Systems of internal peer review

Steff Hazlehurst - Head of Research & Consultancy Services, Institute of Education, University of London

Mark Smith – Research Manager, Institute for Science & Technology in Medicine, Keele University

1. Background

Peer review:

- Assessment of the scientific quality of funding proposals, and research results, by other senior academics or "peers"
- A linear process of stages, guidelines, ratings
- Usually written reports, but totally anonymous
- Variations by some disciplines and funders

Boden (1990), Royal Society (1995), RCUK (2007) reports all concluded peer review remains the most effective mechanism for funding decisions. Is there any other way?

Costs and benefits

Tensions surrounding peer review of grants:

- cost of reviewing UK Research Council applications alone is £196 million per annum (direct administration cost to RCs is £9.8m)

- annual number of proposals to Research Councils has doubled since 1988/89, and increased by 20% in the last nine years

- average Research Council success rates fell from around 41% in 1988/89 to around 28% in 2005/06 - RCUK aim is 20% - 50%

Some future options

RCUK has set out 4 possible future options:

- **Consolidation –** to increase the proportion of Research Council funding allocated to larger and/or longer grants
- **Institutional-level Quotas –** to introduce quotas either for all institutions or for those with particularly poor success rates
- **Controlling resubmissions –** to introduce processes that limit the recycling of proposals within the system
- **Outlines –** to deploy an outline-bid stage for responsive-mode grant schemes

Research Councils UK, October 2006

2. Internal Peer Review – why introduce it?

Some reasons to use internal peer review in such a competitive environment:

- raising quality and "hit-rate",
- supporting and developing researchers,
- rationing internal support resources,
- it's required for some funding schemes,
- RCUK 2006 Report on peer review and its potential options and implications.

OR, Internal Peer Review – why introduce it?

More… **Less…**

Sorry, no quick fixes!

What do we mean by internal peer review?

- "Internal" might mean
  - Institution or Faculty level (depends on HEI)?
  - School/Department/Research Centre level?
  - Research Group level?
- "Peers" might be within the applicant(s)' discipline, sub-discipline or just broad area?
- "Review" process: formal or informal? written or face-to-face? anonymous?

What might be involved?

Set up an additional stage in the grant application process in an institution/faculty:

- Decide what needs to be achieved
- Find (willing!) reviewers in the right areas
- Train reviewers, and applicants too
- Tools required (expertise database, list of staff/specialities, just knowing everyone?)
- Monitor whether it adds value or not

Who runs it?

Who champions and/or polices the review system and how is it perceived?

- Academic colleagues (own mutual benefit?)

- Senior academic staff (quality control?)

- Administrative staff (an extra admin step?)

- Senior management (rationing resources?)

Buy-in to, and benefit from, internal peer review depends on **_perception_ of the value it adds**

Discussion points

That is the context: what are the pros and cons of the various points?

For example, depending on the reason for introducing internal peer review, nature of the organisation?

3. Case studies: two examples

1. Institute of Education – a specialist post-graduate, pre-1992 institution, part of the University of London. £17M grant & contract income, £8M QR. Internal peer review in place since before 1999, operated centrally.

2. Keele University – a small, campus based, pre-1992 University, established 1949, 9000+ UG students, 7 Research Institutes. £10M grant & contract income. Uses internal peer review at RI level throughout since 2005.

Case study 1 – IoE, London

- Specialist college within federal University of London
- 12 academic schools (reorganising into 3 faculties September 2007)
- 6000 post graduate students, 800 staff (~## academic, ## researchers)
- "Leading education and social research"
- £17 million G&C income 2005/06, £8 million QR
- 250 projects during year, >200 proposals

Internal peer review system

- Two-stage process – School-level and Institute-level
- In place since 1990s
  - School-level formalised after last restructuring
- IoE level
  - All Research Council bids
  - Other strategically important funders
    - These have varied over time
  - Strategically important calls
    - Where we might submit multiple bids

Institute Procedures for Research Grant Applications

Think about fit of funders' needs/interests and your own, and whether you have time to write proposal and do project

