

The Government's Response to the Baker Report:

“Creating Knowledge, Creating Wealth:”

**Realising the economic potential of Public
Sector Research Establishments**

**OFFICE OF SCIENCE
AND TECHNOLOGY**



HM TREASURY

SUMMARY

1. The Government welcomes John Baker's report. It accepts his analysis of what stands in the way of more effective efforts to commercialise the research outputs of public sector research establishments (PSREs). It agrees that giving greater emphasis to the knowledge transfer effort need not - and indeed must not - conflict with the primary research and advisory roles of PSREs.

2. The Government accepts the thrust of John Baker's recommendations. In the November 1999 pre-budget Report, the Government announced measures to implement a number of these recommendations. These were:

- * *changes to civil service conduct rules to allow government scientists new incentives and rewards, subject to safeguards, for participating fully in exploitation - these changes came into force on July 13;*
- * tackling the risk avoidance culture in PSREs, encouraging well managed risk-taking. The Government welcomed that statement by the National Audit Office, published on the same day as the pre-Budget report, that they will adopt an open-minded and supportive approach to commercialisation by PSREs, focussing on their commitment to exploitation, the quality of their risk management, and the lessons that can be learned for PSREs as a whole;
- * the Government has addressed the need of PSREs for advice to help them commercialise their discoveries and inventions; the Government has looked at options, including a role for Partnerships UK - the new public private partnership which the Government has created to replace the Treasury Taskforce.

3. Most of John Baker's other recommendations fall to the Government departments and Research Councils which sponsor PSREs and otherwise purchase research from them. The Government will ensure that by the end of 2000, all relevant departments and Research Councils, in partnership with PSREs, have produced timetabled action plans for ensuring that PSREs can effectively pursue knowledge transfer activities. These plans will address the need for PSREs to have:

- * an explicit knowledge transfer mission
- * necessary financial freedoms
- * control and ownership of intellectual property
- * access to necessary skills and advice
- * personal incentives for staff

4. The Government will ensure that progress in implementing these action plans is independently reviewed before the end of 2001.

5. The Government is also

- * ensuring that PSREs are able to participate fully in government schemes which incentivise the transfer of knowledge from publicly-funded science to industry;
- * committed to ensuring that the next Prior Options Reviews of PSREs fully address the recommendation that departmental PSREs are put at greater arm's length from government.

BACKGROUND

Science funding

6. Government invests heavily in science, and this has profound implications for the UK economy. The science base - research funding from the Higher Education Funding Council and the Research Councils - important for our economic performance, generating the skills, knowledge, and technology that will maintain the UK's competitive edge in the global markets of the new millennium. The 2000 spending review includes a new £1 billion programme to renew the infrastructure of the science base; this includes a new partnership with the Wellcome Trust, and is on top of our huge boost to science funding in 1998. SR2000 also included a rise in the stipends for Research Council students, from £6620 pa outside London to £9000 pa by 2003-04. And the Cross Cutting Review of Science and Research Funding concluded that:

- * Government should build on the flagship HEROBIC, University Challenge, and Science Enterprise Challenge schemes to increase the capacity of University's work on commercialisation and knowledge transfer;
- * Government should focus on boosting research in key areas that will shape life in the 21st century, under understanding the genome, developing the next generation of e-science, and basic technology.

7. In addition to the science base, government makes a considerable investment in science through the research and development programmes of individual government departments. The overall expenditure on science this year - both on the science base and on government R&D - will be £6.75 billion - higher in real terms than at any time this decade.

Knowledge transfer

8. The Government is committed to ensuring that this large investment in research and development generates the maximum benefits in the form of jobs and prosperity for the nation. The ability to capture the economic benefits of science and technology - in particular the creation of novel products and processes - is a crucial determinant of competitiveness and growth in a globalising economy. Key mechanisms for creating economic value from research include wide dissemination of knowledge through the economy, and the transfer of trained people from science labs to industry. But there is increasing recognition - in government, academe and the private sector - of the need for science and industry to work closer together to forge more direct routes, including commercial routes, for exploiting the outputs of research. The Government wishes knowledge transfer and collaboration with industry to become part of the core mission of both PSREs and universities.

9. The Government has been active in developing an agenda for the exploitation of science. The Government's White Paper "Excellence and Opportunity: a science and innovation policy for the 21st century" describes the Government's efforts so far and sets out a reform agenda for ensuring that there is coherence in the overall approach and that efforts to exploit science are balanced by a sufficient focus on the need to stimulate industry demand for research outputs.

10. Government also recognises that while much of the policy focus has been on university research, a good deal of publicly funded research (both in the science base and as part of departmentally-sponsored R&D) is conducted in government laboratories - the so-called public sector research establishments (PSREs). Indeed some £2.2bn of the total £6.75bn of the Government's total spending this year on science is going to PSREs and NHS trusts. It is clear that any policy agenda for knowledge transfer which ignores PSREs is incomplete. It is in this light that the Government last year commissioned John Baker to investigate the commercialisa-

tion of research in the PSREs and to make recommendations for increasing the rate at which PSRE research outputs are successfully commercialised. This followed a commitment to this effect in the 1998 Competitiveness White Paper.

GENERAL

11. The Government welcomes John Baker's report, which it regards as having fully met the remit both to investigate the commercialisation of PSRE research and to make recommendations for increasing the rate at which PSRE research outputs are commercialised. The analysis and conclusions are balanced, pointing out what more needs to be done to ensure that the exploitation mission is embraced wholeheartedly, while recognising the larger context within which exploitation must take place.

