



Science & Technology AUSTRALIA

Australian and New Zealand Standard Research Classification Review

7 June 19

To the Australian Research Council,

Thank you for the opportunity to provide input on the Australian and New Zealand Standard Research Classification Review 2019.

Science & Technology Australia (STA) is the peak representative body for more than 75,000 scientists and technologists in Australia through our member organisations including associations and societies, research institutes, and research leadership and strategy bodies such as councils of deans.

STA has carefully examined not only the current classifications standards, but also how they are implemented within the research sector in Australia. This classification system faces constant challenges, with the changing nature of research and an increasingly inter-disciplinary focus. Overall, the hierarchical nature of both the Fields of Research (FOR) and Socio-Economic Objectives (SEO) are effective, but STA has suggested some updates to reflect the changing nature of research nationally and internationally.

In preparing this submission, STA surveyed members from each of our 12 discipline clusters to identify possible improvements or augmentations to the Fields of Research codes and the Socio-Economic Objectives.

We believe it's important for Australia to continue to work towards alignment with the OECD through adoption of definitions and terms from the Frascati Manual, especially for high-level classifications such as the Type of Research category.

Along with specific changes to the FOR codes suggested below, STA has also outlined:

- STA recommends that the current Types of Activity be maintained however when reporting to international bodies like the OECD, basic research and strategic-basic research be considered under a single category as per the *Frascati Manual 2015 ToA*;
- The introduction of new Groups within the Expanding Knowledge division of the Socio-Economic Objectives; and
- The maintenance of the 10-year systemic review schedule, and opportunities every five years to submit new areas of research.

Kind regards,



Professor Emma Johnston AO

President, STA



Kylie Walker

Chief Executive Officer, STA

ANZSRC Principles – their application

It is important that the application of the Australian and New Zealand Standard Research Classifications is consistent and universal among Australian and New Zealand Institutions.

During our consultation, STA identified that additional to a review of the codes themselves, a more comprehensive guide on how to apply them should be developed for more effective application of ANZSRC. Such a guide would be useful to both researchers that have to classify their work, and to organisations that utilise these codes.

Inter-disciplinary research is increasingly commonplace in research and development, and as a result the application of these codes can vary depending on the interpretation of the organisation using them. Clear guidelines would be useful to prevent inconsistencies and improve understanding.

This guide should also provide best-practice examples on classifying interdisciplinary research through the use of multiple codes. This guide would also suit the “Fit for purpose” principle that is outlined in Section 2 of the discussion document¹.

ANZSRC Classifications

Type of Activity

The current definitions of the Types of Research Activity (ToA) pose a challenge around how they align with the international standards outlined in the Frascati Manual 2015 ToA². STA considers it important that Australia reports research activity consistently with international standards while maintaining a system that effectively describes research projects.

According to the definitions outlined in the discussion paper³, experimental research and applied research appear to sufficiently match the definitions outlined in the Frascati Manual. These definitions should therefore be maintained within the standard research classifications.

Difficulty lies within the use and definition of “basic research” and “strategic-basic research”, which are not aligned with those in the Frascati Manual. These definitions allow the Australian research system to differentiate “pure basic research” from basic research that is undertaken in strategic areas, which is important to maintain. However, the difficulty lies in maintaining the current system while being able to accurately and meaningfully report research activity consistent with the requirements of organisations such as the OECD.

¹ [“Discussion Paper: Australian and New Zealand Standard Research Classification Review”](#)
Australian Research Council, 2019

² [“Frascati Manual 2015”](#) OECD, 2015

³ [“Discussion Paper: Australian and New Zealand Standard Research Classification Review”](#)
Australian Research Council, 2019

The most efficient way to ensure the system retains the same level of detail while allowing for efficient and effective international reporting would be to allow researchers to identify their work as being basic research or strategic-basic research. Reporting bodies could then combine basic research and strategic-basic research when reporting, allowing for international comparisons.

STA recommends that the current Types of Activity be maintained however when reporting on an international level basic research and strategic-basic research be considered under a single category as per the Frascati Manual.

Fields of Research

STA considers the current Fields of Research Hierarchy and its structure to be fit for purpose. The current system strongly aligns with corresponding Fields of Education and any changes to this system and their impact on other sectors must be considered carefully. For example, university researchers are categorised by their Field of Education⁴ rather than their field of research, but the research they undertake is classified under the field of research. It is important to remain clear that these determinations are separate and belong to two different standards.

The suggestion of adopting a top level ‘one digit’ classification (similar to the sector level within the SEO’s) would hinder the definition of interdisciplinary research. Aggregation of codes under a ‘one digit’ code also risks misuse of this data which is already a challenge for reporting of employment data within STEM. STA is concerned that the inclusion of another layer in the FOR hierarchy would not achieve any benefits whilst risking oversimplification when analysing the research sector.

Criteria

The proposed criteria within the discussion paper (publication practices, research methodologies) are either too broad in their application (in the case of research methodologies), or actively undergoing shifts, making them unsuitable criteria for long term classification (in the case of publication practices, for example).

STA is equally concerned that using criteria such as methodology may encompass too many fields of research and therefore be too broad to be effective in classifying research. For example, histological techniques can be found within medicine and biology, while statistical research and techniques cover almost all fields of research outlined by the code.

STA considers the most effective way to determine the type of research is through the self-reporting of researchers, informed by the advice and definitions provided by bodies such as the Australian Research Council.

