Evaluation of SFI's Peer Review Processes

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Dr. Steve Meacham, Senior Staff Associate, Office of International and Integrative Activities, U.S. National Science Foundation.

SFI appreciates the positive evaluation of our peer review processes and has been working to address the recommendations, details of which can be found in the recommendations and actions section.

Evaluation of SFI's Peer Review Processes

Scope, Terms of Reference and Methodology of the Review

Objective of the Review

This review was focused on an assessment of the peer review and award decision procedures currently employed by Science Foundation Ireland (SFI). The objective of the review was to evaluate the appropriateness of these procedures employed by SFI and whether these procedures are fit for purpose and are aligned with international guidelines and best practice.

The 2013 call of the Investigators Programme was selected for evaluation. The peer review procedures agreed by the European Science Foundation (ESF)[1] as well as the Principles for Scientific Merit Review endorsed at the May 2012 Global Summit on Scientific Merit Review[2] provided the requisite benchmarking. These are outlined in Table 1.

Table 1: The peer review procedures agreed by the European Science Foundation (ESF) as well as the Principles for Scientific Merit Review endorsed at the May 2012 Global Summit on Scientific Merit Review.

	ESF Pillars of Good Practice	Global Summit Principles
1	**Excellence** Projects selected for funding must demonstrate high quality in the context of the topics and criteria set out in the calls. The excellence of the proposals should be based on an assessment performed by experts. These experts, panel members and expert peer reviewers should be selected according to clear criteria and operate on procedures that avoid bias and manage conflicts of interest.	**Expert Assessment** Collectively, reviewers should have the appropriate knowledge and expertise to assess the proposal both at the level of the broad context of the research field(s) to which it contributes and with respect to the specific objectives and methodology. Reviewers should be selected according to clear criteria.
2	**Impartiality** All proposals submitted must be treated equally. They should be evaluated on their merits, irrespective of their origin or the identity of the applicants.	**Impartiality** Proposals must be assessed fairly and on their merit. Conflicts of interest must be declared and managed according to defined, published processes.
3	**Transparency** Decisions must be based on clearly described rules and procedures that are published *a priori*. All applicants must receive adequate feedback on the outcome of the evaluation of their proposal. All applicants should have the right to reply to the conclusions of the review. Adequate procedures should be in place to deal with the right to reply.	**Transparency** Decisions must be based on clearly described rules, procedures and evaluation criteria that are published *a priori* – Applicants should receive appropriate feedback on the evaluation of their proposals
4	**Appropriateness for purpose**	**Appropriateness**

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[1] *http://www.esf.org/fileadmin/Public_documents/Publications/European_Peer_Review_Guide_01.pdf*
[2] *http://www.globalresearchcouncil.org/statement-principles-research-integrity*

	The evaluation process should be appropriate to the nature of the call, the research area addressed, and in proportion with the investment and complexity of the work.	The review process should be consistent with the nature of the call, with the research area addressed, and in proportion to the investment and complexity of the work	
5	**Efficiency and speed** The end-to-end evaluation process must be as rapid as possible, commensurate with maintaining the quality of the evaluation, and respecting the legal framework. The process needs to be efficient and simple.		
6	**Confidentiality** All proposals and related data, intellectual property and other documents must be treated in confidence by reviewers and organisations involved in the process. There should be arrangements for the disclosure of the identity of the experts.	**Confidentiality** All proposals, including related data, intellectual property and other documents, must be treated in confidence by reviewers and organizations involved in the review procedures	
7	**Ethical and integrity considerations** Any proposal which contravenes fundamental ethical or integrity principles may be excluded at any time of the peer review process.	**Integrity and Ethical Considerations** Ethics and integrity are paramount to the review process	

Scope of the Review

As outlined above, the scope of this review was focused on an assessment of the peer review and award decision procedures currently employed by SFI. Activities that are complementary but were outside the scope of this review include: (i) Review of the strategic objectives of individual programmes; (ii) Audit of adherence to programmatic SOPs; (iii) Post-award evaluation of the outputs and outcomes (impacts) arising from SFI's funded research, including the execution of mid-term site reviews; and (iv) Evaluation of the attainment of targets defined for key performance indicators (KPIs) as outlined in SFI's strategy, Agenda 2020.