12. The Government agrees with the principles that John Baker has presented as underpinning his findings. In particular it accepts that the first priority for each PSRE remains the conduct of research in furtherance of the Government objectives it serves. Within that context there is nevertheless considerable scope for a more concerted approach to knowledge transfer, and indeed the need for a positive presumption in favour of knowledge transfer

13. The Government also endorses John Baker's conclusion that the large variety of PSREs and of knowledge transfer routes mean government cannot be over-prescriptive about the methodology for ensuring the practical application of PSRE research outputs. The Government recognises that the nature of the research output itself has an important bearing on decisions whether or not to pursue commercial routes for exploiting knowledge. For example, while a commercial route might be clearly indicated for potentially valuable discoveries and inventions - open dissemination might be more appropriate for certain classes of dataset.

RESPONSE TO THE INDIVIDUAL RECOMMENDATIONS

1. I welcome the movement in government towards a more mature understanding and handling of risk. Treasury and OST should work with the NAO and the PAC to promulgate an accountability framework for commercialising public sector research which emphasises portfolio risk management and transparency of operation rather than incentivising risk avoidance.

14. The Government believes that greater understanding and acceptance of risk is a fundamental component of creating an innovative, forward looking public sector culture. Innovation in the public sector involves risk that should be properly assessed and managed. Where this happens the audit process should recognise as much or the culture of risk avoidance will be perpetuated. The Government is discussing with the NAO how it will ensure that audit methodologies incorporate a positive approach to risk. The Government's position is set out in the Modernising Government White Paper and acknowledged by John Baker in his report.

15. The Government agrees with John Baker that the Modernising Government commitment needs to be developed in the specific context of commercial exploitation of PSRE research outputs. Not all PSRE commercialisation deals will result in the successful launch of new products, processes and services. Knowledge transfer inherently bears risk. The public accountability framework needs to recognise this, while ensuring that there continues to be probity and value for money in the handling of public funds and the assets created with them. The Government accepts that the fear that individual deals will come under critical scrutiny by the National Audit

Office and the Public Accounts Committee - and that the failure of a deal will of itself attract criticism - is a deterrent to commercialisation. PSREs and their sponsors need to have confidence that the focus of critical scrutiny will be on the quality of risk management (ideally across a portfolio of transactions and a range of PSREs) and that the auditors spotlight will also fall on those PSREs with commercialisable research which fail adequately to engage in knowledge transfer.

Action

16. The Government welcomed the recent statement by the National Audit Office confirming that they will adopt an open-minded and supportive approach to commercialisation by PSREs, focussing on their commitment to exploitation, the quality of their risk management, and the lessons that can be learned for PSREs as a whole. The Treasury is working with the NAO to ensure that PSREs are aware of, and understand, the approach that the NAO plans to take.

2. A key challenge for government is to ensure that leadership in the PSREs is committed to drive commercialisation as an explicit part of their mission. To that end and where such practice is not already current:

- * All government purchasers of PSRE research should have as part of their research mission the explicit objective of transferring PSRE research outputs to the wider economy; this should be explicitly reflected in all contracts between sponsors (and other government purchasers of research) and PSREs.*
- * PSREs themselves should have knowledge transfer as an explicit part of their mission*
- * The knowledge transfer objective should be embodied in the job description and personal objectives of the PSRE chief executive and be seen as his or her personal responsibility. It should be cascaded through the personal objectives of senior management and scientific staff.*
- * PSRE chief executives should be required to develop, implement and secure staff support for a strategy for identifying and realising opportunities for translating research outputs into wealth creating products and processes. In particular these strategies must address the management systems that will support the commercialisation effort, acquisition of the necessary market knowledge and the management of conflicts of interest.*
- * PSRE chief executives should develop performance measures and targets against which their knowledge transfer efforts can be assessed.*
- * As and when vacancies for PSRE chief executive posts arise, the ability to lead and motivate a PSRE's knowledge transfer activities should be an explicit recruitment criterion.*

17. The Government believes that there should be a more concerted effort to identify and exploit opportunities for realising the economic value of PSRE research outputs. We agree with John Baker that this will happen only if an explicit knowledge transfer mission is adopted, taken seriously and driven through by committed leaders.

18. The actions he recommends would in effect make uniform what is already best practice in those PSREs which have the most forward-looking approach to knowledge transfer. The Government agrees with John Baker that this best practice needs to be spread across the PSRE community, and that the setting of specific objectives and targets and the establishment of proper management and incentive systems are vital. None of this is intended to undermine PSREs or to preclude the free dissemination of research outputs such as datasets on policy grounds.

Action

19. As part of their overall action plans sponsors, in consultation with PSREs, will be required to agree a timetabled plan with the Treasury and OST by the end of 2000 for implementing the actions recommended by John Baker under this recommendation, where suitable arrangements are not already in place.

3. There is an overwhelming case for requiring that IP generated by a PSRE be owned by the PSRE and assigned by authority of the chief executive, unless effective alternative arrangements already exist (they do so in the case of the MRC, but in no other instances that I have been able to find). The case by case involvement by public sector funders of research in decisions about the assignation of intellectual property - unless they have specific expertise and support to bring to the table - does not generally seem to add value and can be harmful.

20. The Government believes that intellectual property generated by PSREs should be vested at the lowest possible level, normally that of the PSRE itself where there are more likely to be the skills and know how to commercialise it. The report has highlighted the need for PSREs to move quickly, professionally and effectively in successfully negotiating knowledge transfer transactions. To do this they must have the necessary managerial autonomy. The Government agrees with John Baker's finding that the detailed case-by-case involvement of sponsor departments and Research Councils can often hamper commercialisation activities, by slowing down or otherwise complicating transactions.

