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R&D programme evaluation in practice
The case of the UK

Presentation to the PIANIST Workshop, Paris 14th December 2005

Paul Simmonds
Director, Technopolis UK

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R&D programme evaluation

- UK public research administrations have a long tradition of programme evaluation
  - It is an integral part of modern public management
  - It is intended to satisfy both public accountability and a duty of continuous improvement
- Budget holders determine the "what", "how" & "when" of R&D programme evaluation
  - There is no legal requirement to evaluate *programmes*
  - No prescribed process or methodology
  - No prescribed budget

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UK government R&D expenditure

- Government's HE budget (€2bn)
  - Administered by Funding Councils
  - Recurrent funding to HEIs
  - Driven by Research Assessment Exercise
  - No programme budget
- Government' science budget (€3bn)
  - Administered by Research Councils
  - Competitive grants to academics
  - 30% expended through R&D programmes
- Government's policy and public services budgets (€2bn)
  - Administered by individual ministries, education to health
  - Competitive *procurement* of R&D service with contracts open to all and awarded on best value
  - Variable use of programmes, 20-80%
- Government's technology development budget (€0.5bn)
  - Administered by industry ministry and RDAs
  - Competitive grants for applied research awarded to most promising ideas, funded on a cost-shared basis
  - Programme/project split 70:30

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Governance

- Responsibility for R&D evaluation is distributed across ministries and agencies
  - There is no national governing body
  - There is no prescribed questions or process
- R&D budget holders define their own strategy
  - Evaluation questions, scope and methods tend to vary from one budget holder to another
- Good practice encouraged by periodic scrutiny
  - Departmental science reviews (4 yearly)
  - Quinquennial reviews of R&D agencies (5 yearly)
- Ad hoc scrutiny exists too
  - Parliamentary S&T select committees
  - National audit office
- Main *incentive* comes from Treasury
  - Treasury-Department 'contract' on Public Service Agreements (PSAs)
  - Comprehensive spending review (2 yearly) to look at future requirements, in light of past performance
  - Proof of past economic impact = case for future funding, including research

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UK applied research programmes

- Current situation
  - Science budget is much larger than applied research budget
  - For applied research, the favoured model is industry-science collaboration
  - Small number of applied research programmes, the TECHNOLOGY PROGRAMME and the GRANT FOR R&D

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Past evaluations of applied research

- DTI/OST
  - National
    - Carrier (1997)
    - Space (2000)
    - Smart (1996, 2001)
    - LINK programmes (15+, 1995-2001)
    - LINK Strategic Review (2002)
  - International
    - EUREKA (1996, 2003)
    - EU RTD FP (2000, 2004)

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Programme evaluation questions

- Standard areas of interest
  - Appropriateness
  - Effectiveness
  - Efficiency
  - Value for money
- Not three, but 30 questions
  - Evaluation is broad rather than deep
  - Large-scale surveys dominate
  - Participant feedback at heart of evidence
- Trends
  - Past 3 yrs: quantified assessment of *direct* economic impact
  - Current: quantified assessment of *indirect* economic impact (spillover)
  - Combine large-scale surveys with case studies, in pursuit of broad and deep

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Research methods

- Data collection methods
  - Almost always
    - Desk research (programme archives and files, monitoring database, baseline statistics)
    - Interviews
    - Participant survey
    - Case studies
  - Occasionally
    - Survey of control group
    - Peer review
- Data analysis techniques
  - Almost always
    - Distribution, frequency, composition analysis
    - Quasi-statistical analysis/content analysis
    - Qualitative analysis
    - Comparative analysis
  - Often
    - Statistical analyses (relationships, differences)
    - Expert judgment/interpretative
  - Occasionally
    - Econometric analysis
    - Research synthesis (meta analysis)

scope and timing

- Scope
  - Always
    - Sponsors
    - Participants
  - Often
    - Comparator schemes
    - Other stakeholders
  - Occasionally
    - Control group
- Timing
  - Always
    - Ex ante, as part of budget approval (internal, with external consultation)
  - Often
    - Ex post, to coincide with end of programme
  - Occasionally
    - Mid-term

Strengths of UK approach

- Clients confident in execution of R&D programme evaluation
  - Open and flexible as regards scope & timing
  - Quick and efficient process
  - Non-bureaucratic execution
- Strong supply base, with plenty of competition
- Counts of direct outputs and benefits (to the grantholders)
- Evidence base, as regards value for money, is *fit for purpose*

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Weaknesses

- Design choices
  - Evaluation tends to be tackled at end of programme, not part of programme design
  - Programmes rarely define baseline or measurable targets and indicators
  - Evaluations tend to be summative rather than formative, except on admin issues
  - Independence: R&D budget holders define evaluation spec and approve conclusions
- Deeper challenges
  - Measuring/testing the connection between particular R&D projects and programmes *and* the achievement of meso-level objectives
  - Decision makers poorly served by evaluation as regards where/how to invest in R&D

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Opportunities for improvement

- Practical things R&D administrations might do to improve M&E arrangements
  - Tackle evaluation design at outset, including definition of measurable objectives
  - Establish baseline
  - Strengthen programme monitoring
  - Employ control groups to understand net additionality
- Joint initiatives …
  - Develop better academic underpinning (proofs) of the potential of R&D
  - Develop better empirical evidence as regards when to use given instruments (calibration)
    - Research versus development
    - Programmatic versus generic instruments
    - Strategic versus response mode
    - Etc
  - Develop database/archive of international benchmarks for key parameters

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Outstanding questions

- Monitoring is becoming stronger, encroaching on areas where previously evaluation
- Do we re-define the role of programme evaluation, and where should we focus?
  - Accountability
  - Operational learning
  - Evaluation to measure/prove impact of R&D programmes
- *Good* impact assessment will need
  - Commitment to greater specificity as regards needs and targets
  - Commitment to ongoing measurement and monitoring a decade after the programme has completed
  - Periodic, wide-ranging surveys of the EU research-performing and research-using communities