are “cluster”-type activities relevant to specific classes of services such as tourism or digital content.

2.2.4 Regional Supply-Side Measures

There are no identifiable generic service innovation related policies within the regions of England, although most, if not all, Regional Development Agencies (RDAs) have cluster policies which include specific service sectors. These include software, digital content, medical and health, and creative industry sectors.

2.3. Demand Side Measures

We have found no evidence that procurement policies are specifically conducted with relation to services innovation. However, it is possible tat specific procurement initiatives have a major bearing on particular classes of services. For instance, the government has in the past sought to upgrade the level and quality of software engineering by insisting upon particular quality standards and tools in computer services acquired for government use. More analysis of this topic would be valuable, but require a great deal of specialised work.

Annexe to Chapter 2 National Supply-Side Measures

This annexe summarises the major measures located in the study.

Innovation Platforms

No.	01
Title	**Innovation Platforms**
Main actors	Technology Strategy Board (TSB), DTI
Description	Innovation Platforms (IP's) are a new way of working for Government and business and are seen as an opportunity to position business and government closer together to generate more innovative solutions to major policy challenges. They were introduced in the TSB's first Annual Report in November 2005 and are designed to: (1) address a major policy and societal challenge, (2) bring together Government stakeholders and funders, and (3) engage with business and the research community to identify appropriate action. The TSB has been sufficiently encouraged by the enthusiastic response of other partners, to proceed in the two pilot areas: **Network Security** and **Intelligent Transport Systems and Services**
Rationale	Increasing investment by business in R&D to remain competitive is a key part of the work of the TSB and it considers one of the most effective ways to increase investment is through harnessing the power of Government procurement budgets. The Government's overall annual spend on procurement is in the region of £125 billion. By using that budget more effectively, it should be possible to drive business investment in R&D.
Goals/Aims	To ensure the technology and innovation priorities for the UK reflected business needs and had a clear market focus leading to wealth creation. The strategies, developed in consultation with business, provide a technology focus and create a dialogue for taking forward activity in areas where UK business can succeed. Key technology priorities: - Advanced Materials - Bioscience and Healthcare - Design Engineering and Advanced Manufacturing - Electronics and Photonics - Information and Communication Technologies - Sustainable Production and Consumption
Time span of the measure	Starting 2005 – no end date planned
Funding/Resources	Initial £10 million to each platform to kick-start activities
Delivery Process	By bringing together stakeholders focused on a societal challenge, an Innovation Platform will enable the integration of a range of technologies and better coordination of policy and procurement, resulting in a step-change in UK performance, in the quality of public services and the ability of UK businesses to provide solutions.
Outputs and Outcomes	IPs should therefore create a "win-win" situation with (a) government getting more innovative solutions at reduced risk, and (b) UK business well positioned for global competitive procurement opportunities, for which there are real customers in a potentially large global market.
References	http://www.dti.gov.uk/innovation/technologystrategy/innovation_platforms/index.html TSB publication: *Developing UK Capability, Call to Action*
Comments	The technology priorities seem to date to put much more focus on manufacturing than service, but the Platforms are very service-related.

Business Link

No.	02
Title	**Business Link**
Main actors	
Description	The central objective of Business Links is to improve the competitiveness of small firms through more comprehensive provision of business support. In pursuit of this objective their aims are to: (1) increase the use of business support by small firms; (2) rationalise the provision of support to reduce duplication and to make it more coherent; (3) improve the quality of support services.
Rationale	Business Links came into being as a result of the "one stop shop" for business support initiative announced by the then President of the Board of Trade in July 1992. Nine pilot Business Links were approved for start up in April 1993. The network was gradually extended thereafter, so that by January 1997 a total of 89 Business Link partnerships, with 241 outlets covering the whole of England, had come into operation. Each Business Link is based on a partnership between local agencies involved in support for businesses. Business Links entail a significant degree of partnership working, especially at the strategic level. As well as promoting collaboration, Business Links have encouraged the sharing of resources between partners.
Goals/Aims	- Reducing the administrative and transaction costs for enterprises in fulfilling their legal, administrative, fiscal, etc. obligations - Increase the availability, range and quality of specialised services to enterprises in order to increase the effectiveness of their in-house innovation activities - Promote adequate support to enterprises aimed at new and developing markets
Time span of the measure	Before 1995 – no end planned
Funding/Resources	Undefined - as this is now a component of funding received from regional development agencies
Delivery Process	
Outputs and Outcomes	Evaluation concluded that although Business Links try to serve all SMEs, they especially target growing firms and those identified as having growth potential. Firms in the manufacturing, high tech. and business services sectors are also targeted more frequently than those in other sectors. The evaluation also concluded that businesses do, indeed, benefit from support, and that they assess Business Links support more highly than other support or support they have used in the past. However, there is still evidence of market failure. This is largely due to the facts that firms are not sufficiently aware of the support available and / or do not understand the need for / value of support. Business Links and partners have improved the coherence, co ordination and quality of services, but they acknowledge the scope for further improvement in these respects.
References	http://www.businesslink.gov.uk, Trendchart Cordis Doc No. UK-71
Comments	**Note that** business services sectors are reported to be targeted more frequently than other sectors.