21. Control and ownership of intellectual property - and the ability to assign it to commercial partners - must lie with those who are taking the key decisions and responsibility for exploitation deals. The Government would expect these normally to be PSRE directors, while recognising the possibility of exceptions to this general presumption - for example where it can be demonstrated that alternative approaches - either in place or in development - are likely to work better.

22. The Government's primary interest here is in commercialisable and in particular patentable intellectual property. The Government recognises that different arrangements will apply to research outputs, such as datasets, which are not discoveries or inventions.

23. The Government believes that control and ownership should go together. It is of course possible for ownership of IP to remain with the sponsor while control is delegated as far as possible to the PSRE. But this is a less than ideal half way house, since without ownership, full control is not possible. Of necessity for the time being, it is the approach that will need to be adopted in the case of PSREs which are not legally separate from their sponsors (including many departmental PSREs). In the longer term, the status of these PSREs will need to be reexamined (see page 8 below).

24. The Government believes that sponsor departments and Research Councils must continue to maintain strategic oversight of the exploitation activities of their PSREs, in the interests of accountability for public funds, and to ensure that such activities remain aligned to the PSRE core objectives (many of which have been determined by the sponsor department or Research Council). Sponsors must, for example, retain the right to be consulted over major or novel commercialisation deals. Sponsors also have a duty to ensure that PSREs have access to the resources and advice needed to exploit IP effectively.

25. The Government is clear that, notwithstanding the arrangements for control and ownership of IP, sponsors retain the right to disseminate the outputs of PSRE research they have commissioned. This right can be retained at the same time as IP is vested in PSREs, through suitable contracts between sponsors and PSREs. The Government recognises that the drafting of such contracts raises complexities, and is publishing guidance to sponsors and PSREs alongside this response.

26. The Government also wishes to extend the principle of devolving IP ownership to the lowest level to include all research organisations from which government departments and Research Councils commission research, including universities and the private sector. This would provide a further boost to commercialisation efforts, while ensuring consistency with the public procurement aim of promoting a level playing field between public and private sector research providers. The main principles underpinning such an approach would be that the research provider owned the intellectual property; while government retained dissemination rights and had a share in the upside of any commercialisation. The Government will develop more detailed proposals in this area, in consultation with the Committee of Vice Chancellors and Principals.

Action

27. Government is publishing draft guidance to PSREs and sponsors on the handling of intellectual property alongside this document and the Science and Innovation White Paper.

28. In light of the final guidance sponsors, in partnership with PSREs, will be required to agree a timetabled plan with the Treasury and Office of Science Technology by the end of 2000 demonstrating how they will ensure consistency with the presumption in favour of vesting IP at the lowest practical level. Where transfer of ownership is legally impossible because of the current status of certain PSREs, action plans will need to demonstrate what steps are being taken to delegate control of IP assets.

4. Parent organisations should allow their PSREs the full freedoms to carry forward surpluses and retain receipts and other financial freedoms which are available under the Treasury's recent Wider Markets guidance. Arrangements for dividing commercialisation receipts between sponsors/funders and PSREs should err on the side of generosity to the PSRE.

29. The Government accepts this recommendation. As part of the 1998 comprehensive spending review, the Treasury gave government departments significantly increased flexibility to carry forward surpluses from one financial year to the next. Also, as the Baker report points out, the Treasury's Policy and Guidance Note "Selling Government Services into Wider Markets" encourages departments to allow their agencies and Non-Departmental Public Bodies to benefit from the receipts generated by sales in the wider market.

30. The Government believes that sponsor departments, other government commissioners of research, and Research Councils should ensure that PSREs receive the full benefit of these increased financial freedoms and that arrangements for dividing commercialisation receipts between the various parties provide the proper incentive to PSREs to engage in exploitation activities.

Action

31. As part of their overall implementation plans, sponsors and funders will be required to agree with the Treasury and Office of Science Technology by the end of 2000 the actions that will be taken for increasing financial freedoms and incentives for PSREs where further progress is needed.

5. I strongly recommend that the departmental PSREs be put at greater arm's length from government departments. Ministers should consider how this should best be done for each of these PSREs, with the presumption in favour of a move to less central control - except where there is an overwhelming case to the contrary.

32. Taken as a whole, the actions which government intends to take in the light of the Baker report will increase PSREs' autonomy in the day-to-day pursuit of knowledge transfer opportunities. In particular, as discussed elsewhere in this response, the Government is determined to ensure that PSREs have the necessary financial freedoms and control of their intellectual property, and that the rules governing accountability for public funds and civil service conduct are broadly permissive of exploitation activities.

33. The Government nevertheless thinks the case for putting departmental PSREs at greater arm's length from government should be examined, and believes that such a reform could have a positive impact on the ability of these PSREs to engage effectively in knowledge transfer. The status of the PSREs was last examined in the Prior Options Review of 1996. The case for such a change of status needs to be carefully and thoroughly considered for each relevant PSRE, taking account of the broad range of factors that affect PSRE performance not only in the knowledge transfer arena, but in their broader research and advisory roles. For practical reasons, the Government prefers to give priority to those reforms which can start to be implemented forthwith and not to re-open the status of the PSREs in parallel. The Government nonetheless wishes to keep this matter under review and expects it to be fully addressed in future Quinquennial Reviews of PSREs.

