

## The power of synergies in research

**In the current global financial crisis, governments are likely to consider re-prioritising funding for public science. One area that they should avoid cutting is funding for international research collaboration.**

Funding for this area is – of course – vitally important, as coordinated research efforts minimize wasteful duplication and maximize benefits of scale, scope and speed, allowing international research collaboration to play a key role in addressing major challenges such as climate change and energy security. Governments are aware that international research cooperation tends to be more frequently cited (i.e. is more ‘productive’) than average and often addresses major global challenges to which governments themselves seek coordinated responses via diplomatic channels. Consequently, funding cuts may selectively impact on less competitive areas – the ‘slack’ in the system.

Partly because of the previous point, international collaboration is increasingly treated as being part of the core mission of research rather than a footnote to it (for example, recent changes made by the Australian Government to ARC, CSIRO, and CRC program funding). Institutions with concentrated excellence-driven research funding (provided it is concentrated on the basis of excellence) are well positioned to fund collaboration with international peers as part of the ‘core business’ of doing their research. In many areas of research there is tremendous potential to link, and therefore exploit, the synergies between existing research programmes. Indeed, the research proposals that score well in peer-review funding allocation mechanisms frequently contain an international collaboration dimension.

Since the early 1970s and for obvious political reasons, Europe has led the way with **COST Actions** – mechanisms for exploiting useful synergies between existing national research projects (see [www.cost.esf.org](http://www.cost.esf.org)). The idea behind COST Actions is to fund the additional transaction costs associated with researchers coordinating their research, sharing results and developing generic tools and methods (such as formal standards) that have collective benefits. Particularly during times of budget cutbacks, these research coordination and synergy-based ‘actions’, with their potential to leverage the research we are already funding, and to do this internationally, are a useful model for sustaining international research collaboration. In other words, funding the international coordination transaction costs is a cost-effective leverage mechanism.

The low risk strategy for researchers seeking to sustain international collaboration during the global financial crisis is to prosecute a two-pronged approach of: a) treating international cooperation as integral to research rather than an optional extra (i.e. absorbing the transaction costs internally); whilst also b) seeking to develop effective multilateral mechanisms for linking together and exploiting the synergies between existing research programmes in different nations.

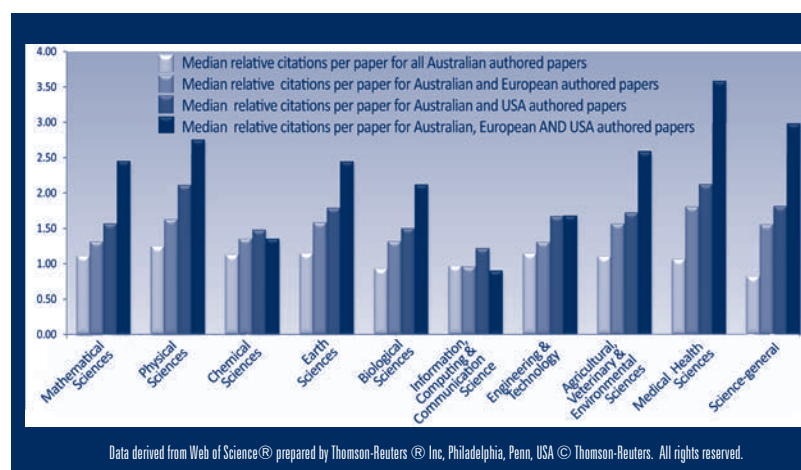
These approaches are not new, they are already well-established best practice for effective research teams - they provide a basis for ‘self-reliant’ approaches to international research collaboration. By mainstreaming international collaboration in the core business of research in this way, without the necessity of accessing (always limited) dedicated funding for international collaboration, a sustainable operating model is possible.

For Australian researchers, a major advantage of this approach is

that as potential partners they are of lower risk for prospective overseas collaborators. There is (by intent) no need to rely on additional targeted external funding to actually collaborate internationally, which avoids familiar pitfalls experienced when relying on (hard to get) additional funding. This is a particular advantage in collaborations with researchers in the EU’s **Seventh Framework Programme** (FP7) because Australian participation in FP7 is hard for those that rely on dedicated external funding. An additional advantage is that leveraging existing research via international cooperation allows assessing and learning how to manage the particular types of risk faced in such collaborative work. This in turn places Australian researchers in a better position to make the best use of any additional dedicated funding that may become available to support international collaboration in the future – based upon a demonstrated track record of success.

Not surprisingly, this self-reliant model is already well-established. It means that statistics on the funding allocated by governments to support international research cooperation by no means reflect the real importance of research cooperation - just the tip of the iceberg. Partly for this reason FEAST has started to map patterns of international research collaboration by tracking the incidence of internationally co-authored publications. The first of FEAST’s Discussion Papers examining these issues has just been released, and is free to download.\*

The initial results of this mapping work (using Thomson-Reuters citation data) indicate that whilst bilateral collaboration between Australia located and Europe located authors is associated with improved citation rates, in most research fields multilateral collaboration that also includes US based researchers is associated with even better citation performance. This can be grasped in the figure below.



Data derived from Web of Science® prepared by Thomson-Reuters® Inc, Philadelphia, Penn, USA © Thomson-Reuters. All rights reserved.

This pattern applies to most research fields (note, however, that results for Information, Computing and Communication Science are not robust because these areas are not well covered by this data source).

Perhaps it is time to look into designing innovative new multilateral mechanisms for coordinating and exploiting the synergies between existing research - worldwide. Whilst the cooperation architecture and associated governance challenges would be significant, the ability to sustain international research cooperation in key thematic areas during the financial crisis is a pretty useful outcome.

\* [www.feast.org/document.php?ID=1](http://www.feast.org/document.php?ID=1)