Page length and structure requirements in case for support

Signatures, administrative and legal documents

Think about the resources and time you would need

Consider funding arrangements and financial desirability of bidding

Info received about funding opportunity

→ Decide to bid →

Read documentation and identify all the elements of the proposals

Registration with electronic systems

→ Plan research and draft proposal →

Talk to research administrator about budget, additional documents, and submission process

Make sure you have an active 'registered' Je-S account

→ Ask School colleagues to comment on draft

Make further iterative revisions as needed

Revise proposal in the light of budget draft and colleagues' advice

Allow three weeks plus time for revisions

Revise proposal (and budget if necessary)

Send to Dean of Research for internal review

← ESRC / AHRC bids ←

← Other strategically important/major bids ←

Collect signatures and arrange despatch

← Bid submitted

Enter and authorise on PRECIS

Complete risk assessment

← Collate all parts of the proposal

← Other bids ←

Check carefully it's complete, spell-checked, proof read, meets length & font size restrictions, and all questions are answered

Check all additional documents

Key

▭ = stage in process for all proposals

▭ = stage in process for Research Council proposals

✦ = advice

Version 1.0
February 2007

School level review

- Ensuring it fits with School research strategy

- Academic quality

- Any ethics issues?

- Willingness to subsidise sub-FEC priced work

Institute level review

- Near-final draft submitted to Assistant Director for Research

- Recorded on tracking spreadsheet

- Sent to two internal reviewers with subject knowledge and/or funder knowledge

- Responses requested in two weeks (or less if deadline is pressing)

- No forms, email based; may or may not be anonymised

- Concentrate on academic quality – leave the budget and justification to administrators

Does it work?

- We have a high success rate
- It should help improve the quality of the proposal and benefit the individual and the Institute – and applicants (at all levels of experience) often are grateful for the help received
- It does stop, or delay, poor-quality proposals going forward

But…

- With pressing deadlines or the assurance of seniority, the process may be bypassed
- How do we check whether recommendations are implemented?
- What about collaborations where we aren't lead partner?
- We don't want to discourage people by rejecting their proposals…

Some issues we need to think about

- Balance of academic/administrative responsibility for overseeing process
- Who decides who the reviewers are? How? What if they aren't available?
- The burden of reviewing tends to fall on a small number of colleagues – how can we change this whilst retaining quality of system?

Case study 2 – ISTM, Keele

Institute for Science & Technology in Medicine:

- Research Institute of approx 75 members.
- Biomedical engineering, stem-cells, genomics, bio-magnetics, neuroscience, tropical diseases
- RAE 5(A) and 5*(A) ratings in 2001 and 1996
- External research income £2.8M in 2005/06
- Four internal "theme heads" as peer reviewers
- 144 applications made last year, about half went through internal peer review before submission.

Internal Peer Review Process follows a flow chart:

Research Grant Application completed by Principal Applicant (ISTM member) and Co-Applicants (other RIs, NHS)

Writing stage

Costing stage

(Writing and Costing stages proceed in parallel)

Grant Application sent by Principal Applicant to ISTM Theme Head

ISTM Theme Head reads and comments on Application

ISTM Theme Head comment and approval stage:

ISTM Theme Head returns Application to Principal Applicant for revision or rewriting

No ← Is Application of fundable quality and submittable? → Yes

ISTM Theme Head returns Application to Principal Applicant for submission

For non-electronic applications only: Principal Applicant completes Keele form RGA

Principal Applicant checks availability of Director of ISTM to sign off the Application

ISTM Theme Head will assess and comment on:
- Strategic fit to ISTM and theme research strengths
- Scientific quality (as far as their specific expertise allows)
- Composition of the project team
- Argument made in the Case for Support
- Timing of the Application

Principal Applicant sends Application to Dean of Health Faculty

No ← Is Director of ISTM available to sign by deadline? → Yes

Principal Applicant sends Application to Director of ISTM

ISTM Director or Dean of Health Faculty approval stage:

ISTM Director or Dean of Faculty will approve that:
- Application is of sufficient overall quality
- Application fits research plans of the RI and Faculty
- Staff can spend allotted amount of time on research

(Dean will also sign if Principal Applicant is the Director of ISTM)