Action

34. The Treasury and OST will keep under review the case for putting departmental PSREs at greater arm's length from government and will ensure that it is thoroughly examined in the next Prior Options Review of PSREs, with a view to ensuring that the institutional relationship between these PSREs and their sponsors is optimally conducive to the pursuit of knowledge transfer.

6. Other action is needed to address the difficulty of financing the costs of knowledge transfer

- * Ministers should examine the scope for extending the eligibility criteria of initiatives for promoting knowledge transfer, in particular University Challenge, to include PSREs, where these are not already eligible.*
- * Given the importance of industry demand as a driver of knowledge transfer, the Government should look at the scope for drawing PSREs into current schemes which incentivise business to participate in knowledge transfer.*
- * In agreeing future income streams with parent bodies and other purchasers, PSREs should be explicit about the costs associated with implementing a knowledge transfer strategy. Government must be prepared to meet these costs if it wants to give parity of esteem to the knowledge transfer mission.*
- * Government should consider earmarking some funds to meet the costs of knowledge transfer in the PSREs.*

35. The Government acknowledges that the effective pursuit of knowledge transfer bears costs. Exploitation of public sector research entails various forms of public-private partnership and the Government believes that PSREs should look wherever possible to commercial partners to fund the downstream exploitation as part of their investment.

36. Nonetheless, PSRE sponsors have a responsibility, within overall departmental budgetary constraints, to ensure that exploitation is adequately funded, consistent with their explicit mission to pursue knowledge transfer. Sponsors should move to a more formal allocation of resources for knowledge transfer activities from within their R&D budgets. This would be based on an understanding of the real costs of such activities, and consistent with the requirement (see recommendation 2) for the exploitation mission to be explicitly reflected in research contracts between PSREs and their sponsors. One possible approach would be for funders to agree that a specified percentage of research contract funding be ring-fenced for exploitation purposes.

37. The Government supports the principle that PSREs should be fully eligible in their own right (ie not just as junior consortium partners) to participate in government schemes which encourage both the science and business communities to engage in knowledge transfer activities. But this might not be appropriate for every PSRE and every incentive scheme.

38. These measures taken together - and in combination with measures to increase PSREs' financial freedoms - should have a significant positive impact on the ability of PSREs to resource knowledge transfer activities. Even so more may be needed if the PSREs are to bridge the often large gap that exists between their intellectual property and the fulfilment of its commercial potential.

Action

39. The Office of Science and Technology has examined the scope for giving PSREs the same eligibility as universities in the range of government schemes for incentivising both academe and industry to engage in knowledge transfer. It has concluded that there is significant scope to include access to the schemes to PSREs. The presumption built into the expenditure plans arising from the 2000 spending review is that PSREs will be included, with exceptions justified case-by-case.

40. The Treasury and OST will require sponsors of PSREs, as part of their overall implementation plans, to demonstrate how they will ensure that PSRE knowledge transfer activities are adequately resourced, consistent with the explicit mission to pursue knowledge transfer.

41. To help bridge the gap in finance for seed investments to commercialise IP, the Government has agreed to make available £10 million as part of the 2000 Spending Review aimed at PSREs including Research Council institutes and the NHS.

7. It should be a requirement for PSRE chief executives that they have in place effective schemes for encouraging and rewarding the participation of scientists in knowledge transfer activities.

8. OST should help to exemplify and promote best practice in this area including in respect of equity and share options.

42. The Government accepts these recommendations. Schemes for encouraging and rewarding the participation of PSRE scientists - and other relevant staff - are recognised as an integral part of a strategy for effectively identifying and pursuing knowledge transfer opportunities. The priority is to ensure that such schemes are in place for all PSREs which have a knowledge transfer mission and, that best practice is identified and promoted. OST has an important role to play here, including ensuring that arrangements for handling conflicts of interest are consistent with the new guidance on PSRE commercialisation which will underpin the civil service management code (see paragraph 47).

Action

43. The Office of Science and Technology has produced good practice guidance for PSREs on staff incentives and the management of conflict of interest which is published alongside this response.

44. In the light of this guidance, the implementation plans of PSRE sponsors will be required to provide a timetable for the review or introduction of incentive schemes. Where PSREs do not have such schemes in place, sponsors will agree with HM Treasury and the Office of Science and Technology a timetable for introducing them.

9. As an immediate priority Ministers should review the application of the civil service management code to the special circumstances of science commercialisation. The effective bar on certain forms of direct participation by serving government scientists in the commercial exploitation of their research - in particular receiving equity or share options - should be removed. The principles that apply should be the same as the business appointment rules for civil servants: personal gain should not be outlawed; rather it should be permitted subject to having proper systems in place for ensuring the probity of the proposed commercialisation arrangements.

45. The Government accepts this recommendation and has now changed the code accordingly. The Government agrees there is a need to provide incentives to government scientists to participate in the commercial development of their work. The Government attaches the highest priority to ensuring propriety and integrity in the Civil Service. Nevertheless, measures to secure propriety which also destroy incentives are self-defeating.

46. The previous interpretation of the code meant that government scientists could not take equity participation or accept share options in spin-out ventures unless they left the civil service permanently. This was harmful because the direct participation of scientists in the commercial spin-out of their research is often key to the success of these ventures - and indeed something that venture capitalists can insist on. The rules therefore both deterred commercialisation and provided an incentive for entrepreneurial scientists to take their talents out of government service in order to pursue commercial opportunities. Nor were the rules consistent, as John Baker points out, with the approach permitted in other parts of the public sector which are not governed by the Civil Service Management Code.

