Howyland

In the world of academic science, an enormous amount of time and money is wasted on the compilation, evaluation and administration of research grants. An even greater waste is that of scientists who fail to get onto the funding ladder in the first place, or who drop off in mid-career, never to return. Academics who fail in this competition find themselves redeployed into teaching the material that nobody else wants to teach, into administrative functions that their colleagues hold in the deepest contempt or into lower grade jobs or unemployment.

The measurable return for investment in research may be substantial, but the system is inefficient and, in many ways, inhuman. Most scientists—especially the most successful ones—must devote an increasing proportion of their time to the review of proposals that have only a low chance of being funded. Those at the start of their career waste just as much time writing them. Here, I consider three alternatives by which research money could be distributed more fairly and efficiently.

(i) Random allocation: think how much time could be saved if peer review was simply abolished. Those employed in funding agencies to administer the peer-review process could all be replaced by a random number generator. This would substantially increase the total funding available for research. The downside is that the quality of science would plummet. Nobody in their right mind would adopt such a system. However, before the advent of the European Research Council (ERC), those of us who applied—and were sometimes even funded—by the old-style EU grants, strongly suspect that random selection was used to decide who got the money.

(ii) Funding based on past achievement: if we assume that the most reliable indicator of future success is past success, we could again save all the hassle of peer review by

making such a principle the explicit basis of all funding decisions. Past productivity can easily be measured. However, this has obvious drawbacks. To get funded in the first place, a young investigator would have to have excelled as a postdoc. But any such success would be largely that of the mentor. Young investigators also could not compete with established investigators, so a career age multiplier would have to be built in. We would end up with just another complex system laden with anomalies. Senior investigators who hit a lean patch, perhaps through no fault of their own, would lose their grant and stand no chance of ever regaining it. A further drawback is that such a system discourages innovation. From the viewpoint of most applicants the system would just ‘reward the usual suspects and I haven’t a chance’. Some may think this is already how things work.

(iii) Graduated funding: a simple, performance-related funding system would give everyone a fair opportunity to succeed and avoid the major discontinuities of support, which characterize the present system. It could even incorporate a premium for risky, ground-breaking projects, as pioneered by the ERC. The ERC system is not perfect—it has no provision for long-term funding and gives out very large grants for starting investigators, who may not be well placed to attract talented postdocs to make best use of them. The system I would operate in Howyland would still open significant funding opportunities for young investigators, but on a more realistic basis.

My first priority would be to ensure that there was enough support to go around for young principal investigators (PIs), such that almost all of those appointed to academic posts in research-oriented universities and institutes on the basis of a sound postdoctoral career could land substantial first grants, at least on their second or third try. A major criterion for funding at

this stage would be an ambitious but feasible project, incorporating a detailed and well-argued research plan.

Once on this grants ladder, scientists would be assured of long-term funding related to performance. Importantly, nobody would ever lose their grant, nor would they suddenly be landed with millions that they cannot properly use. Each funded PI would have to submit a short report every three years, describing the output of their research, and setting out their plans for new approaches to the problem, or entirely new directions based on preliminary data.

Peer review of these reports would not lead to an ‘all-or-none’ funding decision. A simple scoring system, with appropriate weighting for past productivity and novelty of future plans, and calibrated to the available funding, would lead to one of three outcomes. Research that was proceeding satisfactorily would be refunded at the same level with adjustment for inflation. Excellent outcomes would justify a funding increase of up to 50%. PIs performing significantly below the level of expectation would suffer a funding cut of 25%. Over time, those who were unable to do anything useful would see their funding dwindle to very little, yet not to nothing. It would still suffice to support a part-time research assistant or a couple of summer students, hopefully to initiate new research lines that might one day succeed. Successful labs able to capitalize on their success and remain competitive would see an exponential growth in funding.

Such a system would alleviate much of the unfairness of current funding schemes and give young researchers at the beginning of their careers a fair chance to compete with the established labs. Unfortunately, Howyland does not yet exist.

Howy Jacobs

EMBO reports (2013) 14, 481; doi:10.1038/embor.2013.57