Director of ISTM or Dean of Faculty reads Application or receives it electronically

Director of ISTM (or Dean of Faculty) returns Application to Principal Applicant

No ← Is Application of fundable quality, suitably costed? → Yes

Director of ISTM (or Dean of Faculty) ink signs or electronically submits the Application to Research Services

For non-electronic applications only: Director or Dean signs Keele form RGA and send to Research Services Office

Director or Dean's office takes photocopy of Application for ISTM records and sends to Research Manager

Principal Applicant identifies the resources with ISTM RI Manager

ISTM RI Manager costs resources needed for project in Application

Yes ← Is Application fully FEC costed (within ceiling)? → No

ISTM Research Manager sends FEC and specific cost estimates to the Principal Applicant, for application form

ISTM Research Manager returns budget to the Principal Applicant for revision or rewriting

ISTM Research Manager has the FEC and specific cost estimates approved by Finance Department and electronically copied to Research Services Office

ISTM Research Manager will check and comment on:
- Fit of application to funder's priorities
- Accuracy of costing and pricing
- All parts of the Application are present
- Method of submission (paper/electronic)

Keele Research Services Office approval stage:

Keele Research Services Office on behalf of the University, in conjunction with Finance Department, will approve that:
- Application is submitted from a Research Institute member
- Application meets Keele's rules and guidelines on research
- Proposed Funder of the Application has acceptable conditions
- Application is correctly costed and priced under TRAC methodology

Research Services Office authorises Application on behalf of the University by electronic submission or ink signature

Yes ← Is final Application:
- compliant to Keele and funder's rules?
- fully costed/ FEC? → No

Research Services Office returns the Application and budget to the ISTM Research Manager

Research Services Office take photocopy of Application for Keele records

Research Services Office logs Application on Keele research database

Institute for Science & Technology in Medicine Research Institute Grant Approval Flow Diagram

Mark Smith (May 2007)

Application is submitted to the Funder by Keele's Research Services Office

INTERNAL PEER REVIEW OF APPLICATION

Research Grant Application completed by Principal Applicant (ISTM member) and Co-Applicants (other RIs, NHS)

Writing stage

Costing stage

(Writing and Costing stages proceed in parallel)

Grant Application sent by Principal Applicant to ISTM Theme Head

ISTM Theme Head reads and comments on Application

ISTM Theme Head comment and approval stage:

ISTM Theme Head returns Application to Principal Applicant for revision or rewriting

Is Application of fundable quality and submittable? — No / Yes

ISTM Theme Head returns Application to Principal Applicant for submission

For non-electronic applications only: Principal Applicant completes Keele form RGA

Principal Applicant checks availability of Director of ISTM to sign off the Application

ISTM Theme Head will assess and comment on:
- Strategic fit to ISTM and theme research strengths
- Scientific quality (as far as their specific expertise allows)
- Composition of the project team
- Argument made in the Case for Support
- Timing of the Application

Principal Applicant sends Application to Dean of Health Faculty

Is Director of ISTM available to sign by deadline? — No / Yes

Principal Applicant sends Application to Director of ISTM

Principal Applicant identifies the resources with ISTM RI Manager

ISTM RI Manager costs resources needed for project in Application

Is Application fully FEC costed (within ceiling)? — Yes / No

ISTM Research Manager sends FEC and specific cost estimates to the Principal Applicant, for application form

ISTM Research Manager returns budget to the Principal Applicant for revision or rewriting

ISTM Research Manager has the FEC and specific cost estimates approved by Finance Department and electronically copied to Research Services Office

ISTM Research Manager will check and comment on:
- Fit of application to funder's priorities
- Accuracy of costing and pricing
- All parts of the Application are present
- Method of submission (paper/electronic)

ISTM Director or Dean of Health Faculty approval stage:

ISTM Director or Dean of Faculty will approve that:
- Application is of sufficient overall quality
- Application fits research plans of the RI and Faculty
- Staff can spend allotted amount of time on research

(Dean will also sign if Principal Applicant is the Director of ISTM)

Director of ISTM or Dean of Faculty reads Application or receives it electronically