Action

47. The Government has revised the civil service management code to confirm that government scientists may participate in the commercialisation of their research by taking share options and equity stakes in spin-out companies, subject to certain safeguards. The Cabinet Office has issued new guidance to go alongside the code which came into effect on July 13th. This is reproduced at Annex A.

10. Sponsors of PSREs should encourage the development of networks among PSREs for the sharing of best practice in knowledge transfer, and to promote synergies.

48. The Government agrees that this is a sensible recommendation, but believes also that PSREs should be encouraged to be outward-looking and to seek opportunities for wider networking - for example with universities.

Action

49. As part of their overall implementation plans, PSRE sponsors should agree with Treasury and OST their plans for facilitating the development of networks involving their PSREs. As a first step OST will consult on this idea and on the idea discussed elsewhere in this paper for an association of PSREs. OST has also produced a best practice guidance note.

11. PSRE chief executives must ensure that they have access to the skills and experience they need for knowledge transfer.

12. Sponsor departments and Research Councils must where necessary support their PSREs in gaining access to relevant expertise, and they should promote a consortium approach to knowledge transfer where this is most likely to achieve critical mass of activity and economies of scale.

13. Ministers should consider creating a small expert unit within central government to drive forward the knowledge transfer agenda - and provide advice, help and encouragement to PSREs and their sponsors on knowledge transfer - particularly in relation to larger and more complex deals. Such a unit could initially be given a life of say two years, after which time its value would be reviewed.

14. Government should seek to improve the flexibility of PSREs to pay market rates to attract and retain people with commercialisation expertise.

50. Knowledge transfer projects are often complex, and require commercial skills very different from scientific research skills. John Baker rightly emphasises the importance of bringing the proper skills to bear to commercialise successfully research. The Government agrees that both PSREs and their sponsors have a responsibility to ensure that PSREs have access to the right people to help them bring products and processes to market.

51. The Government also agrees that the diversity both of PSREs and of knowledge transfer activities together rule out any detailed central prescription about the level and nature of the skills required, and the form in which they are obtained, (eg whether to hire in-house experts or outsource much of the work to intermediaries). Such matters are best determined by individual PSREs, with support from their sponsors, and underpinned by a common understanding of what, for a particular PSRE, is likely to be appropriate, effective, affordable and good value for money. Where departments or Research Councils sponsor a family of PSREs, there is particular merit in exploring the scope for consortium approaches to knowledge transfer. The scope for getting private sector partners to meet the costs of knowledge transfer activities should always be fully explored.

52. The Government agrees that a central capacity for advising, helping and encouraging PSREs and their sponsors could be a very useful resource for giving momentum to the knowledge transfer effort. The PSRE commercialisation market is at a very early stage of development and the barriers faced by PSREs taking the first steps can be difficult to overcome. Partnerships UK - the new body for providing the public sector with key commercial skills to forge partnerships with the private sector - plans to help develop commercialisation projects. It has also undertaken an immediate review to look at the practical help PSREs need to overcome the financial, institutional and cultural constraints they face.

53. Government accepts that PSREs might in some circumstance need to attract and retain knowledge transfer expertise in-house - and that there is a price to pay for that. The Government looks to PSRE sponsors to ensure that their PSREs have the necessary flexibility to pay for such expertise, where it is genuinely needed. However the PSRE commercialisation market is not yet well developed and PSREs' ability to invest in their commercialisation projects is limited pointing to a development funding gap which many PSREs will be unable to bridge. The fund described above will help to bridge this gap.

Action

54. The Government will require PSRE sponsors, as part of their overall implementation plans, to detail their plans for ensuring that their PSREs are able to identify and obtain access to the skills they need for successfully pursuing knowledge transfer opportunities.

55. In the light of the scoping study PUK has undertaken on behalf of government and consultation with the PSREs, Partnerships UK is in the process of establishing a small science and technology commercialisation unit which will provide and help to promote access to the skills and other inputs needed by PSREs to enable them to make commercialisation happen on the ground. PUK has a remit to use its resources for a period of two years to help PSREs that need support in relation to commercialisation projects large and small where (and only where) the PSREs requests assistance.

56. The PUK scoping study sets out a range of measures for PUK and the Treasury, OST, PSREs and their sponsors to take forward a number of John Baker's and other proposals to improve commercialisation. The action plan is set out below.

57. In addition to providing details of the proposed commercialisation unit it includes proposals for:

- * a joint PUK, OST and Treasury seminar programme
- * consultation with PSREs on networking and/or an association
- * new guidance for government on equity participation in joint ventures
- * the development of standard shareholders agreement and other clauses to promote a degree of standardisation in technology projects.