Enterprise Capital Funds

No.	03
Title	**Enterprise Capital Funds**
Main actors	
Description	Enterprise Capital Funds (ECFs) are designed to be commercial funds, investing a combination of private and public money in small high-growth businesses that are seeking up to £2 million of equity finance. Each ECF will be able to make equity investments of up to £2 million into eligible SMEs that have genuine growth potential but whose funding needs are currently not met. ECFs will fulfil a genuine need by addressing a market gap in the availability of equity finance. The first Enterprise Capital Funds announced in March 2006 will be: - The IQ Capital Fund; - 21st Century Sustainable Technology Growth Fund
Rationale	ECF proposals follow an extensive consultation process that started with the April 2003 publication of 'Bridging the finance gap: a consultation on improving access to growth capital'. While the UK has dynamic and efficient finance markets that meet the investment needs of most SMEs, there is a scarcity of equity capital in the £0.5 million to £2 million (Euro 0.74 million to Euro 2.9 million) funding rounds, which makes it difficult for a number of businesses to raise the finance they need. One reason for this is that the costs of making investments, for example due diligence and legal costs, are largely fixed. This makes it more attractive for commercial funds to seek larger deal sizes where these costs are less significant, leaving an equity gap.
Goals/Aims	- Increase rates of expenditure on research and technological innovation in enterprises - Increase the availability of private sector innovation financing to enterprises
Time span of the measure	2005 – no end specified
Funding/Resources	Euro 290 million
Delivery Process	The December 2004 Pre-Budget Report set out Government's intention to establish an Advisory Board to support the Small Business Service in the 'Pathfinder' round of Enterprise Capital Funds and on the implementation of the Graham Review of the Small Firms Loan Guarantee.
Outputs and Outcomes	
References	Cordis Document UK-70
Comments	This support should be available for services, as it is not explicitly saying only for manufacturing.

Fund for commercialisation of IP in PSREs

No.	05
Title	**Fund for commercialisation of IP in PSREs**
Main actors	OSTI Manager of the Measure
Description	PSRE Fund was set up to support commercialisation of the intellectual property from research carried out in the public sector, including public sector research establishments, Research Council institutes and the NHS. It should help bridge the 'development gap' between research funding running out and the stage at which the private sector might be interested in investing.
Rationale	This fund was a response to the Baker Report (August 1999) on realising the economic potential of public sector research establishments.
Goals/Aims	- Favouring the protection and optimising the exploitation of intellectual property as a driver for innovation - Increase the rate of commercialisation/marketing of the results of innovation activity in enterprises
Time span of the measure	2001 – end date indefinite
Funding/Resources	Euro 37 million
Delivery Process	£10 million (Euro 16 million) was awarded under the umbrella of the PSRE Fund in 2001-02. Of this total, £4 million (Euro 6.3 million) was used to establish a seed fund and the remainder funded 14 consortia of PSREs and over 30 NHS Trusts to develop their capacities in knowledge transfer. A second round of awards worth £15 million (Euro 22 million) was announced in January 2004, which provides support for knowledge transfer activities in public sector research establishments. Third Round awards worth £25m (Euro 37 million) were announced in January 2006.
Outputs and Outcomes	The National Audit Office (NAO) looked at the experience of a number of research councils and associated establishments, and concluded that progress had been made in capturing more of the economic and social benefits of publicly funded scientific research. The NAO's recommendations include: recognition, in setting performance indicators for institutes, that all commercial initiatives cannot succeed; budgets for "proof of principle" work; and the introduction of training in commercialisation for research council scientists.
References	TrendChart Doc No. UK-52
Comments	Aimed at commercialising public sector work, some focus on health sector