Director of ISTM (or Dean of Faculty) returns Application to Principal Applicant

Is Application of fundable quality, suitably costed? — No / Yes

Director of ISTM (or Dean of Faculty) ink signs or electronically submits the Application to Research Services

For non-electronic applications only: Director or Dean signs Keele form RGA and send to Research Services Office

Director or Dean's office takes photocopy of Application for ISTM records and sends to Research Manager

Keele Research Services Office approval stage:

Keele Research Services Office on behalf of the University, in conjunction with Finance Department, will approve that:
- Application is submitted from a Research Institute member
- Application meets Keele's rules and guidelines on research
- Proposed Funder of the Application has acceptable conditions
- Application is correctly costed and priced under TRAC methodology

Is final Application:
- compliant to Keele and funder's rules?
- fully costed/ FEC? — Yes / No

Research Services Office authorises Application on behalf of the University by electronic submission or ink signature

Research Services Office returns the Application and budget to the ISTM Research Manager

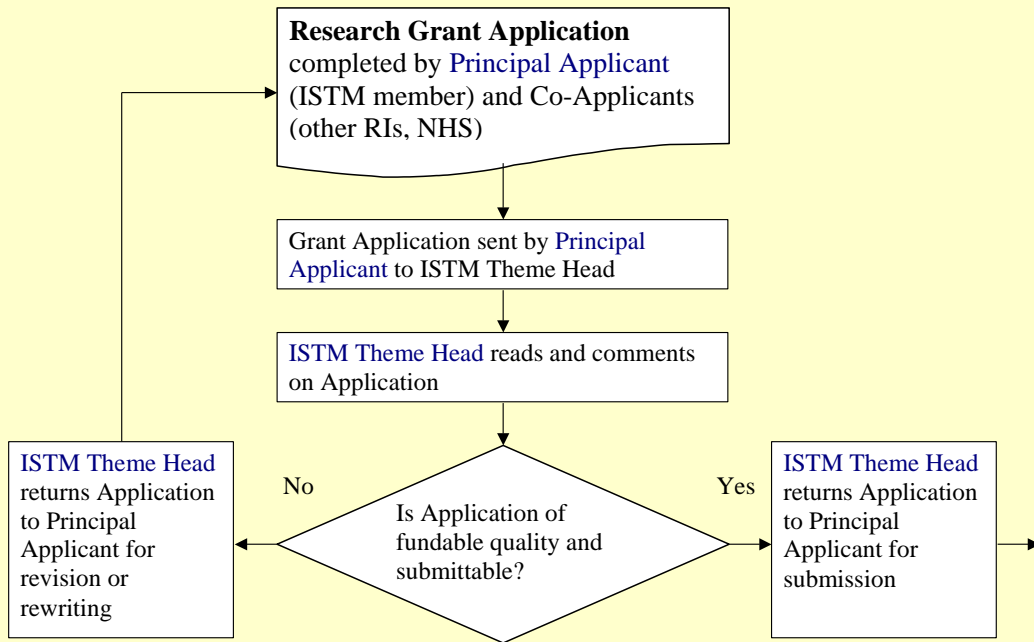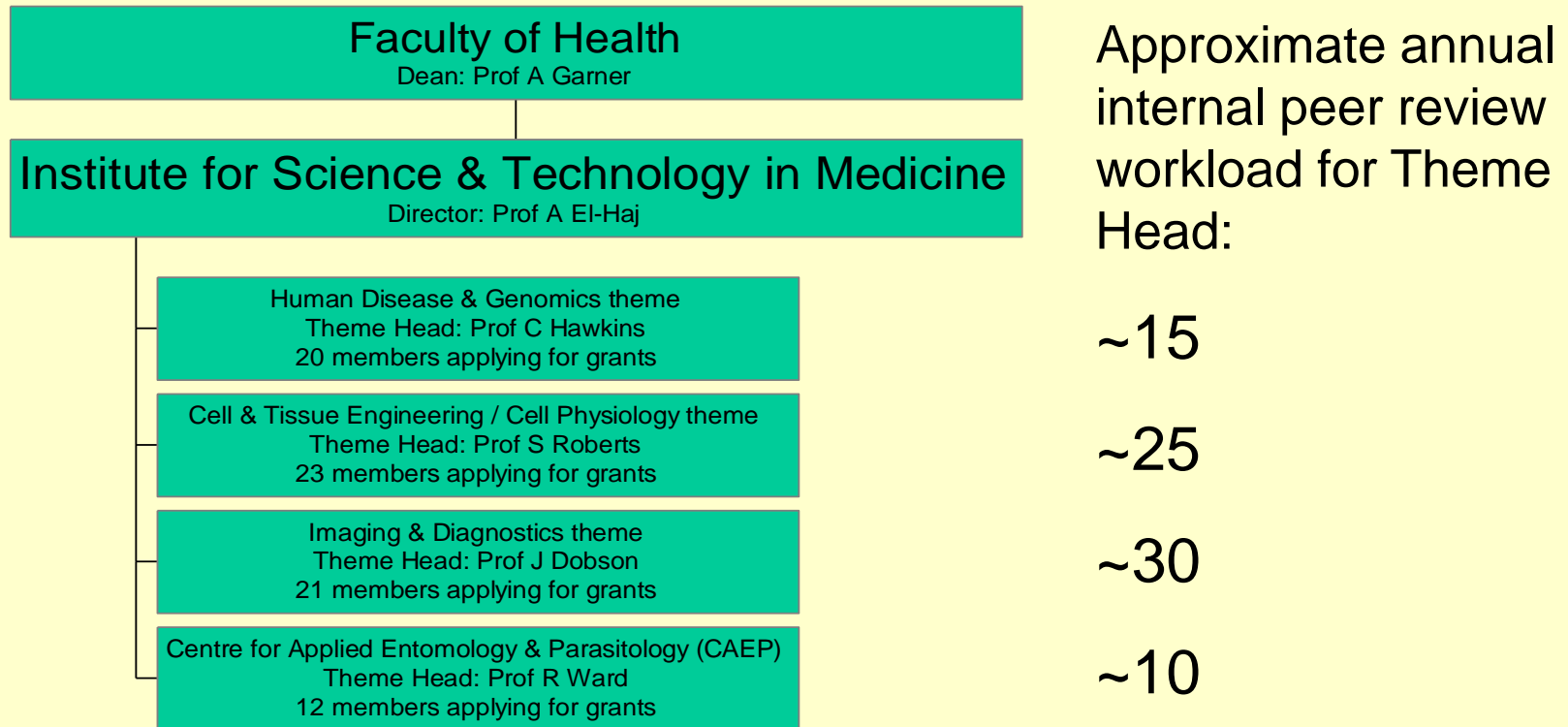Research Services Office take photocopy of Application for Keele records