Terms of Reference

An independent review was undertaken to look at:

- The nature and appropriateness of the expert advice SFI seeks on research proposals
- How this advice is solicited and how it is utilised to inform grant funding decisions
- To what extent this process has the confidence of the community
- How SFI's review process compares with that in other funding agencies in terms of transparency and timeliness

Methodology

A committee of experts was appointed from international funding agencies and international reviewers with extensive experience of peer review.

An internal secretariat assisted the committee with the practical tasks that the evaluation gives rise to and conducted surveys to be evaluated by the committee.

The Investigators programme (IvP) 2013 was the proposed programme call which was reviewed by the committee as this call contained many of the key elements of peer review used by SFI including remote panel review, remote postal review, and on-site panel review. In addition, the focus on excellence with impact for IvP 2013 made it a suitable programme to review in light of the increasing focus on impact review for SFI programmes. It should be noted however that the sample size for an individual call is small in comparison with similar calls run by international agencies in larger jurisdictions including, for example, the EPSRC (UK) and the NSF (US). In future reviews of programmes that have run through several cycles, it may be more appropriate to evaluate several calls together.

Methodology included self-evaluation, desk-based analysis, interviews with SFI scientific staff, interviews with members of the SFI Executive Committee and members of the SFI Board sub-committee - the Grant Approval Committee (GAC) - (past and present) as well as interviews with a cross-section of the research community who underwent peer review as part of IvP 2013, including both successful and non-successful applicants.

The committee convened at SFI offices for an overview meeting to discuss the task and the process, after which they received the documentation for remote evaluation. Once this was complete, the committee convened again at SFI offices to discuss their findings and to conduct interviews with a sample of applicants, programme staff, GAC members, SFI Executive Committee members and panel reviewers, after which they wrote their report. Once complete, the SFI Programmes Directorate devised actions in response to the recommendations. The GAC considered the report and recommendations, and presented the proposed actions to the SFI Board. The SFI Board reviewed the report, the recommendations and the actions and approved SFI programme staff to proceed with implementation of the proposed actions.

In the context of the Terms of Reference outlined above the review committee was requested to consider the following questions:

- *Are the programme review criteria appropriately aligned with the call and programme objectives (including appropriate level of risk, appropriateness to career stage etc.)?*
- *Is the selection of international reviewers appropriate?*
- *Is there appropriate and diverse technical expertise present on review panels?*
- *Given the difficulties of securing a balanced panel regarding participation by women and other minority groups, what recommendations do the panel have to improve upon this?*
- *Is there appropriate diversity of reviewers in relation to career stage, geography and rotation of reviewers (not too frequent use of same reviewers)?*
- *Are appropriate and high quality guidelines and documentation provided to reviewers (Code of Conduct, programme objectives, programme review criteria etc.)?*
- *Is the peer review process open and transparent?*
- *Are conflicts of interest appropriately managed and declared?*
- *Is confidentiality managed effectively with respect to applicants and the review process?*
- *Is the feedback to applicants and reviewers appropriate?*

- *Are the appropriate levels of peer review utilised and are they reflective of the varying need for timeliness, expertise and independence. In addition, do they take into account the available resource?*
- *Does the panel have recommendations for shortening the timelines from submission to decision, consistent with a high standard of review? Is real-time feedback sensible?*
- *Are there alternative technology solutions for managing the review of proposals?*
- *Are complaints managed appropriately at all stages of the process?*
- *Are there adequate in-house scientific capabilities and training of scientific and administrative staff?*
- *Is the appropriate documentation provided to decision makers?*
- *Is there adequate transparency of success rates?*
- *Is there inclusion of reviewer feedback steps including applicant response, redress or appeals procedures?*
- *Is there adherence to Reviewer Code of Conduct?*
- *How are the reviews used to inform decisions and what additional factors other than the panel rank order list are considered in the decision-making process.*
- *Currently SFI do not publicise the names of panel members used for reasons of confidentiality. Should this be done in order to enhance the transparency of the peer review process*?