Social determinants of health (impacts of race, gender, etc.) – Not all diseases are the same in symptoms, severity and required treatment depending on individual characteristics. Gender and racial bias in medical research can result in poorer

⁴ [“Australian Standard Classification of Education”](#) Australian Bureau of Statistics, 2001

patient outcomes and treatments that are not always appropriate⁵. Research and re-evaluations are being undertaken to examine how existing medical research findings can be broadened (i.e. taking lessons from countries like the US⁶ where there is a requirement to include both men and women in studies). This needs to extend to all medical research on treatments where variability between genders and race has an impact⁷. While some of the gender-specific research may fall under 1114 Paediatrics and Reproductive Medicine, there are gender and racial issues that extend beyond reproductive medicine.

STA recommends a new Division within health called Gender and Racial specific health.

New Division covering Translation – Applied research acts as a useful categorisation for Type of Research, but it is also worth considering an additional code to incorporate the growing field of research into the translation of knowledge into applicable outcomes, decision science, implementation science and knowledge methods. While there are some FOR codes that may apply (160508 Health Policy & 160511 Research, Science and Technology Policy) a specific field of knowledge translation extends beyond policy to include psychology, planning, data analysis and content knowledge.

STA recommends the creation of a new Division that covers research on the translation of research into outcomes (including decision science, implementation science and knowledge methods).

Incorporating Indigenous Knowledge and indigenous FOR codes

Indigenous business and industry – research that specifically applies to Indigenous research, business and industry is not represented. Different cultural priorities result in business practices that vary from non-indigenous business practices. This an area of research should be included within the FOR codes⁸.

STA recommends including Aboriginal and Torres Strait Islander Business and Industry

Incorporating Indigenous Knowledge – The value of traditional knowledge and its application is not covered by the ANZSRC. Recently, for example, there has been formal recognition of the applications of Indigenous knowledge in fields such as ecology and astronomy⁹, and the current classifications do not capture this.

STA recommends the creation of a new code that captures incorporation of Indigenous knowledge.

⁵ [“The medical research gender gap: how excluding women from clinical trials is hurting our health”](#) The Guardian, 2015

⁶ [“New bill aims to end bias against women in clinical trials”](#) Huffington Post, 2014

⁷ [“Sex bias in trials and treatment must end”](#) Nature, 2010

⁸ [“Indigenous Business Growth”](#) Supply Nation, 2018

⁹ [“The Crossroads: Aboriginal Knowledge & Modern Science”](#) The Royal Society of Victoria, 2018

Review of Codes

A search through the ARC grants database has shown that there are some fields of research that are no longer active. For example, Forensic Statistics (010403) has not had a successful ARC grant since 2001 and should be considered for merging into the more general Statistics not elsewhere classified field (010499)¹⁰. The ARC grants database only shows successful grants however and it would be ideal for the ARC to review submitted grants for activity and remove or alter codes accordingly.

STA recommends that the ARC and NHMRC grants databases be used to assess those fields that are no longer active and incorporate the codes into the more general Group Codes

Inter-disciplinary research

Defining and categorising inter-disciplinary research continues to be a challenge for the research sector in Australia. For the majority of organisations that require the classification of research inter-disciplinary research is defined through the selection of multiple FOR codes and assigning a percentage score to each code which is covered by the research.

STA supports the use of multiple codes to identify inter-disciplinary research. The current technique is to apportion the fields of research in inter-disciplinary research through the use of percentages. This is a transparent and effective way of measuring inter-disciplinary research without adding extra impost on researchers. STA supports the current methodology for assessing and reporting inter-disciplinary research.

Socio-Economic Objective

STA supports the division, group and objective structure within the socio-economic objectives. The increasingly multi-disciplinary nature of research in areas such as climate change sees impact achieved in not only the environment sciences, but significant impacts on society, economic development and unexpected fields like defence too. This suggests that a more comprehensive division list without a single sector code would be a more effective approach to measuring socio-economic objectives.

The Expanding Knowledge subsection should also be enhanced so that instead of a catch-all for research that does not fall within the other Socio-Economic Objectives, it could be used to provide further information as to the types of knowledge expansion that will be achieved. The 'expanding knowledge' division should include:

- Strategic expansion of knowledge;
- Research methodologies;
- Pure knowledge expansion;
- Meta-analysis; and
- Experimental replication

These socio-economic subdivisions will provide more information on the work being done within the 'expanding knowledge' division and also help identify research being undertaken to improve the research system itself – something that is not covered.

STA Recommends the introduction of new Groups within the Expanding Knowledge division of the Socio-Economic Objectives including:

- **Strategic expansion of knowledge;**
- **Research methodologies;**
- **Pure knowledge expansion;**
- **Meta-analysis; and**
- **Experimental replication**

Implementation

STA members have raised concerns about the ability to describe interdisciplinary research using the current ANZSRC.

These concerns are not a result of the ANZSRC codes themselves but how they are used by other organisations when categorising or assessing research. As part of using these codes to classify research STA thinks there should be strong recommendations by the Australia Research Council to allow for the nomination of multiple FOR and SEO codes by all organisations.

The need for long-term analysis of trends in research means that STA considers the current 10-year review cycle to be adequate for the ANZSRC. However, we are somewhat concerned that a cycle of this duration might fail to adequately capture and respond to emerging areas of research, leaving Australia at a potential disadvantage.

While it's not necessary to hold a more regular systematic review, there should be a mechanism to more regularly provide opportunities to consider new areas of research for inclusion.

STA recommends the maintenance of the 10-year systemic review schedule, and opportunities every five years to submit new areas of research.