Small Business Research Initiative

No.	06
Title	**Small Business Research Initiative**
Main actors	DTI, Small Business Service
Description	Allows small businesses access to R&D procurement from Government Departments and Research Councils, worth up to 1.56billion Euro. Starting April 2001 (launch of SBRI website). Target is to procure 78mEuro of research from small businesses. SBRI is not a grant scheme, but a procurement measure which aims to: - strengthen those existing small firms whose businesses are based upon providing R&D - by increasing the size of the market, - encourage other smaller businesses to increase their R&D capabilities and capacity - to exploit the new market opportunities, and - create opportunities for starting new technology-based or knowledge-based businesses.
Rationale	SBRI is based on a highly successful American scheme, to open up to small firms government research and development procurement.
Goals/Aims	- Enhancing the role of public procurement and standardisation as drivers of new innovative products services by enterprises - Maximising the positive influence of new legislation or regulations on innovation activity in enterprises
Time span of the measure	2001 – end date unknown
Funding/Resources	Undefined. SBRI is monitoring government departmental compliance with the mandatory target to procure at least 2.5% of their extra-mural R&D from small firms.
Delivery Process	The Government comfortably exceeded its target in 2004-05 and 10.6 per cent of the £2.5 billion (Euro 3.7 billion) of extra-mural R&D expenditure in participating Government departments went to SMEs.
Outputs and Outcomes	
References	http://www.sbri.org.uk/, Trendchart Doc No. UK-46
Comments	This measure should be sector neutral, and many services are small firms. Though many services do not engage in R&D, some do – including the R&D services sector!

Higher Education Innovation Fund (HEIF)

No.	07
Title	**Higher Education Innovation Fund (HEIF)**
Main actors	
Description	HEIF incorporates funding for activities previously supported through the University Challenge fund (UK_11), the Science Enterprise Challenge fund (UK_21) and HEROBC scheme (UK_22) all formerly administered by the Office of Science and Technology. It embeds a third mission to encourage universities to work with industry and the wider community alongside their teaching and research. It represents a "third leg" of higher education sector funding. Cooperation with the regional community is emphasised. The HEIF2 awards are sponsored by the DTI, DfES and HEFCE. HEIF basically builds capacity in English universities for knowledge transfer and commercialisation activities.
Rationale	Government support for knowledge transfer has evolved in recent years, with funding for HEIF increasing in size. HEIF supports a wide range of knowledge transfer activity across the whole range of HEIs in England. The third round of HEIF was designed, following extensive consultation, so that the majority (75 per cent) of funding is allocated by a formula to ensure that every HEI receives funding ? with the remainder allocated by competition for the most innovative, high-impact ideas.
Goals/Aims	- Intensifying co-operation between public or higher education research organisations and enterprises on R&D activities - Upgrading innovation related skills and diffusing new technologies in enterprises - Favouring the protection and optimising the exploitation of intellectual property as a driver for innovation
Time span of the measure	Oct 2001 – end date indefinite
Funding/Resources	£279 million Indefinite measure: 219m Euro over first three years The new expanded HEIF 2 provides £187 million (EUR279 million) funding over the next two academic years (2004/5 and 2005/6). A total of 124 awards have been made under the second round of funding
Delivery Process	A major feature of HEIF2 is collaboration between higher education institutions (HEIs): of the 124 awards, 46 are for collaborative partnerships involving more than 100 HEIs. The awards will help English universities and colleges across the country to carry out a range of knowledge transfer-related activities.
Outputs and Outcomes	Interim evaluation of knowledge transfer schemes published in Feb. 2005 also includes HEIF. There have been limited impacts on actual knowledge transfer in terms of increased interactions between universities and industry, which indicates relatively long timescales involved between developing capacities and delivering to businesses. Funds have mainly helped in establishing formalised management and reward structures, building knowledge transfer support capacities and promoting cultural and attitudinal change amongst university academic staff.
References	Legal basis White Paper "Excellence and Opportunity", 2000; Trendchart Doc UK-38
Comments	Worth detailed examination to identify extent of services participation