Peer Review Evaluation Group's recommendations and SFI response

The recommendations of the Group have been aligned with the *relevant* headings of the European Science Foundation Pillars of Good Practice, as listed in the Terms of Reference. Namely Transparency, Impartiality, Excellence, Ethical and Integrity considerations, Efficiency and Speed. SFI's agreed action to support the recommendations is outlined in the table below.

	Review Group's Recommendations	Agreed action to support recommendation	Status
	Transparency Decisions must be based on clearly described rules and procedures that are published a priori. All applicants must receive adequate feedback on the outcome of the evaluation of their proposal. All applicants should have the right to reply to the conclusions of the review. Adequate procedures should be in place to deal with the right to reply.		
1	*While Science Foundation Ireland (SFI) maintains a high-level strategic plan (currently, Agenda 2020) this does not provide clear guidance to the research community on how SFI plans to allocate funds between research areas. SFI should develop a research funding strategy to inform its funding decisions; for example, decisions about how to allocate funds between topic panels. The funding strategy document should contain overall aims, with measurable objectives, key performance indicators and information on how funding will be allocated to the different research areas. This document should be published. The document should align with national research priorities, the Irish government's research strategy, and with Agenda 2020. The document should be updated periodically*	**SFI communicates the annual plan for a given year in the following ways:** **At the SFI Summit** At the SFI Summit every year, the Director General outlines to the community, the annual plan for programme calls for the coming year. **Annual plan is published on the website** The annual plan is made available on the SFI website each year. **Schedule of calls for a given year is published on the website** The schedule of calls is made available in the FUNDING section on the SFI website. **Success Rates are published for repeat deadline calls** For repeat deadline calls such as IvP, CDA, SIRG, success rates for the previous call are published with call documentation on the SFI website.	Complete
2	*SFI should produce a clear, documented policy on the involvement of the Executive Committee (EC) and Grant Approval Committee (GAC) in the funding decision process. This document should make it clear that EC and GAC are not bound to follow the funding recommendations of the peer review panels, provided that deviations are*	It was noted that the **Executive Committee** follows the recommendations of peer reviewers except, in exceptional circumstances, where there is concern that an application has been unfairly evaluated and this could result in a	Complete by 2017 in line with call launches

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	well aligned with SFI's research funding strategy and current objectives, and that the justification is documented in the record (which is the practice that the Group observed). A description of the decision-making process should be published, so that the research community is aware that the decision making process is multi-factorial.	change in priority ranking of a proposal. In terms of the role of the **GAC**, it was noted that the GAC reviews the process followed for fairness and adherence to prescribed procedures, it does not conduct an independent technical evaluation. SFI uses **Standard Operating Procedures (SOPs)** for the processes undertaken. These are now being published on the call specific websites when a call launches. As calls launched in 2016, SOPs relating to the review process are made available to the community. For example, the process flow for CDA can be found on the programme website and for other programmes, SOPs will be uploaded to the specific programme website as calls launch. **Webinars:** Webinars are held once a call has launched to give an overview of the programme objectives, eligibility criteria, application process and review process. Programme owners are giving more focus to the review process to ensure that applicants understand the decision-making process for the programme.	
3	*SFI should study the feasibility of publishing a list of panel members once all funding decisions for a particular call or year are complete; for example, a list of all panellists who reviewed for SFI in the course of a year. Such a study might include a survey of panellists to determine what impact such a step would have on their willingness to participate as panellists and on the content of their reviews. The Group supports SFI's decision not to publish the names of postal reviewers*	**Publish panel members' names** It has been agreed that SFI would publish within the Annual Report, the names of reviewers who participated in sitting panels for SFI. This will take the form of a consolidated list of reviewers employed across all programmes in a given year and is planned for calls launching in 2016 / 2017.	This activity requires a full cycle of programmes to implement. Target completion for Annual Report 2016 and 2017.
4	*SFI should provide more comprehensive panel scribe notes as feedback to applicants. In particular, these notes should summarise how applicants' rebuttal statements were weighed against the comments expressed by postal reviewers.*	The scribe summary note prepared during a panel meeting, is supplementary to the panel reviews. The SFI Programmes team have been working to provide more comprehensive scribe summaries.	Complete. Implemented for IvP, CDA and SIRG 2015 reviews and will continue for future panels.

