

The Australian Research Council

28<sup>th</sup> September 2020

Re: ERA EI Review

Dear Madam/Sir,

I am pleased to provide the following comments and suggestions. In order to put them in context I note that in my career I have held an ARC Special Investigator Award, an ARC Senior Research Fellowship and an Australian Laureate Fellowship, I was Director of an ARC Special Research Centre, Deputy Director of an ARC Centre of Excellence and am currently a CI on another ARC Centre of Excellence. For six years (2004-2009) I served as Chief Scientist at a major US Department of Energy nuclear physics laboratory. My comments are primarily based on experience in science rather than humanities. These comments are personal and are not meant to represent those of the University of Adelaide.

The present ERA does identify excellent research. However, it is far too mechanistic, too reliant on IT and very wasteful. I estimate that Universities have spent in excess of a billion dollars (possible several billion) in responding to the demands of ERA, while the promised level of additional support for those found to be truly excellent has never materialised.

Having served on an ERA panel for one year I was astonished that it was almost impossible to exercise personal judgement. For example, I found it ludicrous that it was forbidden to actually read a publication. The rankings were almost totally driven by the computer programs that summed citations, number of papers and international comparisons. Surely in judging excellence it does not matter if an author has a number of publications that are not highly cited, they may be generated by students primarily for educational purposes, they may be ahead of their time, not in a currently hot area and so on. Yet an area is automatically marked down on the percentage of low-cite publications.

I am well aware of examples of researchers who claim to be brilliant but publish little or have no publications which are well cited. Quantitative input is important. However, so is human judgement, informed but not driven by that input. The British system of asking researchers to submit a small number of their best publications over a number of years and having expert referees study those papers and provide considered judgement of them has much to recommend it. Such peer assessment informed by the broader quantitative analysis would provide a much more balanced and fair assessment.

Rather than assessing universities by ANZSRC code alone, it would be better to base evaluations by code at the Department level. As an example, poor papers in a code area in Science should not degrade the recognition of excellent work in the same code in Engineering. In addition, the current codes are often meaningless. For example, combining Optics, Nuclear Physics, Particle Physics and Plasma Physics into one code is ridiculous.

These areas have little in common. Another example worthy of comment is Quantum Physics, that it has its own code is equally inappropriate. That area internationally is often known for crack-pot papers, whereas serious groups in the United States working in this field would usually publish in Optics and Molecular Physics journals. That is where serious Quantum Physics papers should be judged.

I note that the consultation paper requested comment on whether the ERA identifies emerging research opportunities. Clearly it does not. Even worse and moving beyond ERA, in our system I have seen no process which identifies areas of emerging importance or areas where, as a nation, we need strength but do not have it. Such issues seem to be left entirely to chance and the internal politics of individual universities. Given the lack of support for research in universities it is almost unimaginable that a university would take on the considerable cost of establishing a new area of scientific research at the present time without some promise of new external support.

I have less experience of the EI process but that does appear to be less demanding of university resources while yielding important information.

In summary, while the current ERA does identify areas of strength it is too demanding of scarce university resources that could otherwise be used to support research; it is too reliant on judgement by computer code and does not use meaningful peer review. The ERA has never lived up to its original promise of providing a significant increase in the level of financial support for those areas identified as truly outstanding. It would be wonderful to see the current review deliver meaningful reform that remedies these deficiencies.

Yours Sincerely



Anthony W. Thomas