Research Services Office logs Application on Keele research database

**Institute for Science & Technology in Medicine
Research Institute Grant Approval Flow Diagram**

Mark Smith (May 2007)

Application is submitted to the Funder by Keele's Research Services Office

ISTM Theme Head will assess and comment on:

Research Grant Application completed by Principal Applicant (ISTM member) and Co-Applicants (other RIs, NHS)

↓

Grant Application sent by Principal Applicant to ISTM Theme Head

↓

ISTM Theme Head reads and comments on Application

↓

Is Application of fundable quality and submittable?

No → ISTM Theme Head returns Application to Principal Applicant for revision or rewriting

Yes → ISTM Theme Head returns Application to Principal Applicant for submission

ISTM Theme Head comment and approval stage:

- Strategic fit to ISTM and theme research strengths

- Scientific quality (as far as their specific expertise allows)

- Composition of the project team

- Argument made in the Case for Support

- Timing of the Application

ISTM Grant Applications made: August 2005 to July 2006 (£):

ISTM Theme	n	Application value per head	Application total value	Success rate by value	Application total number	Success rate by number
Human Disease & Genomics	20	209,683	4,193,655	56%	42	71%
Cell & Tissue Engineering /CP	23	250,432	5,759,928	21%	44	50%
Imaging & Diagnostics	21	680,582	14,292,226	9%	40	45%
CAEP	12	163,767	1,965,207	18%	18	56%
Average for all ISTM / Totals	**76**	**344,882**	**26,211,017**	**20%**	**144**	**56%**

We expect all project grants and fellowships to go through internal peer review, but not commercial contracts, clinical trials, small grants or travel grants under around £50,000.