		Specifically, for the **IvP2015 Stage 2 panel**, the team briefed the panel (via webinar) on the programme objectives, on the review process and on impact, in advance of them receiving the applications for review *as well* as at the start of the sitting panel meeting. The need to comment on the quality of the applicant response was emphasised to the panel which resulted in discussion of this aspect and allowed technical staff to complete more structured scribes incorporating reference to the quality of the applicant response to the postal reviews.	
5	*To educate the community on the decision-making that leads to the award of research funds, SFI should run mock peer review panels with members of the research community. If sufficient prior applicants are willing, it would be helpful if actual proposals (after their review has been completed) could be used for this activity.*	Due to the lack of sufficient resources, it is not possible for SFI to run **mock panels** at this time. SFI has devised a number of strategies to ensure that applicants are better educated in relation to peer review: **Participation in peer review** SFI is continuing to encourage the research community to participate in international peer review and have communicated calls for expressions of interest to participate in peer review for Wellcome Trust, BBSRC, EPSRC and H2020. **Pre-award information sessions** Members of the pre-award team have held information sessions, clinics on SFI's various programmes in some universities around the country, and will continue to do this. These information sessions give researchers an opportunity to gain greater understanding of SFI's peer review processes. In addition, the Programmes Directorate have held a workshop for Research Office staff with presentations on remit, impact, eligibility, budget policy and the review process so that they are better equipped to support their community in their applications to SFI programmes. **Webinars/SOPs** As discussed above, greater information on the review process for	Complete by end 2016 with briefing sessions

		each programme is being included on programme webpages, in call documents and in webinars.	
6	*SFI should publish success rates per programme either on an annual basis or once funding has been allocated for a particular call. Additionally SFI should publish annual overall success rates.*	As outlined above, for repeat deadline calls such as IvP, CDA, TIDA, SIRG, success rates for previous call are published with call documentation on SFI website as calls launch.	Complete for IvP and CDA and will roll out as new calls launch
	Impartiality All proposals submitted must be treated equally. They should be evaluated on their merits, irrespective of their origin or the identity of the applicants.		
7	*SFI should take concrete steps to improve the diversity of its review panels with respect to: gender, ethnic origin, career stage and geographical location*	SFI works to ensure that the most appropriate reviewers are invited to assess specific proposals but we recognise that more needs to be done in relation to panel diversity. **Unconscious bias training** SFI staff have undergone unconscious bias training. We are now explicitly communicating the topic of unconscious bias as part of the briefing to our sitting panels, and this is being received positively. **Gender diversity** SFI Gender strategy has defined a target that 40% of SFI reviewers should be female. Technical staff are working to improve the gender diversity of reviewers used by SFI. One third of the SIRG/CDA 2015 ICT Panel was female and for the TIDA 2016 Panel 50% of the reviewers were female. **Ethnic diversity** It is felt that we currently have strong ethnic diversity of reviewers, and geographical diversity of reviewers needs to weighted against cost for our sitting panels.	Targets defined and working to implement
8	*SFI should refrain from providing panellists with summaries of reviewer comments but continue to provide them with verbatim copies of the reviews, as is currently done.*	SFI scientific staff prepare overview documents of applications received including a summary of reviewer comments. It was considered useful as briefing material for the decision making committees and was	Complete

		important for review procedures, such as one-off applications submitted to rolling calls. **Review summaries** For IvP 2015, review summaries were not circulated to the sitting panel. Review summaries were, however, completed by technical staff for the Executive Committee, the Grant Approval Committee and the Board and are a useful record in-house, for example for post-award team members who will take on management of the award.	
9	*The Group noted that the proportion of applicants who are women varies considerably between Research Organisations. It recommends that SFI engage in vigorous outreach to those institutions where the proportion of female applicants is significantly lower than normal.*	This is being addressed in SFI's new gender strategy	Ongoing

Excellence

Projects selected for funding must demonstrate high quality in the context of the topics and criteria set out in the calls. The excellence of the proposals should be based on an assessment performed by experts. These experts, panel members and expert peer reviewers should be selected according to clear criteria and operate on procedures that avoid bias and manage conflicts of interest.