58. The scoping is available from the Partnerships UK Website:
www.partnershipsuk.co.uk.

Commercialisation Action Plan: Service Delivery and Responsibilities

TASK	RESPONSE
'Funding Gap'	
Stage I - (Creating, identifying and protecting intellectual property) developing IP strategies; identification of ideas etc.	<i>OST to work with PSREs on benchmarking the scope and success of existing Stage 1 activities</i>
Stage II - (preparing a project for market) Technology Fund made	<i>Treasury to assess the location of a Technology Fund to be available to PSREs and their advisors for further Proof of Concept activities</i>
Stage III - (bringing a project to market) Commercialisation and Partnering	<i>Offered as part of Partnerships UK services</i>
'Development Gap I': Structure and Governance	
Benchmarking on IP auditing/evaluation best practice in PSREs	<i>Office of Science and Technology commissions feasibility study OST/PUK/Treasury Seminar Programme</i>
Best practice on interpreting and extending on the Baker recommendations	<i>Promulgate Baker response, White Paper and Scoping Study action plan OST/PUK/Treasury Seminar Programme</i>
Best practice with regard to rewards to inventing staff PSRE PR, marketing and communications and Brand positioning in science and technology industries	<i>OST progressing OST/PUK/Treasury Seminar Programme OST/PUK/Treasury Seminar Programme</i>
Changes to Civil Service Management code to free up PSRE in commercialisation	<i>Cabinet Office/OST progresses OST/PUK/Treasury Seminar Programme</i>
IPR Roadshow - Guidelines and Ownership	<i>Joint OST/Patent Office/HMT guidelines progressing OST/PUK/Treasury Seminar Programme</i>
Training: - preparing business plans - patent law, applications and maintenance - promoting an entrepreneurial culture in staff - costing and pricing structures for professional services	<i>OST/PUK/Treasury Seminar Programme</i>
Commonality and principles concerning Government equity share in commercial ventures	<i>Treasury/PUK to develop</i>
Opening up Enterprise schemes to PSREs. Maintaining awareness of the range of mechanisms available from within government, EU and regional development organisations to support business development	<i>DTI/Other Departments</i>
A cross government view on IP assignment	<i>Draft guidelines to be finalised</i>
Reconciliation of the competing priorities and objectives of the academic approach with that of commercial exploitation and tech transfer and reflected in mission statements, performance criteria and objectives	<i>Departments to review PSREs' mission statements; promulgation of new IP guidelines</i>
Increase understanding in departments of Wider Markets projects and provide key training for core department staff	<i>OST/PUK/Treasury Seminar Programme</i>

Commercialisation Action Plan: Service Delivery and Responsibilities (cont)

A Champion selected to progress PSRE profile and representation on government committees for issues of interest to PSRE development	<i>To be decided</i>
An Association of PSREs is set up to act as a medium to government on issues facing PSRE community with respect to development	<i>OST to consult Departments</i>
Reducing the concerns of core departments of WM projects	<i>OST/PUK/Treasury Seminar Programme</i>
Assistance in mentoring and partnering	<i>PUK Service</i>
<i>Development Gap II: Commercial Expertise and Support</i>	
Quick, responsive service to the PSRE sector to assist in guidance on principles, what is permissible and what is not, find more advice, access to relevant documents and case histories and act as a sounding board for ideas and problems	<i>To be set up in Partnerships UK. This will continue the work of the Treasury Taskforce in developing where to demonstrator projects to build up capability and knowledge on PPPs in the science and technology markets</i>
Develop a 'diagnostic tool' - on-line proforma to assist PSREs in shaping commercial proposals in Wider Markets Areas (for example, self-assessment - 'questions to ask of your project' etc. to assist PUK/PSREs and advisers.	<i>'Help desk': (PUK to develop in-house)</i>
Following on from 'proforma' - Early stage advice on best route to exploitation/market	<i>'Help-desk': PUK service</i>
Commercial agreements - help develop templates for shareholders agreements, draft clauses, best practice on confidentiality agreements, JV agreements and licences	<i>'Help desk': (PUK develops in-house)</i>
Advice on structures of commercial vehicles - in particular joint venture and spin-off companies and licensing	<i>PUK service</i>
Development oversight and provide support to PSREs on complicated and challenging projects due to institutional issues (for example vires) creating problems finding route to market.	<i>PUK service</i>
Source of information/point of contact on commercial funding/equity advice. Information on and contacts with VC organisations and other institutional investors.	<i>PUK to develop service</i>
A sign-off service for deals which are not large and complex- providing sign off/commercial comfort to HMT for newly active PSREs embarking on first deals	<i>PUK service</i>
Advice on due diligence procedures	<i>PUK service</i>
Investigate a professional services web-based directory including: lawyers and financial advisors specialising in IP commercialisation. Private sector funded and delivered	<i>OST feasibility study to test desirability</i>
Assistance in mentoring and partnering to people closing deals	<i>PUK current service</i>

INFORMATION NOTE FOR PERSONNEL MANAGERS

PARTICIPATION OF CIVIL SERVANTS IN THE COMMERCIALISATION OF PUBLIC SECTOR RESEARCH

These notes are circulated to central personnel staff in departments, agencies and relevant NDPBs, and are generally copied to the CCSU.

They do not occasion any change in terms and conditions for civil servants.

1. Paragraph 4.3.8 of the Civil Service Management Code prevents civil servants making personal gain from the knowledge to which they have access in the course of their work. This rule is not intended to:

- (a) limit the accepted principle that civil servants may be rewarded for inventions that they make in the course of their official duties. Schemes which allow a proportion of a Government establishment's income to be paid to an inventor on a sliding scale continue to be acceptable and the Code does not limit the rights of employees granted under the Patents Act 1977; and
- (b) prohibit personal gain for staff who participate directly in the commercialisation of their research, including by means of equity stakes and share options, subject to the conditions laid down in this guidance.

This guidance aims to clarify the position, in particular the application of the Civil Service Management Code to the taking of equity stakes and share options by civil servants in commercial spin out ventures. It applies to all public sector research establishments which are subject to the Civil Service Management Code and Government departments and agencies in which research is conducted. It applies to staff who create knowledge and are involved in its commercialisation. In practice, such staff will be mostly Government scientists.