Knowledge Transfer Partnerships

No.	09
Title	**Knowledge Transfer Partnerships** (formerly Teaching Company Scheme)
Main actors	
Description	Increases interactions between Universities and companies. Graduates (TCS Associates) are recruited to work in a company for two years in close cooperation with a University, on a strategically important project; they have enhanced career development benefits. The company and university learn to collaborate.
Rationale	This measure provides a grant to cover part of the cost of using a person to transfer and embed knowledge into a business from the UK knowledge base (including universities, colleges and research organisations) via a strategic project. Each Partnership employs one or more high calibre Associates (recently qualified people) for a project lasting one to three years, transferring the knowledge the company is seeking into the business. Each Associate works in the company on a project which is core to the strategic development of the business. Associates are jointly supervised by a senior member of the business and an academic or technical specialist from the partnering knowledge base organisation. Through contact with businesses, the knowledge base partner is also provided with a relevant and improved understanding of the challenges companies encounter, and their business requirements and operations.
Goals/Aims	- Ensuring that the future skills base in the region/sector/country will correspond to the innovation needs of enterprises - Intensifying co-operation between public or higher education research organisations and enterprises on R&D activities - Upgrading innovation related skills and diffusing new technologies in enterprises
Time span of the measure	1987 – expected ending N/A
Funding/Resources	Euro 125 million. During the course of 2004/5 over £32 million (Euro 47 million) of grant support was committed to new KTP, augmented by over £53 million (Euro 78 million) from participating companies. This represented an increase of around 16% in both components compared to 2003/4.
Delivery Process	Estimated that on average, every £1 million invested in KTP results in 77 new jobs created, and training for 263 members of staff, as well as giving academics experience of working in a business environment. (Figures based on final reports by company participants whose completed TCS programmes were assessed in 1997-98)
Outputs and Outcomes	The DTI Innovation Report (2003) showed that successive reviews of the Teaching Company Scheme (TCS), now known as Knowledge Transfer Partnerships (UK_18), confirmed the value to business of the technology transferred. 80% of companies involved believe that knowledge transferred during the placement was either new to the firm or represented a considerable advance of their knowledge base. In a DTI review carried out in 2004, KTPs emerged as one of the most successful knowledge transfer mechanisms that the Government offers to UK businesses. Each Partnership brings business benefits, skills and knowledge to industry, graduates and academics across the UK.
References	URL: http://www.ktponline.org.uk, Trendchart Doc No. UK-18
Comments	Plans to extend to creative sectors.

National Endowment for Science, Technology and Arts (NESTA)

No.	10
Title	**National Endowment for Science, Technology and Arts (NESTA)**
Main actors	DTI
Description	NESTA (the National Endowment for Science, Technology and the Arts) focuses on the appreciation of science, technology and the arts and their contribution to quality of life. It supports the creative potential of talented individuals. An emphasis on future ('new economy') sectors and opportunities. Grants, bursaries, loans, general guidance and access to professional advice. Public awareness and education about science, technology and the arts.
Rationale	NESTA was established by Act of Parliament in 1998. The Act requires NESTA to: (1) Help talented individuals, or groups of individuals, in the fields of science, technology and the arts, to achieve their potential. (2) Help people turn inventions or ideas in the fields of science, technology and the arts into products or services a) which can be effectively exploited b) the rights to which can be adequately protected. (3) Contribute to public knowledge and appreciation of science, technology and the arts ensuring that the UK has a real resource for identifying and developing talent
Goals/Aims	Increase understanding of the nature of drivers and barriers of innovation activity in enterprises with a view to informing the policy-making process
Time span of the measure	2000 – indefinite
Funding/Resources	Euro 320 million Initial endowment of £200M (EUR320m) In February 2003 NESTA received an additional £95 million. £50 million to add to the endowment and £45 million for programme spending over the next three years to establish new initiatives and expand the existing programmes
Delivery Process	
Outputs and Outcomes	The Science Year and Planet Science initiatives under NESTA were established to increase student interest in science. The initiatives aimed to tackle stereotypes about science and extend engagement with science, both during and following secondary education, thus encouraging larger numbers of students to study science at higher education and possibly choose science-related careers. An independent evaluation of these two initiatives found positive responses were given to Science Year and Planet Science projects that had provided activities/resources/events to enhance science teaching and learning. There was evidence that these initiatives had fulfilled their short-term aims, but the long-term impact of the two initiatives could not yet be ascertained, for example in securing greater engagement of girls in science post-16.
References	Legal basis: National Lottery Bill (HL Bill 53) (not yet an Act of Parliament). The Government's White Paper, the People's Lottery, set out the case for ensuring that the UK has a real resource for identifying and developing talent, innovation and creativity. Trendchart Doc: UK-10
Comments	Treated as an actor above; highly relevant to creative sector.