10	*As part of the peer review of research proposals, reviewers asked to comment on scientific merit should also be asked to comment on the potential impact of the proposed research. Additionally, to assist SFI in its decision-making, scientists commenting on the potential impact of the proposal should be asked to provide, in a section of the review that is not forwarded to the applicant, details of their relevant experience that is specific to the impact commentary provided*	This recommendation relates to the review of impact and specifically the ability of scientific reviewers to comment on impact. Scientific reviewers have evaluated impact at an early stage in the IvP process. whilst Postal reviewers were required to focus purely on scientific review. In addition, the sitting panels, during the briefings as described above, were directed to provide input on both excellence and impact aspects as appropriate, and both scientific and impact reviewers discussed all aspects of the applications during the panel meeting. **Reviewing impact in IvP 2016** As a result of this recommendation, the review process has changed for IvP 2016 whereby the postal reviewers will comment both on the science and the impact of the proposed research, and applicants will	Action implemented. Complete following IvP 2016 review

		have an opportunity to respond in an expanded applicant response document.	
11	*Written reviews of full proposals by impact reviewers should be prepared in the same window of time as the written reviews of the research in the proposals and then provided to applicants with the technical reviews. In their written response, the applicants should have the opportunity to respond to both the impact and the technical reviews.*	**Process for IvP 2016** As stated previously, for IvP 2016 the postal reviewers will comment both on the science and the impact of the proposed research. This will then enable the applicants to respond to comments from postal reviewers on impact as well as science in their applicant response. In addition, the sitting panel will be chosen such that panellists will have expertise to assess both scientific as well as impact aspects of the proposal and reviews.	Action implemented. Complete following IvP 2016 review
12	*SFI should examine the wording of the review criteria and consider whether changes can be made to reduce ambiguity and the potential for unwarranted subjectivity.*	This recommendation is being considered as we undertake the review of various programmes, prior to the launch of new calls.	Ongoing

	Ethical and Integrity considerations Any proposal which contravenes fundamental ethical or integrity principles may be excluded at any time of the peer review process.		
13	*Where applicable, SFI should specifically invite reviewers to comment on the use of animals in research projects and include a space in the application form for applicants to specify animal numbers with brief justifications.*	SFI has published a new policy on the use of animals in research which addresses this recommendation.	Complete
14	*Where applicable, SFI should specifically invite reviewers to comment on the use of human subjects or patients in research and include a space in the application form for applicants to justify the inclusion of human subjects or patients.*	SFI has published a new Clinical Trial Policy in Q2 2016 which addresses this recommendation.	Complete
	Efficiency and Speed The end-to-end evaluation process must be as rapid as possible, commensurate with maintaining the quality of the evaluation, and respecting the legal framework. The process needs to be efficient and simple.		

| 15 | *The Group recommends that SFI continue to explore ways of further shortening the review process, although the Group does not have specific recommendations on how to do so. The Group recognizes that the IvP 2014 process was made shorter than the IvP 2013 process by having the short and long form of the applications submitted at the same time but this seems to create additional work for applicants and, as noted by one of the applicants interviewed by the Group, means that the long-form applications do not benefit from the feedback provided by reviewers of the short-form applications. The Group believes that optimizing the approach is likely to be best achieved through the dialogue that SFI maintains with Research Organizations and other members of the research community.* | **IvP 2016**
The proposed process for IvP 2016 will reduce the review time as the Stage 1 review step has been eliminated. The review of scientific aspects will be completed in the same time window as impact aspects and thus will not add any time onto the process. The new process for IvP is expected to reduce the review time from 46 weeks (IvP 2015) to 39 weeks.

The streamlining of review processes for other programmes is being considered by the Programmes Directorate while ensuring that quality is not compromised. | Ongoing |

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