ISTM Themes used for internal peer review

Faculty of Health
Dean: Prof A Garner

Institute for Science & Technology in Medicine
Director: Prof A El-Haj

Human Disease & Genomics theme
Theme Head: Prof C Hawkins
20 members applying for grants

Cell & Tissue Engineering / Cell Physiology theme
Theme Head: Prof S Roberts
23 members applying for grants

Imaging & Diagnostics theme
Theme Head: Prof J Dobson
21 members applying for grants

Centre for Applied Entomology & Parasitology (CAEP)
Theme Head: Prof R Ward
12 members applying for grants

Approximate annual internal peer review workload for Theme Head:

~15

~25

~30

~10

The 4 ISTM Theme Heads were chosen by their theme members. They are experienced external peer reviewers and take an overview of all research plans in their theme.

Why did we introduce it at Keele?

- In some areas (not ISTM) quality and "hit-rate" were quite low to certain funding categories.

- We have many career-young and overseas researchers (especially in ISTM), who need support and development, and they welcome input from willing experienced researchers.

- Funding strategy was rare at department level.

- We have limited internal central support resources, but had 7 new managers at RI level

- New Deputy V-C proposed it was a good idea!

Features of the process at ISTM, Keele

- An informal system by e-mail and/or a meeting.
- Offers general comments from a theme head: advice to add quality, not bureaucracy
- Comments cover: argument for the science and resources, presentation, management, collaborative team, timing.
- Not required for a theme head's own projects.
- No forms, but substantive comments are usually filed with the application.
- Prompted by the RI Manager when necessary!

Does it work at Keele?

- In ISTM it has been very useful in supporting and developing career-young and overseas staff – everyone has a peer to review and guide them.
- Timing is crucial – reviews too early or too late in the grant preparation process are useless.
- Theme heads find their expertise over-stretched.
- Works better with science staff than clinical staff
- Sometimes e-mailed comments are not copied to the RI Manager and therefore not recorded.
- Several applications have been stopped or totally rewritten as a result of internal peer review.

Other case studies

Any other significantly different case studies from the floor?

- What do other institutions do and how does it compare to case studies 1 and 2?

Exercise

'Design a system that works for you'

Please form small groups and discuss the most suitable internal peer review system for either:

- An entire faculty with centralised admin

- A small focussed department

4. Does it work?

What are the best measures of success?

1. Evidence of improvement of grant hit-rate
2. Improved confidence in the quality of bids
3. Internal Reviewers think it is worth the time-cost for them
4. Applicants think it adds value not delay and bureaucracy to their applications
5. More £$€, less work

References and sources:

Emecz A, Millward C, Owenson G, Grubb G, Peatfield A, Parker J, LeMasurier A and Miller D (2006) "**Report of the Research Councils UK Efficiency and Effectiveness of Peer Review Project"**, Research Councils UK, October 2006 (http://www.rcuk.ac.uk/cmsweb/downloads/rcuk/documents/rcukprreport.pdf)

Scott P (2005) **"Peer Review Demystified – a personal view",** EPSRC (http://www.epsrc.ac.uk/ResearchFunding/AssessingProposals/PeerReviewDemystified.htm)

Parliamentary Office of Science & Technology (2002): **"Peer Review",** Postnote No182 September 2002   (http://www.parliament.uk/post/pn182.pdf)

Royal Society (1995) **"Peer Review – An assessment of recent developments"** (http://www.royalsoc.ac.uk/displaypagedoc.asp?id=11423)

Kassirer JP & Campion EW (1994) **"Peer Review: Crude and Understudied, but Indispensable",** *JAMA.* 1994;272:96-97 (invited paper to the International Congress on Biomedical Peer Review and Scientific Publication) (http://www.ama-assn.org/public/peer/7_13_94/pv3089x.htm)

Boden, M. (1990) **"Peer Review: A Report to the Advisory Board for the Research Councils from the Working Group on Peer Review"** ABRC