Grant for Research and Development

No.	11
Title	**Grant for Research and Development** (formerly SMART)
Main actors	
Description	Previously run nationally, but now run by local DTI Small Business Service offices, the Grants for Research & Development will be administered by Regional Development Agencies. For small businesses wishing to exploit an innovative idea, this grant provides reimbursed consultancy to help businesses get advice on the steps needed to implement their ideas.
Rationale	Under its previous name SMART, this grant provided funding on a competitive basis for two distinct types of project: 1. a technical and commercial feasibility study into innovative technology 2. the development up to pre-production prototype stage of a new product or process which involves a significant technological advance.
Goals/Aims	- Increase rates of expenditure on research and technological innovation in enterprises - Provide adequate infrastructure to new technology based firms to facilitate their survival and growth
Time span of the measure	1997 – continuing
Funding/Resources	Euros 22 million (£15 million) resulting from one year approval only - 1997/98
Delivery Process	- Promotion of entrepreneurship/start up (including incubators) - Applied industrial research - Development/prototype creation - Innovation management tools (including quality)
Outputs and Outcomes	Evaluated in 1991(see http://www.dti.gov.uk/iese/aurep27.html) and also in 1994 (see http://www.dti.gov.uk/iese/aurep13.html) 2001 Evaluation report available at: http://www.dti.gov.uk/about/evaluation/exec_sum.pdf Some brief highlights from the 2001 Evaluation include following main findings: (1) Seven in ten projects have outputs which reach the market; (2) Data supplied by award winners pointed to substantial and positive effects overall on their turnover, exports and employment; (3) there is evidently scope to increase the aggregate benefits that the scheme delivers.
References	Trendchart Doc UK-09
Comments	***This should be sector neutral although in DP there is manufacturing bias***

Chapter 3

Other Policy Issues Relevant for Service Innovation

The points to be made under this heading have been rehearsed in earlier sections and subsections of this report. There is rarely a generic "service" focus in policies for innovation and internationalisation, though we do see increasing emphasis on specific services sectors, and increasing efforts to conceptualise the ways in which services innovation may be "under the radar" of policy and statistics. What we are likely to see is more evaluation and restructuring of policy instruments to take account of missing" elements of services innovation and internationalisation, especially where there are seen to be shortfalls or major growth opportunities.

Chapter 4

Summary of Conclusions

In addition to the points listed in Chapter 3 above, we can outline some main developments that our informants have suggested as being likely for the future. These are:

- Departments and agencies with innovation responsibilities (such as the DTI) are to pay more attention to aspects of innovation where service activity is neglected, or where many services' approach is markedly different from that of other sectors. For instance, R&D is less important to many services, and this may mean (a) boosting awareness of R&D in services and (b) considering non-R&D mechanisms of innovation support such as knowledge transfer partnerships.
- Bodies concerned with what are predominantly service activities – notably the creative industries considered by DCMS and NESTA – are likely to continue to promote innovation in these sectors, and in liaising with programmes of innovation support elsewhere (for example the TSB) are likely to shape thinking and policy on services innovation more widely.
- Programme evaluation will be an important source of ideas for change, especially as it draws on concepts and analyses developed in the course of research into services innovation.
- Many regions will prioritise some services sectors and clusters more strongly among areas that require innovation support; given the variety of regional programmes and practices this will offer prospects for learning-by-comparing.