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Use of multimedia in grant applications

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The Problem: Researchers and funding organizations are struggling with the ever increasing time and effort needed to prepare and review grant proposals. Ioannidis argued in *Nature* that burdensome funding systems mean that “scientists don’t have time for science any more”. We estimated that Australian researchers invest an average of 38 days preparing each new NHMRC Project Grant proposal, and 28 days on a resubmission. Based on anecdotal data and the similarity of the systems, we believe that ARC Discovery Project time burdens are similar. In 2017, Australian researchers submitted 3,136 ARC Discovery Project Grant proposals and 3,345 NHMRC Project Grant proposals. Assuming a conservative time of 28 working days per proposal, Australian researchers would have invested around 500 years preparing these proposals in 2017. Time is also needed to review proposals and in 2011 we estimated that \$1,700 dollars of reviewer time is needed to review a project grant proposal, giving an estimated \$5.6 million in review costs for NHMRC Project Grants alone. Despite the enormous investment by applicants and reviewers, estimates are that for one-third of grant proposals, success is somewhat random because of the variability among peer reviewers.

Necessary Change: The grant preparation and review systems must improve to address the current challenges. Funding allocation should remain merit-based, but preparing proposals should be less burdensome. Written proposals are often dense and tiring to review. The proposal format should engage reviewers and clearly contain the detailed information needed to assess the proposal’s feasibility, novelty and impact.

Possible Solution: Recently we argued in *Nature*, *Trends in Biochemical Sciences*, a Cell Press Video and Nature Index that an effective mechanism to enhance communication between applicants and reviewers was through video. Researchers routinely prepare PowerPoint presentations for conferences and record such presentations as lecture material. PowerPoint presentations with voice recordings are a logical potential alternative to written project descriptions. Such videos may be highly effective at transferring the key ideas from the minds of the authors to the reviewers, leading to better decision-making. This talk will outline our preliminary data and discuss the merits of trailing 15-minute PowerPoint presentations, with voice recording, as an alternative to traditional text-based grant applications. We reason that this approach will enable more effective and efficient communication and more reliable ranking of proposals than current written grant project descriptions.

Recent Publications

1. Ioannidis J P A (2011) More time for research: fund people not projects. *Nature* 477(7366):529-531.
2. Herbert D L, A G Barnett, P Clarke and N Graves (2013) On the time spent preparing grant proposals: An observational study of Australian researchers. *BMJ Open* 3(5).
3. Graves N, A G Barnett and P Clarke (2011) Funding grant proposals for scientific research: retrospective analysis of scores by members of grant review panel. *BMJ* 343:d4797.
4. Doran MR, W B Lott and S E Doran (2014) Communication: Use multimedia in grant applications. *Nature* 505(7483):291.
5. Doran MR, W B Lott and S E Doran (2014) Multimedia: A necessary step in the evolution of research funding applications. *Trends in Biochemical Sciences* 39(4):151-3.

Biography

Michael Robert Doran completed a BSc (Genetics) and BEng (Chemical) at the University of Alberta in Canada. As an Engineering graduate he worked as a Project Manager for Exxon/Mobile where he directed the development of heavy oil fields in Northern Alberta. He relocated to Sydney, Australia and undertook a PhD in Biomedical Engineering at UNSW (graduation 2006), contributing to the development of a now commercialized bioreactor for stem cell expansion (marketed as the Quantum Bioreactor, TerumoBCT). He then completed a combined Postdoctoral Fellowship at the University of Queensland and Mater Medical Research Institute. He is a National Health and Medical Research Fellow and an Associate Professor at the Queensland University of Technology (Australia). Currently his laboratory is located at the Translational Research Institute (TRI) on the Princess Alexandra Hospital campus in Brisbane. His group’s multidisciplinary research interests include the study of bone, bone marrow, cartilage, and cancers that metastasize to the bone.

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