Principles

2. The Government attaches great importance to the successful exploitation of publicly-funded scientific research. Such exploitation makes a vital contribution to the creation of jobs and prosperity. The successful commercialisation of research often requires the direct participation of the researchers in a variety of forms - for example, taking a financial stake, acting as a director of a new venture, providing services and expertise, or a combination of these. Financial rewards and incentives may often be necessary to secure the desired participation from an individual scientist.

3. Civil servants should be able to participate fully in the commercialisation of Government research provided that:

- * they have created knowledge which has commercial value;
- * they have a potentially important role in the successful commercialisation of that knowledge; and
- * conditions ensuring probity and the protection of the public interest are met.

4. The range of incentives and rewards available to serving Government scientists - and the forms of participation they may make in commercial ventures - should be no more restricted than for scientists elsewhere in the public and private sectors. Thus, scientists and other civil servants may take equity stakes and share options in spin out ventures.

5. Civil servants who wish to participate in such ventures, and whose participation meets the conditions set out in paragraph 7 below, should not be required to terminate their civil service employment or be seconded to the commercial venture simply in order to do so.

Conditions

6. Civil servants may have direct participation in commercial ventures which exploit Government research only if::

- * the Government body concerned has taken a collective view of the probity of the arrangements, through machinery established for this purpose, including consideration of possible conflicts of interest and of the handling of privileged information, and review of their significance and materiality, and has rigorous policies and procedures in place to deal with them;
- * the Government body has a recognised process for managing the commercial exploitation of its research, including access to expertise on the most appropriate commercialisation strategy for particular products, technologies and processes;
- * it is reasonably clear that the commercialisation activity will contribute to the aim of promoting economic prosperity and competitiveness;
- * the Crown has an appropriate financial stake in the commercial activity, reflecting its investment in the intellectual assets; and
- * the capacity of the Government body to pursue its key objectives, including research in their support, is not compromised.

Implementation and monitoring

7. These arrangements will be monitored for 12 months from the date of this notice to ensure that the requirements of probity are fully met. Any necessary amendments to the guidance will be made in the light of the results of this monitoring exercise.

8. During this period, Government bodies must:

- (a) Notify the Cabinet Office if they expect that any of their serving scientists or other staff are likely to take equity stakes or share options in ventures for commercialising Government research. The body concerned must describe the arrangements it proposes to put in place to ensure probity. The Cabinet Office, in consultation with the

Treasury, will advise within 15 working days, on whether the proposed arrangements are acceptable. Where there is concern about the proposed arrangements, Cabinet Office and the Treasury will work with the Government body concerned to revise the proposed arrangements as quickly as possible with the aim of ensuring full compliance with the guidelines without jeopardising any impending commercial transaction.

- (b) Notify the Cabinet Office of any commercialisation transactions which are concluded and which include the granting of equity holdings or share options to staff. The Cabinet Office will, in consultation with the Treasury, review a sample of such cases to ensure that the requirements of probity have been met.

9. Some examples of probity arrangements already in place for the commercialisation of public sector research are outlined at Annex A.

Contacts

10. Notifications in accordance with paragraph 9 above must be sent to Keith Wright, Employment Conditions and Statistics Division, Cabinet Office, Admiralty Arch, The Mall, London SW1A 2AH 0171 (GTN) 7276 1637. Advice on implementing the guidelines can be obtained from Keith Wright.

11. Copies of this note have been sent to the CCSU.

Issued by: Cabinet Office
Admiralty Arch
The Mall
London SW1A 2AH

July 2000

ANNEX A

COMMERCIALISING GOVERNMENT SCIENCE: PROBITY ARRANGEMENTS FOR PSRE's

The Defence Evaluation and Research Agency (DERA)

DERA has a track record in commercialising intellectual property. In the past, however, this has tended to be through licence agreements with commercial companies where the inventing scientist has remained in full time employment with DERA. In an attempt to encourage its scientists to become more entrepreneurial, DERA has been developing a framework that would allow scientists to remain attached to DERA, either in part time employment or on special unpaid leave, whilst they sought to exploit their innovation either in a company of their own or working in someone else's company.

In an attempt to facilitate these arrangements but at the same time to guard against impropriety, DERA has established a procedure for budding entrepreneurs based on the existing Business Appointments procedure.

Scientists wishing to exploit technologies arising in DERA through commercialisation in the civil sector are designated "DERA entrepreneurs".

A scientist wishing to become a DERA entrepreneur has to follow the modified business appointment rules laid down in DERA's Business Management System. In cases such as these, there are two variations to the standard business appointment application and procedure. They are:-

- * a series of additional considerations which must be addressed by the potential DERA entrepreneur and by the relevant line and functional department managers.
- * a different clearance procedure. Under the procedure for business appointments, the approving authority is an individual personnel officer or other more senior manager (depending on grade). However all applications from DERA entrepreneurs are considered by the DERA Probity Board, which is established specifically to consider commercialisation projects.

Procedure for DERA Entrepreneurs

Potential DERA entrepreneurs are required to complete the normal business appointments form. They are also encouraged to provide their own statement of compliance with the list of issues set out at Appendix A.

The application is submitted to the DERA entrepreneur's Business Group Manager and forwarded to the Personnel Department.

The Personnel Department, a member of whom acts as Secretary to the Probity Board, consults with other relevant parties within DERA to see that the list of issues at Appendix A are satisfactorily dealt with.

When all the necessary information has been assembled, the potential DERA entrepreneur's case and the material from the review is forwarded to the DERA Director of Corporate Affairs who chairs the DERA Probity Board.

The DERA Probity Board is an ad hoc committee established to consider applications by DERA entrepreneurs. The membership of the committee comprises, in addition to the Director of Corporate Affairs, the Managing Director responsible for science, the Personnel Director and one external member.

DERA entrepreneurs are provided with a written response and, where a proposal is rejected, applicants are invited to re-submit taking account of the concerns raised.

The Medical Research Council (MRC)

The Medical Research Council's (MRC's) mission is "to promote and support high-quality basic, strategic and applied research and related post-graduate training in all branches of biomedical science with the aim of maintaining and improving human health, placing special emphasis on meeting the needs of users of its research and training output, thereby enhancing health, the quality of life and the United Kingdom's industrial competitiveness." It has attached a high priority to the exploitation of its research findings and has a relatively long track record of exploiting technology both through licensing and spin-out companies.

Ownership and Control of Intellectual Property

The MRC is a Research Council, a Non-Departmental Public Body, established under a Royal Charter, funded by the Office of Science and Technology, part of DTI. Unlike those of DERA, the MRC's staff are not civil servants.

The MRC funds research in its own institutes and units, and in response to successful grant applications made by staff within universities and medical schools. Council exploitation activities focus on its institutes and units; HEIs manage the exploitation of their own research output.

MRC institutes and units do not have their own separate legal identity. Staff are employees of the Research Council, which determines all relevant conditions of employment, including those relating to the management of intellectual property. The MRC retains ownership of the intellectual property and only senior staff in the MRC's Technology Transfer Group (TTG) can assign or licence MRC intellectual property. The principle upon which probity arrangements in the MRC are based is that of separation between the scientist wishing to undertake technology transfer and the decision makers in the Council's TTG. TTG works closely in partnership with MRC researchers, but final exploitation decisions and negotiations and signature of formal agreements are made by TTG.

TTG has 12 staff with a wide range of commercial, scientific and legal skills to assist MRC staff in choosing the appropriate route to commercialise intellectual property.

The MRC's approach is, in process terms, less prescriptive than that of DERA. Every MRC unit has an allocated Technology Transfer manager, based in the central Technology Transfer Group. It falls to such technology transfer managers to respond initially to requests from scientists regarding exploitation, but their main function is wider than this; they are themselves expected to identify and take steps to exploit technology with a commercial application.

At the point where a project arises the MRC Technology Transfer Group:-

- * examines the project and identifies the most suitable route for exploitation;
- * instructs external patent agents;
- * consults with investors and other scientists within the MRC as appropriate;
- * begins the process of establishing a spin-out company (or licensing), as appropriate.

The three criteria the Technology Transfer Group use to decide whether new research results should be commercialised are essentially those which underpin patent application. They are:-

- * is the technology in question novel?
- * is it inventive? and
- * is it commercially applicable with sufficiently good prospects of a financial return to MRC?

If both TTG and the MRC scientists concerned consider it worth developing the idea of a start-up company as the exploitation route the embryo company will be formed in the light of MRC's conflicts of interest policy which covers such issues as:-

- * are there possible conflicts of interest with the Council and the Unit concerned in identifying itself with the company?
- * are there conflicts of interest for MRC staff holding equity shares?
- * to what extent could the collaboration between MRC staff and the company lead to undisclosed transmission of Council-owned intellectual property to the company?
- * what is the appropriate size of any equity stake held by staff in relation to the MRC's stake?
- * what possible conflicts of interest are there for Council nominees for Directorships in the start up company?

The MRC has created its own venture capital arm, UK Medical Ventures Fund Ltd, which draws on private sector funds and expertise to support the commercialisation of technologies developed by the MRC. Where it is likely that the formation of a spin-out company will be the preferred commercialisation route, UK Medical Ventures Fund, through its General Partner, MVM Ltd., will be offered the investment opportunity and will participate in determining the role of, including the size of any stake taken by, the scientist(s) involved in the creation of the "spin-out" company.

MRC views its own equity stake as consideration (in whole or in part) for whatever MRC intellectual property is fed in to the company.

APPENDIX A

Additional Considerations for DERA Entrepreneurs

In the case of a DERA Entrepreneur the Resource Manager will have to ensure that the following additional criteria have been satisfied and evidence provided to the BAM and/or Sector Director in order that the required documentation can be produced. They must ensure that:

1. The Entrepreneur's business will not significantly detract from any part of DERA's business;
2. The Entrepreneur's business will be focused on opportunities that DERA would not otherwise want to pursue;
3. The individual has been informed that the Civil Service Management Code applies equally to this activity as with any other carried out by a DERA employee;
4. The necessary arrangements regarding intellectual property are in place;
5. The arrangement allows DERA to share the economic benefits of the exploitation of DERA technology;
6. The arrangement does not enable the Entrepreneur to make use of their position within DERA to further their own interests to the detriment of DERA and/or the taxpayer;
7. Potential conflicts of interest are understood and arrangements are in place to manage them; and
8. The necessary employment arrangements have been agreed.

In addition to the Business Appointments Form, the following documentation will need to be submitted to DERA Personnel Department for consideration by the DERA Probity Board:

1. A summary of the proposed venture, including the agreed employment arrangements (e.g Special Unpaid Leave, Part Time Working) and the proposed timescales;
2. A letter from the individual's Business Area Manager or Sector Director confirming that all of the above criteria have been satisfied;
3. A copy of agreed draft Licence Agreement (as appropriate).